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M158 Genetic and phenotypic factors influencing milk, protein and fat yields of dairy cows in Tasmania, Australia. S. A. Adediran¹, P. Nish², D. J. Donaghy¹, J. R. Roche¹, and A. E. O. Malau-Aduli*¹, ¹*University of Tasmania, Hobart, Tasmania, Australia*, ²*Tasher Pty Ltd, Hadspen, Tasmania, Australia*.

The Australian State of Tasmania enjoys a cool, temperate climate that remains the backbone of its pasture-based dairy production system. In this study, 330,366 lactation records from 428 Tasmanian dairy herds collected between 2000 and 2005 were analysed. The objective was to determine the influence of genetic and non-genetic factors on milk, protein and fat yields of pasture-based dairy cows. The data were statistically subjected to analyses of variance using general linear mixed model procedures with repeated measures. State-wide average milk yield per lactation over a standard 305-day lactation length was 5200.7 ± 1239.7 litres (ranging from 1107 to 13256 litres), while fat and protein yields averaged 205.5 ± 47.0 kg (ranging from 53 to 385 kg) and 166.2 ± 41.5 kg (ranging from 47 to 297 kg), respectively. Highly significant ($P < 0.001$) effects on milk, protein and fat yields attributable to variation in herd size, cow's parity, breed, season and year of calving were detected. Milk yield increased linearly with increase in parity (means of 3482.4, 4019.5, 4615.4, 4826.1 and 5018.8 litres per lactation for parities 1, 2, 3, 4 and >4, respectively). Milk, fat and protein yields were highest in cows calving during the spring season (4769.8 litres, 215.2kg and 168 kg respectively), Holstein-Friesian genotypes produced the most milk (5211 litres), protein (171 kg) and fat (210kg) yields per lactation. Herd sizes of more than 1110 cows produced the most milk, fat and protein. Productivity per cow increased with calving year except in 2003 when total milk yield was lower than in 2002. We conclude that herd size, breed, parity, season and year of calving were among the main factors driving production of dairy cows in Tasmania and adjustments for these factors would be mandatory for any unbiased comparison of lactation performance within and between pasture-based dairy production systems.

Key Words: Milk Protein, Fat, Tasmania