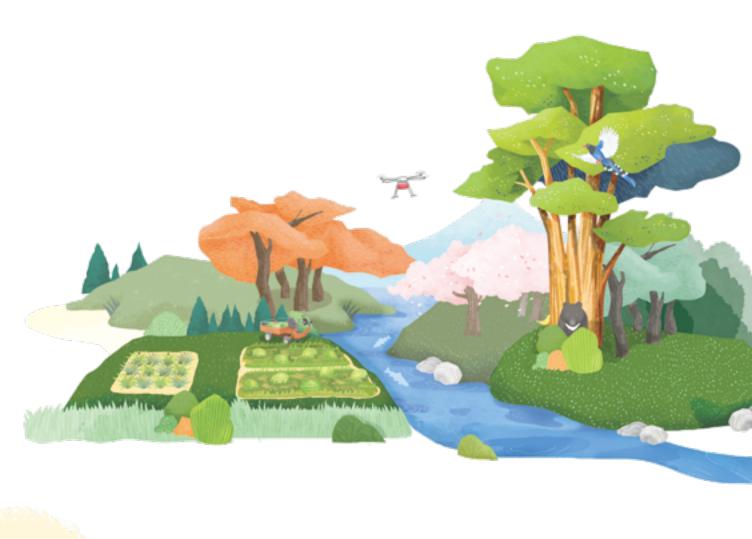




2023 Annual Report



Preface

The year 2023 was extraordinarily meaningful for the agricultural sector in Taiwan. It had been 35 years since the call by protesting farmers to "establish a Ministry of Agriculture" in the May 20 farmers' movement of 1988, and with the commitment and support of various sectors of society, the "Organization Act of the Ministry of Agriculture" was finally enacted in May of 2023. As of August, the former Council of Agriculture of the Executive Yuan became the Ministry of Agriculture (MOA). Not only did this step finally fulfill the longheld hopes of farmers and fishermen, it also demonstrated how seriously the government considers agricultural development to be. It highlights the determination to protect farmers and fishermen, create a resilient agricultural sector, and guide the sound and sustainable development of agriculture in Taiwan.

Facing the increasingly severe challenge of climate change in recent years as well as rapid changes in the international political and economic situation, and in order to steadily resolve long-term structural problems facing agriculture, the

MOA has continued to refine agricultural policies and administration. In recent years we have adopted many important policies and measures, including refining the farmers' welfare system (comprised of three insurance programs and one pension program), promoting the "Green Environmental Payment Program," expanding the "Payments for Ecosystem Services for Endangered Species and Critical Habitat Promotion Program," adjusting the rice industrial structure, expanding cultivation of miscellaneous staple crops, increasing the use of domestically produced traceable ingredients in school lunches, adapting to climate change, promoting net-zero carbon emissions from agriculture, completely suspending vaccinations for classical swine fever, strengthening the nationwide coldchain logistics network for agriproducts, escaping over-reliance on a single export market, and successfully exporting agriproducts to markets with high consumer spending. We have thereby upgraded the overall competitiveness of Taiwan's agricultural sector. Important achievements in 2023 included the following:





Completing the farmers' welfare system, expanding care for the well-being of the rural population

The MOA continued to refine the farmers' health insurance (FHI) system and increased payments under this insurance. On February 10, 2023, the monthly insured amount was doubled to NT\$20,400, while maternity benefits were tripled to NT\$61.200 and the funeral and interment allowance was doubled to NT\$306,000. Farmers' occupational accident insurance (FOAI) continued to cover new items from occupational injuries to farmers' occupational diseases, while the range of eligible persons was expanded and the number of people enrolled in FOAI surpassed 330,000. Moreover, since December 1, 2023, persons applying to join FHI have been seen as simultaneously applying for FOAI. We also expanded agricultural insurance. In 2023 we added new policies for in ovo avian influenza, and reassessed and refined 11 policies; we now offer 43 types of policies on 27 items, with a coverage rate of 51%. We also built up the farmers' pension scheme, with more than 103,000 beneficiaries paying into the system, for a coverage rate of 30%.

The MOA also continued to promote the "green care in agriculture" program for farming and fishing communities, guiding 121 farmers' and fishermen's associations to set up 210 green care demonstration stations. These provided diversified learning services, mutual aid, shared meals, and care services. We have guided 165 rural communities to commit to green care, offering green food and beverage supply, launching green therapy classes, and training rural green caregivers who can spend time with the elderly. The MOA expanded food delivery services for the elderly, arranged for sales outlets to offer low-priced boxed meals, and set up special areas for "Cherished Choices" food at farmers' association websites or supermarkets and sales centers, with

people benefitting more than 5 million mantimes.

Improving agricultural infrastructure, strengthening the resilience of industrial operations

The MOA has laid the foundations for sustainable agricultural development, starting with conserving farmland and ecological resources. We have used stacked valueadded to promote the "Green Environmental Payments Program," incentivizing maintenance and production on high-quality farmland. As of the end of 2023, 430,000 hectares (ha) of land participated in this program. We also continued the "Payments for Ecosystem Services for Endangered Species and Critical Habitat Promotion Program," working with local residents to protect endangered species and important habitats; so far this has been implemented on over 2,000 ha. To cope with worsening extreme weather, the MOA has systematically built irrigation facilities, with more than 56,000 ha and over 80,000 households benefitting. We have also developed adaptation technology to make crops more resistant to heat and extreme weather while breeding stress-resistant varieties. Across Taiwan 2,162 ha of reinforced greenhouses have been built to reduce operational losses to agriculture. The MOA has not only taken adaptation actions, we have proactively worked to mitigate the impact of climate change, working around the axes of reducing greenhouse gas emissions, increasing carbon sequestration capacity, circular agriculture, and green trends. Step by step we have promoted the work of net-zero carbon emissions in the agricultural sector and built sustainable operating models for agriculture.

In 2023, the MOA also continued to prevent major animal and plant diseases, including keeping African swine fever (ASF) at bay, so that Taiwan and Japan are the only two countries in East Asia free of ASF; initiating the cessation of vaccinations for sheep and goat pox, with the World Organisation for Animal Health recognizing,

on December 19, 2023, Taiwan's selfdeclaration to be a country free of sheep and goat pox; and initiating the complete cessation of vaccinations for classical swine fever on July 1, 2023 as we move toward becoming the only country in Asia free of the three major swine diseases. We also strengthened management of the pet industry, adopting laws and regulations to soundly develop pet-related industries such as pet foods, pet products, dog and cat grooming services, and pet insurance. The MOA also established a system of graded management for pets, produced pet care guidelines, and improved citizens' understanding of pet raising. Meanwhile, we built a transparent management system with tracking information for the commercial purchase and sale of pets, strengthened animal protection and the safety of the public, and continued to establish an animal-friendly society.

Under the principle of equal importance for production and conservation, the MOA promoted sustainable forest management and nature conservation, co-management of mountain forests with local communities, and implementation of regional operational management of forest land. The MOA moreover continued to promote the underforest economy, creating NT\$36 million in economic benefits for mountain and indigenous communities. We also enhanced ecosystem and habitat spatial planning for all of Taiwan's land, adhering to the goals of the United Nations' Convention on Biological Diversity. The MOA promoted effective protected areas for terrestrial organisms; public-private cooperation to expand the primitive environment of forests; strengthening of habitat, species, and ecolandscape conservation; and the enjoyment by all citizens of the services value of forest ecosystems.

Stimulating stable industrial progress, creating sustainable agriculture

The MOA continued in 2023 to promote the policy of encouraging farmers to "choose three crop seasons out of four for cultivating

paddy rice," guiding farmers to switch over to non-rice crops or leave their land fallow in the fourth season, thereby adjusting the rice industrial structure. About 222,000 ha of land were cultivated with paddy rice in all of 2023, mitigating the long-standing problem of rice overproduction and stabilizing rice prices. Over the last two years, the price of wet rice in production areas stayed at over NT\$1,000 per 100 Taiwanese catties (60 kilograms), reaching as high as NT\$1,300 in some areas in the second crop season of 2023, the highest price ever. In addition, to increase the supply of miscellaneous staple crops (MSCs) and expand cultivation of such crops, we continued to promote the "Big Granary Project," guiding the establishment of domestic MSC production groups covering 10,000 ha.

Moreover, to ensure the quality of Taiwan agriproducts from farm to table, the MOA continued to promote organic agriculture and eco-friendly farming, covering a total area of 24,000 ha, accounting for 3% of agricultural land in Taiwan. We have also signed organic equivalency agreements with seven countries, thereby creating new commercial opportunities in foreign markets. The MOA also expanded promotion of the Traceable Agricultural Products (TAP) system and enhanced the firmness of its management, with certified area exceeding 90,000 ha.

In order to ensure the safety of ingredients in school lunches, the MOA strengthened promotion of the use of certified agriproducts in schools, requiring the use Taiwan Organic or TAP-certified peanuts, azuki beans, sweet potatoes, and frozen baked sweet potatoes. As of the end of 2023, 98.3% of registered lunch ingredients used in cities and counties across Taiwan were traceable products with Three Labels and One QR Code certification marks, thereby enhancing the safety of agriproducts. In addition, the MOA implemented the "Food and Agricultural Education Act," guiding local governments to develop food and agricultural education (FAE) systems focusing on local characteristics. FAE was promoted in more than 3,800 schools, with more than 3.5 million participants in related activities, and the coverage rate of FAE curriculum integration reaching 100%. We have also constructed an integrated platform for FAE-related information, providing information about FAE laws and regulations, activities, teaching materials, curriculums, and venues.

In 2023 the MOA also continued to guide the comprehensive transformation and upgrading of the pig-raising industry. We introduced new-type integrated pig buildings and related facilities and assisted slaughterhouses to get HACCP certification, while also guiding upgrading of cold chains for meat products and strengthening the foundations for Taiwan's pig industry to advance towards finding commercial opportunities in high-end markets worldwide. The MOA also built safe and multi-functional fishing ports, worked on the special construction project for the Qian-Zhen Fishing Port (completing the multi-functional crew services center), and promoted an action plan for simultaneous promotion of the fisheries industry and human rights in order to enhance human rights in the fisheries industry and demonstrate Taiwan's determination to fulfill its international responsibilities. We furthermore promoted construction projects for the Woo-Chi Fishing Port Fish Market, Badouzi Fish Market, and the fish offloading venue at Yanpu Fishing Port, to contribute to stabilizing the balance of production and sales of aquatic products and enhance sanitation and quality.

In addition, to strengthen the production-and-marketing system for domestic agriproducts, the MOA continued to promote measures including cold chains, processing, and domestic and overseas marketing. We created a national agriproducts cold-chain logistics network; established flagship and regional cold-chain logistics centers; upgraded inspection, quarantine, and handling venues for export products; improved low-temperature equipment at wholesale markets; and guided farmers and agribusinesses to improve their production-and-marketing supply systems. The MOA linked together cold-chain projects in 500 locations nationwide and bolstered the flexibility of production-and-marketing

(supply and demand) adjustment measures. At the same time, we enhanced the quality of agriproducts for export. In recent years Taiwan's agricultural sector has successfully escaped the risks of over-reliance on a single market, and the US and Japan have become Taiwan's top two export markets. Taiwan's fruit exports are mainly driven by markets with high consumer spending, with the Japanese market accounting for the largest proportion. In 2023 there were major increases in agriproduct exports to markets including the US, Canada, Australia, New Zealand, and Korea. Through a transition to marketing to countries with high consumer spending, the MOA has expanded agriproduct exports and diversified export markets.

Faced with internal and external challenges, the MOA has continued to adjust agricultural policies on a rolling basis. In accord with the ideal of "Happy Agriculture, Happy Farmers" articulated by President Lai Ching-te, and building on the foundation of the "New Agriculture" policy, we will develop new strategic thinking about agriculture and promote strategies for building a "Smart, Resilient, Sustainable, and Healthy" agriculture, linking agriculture with such technologies as for smart production and digital services. The goal is to comprehensively enhance the resilience of the agricultural sector, ensure orderly production and marketing, and upgrade the competitiveness of agricultural industries. In our new incarnation as the Ministry of Agriculture, we look forward to comprehensively promoting agriculture in Taiwan, providing robust support for farmers and fishermen, and putting into practice the vision of "transforming agriculture in Taiwan into a sustainable and resilient sector and making farming in Taiwan into an occupation with a high level of professionalism."

Junne-Jih Chen

Minister
Ministry of Agriculture
June 2024

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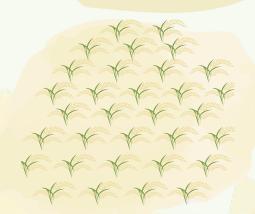






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The International and Domestic Agricultural Situations and Major Policy Goals in 2023







The International and Domestic Agricultural Situations and Major Policy Goals in 2023

1. The International Agricultural Situation

In 2023, even though the global COVID-19 pandemic eased, agriculture still faced issues including extreme weather, regional conflicts, and policy changes. Such factors negatively impacted global trade in agricultural products and food security.

Meanwhile, because negotiations within the multilateral trading system have stalled, countries worldwide have turned their attention to building up closer regional trading links. For example, the "Comprehensive and Progressive Agreement for Trans-Pacific Partnership" went into effect at the end of 2018, and the United Kingdom joined and became its 12th member in 2023. At the same time, other countries, including Taiwan, mainland China, Ecuador, and Costa Rica, have also applied for accession.

As the US-China rivalry continued, the US initiated negotiations with many countries including Australia and India in 2022 on the "Indo-Pacific Economic Framework for Prosperity" (IPEF), continuing to influence global economic and trade development and changes in trade in agriproducts. Also, in order to strengthen the Taiwan-US trade partnership, Taiwan and the US announced the formal launch of negotiations under the "US-Taiwan Initiative on 21st-Century Trade" on August 18, 2022, with the first agreement signed in June of 2023.

2. The Domestic Agricultural Situation

Preliminary estimates put the total value of agricultural production for 2023 at NT\$586.4 billion, an increase of 4.23% compared to 2022. Farming, forestry, fisheries, and animal husbandry accounted for 46.96%, 0.03%, 16.36%, and 36.66% of the total production value, respectively. Preliminary estimates put the agricultural production index for 2023 at 95.41 (with 2021 being the base year), a decline of 1.66% compared to 2022. Production fell by 2.44% for farm crops, 34.49% for forestry products, and 3.01% for animal husbandry products, while it rose by 4.38% for fisheries products.

In terms of agricultural prices, with 2021 as the base year, the 2023 average wholesale price index for farm, forestry, fisheries, and animal husbandry products was 111.71, an increase of 4.77% compared to 2022. The index for farm products was 105.38 (an increase of 3.13%), that for animal husbandry products was 119.45 (an increase of 8.47%), that for forestry products was 100.08 (a decline of 1.14%), and that for fisheries products was 113.55 (a decline of 0.19%).

In terms of agricultural trade, in 2023 the total value of agricultural imports was US\$18.8 billion, a decline of 8.34% compared to 2022. Major imported products by value included



alcoholic beverages, soybeans, corn, and beef. The total value of agricultural exports was US\$4.9 billion, a decline of 6.59% compared to 2022. Leading export products were squid, bonito, baked goods, Phalaenopsis orchids, and feathers & down.

3. Major Policy Goals in 2023

- Expand the promotion of agricultural insurance and implement policy-oriented income guarantees, stabilize agricultural incomes; refine farmers' health insurance and farmers' occupational accident insurance, strengthen the premium payment and insurance payout systems; continue to promote the farmers' pension system, complete the farmers' welfare system.
- Strengthen animal and plant disease prevention and quarantine and inspection, prevent the spread of diseases and insect pests into Taiwan; promote eradication of classical swine fever (hog cholera) and maintain Taiwan's status as a zone free of African swine fever and foot and mouth disease; introduce modernized animal husbandry management systems, strengthen management of slaughterhouse hygiene and biosecurity; strengthen differentiation of domestically produced and imported animal husbandry products; implement animal protection and pet management measures.
- Promote agricultural adaptation to climate change and net-zero emissions measures; promote the Green Environmental Payment Program, guide transformation of the cultivation system, preserve high-quality farmland resources; promote modernization of the irrigation system, enhance the utilization efficiency of irrigation water and the irrigation system's disaster prevention and mitigation functions; strengthen guidance of young farmers and provide a reassuring and sound environment for careers in agriculture.
- Strengthen adjustment mechanisms to balance production and marketing (supply and demand), ensure a stable supply of agriproducts; promote "local production, local consumption," develop

food and agricultural education, improve the brand image of domestically produced agriproducts, and enhance consumer support for these products; enhance the export competitiveness of agriproducts and develop export markets.

- Strengthen management of fisheries resources, implement responsible fishing; enhance protection of the rights of foreign crew working on Taiwanese vessels and create a better working environment in the fisheries industry, get in line with international norms; build a comprehensive seawater supply system and promote net cage aquaculture; construct fully functional fishing harbors and develop the special local characteristics of fishing communities; ensure sustainable development of the fisheries industry.
- Further develop rural leisure and tourism, expand the market for rural tourism by domestic and foreign visitors; accelerate the development of rural industries, build a rural environment in which daily life, agriculture, and tourism are all convenient; build up the national green network for protection of the land and environment, enhance biodiversity; develop sustainable use of forests suitable for diversification of the under-forest economy and forestry industries, raise the self-sufficiency rate for domestic wood.



Enhancing Farmers' Welfare





1. Refinement of the Farmers' Health Insurance System

In order to enhance social insurance guarantees for farmers, the Ministry of Agriculture (MOA) promoted amendments to the "Farmer Health Insurance Act" which were promulgated by the President on February 8, 2023 and which were implemented in stages by the Executive Yuan. The main points are as follows:

- Starting from February 10, 2023, the monthly insured amount for farmers' health insurance (FHI) was increased from NT\$10,200 to NT\$20,400 per month, with the premium rate set at 2.55%. Also, a mechanism was created to adjust the monthly insured amount and premium rate in order to appropriately reflect increases in the basic wage and consumer price index. At the same time, the payment for maternity benefits under FHI was changed from two to three months and the amount was raised from NT\$20,400 to NT\$61,200, while the funeral allowance was increased from NT\$153,000 to NT\$306,000. These changes were made to encourage reproduction in rural communities and ease the financial burden of funerals and interments on rural families.
- Starting from June 1, 2023, persons aged 65 and over who have been covered by FHI for 15 or more years and who have commissioned an organization designated by the competent authorities to handle renting out of all their land, and who no longer engage in farming as a profession, can continue to participate in FHI. The goals are to encourage younger people to take up agriculture as a profession by making more land available, enable old farmers to enjoy

retirement with peace of mind, and expand use of farmland.

 Since December 1, 2023, persons who apply to participate in FHI are considered to be also applying to participate in farmers' occupational accident insurance (FOAI). The aim is to strengthen social security guarantees for farmers.



Starting on February 10, 2023, the monthly insured amount under farmers' health insurance (FHI) was increased to NT\$20,400. Also, payments for maternity benefits as well as for funeral and interment were increased in order to encourage reproduction in rural areas and ease the financial burden of funerals and interments on rural families.

2. Promotion of Farmers' Occupational Accident Insurance

In order to advance farmers' occupational safety and create a comprehensive farmers'



social insurance system, the MOA, acting in accord with amendments to the "Farmer Health Insurance Act" promulgated on June 13, 2018, began offering farmers' occupational injury insurance. On November 1, 2018 priority was given to trial promotion of "occupational injury insurance" under the "first injuries, later diseases" policy. On September 10, 2021 coverage under the farmers' occupational accident insurance (FOAI) system was expanded to include occupational diseases, and we have continued, on a rolling basis, to evaluate other occupational diseases for coverage. On August 18, 2023, the MOA added other occupational diseases clearly caused by farming as a profession including Japanese encephalitis, hookworm infection, and formaldehyde poisoning. The government subsidizes part of the premiums for FOAI, and farmers who pay the basic premium enjoy four types of payments: injury and disease payments, medical care allowances, disability payments, and funeral allowances.



Starting from February 10, 2023, the monthly insured amount for farmers' occupational accident insurance (FOAI), along with that for FHI, was raised, as were payments under FOAI for injury and diseases as well as funerals and interments, in order to guarantee compensation to farmers who have suffered occupational accidents on the job.

Starting from February 10, 2023, the monthly insured amount for FOAI, along with that for FHI, was increased to NT\$20,400, while injury and disease payments as well as funeral allowances were also increased. Moreover, following the example of compulsory occupational social insurance systems, starting from December 1, 2023 FOAI was changed from its previous format of voluntary participation by farmers to a new system under

which new applicants for FHI are considered to automatically be applying for FOAI. This provides farmers with comprehensive occupational social insurance protection. As of the end of 2023, more than 330,000 persons had enrolled in FOAI and there were 19,370 cases of payments made totaling more than NT\$370 million.

3. Comprehensive Promotion of Agricultural Insurance

In response to the effects of extreme weather and to spread risk for agricultural operations, in 2017 the MOA began promoting agricultural insurance. After taking into account the experiences with this system in other countries, on January 1, 2021 the "Agricultural Insurance Act" went into effect and the MOA adopted various bylaws and supporting measures including subsidies for premiums and various policy-oriented insurance regulations. The MOA has also simplified the process for making agricultural insurance claims in order to improve the operational mechanism for agricultural insurance.

In 2023 the MOA accelerated and expanded promotion of agricultural insurance to broaden coverage and comprehensively protect farmers' incomes. A total of 43 insurance products are now available covering 27 products, including farm crops and aquaculture and animal husbandry products. A total of 620,000 policies have been taken out covering 570,000 hectares of land with a total insured amount of NT\$104.1 billion. The coverage rate is 51.45%. The program is increasingly successful and the MOA has proactively refined the system as follows:

In combination with agricultural industrial policy, we strengthened promotion of policy-oriented income insurance: With broad coverage, this insurance is no longer limited to natural disasters, but also covers hazards including diseases and insect pests and guarantees farmers against instability in their incomes resulting from extreme weather. In 2023 the MOA relaxed requirements for enrolling in paddy rice income insurance and simplified the process for enrolment by organizational-type Big Professional Farmers; adjusted the regional amounts for banana income insurance and expanded the areas covered; increased the protections under sorghum income insurance



農業保險保單型態

不同保單型態、多元投保品項 擴大農業保險保障範圍,並提供農民多元選擇



Types of agricultural insurance.



The situation with respect to promotion of agricultural insurance.

and adjusted the production volume standards; and adjusted the degree of protection and price standards under sugar apple income insurance. All these refinements are aimed at meeting practical needs for insurance policies, protecting even more farmers, and enhancing the efficiency of the agricultural insurance program.

- We have also reassessed and refined the content of policies to expand the scope of insurance coverage: In response to the effects of extreme weather, the MOA has reassessed 11 types of policies, including those for mangoes, paddy rice, and sorghum income insurance, reassessing locations where insurance could be taken out and criteria for claims. In 2023, besides avian influenza policies, we announced newly available policies for in ovo avian influenza in order to meet farmers' needs.
- We reduced the financial burden on farmers and created supporting measures: Subsidies for agricultural insurance cover, in principle, from one-third to one-half of premiums, and the MOA encourages local governments to provide additional subsidies. Linked to industrial guidance and management measures,

- agricultural insurance has been combined with policy-oriented special agricultural loans (interest free), evaluations of farmers' and fishermen's associations, and the Agricultural Finance Awards, in order to enhance promotional work.
- We upgraded promotion of agricultural insurance to increase participation: The MOA held 61 awareness-raising education and training sessions with a total of 3,200 attendees, to inform farmers about agricultural insurance and strengthen the professional capabilities of insurers. Through awareness-raising methods including press releases, Facebook posts, broadcasting, direct mail, pamphlets, and videos, we have used diverse media channels to contact a wider audience and strengthen farmers' participation.

Besides agricultural insurance, in order to insure the property of fishermen during at-sea operations, the MOA has encouraged owners of fishing vessels (rafts) of less than 100 metric tons to participate in fishing vessel insurance, and we provide subsidies for premiums. In 2023 a total of 9,617 vessels benefitted from this program, with subsidies totaling NT\$39,991,587.



On November 13, 2023 the MOA held the "Symposium on Public-Private Partnership in Promoting Agricultural Insurance."

4. Establishment of a Farmers' Pension System

The MOA has promoted the farmers' pension system based on the "Farmer Pension Act" which was promulgated on June 10, 2020 and came into effect on January 1, 2021. This echoes former President Ing-Wen Tsai's policy vision of "making agriculture into a profession that people can do until they retire with peace of mind." Under the system, individual pension accounts are set up for farmers and they and the government jointly deposit money into these special accounts each month. Farmers can collect the money when they reach 65 years of age or meet specific criteria. The welfare allowance for elderly farmers (see below) and pensions together form a system to guarantee the economic security of elderly farmers.

In addition, to encourage young people who have completed a short term of military service to take up farming as a profession, on December 22, 2021 the President promulgated the newly added Article 3-1 of the "Farmer Pension Act." This permits young people who have been discharged after a short term of military service to participate in the farmers' pension system despite already receiving retirement payments under military insurance.

The farmers' pension system enables elderly farmers to maintain appropriate standards of living, and is very helpful in terms of encouraging young people to devote themselves to agricultural production, adjusting the agricultural labor structure, and indirectly enabling elderly farmers to retire with peace of mind while revitalizing the use of their farmland. As of the end of 2023, over 103,000 people were benefitting from the pension system.



The MOA has continued to encourage farmers to participate in the farmers' pension system. We have created a dual system, including both the "welfare allowance for elderly farmers" and the "farmers' pension," to enhance economic security for elderly farmers.

5. Improvement of the Wellbeing of the Rural Population

(1) The welfare allowance for elderly farmers

To ensure the quality of life of elderly farmers, the government has long been issuing a welfare allowance to elderly farmers aged 65 and over who meet the legal criteria to participate. Starting January 1 of 2020, the MOA raised the allowance to NT\$7,550 per person per month. Total payments in 2023 reached NT\$48.287 billion, benefiting a total of 563,714 elderly farmers.

Also, to facilitate funerals and interments for elderly farmers who have participated in farmers' health insurance (FHI) for a long period of time, the MOA has issued "funeral condolence funds" of NT\$102,000 for farmers aged 65 or older who have participated in FHI for 25 years or more but, for some reason, are unable to apply for the FHI funeral subsidy. In 2023, 1,344 beneficiaries received payments totaling NT\$137.09 million under this policy.

(2) Educational grants for farmers and fishermen whose children study at high schools or colleges

In order to ensure that the children of farmers and fishermen do not, for economic reasons, miss out on the chance to get high-school and college educations in Taiwan, in September of 2003 the MOA began offering scholarships to the children of farmers and fishermen. In 2023 grants totaling NT\$834.8 million were paid out, benefiting 78,134 children of farmers and fishermen.

(3) Promotion of the "green care in agriculture" program

The MOA in 2023 guided 113 farmers' associations and eight fishermen's associations to organize "green care demonstration stations," bringing together local green elements (including agricultural resources and the natural environment) to realize the vision of healthy aging for the elderly in these communities. A total of 210 green care stations have been established by farmers' and fishermen's associations to provide diverse learning services, mutual aid, collective dining, and concern services. In 2023 the rural elderly benefitted a total of 220,000 man-times.

Meanwhile, the MOA has guided 165 rural communities to provide green care and establish 70 green care venues in order to improve the living environment for the elderly; assisted 139 rural communities to arrange for the provision of green meals, providing this service over 200,000 mantimes; encouraged 149 rural communities to found "green therapy" classes, with more than 150,000 rural elderly attendees; and trained and guided 143 rural green care providers to provide care and companionship to the elderly in rural areas. The aim has been to guide the rural elderly to actively participate once again in their communities and enhance their feelings of belonging and self-worth.



The green care station at the Keelung District Fishermen's Association delivered meals to the elderly.



Green therapy: The use of local materials and crafts skills in green therapy classes can bring back memories of traditional culture.



Green therapy: Handicrafts classes can increase the self-confidence of attendees and promote more interactions among the elderly.



An instructor at the Fuli Township Farmers' Association green care station instructs elderly persons in the use of corn husks to make small rabbits by hand.

(4) Fuel subsidies for farmers and fishermen

In 2023 valid certifications for use for a total of 285,143 pieces of agricultural machinery were issued or renewed. During the year 76,881 kiloliters of fuel needed for agricultural machinery was purchased, with an exemption from the 5% business tax saving about NT\$100 million. Meanwhile, subsidies were provided to 5,864 fishing vessels to purchase about 567,000 kiloliters of diesel fuel, with subsidies totaling NT\$1.607 billion. In addition, the MOA provided fuel subsidies of NT\$97 million for 6,337 fishing vessels with gasoline-powered outboard engines.

(5) Stabilization of supply and demand for fertilizers

As a result of the impact of the COVID-19 pandemic and the Russia-Ukraine war, the international price of fertilizer raw materials rose sharply. In order to stabilize domestic supply and demand for fertilizers, on January 10, 2022 the MOA began implementing subsidy measures to cover the increased cost of raw materials for chemical fertilizers. The MOA has subsidized 50% of the increases in the cost of raw materials for chemical fertilizers (based on international fertilizer raw materials prices) in order to minimize the impact of these increases on farmers, and has reduced fertilizer expenses for farmers by about NT\$4 billion.

(6) Subsidies for big and small agricultural machinery

The MOA has guided farmers to purchase 23,746 pieces of small agricultural machinery including power cultivators and small agricultural transporters, as well as developed 45 types of new agricultural machinery, thereby raising work efficiency and stimulating domestic R&D. We also have subsidized the purchase of 781 big agricultural machines including tractors and combine harvesters as well as 80 corn planters and harvesting machines, to help mitigate the agricultural labor shortage and assist with emergency harvesting at flood season.

Currently Taiwan has over 1,000 vessels engaged in deep-sea fishing operations and 602 deep-sea fishing vessels have passed hygiene evaluations to be registered as Type B export vessels (with installed continuous temperature recorders), with subsidies granted to 315 vessels. Moreover, since 2021 the MOA has subsidized fishermen to purchase 1,326 pieces of highefficiency and smart aquaculture machinery, with subsidies totaling NT\$143.66 million, to raise energy savings, reduce labor demand, and modernize management in the aquaculture industry.



The MOA has introduced paper mat rice seedling transplantation machines on a demonstration basis and promoted the use of domestically made weed-suppressing paper mats.



High-efficiency aerators can increase the amount of dissolved oxygen in aquaculture ponds.

(7) Natural disaster relief for agriculture

The MOA has set up 196 agricultural weather stations across Taiwan and 392 stations

providing weather forecasting services and natural disaster early warning signals for crop production and aquaculture special zones to facilitate agricultural operations and disaster prevention. Furthermore, we have worked with the National Science and Technology Center for Disaster Reduction to establish a systematic agricultural disaster response mechanism and continued to provide real-time disaster information, the scope of the area covered by warnings, types of crops affected, and disaster prevention suggestions. In addition, the MOA has made agricultural weather videos and cards which have been broadcast via channels including the MOA's Facebook page, LINE account, social media, the Virtual Museum of Taiwan Agriculture, and the electronic bulletin boards at farmers' and fishermen's associations, to provide farmers and fishermen with data for planning of their operations and for reference in making preparations for special weather events.

In 2023 the MOA amended the "Agricultural Natural Disasters Relief Regulations" (hereafter "Relief Regulations") to: (i) incorporate fishing vessels (rafts) in harbor that have been damaged by wind gusts of Force 8 or above in typhoon warning areas into cash relief and subsidies coverage, and (ii) add weather parameters for application of the Relief Regulations. In 2023 the MOA, based on the Relief Regulations, provided cash relief and low-interest loans in response to damage caused by agricultural natural disasters including: "a low temperature cold front in late January," "delayed effects of the drought in September and October of 2022 plus the low temperature cold front in late January," "low temperatures in late February," "drought in February to March," "delayed effects from a weather front in March," "rain damage in late April," "Typhoon Mawar," "drought in early May," "torrential rain on May 19," "torrential rain in mid-June," "Typhoon Doksuri," "Typhoon Khanun," "Typhoon Haikui," "torrential rain in early September," "Typhoon Koinu," "delayed effects of Typhoon Koinu and rain damage in early October," and "rain damage in early December." The MOA arranged NT\$4.195 billion in cash relief for 106,699 households and low-interest loans totaling NT\$467.77 million for 498 households.

(8) Fishermen's and fishing vessel relief

The MOA pays out relief funds for fishermen who are killed, missing, or disabled. Those eligible include crew members of Taiwan-registered fishing vessels during at-sea operations and fishermen with Class 1 member qualifications in a fishermen's association engaged in coastal fishing. In 2023 funds totaling NT\$43.5 million were paid out in 29

cases, providing solace to fishermen's families and reducing the impact of accidents.

In addition, the MOA paid out subsidies of NT\$175,000 for two vessels that were destroyed or could no longer operate as a result of damage caused by fire or force majeure during operations at sea.



The rescue of an injured crewman from a fishing vessel.

(9) Strengthening the effectiveness of rural organizations

On February 10, 2023 the MOA announced the amending of Article 6 of the "Regulations for Companies Investment or Organization of Farmer's Associations" to stipulate that if farmers' associations want to put up the capital for or invest in limited companies, when the central competent authority determines after a review that such a company is beneficial for promotion of major agricultural policies, then the limits related to amounts of capital or investment do not apply. This facilitates the promotion and implementation of major agricultural policies.

On March 27, 2023 the MOA announced the amending of Article 35-1 of the "Regulations Governing Financial Management of Farmers Associations" to adjust the funding for overseas trips for elected officials at farmers' associations and the annual funding for overseas inspection trips and related expenses for their general managers or staff. This meets the need to strengthen overseas inspection, learning, and development activities of the operational departments of farmers' associations.

On May 31, 2023 the MOA announced the amending of Article 13 of the "Regulations for the Certification of Qualified Members and Screening Procedures of Base-Level Farmers Association" to conform to the amending and coming into effect of Article 7 of the "Farmer Health Insurance Act." The amendment permits any member of a farmers' association who cultivated his own land but who hasn't been engaged in agriculture since he/she commissioned all their land to an organization designated by the competent authorities to handle land rent-out, and who continues to participate in farmers' health insurance, to retain their qualifications for membership in the farmers'

association. The aim is to encourage younger people to take up agriculture as a profession by making land more readily available and enable elderly farmers to retire with peace of mind.

In addition, the MOA: (i) completed the selection procedures for general managers of 27 farmers' associations (whose terms had expired or whose posts were vacated mid-term); (ii) held one training session for public servants doing farmers' association guidance in governments at various levels; (iii) held 12 training sessions for employees of farmers' associations; (iv) commissioned accountants to do a financial audit of one farmers' association; (v) subsidized 60 farmers' associations in improving their extension and education facilities (equipment); (vi) subsidized 37 farmers' associations in constructing high-quality agricultural scenery and enhancing their farmers' association services; (vii) guided 23 farmers' associations with their economic enterprise plans; (viii) assisted six farmers associations with centenary celebration planning; and (ix) assisted 13 farmers' associations in Hualien County, Taitung County, and Pingtung County with their post-typhoon reconstruction plans.

The Fisheries Agency of the MOA added new contents and standards for the allocation of points for two new items in the assessments of fishermen's associations: "distribution and sales of domestically produced fisheries products" and "construction and maintenance management at a fishermen's association." The aims are to assist fishermen's associations to deal with industrial transformation and social change, enable these associations to do self-monitoring of the operations at their departments in accord with assessment results, coordinate with government efforts to balance production and sales, look after the well-being of fishermen, and promote development of the industry.

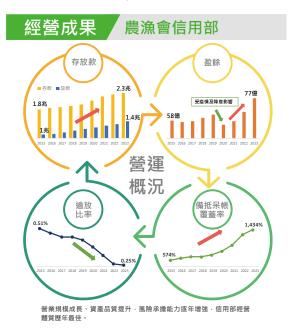
(10) Innovating in agricultural financial services

 The best operational results of all time at credit departments

The MOA continued to take measures to improve the operational structure of the credit departments of farmers' and fishermen's associations (hereafter F/FAs). As of the end of 2023, total deposits at all credit departments of F/FAs were NT\$2.25 trillion, with outstanding loans of NT\$1.403 trillion. Before-tax net profit was NT\$7.7 billion. The non-performing loan ratio was 0.25%, indicating that loan quality was quite high.

To strengthen supervision, the MOA has been conducting inspection visits to the credit departments of F/FAs since 2009, and as of the end of 2023 visits had been made to 1,017 credit departments. We have

continued to maintain a firm grasp of the operational situation at credit departments and used a combination of supervision and guidance to assist these departments to maintain sound operations.



Results of operations at credit departments of farmers' and fishermen's associations.

 Proactive promotion of the "Policy-Oriented Special Agricultural Loan" program to provide capital for agricultural operations

To provide farmers and fishermen with needed operating capital, coordinate with policies like training young rural manpower and New Agriculture, and meet practical needs, the MOA has continued to promote the "Policy-Oriented Special Agricultural Loan" program. In 2023, we provided 26,319 farmers and fishermen with NT\$27.174 billion in loans.

經營成果 推動多元業務



Promotion of diversified agricultural financial services.

Since the launch of these loans, the MOA has provided 1.339 million farmers and fishermen with NT\$775.897 billion in loans. The MOA will continue to coordinate with agricultural policy objectives, and will adjust the types of loans and their content in due course, in order to upgrade industries' competitiveness and promote agricultural development.

 Diversification of operations to provide rural residents with fast and convenient financial services

In order to provide funding to families without their own homes to buy houses, the MOA has promoted a program of "preferential loans by agricultural financial institutions for young people to purchase houses." As of the end of 2023, we assisted 1,707 families without their own homes to purchase houses with loans totaling NT\$10.3 billion.

In order to strengthen the quality and competitiveness of services at F/FAs, the Agricultural Bank of Taiwan (ABT) integrated services and channels at the credit departments of F/FAs. At present F/FA credit departments provide payment collection services covering 1,420 items. In 2023, they collected 19.54 million payments totaling NT\$61 billion, and since these services began they have collected a total of 228.19 million payments totaling NT\$853.4 billion, thereby providing rural residents with diversified and convenient payment services. Moreover, to satisfy demand from customers for wealth management and asset allocation services, the ABT continued to guide the credit departments of F/FAs in offering "gold passbook services"; as of the end of 2023, 53 credit departments had been authorized to provide such services. In addition, in order to increase the use of mobile payments by farmers and fishermen, by the end of 2023 the MOA had approved the offering of mobile payment services by 292 F/FAs.

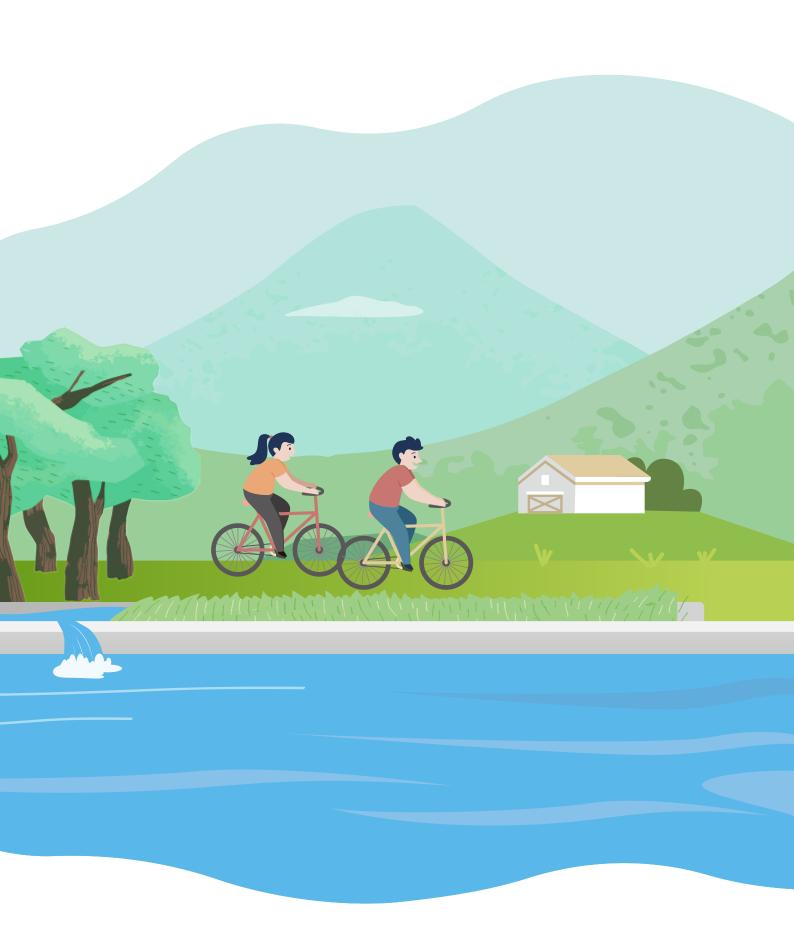
專案農貸執行情形

配合農業政策充分支應農漁業者低利農業經營資金

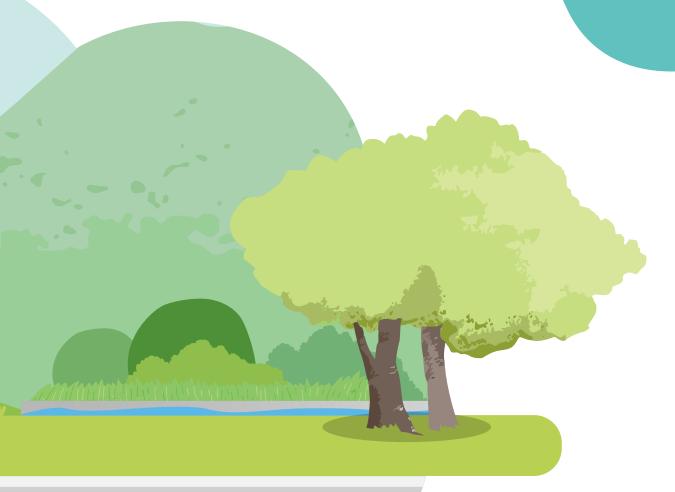
政策性農業專案貸款	2023年貸放情形			
√提供19種低利貸款 √範圍涵蓋農林漁牧經營、	2023年度 貸放累計 推動迄2023年12月底 貸放累計 貸放金額			
農漁民家計週轉及天然災	戶數	金額 (億元)	戶數	金額 (億元)
害復耕復建等用途	26,319	272	1,338,884	7,759
貸款諮詢專線 農業金庫: 0972-590951 農信保基金: 0963-619301 農業金融署: 0933-239983				

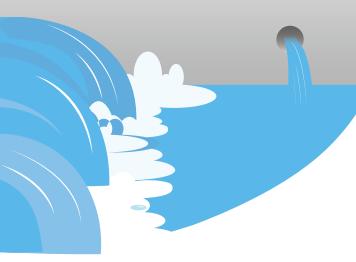
Results of implementation of the "Policy-Oriented Special Agricultural Loan" program in 2023.

Improving Agricultural Infrastructure











1. Promotion of the Green Environmental Payment Program

The Agriculture and Food Agency of the Ministry of Agriculture (MOA) began promoting the four-year "Green Environmental Payment Program" in 2022. The aims of the program include: maintaining high-quality farmland resources through the "agricultural environment basic payment"; incentivizing a switch from cultivation of rice to other (especially contract) crops or production environment maintenance measures; coordinating with the policy to encourage farmers to choose three crop seasons out of four for cultivating rice; coordinating with the promotion of the Ministry of Economic Affairs' regional rotation system for use of water resources, the transition to dryland crops in the special zone along the High Speed Rail line in Yunlin County, and enhancement of the efficiency of water-saving measures; and balancing production and sales (supply and demand) of rice. In addition, through expansion of the pool of farmland eligible for incentives for cultivating animal-feed corn, pasture land, and sorghum, the MOA has upgraded domestic supply capacity for animal feed and miscellaneous staple crops. Through such measures the MOA has guided farmers to cultivate crops suitable to their locations, ensured Taiwan's food security, and promoted the sustainable development of agriculture.

In 2023 a total of 139,000 hectares of land were switched over to contract cultivation of import substitution crops, products with export potential, or local specialty crops. Another 79,000 hectares were used for production environment maintenance

measures including (i) growing green manure or scenic crops or (ii) plowing fields under. The MOA continued to stabilize and enhance the supply of domestically produced food.

To conserve Taiwan's limited agricultural production environment resources, manifest the multi-functional values of farmland, and conform to the conclusion of the 6th National Agriculture Congress to "expand the recipients of green environmental payments by incorporating land not included in the base year of the program that is suitable for agricultural production." the MOA has been issuing an "agricultural environment basic payment." Priority is given (i) to specified agricultural zones in non-urban areas, (ii) to agricultural and pasture land in ordinary agricultural zones, and (iii) to supporting users of land for staple crop production. Restrictions based on base-year qualifications do not apply. We hope to encourage "agricultural uses for arable land," while at the same time this policy will be helpful to the future designation of "agricultural development zones" in the National Spatial Plan. In 2023 the agricultural environment basic payment was given out for 330,000 hectares of land.

In order to increase capabilities to supply domestically produced animal feed and miscellaneous staple crops, the MOA has steadily liberalized the cultivation of designated crops in specified agricultural zones in non-urban areas and agricultural and pasture land in ordinary agricultural zones which did not have base year qualifications for the "Green Environmental Payment Program" by permitting farmers to nonetheless collect contract crop incentives. In the second crop season of 2022 we expanded the program to cover cultivation of flint corn and forage corn, while





The MOA encourages farmers to switch from paddy rice to miscellaneous staple crops or local specialty crops: sorghum is shown here.



The MOA encourages farmers to switch from paddy rice to miscellaneous staple crops or local specialty crops: buckwheat is shown here.



Zinnias, a scenic green manure crop.

in 2023 we expanded it to include cultivation of pasture land and sorghum. In 2023, about 20,000 hectares (ha) of land were planted with flint corn, while about 12,000 ha were planted with fodder corn, meaning that the total area cultivated with animal-feed corn surpassed the planned target of 30,000 ha. Over 6,500 ha were used for pasture land and another 1,900 ha were planted with sorghum. These steps helped raise production capacity of domestic pasture grass and fodder, alleviating dependence on imported fodder for domestic herbivores, as well as stabilize the supply of sorghum raw material, strengthen quality and safety, and reduce carbon footprints.

2. Conservation of Agricultural Resources

(1) Inventory of agricultural and farmland resources and value-added usage of the data

In order to maintain a firm grasp of the situation with regard to use of farmland, the MOA completed its 2023 updating of the "national agricultural and farmland resources survey" and integrated the results into the "searchable map of the results of the national agricultural and farmland resources survey" (https://map.moa.gov. tw). The updated results show about 2.79 million hectares (ha) of land legally defined as land for agricultural use, of which flatland accounted for 619,931 ha (22.22%) and slopeland for about 2.17 million ha (77.78%), and there were 695,940 total ha available for food production. Of land legally defined as being for agricultural use, 577,849 ha were being used for actual crop production, 43,715 for aquaculture ponds, 10,200 for animal husbandry, and about 1.792 million for forestry. In addition, with respect to land for agricultural use that was being used for non-agricultural purposes, flatland accounted for 53,024 ha while slopeland accounted for 74,168 ha.

Besides announcing the survey results on the abovementioned map platform for reference by citizens, survey data can serve as reference in agricultural policy-making. For example, under the National Spatial Plan, the data was supplied to agricultural agencies to play a leading role in agricultural development. It was used by local governments (municipalities, cities, and counties) for reference in overall planning of farmland use and spatial planning for agricultural industries. It was also supplied for reference for small areas (such as the Xiangshan District of Hsinchu City, and the Xuejia, Xinying, Yanshui, Liuying, Guantian, and Qigu Districts in Tainan City) for overall planning of locations for agricultural uses to meet the development needs of agricultural industries.

Meanwhile, local governments including those for Taoyuan City, Taichung City, Changhua County, and Yunlin County used the survey results and data on the density of unregistered factories to evaluate prioritization of improvement of drainage infrastructure for polluted wastewater in 144 locations. The data was moreover used by the Ministry of Economic Affairs for determining



candidate locations for its program for polluted wastewater drainage infrastructure in areas with clusters of existing unregistered factories, as well as by the MOA's Irrigation Agency for suggested locations for new irrigation water quality monitoring stations.

To manifest the multi-functional values of farmland, with respect to areas with the potential for development of agricultural green energy as well as for evaluation of the potential and effectiveness of raising the ecosystem services value of farmland through sustainable agriculture, the survey results were subjected to value-added computer assisted analysis. This guided the implementation of the grading of farmland resources by category and commitment of resources to agricultural development areas, in order to implement the policy orientation of the "Spatial Planning Act" towards protecting important agricultural production environments.

(2) Expansion of water conservancy services

Expansion of irrigation services

To meet the demand for water from farmers originally outside of irrigation areas, the MOA has promoted a policy of expanding irrigation services. Based on the vision of "retaining water, irrigating the land," we have adopted four main strategies to provide farmers outside of irrigation areas with a stable supply of irrigation water: "store water when it is abundant, use it frugally during dry periods," "import and widely distribute water," "smart irrigation," and "sustainability for the common good." For public-interest irrigation projects, including shared facilities for water intake, storage, and transport, the MOA has systematically developed resilient water infrastructure. We have also subsidized farmers to install pipeline irrigation facilities in their fields, with a maximum subsidy of NT\$500.000 per household per year.

Smart irrigation

To cope with the increasingly severe shortage of water resources under climate change, the MOA has encouraged and guided farmers to install facilities including pipeline irrigation, water storage adjustment controls, motorized pumping equipment, and regulation and control equipment. In 2023 such facilities were installed across 2,350 hectares of land.

These can precisely control the amount of irrigation water used at specific times and raise the efficiency of the use of irrigation water while also enhancing farmland drought resistance, saving time and labor, and boosting both crop quality and yield.

In addition, with funding from a special budget, in 2023 the MOA completed updating and improvement of the automated hydrological monitoring and reporting system in 32 places, refined smart water distribution technology in six irrigation demonstration areas, and continued to update overall cartographic and other basic data.

Greenways along irrigation channels

The MOA has continued to optimize routes, establish guide services and equipment, and build green corridors as buffer zones for water areas, thereby creating carbon sinks and protecting precious agricultural water resources. In 2023 a greenway was extended southward to Xinhua District of Tainan City, so that the total route reached 105 kilometers. A total of 280,000 trees were newly planted, maintenance was continued, and construction work was completed on 17.6 kilometers of green corridors. Part of this work was promotion of a special sustainable agriculture ESG plan along the Guantian section in Tainan City. The MOA mediated corporate participation at three sustainable agriculture ESG venues for adoption of trees along irrigation channels. In addition, on May 7, 2023, in cooperation with the Taya Group, we held a tree planting activity along the greenway next to the Chianan irrigation network. About 150 company employees and Tainan schoolchildren participated and together they planted about 300 meters of trees. The event encouraged citizens to work together to build water-adjacent green corridors and continued to highlight the pioneering role played by the Chianan irrigation channel greenway in the goal of net-zero emissions from farmland irrigation.

Protecting the quality of irrigation water

The MOA has established and refined a variety of mechanisms for monitoring and managing irrigation water quality, set up 2,391 monitoring stations, regularly tested irrigation water, and made the data available to the public. At the same time, through training, blind testing comparisons by the National Environmental Research Institute, and



international proficiency testing, we improved the testing quality and international credibility of three laboratories accredited by the Taiwan Accreditation Foundation. Moreover, through inter-agency collaboration, monitoring resources were integrated and testing technologies were shared. These steps all helped to ensure the protection of irrigation water quality.

 Diverse reporting methods to request dredging of irrigation channels

In order to provide the public with more diverse reporting methods to request dredging of irrigation channels, besides the existing work station reporting method, in 2023 the MOA introduced a new hotline (0800-788-717) and a special website for reporting requests to dredge irrigation channels. Citizens can call in or scan the QR Code to access the website to report problems, and can complete their reports with three simple steps in just one minute. The MOA's Irrigation Agency acts as quickly as possible to confirm and handle reports in order to ensure that water keeps smoothly flowing through irrigation channels.



The MOA has continued construction of greenways along irrigation channels. In 2023 we planted about 280,000 trees and built 17.6 kilometers of green corridors.



On May 7, 2023 the MOA and the Taya Group jointly held a tree planting activity along a green corridor on the Chianan irrigation network. About 150 people participated, planting 300 meters of trees.

3. Watershed Management, Erosion Control, and Water Environment Infrastructure Improvement

(1) Construction of a large-scale landslide disaster prevention and mitigation system

In 2023 the MOA handled numerous disaster prevention and mitigation tasks, including "refining evaluation and monitoring technology," "constructing an integrated response and autonomous disaster prevention system," "mitigating disaster occurrences and impacts," "enhancing the effectiveness of disaster prevention and mitigation," "promoting soil and water conservation management in areas prone to large-scale landslides," "information transparency and promotion of exchanges," "completing risk evaluations of unstable sediments," and "constructing a risk early warning platform for unstable sediments."

On the basis of the results of determination of areas prone to large-scale landslides and in coordination with the refinement of relevant research methods and related monitoring achievements, the MOA has over the years continued to strengthen disaster response mechanisms and "independent disaster prevention communities" to minimize the adverse impact of disasters and improve the prevention and rescue mechanism for large-scale landslide disasters. In 2023 we conducted 24 construction projects, organized early warning and response mechanisms in 43 areas prone to disasters, upgraded the protection capabilities of 812 households, promoted the demarcation of six "large-scale landslide designated soil and water conservation areas," and offered education and awarenessraising 33,000 man-times.

(2) Comprehensive watershed management and erosion control

Based on the concepts of overall planning and management of watersheds, and taking into account the principles of national land restoration—including respect for nature and not resisting the forces of nature—in 2023 the MOA undertook various disaster prevention and mitigation measures including (i) debris flow disaster prevention, (ii) conservation of



reservoir watersheds, (iii) enhancing the resiliency of slopeland environments and resource conservation, and (iv) management of "designated soil and water conservation areas." These measures aimed to prevent or mitigate disasters, conserve soil and water resources, protect water sources, maintain the safety of slopeland, and encourage the rational use of land. In 2023 we undertook construction projects for matters including conservation management of important reservoir watersheds and debris-flow disaster prevention in 377 locations, stabilized about 6.11 million cubic meters of soil, and completed 15 watershed survey projects. In these ways we effectively reduced debris flow disasters and conserved soil and water resources.

In addition, the MOA improved roads in slopeland areas. Taking the roads most in need of improvement as the focus, in 2023 we undertook 524 construction projects and improved about 375 kilometers of road. These projects included strengthening soil and water conservation facilities, maintaining slope stability, and improving road drainage facilities, in order to maintain the integrity of the road bed and smoothness of traffic flow.



Project to restore a torrent on the Sanchong River: Adjustable check dam and old submerged dam.



Project to restore a torrent on the Sanchong River: An arch dam with steel tubes, water cascade steps, and an auxiliary dam to dissipate energy and prevent scouring.

(3) Water environment infrastructure

In 2023 the MOA worked on the "Overall Improvement Plan of County and City Management of Rivers and Regional Drainage" under the "Water and Safety" policy axis of the "Water Environment Infrastructure" part of the "Forward-looking Infrastructure Development Plan." This included various aspects including slopeland management, farmland drainage improvement, and environment improvement in aquaculture zones.

Of these, under "slopeland management," with respect to (i) rivers and regional drainage system watersheds as well as (ii) flood handling and soil and water resource conservation in upstream slopeland areas as managed by local governments around Taiwan, the MOA undertook management of landside areas in watershed areas and prevention and restoration work in areas with medium to high risk of debris flow. Also, with respect to torrents beyond river boundary points, we undertook conservation and management work in order to increase the stability of waterway banks and maintain river flood discharge cross sections. A total of NT\$520 million was appropriated for this program in 2023, and it was estimated that we could stabilize 610,000 cubic feet of soil. In fact, we stabilized 707,600 cubic meters of soil, an implementation rate of 116%. In these ways we have effectively mitigated the flooding that can be caused by debris carried by typhoons and torrential rain.

With respect to "farmland drainage improvement," the MOA has handled flood management tasks with equal attention to improvement of the environment. The budget for the MOA is NT\$5.4 billion, and the plan will run from 2017 through 2025. We have implemented "improvement of farmland drainage, ponds, and irrigation channels" in coordination with management of rivers and drainage by local governments (municipalities, cities, and counties). For a given watershed area, if improvement of agricultural production area drainage, ponds, and irrigation channels can help reduce flooding, consideration is given to increasing the drainage capabilities for floodwaters in that area, to maintain the smooth functioning of farmland drainage channels during flood season. Such measures can reduce flood damage to farmland and minimize flooding time as well as ensure food security for citizens and stabilize summer vegetable production. Thus far the MOA has already improved nearly 169 kilometers of drainage channels.



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As for "environment improvement in aquaculture zones," in 2023, the government invested NT\$177 million in four local jurisdictions (Changhua County, Chiayi County, Kaohsiung City, and Pingtung County) for infrastructure improvement projects at connections for regional area drainage systems in seven aquaculture areas and completion of 18 water recycling facilities. This increased the protected area by 142 hectares.

In addition, in accordance with the "Water and Environment" policy under the "Water Environment Infrastructure" part of the "Forward-looking Infrastructure Development Program," the MOA has implemented a fisheries environmental construction plan. From 2017 to 2023, 29 projects by 13 local governments were approved with budgets totaling NT\$1.95 billion. The overall implementation rate reached 96.49%. As of the end of 2023, we had built a total of 32 water environment bright spots, four peripheral water environment bright spots, and 20.01 hectares of water recreation space, as well as restored 736 meters of natural seacoast.



The improvement project on the drainage channel in Caonandi, Changhua County, ensures the smooth flow of water drainage and protects the safety of passing people and vehicles.



The improvement project for the water culvert for excess water drainage in Nanjing, Chiayi County, used a precast culvert hanging assembly which was built in concert with the lower portion of the Chianan irrigation system. The main construction work on the main channel was completed during a 45-day halt in the flow of water. It helps ensure water transport for agriculture and daily life.



Phase 1 of the improvement project for the Zhuangdong Guting drainage channel includes a ramp for animal life to climb out of the channel alongside its retaining wall as well as ecological tubes, creating an environment friendly to animal life including fish and shrimp.



An aerial view of the completed water environment project at Dongshi Fishing Port.



The improvement project for the 8th drainage channel in Houzhen, Chiayi County.

(4) Dredging of torrents

In order to avoid channel fill deposit caused by earthquakes and typhoons that could lead to losses of life and property among citizens, in 2023 the MOA conducted 43 torrent dredging projects, dredging up 2.418 million cubic meters of sediment and restoring the torrents' capacity to drain floodwater.



With respect to torrents in national forest, the MOA continued, on the basis of the strategies and methods in the "Program to Strengthen Dredging in Rivers, Torrents, and Reservoirs," and with equal attention to management and dredging, to manage torrents and handle landslides (i) at bottleneck sections of rivers urgently in need of attention and (ii) at important areas where infrastructure or the safety of indigenous peoples' communities can be affected. We observed the principle of "dredge in the right places, dredge at the right times" and kept a firm grasp on the progress of the work. The goal for 2023 was set at 500,000 cubic meters, but in fact the MOA actually dredged 525,300 cubic meters, exceeding the original target.

(5) Prevention and monitoring of debris flow and large-scale landslides

The MOA announced 1,731 rivers and waterways across Taiwan that have the potential for debris flow as well as 48 locations prone to large-scale landslides, and reexamined and updated the rainfall threshold value for warnings. We also supervised local governments in updating the "2023 debris flow disaster and large-scale landslide prevention and evacuation plans" for 697 communities in 159 townships in 17 counties and cities and listed data on 49,648 people to be protected.

The MOA completed instrument testing and operational maintenance tasks for 43 debris flow observation stations and 64 automated rainfall stations, continued to integrate the automated rainfall stations on slopeland in Taiwan, and interfaced with the Central Weather Bureau's precipitation forecasts, in order to announce debris flow disaster and large-scale landslide warning information in a timely manner. The goal is to facilitate the timely launch of evacuation work for protected households in the areas covered by warnings.

The MOA also promoted the formation of "independent disaster prevention communities 2.0," holding 174 war games and 55 actual exercises, while upgrading independent disaster prevention equipment in 56 locations. In addition, we trained 363 new specialists in debris flow natural disaster prevention, and currently there are 3,527 such specialists in Taiwan. Moreover, the MOA assisted governments at all levels in debris flow and large-scale landslide disaster prevention work including

autonomous rainfall measurement, disaster situation reporting, and identifying protected persons who need evacuation.



The 2023 flag presentation and awards ceremony for debris flow disaster prevention specialists.

(6) Watershed management and disaster prevention in national forest

In 2023 the MOA conducted construction projects that took the watershed as the unit of management and were based on the results of surveys of landslides in national forest and watershed risk evaluations. They were conducted with eco-friendly measures for the complete life cycle of the projects and efforts to reduce the environmental impact of the projects. With appropriations of NT\$670 million, we undertook 148 management projects to handle a total of 61.85 hectares of landslide areas, do maintenance work on forest roads and slope management over 54.3 kilometers, and stabilize about 2.48 million cubic meters of soil and sand from shifting downward.



Renovation project for a check dam in Xueshankeng.



Management project for the gully in forest compartments 25 and 26 in the Luanda area.



With respect to areas at high risk of large-scale landslides, the MOA has built a disaster prevention monitoring network and mechanism. In 2023 we announced five areas prone to such disasters, including Hongshuishan in Liugui District and Neiliaoping and Gongguan in Jiaxian District in Kaohsiung City, Erwanping in Alishan Township in Chiayi County, and Wuhe in Ruisui Township in Hualien County. During disaster response periods the MOA conducted real-time monitoring and issued warnings to act as the basis for evacuation of citizens by local governments. We completed drills prior to the flood season and upgraded disaster response capabilities.

(7) Management and supervision of slopeland utilization

Categorizing slopeland by the limitations on its permissible use, setting norms for agricultural activities on slopeland, and pragmatically reassessing the scope of slopeland, in 2022 the MOA completed comprehensive reassessment of the scope of slopeland throughout Taiwan. In addition, to reduce the risk of disasters caused by large-scale landslides, we accelerated the promotion of demarcation of large-scale landslide areas as "designated soil and water conservation areas" and drafted long-term soil and water conservation plans in order to strengthen soil and water conservation tasks and reduce the potential for disasters. In 2023 the MOA demarcated (approved) and announced six designated soil and water conservation areas, comprehensively reassessed long-term soil and water conservation plans for 11 such areas, and abolished three such areas.

The MOA gave approval in 2023 to 5,178 soil and water conservation plans (including simplified soil and water conservation statements) for development and use of slopeland, and there were a total of 6,237 inspections. We also continued to produce monthly satellite monitoring reports, and in 2023 discovered 10,954 cases of surface changes. There were 2,136 cases of investigation and interdiction of illegal slopeland use, with administrative fines totaling NT\$117.18 million and 68 cases transferred to judicial authorities for handling. The MOA also strengthened public awareness about maintaining safety in the development and use of slopeland.

4. Preventive Measures against Animal and Plant Diseases and Pests

(1) Response to African swine fever

Since reports of the first case of African swine fever (ASF) emerged in mainland China on August 3, 2018, by the end of 2023 there were outbreaks of ASF in 18 Asian countries. Taiwan and Japan are the only two countries in East Asia free from ASF. Prevention measures in Taiwan have been focused on "keeping the disease outside the nation, taking preventive measures within the nation."

In terms of "keeping the disease outside the nation," the MOA continued to coordinate with border control agencies to strengthen inspection and guidance tasks for all pathways for the transmission of ASF into Taiwan, including inbound travelers or goods, express delivery and postal parcels, e-commerce platforms, and smuggling by fishing boats.

In terms of "taking preventive measures within the nation's borders," the "ASF Central Emergency Operation Center" was established to coordinate with local governments in conducting simulations of situations they might face in the event of an outbreak of the disease. The MOA has also implemented a number of important preventive measures, including (i) establishing an early warning system, (ii) performing on-site visits and providing disease prevention guidance at livestock farms, (iii) promoting the use of livestock health declarations, (iv) strengthening sanitation inspections at slaughterhouses, and (v) guiding farms that feed pigs with swill to transform their operations.

In order to monitor and control the movement of pigs at livestock farms in a timely manner in the event of an outbreak of ASF, the MOA required the compulsory installation of GPS on transport vehicles for live pigs and pig carcasses, viscera, and cut parts, as well as proactively conducted checks and tracked the movements of live pigs and carcasses in real time. In addition, in February of 2020, interagency cooperation achieved the interfacing of data about rendering transport vehicles in the information system of the Executive Yuan's Environmental Protection Administration with the MOA's integrated GPS information platform, thereby sharing rendering transport vehicle GPS data. This action completed the construction of a comprehensive GPS monitoring



system for transport vehicles carrying "pigs, pig carcasses, and dead pigs."



On December 25, 2023 Premier Chien-Jen Chen made an inspection visit to Taiwan Taoyuan International Airport.



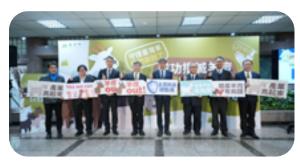
An inspection of a carcass transport vehicle to ensure it has GPS installed.

(2) Eradication of classical swine fever and sheep and goat pox

In order to achieve the goal of eradicating classical swine fever (CSF) in Taiwan, the MOA has adopted a three-stage program of action, the second stage of which runs from 2023 to June of 2024. During this stage, we evaluated the cessation of CSF vaccinations and monitored the disease. All monitoring tasks achieved their expected outcomes, and vaccination for CSF was ceased starting from July 1, 2023. We also continued relevant monitoring, and as of December 31, 2023, no cases of CSF virus in the field were observed. In 2024 an application will be made to the World Organisation for Animal Health (WOAH) for Taiwan to be recognized as "a country free of classical swine fever." If all goes well, we anticipate that Taiwan will be so recognized by the WOAH in 2025.

As for sheep and goat pox, since the last reported case of sheep and goat pox on February 5, 2012, no other cases have been

discovered. Therefore Taiwan conformed to WOAH requirements (listed under the Terrestrial Animal Health Code) to be declared "a country free of sheep and goat pox." After adopting coordinating measures including audits of disease monitoring, plans for early warnings and continued disease prevention, storing up of vaccines, and emergency response plans, and following a determination by a meeting of experts that there were no signs of sheep and goat pox virus in the field, the MOA issued a self-declaration that Taiwan is free of sheep and goat pox to the WOAH on September 15, 2023, which was screened by the WOAH and published on its website on December 19.



To eradicate sheep and goat pox, following an evaluation by a meeting of experts, the MOA halted all sheep and goat pox vaccinations nationwide as of January 1, 2023. On September 15, the MOA made a self-declaration to the World Organisation for Animal Health that Taiwan is free of sheep and goat pox, which was screened by the WOAH and published on its website on December 19. Taiwan's efforts to combat communicable animal diseases again won international recognition, marking a new milestone in the history of animal disease prevention in Taiwan.

(3) Prevention and control of avian influenza

In 2023 the international situation with respect to highly pathogenic avian influenza (HPAI) continued to be severe. Experts determined that the main reason for the cross-border transmission of HPAI was movement by migratory (wild) birds. The peak season for outbreaks of HPAI is from October of each year to March of the following year. Therefore, on September 1, the MOA launched early strengthened measures for autumn and winter in order to facilitate disease early warning functions. The MOA's Animal and Plant Health Inspection Agency convened wild bird experts for weekly meetings starting from November 9 to analyze and determine the situation with respect to wintering of migratory birds with high risk of HPAI in Taiwan and the possible timetable for the main



flocks of such birds. We issued press releases in a timely manner for poultry operators to take preventive measures.

Besides carrying on routine annual monitoring work, the MOA continued to refine measures to ensure that HPAI matters are handled well. With respect to poultry farms with unusually large numbers of renderings, local animal disease prevention agencies traced back these farms to survey their situations. We also took measures to isolate farms from each other and monitor their environments. If any of the environmental samples tested positive, we immediately traced back to the farm(s) in question and took new samples to confirm the presence of HPAI in order to facilitate the timely adoption of necessary steps. In 2023, Taiwan had a total of 50 farms with confirmed cases of HPAI and about 880,000 poultry were culled. For four straight years, fewer than 60 farms have been affected, indicating that, in comparison with other countries, Taiwan has stabilized the HPAI situation and is bringing it under control.

(4) Monitoring, early warning, and control of pests

In 2023, the MOA conducted monitoring and surveying for specific plant diseases and pests, including rice blast, the oriental fruit fly, and the silverleaf whitefly. in a total of 84,554 cases. Based on the monitoring results, 191 early warning and alert messages were issued through the "Plant Disease Notification System" and "Field-Side Assistance" to remind farmers to take early actions to prevent plant diseases and pests outbreaks and minimize losses.

The MOA conducted monitoring and surveying in high-risk host crop production areas for fall armyworms, with early warnings issued based on the growth stage of crops or the density of pest populations. Furthermore, we held educational meetings for Big Professional Farmers to enhance self-management skills and optimize fall armyworm control timing. A total of 70 educational meetings were held in 2023 with 3,912 attendees.

The MOA moreover promoted Areawide Pest Management to control lychee giant stink bugs in agricultural areas. Measures included releasing 7.5 million *Anastatus japonicus* wasps (natural enemy of the stink bug), holding 49 lectures and demonstrations, and taking chemical preventive measures on 6,668 hectares. We designated joint chemical preventive periods for four zones

(Kaohsiung-Pingtung, Chiayi-Tainan, Taichung-Changhua-Nantou-Yunlin, and Miaoli), in which we strengthened cooperative prevention among local governments and worked with relevant ministries and agencies to simultaneously promote relevant measures. In 2023, overall prevention and control work was very successful, with no severe damage, thereby stabilizing the production of relevant crops.



Anastatus japonicus wasps parasitize lychee giant stink bug eggs.

Meanwhile, the MOA's Taiwan Agricultural Research Institute (TARI) undertook long-term monitoring and early warning for a number of pests, including fruit and melon flies, Noctuoidea moths, fall armyworms, thrips, whiteflies, aphids, tomato leaf-miners, lychee giant stink bugs, and stored grain insects. In 2023, in coordination with the program to expand sorghum cultivation on Taiwan proper, the MOA monitored the fall armyworm in an additional 13 townships, not only providing analysis of the infestation situation but also issuing reports every ten days for reference by farmers in making field management and pest control decisions.

The MOA also discovered the pathogenic bacteria that is an important vector for tomato bacterial spot disease on tomato plants and strengthened follow-up work, testing, and control. Moreover, by monitoring for rice blast fungus, we discovered that climate warming is causing fungus that is fond of high temperatures to become the main microbiota and is leading to an earlier outbreak of rice blast in the spring crop season and the unprecedented appearance of rice blast in the second crop season. In addition, with respect to diseases affecting passion fruit in central Taiwan, considering that the relevant microbiota thrive in summer and autumn under conditions of 60 straight hours of rain and that post-rain preventive measures are of only limited effect, farmers were instructed to apply formally recommended agrochemicals in the middle to late stages after the announcement of a forecast of continuous rain but before the rain begins, in order to significantly reduce the incidence of diseases.



(5) Preventing invasion of major diseases and pests from abroad

In order to prevent major communicable animal diseases (African swine fever, foot and mouth disease, and highly pathogenic avian influenza) from being transmitted into Taiwan from overseas through smuggling, the MOA's Animal and Plant Health Inspection Agency, acting on the basis of the "Directions for Handling Smuggled Imported Agricultural Products," conducted required inspection and quarantine determinations on live animals and animal husbandry products seized or confiscated by inspection agencies or prosecutors. Moreover, on the basis of the "Operating Procedures for Handling Smuggled Animals and Animal Products," the MOA subsidized the county governments in Kinmen, Penghu, and Lienchiang to act as quickly as possible to handle destruction of these animals and products, thereby reducing the risk of disease transmission, protecting the health of domestic animals, and ensuring the safety of the farming and animal husbandry environment. In 2023 a total of 211,979.5 kilograms (kg) of confiscated smuggled meat was destroyed (including 4,224 kg of pork products, 147,966.5 kg of cow offal, 45,501 kg of sheep offal, and 14,288 kg of poultry products).

The MOA also amended the quarantine requirements for the importation of animals, plants, and their products in response to international epidemic status. We conducted 212,000 quarantine inspections of imported plants and their products and 201,719 of animals and their products. Our 56 quarantine detector dog teams conducted border inspections and intercepted illegal agricultural products in 13,341 cases with total weight of over 6.958 metric tons, thereby preventing the importation of pests and diseases.

In 2023 the MOA dispatched staff to exporting countries to conduct export inspections and onsite audits. Such work was done for betelnuts and mangosteens from Thailand; fresh fruits that are host to the peach fruit moth from Japan and Korea; apples from countries including Australia, New Zealand, Chile, South Africa, Poland, and Italy; and kiwifruit from Korea. In addition, on-site audits were conducted for summer and winter pear scions in Japan, anthurium flower seedlings from designated production areas free from burrowing nematodes in the Netherlands, lily bulbs from Chile, and fresh American ginseng from the US state of Wisconsin. These steps ensured that exporting countries took the necessary measures with regard to management of pests, thereby reducing the risk of invasion.

In addition, in 2023 the MOA conducted monitoring, diagnosis, and assessment of major viruses affecting imported seeds and seedlings for flowers, vegetables, and fruits. As for flowers, we monitored imported lily bulbs for the PIAMV and ArMV viruses in 45 cases, without finding the PIAMV virus. The MOA also tested 11 batches of seeds of the Solanaceae family and discovered PCFVd, PSTVd, and TYLCV. In these ways we blocked important viruses and viroids from entering Taiwan. In Kinmen we conducted inspections and investigations for high-risk invasive pests including the Asian longhorned beetle, the potato tuber moth, and the African armyworm, without discovering any. Meanwhile, there were 1,196 cases of crop pests discovered in imported agriproducts (1,137 cases of scale insects and 59 cases of Coleoptera insects). In addition, the MOA used imaging instruments including dissecting microscopes and optical microscopes to identify and prevent important diseases and pests such as the spined scale (Oceanaspidiotus spinosus).



A detector dog of the Animal and Plant Health Inspection Agency at work at the Taipei Mail Processing Center.

5. Training New Farmers and Use of Diversified Rural Labor

(1) Strengthened training of new farmers

Strengthened training at the school side

The MOA has built a cooperation mechanism with agricultural schools and in 2023 provided on-site visits and technical consultations to 207 farm and fisheries operations; established or guided 4-H clubs at 14 colleges and universities; and continued to



conduct the "incentive program for high school students to go into agriculture," with 741 high school students signing up for agricultural career exploration from September of 2022 through October of 2023 (the 2022 academic year). We also sponsored publicly funded classes of university students studying agriculture, and so far 623 graduates of such classes have gone into agricultural operations. For the 2023 academic year there were a total of eight sponsored classes, with 231 students, at six schools.

Applying guidance resources at the workplace side

The MOA in 2023 continued to promote guidance of the "Top 100 Young Farmers," helping a total of 675 people in six groups. In addition, we guided 17 local platforms for exchanges of information among young farmers and 213 branch associations, with a total of 7,879 people participating, thereby guiding cooperative improvement among young farmers. Also, in 2023 the MOA set up "training bases" in three locations: the Taiwan Agricultural Research Institute, the Hualien District Agricultural Research and Extension Station, and National Ilan University. In addition, we subsidized 10 purchases of updated agricultural production and marketing facilities (equipment) by 9 of the Top 100 Young Farmers to upgrade their operational efficiency.

 Establishment of a learning network and improvement of the management skills of young farmers

The Farmers' Academy offered introductory, basic, advanced, and high-level training courses, training 2,925 participants in 132 sessions, as well as priority courses for different groups (including women, middle-aged farmers, indigenous people, and cross-sector farmers) that trained a total of 681 participants in 27 sessions. It also organized the "indigenous mobile academy" that trained 1,391 people in 50 sessions as well as offered five courses on e-commerce, training 84 participants.

Expansion of the program of the "Loan for Young and Middle-Aged Adults Working in Agriculture" to provide needed capital for agricultural operations

The MOA continued to provide the "Loan for Young and Middle-Aged Adults Working in Agriculture" to ordinary young farmers and the Top 100 Young Farmers, offering a maximum of five-year interest-free loans of NT\$2 million

and NT\$5 million, respectively, with an interest rate of 1.29% after that (with a variable interest rate). In addition, to assist middle-aged farmers (aged 45 to 55) to continue to farm for a living, on August 1, 2021 they were incorporated into the list of potential loan recipients. In 2023 the MOA provided NT\$4.45 billion in capital for 2,831 young farmers and NT\$420 million in capital for 356 middle-aged farmers.



The National Young Farmers Conference: In coordination with the young farmers' manpower policy, the MOA offers the "Policy-Oriented Special Agricultural Loan" program to give farmers access to needed capital.

(2) Strengthened manpower guidance resources

 Provision of "agricultural operational preparatory funds" and guidance of new farmers to stabilize their operations

To stabilize the lives of new farmers, lower operating risks, and create a positive agricultural operating environment, in the second half of 2020 the MOA began promoting a program for "agricultural operational preparatory funds" for young farmers. These are available to new farmers who have graduated from publicly funded agricultural classes, have graduated from departments of agriculture, or have been through professional agricultural training. These farmers can receive a maximum of NT\$360,000 or NT\$720,000 in preparatory funds over two years, to help them remain in farming as a profession. As of 2023, a total of 666 persons had qualified for these funds.

 Grass-roots agricultural lectures and special classes for women managers of agricultural production-and-marketing groups (APMGs)

To improve the organizational effectiveness of domestic APMGs and empower management personnel of APMGs and strengthen their competency, in 2023 the



MOA conducted nine grassroots agricultural lectures in areas including agriproduct design, marketing, cost control, industrial management, new media marketing, product aesthetics, and team collaboration. The lectures advanced APMGs' diversified management skills, enhanced their organizational functioning and effectiveness, and cultivated talent for them. In addition, to encourage female members to strengthen competency in marketing, financial affairs, and management and to encourage them to participate in decision-making, the MOA held two special classes for women managers of APMGs. These classes were aimed at promoting greater female participation and encouraging rural women to develop their creative and management outlooks.

Training of skilled cross-disciplinary personnel

In 2023, aiming to strengthen the operational innovativeness of people who engage in farming as a profession and enhance their ideas about the management and use of intellectual property rights as well as their understanding of and competency in the use of the contents and terminology of specified digital services, the MOA held training classes for cross-disciplinary agricultural technology talent cultivation and new classes in AloT agriculture. We trained 80 people specialized in the technology management and R&D needed for agricultural development. At the same time the MOA established an industry-academia exchange network to promote opportunities for cross-disciplinary cooperation and drive the transformation and upgrading of agriculture in Taiwan.

 Cross-disciplinary interactions with young farmers from New Southbound Policy (NSP) partner countries

From November 4 to December 2 of 2023, the MOA held a series of five activities on the theme "Linking Taiwan's Agriculture to New Areas." These attracted over 100 elite students from 11 NSP partner countries studying in various fields in Taiwan to visit outstanding domestic agribusinesses. These activities increased the willingness of these students to stay in Taiwan's agricultural sector, strengthened people-oriented and diverse cross-domain interactions, acted as a platform for multi-faceted exchanges, promoted resonance between Taiwan's second-generation farmers and international cross-

disciplinary youth who are friendly to Taiwan to promote agricultural extension in Taiwan, and generated projects for potential bilateral cooperation.



Elite young students from New Southbound Policy partner countries studying in various disciplines in Taiwan visited the Magical Mushrooms Tribe's intelligent production factory.



Elite young students from New Southbound Policy partner countries studying in various disciplines in Taiwan visited the YesHealth iFarm.

(3) Use of diversified agricultural labor to deal with the agricultural labor shortage

With "increasing the supply of manpower" and "reducing the demand for manpower" as the main strategies, the MOA has adopted multiple measures to diversify sources of labor. At present there are 14 cities and counties considered to be "labor shortage focal points" that have established agricultural manpower teams, using workers from Taiwan to assist with agricultural work. In 2023 a total of 47 teams (including 12 mechanized cultivation teams) with 1,951 workers were established, and they worked a total of over 300,000 man-days, providing services to 5,843 farms.

In terms of the use of foreign manpower, the MOA had previously permitted the hiring of foreign labor to undertake work under the "Outreach Agricultural Services Program" (OASP) and in animal husbandry, farming (orchids, edible mushrooms, and vegetables), and aquaculture,



supporting domestic agricultural labor in a supplementary fashion. In June of 2023, the Ministry of Labor agreed to liberalize qualifications for eligible agricultural employers, newly allowing those in the flower, seedling, fruit tree, miscellaneous staple crop, special-use crop, facilities agriculture, and forestry industries to apply to hire foreign workers. As of the end of 2023, the MOA approved hiring of 5,898 foreign workers in 4,945 cases in designated farming, forestry, animal husbandry, and aquaculture sectors and 218 cases under the OASP to work in various agricultural areas.

In addition, the MOA coordinated with a program under the New Southbound Policy for young foreign farmers to come to Taiwan to do internships. This program has arranged for selected young farmers from Indonesia and the Philippines to come to Taiwan to do internships at farms and assist with agricultural work in a "learning by doing" format. This has helped alleviate the agricultural labor shortage in Taiwan. As of the end of 2023, a total of 171 young foreign farmers had come to 79 farms in Taiwan to do internships and assist with agricultural work.

In terms of "reducing demand for manpower," the MOA promoted outsourced mechanized cultivation services and agricultural services in order to adjust production-and-marketing operating procedures and introduce labor-saving agricultural machinery and equipment. We promoted humanmachine collaboration for outsourced cultivation and thereby reduced demand for manpower. In 2023 the MOA organized 12 outsourced mechanized cultivation teams and five labor-saving machinery projects, covering numerous industries including miscellaneous staple crops, sorghum, garlic, tea, leafy vegetables, cabbage, Chinese cabbage, and waste branches from fruit trees. Outsourced cultivation services were provided on over 3,000 hectares.

Based on an analysis of data from MOA-commissioned agricultural manpower surveys and the worker assignment database of the Agricultural Human Resources platform, since 2017 the number of core agricultural households that regularly hire workers or have temporary labor shortages has fallen by 44.18%. This indicates that agricultural labor policies promoted by the MOA have effectively mitigated the shortage of agricultural labor.



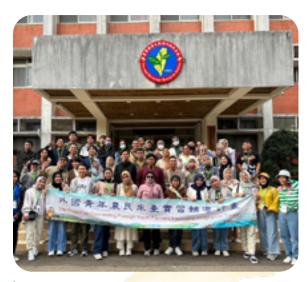
Circular cutting of a lychee tree by an agricultural manpower team.



A young foreign farmer assigned to work at a chicken farm.



Closing ceremony of the second group of Indonesian young farmers doing internships in Taiwan.



Young foreign farmers visit a tea plantation to learn about Taiwan's agricultural technology.





An outsourced mechanized cultivation team at work.

6. Use of Technology to Develop Innovative Agriculture

(1) Promotion of agricultural technology industrial clusters

In order to attract skilled agricultural personnel and technology-based agribusinesses and promote the formation of an industrial cluster, the MOA's Agricultural Technology Park (ATP) Administration Center, located in Pingtung, integrates services including import and export customs clearance, inspection and quarantine, warehousing, and transport to create an optimal investment environment for an agricultural technology industrial cluster that combines R&D, production, and foreign and domestic marketing. As of the end of 2023, 115 firms had moved into the ATP creating about 2,800 jobs. In the future, in accordance with industrial trends including coldchain logistics, circular agriculture, and net-zero carbon emissions, the ATP will continue to upgrade its hardware and software functions to increase the scale of the industrial cluster.

Meanwhile, the Taiwan Orchid Technology Park (TOTP), located in Tainan, occupies 175 hectares of land, with greenhouse construction over 95 hectares. In order to meet the needs of long-term development and upgrade international competitiveness, in 2023 the TOTP was placed under the jurisdiction of the MOA and incorporated into the ATP Administration Center. As of the end of 2023, 68 businesses had moved into the TOTP to produce orchids, creating about 1,300 jobs. In the future we will introduce technologies including green energy, the circular economy, and intelligent production into the TOTP to promote the transformation and upgrading of the orchid industry.



The MOA's Agricultural Technology Park (ATP) Preparatory Office was upgraded to become the ATP Administration Center on August 1, 2023. It will continue to work with academia and industry to create agricultural technology industrial clusters unrivalled in the world.

(2) Promotion of smart agriculture

During Phase 1 of the smart agriculture program which ran from 2017 to 2022, 11 demonstration smart agriculture alliances were established with stable production and marketing capabilities. The MOA integrated information and communications technology (ICT) to create multiple integrated applications, using userfriendly interactive technology to innovate new communications models. These helped agricultural industries to increase production value by over NT\$2.018 billion and lower costs by over NT\$596 million. The MOA has also promoted an agricultural technology innovation program, with farm, fisheries, and animal husbandry operators investing a total of NT\$677 million through participation in the program. We have thus far stimulated agribusinesses to invest a total of NT\$2.244 billion in smart agriculture. In order to transfer achievements in these fields to local businesses for their use, we have also used smart technology to assist in building integrated industrial chain ecosystems.

During Phase 2 of the smart agriculture program, which began in 2023 and is called the "Program for Smart Agriculture Promotion and Popularization," the main strategic goals are "making production and marketing smart and automated, adding value to services, and creating industrial networks." Working with the Ministry of Economic Affairs, the MOA is proposing suitable solutions and encouraging cooperation with local governments to accelerate scientific and technological research and expand its applications. The aim is to encourage upgrading and transformation of agriculture in Taiwan by moving along the path of smart agriculture and promoting the formation of a sound ecosystem for





growers, extending its use on 9.3 hectares.

(3) Industrialization and valorization of agrotechnology R&D results

In terms of promoting the industrialization of agrotechnology R&D results, in 2023 there were newly developed cultivars of important agri-food crops in four categories, including: (i) Staple crops: Tainung No. 85 rice developed by the Taiwan Agricultural Research Institute (TARI) and Tainan No. 19 peanuts developed by the Tainan District Agricultural Research and Extension Station (DARES); (ii) Vegetables: Taichung AVRDC No. 2 peppers developed by the Taichung DARES, Hualien No. 8 bitter gourd developed by the Hualien DARES, and Taitung No. 2 winged bean (Chunfong) developed by the Taitung DARES; (iii) Flowers: Tainung No. 10 Oncidium orchid (Cleopatra), Tainung No. 11 Oncidium orchid (Flower Butterfly), Tainung No. 12 Oncidium orchid (Cardinal), and Tainung No. 2 Chinese pink (Summer Pink Cloud), all developed by TARI; Taoyuan No. 2 calanthe (White Jade Pixie) and Taoyuan No. 1 camellia (Crimson Summer), both developed by the Taoyuan DARES; Tainan No. 5 garden orchid developed by the Tainan DARES; Hualien No. 7 day lily, developed by the Hualien DARES; and Taitung No. 1 Dendrobium orchid (Panda), developed by the Taitung DARES; and (iv) Fruit trees: Taichung No. 6 grapes, developed by the Taichung DARES.

In 2023 the MOA had 44 cases of intellectual property rights (IPRs) acquisition, including 29 patents and 15 variety rights. A total of 11 businesses were licensed to use these IPRs, with income from R&D results being NT\$78.76 million. In 2023, there were three highlight technologies, including: "mass production technology of cold storage for the natural enemy of the lychee stink bug—the egg parasitoid *Anastatus japonicus*," "a novel microbial insecticide *Metarhizium anisopliae*

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The facilities vegetable ecosystem.

agricultural industries. Achievements resulting from promotion of the program in 2023 included: 23 cases of technology transfer by R&D teams, with royalties of NT\$4.5 million, and encouragement of follow-up applications by industries; and stimulation of additional investment by industries totaling over NT\$180 million, which helped industries increase production value by NT\$80 million.

The MOA has built a smart agriculture ecosystem for rice, assisting in the actual application of smart agricultural technology on the ground. The "smart disease and pest early warning display system" developed by ICT service providers (which includes early warning technology for leaf blast and the brown planthopper) was licensed to existing agricultural services ICT platforms who expanded its functions, while the MOA encouraged even more farmers and agribusinesses to utilize it. The system has been viewed over 100,000 times and been used over 30,000 man-times. We also established a facilities vegetable ecosystem, building cooperation among nine businesses and promoting the ecosystem through 11 demonstration venues. The MOA worked with the Taoyuan City Department of Agriculture and the Hsinchu County



MA-126 WP for biocontrol of agricultural pests," and "value-added applications of *Botryocladia leptopoda* processing technology."

Also, in 2023 the MOA organized the Agricultural Technology Pavilion at the BIO Asia-Taiwan Exhibition, the Taiwan Agricultural Health Pavilion at the Healthcare+ Expo Taiwan, and the Sustainability Pavilion at the Taiwan Innotech Expo, which combined attracted over 78,000 visits. A total of 96 technologies were displayed at the three trade fairs, and 733 business discussions were arranged to help promote industrial applications of outstanding technologies resulting from R&D. In terms of highlight results, at the invention competition at the 2023 Taiwan Innotech Expo, the Taiwan Seed Improvement and Propagation Station won a bronze medal in the domestic invention competition for "the use of a composition containing an extract of Dendrobium for enhancing the normalization of tear secretion."



The Taiwan Agricultural Health Pavilion at the 2023 Healthcare+ Expo Taiwan.



The Sustainability Pavilion at the 2023 Taiwan Innotech Expo.



The Taiwan Seed Improvement and Propagation Station won a bronze medal in the domestic invention competition at the 2023 Taiwan Innotech Expo.

(4) Improvement of facilities for basic research

In order to undertake breeding in response to climate change; meet demand for safe applications for farm, fisheries, and animal husbandry products; and strengthen the innovation and R&D capabilities of research institutes under MOA jurisdiction, we have continued to improve basic research facilities in order to create more capability for Taiwan agriculture to adapt to climate change and achieve the goals of reducing vulnerability and enhancing resiliency. In 2023 the MOA completed establishment of a national level plant phenomics analysis center under the Taiwan Agricultural Research Institute; completed establishment of a beneficial insect germplasm bank under the Miaoli District Agricultural Research and Extension Station; and set up facilities for breeding of varieties resistant to controlled environmental stresses at four District Agricultural Research and Extension Stations (in Taoyuan, Miaoli, Kaohsiung, and Hualien).

In addition, the MOA's Fisheries Research Institute has plans to create germplasm banks for saltwater fish, shrimps, shellfish, and algae. The MOA has already completed the aquaculture facilities for large migratory fish at the Zhiben germplasm bank. Meanwhile, the MOA's Taiwan Livestock Research Institute plans, in response to climate change, to establish a variety of breeding facilities for stress-resistant breeds of pigs, cattle, sheep, and forage with high biosecurity. We have already completed a smart simulated climate stress-resistant and biosafe greenhouse and a cowshed for off-site preservation of economically important animals from offshore islands.

The MOA will continue to complete planned agri-food and aquatic animal germplasm banks and breeding facilities for stress-resistant livestock. We look forward to the completion of comprehensive facilities for basic R&D in order to ensure food security and promote the sustainable development of agriculture.

(5) Integrated services for agricultural digital information

 Promotion of applications of agricultural open data

To enhance the transparency of government administration, the MOA has continued to collect, collate, and release information to the public, providing it for non-



governmental interface applications. By the end of 2023, the MOA had provided over 10 million pieces of information in 1,615 data sets, earning "gold labels" for 1,525 data sets, of which 381 earned "platinum labels." In addition, we held the 2023 "agricultural open data hackathon" on the theme of "net-zero agriculture, sustainable progress." Through public-private collaboration there was cocreation of industrial innovation, providing new applications for agricultural data.

Through the "Agri Beta" platform (the "smart agriculture common information platform"), since 2017 the MOA has provided traceability data for farm, fisheries, and animal husbandry products to the Ministry of Education's "Campus Food Ingredients Registration Platform." In 2023 the Agri Beta platform provided access to more than 41 million pieces of information related to the "Three Labels and One QR Code" system, campus food ingredients, weather observation and forecasting, and market conditions for agriproducts, while API services were accessed by the public for more than 11 million pieces of information related to agriproduct traceability, the "Traceable Agricultural Products" labeling system, and weather forecasting. The MOA thereby enhanced the value, usefulness, and transparency of data and promoted interindustry cooperation and innovation in services.



The 2023 agricultural open data hackathon.

 Construction of a cooperative platform for agricultural spatial information

The MOA's "cooperative platform for agricultural spatial information" screens out useful agricultural industrial data related to farmland spatial planning (such as the distribution maps of rice paddy cultivation in various crop seasons over the years, farmland land coverage, sensitive crop data, and information on fields left fallow or transitioning to other crops) for reference in matters related to

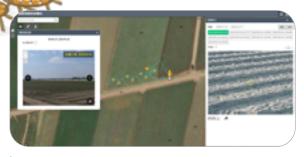
upholding the environmental safety of farmland including hooking farmland up with electricity and monitoring of factories built on farmland.

Moreover, in cooperation with local governments the MOA used street views, onsite photographs, and aerial photographs taken from the newly acquired remote sensing aircraft of the Aerial Survey and Remote Sensing Branch of the Forestry and Nature Conservation Agency to construct "cloud services for a national agricultural spatial imaging databank." In coordination with the development of AI interpretation models for important crops and agricultural facilities nationwide and in combination with national high-speed Internet and the capabilities of computing centers, we developed the "near real-time agricultural imaging map" and the "underwriting map for agricultural insurance." The MOA promoted the use of imaging to assist in evidence-based governance applications such as managing agricultural insurance and matters related to the review and approval of natural disaster relief.

The MOA further utilized the real time kinematic positioning services developed by the Taiwan Agricultural Research Institute and, in coordination with geographic information system software, accessed control point and coordinate data for fruit trees about to sprayed with pesticides. With this data we developed an automated positioning model based on corrected coordinates of regional benchmark control points and developed corresponding measures for precision pesticide-spraying by location.

The MOA also continued to promote the "agricultural natural disaster on-site photo App" to be used by farmers and victims of natural disasters for reporting of damage and surveys of natural disaster situations. During 2023 the App was utilized in some cases of reporting of losses from typhoons Doksuri, Haikui, and Koinu, effectively accelerating the provision of agricultural natural disaster relief. From July 1 to October 31 of 2023, the App was downloaded 8,054 man-times and 86,881 photographs were uploaded.

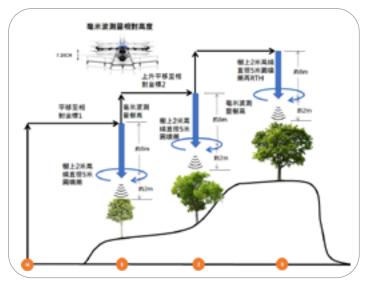
The BigGIS (Big Geographical Information System) of the MOA's Agency of Rural Development and Soil and Water Conservation is based on abundant cartographic data. In 2023 the digital elevation API services of the



The MOA uses aerial photographs, street views, and on-site photographs to achieve the goal of "evidence-based governance."



A 3D image depicting flooding damage to buildings using simulated debris flow data for Gangziliao in Keelung City from the BigGIS system (http://gis.ardswc.gov.tw/map/).



The MOA developed an automated positioning model for pesticide spraying using corrected coordinates of regional benchmark control points.

Department of Land Administration of the Ministry of the Interior were expanded and the national 3D basic map was updated to provide comparisons between 3D cross-sectional profile measurements and two phases of digital elevation data. This refined the analysis of water conservation services models, permitted visualized display of sediment quantitative data, and made possible the complete and real time display of CCTV images from debris flow

observation stations in a BigGIS 3D setting as well as the setting up of a virtual integrated GIS platform. Meanwhile, the BigGIS Lite version strengthened on-site survey applications, and was combined with main locations for water conservation matters to expand the functions of multiple positioning queries and field survey notes. This assisted users to use mobile devices to complete their service tasks and enhanced the effectiveness of reconnaissance of related matters.

Modernization of agricultural information

To enhance the usefulness of the "agriculture and food production-and-marketing information integrated platform," in 2023 the MOA expanded the content of information on that platform's homepage and improved interface operations, as well as expanded downloading services for themed open data. These improvements enable users to rapidly access all kinds of production-and-marketing data and make value-added use of it. In addition, with respect to the platform's "search of unified crop names and code numbers" function, we added 525 photos of agriproducts done by professional photographers to help enhance understanding of agri-food crops and agriproducts.

The MOA continued to use the multiple distribution channels of, and cell phone App for, "Field-Side Assistance" to take the initiative to send out customized agricultural information to individuals, such as the transaction prices for agriproducts, surveys on the agricultural situation, information about plant diseases, and



The "search of unified crop names and code numbers" interface of the "agriculture and food production-and-marketing information integrated platform."



The homepage and search function for market transaction conditions of the "Pig Farm Production Management System" App.

early warning for weather damage to crops in agricultural special zones; in 2023 this service was provided over 2.86 million man-times. Moreover, each day, through electronic bulletin boards we transmitted information on important agricultural policies and measures, real-time agricultural weather reports, production and marketing, and farmers' welfare to farmers' and fishermen's associations at all levels.

In order to improve the efficiency of management of agricultural work, the MOA developed the "Farm Production Management System" fieldwork mobile management system, and proactively promoted it for use by farmers, agribusinesses, and outsourced cultivators. As of 2023 this system was being used at a total of 23,000 farms, with over 27,000 users, with the managed area of cultivated land reaching 220,000 hectares. It has effectively increased farmers' production efficiency and competitiveness. Moreover, in order to promote informatization of operational management in pig-raising, we also developed the "Pig Farm Production Management System," which provides services including real-time work records and reminders of irregularities, and it can also produce multiple data analysis. As of 2023 this system was being used at a total of 809 pig farms, providing Taiwan pig farm operators with a convenient and efficient management tool.

The MOA continued to cooperate with the National Science and Technology Center for Disaster Reduction to establish an "agricultural disaster information platform" for the government's disaster response information network. Through integrated agricultural and weather data, such as real-time weather and disaster information, the agricultural land use situation, crop distribution, real-time disaster damage images, vulnerability analysis, and economic impact analysis of agricultural losses, the system provides situational assessments before, during, and after disasters, enabling

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Early warnings of weather damage for crops in agricultural special zones and automated information notifications.



the construction of a comprehensive disaster prevention notification mechanism. The system was used during nine agricultural disaster response operations in 2023, automatically disseminating early-warning notifications and corresponding disaster prevention and response measures.

7. Putting Animal Protection into Practice

(1) Refinement of management measures for stray dogs

In response to problems arising from the adoption of a "No Kill" policy at animal shelters and in order to remedy manpower and resources gaps between rural and urban areas, the MOA continued to refine its systematic and scientific stray animal control measures to control dog and cat populations. In 2023, we guided 19 local governments to do home visits to check on animal situations in demarcated "hot spots" (taking the village or neighborhood as the unit of demarcation) to ensure that pet owners completed reporting of pet registration and pet neutering or neutering waivers. In addition, homeless dogs were caught and neutered, while dogs that posed a public safety problem were taken into public animal shelters. As of the end of 2023, the MOA completed 49,915 home visits, inventoried 14,604 domestic dogs, and found 12,117 homeless dogs, thereby dealing with 99.22% of all dogs in hot spots. From 2014 to the end of 2023, we assisted 20 local governments to construct or renovate 28 animal shelters, of which the Yanchao Animal Shelter in Kaohsiung was upgraded into an environmental education venue.



The Hsinchu County Animal Shelter and Education Park, opened on July 1, 2023.

(2) Improvement of pet management

To strengthen management of the pet industry, in 2023 the MOA conducted 13,706 inspections of pet breeding and trading businesses with punishments handed out in 162 cases. In this way we effectively put source management and flow management of the pet industry into



Sample testing of pet food.

practice. We have also completed three sets of animal welfare indicators (including guidelines for animal care) and provided these to pet owners to offer them basic principles and suggestions for the raising and care of animals.

To monitor the health and safety of pet foods, in 2023 the MOA conducted 100 sample tests of dog and cat food sold on the open market nationwide, conducting separate tests for items including aflatoxins, T-2 toxin, melamine, salmonella, and heavy metals (lead, cadmium, mercury, arsenic). The tested products all conformed to the relevant provisions of the "Standards for Types and Tolerance Levels of Pathogenic Microorganisms and Health-Hazard Materials in Pet Food," with 100% of products inspected being up to standards and 98% of the packaging labels inspected being up to standards.

(3) Management of humane treatment of animals

In 2023 the MOA supervised local governments in making inspections of animal transport and slaughtering operations on 661 occasions, and held 54 lectures for animal transport personnel and slaughtering personnel, with 973 people earning lecture-attendance certificates. Moreover, we conducted 93 inspections and guidance sessions for the performing animal industry nationwide as well as 66 supervisory inspections of institutions that use animals for scientific purposes, while also holding six seminars on humane management



The inspection team for institutions that use animals for scientific purposes conducts education and training at such a facility.

of animals used for experiments and the principle of the 3Rs (reduction, replacement, and refinement), with a total of 446 attendees.

8. Promotion of Rural Regeneration

(1) Cooperative promotion of Rural Regeneration by the central and local governments

In 2023 the MOA assisted 22 local governments to use cross-domain and interagency resources in an integrated manner to undertake comprehensive rural development programs and annual implementation plans. They implemented Rural Regeneration tasks including 357 projects for overall environmental improvement and public infrastructure, 416 projects for industrial stimulation, 98 projects for cultural preservation and utilization, and 48 projects for ecological conservation.

(2) Implementation of the "Crossregional Rural Industry Plan and Regional Shining Spot Plan in Rural Area"

In order to upgrade basic production conditions and the quality of life in rural communities, the MOA has strengthened cross-domain coordination and integration and promoted participation by diverse organizations to advance the construction of "Regional Shining Spot" venues in rural areas (including venues for food and agricultural education, rural community experiential activities, and promotion of the Satoyama Initiative) as well as main axes for development. We have undertaken promotion of rural industries, cultural preservation, ecological conservation, and overall environmental improvement for production, ecology, and daily life. The MOA has created 35 regional or themed Shining Spot zones, undertaken 145 projects for environmental improvement, and assisted 140 rural communities with improvement of their overall industrial environments and living spaces, with a total improved area of 476 hectares. In addition, in coordination with 301 software projects (for matters including industrial planning and design, industrial marketing, cultural preservation, ecological conservation, and recruitment of labor and purchase of materials for local construction projects) as well as ten projects for the introduction of new agricultural technologies, we assisted industries including cocoa, coffee, tea, bagged ginger, and lychees, providing localities and regions with considerable aid in rural development.

(3) Rural manpower training and education extension programs

In order to train people with diverse skills at the local level, the MOA has offered training a total of 166,452 man-times in 2,740 communities (64.15% of all rural communities in Taiwan), and has approved 1,059 Rural Regeneration plans. Moreover, through grassroots education and programs such as the "Rural Up" project for college and university students to return to rural communities, the MOA has provided young people with opportunities to participate in rural communities and assisted a total of 1,272 young people to create new value in such communities with innovative operating models.

(4) Guidance of fishing communities to implement community sustainable development

The MOA commissioned universities to form guidance teams which in 2023 visited 46 fishing communities to guide organizations including community development associations and fishermen's associations to foster local regeneration and strengthen the ability of residents to take autonomous action and increase their willingness to help energize their fishing communities. We deepened the capabilities of fishing community organizations and gave appropriate assistance depending on each community's development situation.

Moreover, the MOA provided "main point" guidance in 18 fishing communities, implementing Rural Regeneration plans to shape fishing community tourism, training of young people, and food and fisheries education, depending in each case on local resources, with the goals of improving fishing community economies and the quality of life of their residents and implementing sustainable development. On November 29, 2023 the MOA held the "2023 Fishing Village Revitalization &



Images of the century-old Songjiang Battle Array performance troupe are depicted on a wall as part of the construction of a cultural corridor in the Dingchang community of Houbi District, Tainan City.

Recreational Fishery Conference—Collaboration & Sustainability & New Future." At the event government agencies, fishermen's associations, fishing communities, and young fishermen shared and exchanged their multi-faceted fishing community development experiences to collectively work toward the common good, sustainability, and a new future for these communities.



A Taiwanese beach seine activity on the streets of the Shuiwei community in Miaoli County.



An overnight fish drying experiential activity in the Xinlong community of Pingtung County.



A guided tour of the Gangbian community of Yilan County.











1. Expansion of Organic Agriculture and Eco-Friendly Farming

In accordance with planning under the "Organic Agriculture Promotion Act" and the current organic agriculture promotion program, organic agriculture will play a critical role in agricultural adaptation strategies for future environmental issues including climate change and net-zero carbon emissions. In accordance with the legislative intent of the "Organic Agriculture Promotion Act," the MOA has continued to offer guidance policies including incentives and subsidies for organic agriculture as well as subsidies for organic certification and testing fees, agricultural machinery and processing equipment, greenhouses and net greenhouses, and fertilizer for organic agriculture. By the end of 2023, 7,414 households benefitted from such policies.

In terms of marketing and promotion, the MOA guided the setting up of special areas for organic agriproducts in 243 sales outlets, the founding of organic farmers' markets in 16 locations, and the establishment of 112 e-market platform businesses for organic agriproducts, of which 97 already have set up organic agriproduct QR Codes to facilitate searches using a mobile phone App. At present 101 restaurants have joined the "Organic Gourmet Restaurant" system and 404 mobile restaurants (or franchise outlets) have signed the "Green Dining Pledge" to use organic ingredients. We have also guided 10 corporate workers' cafeterias to become "Green Restaurants." Moreover, with respect to student lunches, in 2023 organic ingredients were used in the lunches for 1.79 million students in

3,100 middle and primary schools in 22 cities and counties, with weekly supply volume exceeding 255 metric tons. We have used diversified methods to expand consumption of organic foods and provided impetus to the growth of organic agriculture.

As of the end of 2023, Taiwan had 18 certification bodies permitted to undertake organic certification, of which five could do overseas certification. In addition, there were 45 organizations reviewed and recognized by the MOA to engage in promotion of eco-friendly farming. A total of 17,365 hectares (ha) of farmland was certified as organic, with a further 6,749 ha registered as being under eco-friendly farming, for a total of 24,114 ha, which accounted for 3.06% of all cultivated land in Taiwan. For the year chemical fertilizer use was reduced by 28,600 metric tons and pesticide use by over 313 metric tons, while emissions of greenhouse gasses were reduced by the equivalent of 47,300 metric tons of carbon dioxide.

Taiwan has signed organic equivalency agreements with seven countries including New Zealand, Australia, Japan, the US, Canada, India, and Paraguay, indicating that organic agriculture in Taiwan is up to international standards and that Taiwan is able to promote international cooperation and exchanges on issues related to organic agriculture as well as trade in organic agriproducts. As of the end of 2023, Taiwan had exported 101.29 metric tons of organic agriproducts.



The Organic Agricultural Research Center, the first institution of its kind in Asia, began operations in Hualien County in November of 2023.



A National Organic Day activity.



The 2023 3rd Annual Awards Ceremony of the Green Dining Guide.



An organic group cultivation zone was established in the Maguang area of Yunlin County.



2. Promotion of Sustainable Fisheries and Improvement of Fishing Port Infrastructure

(1) Conservation of oceanic fisheries resources and management of coastal fishing fleet activities

The MOA maintains a firm grasp on information related to fishing vessel operations through the Fisheries Monitoring Center. In 2023, the MOA continued to strengthen overall monitoring and control functions, including: (i) alert for failure to report vessel location or catch information as required by regulations, (ii) alert for entry into non-designated ports, (iii) alert for entry into other countries' Exclusive Economic Zones or ocean areas for which a vessel does not have permission to go, and (iv) detection of unauthorized transshipments at sea. We thereby enhanced the effectiveness of Taiwan's fisheries management.

On March 29, 2023 the MOA announced amendments to the "Regulations for the Management of Coastal and Offshore Fishing Vessels Catching Crabs" in order to strengthen management of this industry. We banned fishing for egg-carrying females from August to December each year, prohibited fishing boats from offloading or carrying crabs without stomach plastrons, and prohibited anyone from selling crabs without plastrons from August through December of each year.

To ensure sustainability of Pacific bumper resources, on October 27, 2023 the MOA announced amendments to the "Regulations for Fishing Vessels Catching Mackerels and Jacks" to add an annual Total Allowable Catch and catch quotas for individual fishing vessels, bringing the Pacific bumper industry into the age of output management.



New rules were added to the "Regulations for the Management of Coastal and Offshore Fishing Vessels Catching Crabs" to ensure that no crabs without plastrons are to be carried or sold.

(2) Promotion of eco-friendly fishing methods

The MOA continued to promote "measures for demarcating areas where gillnet fishing is banned and for guiding transformation of the gillnet fishing industry." So far, we have guided 16 local governments (municipalities, cities, and counties) in defining areas (time periods) where/when gillnet fishing is banned. In addition, in 2023 we guided 473 fishing vessels (rafts) that had been engaged in gillnet fishing to switch over to line fishing or trolling; thus far 3,708 gillnet fishing vessels (rafts) have been guided to switch over to other methods.

To solve the problem of abandoned, lost, or otherwise discarded fishing gear, the MOA continued to promote the ID-based gillnet marking policy which gives users responsibility for their gillnets. In 2023 local governments carried out inspections of gillnet fishing vessels entering, leaving, or docked at ports on 3,268 occasions. Currently all gillnet fishing vessels that actually leave port for fishing operations have complied with the gillnet marking policy.

The MOA also continued to clear away abandoned fishing nets in artificial reef areas, strengthening clearing in "hot spots" chosen based on scientific research. In 2023 the MOA subsidized two local governments and three district fishermen's associations to clean up four artificial reef areas, in order to maintain the ecology on artificial reefs and the effectiveness of their fish aggregation functions.



Verification of compliance with the ID-based gillnet marking policy at a fishing port.



Clearing away abandoned fishing nets from an artificial reef.

(3) Upgrading of fisheries industries

To expand offshore net cage aquaculture, in 2018 the MOA set up a disaster-resistant smart net cage aquaculture demonstration site in the seas off of Pingtung County. We invested in scientific R&D (introducing automated and intelligent systems), and built a positive management system

(germplasm management, disease prevention, use of probiotics), and combined these with disaster-resistant submersible assemblies to effectively reduce risk and enhance operational effectiveness. As of 2023 the MOA successfully stimulated investment in 21 net cage sites in those seas, which are estimated to increase the production value in local fishing communities and the aquaculture industrial chain by NT\$445 million.

In order to encourage the transformation of the traditional aquaculture model, the MOA has been guiding aquaculture operators to adopt a scientific aquaculture management model. We have worked through aquaculture organizations to subsidize 547 sets of demonstration smart equipment. Through real-time information in the cloud, operators can get up-to-the-minute information about their fish ponds, and through a mobile phone App can freely adjust equipment operations. This helps aquaculture operators optimize their production management processes and upgrades the efficiency of their operations.



A smart electrical control box.

(4) Improvement of infrastructure at fishing ports

The Qian-Zhen Fishing Port in Kaohsiung, an important base for the distant-water fisheries industry, was built more than 50 years ago. In order to bolster its wharf operations capacity, optimize space for offloading of fish, improve the operations venue for independent retailers and wholesalers, introduce hygiene and safety rules, and build a comprehensive wastewater treatment system, in 2023 the MOA continued to work together with the Kaohsiung City Government to promote the "medium and long-term special infrastructure program at Qian-Zhen Fishing Port" (running from 2021-2024, with funding of NT\$8.137 billion). We have completed renovation of the exteriors of the Kaohsiung fishermen's services center and the Kaohsiung District Fishermen's Association fisheries building as well as finished the central plaza in the core area of the Qian-Zhen Fishing Port and also the main building for the Qian-Zhen multi-functional fishing vessel crew services center. It is anticipated that the MOA will successively complete work on the Qian-Zhen Fishing Port and



the renovation work on the deepwater wharf of the Cijin (Qijin) Fishing Port starting in 2024.

The Woo-Chi Fishing Port in Taichung is the most important coastal fishing base in central Taiwan, and NT\$1 billion was set aside for its improvement as well as the installation of coldchain, processing, and other equipment. The "fish market construction project," "freezer and icemaking facility project," and the "small boat docking area and floating wharf construction project" are all expected to be completed in 2025. The completed program will drive growth in the local economy and upgrade the value and competitiveness of seafood products.



The multi-functional crew member services center at Qian-Zhen Fishing Port.

(5) Protection of human rights in the fisheries sector

To enhance human rights in Taiwan's fisheries sector, the Executive Yuan approved the "Action Plan for Fisheries and Human Rights" (2022-2025) on May 20, 2022. In addition, the MOA amended the "Regulations on the Authorization and Management of Overseas Employment of Foreign Crew Members" in 2022. The amendments raised the minimum salary for migrant crew members employed overseas to US\$550, clearly stipulated the method of payment of remuneration, established rest periods, and implemented attendance records. Moreover, we also improved insurance coverage, set forth obligations and qualifications for recruitment agents, and continued to mandate inflatable life jackets for crew members working on deck on distant water fishing vessels. Subsidies for the purchase of 4,785 life jackets were approved in 2023.

The MOA also subsidized 257 fishing vessels to install CCTV and incentivized three vessels providing accessible Wi-Fi to crew members. Moreover, five onshore living facilities were constructed and the continuous time that distant water fishing vessels can remain at sea has been limited to no more than ten months. In addition, inspections were conducted on 640 distant water fishing vessels, 299 operators' places of business, and 55 recruitment agents' places of business. We also established requirements for working

conditions on board flag-of-convenience vessels as well as a joint inspection mechanism, organized 32 activities to support migrant crew members, held eight dialogue sessions with non-governmental human rights organizations, and conducted 30 awareness-raising sessions on the International Labour Organization's "Work in Fishing Convention" along with 30 sessions on human rights education or corporate social responsibility.



A meeting with foreign crew members.

3. Upgrading of Animal Husbandry

(1) Upgrading and structural adjustment of the pig-raising industry

Raising the survival rate of pigs

In order to encourage pig farmers to use new management models of production systems, the MOA commissioned the Agricultural Technology Research Institute to produce a relevant handbook. As of the end of 2023 guidance had been provided to pig farms 2,008 times to promote batch production and target management and ensure accurate production records. Pig farmers were also guided to introduce appropriate new facilities (equipment) to effectively upgrade production efficiency. There was an increase of 4% in the number of "marketed-pigs per sow per year" (MSY) at guided farms.

The MOA's Taiwan Livestock Research Institute continued to guide pig farms to raise their survival rate. In 2023 we guided 74 pig farms, making 182 on-site guidance visits, with the average pig survival rate at guided farms reaching 84.87%. The "weaned-pigs per sow per year" (PSY) and the MSY at guided farms reached 19.9 and 16.3, respectively.

The MOA also held two education and training sessions and published a handbook on achievements in enhancing the pig survival rate. Through sharing of management ideas and production technology among people in

this industry and the practical application of these approaches to pig farms, we enhanced the pig survival rate.



A pig farm with newly introduced facilities and equipment.



- Guidance (education and training) at a pig farm.
- The transformation and upgrading of the pigraising industry

In 2023 the "program for comprehensive transformation and upgrading of the pig-raising industry" employed methods including source adjustments and total volume management to keep the wholesale price of pigs within a reasonable range. For the year the average wholesale price for pigs was NT\$89.61 per kilogram. Moreover, insurance was taken out for 12.409 million pigs for a 100% insured rate. In addition, the MOA continued to develop export markets, and in 2023 Taiwan exported 2,899 metric tons of live pigs, pork, and related products with production value of NT\$720 million. We also promoted modernization of slaughterhouses and upgrading of meat cold chains, with 11 slaughterhouses receiving "Hazard Analysis and Critical Control Points" (HACCP) certification. The MOA furthermore guided the transformation and upgrading of pig farms, introducing modernized labor-saving equipment at 1,473 farms and guiding a total of 2,039 farms (35.13% of all pig farms in Taiwan), with excellent results.

 Upgrading of the quality and safety of domestic fresh pork

In order to safeguard the rights and interests of consumers, the MOA continued

to strengthen the use of traceability codes on domestic pigs to indicate the source farm in order to differentiate domestic pork from imported frozen meat. As of the end of 2023 the traceability coverage rate for domestic pork reached the target goal of 92%.



On-site inspection for HACCP certification of a pig slaughterhouse (skinning work).



On-site visit to an HACCP-certified slaughterhouse. (Press conference on July 4, 2023 to promote HACCP certification of pig slaughterhouses.)

In response to increasingly rigorous demands for meat sanitation and safety in the domestic consumer market, and in line with the international trend of promoting HACCP certification for slaughterhouses, since 2020 the MOA has strategically guided the modernization of slaughterhouses and upgrading of meat cold chains. Also, since we amended the operating standards for slaughterhouses and issued the "Operation Directions for Implementation and Measurements for Verification of Hazard Analysis and Critical Control Point in Slaughterhouses," the MOA has used guidance, training, and certification as the main coordinating measures to provide steps including training courses on sample applications for certification, dispatching staff to provide on-site guidance for certification, education for management and control personnel, and training in viscera cleaning. We have guided livestock and poultry slaughterhouses nationwide to go through a process of documentary review by a review committee, on-site inspections, and final review and approval by a review committee, after which the MOA issues certification documents in Chinese and English. As of the end of 2023,

25 slaughterhouses had received HACCP certification, thereby successfully introducing modernized management systems by the MOA.

(2) Upgrading and structural adjustment of the poultry industry

In order to ensure the demand for eggs by domestic sales channels and to stabilize the production-and-marketing process and price of eggs, in 2023 the MOA adopted a number of measures to refine egg production and marketing (supply and demand), including: (i) setting up an information platform for egg production and marketing on the MOA official website, with egg production and egg supply data updated each week for reference by businesses in adjusting egg production and sales; (ii) regular convening of meetings on allocation of estimated egg productionand-marketing volume, with analysis of data to stay up-to-date on the egg production-and-marketing situation; and (iii) raising of the number of imported layer breeders from 260,000 in 2022 to 330,000 in 2023 in order to increase the supply of chicks and accelerate renewal of the hen population and thereby increase egg production efficiency.



This automated egg collection system reduces the amount of labor required for the daily work on livestock farms.



Automatic environmental control systems for livestock farms provide stable growth environments for chickens.

Meanwhile, it is often necessary to commit a great deal of funding and manpower in order to deal with the impact of global extreme weather and the severity of the worldwide highly pathogenic avian influenza (HPAI) situation that cause losses to domestic poultry-raising businesses

as well as cope with the obsolescence of poultry farm equipment and gaps in biosecurity and disease prevention that cause the industry to lose competitiveness. In order to fundamentally upgrade biosecurity and adversity resistance at poultry farms, enhance the efficiency of their operations, and accelerate industrial upgrading, the MOA set out a plan to guide poultry farms to upgrade their poultry buildings into non-open or closed type water curtain buildings and introduce automated equipment. We gave priority to helping small and medium-sized traditional poultry farms to invest in rebuilding and raised the amount of subsidies to encourage farmers to participate in the program. At the same time, we formed a technical team of experts to assist poultry farms with on-site technical guidance. In 2023 guidance was provided to 73 poultry farms to rebuild their poultry buildings as non-open or closed water-curtain buildings.

(3) Upgrading and structural adjustment of the herbivore industry

In response to competition caused by international trade liberalization, besides defensive measures to consolidate Taiwan's foundation, the MOA continued to promote innovative value-added and structural adjustment in the herbivorous livestock industry, actively promote new industrial value chains, develop high-efficiency production models, and stabilize the supply of domestic products. We also have rolled out safe production and accreditation and certification systems to shape a high-quality image for livestock products and stay in step with development trends in the industry.



Low-temperature milk storage tank.

Moreover, we kept the wholesale price of cattle and sheep within a reasonable range: In 2023 the average wholesale price for beef cattle was NT\$120.75 per kilogram, while for mutton sheep it was NT\$381.84 per kilogram. In addition, the MOA continued to promote its program for guiding the upgrading and modernization of cold-chain facilities and equipment for the cattle and sheep industries, completing: (i) one project to

optimize the cattle slaughter line at the Tainan City meat market, (ii) installation of 56 low-temperature milk storage tanks at dairy farms, and (iii) deployment of a total of 34 temperature controlled vehicles for beef and mutton animal corpses and facilities for low-temperature milk storage and temperature control.

(4) Measures for the reclamation of livestock and poultry excreta

The MOA has worked with other government agencies including the Ministry of Environment and the Industrial Development Administration (of the Ministry of Economic Affairs) to collectively promote a policy of converting animal waste into resources. We have adopted measures that include guiding businesses to reduce the number of washes of livestock barns, promoting the installation of watersaving and wastewater circular reuse equipment at livestock farms, and encouraging circular reuse and conversion of excreta water into resources.

As of the end of 2023, there were a total of 3,552 projects nationwide to promote the use of excreta water in irrigation, with estimated irrigation volume using such water surpassing 11.456 million metric tons for the year and the area of irrigated land reaching 5,045 hectares. This was equivalent to reducing the use of Taiwan Fertilizer Corporation #5 compound fertilizer by 5.447 million bags. In addition, we expanded promotion of the use of seed sludge from livestock farms in wastewater treatment systems for the petrochemical, optoelectronic, and dyeing and finishing industries; by the end of 2023, a total of 56,000 metric tons of seed sludge had been reused, creating a win-win situation for livestock farms and industries.

Meanwhile, the biogas produced during the anaerobic fermentation stage of the livestock excreta wastewater treatment process is also a resource with considerable potential. Since 2017 the MOA has been promoting the reuse of pig farm biogas for power generation. As of the end of 2023 a total of 2,784,879 pigs were involved in this program, which reduced greenhouse gas emissions by 75,000 metric tons, equivalent to the annual carbon emissions of 265,000 motorcycles or the carbon sequestration capacity of 195 Da'an Forest Parks.

In addition, the MOA's Taiwan Livestock Research Institute (TLRI) provided on-site assistance to local governments through eight livestock pollution prevention teams working across the country to provide customized guidance in renovation of livestock barns, rearing management, feed nutrition, and pollution prevention. They also assisted the agriculture and environment bureaus in local governments to conduct reviews and on-

site guidance for the program for using biogas slurry and biogas residue as fertilizer nutrient sources. These teams provided guidance 530 times. The MOA also coordinated with local governments or industry groups to hold related explanatory meetings, lectures, and on-site handson demonstrations a total of 18 times. In addition, we held the two-day "2023 learning session for guidance teams for water saving, waste reduction, and waste reclamation and reuse at pig farms" to refine the expert knowledge and guidance skills of team members.

In addition, over the past ten years, in coordination with the TLRI's promotion of the policy of converting livestock excreta water into a resource, the MOA has been continually monitoring pangola grass land and underground water in areas using cattle excreta in irrigation. Results show that the levels of monitored items including electrical conductivity, total copper, and total zinc are all far below the levels that would, according to regulations, require the termination of this form of irrigation, while there was no significant change in the value of ammonia nitrogen in monitoring wells in the downstream sections of underground water.



A mobile tank is used to transport livestock excreta water to irrigate pangola grass land.

4. Promotion of Sustainable Forestry and Biodiversity

(1) Plantation and afforestation

The MOA's Forestry and Nature Conservation Agency has established separate-track management goals for economic forest and non-economic forest. In 2023 we completed afforestation on 915.91 hectares (ha), thinned 184.7 ha, and produced 30,619 cubic meters of timber. The MOA also promoted the "Forestry Sustainable Multi-Guidance Incentive Program," which upgraded the production of timber by private forest owners and developed operating methods for diverse forestry operations. We guided 13 forestry production cooperatives or agribusinesses covering an area of 1,616 ha. To facilitate identification of legal domestic timber, the MOA

set up the "Taiwan Forest Products Production Traceability System," with 178 businesses, 3,199 products, and about 54,600 cubic meters of domestic timber receiving certification.

The MOA also continued to promote the "Program for Development of the Emerging Bamboo Industry," which was approved by the Executive Yuan. We approved 29 projects for renewal of bamboo forest on land reserved for indigenous peoples, covering 26.91 hectares, ameliorating the negative effects on bamboo production of compensation for cutting of bamboo trees on land reserved for indigenous peoples. The MOA moreover set up a cross-disciplinary integrated technical guidance platform for the micro bamboo industry, with links to R&D results for uses for domestic bamboo, in order to remedy the lack of technical or marketing services for domestic bamboo businesses. In addition, the MOA's Taiwan Forestry Research Institute developed a bamboo harvesting machine to enhance the efficiency of harvesting of sympodial bamboo and increase bamboo supply.



Promotion of the manufacture of musical instruments using domestic materials.



MOA-guided lumber production by the Yongtai Forestry Cooperative.



The development of this bamboo harvesting machine has enhanced the efficiency of harvesting of sympodial bamboo.

(2) Strengthening protection of forest

The work of protecting forest emphasizes prevention of illegal logging and investigation and interdiction of illegal cultivation (occupation) of land. There are 1,046 forest rangers who conduct patrols using modern technology to strictly prevent illegal logging. Moreover, the MOA and the Ministry of the Interior have jointly promoted the "advanced operations plan for preventing illegal logging in mountain forests," installing (or purchasing) 36 new remote monitoring systems, 83 infrared cameras, and 15 time-lapse cameras. We have proactively incorporated the power of the non-governmental sector, uniting with 82 communities adjacent to national forest, eight college and university hiking clubs, and 255 national forest monitoring volunteers to participate in patrols and protection, with a total of 15,522 patrols (man-times) and 300 reports of illegal activities.

Furthermore, the MOA has strengthened forest fire and rescue equipment, periodically held exercises, and introduced new technologies and skills to build the "forest fire risk assessment system." Using forest fire weather indicators, the system displays the level of risk of forest fires all over the country. In coordination with the disaster prevention early-warning cell broadcast service, it reminds people entering areas with high risk of forest fires that lighting fires is prohibited, in order to reduce the risk of, and losses from, forest fires.



Helicopter hoist training conducted in cooperation with the National Airborne Service Corps of the Ministry of the Interior



A forest fire response exercise.

(3) Promotion of nature conservation

 The National Biodiversity Strategy and Action Plan

To strengthen carbon sequestration by forests and protect biodiversity in Taiwan, in response to the "Kunming-Montreal Global Biodiversity Framework," and through integration of national sustainable development goals and the policies of various agencies, the MOA has completed consultations with experts and related policy planning tasks and drafted the "National Biodiversity Strategy and Action Plan" (which we will continue to discuss with relevant ministries and agencies) to serve as the guide to protection of biodiversity in Taiwan.

Construction of spatial information for ecosystems

To implement spatial planning for habitats and the natural environment, in 2023 the MOA launched a program to categorize the ecosystems in Taiwan. We have continued to communicate with relevant organizations and experts to discuss the categorization of ecosystems as well as an implementation mechanism. In the future the MOA will integrate existing land use and ecological data with ecological information from the Taiwan Ecological Network, and will steadily develop spatial information tools for area-based conservation.

The Taiwan Ecological Network (TEN) program

The MOA has identified 44 TEN biodiversity priority areas and 45 regional conservation corridors. We have also assisted other government agencies to focus on landscape spatial issues and constructed habitat networks from the forests to the coastal areas. In 2023 the MOA completed 157 regional cooperation projects, the "TEN Mapping" platform, and the "Taiwan Biodiversity Information Alliance" common search system. We also put up 19.14 hectares of vegetation in ecological corridors, established 54 biodiversity-friendly sites based on the spirit of the Satoyama Initiative, and maintained or created 822 hectares of wildlifefriendly farmland.

The "Payments for Ecosystem Services for Endangered Species and Critical Habitat Promotion Program"

In order to encourage the public to take conservation into account when making their decisions on daily life and making a living, in 2021 the MOA launched the "Payments for Ecosystem Services for Endangered Species and Critical Habitat Promotion Program"

for the leopard cat, the eastern grass owl, the otter, the pheasant-tailed jacana, and (later) the Formosan black bear. In 2023 five additional species were incorporated into the program, including the farmland treefrog, Russet sparrow, Asiatic banded water snake, yellow-margined box turtle, and yellow pond turtle. In 2023, a total of 11 cities and counties participated, encouraging habitat-friendly management on 845 hectares, successfully building 438 habitat sites, and organizing 102 community teams to patrol lowlands environments, thereby expanding public participation and enhancing the effectiveness of conservation of farmland ecosystems.

Conservation action plans for endangered species

The MOA has announced action plans for 21 endangered species in Taiwan including the Formosan flying fox (Formosan fruit bat) and invited various agencies to participate in more than 10 cross-regional conferences in order to collaboratively implement conservation actions for the eastern grass owl, the central Taiwan gudgeon, the leopard cat, etc. Meanwhile, the documentary film When Worlds Collide: A Formosan Black Bear's Deadly Dance with Civilization won a Gold Remi for documentaries at the Houston International Film Festival and was provided to schools at all levels located in black bear hotspots for wildlife conservation education. In 2023 the MOA completed four rescue, treatment, and release actions for black bears, held a black bear rescue exercise, and strengthened Formosan black bear conservation.



The rice fields in the Lanyang Plain generate one harvest per year, and some rice farmers have created post-harvest eco-friendly farmland for migratory bird habitats.



On May 12, 2023 a press conference was held to announce the launch of the "Taiwan Ecological Network Mapping" platform.



These lush rice fields located to the east of Provincial Highway 11 have been cultivated again using eco-friendly farming methods, yielding abundant crops.



On November 14, 2023, the yellow-margined box turtle was included in the "Payments for Ecosystem Services" program.



After the black bear Da-qu-ali recovered from its injuries, it was released back into the wild on November 13, 2023, following a blessing ceremony held by the Bunun indigenous people.

(4) Development of the under-forest economy

The MOA has been promoting the underforest economy since 2019, successively permitting items including "log-cultivated shiitake and woodear mushrooms," "Anoectochilus formosanus," "forest beekeeping," "Camellia formosensis," "Strobilanthes cusia," and "Ficus formosana" to be lines of business that can be carried out in forest areas. These have thus far created NT\$36 million in value for mountain villages and indigenous communities. We further have established "under-forest <mark>econo</mark>my development centers" in northern, central, southern, and eastern Taiwan, accelerated assessment of new products for the under-forest economy, developed local specialty products, and expanded sharing in the benefits of the multiple service values of forest ecosystems. Meanwhile, the MOA's Taiwan Forestry Research Institute has developed molecular identification technology to

identify *Camellia formosensis* and hybrids to reduce the possibility that forest farmers will plant adulterated *Camellia formosensis*.



The *Ficus formosana* was newly added in 2023 to the list of permitted products for the under-forest economy.

(5) Prevention of foreign invasive species

The MOA collaborates with various agencies to adhere to the principle of "discover early, respond early" and uses eco-friendly methods to eradicate invasive species and rigorous monitoring to minimize damage. In 2023, on the Hengchun Peninsula we cleared 783.394 hectares (ha) of the river tamarind and implemented eco-friendly reforestation on 198.6 ha, planting multi-layered forest areas with multiple mixed native tree species, restoring the tropical monsoon forest, creating habitats and environments suitable for native animal species, and enhancing biodiversity. In addition, in cooperation with local governments in other areas of Taiwan we collectively cleared 63.88 ha of the river tamarind.

Moreover, the MOA (i) eradicated 120 African sacred ibises and 57,739 green iguanas; (ii) cleared 858.85 ha of the mile-a-minute weed (*Mikania micrantha*), 237.52 ha of the Santa Maria feverfew, and 50.06 ha of giant sensitive trees; and (iii) eradicated a total of 60,304 invasive aquatic organisms including Amazon sailfin catfish, American crawfish, redclaw crayfish, marbled crayfish, striped snakeheads, and giant snakeheads.



A foreign invasive species: The African sacred ibis.

(6) Promotion of forest comanagement

Based on the principle of resource sustainability, the MOA has implemented 12 autonomous hunting management demonstration programs nationwide, training indigenous hunters to undertake self-management of the natural resources in mountain forests, with the goals of ensuring self-management of hunting by indigenous peoples and preservation of traditional culture. Also, in accordance with the "Regulations of Harvesting Forest Products in Light of Indigenous Peoples' Customary Lifeways," we have protected the traditional right of indigenous peoples to harvest forest plant resources.

The MOA has also continued to promote a forest co-management mechanism with indigenous peoples, with branches of the MOA's Forestry and Nature Conservation Agency (FANCA) setting up 11 co-management committees with local indigenous communities. FANCA's Hsinchu Branch has even worked with Saisiyat indigenous people in Nanzhuang Township of Miaoli County to establish a forestry cooperative and develop underforest beekeeping, shiitake mushroom farming, and ecotourism and steadily expand industrial involvement while also entrusting tribal members with thinning in forest compartments and forest patrols, to cooperatively protect the mountain forest environment in the Nanzhuang area.



The "Hrung Hunting Culture Association" was established on May 30, 2023, to promote sustainable use of wildlife resources.

(7) Promotion of the Satoyama Initiative

The MOA held four regional workshops for the "Taiwan Partnership for the Satoyama Initiative" (TPSI) in northern, central, southern, and eastern Taiwan. A total of 117 public and private sector actors, academic institutions, and nongovernmental organizations participated. We also held 23 contact meetings for members of the "International Partnership for the Satoyama Initiative" (IPSI) across Taiwan to share information on their progress. In addition, in July of 2023 the MOA participated in the "Ninth IPSI Global Conference" in Akita, Japan, where attendees shared their

experiences on the international promotion of the Initiative

Meanwhile, the MOA assisted 38 communities across Taiwan to promote the Satoyama Initiative and did inventories at 64 communities with Satoyama potential to select partners for follow-up guidance. In April of 2023 we invited the director of the IPSI Secretariat to visit Taiwan and visit Penghu to see young people participating in a case study of Satoumi landscape preservation and encourage learning by TPSI members and rural Satoyama Initiative promoters.



At the "Ninth IPSI Global Conference," Professor Yoshitaka Kumagai talked about the "30x30" strategy.



A delegation from the IPSI Secretariat exchanged views with participants in an experimental base founded by young people in Penghu County.

(8) Promotion of environmental education and forest therapy

Environmental education

The MOA has continued to operate Nature Centers and Ecological Education Centers as platforms for promoting the exploration of forest environmental education by the general public and cultivating pro-conservation attitudes. We also have offered eco-sustainable forest wisdom courses that combine indigenous tribal culture and development. In 2023 learning opportunities were provided a total of 135,000 man-times through relevant programs including classes, activities, and guided tours of relevant Centers. Furthermore, to train community forestry personnel, we held on-site workshops at six stations in the "community forestry center"

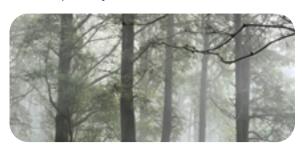
network, in order to build consensuses on community development and train personnel to promote environmental education.



An on-site workshop on "the under-forest economy: advanced class in forest beekeeping," offered by the Mingde Community Beekeeping Restoration Center in Miaoli County.

Forest therapy

The MOA created a "forest therapist certification and training platform." Already 34 people have been certified as forest therapists. They will guide members of the public into immersive sensory experiences in mountain forests, with the system providing greater guarantees to people who want to experience forest therapy. Moreover, to expand options for forest therapy venues, the MOA has guided seven owners of private forest to develop forest therapy. From the perspective of forestry management, participation by such owners can revitalize and promote the effective use of local privately owned forest.



The "Shuishan classroom" on the Shuishan Healing Trail includes stone seats set up on the trail and a preexisting stone platform used for lectures to create the atmosphere of an outdoor classroom.



Members of the public experience a forest therapy activity at the Alishan National Forest Recreation Area.

(9) Preservation and redevelopment of forest cultural resources

With four Forestry Culture Parks as the core, the MOA has traced back old forestry culture and linked up with buildings of historic interest for forestry in urban areas to organize Taiwan forestry culture landscape corridors. In 2023 we completed renovation and preservation of the Historical Building of the Alishan Hotel, and rented out or commissioned operators to reuse the Japanese-style dormitories in the former Nishikicho area of Taipei City, the hand-woven bamboo products factory at the Chiayi sawmill, and the Luodong sawmill specialty sales center.

Moreover, using the cultural heritage of "Alishan forestry and railway culture scenery" as the foundation, we applied to the Executive Yuan for approval for the "Great Alishan Historical Corridor Centennial Advancement Construction Plan," which will improve the safety and quality of services of the Alishan Forest Railway and promote the comprehensive upgrading of scenic locations, recreational spots, and local industries.



The Historical Building of the Alishan Hotel, a countylevel historic site in Chiayi County, was renovated with preservation of its original appearance.

(10) The launching of new remote sensing aircraft

To support surveys of agriculture and forestry resources in Taiwan as well as planning for infrastructure projects, and to meet the increasing demand from various sectors in society for aerial remote sensing data, the MOA implemented the "national aerial remote sensing aircraft update plan." By financing rentals, we imported two high-functioning aerial remote sensing aircraft to meet the needs of Taiwan's multifaceted topography. After being built and outfitted in the US, the two planes arrived in Taiwan, and after a year of procedures including crew training, equipment installation, and testing and certification of functions, they smoothly began aerial remote sensing duties in 2023. Equipped with sensing devices including highresolution aerial digital cameras, airborne Lidar, and hyperspectral sensors, they provide the country with diverse aerial remote sensing data.



A new-type aerial remote sensing aircraft (a King Air 360ER) takes off to fulfill its duties.



A press conference to introduce the new King Air 360ER aerial remote sensing aircraft was attended by MOA Deputy Minister Wen-Jane Tu and more than 100 guests.

5. Enhancing Food Security

(1) Promotion of Asia-Pacific Economic Cooperation (APEC) initiatives related to food security

On July 20 and 21, 2023 Taiwan hosted the "APEC Workshop on Reducing Food Loss and Waste by Strengthening Resilience and Digitalization in APEC Food System," where APEC member economies discussed the importance and challenges of reducing food losses and waste in the post-COVID-19 era. In August, MOA Minister Chi-Chung Chen attended the "APEC Food Security Ministerial Meeting" hosted by the US to share Taiwan's policies on promoting net-zero carbon emissions in agriculture and maintaining food security with APEC member economies, as well as highlighting to them the accomplishments and future outlook in Taiwan's role as the lead economy on the topic of reducing food losses and waste. Meanwhile, at the 27th Annual Meeting of the APEC "Agricultural Technical Cooperation Working Group," Dr. Su-San Chang was approved by group members as "lead shepherd" for the third consecutive term.



Representatives of APEC member economies and international organizations gathered in Taipei to exchange experiences on digital tools and innovative technologies to reduce food losses and waste.



Minister of Agriculture Chi-Chung Chen attended the "APEC Food Security Ministerial Meeting" hosted by the US to share Taiwan's policies on strengthening the resilience of its food system.

(2) Promotion of intelligent facility agriculture

In order to (i) mitigate the impact of climate change; (ii) enhance disaster prevention and production efficiency; (iii) produce high-quality agricultural products; (iv) guide improvements in operational efficiency; and (v) stabilize market supply and demand, the MOA has launched an intelligent facility agriculture program. We have guided farmers to construct structurally reinforced greenhouses, introduced smart environmental control equipment, and assisted farmers in adopting automated labor-saving cultivation with these facilities

In 2023 the MOA guided the vegetable, fruit, flower, and seedling industries to engage in cultivation in temperature-controlled greenhouses covering 268 hectares. This effort was combined with certifications of produce grown in these facilities such as "Taiwan Organic" or "Traceable Agricultural Products" certifications, in order to promote eco-friendly cultivation, improve the quality of agricultural products, and stabilize their supply. The MOA has fostered clustering and promoted economies of scale in the facility industry while establishing smart, labor-saving practices to attract young people to return to or remain in rural communities to pursue farming, enhancing the development of those areas. Additionally, an event was held to select and present awards to the top facility-based agricultural operations, recognizing the endeavors of ten award-winning farmers and



promoting the MOA's achievements in facility agriculture guidance.



Cultivation of vegetables in temperature-controlled greenhouse facilities enhances rain protection and disaster resilience, improves quality, and stabilizes yield.



The award ceremony for top facility-based agricultural operations, recognizing ten award-winning farmers.

(3) Promotion of the "select three crop seasons out of four for growing paddy rice" policy

To accelerate adjustment of the paddy rice industrial structure and also ensure sustainability of the agricultural cultivation environment, in 2021 the MOA began to promote the "select three crop seasons out of four for growing paddy rice" policy. On farmland meeting the criteria for two growing seasons in the base year, we guided farmers starting in the second crop season of 2022 to ensure that the cultivation of their land in the previous three crop seasons included at least one season of cultivating crops other than paddy rice or adopting environmental maintenance measures. Only then were they allowed to sell the rice grown in the current growing season for public rice stocks or collect the rice subsidy for Big Professional Farmers. We combined this measure with subsidies and incentives for alternate (contract) crops or environmental maintenance under the Green Environmental Payment Program, to encourage farmers to switch from paddy rice to other crops that can be used for import substitution, export, or as local specialty products.

The aims of these measures were to encourage a rational system of rotation between wet and dry crops, raise soil fertility, reduce

pesticide use, reduce the area of land cultivated with paddy rice, and improve the domestic selfsufficiency rate for miscellaneous staple crops, in order to stabilize supply and demand and rice prices in the market while also ensuring domestic food security. Following the implementation of this policy, the area cultivated with paddy rice fell to 222,416 hectares, a decline of about 30,000 to 40,000 hectares compared to previous years, thereby ameliorating the problem of an oversupply of rice. In 2023, during harvest time the price for wet rice exceeded NT\$1,000 per 100 Taiwanese catties (60 kilograms), with prices in certain areas rising to NT\$1,300 during the second crop season of 2023, the highest price ever. The policy successfully stabilized rice prices in the market and increased farmers' incomes.

(4) Promotion of the Big Granary Project

The MOA has been promoting the Big Granary Project since 2016 in order to reduce the area cultivated with paddy rice and revitalize fallow farmland. Under this program we have guided farmers to switch over to miscellaneous staple crops (MSCs); built an MSC outsourced cultivation system; established collective production areas; set up post-harvest product concentration, handling, and distribution centers; introduced market differentiation mechanisms; linked up with the processing industry; held marketing activities; organized related food and agricultural education events; and established strategic alliances for MSC industries. The target areas for this program have included the low-vield area of second-season rice cultivation in the north; ratoon rice areas in central Taiwan; the corridor along the High-Speed Rail line through Changhua, Yunlin, and Chiayi (especially the area with land subsidence); and rice growing areas of southern Taiwan with two crop seasons.

Achievements of the Big Granary Project in 2023 included: (i) holding 71 hands-on demonstration events on cultivation management in the fields, safe use of pesticides, and mechanical operations, thereby enhancing the efficiency and quality of MSC cultivation and raising unit yield and the supply of MSCs; (ii) guiding the establishment of 90 collective production areas for domestically produced MSCs, covering 10,001 hectares (ha) of land, an increase of six areas and 1,028 ha compared to 2022; (iii) establishing 17 post-harvest concentration, handling, and distribution centers; (iv) subsidizing the purchase of 200 pieces of production-and-marketing equipment and building of an MSCs outsourced cultivation system in order to expand the scale of production; (v) building a market differentiation mechanism identifying domestic as opposed to imported MSCs through

safe traceable production systems including Traceable Agricultural Product certification, Taiwan Organic certification, and QR Code traceability labels; (vi) promoting the consumption of more than five million servings of domestically produced soy milk at school lunches; and (vii) holding 16 integrated marketing activities for MSCs, driving N\$146 million in sales and the use of 1,035 metric tons of domestic MSCs, while influencing consumers to accept and buy more domestic MSCs through developing sales channels and wider media exposure and drawing attention to high-quality domestic MSCs through promotional campaigns and marketing publicity.



A press conference for a competition for food products made from domestic miscellaneous staple crops and suitable for long-term storage.



Cultivation of sorghum seeds.

In addition, to increase domestic production capacity for animal feed, the MOA continued to fund and supply seeds for MSCs including flint corn and sorghum. In 2023 we guided the National Animal Industry Foundation and the Yizhu Township Farmers' Association (in Chiayi County) to contract with farmers to grow flint corn, and in the second crop season of that year the contracted area reached 14,851 ha, an increase of 26.89% compared to the second crop season in 2021.

In response to the impact on global supply chains of extreme weather, the COVID-19 pandemic, and the Russia-Ukraine war, in 2022 the MOA began to promote expansion of the cultivated area and production volume of flint (or silage) corn to raise the self-sufficiency rate for animal fodder in Taiwan. Measures have included incentivizing

farmers to expand contract cultivation of pasture, encouraging diversification of agricultural byproducts and technology to process them, increasing the storage of fodder, and promoting regional forage/fodder demonstration farms. We have also continued guidance and subsidy measures to promote automation of forage/fodder production equipment to replace imported fodder. In 2023, 31,596 ha of land were cultivated with feed corn (including flint and silage) and there were 6,430 ha of pasture.

(5) Using traceable domestically produced ingredients in school lunches and non-staple foods for the military

In order to achieve the goal of traceability of school food ingredients and ensure that children are fed with clearly sourced, high-quality, and safe domestic agriproducts, in 2016 the MOA began working with the Ministry of Education to promote the use of fresh traceable domestic food ingredients in school lunches. We have provided a subsidy in order to help schools cope with the increased cost of using "Three Labels and One QR Code" ingredients. In 2022, in coordination with the expanded promotion of food and agricultural education under the "Food and Agricultural Education Act," the MOA adjusted the subsidy to NT\$10 per person per meal in ordinary schools and NT\$14 at schools in remote areas. And in 2023 we further strengthened the promotion of the use of certified agriproducts for school lunches to enhance the traceability and safety of school lunch ingredients.

As of the end of 2023, 98.36% of registered lunch ingredients used in 22 cities and counties across Taiwan had Three Labels and One QR Code certification marks. In addition, there were 3,750 sample tests for pesticide residue in fresh fruit and vegetables used in school lunches, with 96.59% of samples being up to standards; 805 sample tests for residues of veterinary pharmaceuticals in livestock and poultry products, with 99.8% being up to standards; and 300 sample tests of aquatic products, with 100% being up to standards.

Meanwhile, to ensure the safety of food served in the military, in September of 2017 the MOA began promoting the use by the military of traceable vegetables (including ones with Traceable Agricultural Product and Taiwan Organic certifications) provided by farmers' groups as non-staple foods. During the early trial period 16.08% of purchased ingredients met this criterion and this number reached 49.05% in 2023, showing concrete progress.



In terms of fisheries products, the MOA introduced a traceability system for these products, stabilized the supply and quality of aquatic products, and created a platform for the collective purchase and supply of fisheries products for school lunches. We also worked with the Chinese Food Container and Food Business Association, R.O.C. to establish a contract procurement mechanism for agricultural transport-and-marketing cooperatives in Taiwan to supply schools with domestic traceable aquatic products for student lunches for the academic year from September of 2023 to August of 2024, with estimated procurement of 500 metric tons.

As for seafood for the military, based on the "Directions of Fishermen's Association Applying for the National Troops Fishing Product Supply Business," the MOA has guided the National Fishermen's Association to organize 10 district fishermen's associations (including those in Keelung, Wanli, Tamsui, Chiayi, Ziguan, Linyuan, Donggang, Hualien, Xingang, and Penghu) to handle the supply of fisheries products to the military with QR Code traceability management for 29 fisheries products (including tilapia, fresh squid, and whiteleg shrimp). In 2023 about 625 metric tons of seafood were sold to the military under this program, with sales value of about NT\$120 million.



A press conference to announce the addition of pineapple as a school lunch ingredient.

(6) Strengthening food and agricultural education

Based on the "Food and Agricultural Education Act," in May of 2023 we completed planning for the first phase of the food and agricultural education (FAE) promotion program (2023-2027). We set goals and action strategies based on the four main axes of "integrating resources to construct an FAE promotional system," "promoting local production, local consumption and developing sustainable agriculture," "imbuing people with the concept of a balanced diet and reducing food waste," and "expanding FAE to make it widely accessible while deepening food and agricultural research and innovation." We also continued to guide 22 local

governments (municipalities, cities, and counties) across Taiwan in planning and drafting local plans for the first phase of the FAE promotion program, combining horizontal links and vertical integration to enable all sectors of society to rapidly understand and promote FAE.

In addition, the MOA has continued to encourage diverse organizations (including farmers' and fishermen's associations, rural cooperatives, and schools) to hold all kinds of FAE experiential activities and classes. In 2023 we expanded guidance to 254 units to develop 852 sets of course materials for farming and fisheries education programs and hold 2,310 experiential activities. The MOA also implemented a special program for pineapple FAE, guiding farmers' associations to develop pineapple-themed experiential courses, which 224 farmers' associations did.

Meanwhile, we issued the "Regulations of Qualification and Training of Food and Agricultural Education Professionals" and adopted a system for accreditation of such professionals and number of class hours required. The MOA also constructed an integrated platform for FAE resources, allowing searches of different categories depending on the user's needs; collating the FAE materials produced by various agencies of the MOA; and offering related information on FAE laws and regulations, activities, teaching materials, curriculums, and venues. We have already incorporated 127 local specialty products and 1,680 items of learning materials into the platform.

In terms of agri-foods, in 2023 the MOA continued to coordinate with school education and local specialty crops to advance FAE, promoting "rice campuses" at 48 primary schools and holding 122 seasonal rice experiential activities, with 25,129 students participating. With respect to students at ordinary and vocational middle and high schools, we held the 2023 "Creative Rice Culinary Competition," and assisted in the commercialization of outstanding products. In addition, the MOA organized FAE for miscellaneous grains (MGs, also known as miscellaneous staple crops), holding a total of ten hands-on experiential activities to students at ordinary, vocational, and agricultural schools, with 343 participants. We also held a competition for MG-related FAE projects and organized ten experiential camps for primary school students on the subject of MG-related FAE. Meanwhile, the MOA also promoted flower-related FAE, holding 33 floriculture promotional activities on cooperating campuses, with 1,155 participants, and held 12 promotional activities for organic FAE, with 600 participants.



The food and agricultural education resources platform offers a rich supply of FAE resources.

In terms of fisheries, in 2023 the MOA organized a lecture series to promote seafood and fisheries culture at 30 primary schools around Taiwan, conveying knowledge about seafood. The MOA moreover held one large-scale outdoor family seafood culture activity, to enable families to learn about seafood while having fun. We also held training and guidance for food and fisheries education teams, selecting seven teams for expert assistance to integrate their teams and pass along their promotional experiences. The MOA further arranged four food and fisheries education training courses, learning activities, and workshops, with 332 participants, and held four activities to promote food and fisheries education and seafood culture during mullet season, with 138 participants.

In terms of animal husbandry, the MOA organized 40 awareness-raising activities to promote consumption of "two servings of milk per day" at schools and in communities and taught children to understand the ingredients and nutritional information labels on dairy products; held 15 livestock industry marketing and promotional activities; and coordinated with the special areas for reducing food waste ("Cherished Choices" areas) on farmers' association websites or in their supermarkets or direct sales centers to give away domestically produced livestock products, including 15,220 packages of pork by-products and 78,433 cases of sterilized milk with a long shelf life, thereby promoting a spirit of treasuring food.



The MOA cooperated with schools to hold floriculture promotional activities incorporating classes covering horticulture, floral arts, and plant cultivation to enhance students' understanding of flowers and the land.



The MOA guided organic agriculture promotion groups to hold experiential activities related to organic farming to give consumers more awareness of current events in organic agriculture and knowledge and understanding of this type of farming.



An exhibition of achievements in training and guidance of food and fisheries education groups.

6. Ensuring the Safety of Agricultural Products

(1) Strengthening of agro-pesticide management

In continuing to promote the policy for reducing chemical agro-pesticide usage by 50% within ten years, the MOA has adopted various strategies including strengthening integrated pest management (IPM) and encouraging eco-friendly farming. Achievements in 2023 included the following:

 Promotion of IPM: The MOA established guidelines for IPM operations for crops at high-risk of agro-pesticide residues and



local specialty crops (a total of 28 crops). Demonstration areas spanned 2.500 hectares, achieving a 29% reduction in agropesticide use in these areas. We also offered IPM incentives for seven crops, providing differentiated incentives for farmers who have completed certain ratios (60%/80%) of inspected and approved IPM items. Among applying farmers, 99.27% understood IPM, indicating that promotion efforts in recent years have steadily increased farmers' comprehension of IPM. The MOA has also accelerated the development of biological plant protection products and arranged subsidies for biopesticides and plant protection products that are exempted from registration; in 2023 we promoted the use of biopesticides on 5,959 hectares and plant protection products exempted from registration on 15,262 hectares. These measures aim to upgrade domestic agricultural production technology and techniques as well as food safety, and move toward sustainable agriculture.

Promotion of the agro-pesticide spraying service provider system: In response to the demand for agricultural labor and the high risk of agro-pesticide exposure faced by agro-pesticide spraying service providers, the MOA has since 2000 promoted a system that restricts the provision of agro-pesticide spraying services to professionally trained agro-pesticide application technicians. As of 2023 a total of 3,637 individuals completed training to become agro-pesticide spraying service providers, and 781 people were registered as practitioners in this field. In 2023 the MOA arranged for nine courses of common training and 18 courses of professional training, with 579 participants in the professional training sessions. A total of 555 individuals have received licenses to become agro-pesticide application technicians.

Elimination of high-risk agro-pesticides: The MOA has established preliminary agro-pesticide risk indicators for Taiwan incorporating the European Union's Harmonized Risk Indicators (HRI) for agropesticides and Taiwan's own identification criteria for identifying "highly hazardous agropesticides" (HHPs). In the future, we will continue to reassess Taiwan's agro-pesticide management strategies regularly based on risk evaluations (including exposure assessments and proposed risk reduction measures), and with reference to scientific evidence and administrative control measures from abroad. Based on the aforementioned evaluations, the MOA announced restrictions on chlorpyrifos, prohibiting its import or manufacture on April 15, 2022 and its processing or sub-packaging on November 15, 2022. A complete ban on its export, sale, and use will take effect on April 1, 2024. At the same time, we launched a program to eliminate chlorpyrifos already in circulation, and in 2023 we completed destruction of 244 metric tons of chlorpyrifos technical concentrate, thereby significantly reducing the amount of chlorpyrifos products on the market and minimizing the associated risks.

Refinement of the plant doctor system: In order to expand services by plant doctors, the MOA in 2023 stationed 100 plant doctor trainees at farmers' associations and township (district) town halls to provide professional diagnosis services and assist in promoting integrated pest management (IPM). They provided crop diagnosis and treatment services in 8,000 cases and held 160 training and development sessions for farmers, thereby bolstering professional training and policy awareness-raising. The MOA also held three training and development sessions for plant doctor trainees as well as organized awareness-raising and dissemination activities in 28 cases. We also continued to complete the legal framework, and after relevant legislation was reviewed by the Executive Yuan in April of 2022 the law's name was changed to the "Plant Doctor Act." Later, the MOA communicated with various groups in our society who objected to that name.

The MOA also (i) refined three types of non-chemical plant protection materials (special spectrum lighting to combat the lychee fruit borer, phosphorous acid to prevent avocado root rot, and lacewings to fight small pests), with the prevention rate exceeding 60%; (ii) screened out five microorganisms that can improve plants' immune functions, reducing the incidence of disease by over 25%; and (iii) promoted the use of five types of healthy seedlings and their application at ten venues (three for passion fruit, two for citrus, two for sweet potatoes, two for scallions, and one for strawberries); 160,000 healthy seedlings were produced, which were cultivated over 20 hectares, with the incidence of disease reduced by 10%.

The MOA furthermore organized R&D and demonstration promotion of IPM-related technologies and techniques for organisms harmful to crops, promoted rational and safe use of pesticides and other safe protection materials, and combined these measures with participation by plant doctor trainees. We have already completed nine passion fruit and 10 papaya demonstration orchards, guiding farmers in these orchards to

educe chemical pesticide use by 44% on average, and 100% of farmers familiar with the relevant technologies and techniques did not use compound chemical pesticides. In terms of scallions, farmers applied cartap (to kill eggs), indoxacarb, and chlorantraniliprole (to kill larvae), and combined these with biopesticides including Bacillus thuringiensis and nucleopolyhedrovirus as well as plant protection materials such as potassium salts of fatty acids to combat larvae. This approach was very effective, with the damage rate for scallions in the fields at under 30%. We have already established two scallion IPM demonstration venues in Sanxing Township of Yilan County, with the use of chemical pesticide reduced by 25%. Evaluations of the economic effects in demonstration venues show that of fresh passion fruit meeting standards for home delivery, about 80-90% from the IPM group were purchased, compared to 40 to 50% for the conventional group. To strengthen promotion of IPM technologies and techniques, the MOA also held three additional lectures or demonstration activities benefitting more than 225 farmers, and promoted consultations on diagnosis and management of damage from diseases and pests more than 1.125 times.



A plant doctor trainee provides guidance to farmers.



An outdoor hands-on demonstration event for integrated management of tomato diseases and pests.

(2) Strengthening the management of veterinary drugs

In 2023, the MOA conducted 5,064 inspections of locations where veterinary drugs were manufactured, sold, or used, handing out penalties for legal violations in 63 cases with fines totaling NT\$6.74 million. In addition, we

worked with judicial agencies in investigating and interdicting illegal veterinary drugs on three occasions and tested for suspected counterfeit or banned veterinary drugs 86 times. There were 75 cases of the use of counterfeit or banned veterinary drugs sent to the judicial system for prosecution.

The MOA also issued 120 licenses for the manufacture or importation of veterinary drugs, conducted 28 audits of veterinary drugs manufacturing plants, and conducted 405 sample tests of post-market veterinary drugs, with 98.77% being in compliance with regulations.

Local governments conducted drug monitoring programs organized by the MOA at livestock and poultry farms and live meat pig auction markets. There were 28,335 sample tests, with 99.93% being in compliance with regulations. Farmers violating the "Veterinary Drugs Control Act" were fined and assisted by local governments to take corrective action.

Based on recommendations from the World Organisation for Animal Health (WOAH) regarding the monitoring of antimicrobial resistance, the MOA conducted antimicrobial tests of enteric indicator bacteria Escherichia coli and Enterococcus spp. from domestic livestock and poultry. The results from 2012 to 2023 showed that there was a decline in drug resistance of Escherichia coli to antimicrobial agents determined by the WOAH to be extremely important including ceftiofur, enrofloxacin, kanamycin, and oxytetracycline. Meanwhile, there was a decline or no change in the drug resistance of Enterococcus spp. to amoxicillin, ceftiofur, enrofloxacin, and oxytetracycline. In addition, vancomycin, a critically important antimicrobial agent for treating Enterococcus spp. infection in humans, is not yet approved for use on livestock and poultry. From 2022 to 2023, monitoring of antimicrobial resistance of Enterococcus spp. isolated from poultry and livestock to vancomycin indicated that 0% was drug-resistant.



Joint inspection and interdiction of the use of counterfeit or banned veterinary drugs.

(3) Strengthened monitoring and control of agriproducts safety and quality

The MOA has adjusted, on a rolling basis, the items for and frequency of sample testing of agriproducts that are high risk, have a high rate of violations, or are the subject of widespread attention. In 2023 we conducted 20,366 sample tests for pesticide residues in agriproducts at the production end, with 97.39% being up to standards. Of these, there were 14,075 sample tests of fruits and vegetables, with 96.6% being up to standards; 3,045 sample tests of tea, with 99.24% being up to standards; 3,246 sample tests of rice, with 99.08% being up to standards; 3,095 sample tests of aquatic products that had not yet reached the market, with 99.2% being up to standards; and 19,603 sample tests of aquatic products on sale in wholesale fish markets, with 99.9% being up to standards. In cases in which the tested products were not up to standards, farmers were forbidden from selling their products and we asked local governments to hand out punishments under the law and guide these farmers to corrective action

In addition, in 2023 the MOA conducted 536 sample tests for heavy metal content in food crops in farmland with high potential for pollution, with 18 cases in which heavy metal content surpassed the limits for grains or fruits and vegetables stipulated in the "Act Governing Food Safety and Sanitation." In such cases the crops were immediately eradicated to prevent them from entering the market, while the environmental authorities were notified to investigate the polluted soil and follow up to cut off the sources of the pollution. Local governments guided farmers to leave such land fallow, switch over to non-food crops, or cultivate crops (varieties) that absorb heavy metals, as well as use horticultural management methods, to reduce the risk of pollution from heavy metals like lead, cadmium, and inorganic arsenic.

To upgrade the safety of agriproducts brought into wholesale markets, the MOA has guided fruit and vegetable markets in Taipei City, New Taipei City, Taoyuan City, Taichung City, Kaohsiung City, and Chiayi City to purchase high-precision mass spectrometers to rapidly and accurately detect pesticides that are currently widely used in Taiwan. Agriproducts that do not meet standards are destroyed on the spot and the source is traced to halt further supplies, thereby ensuring safety for consumers.



Sample testing of agriproducts for pesticide residues.



Collection of a grouper sample at an aquaculture venue.

(4) Strengthened meat inspection system

Under the "Animal Industry Act," the MOA handles the establishment and change of registration for livestock and poultry slaughterhouses. As of the end of 2023 there were 174 slaughterhouses in Taiwan, of which 56 were for livestock, 117 for poultry, and one for both. In order to ensure the safety and sanitation of domestic meat products, we commissioned 655 meat inspectors hired, trained, and licensed by the National Animal Industry Foundation to work under the supervision of the MOA's Animal and Plant Health Inspection Agency (APHIA) and its branches to conduct meat inspections in these slaughterhouses. In 2023, over 7.56 million head of livestock and 379.12 million poultry were inspected. APHIA has also supervised local governments in proactively investigating and closing down illegal slaughtering operations, and has conducted interdiction of such operations and unannounced audits across the country prior to major holidays (Lunar New Year, Dragon Boat Festival, and Mid-Autumn Festival). A total of 1,760 investigations were conducted in 2023 in which 28 illegal slaughtering cases were uncovered and one head of livestock and 405 poultry were destroyed.

(5) Promotion of traceability information registration and labeling systems for agriproducts

The traceability and labeling systems for all kinds of agriproducts all use information and communications technology to disclose information about producers. Consumers need only use search methods including using their mobile devices to scan the QR Codes on product labels

or going online to the various traceability websites and entering the traceability code numbers of the products and they can immediately learn information about them. Such data includes the producer, the source production area, the source animal husbandry farm or slaughterhouse, product information, and the results of tests for pesticide or veterinary drugs residues. This meets demand from consumers for immediate search capabilities and enhances the differentiation between domestic and imported agriproducts.

As of the end of 2023, 92% of domestically produced fresh pork was traceable, as were 100% of domestic chicken eggs, and 87% of domestic poultry meat, while the ratio of removed cattle eartag ID numbers to the number of slaughtered cattle reached 100% under the Taiwan beef traceability information system. The area covered by traceable agri-food products reached 82,674 hectares, while 5,698 businesses had been guided to join the traceability search system for aquatic products. The goal is to enhance the general public's support for and identification with domestic farm, fisheries, and animal husbandry products and promote "local production, local consumption."

(6) Building dependable labeling systems

In 2023, the MOA, aiming to enhance consumers' ability to differentiate safe agriproducts and in accordance with law, continued to promote Taiwan's three certification systems: "Organic Agricultural Products," "Traceable Agricultural Products," and "Certified Agricultural Standards." We also continued to use a variety of measures to increase consumers' understanding and trust of these marks.

In terms of the Organic Agricultural Product certification system, in 2023 a total of 24,114 hectares of land was certified as being used for organic agriculture or eco-friendly farming, an increase of 24.25% compared to 2022. The MOA has introduced the "Taiwan Organic" mark for organic agriproducts, increased consumer trust in the label, and enhanced the differentiability of the label. To implement quality and label control for organic agriproducts, we conducted 5,932 label inspections and quality sample tests, with 99.09% being up to standards. The goal has been to increase consumers' trust in organic agriproducts.

As for the Traceable Agricultural Products (TAP) certification system, in 2023 6,156 agricultural product operators had TAP certification, with a production area of 98,586 hectares (an increase of 19.84% over 2022). To strengthen management of TAP-certified agriproducts, on March 24, 2023 the MOA announced amendments to the "Certification Criteria for Traceable Agricultural Products." Meanwhile,

through activities including farmers' markets and a competition to select the top producers of TAPcertified agriproducts, we increased consumers' knowledge about and support for the TAP system.

In terms of the Certified Agricultural Standards (CAS) system, in 2023 there were 258 companies that were certified to use the CAS label. with production volume of 905,000 metric tons and production value of NT\$77.3 billion. The label ensures the quality and safety of CAS-certified agriproducts. In June we held an awards ceremony for companies producing outstanding CAS-certified agriproducts to mark the 35th anniversary of the launch of the CAS system, with awards presented to 58 companies, galvanizing the wider use of local agriproduct ingredients and the development of diversified processing of such ingredients. In September, we held an activity in which Rural Green Care Stations delivered holiday gift bags of food (including CAS-certified agriproducts) to rural elderly persons to enhance their nutritional intake; people benefitted over 8,000 man-times.



Purchase of organic products means recognition of the Taiwan Organic mark.



A group photo showing Deputy Minister of Agriculture Tian-Shou Chen with the 2023 "Traceable Agricultural Products Masters."



The launch of an activity for Rural Green Care Stations to deliver age-friendly food to the rural elderly at five important holiday periods of the year.



7. Strengthening International Agricultural Cooperation

(1) Negotiation of free trade agreements

The "Comprehensive and Progressive Agreement for Trans-Pacific Partnership" (CPTPP) came into effect at the end of 2018, and by the end of May of 2023, all 11 original members had completed their national ratification processes. Meanwhile, in July of 2023 the United Kingdom formally became the 12th member of the grouping. Taiwan formally applied to join the CPTPP on September 22, 2021, and the MOA has continued to promote agricultural structural transformation to upgrade agricultural competitiveness, ensure farmers' incomes, and cope with the challenges of economic and trade liberalization. Moreover, in June of 2023 Taiwan and the US signed the first set of agreements under the "US-Taiwan Initiative on 21st-Century Trade." These agreements covered five major topics including customs administration and trade facilitation, good regulatory practices, services domestic regulation, anti-corruption, and small and medium-sized enterprises.

(2) Active engagement in international organizations

In 2023, the MOA continued to engage in the operations of international organizations including the World Trade Organization (WTO), the Asia-Pacific Economic Cooperation (APEC) forum, the Asian Productivity Organization (APO), the Asia-Pacific Association of Agricultural Research Institutions (APAARI), the African-Asian Rural Development Organization (AARDO), and the World Organisation for Animal Health (WOAH). We also assisted organizations based in Taiwan including the World Vegetable Center (WorldVeg), the Food and Fertilizer Technology Center for the Asian and Pacific Region (FFTC), and the International Center for Land Policy Studies and Training (ICLPST), with their operations.

In addition, in 2023 the MOA's Fisheries Agency participated in 130 meetings related to major regional fisheries management organizations, including the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC), the Inter-American Tropical Tuna Commission (IATTC), the Western and Central Pacific Fisheries Commission (WCPFC), the Indian Ocean Tuna Commission (IOTC), the International Commission for the Conservation of Atlantic Tuna (ICCAT), the Commission for the Conservation of Southern Bluefin Tuna

(CCSBT), the South Pacific Regional Fisheries Management Organization (SPRFMO), the North Pacific Fisheries Commission (NPFC), and the Southern Indian Ocean Fisheries Agreement (SIOFA). The MOA also participated in the 16th "Meeting of the Informal Consultation on International Cooperation for Conservation and Management of Japanese Eel Stock and Other Relevant Eel Species" and continued to promote management of eel releases and related conservation measures.

Meanwhile, the MOA's Forestry and Nature Conservation Agency attended the 23rd and 24th meetings of the APEC "Expert Group on Illegal Logging and Associated Trade" (EGILAT), where it shared information and experiences in the areas of combatting illegal timber and promoting trade in legal timber.

Moreover, the Animal and Plant Health Inspection Agency (APHIA) of the MOA continued to participate in relevant activities of the Committee on Sanitary and Phytosanitary Measures of the WTO (WTO/SPS Committee), the WOAH, and the International Cargo Cooperative Biosecurity Arrangement (ICCBA). APHIA also held an international WTO SPS seminar, inviting officials from the WTO Secretariat to visit Taiwan to serve as speakers.



Chih-Sheng Chang, director-general of the MOA's Fisheries Agency, led a delegation to attend the 20th Regular Session of the Western and Central Pacific Fisheries Commission, which was held in the Cook Islands.



The 7th Commission Meeting and meetings of related committees of the North Pacific Fisheries Commission.



Dr. Wen-Jane Tu, Deputy Minister of Agriculture and Taiwan's delegate to the World Organisation for Animal Health (WOAH), participated in the 90th General Session of the WOAH.



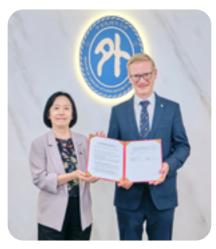
Dr. Wen-Jane Tu participated in the 33rd meeting of the WOAH Commission for Asia and the Pacific.



The Animal and Plant Health Inspection Agency of the MOA held an international conference on World Trade Organization Sanitary and Phytosanitary Standards from December 5 to 7 of 2023.

(3) Promotion of agricultural cooperation

In 2023 the MOA engaged in substantive dialogue with high-ranking officials from 11 countries through mutual visits and important international conferences. Taiwan and Lithuania signed a "Memorandum of Understanding (MOU) on Cooperation in the Field of Agriculture" while Taiwan and Thailand signed the "Implementing Arrangement on Fisheries Cooperation." Taiwan also held conferences on agricultural and economic and trade cooperation with 10 countries including Hungary, Australia, Lithuania, Thailand, Israel, Canada, and the UK, discussing and resolving 20 agricultural trade issues.



The MOA held the 1st Taiwan-Lithuania Agricultural Working Group Meeting and signed the Taiwan-Lithuania "Memorandum of Understanding on Cooperation in the Field of Agriculture."



Taiwan and Thailand signed the "Implementing Arrangement on Fisheries Cooperation."



Taiwan and France held an international conference on agricultural science and technology with special reference to net-zero greenhouse gas emissions.



In August of 2023 a delegation from the Land Development Department of Thailand's Ministry of Agriculture and Cooperatives came to Taiwan to discuss the 3rd phase of Taiwan-Thailand cooperation in the areas of landslide and erosion prevention.

Meanwhile, the MOA held the "Taiwan-Australia Business Forum on Climate Change, Sustainability, and Future Ready Trade"; the workshop "Taiwan-Thailand Online Forum on Regulations for Organic Products"; the "2023 International Symposium on Agricultural Science and Technology between MOA and INRAE (France): With a Special Reference to Net Zero GHG Emission"; and a workshop with Thailand on "Development of Accounting Systems for Farmers' Organizations." The goal of all these events was to assist in expanding bilateral market diversification and to promote (transferable) outstanding products and services from Taiwan through bilateral referrals.

In addition, Taiwan hosted the 2023 "Bilateral Cooperation Meeting on Agricultural Science and Technology" with the US, with the US side represented by a delegation of eight researchers and officials from the Agricultural Research Service led by Administrator Simon Liu. Liu witnessed the signing of two Memorandums of Understanding by the Animal Health Research Institute of the Council of Agriculture (predecessor to the MOA), signing for Taiwan, for Taiwan to become a partner in the Global Foot-and-Mouth Disease Research Alliance and the Global African Swine Fever Research Alliance.

Further, in 2023 the MOA's Agency of Rural Development and Soil and Water Conservation deepened cooperation and exchanges with various countries including Japan, Vietnam, and Thailand, and also held the INTERPRAEVENT 2023 International Symposium on natural disasters. Through international cooperation involving industry, government, and academia, Taiwan was able to further develop its science and technology for rural development, farmland soil and water conservation, and slopeland disaster management, while also raising the country's international profile.

Furthermore, in coordination with the government's New Southbound Policy (NSP), Taiwan signed bilateral agreements with NSP partner countries to enhance agricultural interactions, while also managing a program for young farmers from these countries to come to Taiwan for internships. These interns not only help to alleviate the shortage of agricultural labor in Taiwan, but foreign young farmers who acquire agriculture skills in Taiwan and return to their home countries can also advance agricultural development in those lands, achieving a win-win effect. As of the end of 2023 there had been a total of 171 young farmers from Indonesia and the Philippines serving as interns in Taiwan, assisting with agricultural work at 79 farms across the country.

(4) International marketing of agricultural products

In 2023 agriproduct exports totaled nearly US\$4.892 billion, somewhat lower than in 2022. Besides the continued impact of the suspension by China of Taiwanese agriproduct imports to its market, these products also

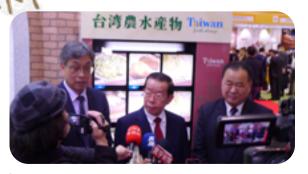
faced sharply higher international shipping costs due to the rising price of oil resulting from regional conflicts as well as an economic downturn that decreased consumption by overseas consumers.

In terms of the structure of agriproduct exports, the value of Taiwanese agriproduct exports headed to mainland China fell from 23.2% of total export value in 2018 to 10.26% in 2023, causing China to fall to third place among export markets. In 2023 the US and Japan were the top two export markets for Taiwan agriproducts, accounting for 18.4% and 14.71% of total export value, respectively. With respect to fresh fruit exports, which Taiwan is assiduously promoting, Japan rose to become the number one market for such exports, accounting for nearly 50% of their value. At the same time, there was significant growth in the value of fresh fruit exports to a number of markets, including the US, Canada, Australia, New Zealand, and Korea.

To continue market diversification, in recent years the MOA has promoted incentive measures for marketing of multiple farm and fisheries products to encourage trading companies to operate in markets other than mainland China. In combination with important policies such as the Traceable Agricultural Products system, we have guided production areas to enhance product quality.

Moreover, following the relaxation on travel restrictions caused by the COVID-19 pandemic, the MOA resumed participation in important international food fairs including "FOODEX JAPAN 2023" and the "2023 Taipei International Food Show" (aka "Food Taipei"), where we endeavored to raise the international profile of Taiwan's agribusinesses and agriproducts. At the same time, through the "Best of Taiwan Agricultural Products Festival" program, we assisted businesses to hold 53 overseas marketing activities via supermarkets in countries including Japan, Korea, Malaysia, Canada, and New Zealand to broaden the time and space for promotion of Taiwan agriproducts.

In terms of agriproduct production chains, the MOA's Agriculture and Food Agency has promoted the establishment of export-oriented fruit orchards and implemented registration to create traceability management as well as guided farmers to strengthen hardware and field management in order to stabilize supply. At the same time, they have promoted the cultivation of products that meet the production standards of export target countries and have adopted a system of sample testing for pesticide residues at fruit orchards, concentration and distribution venues, and the border, to ensure the safety and quality of fruit for export; over 90% of tested samples were up to standards.



The MOA organized a group to participate in the 2023 FOODEX JAPAN trade fair. The group was led by Deputy Minister Junne-Jih Chen who also presided over the open ceremony for the Taiwan Pavilion featuring farm and fisheries products.



A group photo at the opening ceremony for the Taiwan Pavilion at the 2023 Taipei International Food Show (Food Taipei).



Le Cordon Bleu chefs were invited from France to the Taipei International Food Show to make innovative dishes using ingredients produced in Taiwan.



The MOA subsidized the One World trading company to exhibit and sell Irwin mangoes from Taiwan at the Hyundai Seoul department store in Korea.

In addition, the MOA has continued to work through inspection and quarantine consultations and bilateral negotiations to promote the export of Taiwan agriproducts to more emerging markets. In January of 2023 we succeeded in exporting the first batch of fresh pork to the Philippines, and in June began exporting lychees to New Zealand using a combined treatment and quarantine handling approach. The MOA also (i) won permission from Japan for the export of red dragon fruit, and strove to sell designated varieties of mangoes, atemoya, guavas, and tomatoes from disease-free production areas to its market; (ii) exported pineapples, guavas, and processed meat to New Zealand; (iii) exported pineapples, mangoes, and processed meat to the US; (iv) implemented handling, export, and quarantine measures for fresh fruits for export, including mangoes, lychees, wendan pomelos, and pineapples, 1,768 metric tons of which were smoothly exported to countries including Japan, Korea, the US, New Zealand, and Australia, an increase of 33% over the same period in 2022; and (v) continued to actively guide approved orchid growers to conform to work plans and related inspection and quarantine regulations to export about 27.17 million Phalaenopsis orchids in growth medium to the US, about 3.56 million to Canada, about 2.41 million to Korea, and about 2.11 million to Australia, while about 35,000 Oncidium orchids in growth medium and about 89,800 Dendrobium orchids were exported to the US. These are outstanding results.

8. Development of Primary Processing, Cold Chains, and Diversified Marketing Channels

(1) Promotion of primary processing for agricultural products

In order to assist in the development and marketing of primary-processed products produced by farmers, on the basis of the "Regulations Governing Primary Agricultural Products Processing Yards," the MOA promoted a uniform management system for primary-processed agriproducts. Achievements in 2023 included the following:

In terms of agri-food products, on June 30, 2023 the MOA announced revisions to the "Specific Items and Processing Methods Applicable to Primary Processing Facilities for Agricultural Products." The revisions introduced "refrigerated/frozen" processing methods and 42 new items, including frozen (or refrigerated) fruit puree. The rules now cover five processing methods, 42 types of crops, and 174 processed products. We also held six regulatory explanatory meetings nationwide as well as eight sessions of education and training in processing technology as well as safety and hygiene.

The MOA moreover guided 14 processing businesses to complete improvements in accord with the Good Hygiene Practices standards and eight enterprises received registration certificates as primary processing yards. In addition, besides assisting primary-processed agriproducts to be sold through sales channels, we also

held display and sales activities at the welfare benefit committees of various corporations in the Hsinchu Science Park and at brick-and-mortar and e-commerce mobile purchasing channels, while also running a special sales area at the Kintetsu Department Store main store in Osaka, Japan, thereby increasing farmers' incomes.

In terms of aquatic products, the MOA held three sessions to promote processing policies for aquatic products operators and explain these to businesses, nine classes for education and training of aquatic product businesses and local governments, and 40 onsite consultations for seafood businesses. We have guided a total of seven operators to receive registration certificates as agriproduct primary processing yards in the aquatic products category.

With respect to forestry products, the MOA has guided six forest farmers and forestry cooperatives to prepare to set up primary processing yards. We also amended the "Specific Products and Processes Applicable to Primary Agricultural Products Processing Yards" to add new non-edible and edible items as well as processing methods under the forestry products category.



Education and training session in agri-food processing technology and food safety and hygiene held in Tainan



Primary-processed agriproducts on sale in a department store in Japan.

(2) Promotion of regional agriproduct processing centers

Regional farm product processing centers

The MOA has selected agricultural processing factories with a certain scale of operations and production capacity located in major crop production areas and that coordinate with policy as subjects for guidance to establish regional farm product processing centers. We have guided the Pingtung County Lung-

Tan Fruits & Vegetables Cooperative to build a pineapple processing plant conforming to ISO 22000 standards, with 20 hectares of pineapples cultivated under contract and use of about 250 metric tons of pineapple raw material per year. Such measures provide value-added to agriproducts and stabilize farmers' livelihoods.



Pineapple processing: Through automated cutting of pineapples into cubes, this processing plant can size the finished products to meet the specific needs of clients.

Regional seafood processing centers

The MOA has guided the Pingtung County Government and the Keelung District Fishermen's Association in building processing plants. We also assisted the processing plants for fisheries (fishermen's) organizations including the district fishermen's associations in Su'ao, Yong'an, Mituo, Ziguan, Xingang, and Penghu to purchase processing and related peripheral equipment (facilities), in order to assist local fishermen to have nearby and immediate access to factories to handle their catch. Using freezer warehousing, it is possible to balance supply and demand and promote diversification of sales channels and markets.



Processing equipment at the Ziguan District Fishermen's Association.

(3) Creation of a system of "Agricultural Products Value-Added Prototyping Centers"

To promote a uniform management system for agriproducts from production to primary processing,

ne MOA has set up 16 "Agricultural Products Value-Added Prototyping Centers" and "Aquatic Products Value-Added Prototyping Centers" in 10 District Agricultural Research and Extension Stations and six agriculture-related colleges and universities. We have also brought together local universities and prototyping centers to form four regional processing alliances, which link primary processing to high valueadded industry to help farmers access new and diversified commercial opportunities. The MOA also established the "Agricultural Products Processing Integrated Services Center" to provide one-stop consultation services. In 2023 these institutions provided farmers with processing consultation services 3,282 man-times, prototyping services in 1,198 cases, packaging services in 100 cases, and matchmaking to get products into sales channels in 105 cases, adding about NT\$129 million in production value to agriculture and rural economies.



A specially designed gift and souvenir box of regional specialty agriproducts.

(4) Upgrading the quality of agriproducts

In order to strengthen the cold-chain logistics systems at wholesale markets for farm and fisheries products, upgrade the cold-chain facilities (equipment) at concentration/distribution centers for such products, and establish an operating system that conforms to international sanitary and phytosanitary standards (SPS), the MOA has introduced operations with economies of scale.



Steam-heat processing equipment.

In 2023 the MOA: (i) completed updating three SPS handling venues (the Je-Nong Cooperative Farm, the Taichung branch of the

Taiwan Provincial Fruit Marketing Cooperative, and Yin Chan International Develop Company) with facilities for steam-heat processing and low-temperature SPS handling; (ii) guided nine wholesale markets to upgrade their cold-chain facilities (equipment), including guiding fruit and vegetable wholesale markets to optimize precooling gear at loading docks, update the freezers for their low-temperature logistics centers, update equipment associated with cold-chain cold storage, and purchase electric-powered forklifts and pallet trucks; and (iii) promoted the use by wholesale markets of foldable reusable plastic crates to move products: by the end of 2023 these crates had been used more than one million times, facilitating post-harvest pre-cooling, cold-chain logistics, and use of pallets for concentrating and offloading products, thereby reducing the carbon emissions caused by waste material.

In order to upgrade sanitation and safety management in the production and supply chain for fisheries products, in 2023 the MOA guided projects for repair (or improvement) of facilities and equipment at eight fish markets: Nanfang'ao, Keelung, Tamsui, Taipei, Taichung, Tainan, Mituo, and Keziliao. We also continued to promote construction projects at three locations: Woo-Chi Fishing Port, Badouzi Fish Market, and the fish offloading venue at Yanpu Fishing Port.

(5) Construction of a modernized cold-chain logistics system for agriproducts

In order to reduce losses of agriproducts and further increase farmers' incomes, the MOA has continued to build flagship logistics centers and regional logistics centers for farm, fisheries, and animal husbandry industries; upgrade cold-chain equipment at large wholesale markets; assist agribusinesses and farmers' organizations to acquire cold-chain storage and transport equipment for production areas; and help traditional agriproduct vendors to install temperature-control equipment. Outcomes in 2023 included the following:

The agri-food industry: The MOA has guided 233 farmers' organizations or agribusinesses in upgrading their cold-chain facilities (equipment) and built demonstration operational models for short-term (fast-growing) leafy vegetables and uninterrupted comprehensive cold-chain handling of cut fruit and vegetables. We have also produced handbooks on cold-chain operations for storing, transport, and marketing of bananas and lettuce and held three hands-on learning events; guided local governments and farmers' organizations in building regional coldchain logistics centers (of which three are already in operation or complete, two are under construction, and three are in the basic design phase); and guided six fruit and vegetable wholesale markets to upgrade cold-chain equipment. We moreover promoted the establishment of a recycling system for foldable plastic crates at fruit and vegetable markets in Taipei, which reduces the amount of trash produced by such

markets and lowers carbon emissions. In addition, the MOA guided three flower wholesale markets to add new, or improve existing, cold-chain logistics equipment, thereby reducing losses of flowers caused by heat, extending their in-vase life expectancy, raising their quality, and ensuring adequate auction prices for them, thus stabilizing flower farmers' incomes.

- The fisheries industry: Because the fishing and aquaculture industries face different cold-chain preservation and production-and-marketing issues, the MOA, in coordination with the development of cold-chain processing and logistics centers that take into account the distance of logistics, has adopted diversified processing and cold storage methods to extend the storage and shelf life of fisheries products and balance supply and demand. As of 2023 we completed the design for three regional logistics centers for aquatic products, upgraded basic coldchain facilities at eight fish markets, and guided fishermen's organizations to set up or update freezer facilities in 22 locations (with 14 completed and eight underway) and processing facilities in 13 locations (with 10 completed and three underway).
- Animal husbandry products: The MOA continued to strengthen the cold-chain transport systems for slaughterhouses and upgrade cold chains for meat, eggs, and dairy products. In 2023 we guided a cold-chain upgrading plan at one poultry wholesale market; implemented meat hygiene and safety control systems and facilities (equipment) upgrades at 59 poultry slaughterhouses; upgraded cold-chain facilities (equipment) for livestock and poultry slaughterhouses as well as meat, dairy, and egg products in 147 locations; and improved livestock and poultry vendors' stalls and small temperature-controlled trucks in 221 cases.
- Flagship logistics centers: Construction work was completed on the International Freshness Logistics Center built by the MOA in the Agricultural Technology Park (ATP) and it was turned over to the RD&D Cold Logistics Company (which has set up operations in the ATP) for management. The factory registration certificate was received in July of 2023. The center can provide an integrated series of cold-chain logistics services including post-harvest handling, washing, grading, cutting, processing, packaging, cold storage, and logistics (delivery). It has expanded the scale of its production-andmarketing equipment and enhanced its lowtemperature warehousing and delivery capabilities. Meanwhile, in November of 2023 ground was broken for construction of the Taoyuan Agricultural Logistics Park, which will include a northern Taiwan flagship freshness logistics center; it is expected to be completed in 2026.



On April 27, 2023 the MOA held a hands-on touring seminar at the Fu-Fruit Company on upgrading of farm, forestry, fisheries, and animal husbandry products and promotion of cold-chain facilities for agrifood products.



Ground was broken for construction of the Taoyuan Agricultural Logistics Park on November 28, 2023. It is expected that the park will be ready to recruit businesses to move in and begin operations in 2026. It will expand Taiwan's capabilities in the areas of cold-chain handling, transport, and marketing of agriproducts.



New-style ice-making equipment can provide markets and auction venues with hygienic ice needed for agriproducts preservation as part of an uninterrupted cold chain.



From August 4-7 of 2023 the MOA set up a special display and sales area for cold-chain foods at Exhibition Hall 1 of the Taipei World Trade Center in coordination with the 2023 Taiwan Culinary Exhibition.



Work has been completed on updating of a steamheat processing facility in the Yujing District of Tainan City.



A photo from the system for recycling of plastic crates at the First Fruit and Vegetable Wholesale Market in Taipei.

(6) Development of e-commerce for agricultural products

In 2017 the MOA launched a program to promote development of e-commerce for agricultural products, including training and guidance for farmers engaged in agriproduct e-commerce, online sales promotional activities, improvement of packaging for e-commerce agriproducts, and brand building. We have guided farmers to take advantage of the trend toward consumption through e-commerce sales channels, assisted e-commerce platforms to access a stable supply of high-quality agriproducts, and encouraged e-commerce businesses to expand the types of these products that they sell, while also assisting farmers to increase sales channels and the scale of their operations, in order to increase farmers' incomes.

In 2023 training was completed over 221 man-times under a "special program for training and guidance of e-commerce farmers," while substantive guidance was provided in 21 "highlight cases." We also drove the development of six regional integrated systems and held seven sessions of e-commerce business matchmaking to assist agriproducts to go on sale on e-commerce platforms. In addition, we implemented the "Project to Guide Packaging and Branding of Agricultural Products for e-Commerce," guiding ten small farmers to become e-commerce brand managers.



Fisheries Agency Director-General Chih-Sheng Chang delivered remarks at an introduction to a sales activity.



A collective display and sales activity for Fisheries Agency e-commerce platforms.

Meanwhile, the MOA set up the "Taiwan Agricultural Products Celebration" e-commerce platform, integrating more than 90 e-commerce platforms and holding online sales activities. We also guided farmers to sell their products through e-commerce platforms including "Afasale," "GoFish," and "FishGo," assisting outstanding Taiwan farm and fisheries brands and processed goods to get wider exposure. The MOA moreover conducted marketing activities targeted at specific groups to enhance the market breadth and visibility of Taiwan farm and fisheries products, with 2023 sales exceeding NT\$1.4 billion. In addition, we set up the "Taiwan Wood" and "Taiwan Bamboo" webpages, which serve as platforms for matching up of buyers and sellers and provide maps of the locations of Taiwan bamboo businesses, linking together the industrial chains and building up value for the Taiwan Wood and Taiwan Bamboo brands.

At the same time, the MOA has further linked the "uniform management system for agriproducts from production through primary processing" with e-commerce businesses, matching up primary-processed agriproducts with agricultural e-commerce platforms. Alternatively, we have used the "Online Merge Offline" sales model to integrate online and offline sales channels, developed smart sales demonstration points (such as smart vending machines), and vertically integrated marketing resources for processed agriproducts, to effectively connect farmers to markets and create commercial opportunities.

(7) Building direct sales and multiple sales channels for agriproducts

In order to assist farmers to develop multiple sales channels, the MOA continued to guide the setting up of

farmers' markets at regular intervals at two locations in the Taipei metropolitan area: the Taipei Hope Plaza and the Taipei Expo Park. This involved coordinating with local governments to assist farmers to hold exhibition and sales activities for in-season agriproducts on Saturdays and Sundays in order to raise farmers' incomes. In 2023, we organized farmers' markets at the Taipei Hope Plaza and Taipei Expo Park on 92 occasions, with total sales of about NT\$400 million.

Since 2013 the MOA's Agriculture and Food Agency has guided the setting up of "Direct Sales Points for Farmers" in order to provide consumers with agriproducts that are fresh, safe, eco-friendly, high quality, and are local specialty products. In 2023 we newly established or continued to guide existing rural community agriproduct sales points in 130 locations, to encourage "local production, local consumption" and energize local rural economic development. Total revenues reached NT\$1 billion.

Meanwhile, in order to provide diversified marketing channels for domestic wood and establish a platform for matchmaking of supply and demand for such wood, the MOA's Forestry and Nature Conservation Agency set up the "Taiwan Wood" information platform. Already data has been compiled on 44 firms providing forestry operational services and 148 firms producing products made from domestic wood or bamboo. A total of 458 cases of forestry operational services matchmaking have been arranged, along with transactions involving about 31,086 cubic meters of domestic timber.



An awards presentation and marketing activity at the Taipei Hope Plaza.



This mobile direct agriproduct sales point in the Xizhi District of New Taipei City expands the potential pool of buyers for, and more effectively publicizes, Taiwan agriproducts than do ordinary shops in fixed locations.

(8) Promotion of premium agricultural products

The MOA held the judging and awards presentation ceremony for the "Top 100 Premium Agricultural Products in Taiwan," upholding the principle of "rigorous selection and manufacturing, local production." We selected 187 products from 122 farmers' associations from among 357 submitted premium agriproducts. There were nine categories, including "Sunlit Fresh Fruits," "Taiwanese Fine Tea," "Local Quality Rice," "Hometown Delicacies," "Lifestyle Essentials," "Fine Spirits," "Premium Fresh Flavors," "Diverse Gourmet Delights," and "Curated Combos." The MOA also did marketing work including matchmaking between buyers and sellers and promotion of corporate purchasing. The goal was for the "Top 100" to meet the daily dietary needs of the public and the demand for rural tourism gift and souvenir items, and for these products to become top options for gifts at the Lunar New Year. The event not only promoted the upgrading of quality and refined development of agriproducts, it was an important node linking farm production, rural development, and "Agriculture for All."

The MOA also held the 9th selection activity for "Rural Good Products" to encourage rural communities to continue to innovate and develop local specialty products and raise value-added for rural industries. A total of 393 products have thus far been selected, and the event has deepened collective brand management and guided selected products to expand sales channels. Not only has the MOA arranged to have selected products sold at well-known sales channels including Far Eastern SOGO department stores, Shin Kong Mitsukoshi department stores, eslite flavor Marché supermarkets, and Hsin Tung Yang stores, through brand display and sales activities and the promotion of a brand licensing mechanism, we have continued to manage the "Rural Good Products" system and deepen the influence of the brand.

The MOA has moreover proactively promoted agri-food related premium products. In 2023 we guided 10 rural wineries to pass their evaluations, and linked them with rural leisure and tourism services to enhance their competitive advantage. Rural wineries produced 130,000 liters of wines and liqueurs in 2023 and won five gold and four silver medals in international competitions, the highest number of medals in history, effectively shaping a reputation for quality for rural wineries and alcoholic beverages.

In terms of rice, in 2023 we guided two enterprises, MOS Burger and the Ban Ten Company, to develop two new rice-based products which are sold at 470 outlets nationwide, stimulating



The awards activities for the 2023 Top 100 Premium Agricultural Products in Taiwan.



The awards activities for the 9th selection of Rural Good Products.

commercial opportunities and production value for premium rice. We also assisted eight rice businesses to improve their product packaging design and six businesses to build brand image and differentiability to expand to new markets in Taiwan and create brand value. The MOA also held the 2023 "Gourmet Rice Awards," with 70 products participating, to encourage businesses to strengthen the quality of packaged rice and improve brand marketing. In terms of guidance for premium miscellaneous staple crops (MSCs), we worked with members of the Taiwan Peanut Strategic Alliance to produce "cream shallot peanuts with sweet potato" and "spicy peanuts with sweet potato" under the Hubawang brand name, creating new value for agriproducts through diversification.

In order to promote age-friendly food for the elderly, the MOA continued to hold the "Eatender Awards." In 2023 we selected 142 value-added age-friendly foods processed from premium local farm, fisheries, and animal husbandry raw materials. The MOA also promoted special Eatender product areas at retail outlets. The purposes of these products are to meet the dietary needs of the elderly in an aged society; stimulate the use of domestically produced farm, fisheries, and animal husbandry raw materials; and promote the healthy development of our aged society.

In order to promote higher quality, higher value-added, fashionability, and food safety for domestic fisheries products, the MOA held the "Haiyan" ("Seafood Banquet") competition



A release event for new items that made the 2023 list of Rural Good Products.



The Gourmet Rice Awards: the plain steamed rice event.

for premium fisheries products, selecting 20 safe, innovative, and diversified premium aquatic products from among over 100 entries. Types of products selected have changed from the mainly fresh frozen seafood of the past to diversified sliced or prepared (ready-to-eat) products, not only demonstrating technical achievements and innovation, but also enriching the ways in which fisheries products are used to expand both the depth and breadth of sales.

The MOA's Forestry and Nature Conservation Agency set up a "Taiwan Wood and Bamboo Pavilion" with the theme "Living from the Forest" at the 2023 "Taipei Building Show," winning an "Excellent Exhibitor Image Award" for the 7th straight year. The curation of the pavilion resonated with global carbon neutrality, showing the importance of wood and bamboo in carbon sequestration. The pavilion drew the public's attention to the use of Taiwan timber in daily life and enhanced the international profile of Taiwan wood and bamboo.

Moreover, in order to enable citizens to experience Taiwan timber products and increase their acceptance of domestic wood and bamboo, we set up northern Taiwan's first domestic wood products experiential hall, called "Living from the Forest," in the group of Japanese era wooden buildings on Jinshan South Road in Taipei. It features building materials, furniture, and cultural and creative products made by a large number of domestic wood companies, creating a homey environment where people can use all five senses to experience this space imbued with the ambience of domestic timber in a relaxed and fun way.



The Pavilion of Rural Wineries at the 2023 Taipei International Wine and Spirits Festival.



The Taiwan Wood and Bamboo Pavilion on the theme of "Living from the Forest" at the 2023 Taipei Building Show emphasized how sustainable wood can create a user-friendly environment.

9. Development of Leisure Agriculture and Agrotourism

(1) Agricultural tourism

The MOA has encouraged localities to adopt a regional outlook to develop rural leisure and tourism. As of 2023, the MOA designated a total of 104 "recreational agriculture areas," guided 395 leisure farms in integrating their resources, and guided the refinement of brand management at 109 "Tian Mama's cuisine units." The emphasis has been on making agriculture into a "sixth level" industry (combing primary, secondary, and tertiary industries), developing commercially viable products and services, and building organizational and operational models. Meanwhile, we have guided at least 28 leisure farms to develop in the direction of innovation and being demonstration farms. We have stressed the functioning of the application and establishment system for leisure farms and the use of mapping to demarcate and develop recreational agriculture areas, to facilitate cross-domain planning.

The MOA also continued to promote the certification system for agrotourism venues with special characteristics. In 2023 there were 35 such venues, bringing the total of certified venues to 291. They have participated in 10 domestic travel venue promotional activities and 28 sales channels for cross-domain integrated agrotourism products have been established, marketing a total of 79 products and maintaining the visibility of agrotourism. The MOA has also promoted weekday group tours and individual travel

for agrotourism, with 3,162 groups given incentives for weekday group agrotourism, with 187,258 participants, benefitting 261 agrotourism operators.

Moreover, through the Farmtour Market platform, in 2023 the MOA marketed 782 products offered by 293 businesses, and developed agrotourism products including over 130 kinds of tickets (such as universal fruit-picking tickets and "agri-food fun" tickets) and eight limited-time seasonal tour groups, thereby offering travelers convenient and diverse agrotourism options. We also participated in or organized 57 international promotional activities and organized 17 agrotour groups for international media and businesses, with 642 reports appearing in the media. In 2023 there were a total of 29.34 million visits by tourists (including 712,000 foreign travelers to Taiwan) to rural leisure and agrotourism destinations, with production value of NT\$10.9 billion.



A group photo of representatives of the MOA with businesses at the 2023 certification presentation ceremony for agrotourism venues with special characteristics.

(2) Fisheries-related leisure and tourism

In 2023 the MOA guided local governments, fishing industry (fishermen's) groups, and community development associations to inventory fishing communities, fishing ports, aquaculture production areas, and seafood direct sales centers, and combined these resources with ecological and environmental assets (such as wetlands and intertidal zones) as well as fishing industry culture, arts, and crafts to organize and promote a variety of industrial culture and fisheries eco-tourism experiential activities with special local characteristics.



Celebrating the centennial of the first use of the Nanfang'ao Fishing Port.



An illustrated book on Taiwan's fishing c o m m u n i t i e s entitled *Having Fun for Fish—Seafood Journey.*

The MOA also participated in the 2023 Summer Travel Expo in combination with Internet travel platforms to promote fisheries specialty products and fishing community travel itineraries. Moreover, we produced an illustrated book entitled Having Fun for Fish—Seafood Journey and one fishing community themed video to market Taiwan's fishing community culture and fisheries-related leisure and tourism. There were a total of 9.87 million visits by tourists to fisheries-related venues, with NT\$5.6 billion in production value.

(3) Forest eco-tourism

To enable people to enjoy therapeutic relaxation and to promote the quality of life, the MOA continued in 2023 to upgrade the quality of tourism in Taiwan's 18 National Forest Recreation Areas (NFRAs), three Forest Parks, four Forestry Culture Parks, and the Alishan Forest Railway. To facilitate visits to NFRAs, we implemented an electronic ticketing system with uniformity of the price of full-price e-tickets for NFRAs on working days and holidays/days off as well as discounts on parking. The MOA also coordinated with the TaiwanPay code-scanning mobile payment system and in June of 2023 organized a 10% cash rebate activity. Furthermore, in November and December, we held a prize drawing activity based on e-tickets to attract more people to NFRAs.



A completely new "Bong Bong Train," a popular attraction at the Taipingshan National Forest Recreation Area, features enhancement of the engine power for the cars and improvement of journey safety.

The MOA also organized "The Forests of Taiwan" pavilion at the 2023 "Taipei International Travel Fair," working with domestic tourism businesses to lay out 51 eco-tourism itineraries for NFRAs. During 2023 there were more than 10 million visits to forest recreation venues. In addition,

the entirely new Taipingshan "Bong Bong Train" made its appearance, while at the Alishan Forest Railway the remodeling of "Vivid Express" was completed, the Zhushan Station was reopened, and 1.209 million travelers rode the railway, enjoying the area's rich and diverse forest scenery.



The Forests of Taiwan pavilion at the Taipei International Travel Fair held in November of 2023 invited the public to have beautiful encounters with Taiwan's mountain forests.



Ride the "Vivid Express" in order to enjoy the scenery of the Alishan Forest Railway.



On November 21, 2013 Zhushan Station, a new landmark on the Alishan Forest Railway, reopened.

10. Strengthening Communication about Agricultural Policies

(1) Diversified channels of communication for major policies

In order to enhance the public's understanding and acceptance of agricultural policies, the MOA in 2023 not only continued to hold press conferences and issue press releases, we also utilized various channels, including print media, television, radio, the Internet, and exhibition and sales activities. These methods were aimed at



promoting three primary policy objectives: enhancing farmers' welfare, improving agricultural infrastructure, and upgrading industrial competitiveness. They also served to showcase the MOA's successes in policy implementation.

With the rise of new media, the MOA continued to engage in integrated communications about agricultural policies through various social media platforms. In 2023, besides coordinating with the latest trends in new media operations and producing multiple short videos to spread information about agricultural policies, we made a series of videos on cold-chain logistics, successful case studies of agriproduct exports, implementation of food and agricultural education, and noteworthy achievements of agricultural policies. We also produced a series of promotional videos built around various topics from all aspects of farming, forestry, fisheries, and animal husbandry as well as individual human interest stories. These videos were published on the MOA's official Facebook page, YouTube channel, and electronic bulletin boards of farmers' and fishermen's associations

In addition, to promote the use of domestically produced food ingredients and implement the ideals of food and agricultural education, the MOA held an activity entitled "The Most Unforgettable Tastes of Home," in which we asked for online submissions of photos and short essays and let people vote online for the best submissions. The MOA also selected outstanding submissions and incorporated the spirit of "Tian Mama cuisine units" to write culinary travelogues. In coordination with print media and digital media broadcasts, we expanded marketing activities and enhanced the effectiveness of the MOA's policy information-sharing and the reach of publicity.

(2) New media communications platforms

The MOA provides a rich variety of agriculture-related information on new media platforms such as its Facebook fans page, YouTube channel, and LINE@ group. Based on major agricultural issues, we spread information through a variety of formats including videos, picture cards, livestreamed press conferences, and interactive activities for fans. The MOA also promptly responds to all questions, offering immediate assistance. As of 2023 the MOA had more than 360,000 followers for our Facebook fans page, more than 119,000 friends for our LINE@ group, and about 9,700 subscribers to our Youtube channel. New media promotional materials were quoted in media reports more than 200 times. We also issued 717 Facebook posts, including picture cards, videos, and livestreams, with reach of over 22 million man-times.

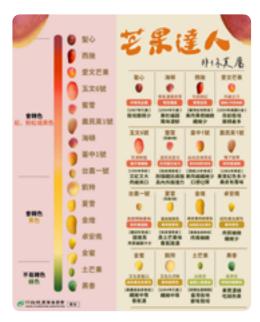
(3) Disseminating information about the "Agriculture for All" policy

The MOA continued to strengthen dissemination of information on the main policy axes of "enhancing farmers' welfare, improving agricultural infrastructure, and upgrading industrial competitiveness," and showcased the MOA's tangible policy accomplishments. These accomplishments included the completion of the four major farmers' welfare

systems, the planning and promotion of the net-zero carbon emissions action plan for the agricultural sector, the implementation of the "Food and Agricultural Education Act," the promotion of the 1959 animal protection hotline, disease prevention at livestock farms, the construction of agricultural cold chains and fisheries industry infrastructure, the advancement of international trade, and the complete suspension of vaccinations for classical swine fever. We also used multi-media resources to enhance the effectiveness of information dissemination.



This video report about hydrological engineers highlights their heavy responsibilities in terms of irrigation water transport and water distribution.



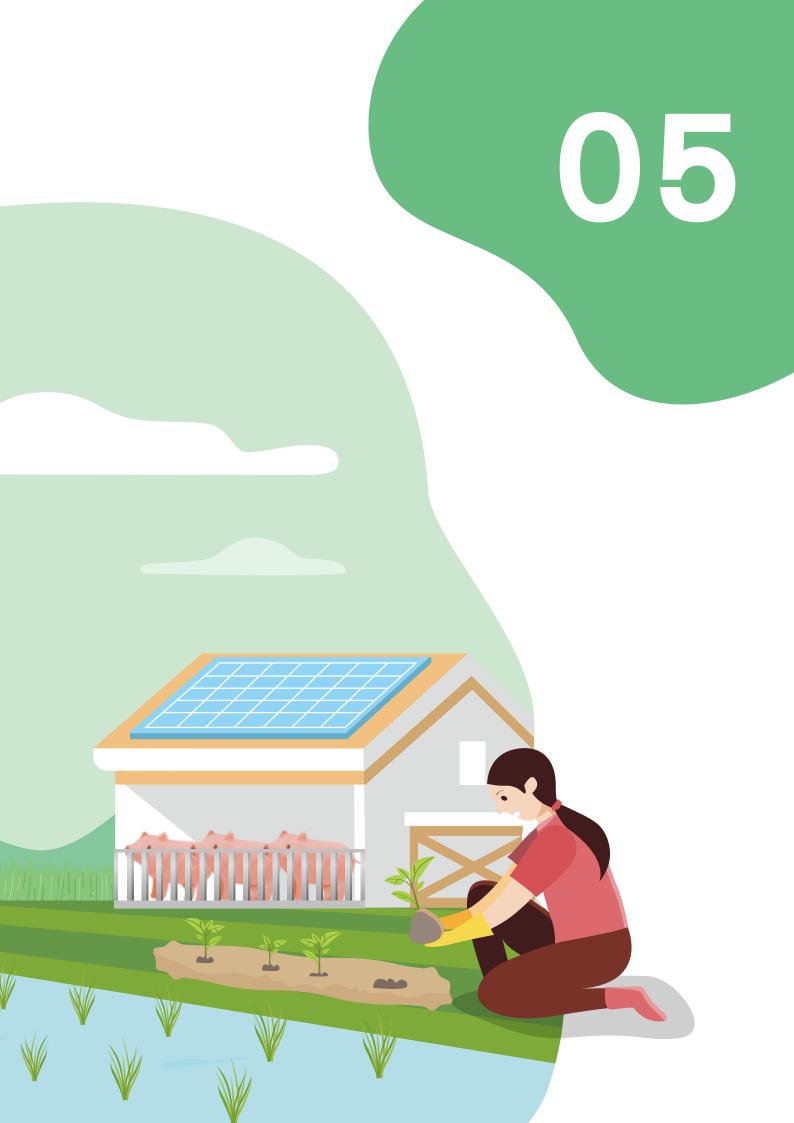
This picture card had the most extensive reach among those posted by the MOA on its Facebook fans page in 2023.



A press conference on the subject of building the four major farmers' welfare systems and completing the social and economic security network for farmers.







Climate Change Adaptation and Net-Zero Emissions in Agriculture

1. Regulation, Storage, and Smart Irrigation for Agricultural Water Resources

(1) Continued guidance of farmers to install pipeline irrigation facilities

The MOA has subsidized farmers to install pipeline irrigation facilities with a maximum subsidy of NT\$400,000 per person per year. In 2023, this policy was implemented over 2,350 hectares of land. At the same time, large spray guns were introduced in a field trial on 35 hectares of miscellaneous staple crops in the Taoyuan area. Also, by integrating emerging technologies with pipeline irrigation systems, we guided farmers to establish five demonstration fields for smart pipeline automated irrigation. The aims are to enhance irrigation water efficiency and enhance crop cultivation management.

(2) Strengthened improvement and dredging of water diversion and storage facilities

To enhance the resilience of water resources management, the MOA carried out dredging projects on five reservoirs and eight ponds in 2023, removing a total of 842,930 cubic meters of sediment. We also subsidized farmers to install water regulation and storage facilities with a capacity of 82,730 cubic meters, increasing the total irrigation water regulation and storage capacity to 925,660 cubic meters.

(3) Construction of smart irrigation systems

In 2023, the MOA renovated and upgraded the automated hydrological monitoring systems at 32 sites, completed six smart irrigation demonstration fields, and used sensors to monitor values for hydrometeorology and the water content of soil. Automated precision irrigation facilities were also employed to improve the real-time distribution of water and enhance personnel management, thereby increasing the resilience of the overall distribution of agricultural water resources.



A spray irrigation system for tea in the Pinglin District of New Taipei City.



A low-power-consumption water level monitoring device on branch line 11 of the Zhudong irrigation system.



2. Crop Stress-Resistance, Disaster Mitigation, and Disaster Early Warnings

Based on the 6th Assessment Report of the United Nations' Intergovernmental Panel on Climate Change, the MOA completed 134 sets of climate hazard indicator data for specified crops, future risk assessments for corn and peanuts, and basic data on reproductive phenology trends for the Taiwan white fir tree and Yushan rhododendron. We also put analysis of changes in fishing grounds online. The MOA moreover established indicators of the response to climate change or adaptation technologies for 41 items in the agri-food, fisheries, and animal husbandry industries.

The MOA added agricultural weather stations in 20 locations, and did maintenance on such stations in 59 locations, all in crop production zones. We also provided early warning information for six severe climate disaster events. Further, through the "Crops Disaster Alert Platform" and the "Weather & Agriculture Disaster Prevention" Apps, the MOA provided relevant disaster-prevention and response information before, during, and after disasters. Meanwhile, we also organized 20 lectures on disaster prevention for farmers.

3. Reuse of Residual Agricultural Resources to Develop Circular Agriculture

Each year Taiwan produces about five million metric tons of agricultural residual resources in the course of agricultural production. These include plant branches, products that don't meet market specifications, mushroom bag growth medium, and poultry excreta. Originally these were mainly handled by plowing under, using as mulching materials, and composting. To ensure that such resources can have even greater value, the MOA has promoted relevant measures to enhance resource circular reuse, thereby giving rise to an emerging industry.

In 2023 the MOA completed development of 15 technologies for use of agricultural waste. Examples included technology for homogenization of waste mushroom bag materials, use of fruit tree branches and other biological products to make fertilizer, technology for pulping rice straw cellulose, research into silaging of agricultural by-products and preparation of cattle and sheep fodder, and

pineapple leaf fiber extraction technology.

In order to put various technology R&D results into practice, the MOA has promoted 30 circular agriculture demonstration venues. These include (i) establishment of a venue for cleaning and reuse of recycled agricultural waste plastic, in order to raise the circular reuse rate of nonbiological materials; (ii) establishment of a silage supply chain for agricultural by-products in the Baweng agricultural special zone in Tainan City, in order to raise the self-sufficiency rate for domestic fodder and reduce costs for raising herbivorous livestock; (iii) guidance of 259 livestock farms to use biogas slurry to irrigate pasture land, in order to put livestock farming circularity into practice; and (iv) subsidization of 64 chicken farms to set up facilities and equipment for handling chicken excreta, making it possible for roughly 158,400 metric tons of chicken excreta to be properly processed and reused.



Agri-food by-products made into feed for beef cattle.



Various uses of oyster shell powder.



Fruit tree branches made into biofuel.



In order to promote applications of agricultural residual materials and related industrial development, the MOA has encouraged 19 businesses to invest in low-carbon or circular agriculture, with investment of NT\$358.697 million. We also got two agribusinesses that mainly engage in circular agriculture to move into the Agricultural Technology Park with the aim of creating an industrial cluster and giving rise to an emerging industrial chain.

4. Enhancement of Carbon Sequestration in the Agricultural Sector

Of Taiwan's 12 key strategies to achieve net-zero emissions, the MOA is in charge of "natural carbon sinks." We have determined that by 2040 Taiwan should increase agricultural carbon sequestration by 10 million metric tons by promoting forest, soil, and the ocean as the three major carbon sinks.

In terms of the soil, the MOA has promoted crops and varieties with carbon-negative functions on 31,025 hectares (ha), expanded the use of biological materials including agricultural residual materials and microbes on 289,142 ha, completed a map of carbon sequestration potential for all of Taiwan and a calculation and monitoring method for carbon sequestration volume, and established a firm grasp of the organic carbon situation in soil and locations with high potential for soil carbon sequestration.

In terms of forest, the MOA has added 3,753 ha of newly afforested land, restored and nurtured a total of 5,416 ha of forest, and overseen the use of 61,000 cubic meters of domestic lumber. And in terms of the ocean, we have already completed an inventory of marine carbon sequestration potential for all of Taiwan and established an evaluation model for carbon sequestration by seagrass beds. We have also determined local coefficients and measurement methods for areas including seagrass beds, aquatic organism conservation zones, wetlands, and artificial algae farms. Moreover, in the nine "aquatic organisms propagation and conservation zones" established in Yilan County, Keelung City, Miaoli County, Taitung County, New Taipei City, and Penghu County, we have promoted habitat conservation with carbon sequestration effects, strengthening management over an area of 27.6 square kilometers.



A map of organic carbon sequestration volume for surface soil (0-30 centimeters) throughout Taiwan (results of phased work in 2023).



Seagrass transplantation work in the seas off Penghu County.



Community participation in seagrass bed restoration in the Chongguang community of Penghu County.

5. Development of Green Energy in Agriculture

To promote renewable energy, the MOA—under the preconditions of "agriculture in the main, green energy as value-added," protection of the rights and interests of farmers and fishermen, promotion of the development of the farm and fisheries sectors, and maintaining the environment—has continued to develop agricultural green energy. Measures have included the installation of solar power panels on the roofs of agricultural facilities and the ground-level combination of green energy with aquaculture.





Rooftop solar power panels installed at the Yangmei Farmers' Association in Taoyuan City.



Rooftop solar power panels installed at the Xiongdi Livestock Farm in Pitou Township of Changhua County.

As of the end of 2023, more than 25.72% of livestock facilities across Taiwan had installed rooftop solar power panels with total installed capacity of 1.58 GW. The MOA has provided subsidies for renovation of livestock buildings to increase the willingness to install green energy facilities. We have also (i) encouraged agrifood manufacturing, storage, and marketing facilities (including warehouses for public stocks and agriproduct concentration/distribution and packaging venues) to install rooftop solar panels; (ii) announced a total of 20,905 hectares as zones for the combination of green energy and aquaculture and coordinated with the Ministry of Economic Affairs (MOEA) to hold joint review meetings to accelerate the progress of application and approval, with total installed capacity of 0.59 GW; (iii) completed 124 venues combining agricultural water resources with solar power, generating 0.17 GW; (iv) promoted testing of small hydropower generator sets and inventoried potential locations for them; (v) continued to promote the "NT\$10 billion loan program for agricultural green energy," with a total of 379 loans for nearly NT\$6.886 billion approved;

and (vi) promoted public-private cooperation to establish energy-independent venues in farming and fisheries communities, with three locations successfully applying for incentives for demonstration citizen power plants from the Energy Administration of the MOEA.

To guide the orderly development of solar energy, the MOA amended the "Regulations for Examining the Application of Structuring Farming Facilities on Agricultural Land" to stipulate that in cases of the establishment of green energy facilities attached to indoor circular aquaculture facilities on land for farming and animal husbandry use in specially designated or ordinary agricultural zones, these facilities should be set up in areas with priority for promotion of the combination of aquaculture operations with green energy. In order to substantially compensate localities where solar power facilities have been set up, we amended the "Regulations for the Payment and Distribution of the Feedback Fund of Changing the Agricultural Land Use" to stipulate that in cases of persons who want to change the status of land for agricultural use to install solar power



facilities, local governments shall appropriate 60% of the feedback fund collected for their own agricultural development funds to the township or district government of the place where the green energy facilities are installed for the purposes of agricultural development.

6. Promotion of Carbon Credits and ESG Programs at Agricultural Venues

There are two voluntary greenhouse gas offset mechanisms in Taiwan: the "Offsetting Increased Greenhouse Gas Emissions" program and "Greenhouse Gas Voluntary Emission Reduction" program. Under the former, the MOA and the Ministry of Environment (MOE) have collaborated to incorporate a number of possible operations at agricultural venues into the mechanism, including replacement of old agricultural machinery with electric-powered machinery, replacement of old fishing vessel fish aggregation lights with LED fish aggregation equipment, replacement of existing aquaculture pond oxygenating paddle wheels with highefficiency energy-saving paddle wheels, and switching of coal-burning or oil-burning equipment to biofuel

To accelerate a reduction in greenhouse gases from the agricultural sector, in 2023 the MOA issued the "Regulations for Greenhouse Gas Reduction Grants for the Replacement of Old Agricultural Machinery." Incentives are offered for reduced greenhouse gas emissions for 12 types of agricultural machinery, enabling farmers to enjoy concrete benefits from the net-zero emissions trend. As for the Greenhouse Gas Voluntary Emission Reduction program, the MOA has adopted a goal of comprehensive methodologies that can be used at agricultural venues. Besides the existing methodology of new afforestation, we have completed drafting of many other methodologies including forest management, bamboo forest management, improved management of agricultural land, applications of biochar in the soil, afforestation in Taiwan mangrove habitats, restoration of seagrass beds, and the replacement of Indian sesbana with pinnate mosquito fern in agricultural land management. These will be sent to the MOE for review.

In the future, besides completing various types of baseline data, the MOA will develop and certify technologies that strengthen carbon reduction or carbon sequestration. We will develop new methodologies tailored to the special characteristics of domestic industries and provide industries with diverse operational methods by which to access carbon reduction quotas.

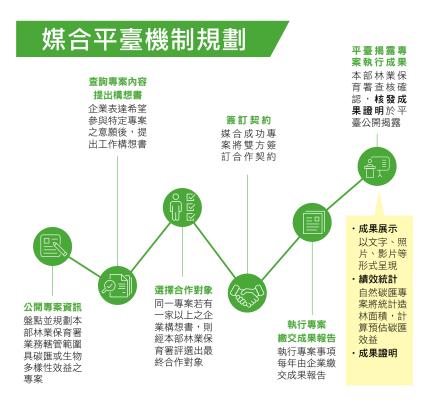
As the situation has worsened with respect to environmental issues like global climate change, in order to encourage enterprises to accept their share of responsibility for dealing with these issues, green finance and green investment have been growing trends. In particular, ESG (Environment, Social, and Governance) indicators can be used to evaluate whether enterprises are operating sustainably. Agriculture not only provides food, it also involves the natural environment and plays a social role, and thus has many external benefits that have not been properly calculated and valued, making rural areas a good stage for the implementation of corporate ESG programs. In 2023 the MOA proposed an "agricultural sustainability ESG program" with customized corporate disclosure requirements to create a mutually beneficial situation for the public and private sectors.

Under the agricultural sustainability ESG program, the MOA's Forestry and Nature Conservation Agency has set up a special online matchmaking platform for participation by companies or groups in natural carbon sequestration or biodiversity conservation programs, encouraging enterprises to participate in forest management or natural habitat conservation work, with their achievements to be certified and disclosed to the public. In 2023 we held four special symposia for enterprises and invited companies as well as experts and scholars to explain the operational mechanism of the platform. Our hope is that through public-private collaboration the economies in remote indigenous communities and other mountain villages can be energized and the environmental and social benefits of agriculture can be brought fully into play.



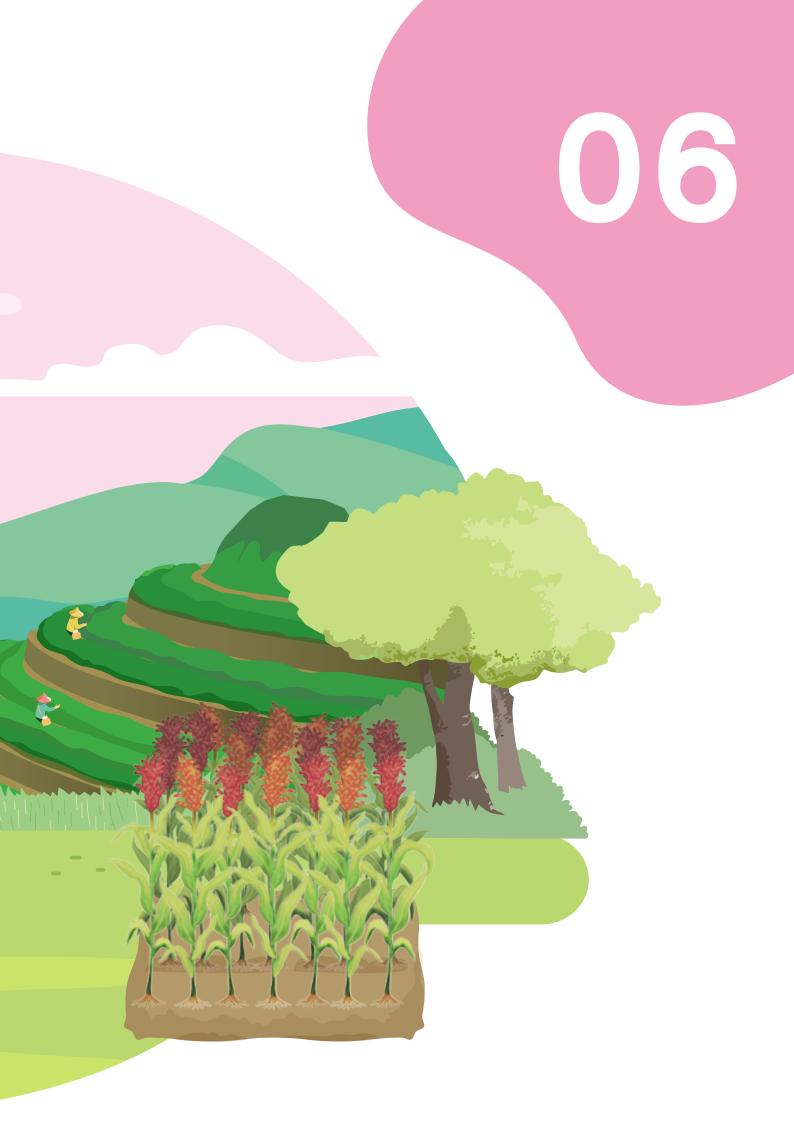
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On May 22, 2023 the MOA held the third symposium on the ESG program matchmaking platform.



A depiction of the process for matchmaking of corporate or group ESG programs with projects for natural carbon sequestration or biodiversity conservation through a special MOA online platform.







1. A Look Back at Key Events in 2023

(1) Establishment of the Ministry of Agriculture: A New Era for Agricultural Development

It has been said that "agriculture is the foundation of the country," and since ancient times there have been government officials responsible for agriculture. Looking back at the history of agricultural agencies in Taiwan, in 1948 the Sino-American Joint Commission on Rural Reconstruction (JCRR) was founded; in 1949 a Department of Agriculture and Forestry was established under the Ministry of Economic Affairs (MOEA); in 1979 the JCRR was restructured to become the Council for Agricultural Planning and Development (CAPD); and in 1981 the Department of Agriculture and Forestry was raised in status to become the Agricultural Bureau (still under the MOEA). Later, in order to meet the needs of national economic development, the CAPD and Agricultural Bureau were merged to form the Council of Agriculture (COA). The President promulgated the "Organizational Act of the Council of Agriculture, Executive Yuan" on July 20, 1984, and the COA formally came into existence on September 20, 1984.

In 2011 the Executive Yuan began promoting restructuring of the organization of the government, and the COA sent the bills for 10 organizational acts for the establishment of the Ministry of Agriculture (MOA) and subordinate organizations to the Legislative Yuan. Despite being reviewed by the Legislative Yuan in one legislative session after

another, ultimately these were never passed. On May 5, 2022, the Executive Yuan once again sent bills to the Legislative Yuan for 16 organizational acts for the establishment of the MOA and subordinate organizations. These were passed on May 16, 2023, and promulgated by the President on May 31, 2023.

The restructuring of the COA into the MOA not only meant fulfilling a demand made by Taiwan's farmers at the time of the "520 Incident" farmers' protest of 1988, it was also a response to challenges in the internal and external environments, climate change, and regional conflicts. The goals are to make agriculture in Taiwan more resilient and sustainable. The headquarters of the MOA includes 13 departments and the Secretariat. These include the Department of Planning, the Department of Farmers' Service, the Department of Animal Industry, the Department of Agricultural Science and Technology, the Department of International Affairs, and the Department of Information Technology. Moreover, in response to new policy targets including netzero carbon emissions from agriculture by 2040, improving food security, protecting farmland and overseeing its development, and manifesting the multi-functional values of agriculture, the MOA includes a new Department of Resources Sustainability. In addition, in order to implement the pet management system and strengthen animal welfare, the MOA has a new Department of Animal Welfare, and to promote integrated management of agricultural information as well as cyber-security and services and further the digital transformation of agriculture, the Information Management Center was turned into the Department of Information Technology.





The Ministry of Agriculture was formally established on August 1, 2023, marking a new era in Taiwan's agricultural development.

The MOA is responsible for administrative affairs for farming, forestry, fisheries, and animal husbandry throughout Taiwan, including overall planning as well as scientific research. There are eight third-level agencies and seven research institutions under the MOA. Agencies include the Food and Agriculture Agency, the Fisheries Agency, the Animal and Plant Health Inspection Agency, the Forestry and Nature Conservation Agency, the Agency of Rural Development and Soil and Water Conservation, the Irrigation Agency, the Agricultural Finance Agency, and the Agricultural Technology Park Administration Center. The seven research institutions include the Taiwan Agricultural Research Institute, the Taiwan Forestry Research Institute, the Fisheries Research Institute, the Taiwan Livestock Research Institute, the Veterinary Research Institute, the Agricultural Chemicals Research Institute, and the Taiwan Biodiversity Research Institute.

Of particular interest is that in order to preserve the integrity of crucial terrestrial ecosystems and biodiversity, strengthen the capacity of forest and natural carbon sinks, and sustainably share the services values of forest ecosystems with the public, the former Forestry Bureau and the Endemic Species Research Institute were transformed into, respectively, the Forestry and Nature Conservation Agency and the Taiwan Biodiversity Research Institute. Moreover, in order to build an environment for sustainable agricultural development; revitalize rural communities; deal with the challenge of climate change; and promote the work of mountain management, disaster prevention, and monitoring and responding to potential debris flow disasters, the former Soil and Water Conservation Bureau was restructured into the Agency of Rural Development and Soil and Water Conservation.

Since the MOA has come into existence, its staff have worked even harder to implement

agricultural adaptation to climate change and the policy of net-zero carbon emissions; advance planning and development of rural communities; improve the food security mechanism; promote food and agricultural education for all; strengthen protection of plant and animal life, including wildlife, and upgrade pet management; promote the digital transformation of agriculture; enhance farmers' welfare measures; and undertake nature conservation work nationwide. We will build a resilient agricultural sector and energize the innovative dynamism of agricultural development.

(2) Bolstering the resilience of the agricultural sector and promoting measures to assist farmers and fishermen

In response to developments including the COVID-19 pandemic, geopolitical conflicts, and uncertainty in the balance of supply and demand for food, the MOA issued the "Regulations for Ministry of Agriculture Implementing Measures for Strengthening Post-pandemic Agricultural Resilience and Assisting Farmers and Fishermen." On the basis of these Regulations we implemented post-COVID-19 measures to strengthen the resilience of agriculture and assist farmers and fishermen. Offering comprehensive care for rural communities and the well-being of farmers, we fully promoted the adjustment and implementation of agricultural policies including upgrading of agricultural industries as well as strengthening agricultural infrastructure and the basic environment. The MOA has resolved problems encountered by industries and rural communities, and buttressed the foundations for dealing with future situational changes. For this program we have received a special budget from the Executive Yuan totaling NT\$26.8 billion for a three-year period (2023-2025), with the budget for the three years being NT\$10.625 billion, NT\$10.286 billion, and NT\$5.898 billion, respectively.

Based on the above-mentioned Regulations, starting in April of 2023 eight MOA subunits, including the Department of Farmers' Service, the Department of Agricultural Science and Technology, the Department of Animal Industry, the Agriculture and Food Agency, the Fisheries Agency, the Irrigation Agency, the Agency of Rural Development and Soil and Water Conservation, and the Forestry and Nature Conservation Agency, began implementing 24 measures. These included





A "Cherished Choices" area set up by a farmers' association.



A special area for reasonably priced foods.

(i) the provision of meals in rural communities, sale of low-priced boxed meals, setting up of special "Cherished Choices" and reasonably priced food areas on farmers' association websites and in their supermarkets and sales centers, and delivery of packages of food ingredients to rural residents; (ii) construction of a network of agricultural weather stations; (iii) new construction or renovation of fishing port infrastructure and high-tech aquaculture; (iv) building of a forest road network and a land-and-air command information network for areas at high risk of forest fires; (v) construction of resilient irrigation channels; (vi) introduction of modernized aquaculture facilities and equipment; and (vii) promotion of net-zero circular sustainability for the farm, forestry, fisheries, and animal husbandry industries. As of the end of 2023 people benefitted from low-priced boxed meals and Cherished Choices areas over 5.92 million man-times, while a total of 990 projects for forest road, rural access road, and irrigation channels were approved. The MOA has continued to look after the well-being of farmers and fishermen and promote transformation and upgrading of agricultural industries while bolstering agricultural infrastructure.

(3) The policy of guiding the paddy rice industry

In Taiwan the most common paddy rice production model is to cultivate rice in two crop

seasons per year. The application of fertilizer and spraying of pesticide can easily lead to degradation of the environment. Also, in recent years the overproduction of rice has become an increasingly serious problem. When supply exceeds demand, this softens the price of rice on the market, affecting the incomes of rice farmers. To these problems can be added climate change and limited water resources, with rice farmers in some reservoir irrigation areas routinely facing suspension of irrigation services because of a lack of water. The result has been an urgent need to adopt policies to guide transformation of the paddy rice cultivation system and reduce the area of land planted with paddy rice.

In order to adapt to climate change, maintain food security, upgrade the competitiveness of the rice industry, and accelerate transformation of the rice industrial structure, the MOA has promoted guidance measures for the paddy rice industry including the "Green Environmental Payment Program" and promotion of the policies for "regional rotation of water supply in areas with competition for water resources" and for farmers to "select three crop seasons out of four for growing paddy rice."

The system for regional rotation of water supply in areas with competition for water resources: This policy affects land in six reservoir irrigation areas, including those for the Shimen Reservoir, the Shangping Weir of the Baoshan Reservoir, the Mingde Reservoir, the Liyutan Reservoir, the Zengwen Reservoir, and part of the irrigation area of the Shigang Dam. The MOA has adopted a two-year rotation system and guides farmers using land in irrigation areas whose rotation falls in the first crop season of each year to plant dryland crops or take production environment maintenance measures. The goals are to ensure food security, stabilize rice prices, enhance the efficiency of water use in dry periods, and stabilize the supply of water. This measure is not compulsory, with farmers free to choose whether to participate. The management offices of the MOA's Irrigation Agency (IA) provide water needed for dryland crop cultivation (or green manure cultivation) to land participating in the water rotation system in relevant irrigation areas. Farmland in areas with rotational water supply not participating in the system is provided with irrigation services by IA management offices in accordance with the existing irrigation system.



The policy for farmers to select three crop seasons out of four for growing paddy rice: Starting in 2021, on farmland meeting the criteria for two crop seasons in the base year, we guided farmers starting in the second crop season of 2022 to ensure that for each crop season, on a rolling basis, the cultivation of their land in the previous three crop seasons included at least one season of switching over to crops other than paddy rice (if possible, on a contract basis), of self-initiated restoration of cultivation of crops other than rice, or of adoption of environmental maintenance measures. Only then (in the fourth crop season) have they been allowed to sell the rice grown in the current growing season for public rice stocks or collect the rice subsidy for Big Professional Farmers.

With rice industrial adjustment measures in place, over the last two years (2022 and 2023) the amount of land cultivated with paddy rice was about 30,000 to 40,000 hectares less for the whole year than in previous years. This stabilized supply and demand and kept the price of rice in production areas at over NT\$1,000 per 100 Taiwanese catties (60 kilograms), with the price reaching NT\$1,300 in some areas in the second crop season of 2023, the highest ever. Thus, the market price of rice was stabilized and farmers' incomes were increased.

(4) Promotion of agricultural sustainability through private-public cooperation with corporate ESG policies

Given the trend toward sustainable development, there has steadily been promotion of all kinds of sustainable development criteria worldwide. At the same time, Taiwan has begun to expand requirements for disclosure of information on corporate ESG (environment, social, and governance) policies. Many multinational companies have begun to require upstream and downstream suppliers to hit targeted indicators for carbon neutrality, 100% renewable energy use, or sustainable operations. This suggests that in the future enterprises will be even more demanding of ESG disclosure.

In order to proactively assist in the introduction of corporate ESG policies into agricultural venues, the MOA has inventoried services that the agricultural sector can provide to companies for their ESG policies. Also, on February 7, 2023 we

held a press conference entitled "ESG GO!" on "public-private cooperation for mutual benefit and agricultural sustainability." At the event, Minister of Agriculture Chi-Chung Chen explained to the public the promotion of an agricultural sustainability ESG program in the three main fields of "netzero sustainability, environmental and ecological conservation, and warmhearted rural communities."

Each of these fields is in turn divided into subordinate categories. For example, under "net-zero sustainability," categories include afforestation, circular agriculture, and green agrifood operations. Under "environmental and ecological conservation," categories include terrestrial habitats, marine habitats, and designated species. Under "warm-hearted communities," categories include zero hunger, rural culture, and passing along of crafts skills. There are thus a total of nine categories. Under each category, venues suitable for demonstration projects or with potential for future cooperation are offered. These projects also incorporate the United Nations' Sustainable Development Goals. The MOA assists enterprises to evaluate connections between various categories and the companies' own internal sustainability responsibilities and guides them to pitch in. In addition, the MOA encourages companies to adopt their own proposals with customized projects to create even more possibilities for cooperation. Since the press conference, there have been a total of 44 cases in which enterprises have discussed participation in agricultural sustainability ESG cooperation projects with subordinate organizations of the MOA. Cooperation has been achieved on 16 projects, with total investment of NT\$7.6 million.



On February 7, 2023 the MOA held the "ESG GO!" press conference on "public-private cooperation for mutual benefit and agricultural sustainability."

(5) Expansion of irrigation services

Taiwan's topography—characterized by high mountains, steep slopes, and fast-flowing rivers—means that without well-designed facilities



for water intake, transportation, storage, and distribution, rainwater would quickly and directly flow into the sea, making it difficult to provide water for crops when needed. Therefore, robust irrigation infrastructure and effective irrigation management and services are indispensable to the sustainable development of agriculture.

Since its establishment in October of 2020, the Irrigation Agency (IA) under the Ministry of Agriculture (MOA) has adopted four main strategies: "storing water during periods of abundance, conserving it during dry spells," "importing and distributing water widely," "smart irrigation," and "sustainability for shared prosperity." The IA promotes irrigation projects tailored to the specific characteristics and challenges of each region such as local water resources, topography, and crops, selecting the optimal irrigation facilities so that farmers can access irrigation water, increase crop yields, stabilize quality, and raise their incomes. These measures have driven growth in agricultural value chains, revitalized rural communities, and promoted the sustainable development of agriculture.

In addition, to expand irrigation services the MOA has continued to use inter-regional cooperation, public-private collaboration, natural solutions, and new technologies to provide water to farmers originally outside of irrigation areas. We have acted to promote the circular reuse of Taiwan's water resources, promote sustainable development of agriculture, enrich ecological resources, and optimize the living environment. In 2023 the "Guanshan Dongming Open Drainage Mainline 2 Supply Irrigation System Improvement Engineering Project" won a Supreme Quality Award at the 23rd Public Construction Golden Quality Awards; the IA's program for expansion of irrigation services won a National Sustainable Development Award; the project entitled "Retaining Water to Irrigate the Earth, the Taste of Happiness from Dapingding" won a Gold Medal at the 7th PwC Sustainability Impact Awards; and the expansion of irrigation services in the Wuhe area of Ruisui Township of Hualien County won a "group prize" under the Ministry of Agriculture's rules governing incentives for implementing major projects. These reflect recognition of excellence in the expansion of irrigation services.

The expansion of irrigation services not only can increase the production volume and value of agricultural crops, it can also increase farmers' incomes. In the process water is used to moisten

the Earth, adjust micro-climates, and supplement underground water, as well as promote biodiversity and enrich ecological resources. As the IA constructs irrigation systems or improves water conservancy facilities, it also puts open spaces to good use and through methods including tree planting and environmental improvement, builds high-quality leisure spaces near water, optimizes the living environment of nearby residents, takes care of farmers, and benefits everyone.



On November 30, 2023, the Irrigation Agency's program to expand irrigation services was given a 2023 National Sustainable Development Award by Premier Chien-Jen Chen.



On December 23, 2023 the "Guanshan Dongming Open Drainage Mainline 2 Supply Irrigation System Improvement Engineering Project" won a Supreme Quality Award at the 23rd Public Construction Golden Quality Awards; the award was presented by Premier Chien-Jen Chen.

(6) Traceability for domestically produced tea and oysters and mechanisms for differentiating them from imports

To enhance the trust of citizens in domestically produced tea and at the same time avoid having low-priced imported tea passed off as domestic premium tea, based on Paragraph 3 of Article 16 of the "Agricultural Production and Certification Act," on October 27, 2022 the MOA announced the "Designation of Domestic Tea as the Agricultural Product Item of Registration



06



On December 19, 2023 the MOA cooperated with the Taiwan Ciaotou District Prosecutors Office to implement the special program to ensure that foreign tea is not being passed off as Taiwan tea and confiscate and destroy mislabeled tea.



An guidance and explanatory meeting for the domestic oyster industry.

for Traceable Information and Its Directions." This stipulates that, as of January 1, 2023, tea manufactured domestically in Taiwan must, in accordance with the "Act Governing Food Safety and Sanitation," have a label indicating the place of production as "Taiwan" attached to the smallest unit of sale (complete packages). Moreover, before circulating and going on sale, domestic tea must, in accordance with the "Information Items and Labeling Method of Traceable Agricultural Products," register traceability information and provide on its labelling one of the following three items: an agriproducts traceability QR Code, a Traceable Agricultural Products label, or a Taiwan Organic mark.

The MOA's Agriculture and Food Agency has at the same time implemented a special program for auditing tea labelled as being domestically produced tea. In 2023, it conducted 1,223 checks on tea on the market labelled as domestic tea,

with the tea qualifying as domestic in 1,131 cases (92.5%). In the 92 cases in which the tea did not meet standards, the people involved were notified by mail to remedy the situation. Moreover, tests were conducted on "domestic tea" for sale in the market using place-of-production identification technology developed by the MOA's Tea and Beverage Research Station. Sample tests were conducted on tea labelled as domestic in 180 cases (with 176 proving to be genuine domestic tea and the other four being tea from overseas), and in 285 cases of entries in competitions of local specialty teas (135 cases for the spring competition and 150 cases for the winter competition, all of which proved to be genuine domestic tea). In addition, the MOA coordinated with projects and extended investigations of the Taiwan High Prosecutors Office and the Taiwan Food and Drug Administration (TFDA) of the Ministry of Health and Welfare to conduct 255 sample tests (of which 180 turned out to be Taiwan tea, while 75 were tea



from overseas). Altogether 720 sample tests were conducted, with 89.03% being up to standards. This was an increase of 16.34 percentage points compared to the 2022 figure of 72.69%, showing that the government has been effective at deterring the passing off or false labelling of imported tea as domestic, thereby upholding the rights and interests of consumers and tea farmers.

To prevent imported oysters from being passed off as Taiwan oysters, the MOA's Fisheries Research Institute has developed place-ofproduction identification technology for oysters. The TFDA has approved the technology and made the testing method public. It uses a scientific method to test and clarify whether imported oysters are being passed off as domestic oysters. This helps domestic oyster brands to build brand identity for marketing purposes. Under a special program to audit place-of-production labels for oysters on the market, since December of 2023 the MOA has worked with the TFDA to conduct joint audits. The MOA has also proactively guided domestic oyster aquaculture operators to introduce the traceability system for aquatic products, holding related training and education sessions and explanatory meetings to spread awareness of oyster place-ofproduction labeling rules. Thus far about 745 oyster aquaculture operators in Taiwan have acquired traceability QR Codes for aquatic products, while 35 have been certified under the Traceable Agriculture Products system. In the future we will continue to promote oyster traceability systems to strengthen self-management by producers and disclose producers' information.

(7) The successful return of Taiwan pork to the Philippines

After an interval of nearly 30 years, in 2023 "Taiwan pork" successfully returned to the Philippines market. Seven swine breeder farms and six pig slaughterhouses with "Hazard Analysis and Critical Control Points" (HACCP) certification were allowed to export products to that country. This was the result of the MOA's proactive seizing of the opportunity provided by inspections of Taiwanese producers by officials from the Philippines. We arranged seamless cooperation between businesses and the government, and thanks to teamwork, finally received authorization from the Philippines to export products there. This constituted a major breakthrough.

In fact, Taiwan is one of the few countries in Asia to have halted vaccinations for foot and mouth disease and successfully kept African swine fever out of our territory. Also, in order to upgrade the competitiveness of the pig-raising industrial chain, we have provided support and guidance at all links in the chain from breeding to pig-raising to slaughtering to butchering. Besides improving operational outcomes and lowering costs, the MOA has worked hard to meet international standards. On this basis, we have proactively negotiated sanitary conditions and rules with foreign target markets. In addition, the MOA has strengthened quidance of businesses to undertake measures including registration of breeding pigs, performance testing, selection based on appearance, and monitoring for animal diseases. We have continued



The Philippines dispatched officials to Taiwan to audit six HACCP-certified pig slaughterhouses.





The photo shows a press conference held on September 12, 2023 to mark the first shipment of Taiwan pork to the Philippines since the eradication of foot and mouth disease in Taiwan.

for many years now to export breeding pigs to Southeast Asian nations including Hong Kong and Vietnam and have gotten very positive feedback from local markets.

Meanwhile, to expand exports of domestically produced pork to international markets, since 2020 the MOA has promoted the use of HACCP certification for slaughterhouses. Already 11 slaughterhouses have received HACCP certification. We have systematically enhanced the sanitation, safety, and quality of domestic pork, as well as brand value and product differentiation. As we have been strengthening guarantees of the safety and quality of pork for domestic consumption, we have also facilitated the export of premium pork products.

The approval to return to the Philippines market is mainly the result of the opportunity provided by on-site audits conducted by the Philippines' Department of Agriculture of the facilities, equipment, and production processes of designated businesses to demonstrate Taiwan's official high-quality management system. This impressed the Philippines side, and in January and April of 2023 they agreed to authorize seven pig farms and six HACCP-certified slaughterhouses to export pork to the Philippines. The first container of fresh pork was shipped to that country in September.

Premium quality pork from Taiwan has been welcome in the highly competitive international market. This achievement is the result of the collective efforts of industry, government, and academia in Taiwan. Moreover, the certification of Taiwan's official management system is the greatest possible affirmation of our successful work to prevent the entry into Taiwan of African swine fever (even as an ASF epidemic rages worldwide), our eradication of foot and mouth disease, and our progress towards eradication of classical swine fever.





2. 2023 Month by Month

January

- Considering that none of the monitoring mechanisms for classical swine fever (CSF, or hog cholera) initiated in 2021 discovered any cases of CSF virus in the field, following an evaluation by experts that the risk of transmission of CSF in Taiwan was extremely low, as of January 1, 2023 the Council of Agriculture (COA, predecessor to the MOA) halted vaccinations for CSF nationwide.
- Considering that there had been no known cases of sheep or goat pox in Taiwan since 2013, following a review by experts where it was determined that there were no indications of active sheep or goat pox virus in the field, as of January 1, 2023 the COA completely halted vaccinations for sheep and goat pox.
- The COA announced the deletion of recognition of Vaucluse. Haute-Loire, and Creuse of France as zones free of highly pathogenic avian influenza.
- Handled filings for the 2023 "Green Environmental Payment Program," used incentives to encourage farmers to switch from rice to other crops, and promoted (i) rotational water use in areas with competition for water resources, (ii) the switch to dry crops in the special zone along the High Speed Rail tracks in Yunlin County, and (iii) the policy for farmers to "select three out of four crop seasons for growing paddy rice." The goals were to stabilize the supply of agricultural water in the dry season, ensure balance between supply and demand for rice, and raise the incomes of rice farmers.
- The 25th meeting of the African Swine Fever Central Emergency Operation Center resolved to strengthen inspections of packages from overseas and the luggage of inbound travelers, as well as bolster inspection and interdiction of illegal use of kitchen waste to feed pigs.
- The COA announced "Parametric Sweet Persimmon Insurance of Chung Kuo Insurance for Wind Speed of Typhoon and Rainfall in Taichung City," "Mango Insurance of Cathay Century Insurance (Government Disaster Relief-Linked Insurance)," and "MSIG Mingtai Insurance for the beekeeping industry (parametric insurance for temperatures and rainfall)" as agricultural insurance products for 2023.
- Announced "D038 Large-Scale Landslide-Designated Soil and Water Conservation Area (Chiamu) at Wutai Township of Pingtung County" and "T001 Large-Scale Landslide-Designated Soil and Water Conservation Area (Tawu) at Wutai Township of Pingtung County" and the designation of Tainan Branch, Soil and Water Conservation Bureau, COA as the competent authority.
- Amended partial articles of the "Regulations Governing the Trial Operation and Premium Subsidy of Banana Income Insurance" to simplify the premium subsidy process, stipulate forms of land that do not conform to legal requirements, and raise the subsidy to 60% of premiums for insurable banana growing areas that have Traceable Agricultural Products certification, Taiwan Organic certification, or a total area of three or more hectares being insured by the same person.
- Approved four long-term soil and water conservation plans for large-scale landslide designated soil and water conservation areas including T001 (Laiyi) in Laiyi Township of Pingtung County, as well as T002 (Ali), D038 (Jiamu), and T001 (Dawu), the latter three all being in Wutai Township of Pingtung County.
- Amended Article 16 of the "Regulations for the Importation of Objects Subject to Animal Quarantine" to add an attachment "Quarantine Requirements for the Importation of Pork Products from Japan."
- Announced the addition of "common conehead," and "Taiwan fig tree" as new items for the under-forest economy.
- Announced the "2023 rules governing submissions for food and agricultural education promotion projects," the "2023 rules governing submissions for innovative integrated food and agricultural education projects," and the "operating principles for research proposals and their review under the Cross-regional Rural Industry Plan and Regional Shining Spot Plan in Rural Area," and issued the "Operation Directions of the Subsidy for the Promotion of Food and Agricultural Education."
- Approved designated facilities for slaughtering, cutting, processing, and storage of beef and its products from Lithuania, permitting their import into Taiwan in accordance with relevant provisions of the "Quarantine Requirements for the Importation of Meat Derived from Artiodactyla Animals" and the "Act Governing Food Safety and Sanitation."
- Announced recognition of Virginia, Connecticut, North Carolina, Wyoming, Massachusetts, Vermont, Oklahoma, New Mexico, Rhode Island, South Carolina, Arizona, and Alabama of the US as zones free of highly pathogenic avian influenza.
- Amended the quarantine requirements for the Asian longhorned beetle under the "Quarantine Requirements for the Importation of Plants or Plant Products into the Republic of China" to add Japan as a "country or district of origin."
- Added new sources of greenhouse gas offsets, including newly using biofuel as a substitute fuel, replacing old fashioned fish aggregation lights on fishing boats with LED fish aggregation equipment, replacing old-style agricultural machinery with electric-powered agricultural machinery, and replacing existing oxygenating paddle wheels in aquaculture ponds with high-efficiency power-saving oxygenating equipment, thereby expanding the benefits of reducing greenhouse gases in the agricultural sector.

February.

- The COA announced the deletion of recognition of Costa Rica, Panama, Chile, and Argentina as countries free of highly pathogenic avian influenza, and banned the import into Taiwan of live birds/poultry and related products from those countries.
- Announced the deletion of recognition of Tarn-et-Garonne of France as a zone free of highly pathogenic avian influenza.
- Amended partial articles of the "Farmer Health Insurance Act" to double the monthly insured amount to NT\$20.400, increase maternity benefits from NT\$20,400 to NT\$61,200, and double the funeral allowance from NT\$153,000 to NT\$306,000, in order to encourage rural families to procreate and reduce the economic burden of costs for funerals and interments on such families.
- Amended Article 16 of the "Regulations for Administration to Veterinary Drug Dealers" to require veterinary drug dealers to report information online about sales of antibacterial veterinary drugs, with the exception of over-the-counter drugs for ornamental fish and external solution pharmaceuticals for dogs and cats.
- Abolished "Designated Soil and Water Conservation Area of Chepingliao Landslide in Balian Village, Xizhi City of Taipei County" and "Designated Soil and Water Conservation Area of Kanggaokeng Landslide in Baiyun Village, Xizhi City of Taipei County" with both locations returning to ordinary soil and water conservation management and maintenance.
- Conducted 2023 irrigation water quality audits to implement protection of irrigation water quality, refine the non-farmland drainage management system, and deter violations of regulations.
- Amended Article 6 of the "Regulations for Companies Investment or Organization of Farmer's Associations" to add a provision that in cases in which a farmers' association is providing capital for or investing in a limited company that is coordinating with a major agricultural policy or policies, following review and approval, the association will not by bound by the restrictions on capital or investment amounts set by these Regulations.
- Announced "Banana Plant Insurance of Fubon Insurance" as an agricultural insurance product for 2023.



- Amended Supplementary 2 of Article 4 of the "Regulations for the Composition and Evaluation Standards for the Valuation Committee" for compensation evaluations under the "Act on the Prevention and Control of Infectious Animal Diseases" to amend the valuation standards for pigs and increase the willingness of pig-raising businesses to report infectious diseases.
- Held a press to introduce the new King Air 360ER aerial remote sensing aircraft, which can film land surfaces with resolution of 15 centimeters for single images, meeting the requirements of government spatial planning and monitoring, agricultural and forestry management, and disaster prevention and rescue.
- On the basis of the "Special Act for Enhancing Economic and Social Resilience and Public Sharing of Economic Achievement in the Post-pandemic Era" promulgated by the President, the COA proposed measures to strengthen agricultural resilience and assist farmers and fishermen. It is expected that about NT\$27 billion will be invested over three years in order to achieve the goals of resilience for agriculture, rural communities, the environment, and the economy.
- The COA amended the "Regulations for Trial Operation of Farmers' Occupational Accident Insurance" to increase the monthly insured amount, double the injury and disease payment from its original level, and double the funeral allowance from NT\$306,000 to NT\$612,000, in order to ensure that farmers get better economic compensation for occupational accidents that occur while doing agricultural work.
- Amended the "Regulations About Standards for Determination of the Farmers Engaged in Agricultural Works Applying for Joining in Farmer Health Insurance Program and Examination of Their Qualifications" to require that insured persons sell a certain amount of self-produced agricultural products over the course of each year. The COA furthermore added qualifications that students and betel nut growers must meet to participate in Farmers' Health Insurance. At the same time we added "wife's parents" and "daughters-in-law" as "first-degree kin through marriage" in order to conform to the "Enforcement Law for the Convention on the Elimination of All Forms of Discrimination against Women."
- In response to the impact of climate change, disease vectors, and an increase in the number of moulting hens on chicken breeding and raising and egg production rates, the COA proactively adopted the following measures:
 - Coordinated with egg businesses to increase horizontal distribution and with processors to distribute raw material eggs to supply sales channels such as traditional markets and miscellaneous staple crop dealers. Moreover, we coordinated with egg washing and grading businesses to supply fair-priced washed and graded eggs to supermarkets.
 - Strengthened awareness-raising for biosecurity at poultry buildings to defend against diseases as well as for insulation (heat preservation) tasks, to raise the efficiency of egg production and reduce the incidence of diseases.
 - Adopted measures including an exemption from the 5% business tax for imported feed corn, guiding the industry to increase the number of imported layer breeder chickens, increasing the supply of chicks, and upgrading renovation of poultry buildings, to raise the willingness of chicken farmers to invest in production.
 - Arranged a special program for importation of 360,000 eggs from Australia, and through an "imports to supplement processers, processers to supply consumers" approach, provided the imported eggs to processing businesses. We thereby freed up domestic eggs from the processing end to meet demand from consumers for domestic eggs at the sales channel end.

March

- The COA announced the first release of comprehensive records of large-scale landslide slippage from the T002 (Guanghua) area prone to large-scale landslides in the Fuxing District of Taoyuan City, with the open data made available to the public to research and analyze the causes and special features of large-scale landslides.
- Arranged special programs for the import of chicken eggs from countries including Thailand, the US, and Italy, importing about seven million eggs by the end of March, which were provided to sales channels. With reference to the overall supply situation in the market, we distributed eggs to egg washing and grading businesses, and after being washed, graded, packaged, and labelled, these were provided to sales channels and consumers at fair prices.
- Announced the deletion of recognition of Côte-d'Or, Essonne, and Eure-et-Loir of France as zones free of highly pathogenic avian influenza.
- Held the "2023 Taiwan International Orchid Show." About 326,000 people visited the venue during the Show, with orders totaling NT\$11.213 billion, with the orchids to be delivered between three to five years in the future.
- Held the 2023 "Taiwan-US Bilateral Cooperation Meeting on Agricultural Science and Technology" at which the Animal Health Research Institute of the COA signed two Memorandums of Understanding in the name of Taiwan to become partner members of two international research organizations (the Global Foot-and-Mouth Disease Research Alliance and the Global African Swine Fever Research Alliance). The two parties also agreed to bolster future cooperation in four areas: "net-zero carbon emissions from the agricultural sector," "sustainable agricultural and fisheries development," "resilient forestry," and "human resources cultivation and training."
- Announced the deletion of recognition of Uruguay as a country free of highly pathogenic avian influenza.
- Announced recognition of Delaware, Kentucky, Arkansas, and New Jersey of the US as zones free of highly pathogenic avian influenza.
- Announced "Parametric Jujube Insurance of Union Insurance for Weather" and "Parametric Watermelon Insurance of Fubon Insurance for Rainfall" as agricultural insurance products for 2023.
- Issued the "Operation Directions for the Importation of Day-Old Poultry and Fertilized Eggs from the Designated Establishments" in response to the
 repeated outbreaks of highly pathogenic avian influenza around the world.
- Issued a handbook for the care and feeding of cats to provide people with basic knowledge of the care and feeding of cats and suggestions for raising them, in order to avoid potential diseases or behavioral problems arising from incorrect raising methods.
- Convened a symposium for agro-pesticide manufacturers and dealers to provide information on agro-pesticide safety protection work, mass spectrometry technology for testing agro-pesticide residues, and the inspection and interdiction of illegal agro-pesticides.
- Coordinated with 11 organizations including the Children Are Us Foundation, Gofe Sanctuary Factory, and Victory Kitchen to prepare and sell NT\$60 boxed meals with domestically produced farm, fisheries, or animal husbandry products as the entrée. We sold these through PX Mart and Carrefour outlets to provide substantial food and nutrition to disadvantaged groups.
- Issued the "Regulations for Accreditation of Veterinary Assistants and Accreditation Bodies" to stipulate the qualifications for veterinary assistants, the duties of veterinary assistants, and the contents of the accreditation program and the rules it must follow.
- Announced the deletion of recognition of Switzerland as a country free of highly pathogenic avian influenza.
- Amended the supplementary to Article 35-1 of the "Regulations Governing Financial Management of Farmers Associations" to adjust the funding for elected officials of farmers' associations to make special trips abroad and that for overseas inspection trips and related expenses for their general managers or staff, to strengthen farmers' association tasks including economic development and promotional work.
- Amended the "Regulations for the Management of Coastal and Offshore Fishing Vessels Catching Crabs" to add "offloading or carrying crabs without naturally attached stomach plastrons" as a prohibited behavior for fishing vessels from August through December each year, and also added a prohibition on displaying such crabs for the purposes of sale, in order to continue to promote sustainability of resources for the crab fishing industry.



- The COA adopted measures to strengthen law enforcement with respect to illegal carrying of animals subject to quarantine by inbound passengers on designated high-risk flights, with immediate fines upon discovery, to deter travelers who have the mindset of taking a chance that upon discovery they will be let off without a fine.
- Issued the "Directions for the Labeling, Promotion Material or Advertisement of Pet Food Identified as False, Exaggerated or Misleading," to take effect on January 1, 2024. These stipulate that pet food labeling, promotional material, or advertisements must provide sufficient and accurate information.
- Amended the attachment of Article 9 of the "Regulations of Agro-Pesticides Application and Agro-Pesticides Residual Inspection in Agricultural Products" by adding maximum residue limits (MRLs) for spirotetramat, acetamiprid, and cartap on betel nuts. On the same day the COA announced the methods and scope of use of these agro-pesticides to control the oil palm bunch moth (*Tirathaba mundella*) in betel nuts, to maintain the safety of the agricultural production environment.
- Announced "Fubon Insurance Precipitation Index Milk Fish Aquaculture Insurance," "Fubon Insurance Precipitation Index Grouper Aquaculture Insurance," "Fubon Insurance Precipitation Index Grouper Aquaculture Insurance," "Fubon Insurance Precipitation Index Tilapia Aquaculture Insurance," "MSIG Mingtai Insurance Company pomelo insurance with wind speed parameters," "sorghum income insurance for the first crop season of 2023," and "MSIG Mingtai Insurance Company tangerine (Mandarin orange) insurance with wind speed parameters" as agricultural insurance products for 2023.
- Held an exhibition of the 2022 achievements of COA guidance of packaging and branding of e-commerce agriproducts, displaying guidance achievements including new brand designs and product packaging used by guided businesses to facilitate sales and promotion through e-commerce sales channels.
- Held the 2023 INTERPRAEVENT International Symposium on natural disaster prevention, to enhance the development of disaster prevention and response science and technology and improve the effectiveness of disaster management.
- Issued the "Directions for the Subsidies for Installation of Automatic Identification System on Fishing Vessels in 2023" to subsidize people in the fisheries industry with fishing boats, sampans, or rafts smaller than 20 gross metric tons with stable electrical supplies and subdivisions to purchase and install portable AIS devices on their vessels, in order to bolster the navigational safety of at-sea fishermen.
- Fresh pork produced by six slaughterhouses in Taiwan, using the "Team Taiwan" pork model for the first time, passed documentary and on-site inspection audit procedures conducted by the Philippines and successfully opened the market to exports of pork to designated countries.
- The COA held the 6th "Forest Market," and accompanied it with a role-playing game to enable the public to experience the multiple benefits forests provide to human beings, while also promoting domestically produced wood and bamboo to enhance their market visibility.

May

- The COA issued the "Directions for the Subsidies for Installation of Portable Automatic Identification System (AIS) on Fishing Vessels" to stipulate subsidy rules for the installation of portable AIS devices on small fishing boats or rafts without stable electrical supplies or subdivisions. It was expected that subsidies would be supplied for 500 AIS devices to enable real-time monitoring of the movements of coastal and inshore fishing boats (rafts) to enhance operational and navigational safety.
- Held the 18th "Taiwan-Australia Agricultural Working Group (AWG) Meeting" to explore policies for net-zero carbon agriculture, technical cooperation, and new investment opportunities. A consensus was achieved on human resources interactions, information exchanges, and technical cooperation on issues including disaster management, plant phenomics research, reduction of carbon emissions from livestock, technology for unmanned aerial vehicles to monitor insect pests, and improvement of gear marking for the fisheries industry.
- Announced "Taiwan Fire & Marine Insurance Company wax apple insurance for the Pingtung area with typhoon wind speed and rainfall volume parameters," "Taiwan Fire & Marine Insurance Company wax apple insurance—supplementary insurance for the Pingtung area with temperature parameters added to typhoon wind speed and rainfall volume parameters," "Cathay Century Insurance Company guava crop insurance with typhoon wind speed and rainfall volume parameters," and "paddy rice income insurance for the second crop season of 2023" as agricultural insurance products for 2023.
- Signed an agreement with the Central Weather Administration to cooperate on agricultural weather information services and applications, working together to upgrade the quality of weather observation data services, deepen cross-domain applications of agricultural weather data, promote exchanges of information and extension of services, and enhance the resilience of Taiwan agriculture in an era of extreme weather events.
- The platform for cartographic (mapping) data for the Taiwan Ecological Network formally went online, disclosing cartographic data on 45 regional conservation corridors, 44 biodiversity priority areas, and numerous ecological landscapes. The platform provides related mapping data and information on subjects including intra-regional important ecosystems, issues, and species of concern, serving as an important blueprint for management of biodiversity conservation spaces in Taiwan. Also, extension of the uses of this cartographic data will accelerate integration of resources in conservation spaces in Taiwan.
- The COA amended the "Operation Directions of Soil and Water Conservation Bureau, Council of Agriculture, Executive Yuan for Subsidies of Farmland Soil and Water Conservation Facilities for Slopeland." Based on the policy of enhancing storage of water to increase agricultural water resources, the Directions were amended to liberalize application qualifications and simplify the application process. Moreover, based on the nature of the subsidy items, we added reasonable time limits (in years) for use of the subsidies while at the same time adjusting the qualifications for reapplications for subsidies, abolishing the uniform time limit of 15 years for all items.
- The "Organization Act of the Ministry of Agriculture" passed its third reading in the Legislative Yuan.
- The COA announced the recognition of Alaska, Idaho, Indiana, Kansas, Maryland, Maine, Missouri, Montana, Ohio, Texas, and Wisconsin of the US as zones free of highly pathogenic avian influenza.
- Codling moths were detected in apples produced in South Africa. In accordance with regulations, the COA notified the government of South Africa to suspend exports of apples to Taiwan and immediately comprehensively and rigorously strengthened import inspection and quarantine measures for already exported apples.
- The COA held the 2023 business matchmaking meeting for smart agricultural technology services systems, helping match agricultural producers with 63 registered technology services providers to solve problems of agricultural management and enhance the efficiency of agricultural production and marketing.
- Held the opening ceremony for stamp (seal) collection locations and service points on the "Mountains to Sea Greenway." The 177-kilometer-long Greenway will provide travelers with multiple services including drinking water, rest spaces, toilets, battery charging stations, and guide services, as well as the fun of collecting stamps (seals), thereby stimulating the local green economy.
- Amended partial articles of the "Operation Directions for Agricultural Relief of Natural Disaster," with areas covered by relief expanded to include facilities essential to production including irrigation channels and ponds, in order to put into practice the goal of assisting farmers to rapidly resume cultivation following natural disasters.
- Launched a program for inspections and auditing of institutions that use animals for scientific purposes, under which we audited 64 such institutions and ensured that they implement their responsibility to monitor the scientific use of animals in conformance with the "Regulations for Establishing and Managing the Institutional Animal Care and Use Committee or Panel," thereby ensuring the well-being of laboratory animals.



• Amended Article 13 of the "Regulations for the Certification of Qualified Members and Screening Procedures of Base-level Farmers Association" to permit persons aged 65 or older, who have participated in farmers' health insurance (FHI) for a total of 15 years or more, who have commissioned an organization designated by the competent authority to assist in renting out all of their farmland, and who continue to participate in FHI as owner-farmer farmers' association members, to retain their qualifications to be members of a farmers' association. The aim is to encourage young people to take up agriculture as a profession and enable elderly farmers to retire with peace of mind.

Juneلر

- Based on the "Regulations for Insured Persons Who Lease out All Farmland to Continue Participating in Farmer Health Insurance," the COA began permitting persons covered by farmers' health insurance (FHI) aged 65 or older, who have participated in FHI for a total of 15 years or more, and who have commissioned a farmers' association to handle renting out all of their farmland, to apply to continue to enroll in FHI. We also amended the "Regulations About Standards for Determination and Examination of Qualifications to Persons Who Actually Engage in Agricultural Work and Apply to Join the National Health Insurance Programs" and the "Regulations for the Certification of Qualified Members and Screening Procedures of Baselevel Farmers Association" to enable such persons to simultaneously enroll in National Health Insurance as Category 3 insured persons and to retain their qualifications to be members of a farmers' association.
- The COA agreed to a program with New Zealand for the export of lychees. The first batch was exported by air after a combined treatment of exposure to vapor heat treatment of 46.2°C for 20 minutes and 42 hours of cold treatment storage at 2°C, and smoothly entered New Zealand after a rigorous border inspection.
- Held a hands-on demonstration activity to promote mechanized cultivation of vegetables and the agricultural services system. Agricultural services teams demonstrated a series of mechanized standard operating systems for the whole cultivation process from land preparation, plowing furrows, and transplantation to field management and harvesting and displayed the new-style fully automated transplantation machine for plug tray vegetable seedlings.
- Held the 2023 forest fire disaster prevention and rescue exercise, and through wargames and actual operations, strengthened horizontal coordination and the mechanism for civilian evacuation and sheltering operations, to ensure the smoothness of coordination and integration of responses to actual disasters.
- Amended Article 11 of the "Regulations for Inspection of Animals and Animal Products Shipped in or out Kinmen or Lienchiang County," permitting travelers to carry or to check in up to 20 fresh poultry eggs for their personal use. Such persons need only fill out a traveler's self-use declaration and the eggs are exempt from inspection or the attachment of animal health certification documents. The aim was to conform to conditions to prevent animal diseases while also taking into account the needs of residents of the Kinmen area.
- Announced "MSIG Mingtai Insurance Company in ovo avian influenza insurance" as an agricultural insurance product.
- Convened the 1st "Taiwan-Lithuania Agricultural Working Group Meeting" and signed a "Memorandum of Understanding on Cooperation in the Field of Agriculture" covering a number of issues, including strengthening public-private partnership cooperation with respect to agri-food products from the two countries, bolstering linkages in the area of innovative agricultural technology, and deepening trade in agriproducts. The two parties also agreed to establish a dialogue platform for agricultural cooperation to deepen agricultural cooperation, trade, and investment.
- Launched a collective inspection action for loosely packed and packaged mushrooms on the market, and, on the basis of the "Act Governing Food Safety and Sanitation," handed out fines for labels that did not include the mushrooms' place of production (as required by law) or labels with inaccurate product information, in order to protect food safety for consumers and the rights and interests of mushroom farmers.
- Amended Article 12 and the appendix of Article 3 of the "Regulations Governing the Premium Subsidy of Agricultural Insurance" to add the ratio of the premium subsidy for in ovo chicken insurance for the animal husbandry industry.
- Signed the "Implementing Arrangement on Fisheries Cooperation" with the Ministry of Agriculture and Cooperatives of Thailand, and moreover convened the 8th "Taiwan-Thailand Agricultural Cooperation Meeting" in Chiang Mai. The two sides reached consensus on a number of issues, including policies for food security and reducing food waste, demonstration venues for circular low-carbon agriculture, mutual recognition of organic products and plant variety rights, biological agents, training on internal controls at farmers' organizations, market access, and development of the farming, fisheries, and animal husbandry industries.
- Announced the deletion of recognition of Brazil as a country free of highly pathogenic avian influenza.

July

- Taiwan entered the phase of a complete cessation of vaccinations for classical swine fever and at the same time stepped up biosecurity work at pig farms, continuing to implement various disease prevention, inspection & quarantine, and disease notification procedures, to reduce the risks and potential harm from transmission of this disease from abroad into, or its reoccurrence in, Taiwan.
- The COA formally implemented measures for fees for documentary reviews for approval of rice exports or imports, to stipulate the fees that should be paid by rice importers or exporters when applying for such approval documents under the "Directions for Issuing Approval Document for Export and Import of Rice."
 The fee standards were set at NT\$100 for the issue of ordinary documents (within six days) or NT\$150 for express documents (within three days).
- Amended the appendix to Paragraph 1 of the "Plant Protection Products That Are Exempted from Registration" to include "cinnamon essential oil (cinnamaldehyde)" and "Australian tea tree essential oil" as plant protection products exempted from registration. We encouraged farmers to adopt eco-friendly cultivation practices by using these relatively safe protection products, thereby reducing the use of high-risk chemical agro-pesticides.
- Amended partial articles of the "Regulations for the Issuance of Building Permit and Fishing License of Fishing Vessel" to stipulate that the "replacement qualification" for fishing vessels that are scrapped before 2025 can be extended for up to 15 years; extend the time limit for construction of approved fishing vessels from two years to five years; stipulate that Level 2 tuna purse seine fishing vessels with gross tonnage in excess of 2,000 can use the replacement qualification or replacement tonnage of tuna longline fishing vessels to compensate for extra tonnage; stipulate that replacement qualification tonnage from different ocean areas can be used to supplement replacement tonnage when building tuna longline fishing vessels; and amend the rules governing access to replacement qualification and supplementary replacement tonnage when renovating tuna longline fishing vessels.
- Amended Paragraph 4 of the "Prohibition of Delivering Cloven-Hoofed Animals and Their Products from Kinmen Area to Taiwan Main Island and Other Offshore Islands," to stipulate that fresh, chilled, or frozen lamb or mutton from source sheep carcasses (not including the heads, feet, internal organs, or bones) will be managed and controlled in accord with the regulatory criteria used for fresh, chilled, or frozen beef from source cattle carcasses, permitting the raising of over 8,000 head of sheep in the Kinmen area and expanding product sales channels.
- Issued the "Operation Directions for Auditing the Project of Pet Funeral Facilities in Non-urban Land."
- Announced the recognition of Portugal as a country, and Minnesota of the US as a zone, free of highly pathogenic avian influenza.
- Held a press conference and media participation activity on the subjects of co-management of mountain forest and circular use of resources, revealing for the first time the first demonstration zone for co-management of mountain forest with an indigenous community and also for circular use of resources.
- Held the 2023 "Taiwan-US Fisheries Consultations," reaching an agreement under which the US promised to continue to assist Taiwan to participate in international fisheries organizations on equitable terms and Taiwan promised to respect international fisheries resource maintenance management measures and implement crew management.
- Announced the deletion of recognition of Poland as a country free of Newcastle disease

- Announced "Sugar Apple Income Insurance" and "sorghum income insurance for the second crop season of 2023" as agricultural insurance products.
- In coordination with measures to stabilize production and marketing (supply and demand) of squid and Pacific saury, the COA asked loan institutions to accept applications from qualified squid and Pacific saury operators to provide up to one year of interest subsidies for new or old loans, the applications to be accepted from July 12 to October 31, 2023 (or until the special subsidy funding is exhausted).
- Held an explanatory meeting for comprehensive water-saving measures for the second rice crop season of 2023 for the Zengwen and Wushantou reservoir irrigation areas (Groups 3 to 6), inviting affected farmers and related businesses from the Chianan area to attend.
- Organized a special exhibition at the 2023 "Asia-Pacific Forum and Exposition for Sustainability" (aka 2023 "SDG Asia") on the Taiwan Ecological Network running from the mountain forests to the sea, guiding the public to comprehend peaceful co-existence with nature and understand the importance of biodiversity to sustainable development.
- Set up the "Agricultural Technology Pavilion" at the 2023 "BIO Asia-Taiwan" expo, to make citizens aware of the rich cross-domain capabilities of Taiwan's agricultural technology research.

August

- The Ministry of Agriculture (MOA) formally began operations, and the inauguration ceremony was held for the first Minister Chi-Chung Chen.
- MOA Minister Chi-Chung Chen attended the APEC Food Security Ministerial Meeting, sharing Taiwan's strategies for promoting net-zero carbon emissions from agriculture and upholding food security, as well as Taiwan's achievements and the future outlook as the lead economy for "reducing food losses and waste"; Minister Chen also engaged in bilateral meetings.
- The Yokohama Head Office of the Plant Protection Station of Japan's Ministry of Agriculture, Forestry, and Fisheries dispatched an expert to Taiwan to conduct on-site auditing and certification testing for quarantine treatment of red dragon fruit of the family Hylocereus (including types with red fruit, purple-red fruit, and their cross-bred varieties). After the Taiwan and Japanese sides confirmed the confirmation test, the MOA continued to promote the application for market access approval.
- The MOA held a press conference and banquet in the US city of Seattle to promote Taiwan farm and aquatic products, introducing premium agricultural products from Taiwan including grouper, edamame, mangoes, tea, dried fruits, and Phalaenopsis orchids to American political dignitaries, importers, sales channels, and the media, with the goal of expanding the export market in the US for Taiwan farm and fisheries products.
- Participated in the 101st meeting of the "Inter-American Tropical Tuna Commission" and meetings of subordinate committees. The meeting approved proposals on fish aggregation devices (FAD), Pacific bluefin tuna, shark conservation, manual reporting in the event of vessel monitoring system (VMS) failure, control strategies for tropical tuna, research on mahi-mahi (common dolphinfish), silky shark management, climate change, and catch strategies for the north Pacific albacore.
- Accepted applications from farmers for compensation for comprehensive water saving measures for the second paddy rice crop season of 2023 for the Zengwen and Wutoushan reservoir irrigation areas, accelerated the handling of these applications, and completed remitting of compensation before Mid-Autumn Festival.
- Held the first session of classes to train people in Artificial Intelligence of Things (AloT) agriculture, focusing on agricultural applications of artificial intelligence and AloT and assisting civil servants and agricultural production managers to make good use of such tools for cross-domain planning and decision-making.
- Set up the "Taiwan Agriculture Museum" at the 2023 Taiwan Culinary Exhibition, displaying premium agriproducts from across Taiwan as well
 as rural travel itineraries and gift/souvenir items.
- Announced new technology for rapid extraction for tea for special use by the blended drinks industry, effectively eliminating impurities and bad smells from tea leaves, raising the extraction rate, lowering production costs, reducing extraction time by one half, doubling or tripling L-theanine and catechin, and tripling reducing sugar content.
- Approved two new production facilities to import beef from Paraguay into Taiwan, permitting beef and its products to be imported into Taiwan in conformance with the "Quarantine Requirements for the importation of deboned (chilled or frozen) beef from Paraguay into the Republic of China" and food import inspection and testing regulations.
- The Canadian Food Inspection Agency sent staff to Taiwan to undertake on-site evaluations for organic equivalence and better understand the implementation of Taiwan's organic agriproduct certification and management system.
- The MOA held an explanatory session to guide the fisheries industry on implementation of the International Labour Organization's Work in Fishing Convention (C188) and discuss the impact on the industry while incorporating the convention into domestic law, and also provided guidance for the industry to prepare in advance.
- Issued the "Regulations for Greenhouse Gas Reduction Grants for the Replacement of Old Agricultural Machinery," using incentive payments as a means to repay farmers for the benefits of reducing greenhouse gases and implementing these payments in a cumulative method with existing subsides for the purchase of new agricultural machinery and equipment.
- Held the fourth session of the "Ag Digi School," which focused on learning about Al industrial trends and ways to make good use of ChatGPT to enhance efficiency, as well as case studies of the application of Al technology in various fields.
- Held a hands-on demonstration of the use of unmanned aerial vehicles (UAVs) to spread preventive baits formulations for red imported fire ants, inviting agro-pesticide spraying service providers and local governments to attend, to enhance preventive capabilities and efficiency.
- Held the 2023 "Touring Exhibition on Food and Fisheries Culture," inviting 13 food and fisheries education groups to set up a promotional market to enhance the visibility of domestically produced aquatic products for consumers.
- Held the 2nd "Taiwan-Japan Summer Fruit Festival," working through businesses from both parties to display and sell a wide variety of products including fruit, tea, wine, coffee, and processed agricultural products, to promote mutual learning and deepen the bilateral friendship.
- Held a press conference on the subject of the achievements of the program to comprehensively promote labor-saving mechanization and equipment modernization in the agri-food industry and the introduction of a complete mechanized production chain for wendan pomelo, demonstrating a completely mechanized labor-saving operations model for wendan pomelos from field management and post-harvest handling to processing.
- Amended the "Regulations Governing Policy-Oriented Special Agricultural Loan" and related loan directions to relax limits on income from non-agricultural sources for applicants for the "Loan for Young and Middle-Aged Adults Working in Agriculture," to support such adults in collectively creating a positive environment for agricultural operations.

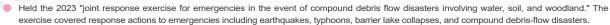


<u>September , , , , </u>

- The Taipei Flower Market and Japan's JF Hyogokenseika Incorporated signed a Memorandum of Understanding to expand cooperation with Japan's flower industry.
- The MOA began permitting owners of pets to register their non-dog and non-cat mammalian pets including rabbits and ferrets on the "Pet Registration Information System" website, in order to put owner responsibility into practice, raise the possibility of pets being recovered after going missing, and facilitate the implementation of the policy of categorized and graded pet management.
- Held awareness-raising activities as part of "National Mikania Vine Prevention and Control Day," with government agencies, companies, and non-governmental organizations working together to eradicate 5,516 kilograms of mikania vine.
- Completed and issued the rules governing the operational process for applications to lease farmland irrigation non-enterprise-use real estate to undertake a combination of aquaculture with electrical power generation. Farmers rent aquaculture-use land from the Farmland Water Conservancy Activities Operational Fund, and under the precondition of a verification that they are using the land for aquaculture production, they are allowed to use the fish pond dikes and water diversion channels to build green energy power generation facilities.
- Held an exhibition of achievements of graduates of the Agricultural Innovation Incubation Center, displaying successes in the training of new talent for agribusiness transformation and upgrading.
- Announced large-scale landslide designated soil and water conservation areas for T001 (Tengzhi Forest Road 3.5K mark) in the Liugui District of Kaohsiung City and D048 (Wanshan) in Maolin District of Kaohsiung City, and designated the Kaohsiung Municipal Government as the competent authority.
- Announced the deletion of recognition of Sweden as a country free of African swine fever.
- Launched a program of food delivery for rural communities, announcing the delivery of food packages on five holidays: Mid-Autumn Festival, Double Ninth Festival, the Beginning of Winter, Thanksgiving Day, and Winter Solstice. Nationwide, 81 Rural Green Care Stations delivered gift bags of age-friendly food and CAS-certified agriproducts to the elderly in remote areas, increasing goodwill in rural communities and enhancing the welfare of the rural population.
- Convened a meeting with the committee in charge of cooperative programs at the International Rice Research Institute, with whom we are working to build an unmanned aerial vehicle high-throughput phenotyping measurement method and select stress-resistant rice varieties, and determined that in 2024 the focus will be on issues including stress-resistant rice varieties and greenhouse gases.
- Organized the 6th "Unity Conference of Indigenous Hunters" to promote self-management of hunting by indigenous peoples and achieve the goals of co-management by indigenous peoples and the government as well as sustainability for natural resources.
- Held the 2023 "Recognition Ceremony of Forestry and Nature Conservation Achievements," honoring 15 exemplary forest and nature conservation practitioners and three organizations that won Wildlife Life Education Exemplar Awards.
- Organized clean-up activities for beaches, woodlands, and the ocean under the government's "Salute to the Seas" policy, clearing away 2,265 kilograms of floating marine trash and conveying the importance of environmental and ocean conservation to the public.
- Announced the deletion of recognition of New Jersey of the US as a zone free of highly pathogenic avian influenza.
- Convened the 6th "Taiwan-UK Joint Agriculture Dialogue," discussing issues including prevention and control of highly pathogenic avian influenza, cooperation in applications of emerging products made from plant protein, agriproduct trade, regulatory harmonization, exchanges of technology for testing and determination of plant variety rights, and market access.
- Held the "International Symposium on Enhancing Taiwan's Pork Industry in the Global Market."
- Held the "Taiwan-Thailand Online Forum on Regulations for Organic Products" to promote trade and commercial opportunities in organic agriproducts for the two parties and to facilitate organic equivalence between the two.
- Launched MOA subsidies for the installation of real-time video recording systems on rendering vehicles of animal husbandry industrial groups, in order to ensure biosecurity at livestock farms.
- Amended partial articles of the "Regulations for Forest Protection" to engage the public in forest management policy and stipulate rules for payment of rewards for reporting of cases of violations of the law.
- Organized activities to mark "World Rabies Day" and remind the public to get annual rabies inoculations for their pet dogs and cats.
- Announced "Fubon Insurance Company Oriental pear crop insurance," "Fubon Insurance Company Oriental pear crop insurance (government disaster relief-linked insurance)," "Fubon Insurance Company Oriental pear crop insurance—supplementary insurance for losses of top-grafted pears from cold," and "Fubon Insurance Company Oriental pear crop insurance with typhoon wind speed, rainfall volume, and temperature parameters" as agricultural insurance products for 2023/2024.

October

- The MOA held a conference on promotion of Taiwan protected areas and other effective area-based conservation measures (OECMs) to promote exchanges of ideas on operational management of protected areas and promotion of OECMs.
- Issued the "Regulations on the Installation and Management of Video Recording Systems (VRSs) for Distant-Water Fishing Vessels" to stipulate the timetable, hardware specification and settings, installation location, and duty to preserve electromagnetic recordings for the installation of VRSs on distant-water fishing vessels.
- Held the 2023 Taiwan-France "International Symposium on Agricultural Science and Technology between MOA and INRAE: With a Special Reference to Net Zero GHG Emission," sharing ideas on issues including agricultural carbon emissions, animal technology, agricultural technology, and animal and plant health
- Announced "Fubon Insurance Temperature Index Aquaculture Insurance," "Fubon Insurance Temperature Index Milk Fish Aquaculture Insurance," "Fubon Insurance Temperature Index Tilapia Aquaculture Insurance," and "Fubon Insurance Company azuki bean crop insurance with rainfall volume parameters" as agricultural insurance products for 2023.
- Issued the "Operation Directions Governing Subsidies for Assisting Distant Water Fishing Vessels in Handling Fisheries Improvement Project or MSC Verification" to stipulate possible recipients, subsidized items, and amounts of subsidies. The MOA also determined that related industrial associations or local district fishermen's associations should study and propose subsidy programs and handle applications for subsidies from fishing vessel operators.
- Announced the deletion of recognition of Utah, Montana, and Minnesota of the US as zones free of highly pathogenic avian influenza.
- Organized the "Taiwan Pavilion" at the 2023 "Asia Agri-Tech Expo and Forum" to raise the international visibility of Taiwan's agricultural technology and materials.
- Amended the "Directions Governing Incentives for Distant Water Fishing Vessels Assisting Maritime Emergency Rescue and Search" to raise the amount of incentives for mutual aid. The MOA also worked to educate the public about the international rescue principles of "closest safe port" and "a duty to render assistance" and encourage fishing vessels to aid each other in times of distress at sea.



- Attended the 64th "Workshop Meeting of Heads of National Productivity Organizations" of the Asian Productivity Organization.
- Held the flag presentation ceremony for the 2023 "Young Agricultural Ambassadors New Southbound Exchange Program" and arranged for 24 outstanding young agricultural ambassadors to go to Indonesia and the Philippines for visits and interactions related to agriculture. This program adds vitality and innovation to Taiwan's policies on agricultural diplomacy and cultivation of young farmers as well as the New Southbound Policy.
- Held two hands-on events for exchanges of information (i) for farm operators using a completely linked model for pineapple exports and (ii) to exhibit the achievements of cold chains for cherry tomato exports. We shared the quality inspection methods and results for the export of pineapples shipped to Japan and the Middle East by maritime cold-chain transport and the technological achievements and arrival quality of maritime shipments of cherry tomatoes.
- Set up the Agricultural Pavilion at the 2023 "Taiwan Climate Action Expo" to display overall strategies for the valuation of carbon emissions from the agricultural sector.
- Held the awards presentation ceremony for the 2023 "Traceable Agricultural Products Masters."
- Held a ceremony to award certifications to the first group of certified forest therapists in Taiwan. In the future forest therapists will set up demonstration venues at eight National Forest Recreation Areas and develop various forest therapy activities, with the goal of improving the physical and spiritual health of the public.
- Amended Paragraph 5 of the "Schedule of Terrestrial Protected Species" to add 14 new species of freshwater aquatic creatures to the list of protected species. They include Aphyocypris amnis, Gobiobotia cheni, and Gobiobotia intermedia (all of the Cyprinidae family) and Sicyopus auxilimentus, Smilosicyopus leprurus, Stiphodon imperiorientis, and eight species of the genus Lentipes (all of the Gobiidae family), increasing the number of protected freshwater aquatic creatures from 17 to 31.
- Held an explanatory meeting on construction of an electronic system for documents on the sources of rendering raw materials, explaining the
 methods for making rendering documents electronic, in order to enhance operational efficiency and accuracy.
- Amended the "Regulations for Fishing Vessels Catching Mackerels and Jacks" to introduce an output type management orientation (total permissible catch volume and individual fishing vessel catch quotas) in order to build a self-management mechanism.
- Held the 2023 "International Conference on Smart Agriculture."

November

- The MOA participated in the 2023 "Asia Agri-Tech Expo and Forum," setting up a Taiwan Agricultural Technology Pavilion to display the results of industrialization of Taiwan's agricultural technology and mediate business opportunities.
- Announced the deletion of recognition of Washington, Alabama, Arkansas, Missouri, North Carolina, Maryland, Georgia, Ohio, and Wisconsin of the US as zones free of highly pathogenic avian influenza.
- In coordination with the 2023 "Taiwan Science Festival," the MOA organized an exhibition of the results of R&D into, and applications of, cold chains and post-harvest handling technology for fruit and vegetables.
- The MOA organized a series of activities entitled "Linking Taiwan's Agriculture to New Areas," attracting college and university students from diverse disciplines from New Southbound Policy partner countries to attend and exchange ideas.
- Amended the "Agricultural Natural Disasters Relief Regulations" to incorporate fishing vessels in port at the time of typhoon disaster warnings that are damaged by winds of Force 8 and above within the scope of those eligible for cash relief or subsidies.
- Announced the recognition of the Czech Republic and Lithuania as countries, and Tennessee, North Dakota, Michigan, Nebraska, Colorado, and Pennsylvania of the US as zones, free of highly pathogenic avian influenza.
- Held the 2023 3rd videoconference to discuss ways to strengthen cleaning and disinfection of vehicles transporting rendering material as well as rendering material inventorying, and also issued the "Inventory Standards for Species and Quantities of Rendering Material" and the "Procedures for On-Site Personnel to Inventory Rendering Materials."
- Amended the "Operation Directions for Implementation and Measurements for Verification of Hazard Analysis and Critical Control Point in Slaughterhouses" to simplify the HACCP certification review process, require slaughterhouses to keep their control committees in operation, and practically promote follow-up inspection and verification work.
- Attended the 28th Regular Meeting of the Commission of the International Commission for the Conservation of Atlantic Tunas. Focal points of discussion included control measures for Atlantic tropical tunas and blue sharks as well as issues including minimum standards for high seas boarding and inspection and electronic monitoring and control measures.
- Held the 2023 "National Contact Meeting on Plant Protection and Quarantine."
- Attended the 33rd meeting of the Commission for Asia and the Pacific of the World Organisation for Animal Health, exploring a number of issues including global and regional animal health, veterinary services, prevention of avian influenza and rabies, and animal welfare.
- Participated in the 87th formal meeting of the Committee on Sanitary and Phytosanitary Measures of the World Trade Organization, informal meetings, and related sessions, and raised a "specific trade concern" with regard to China's suspension of imports of fruits from Taiwan.
- With respect to areas subject to regional rotation for the first crop season of 2022, the MOA adopted a special plan to liberalize agreement to submission of applications for purchase for public stocks of rice grown in the first crop season of 2024. However, starting from the second crop season of 2024, farmers must again conform to the policy to "select three crop seasons out of four for growing paddy rice."
- Held an event to announce the addition of new endangered species to the "Payments for Ecosystem Services for Endangered Species and Critical Habitat Promotion Program," announcing that five endangered and rare species—including the farmland treefrog, Russet sparrow, Asiatic banded water snake, yellow-margined box turtle, and yellow pond turtle—would henceforth fall under the ecosystem payments demonstration program.
- Held an exhibition of achievements related to the construction of critical technology systems related to the 3Rs (replacement, reduction, and refinement) for experimental animals, sharing successes from the period of the program (2020 to 2023) and promoting the reduction of the use of live animals to conduct experiments.
- Held a ceremony to open the "Zhushan Station" of the Alishan Forest Railway to traffic.
- Held the 57th "Meeting on Agro-Pesticide Management with Local Governments," in which we presented and discussed issues related to the implementation of agro-pesticide management and quality control, the timetable and disposal plan for banning chlorpyrifos, and assistance in the recall of paraguat.
- Australia's Department of Agriculture, Fisheries and Forestry came to Taiwan to conduct on-site inspections for pest risk assessment (PRA) for Taiwan's application to export guavas to Australia.
- The MOA announced "Pineapple Insurance of Shinkong Insurance (Regional Harvesting Insurance)" as an agricultural insurance product for 2024.
- Organized the "TASS 2023 Sustainable Taiwan Expo and Circular Economy Forum" and held an event to introduce technology, techniques, and products for circular agriculture.



- Held the 2023 "International Forum on Pet Industry."
- Held the 2023 event to announce results of research into technology for miscellaneous staple crops (MSCs), promoting technological R&D and value-added uses of domestically produced MSCs. Through promotion of 28 technology research programs, 20 technologies were developed and improved, stimulating the development of 36 prototype materials and products. The MOA also completed announcement of eight cases of technology licensing to promote the successful development of marketable applications and products.
- Held the "Taiwan-Poland SPS Technical Dialogue Virtual Meeting," with the two sides engaging in technical discussions on SPS issues including determination of zones free of animal diseases and market access for agricultural, livestock, and fisheries products.
- Held the ground-breaking ceremony for construction of the "Taoyuan Agricultural Logistics Park." The Park will occupy about 13.13 hectares of land and NT\$3.218 billion will be invested in projects including public facilities, a treatment plant for polluted wastewater, inspection and quarantine facilities, and a furnigation venue.
- Held the "2023 Fishing Village Revitalization & Recreational Fishery Conference—Collaboration & Sustainability & New Future." The event aimed to address problems facing fishing communities including aging of those working in fisheries, a lack of job opportunities, population outflow, decline in fisheries resources, and unstable economic foundations.
- 🌑 The MOA's program to expand irrigation services won a "National Sustainable Development Award."
- The MOA sponsored the "Taiwan Agricultural Health Pavilion" at the 2023 "Healthcare+ Expo Taiwan," displaying the results of agricultural biotechnology R&D and its industrialization related to human physical and mental health.

December

- The MOA revised the weather parameters which are applicable to Paragraph 6 of Article 6 and Subparagraph 3 of Paragraph 1 of Article 12 of the "Agricultural Natural Disasters Relief Regulations." We amended and added new weather parameters for relief items for some categories of disasters affecting agricultural industries to enable the competent authorities in local governments (municipalities, cities, and counties) and base-level town halls to handle agricultural natural disaster relief using a simplified method based on the abovementioned parameters.
- Based on Article 44-2 of the "Farmer Health Insurance Act," persons applying to join this insurance shall be considered to be also applying for Farmers' Occupational Accident Insurance.
- The MOA held the 2023 awards ceremony for outstanding autonomous disaster prevention communities.
- Held the 2023 "Presentation of Certificates for Special Agro-Tourism Spots" and the awards presentation ceremony for the 1st "National Innovative Food and Agriculture Education Experience Competition," to highlight the special features and advantages of certified special agro-tourism spots.
- Announced the deletion of recognition of Lithuania as a country, and Colorado, Michigan, Kansas, and Idaho of the US as zones, free of highly pathogenic avian influenza.
- Attended the 20th Regular Session of the Commission of the Western and Central Pacific Fisheries Commission, which, among other things, amended tropical tuna measures, reduced the reference targets for management of longline tuna fishing in the South Pacific, and passed a climate change proposal.
- Held the awards presentation ceremony for the 2023 "Top 100 Products of Farmers' Associations," upholding the principle of "rigorous selection of manufacturing, local production" and making it possible for traditional agriproducts to be transformed into high value-added premium products.
- Set up the "Taiwan Wood and Bamboo Pavilion" at the 35th "Taipei Building Show," winning an "Excellent Exhibitor Image Award" for the 7th straight year.
- Held the "Awards Presentation Ceremony for the Top 10 Agricultural Production-and-Marketing Groups." We guided such groups to expand and diversify sales channels through collective branding, introduce innovative technology and management, and switch over to corporate-style operations, so that their scale of operations can expand continuously.
- On the day devoted to the theme of "Food, Agriculture, and Water" at the 28th Conference of the Parties to the United Nations Framework Convention on Climate Change, Taiwan combined with the pavilion of our ally Palau to share information on issues including planning for Taiwan's policy for net-zero emissions in the agricultural sector; our forest carbon sequestration policy and outlook; the challenges of restoring ecosystems in subtropical agricultural societies; and crop production under, risk evaluation of, and adaptation to climate change.
- The MOA held a press conference for the coming online of the "Biodiversity Database Portal System" (the TBIA portal), hoping to encourage all sectors of society to participate in biodiversity protection and research.
- Amended Attachment 2 (the agro-pesticide investigation checklist for dealers and manufacturers) of Paragraph 6 of the "Rules Governing Investigation and Crackdown of Illegal Agro-Pesticides" to implement the ID-based registration system for purchases of agro-pesticides and to conduct checks of agro-pesticide flows, as well as to strengthen the protection mechanism for the personal information of agro-pesticide dealers.
- Amended the "Regulations Governing Policy-Oriented Special Agricultural Loan" and related loan directions. Amendments included relaxing the criteria for aquaculture businesses to apply for such loans and expanding the scope of the "Loan for Agricultural Food Industry in Guidance and Assistance of Management" with the aim of encouraging farmers and fishermen to invest in operations and provide them with loan conditions that better meet operational needs, thereby providing adequate capital for agricultural operations.
- Announced "MSIG Mingtai Insurance for the beekeeping industry (parametric insurance for temperatures and rainfall)" as an agricultural insurance product for 2024.
- Held the first bilateral consultation meeting with the US National Oceanic and Atmospheric Administration to discuss issues related to illegal, unreported, and unregulated (IUU) fishing in its 2023 Report to Congress "Improving International Fisheries Management."
- Held the awards presentation ceremony for the "3rd Top Ten Green Care Stations and the 2023 Featured Home Economics Classes," in hopes of energizing elderly manpower resources in farming and fishing communities to assist in caring for the elderly.
- Issued a self-declaration that Taiwan is free of sheep and goat pox to the WOAH in September, which was screened by the WOAH and announced on its website in December.
- Held a conference on the supply of milk to students. In the future the MOA will used a common supply contract method to supply schoolchildren from first to sixth grades with three servings of fresh milk or extended shelf-life (sterilized) milk per person per week.
- Announced "MSIG Mingtai Insurance Company avian influenza insurance," "MSIG Mingtai Insurance Company avian influenza insurance supplementary insurance for losses of income prior to restoration of operations (applicable to egg poultry)," and "MSIG Mingtai Insurance Company in ovo avian influenza insurance" as agricultural insurance products.
- Announced that the time limit for arranging loans under the MOA's NT\$10 billion loan program for green energy facilities would be extended to December 31, 2024, in order to provide capital needed by farm and fisheries operators to purchase green energy facilities that will operate in combination with agricultural facilities, thereby accelerating promotion of the government's agricultural green energy policy.
- Held the presentation ceremony for the 3rd "IPM Awards" to raise citizens' awareness and knowledge about integrated pest management (IPM) and promote technical diffusion.



Appendix 1: Organizational Chart of the Ministry of Agriculture

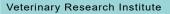


Note: The budget for 2023 for the MOA and its subordinate organizations approved by the Executive Yuan provided funding for a total of 7,764 persons including 4,911 full-time staff, 168 hirees, 1,126 contract employees, 2 security personnel, 1,329 technical staff, 83 drivers, and 145 custodial workers. The offices of the MOA per se (i.e. excluding subordinate organizations) accounted for 442 of these persons, including 383 full-time staff, 27 hirees, 12 contract employees, 2 security personnel, 6 technical personnel, 4 drivers, and 8 custodial workers.



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Agriculture and Food Agency Northern, Central, Southern, and Eastern Region Branches Fisheries Agency Fishery Radio Station Animal and Plant Health Keelung, Taoyuan, Taichung, and Kaohsiung Branches Inspection Agency Forestry and Nature **Conservation Agency** Hsinchu, Taichung, Nantou, Chiayi, Pingtung, Taitung, Hualien, and Yilan Branches, the Aerial Survey and Remote Sensing Agency of Rural Development Branch, and the Alishan Forest Railway and Cultural Heritage and Soil and Water Conservation Office **Irrigation Agency** Taipei, Taichung, Nantou, Tainan, Taitung, and Hualien Branches Agricultural Finance Agency 17 management offices Agricultural Technology Park **Administration Center** Taiwan Agricultural Chiayi Agricultural Experiment, Fengshan Tropical Horticultural Experiment, and Research Institute Floricultural Experiment Branches Taiwan Forestry Research Institute Fisheries Research Institute



Taiwan Livestock Research

Institute

Agricultural Chemicals Research Institute

Taiwan Biodiversity Research Institute

Taoyuan District Agricultural Research and Extension Station

Miaoli District Agricultural Research and Extension Station

Taichung District Agricultural Research and Extension Station

Tainan District Agricultural Research and Extension Station

Kaohsiung District Agricultural Research and Extension Station

Hualien District Agricultural Research and Extension Station

Taitung District Agricultural Research and Extension Station

Tea and Beverage Research Station

Northern, Southern, and Eastern Region Branches

Taiwan Seed Improvement and Propagation Station





Appendix 2: Budgets and Final Accounting for 2023

1. Budgets for 2023

(1) Budget for the MOA and its subordinate organizations: The total budget for the MOA and its subordinate organizations for 2023 was NT\$150.665 billion, an increase of NT\$3.622 billion (2.46%) as compared to the 2022 figure of NT\$147.043 billion. Figures 1 and 2 show the allocations by function and agency, respectively.

Figure 1 Budget allocations by function, 2023

Unit: NT\$1 million

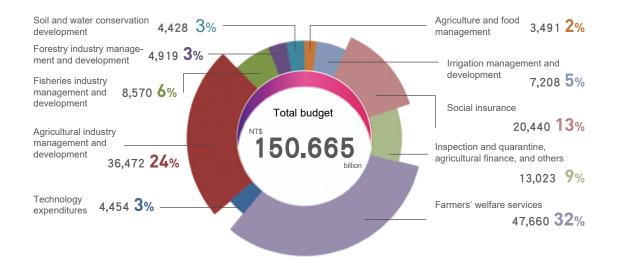
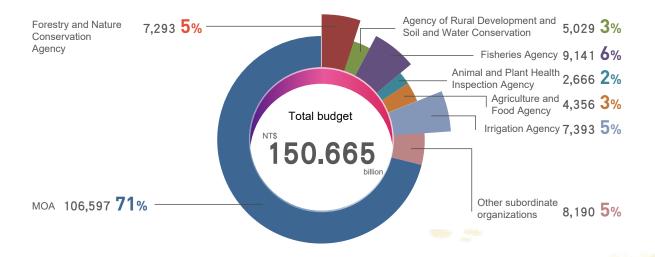


Figure 2 Budget allocations by agency, 2023





(2) Special budget for the fourth phase of the Forward-looking Infrastructure Development Program (2023-2024): The part of this special budget managed by the MOA totals NT\$6.599 billion, of which the budget for 2023 was NT\$2.932 billion and that for 2024 will be NT\$3.667 billion. Figures 3 and 4 show the allocations by function and agency, respectively.

Figure 3 Special budget for the fourth phase of the Forward-looking Infrastructure Development Program, by function

Unit: NT\$1 million

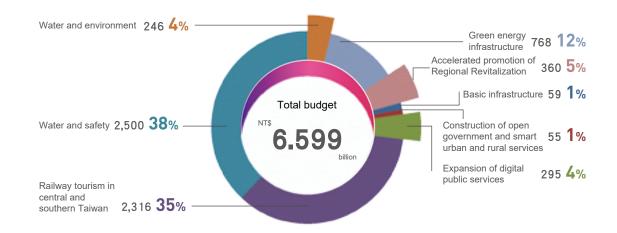
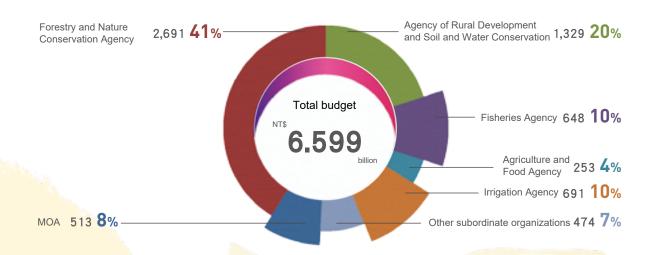


Figure 4 Special budget for the fourth phase of the Forward-looking Infrastructure Development Program, by agency





(3) The special budget for Prevention, Relief and Revitalization Measures for Severe Pneumonia with Novel Pathogens (January 15, 2020 to June 30, 2023): The part of this special budget managed by the MOA totaled NT\$45.88 billion. The implementation period was originally expected to end on June 30, 2022, but with the agreement of the Legislative Yuan this date was extended to June 30, 2023. Figures 5 and 6 show the allocations of this budget.

Figure 5 Special budget for Prevention, Relief and Revitalization Measures for Severe Pneumonia with Novel Pathogens, by function

Unit: NT\$1 million

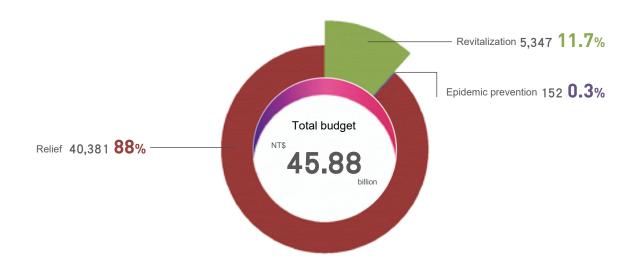
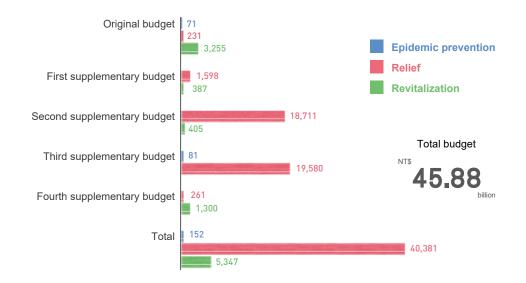


Figure 6 Allocations of the special budget for Prevention, Relief and Revitalization Measures for Severe Pneumonia with Novel Pathogens





(4) Special budget for Enhancing Economic and Social Resilience and Public Sharing of Economic Achievement in the Post-pandemic Era (2023-2025): The part of this special budget managed by the MOA totals NT\$26.892 billion, of which the budget for 2023 was NT\$10.625 billion while that for 2024 will be NT\$10.286 billion and that for 2025 will be NT\$5.898 billion. Figures 7 and 8 show the allocations by function and agency, respectively.

Figure 7 Special budget for Enhancing Economic and Social Resilience and Public Sharing of Economic Achievement in the Post-pandemic Era, by function

Unit: NT\$1 million

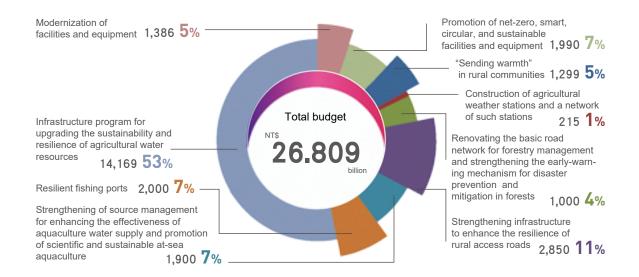
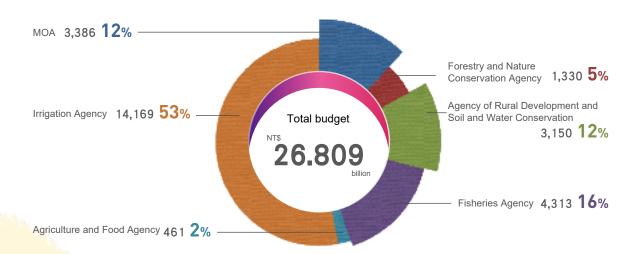
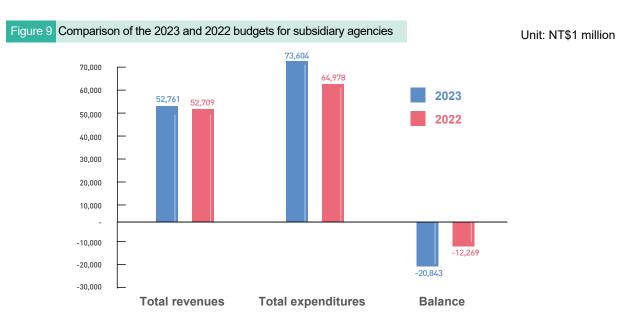


Figure 8 Special budget for Enhancing Economic and Social Resilience and Public Sharing of Economic Achievement in the Post-pandemic Era, by agency



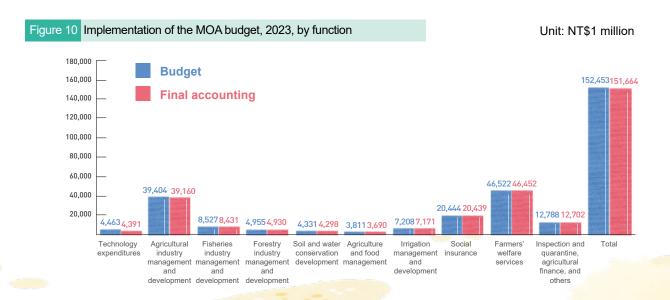


- (5) Budget for subsidiary agencies (including the Agricultural Special Revenue Fund, the Agricultural Operations Fund, and the Farmland Water Conservancy Activities Operational Fund)
 - (a) Total revenues were budgeted to be NT\$52.761 billion, an increase of NT\$52.11 million (0.1%) as compared to the 2022 figure of NT\$52.709 billion.
 - (b) Total expenditures were budgeted to be NT\$73.604 billion, an increase of NT\$8.626 billion (13.28%) as compared to the 2022 figure of NT\$64.978 billion.
 - (c) The total balance was budgeted to be in deficit by NT\$20.843 billion. (See Figure 9.)



2. Final Accounting for 2023

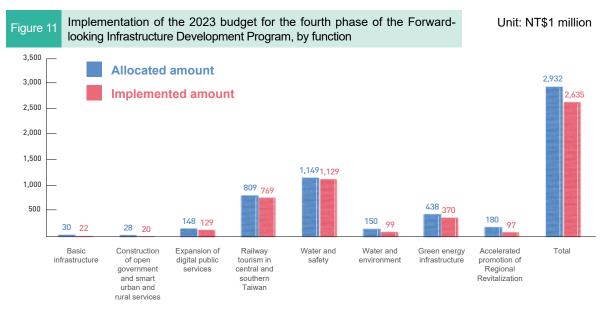
(1) Final accounting for the MOA and its subordinate organizations: In 2023 the budget for the MOA and its subordinate organizations was NT\$150.665 billion. In addition, NT\$1.788 billion was mobilized from the Secondary Reserve Fund, bringing the total available to NT\$152.453 billion. The final accounting showed NT\$151.664 billion spent (including NT\$146.321 billion in actual expenditures, NT\$2.225 billion payable, and NT\$3.118 billion reserved). There was a surplus of NT\$789.53 million. Actual expenditures accounted for 99.48% of budgeted funds. The functional implementation is presented in Figure 10.



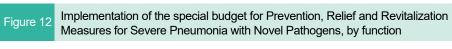


Unit: NT\$1 million

(2) Implementation of the special budget for the fourth phase of the Forward-looking Infrastructure Development Program (2023-2024): The part of this special budget managed by the MOA totals NT\$6.599 billion, with the amount allocated for 2023 totaling NT\$2.932 billion. The final accounting showed NT\$2.635 billion actually spent, accounting for 89.87% of budgeted funds. The functional implementation is presented in Figure 11.



(3) Implementation of the special budget for Prevention, Relief and Revitalization Measures for Severe Pneumonia with Novel Pathogens (January 15, 2020 to June 30, 2023): The part of this special budget managed by the MOA totaled NT\$45.88 billion. In addition, to meet operational needs a request was filed with and approved by the Executive Yuan for the Ministry of Economic Affairs to release NT\$61.08 million in relief and revitalization funds to the MOA, making the total budget NT\$45.941 billion. The final accounting showed NT\$44.988 billion spent (including actual expenditures of NT\$44.984 billion and NT\$3.57 million payable). Actual expenditures accounted for 97.93% of budgeted funds. The functional implementation is presented in Figure 12.



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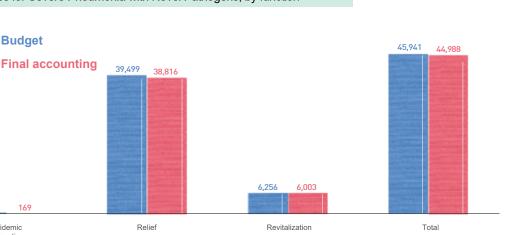
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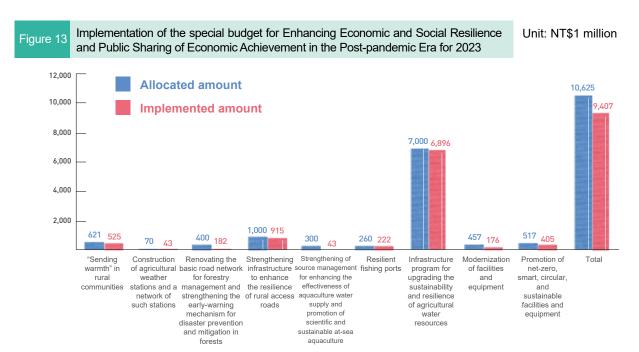
Budget

Epidemic



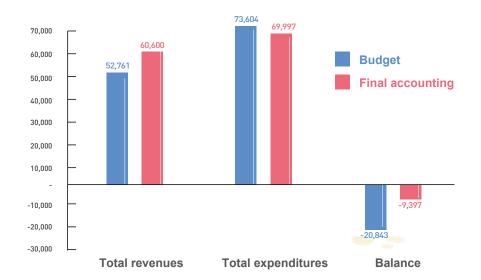


(4) Implementation of the special budget for Enhancing Economic and Social Resilience and Public Sharing of Economic Achievement in the Post-pandemic Era (2023-2025): The part of this special budget managed by the MOA totals NT\$26.809 billion. As of the end of 2023 the allocated amount was NT\$10.625 billion. The final accounting showed NT\$9.407 billion actually spent, accounting for 88.54% of budgeted funds. The functional implementation is shown in Figure 13.



(5) Final accounting for subsidiary agencies: Total budgeted revenues were NT\$52.761 billion, and the final accounting showed revenues of NT\$60.6 billion, accounting for 114.86% of budgeted revenues. Total budgeted expenditures were NT\$73.604 billion, and the final accounting showed expenditures of NT\$69.997 billion, accounting for 95.1% of budgeted expenditures. After comparing revenues and expenditures, the final accounting showed a deficit of NT\$9.397 billion. (See Figure 14.)

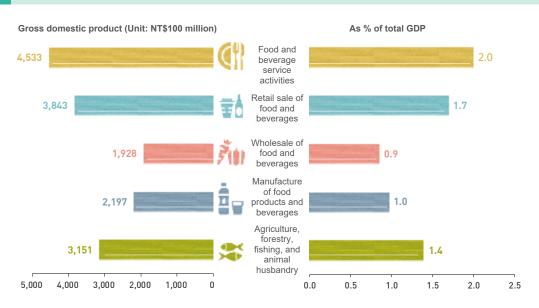
Figure 14 Comparison of the budget and final accounting for MOA subsidiary agencies, 2023 Unit: NT\$1 million





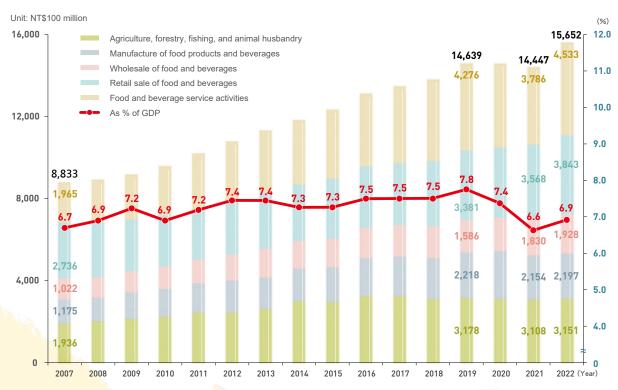
Appendix 3: Selected Agricultural Statistics

Figure 1 Gross Domestic Product (GDP) of the agriculture and agri-food chain and its percentage of total GDP, 2022



Source: Department of Statistics, MOA

Figure 2 GDP of the agriculture and agri-food chain and its percentage of total GDP, 2007-2022

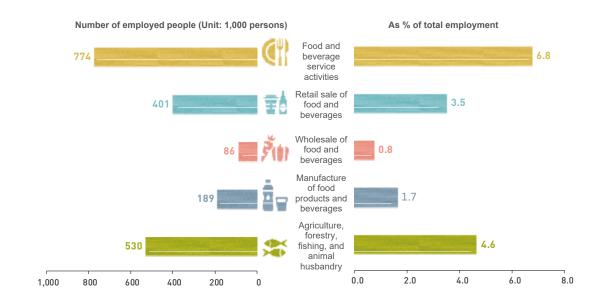




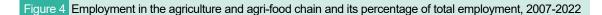
Source: Department of Statistics, MOA

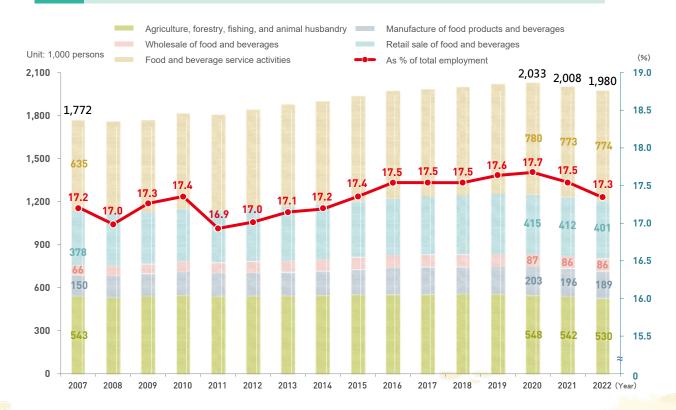


Figure 3 Employment in the agriculture and agri-food chain and its percentage of total employment, 2022



Source: Department of Statistics, MOA

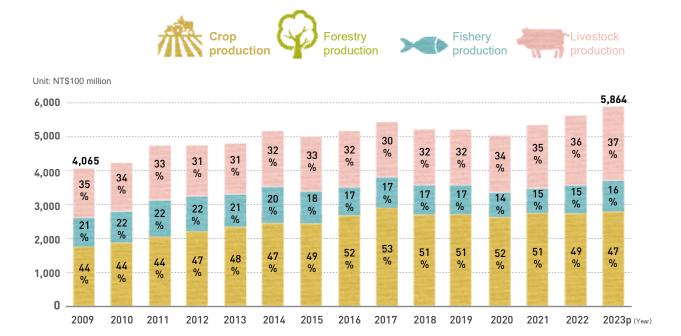




Source: Department of Statistics, MOA

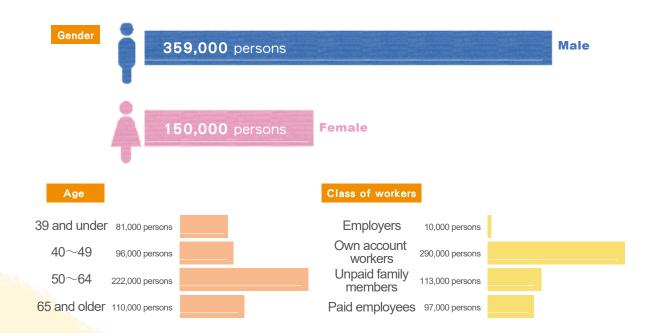


Figure 5 Value and composition of agricultural production, 2009-2023



Source: Department of Statistics, MOA

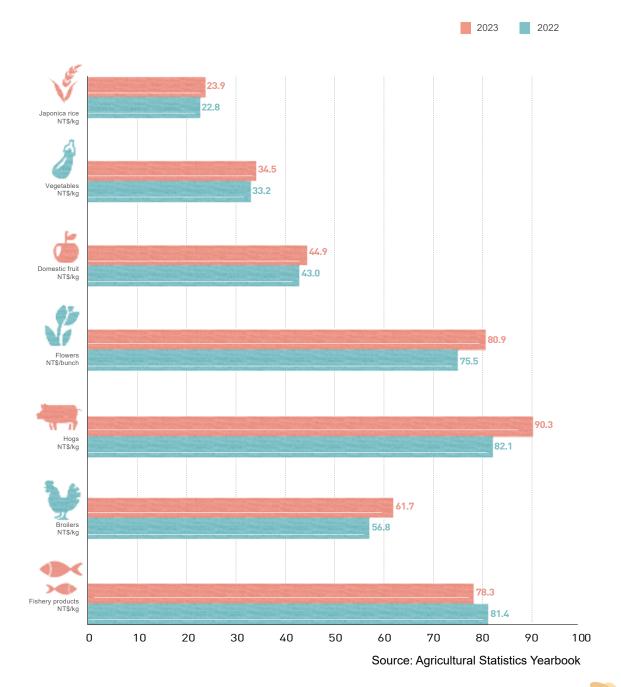
Figure 6 Demographic characteristics of persons employed in agriculture, 2023



Source: Yearbook of Manpower Survey Statistics



Figure 7 Wholesale or farm prices of agricultural products, 2023 as compared to 2022

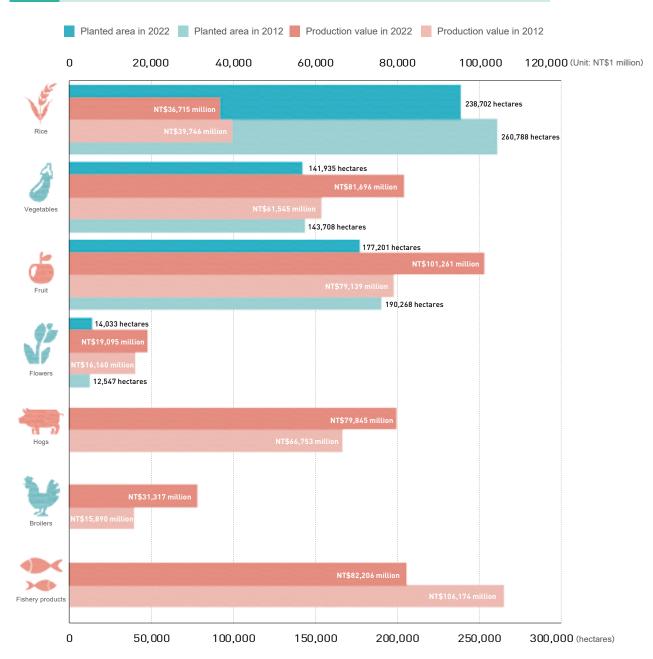


Note: Prices of japonica rice and broilers are farm prices; those for vegetables, domestic fruit, flowers, hogs, and fishery products are wholesale prices.





Figure 8 Production value and planted area of selected agricultural products, 2022 as compared to 2012



Source: Agricultural Statistics Yearbook





Figure 9 Exports of agricultural products, 2023







Source: Agricultural Trade Statistics of the ROC



Figure 10 Imports of agricultural products, 2023

Import amount
Percentage change compared to 2022





Source: Agricultural Trade Statistics of the ROC



2023 Annual Report

Publisher Junne-Jih Chen

Publishing agency Ministry of Agriculture

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Editors Hsiao-Chien Chou · Chih-Jen Chang

Address No. 37, Nanhai Road, Zhongzheng District, Taipei City 100212, Taiwan

Website https://www.moa.gov.tw

Telephone (02) 2381-2991

Layout and design WISH CREATIVE DESIGN CO., LTD.

Price NT\$150

Published in English in December, 2024

GPN: 2011300013 ISSN: 3078-6487

Available at the following bookstores

Wunan Wenhua Guangchang (Wunan Culture Plaza):

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PRICE NT\$150