

## WATER CONSUMPTION IN THE AGRICULTURAL SECTOR

### AGRI Focus 1

Preserving water resources is increasingly seen as an environmental challenge. Still poorly understood, water consumption in the agricultural sector in Wallonia has recently been the subject of a study aimed at evaluating the water consumed by beef and dairy cattle farms and field crops.

#### Life Cycle Analysis (LCA)

To understand the water resources management of a given activity, methods such as LCA are used<sup>1</sup>. The approach of Pfister *et al.* (2009) quantifies the water consumed<sup>2</sup> in litres of water equivalent (l H<sub>2</sub>O eq). This method was applied in Wallonia on data<sup>3</sup> from 10 farms over the period 2011-2013: 6 beef cattle farms, 2 dairy farms and 2 field crop farms. For these different areas of production, water consumption is related either to the quantity of meat produced (kg carcass eq), or to the quantity of milk produced (l of milk), or to the area used (ha)<sup>4</sup> for the crops in question.

#### Initial results

The water footprint<sup>5</sup> of beef cattle is estimated at 41 l H<sub>2</sub>O eq/kg carcass eq, while that of dairy cattle is estimated at 3.7 l H<sub>2</sub>O eq/l milk. On average, for cattle, 54% of this water corresponds to the metabolic needs of the animal. For beef cattle, the remaining water consumed is allocated almost equally to self-produced feed (22%) and purchased feed (23%), with a small share (1%) going to energy generation. For dairy cattle, in addition to water for metabolic purposes, water for the manufacture of self-produced feed (16%) and water for the manufacture of purchased feed (14%), water for cleaning milking parlours (14%) as well as water for energy production (2%) all need to be added. The water footprint of field crops is estimated at 2,415 l H<sub>2</sub>O eq/ha on average.

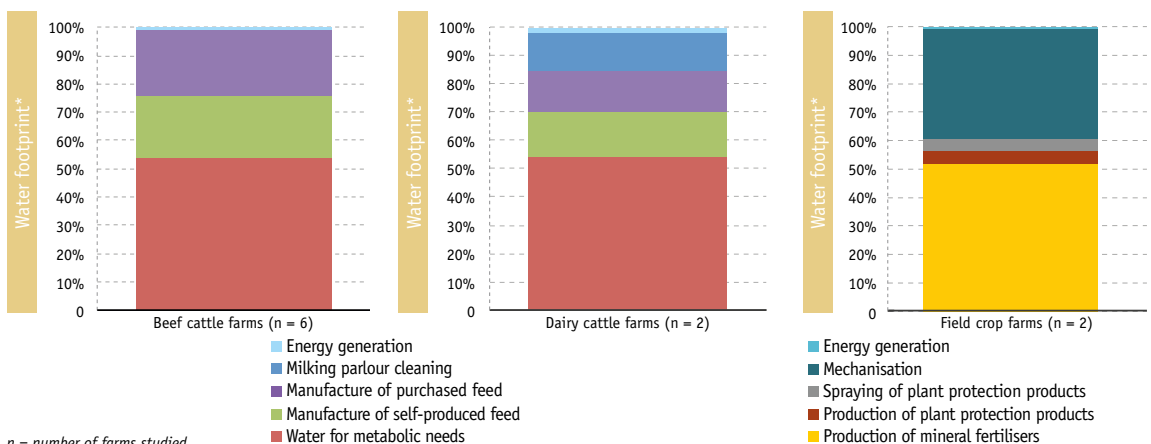
On average, 52% of this water is used for mineral fertiliser production and 39% for mechanisation. The rest of the water consumed is allocated to the production of plant protection products (4%) and spraying (4%), as well as energy production (1%).

#### Preserving resources

In addition to water quality concerns, the quantitative management of resources is a major challenge. At present, there are not enough studies to make comparisons with the initial results obtained in Wallonia. The commissioning of additional studies should make it possible to make the use of the "water footprint" indicator more widespread for agricultural activities throughout Wallonia, and identify practices to be encouraged to save water.

<sup>[1]</sup> CRA-W, 2016; Gac & Bechu, 2014 | <sup>[2]</sup> Water that cannot be returned directly to the environment after use | <sup>[3]</sup> Accounting data from the Agricultural Economic Analysis Directorate (SPW - DGO3 - DEMNA) | <sup>[4]</sup> Three functional units that quantify the performance of Walloon agricultural systems | <sup>[5]</sup> Quantitative aspects only

**Fig. AGRI Focus 1-1** Quantity of water required for the components of the water footprint\* of the various agricultural activities (Pfister method applied to 10 Walloon farms over the period 2011-2013)



n = number of farms studied  
\* Quantitative aspects only

SOERW 2017 – Source: SPW - DGO3 - DEMNA; CRA-W