

Linking Milk Price and Production Costs with Greenhouse Gas Emissions of Luxembourgish Dairy Farms

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Abstract : A study concerning both the rentability and ecological performance of dairy production in Luxembourg was carried out for the years 2017, 2018 and 2019. The data of 100 dairy farms, referring to the Greenhouse gas emissions (ecology) and the profitability (economy) of dairy production, were evaluated, and the average was compared to the corresponding figures of 80 Luxembourgish dairy farms evaluated in the years 2014, 2015 and 2016. The ecological evaluation could confirm that farm efficiency (especially defined as the lowest ratio between used feedstuff and produced milk) is the key driver for significantly reducing the level of emissions in dairy farms. In both farm groups and in the two periods, the efficient farms show almost the same level of emissions per kg ECM (1,17 kg CO₂-eq) in comparison with intensive farms (1,13 kg CO₂-eq), and at the same time a by far lowest level of emissions related to the production surface (9,9 vs. 13,9 t CO₂-eq/ha). Concerning the economic performances, it could be observed that in the years 2017, 2018 and 2019, the intensive farms (we define intensity in the first place in terms of produced milk pro ha) reached a higher profit (incomes minus costs, only consideration for subsidies) than the efficient farms (4,8 vs. 2,6 €-cent/kg ECM), in contradiction with the observation of the years 2014, 2015 and 2016 (1,5 vs. 3,7 €-cent/kg ECM). The most important reason for this divergent behavior was a change in income and cost structure in the considered periods. In the last period (2017, 2018 and 2019), the milk price was considerably higher than in the previous period, and the production costs were lower. This was of advantage for intensive farms, which produce the highest quantity of milk with a high amount of production means. In the period 2014, 2015 and 2016, with lower milk prices but comparable production costs, the advantage was with efficient farms. In conclusion, we expect that in the next future, when especially the production costs will presumably be much higher than in the last years, the profitableness of dairy farming will decrease. In this case, we assume that efficient farms will provide not only an ecologically but also an economically better performance than production-intensive farms. High milk prices and low production costs are no good incentives for carbon-smart farming.

Keywords : efficiency, intensity, dairy, emissions, prices, costs

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