

Water footprints of Friesian and Jersey cattle under intensive farming conditions in a mid-country farm, Sri Lanka

H.M.T.V. Jayashani^{1*}, B.V.R. Puyawardena² and G.L.L.P. Silva¹

¹*Department of Animal Science, Faculty of Agriculture, University of Peradeniya, Sri Lanka,* ²*Natural Resource Management Centre, Department of Agriculture, Sri Lanka*

**venoja.johnseafoods@gmail.com*

The water footprint defines the amount of water that is used along the production chain of a particular commodity. Commodities of animal origin are considered to have high water footprints compared to their crop counterparts. A study was conducted to estimate the water footprints of Friesian and Jersey cattle breeds under intensively managed mid-country farm conditions. Six dairy cows in similar physiological status (Friesian 350-435 kg body weight, with milk yield of 6-12 L/ day; Jersey 250-300 kg body weight with milk yield of 5-8 L/ day, and all cows in their 4-5 lactation) were selected representing the two breeds (n=3 each). Total consumptive water requirements were quantified under four categories, namely: water used for drinking water, service water, water in roughage feed and water in concentrate feed over 30 days of the experimental period. The water footprints of Friesian and Jersey breeds were calculated on the basis of body weight and milk yield of each experimental animal. The average estimates of water footprints for Friesian and Jersey breeds were 0.0472 m³kg⁻¹ and 0.0629 m³kg⁻¹, respectively on the basis of body weight, and 2.512 m³L⁻¹ and 3.004 m³L⁻¹, respectively on the basis of milk yield. The findings also indicated that although a large proportion of the feed for cattle in the farm is borne by roughage, 88% of the total consumptive water in both breeds was contributed by indirect water in concentrate feed. The estimates for individual animals showed that there was a variation of water footprints among individuals according to their production status. However, there was no significant difference (P> 0.05) of consumptive water requirement on the basis of body weight or milk yield between the two cattle breeds. Results of the present study provide estimates of water footprints for two dairy breeds commonly managed under intensive farming conditions in Sri Lanka. Further, this preliminary investigation reveals that there is no difference in the water footprint between Friesian and Jersey cattle breeds under the production conditions prevailing in an intensively managed mid-country farm.