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## Water footprint of small-scale dairy farms in the central coast of peru

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### Abstract

Dairy sector consumed 19% of the water in the livestock sector. However, in Latin America the amount of water used in this sector is unknown, especially in arid zones. In Peru, dairy production is the second most important economic activity and one of the most important dairy basins is located in the arid zone of the Peruvian coast (47% of the milk production). The aim of this work was to estimate the water footprint (WF) of dairy production in the arid zone of the Peruvian central coast. Data from five dairy farms were used to estimate the WF. The WF was calculated in its three dimensions: green water (rainwater stored in the soil and absorbed by the plants), blue water (consumptive use of surface or groundwater) and grey water (polluted water). In addition, the WF was measured for categories: feed, drinking and service. To measure the WF of feed production, the CROPWAT software was used. The reference unit was m<sup>3</sup> per kg of fat and protein corrected milk (FPCM). In average, 99% of the WF comes from feed production, followed by drinking water (0.4%). From the three dimensions of the WF, green water is responsible for 60% of the WF, followed by the blue water (30%). Imported water represented 63% of the WF. In general, WF of dairy production in these systems was 0.66 m<sup>3</sup>/kg FPCM. In conclusion, feed production, as the main source of WF from which most is imported, shows the possibility of reducing the WF of these systems by prioritising and optimising water consumption by crops using local resources with lower water requirements.

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