

Project Opti-Milk: optimisation and comparison of high yield and low input milk production strategies on pilot farms in the lowlands of Switzerland

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Introduction Compared to other European countries milk production costs in Switzerland are high. Therefore Swiss milk producers must drastically reduce their costs. The high yield strategy (HY) and the full grazing (FG) or low-cost strategy appear most promising, at least for the lowland regions. Although the basic knowledge is available for both strategies, they have been applied very little in Switzerland in a consistent and optimised form.

Materials and methods The HY strategy and the FG strategy with seasonal calving in spring, were each consistently implemented and optimised on nine pilot farms. The farms initially differed little from a group of reference Swiss dairy farms. In a participatory approach the strategy was individually optimised together with the farmer and a controlling concept was defined. To guarantee an intensive exchange of experience, the pilot farmers were organised into two learning groups. The farms were studied in detail for three years (2001 – 2003) and economic model calculations were performed up to 2010.

Results No major problems were encountered with the implementation of the new strategies and all 18 pioneer farms were satisfied with the improvements achieved. The initial average milk yield was approximately 6000 kg for the FG farms and 8200 kg for the HY farms. During the project it increased by about 900 kg for the HY farms whereas a slight decrease due to the change to seasonal calving in early spring was observed on the FG farms. The milk yield of the HY farms may appear low compared to yields achieved in other countries. This can mainly be attributed to the price of concentrate being about three times as high in Switzerland as in the EU. The average concentrate use per cow per year was approximately 1300 kg and 350 kg for the HY and the FG herds, respectively. The area required for roughage production was 0.56 ha and 0.51 ha per cattle unit (1 cow = 1 cattle unit) for the FG and the HY farms, respectively. While grazing contributed, on average, 55 % on FG farms it contributed only 17% on HY farms. Consequently the proportion of conserved feed made up 41% and 70% on the FG and the HY farms, respectively. For both strategies, no abnormal or drastic decrease in body condition score (BCS) was observed during the first 100 days of lactation. No serious fluctuations were detected and most animals reached their initial BCS towards the end of the lactation at the latest. With two exceptions, the FG farms had calving intervals well below 400 days (mean 388 days, s.d. 25 days) in the second year after the introduction of the new strategy. The mean annual veterinary costs per cow were low compared to Swiss average values and were, on average, 40% lower on FG than on HY farms. They ranged between 2.1 and 3.0 Swiss cents /kg of milk for both strategies. Fertility problems and mammary infections were the major causes for the preliminary elimination of cows in both strategies.

On average, the milk produced per labour unit could be improved by about 15% and 10% on the HY and FG farms respectively. The amount of milk produced per ha of forage remained constant at about 14,600 kg/ha on HY farms and increased by 13% to about 8000 kg/ha on FG farms from 1999 to 2002. The effect of the new strategies on the economic results was not large over the duration of the project. For the HY farms economies of scales were impeded by high growth costs and neutralised by declining milk prices. For the FG farms the cost reduction was retarded, because costs of existing infrastructure had to be depreciated. Nevertheless, a considerable decrease in labour demand per unit could be observed in both strategies. The model calculations for 2010 showed that both strategies have a considerable cost reduction potential of around 40% per unit. The high Swiss ecological production standards can be met in spite of the increasing specialisation. A socially sustainable implementation seems also possible, provided that the labour reduction potential is consistently used and the interests of the family are consciously considered. The learning groups played an important role for the quick and consistent implementation and optimisation of the new strategies. They demonstrated that the sound specialist knowledge of researchers and the practical experience of farmers can complement each other very well within the framework of a structured guided processes.

Conclusions Both the HY and FG production strategies seem to be realisable in the Swiss lowlands. If they are consistently implemented both strategies have a cost reduction potential of around 40% over the 10 years from 2000. The consistent but individual implementation of the FG strategy can improve the liquidity and the work load quickly. From the economic point of view, the HY strategy, which is based on strong and, under present Swiss conditions, expensive growth must be considered ambitious and risky for the first decade of its implementation. In the long term, the potential for a good competitiveness, even on the European level, is good for both strategies.