Integrating technological and socio-economic knowledge for whole-farm planning

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Farmers often see farm up-scaling as an obvious strategy to pursue cost efficiency and to cope with decreasing margins. The upcoming milk quota abolition is for dairy farmers an extra incentive to choose for up-scaling. But, does the strategy remain obvious given volatile prices, competition for land and growing societal concerns? Are farmers aware of the complexity that goes beyond the mere up-scaling? These questions ask for a participatory approach to guarantee tailor-made advice and will be answered with a whole-farm model tackling the complexity of a dairy farm.

The thematic research objective is to determine the optimal economic scale and influencing factors. The scientific objective is to investigate to what extent modeling assumptions which are a result from the participatory process, influence the model results. The diet module, for example, is now modeled in a very simplified way, e.g. data on daily intake of maize and fodder grass and the amount of concentrates needed to produce one liter milk are entered exogenously. Another example is the choice of economic objective to be optimized. Here, cash flow is chosen because farmers are familiar with this indicator, but the question is whether modeling results drastically change with other objectives such as labor income. Preliminary results related to our thematic research objective indicate that land availability and investment costs often hamper the expansion of the Flemish dairy farms. Some farmers also must first improve their technical results before scale enlargement becomes an option. Finally, farmers often indicate that they do not want to work with hired labor, which has a large influence on the optimal scale. In order to provide answers for our scientific objective, research is currently ongoing.

With respect to Macsur objectives, our modelling experience reveals the necessity of an efficient integration of agronomic, technological and economic information.