



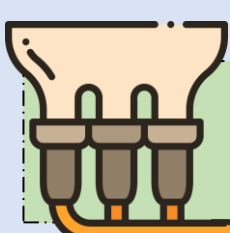
臺灣泌乳牛罹患續發性亞臨床性乳房炎之擠乳管理風險因子調查

Investigation on milking management risk of factors for chronic subclinical mastitis in lactating cows in Taiwan

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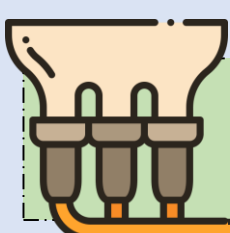
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前言

亞臨床乳房炎(subclinical mastitis, SCM)是乳牛最常見的疾病，其特徵是體細胞數(somatic cell count, SCC)增加、牛奶成分改變和產奶量降低，SCM的影響時間可能很短，也可能很長。然而，SCM無法以肉眼觀察到明顯徵狀，可透過分離病原菌、細菌培養或乳中SCC判定，因此不利於早期發現，無法及時有效控制該疾病造成其感染率為臨床性乳房炎(clinical mastic, CM)之15~40倍，為影響經濟損失最大的乳房炎。



結果

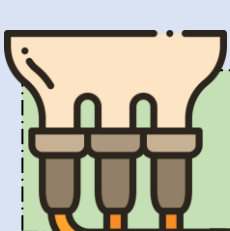
當牛隻的胎次、泌乳階段、泌乳量、年齡增加時，造成牛隻罹患CSCM的比例皆顯著增加；而在管理層面上，大多數與擠乳管理相關的因子皆會影響乳房炎的發生，包括擠乳設備的維護、擠乳時有無配帶手套與擠乳前乳頭的清潔方式以及抗生素的治療等。了解造成亞臨床性乳房炎的風險因子，將有助於改善乳牛場管理策略，以利建立風險因子改善順序，從而降低乳房炎的反覆發生。

圖1.應用邏輯回歸模型分析個別牛隻泌乳資訊對續發性亞臨床性乳房炎之勝算比與信賴區間。

Fig. 1. Odds ratios (OR) and confidence intervals of chronic subclinical mastitis (CSCM) according to the logistic regression model for the explanatory variables related to the individual cow characteristics.

Group of variables	Explanatory variable	Category	CSCM		
			OR	95%CI risk	
				Below	Above
Individual cow characteristics	Parity	First			
		Second	0.802***	0.730	0.882
		Third	0.808***	0.721	0.904
		Fourth and above	0.689***	0.591	0.804
	Days in milk	Up to 100 d			
		101 to 200 d	4.291***	3.994	4.610
		201 to 300 d	6.201***	5.691	6.757
		Over 300 d	5.716***	5.203	6.279
	Milk yield	Up to 20 kg			
		21 to 30 kg	1.224***	1.140	1.315
		Over 30 kg	1.462***	1.347	1.587
	Month of age	Up to 36			
		37 to 72	1.232***	1.119	1.357
		73 to 108	1.547***	1.303	1.836
		Over 108	1.833***	1.302	2.582

* $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$



材料與方法

本試驗牛隻性能及生乳品質資料來自30場DHI參與戶，試驗牛群每日擠乳2次，收集包含個別牛隻每月SCC數量。

透過SCC數量將牛區分為2類，健康與罹患續發性亞臨床性乳房炎(chronic subclinical mastitis, CSCM)，健康牛隻於連續兩個月前次與本次之SCC數值皆低於 2×10^5 cells/mL，而CSCM則為連續兩個月前次與本次之SCC數值皆高於 2×10^5 cells/mL。數據以羅吉斯迴歸模型(logistic regression model)進行依變數與泌乳牛群SCC分類結果之分析；個別解釋變數首先進行二元卡方檢定，與SCM有顯著相關($P < 0.05$)者才進一步進行羅吉斯迴歸模型統計。

圖2.應用邏輯回歸模型分析擠乳管理及亞臨床性乳房炎控制對續發性亞臨床性乳房炎之勝算比與信賴區間。

Fig. 2. Odds ratios (OR) and confidence intervals of chronic subclinical mastitis (CSCM) according to the logistic regression model for the explanatory variables related to the milking management and mastitis control.

Group of variables	Explanatory variable	Category	CSCM		
			OR	95%CI risk	
				Below	Above
Milking management and mastitis control	Milking equipment maintenance	Aperiodic			
		Periodic	0.789***	0.698	0.891
	Lactating cow grouping	One group			
		Two groups	0.817***	0.732	0.912
		Three groups	0.889	0.781	1.102
		More than 3 groups	0.951	0.833	1.086
	Use gloves during milking	Yes			
		No	1.185***	1.013	1.274
	Pre-milking teats cleaning	No			
		Yes when dirty	1.782**	1.261	2.518
		Always yes	1.457*	1.034	2.055
	Pre-milking teats cleaning methods	Scrubbing			
		Wiping	0.938	0.856	1.029
		Washing	1.527**	1.121	2.080
		Mix	1.132***	1.061	1.208
	Pre-milking teats disinfection	Yes			
		No	0.611***	0.488	0.764
	Antibiotics treatment of subclinical mastitis	Yes			
		No	1.679***	1.477	1.908
	Rubber liners replacement	Aperiodic			
		Periodic	1.042	0.916	1.186

* $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$