

► Project *brief*

Thünen Institute of Farm Economics

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InnoRind¹ - State of research on the economics of animal welfare measures

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- **Animal welfare in cattle farming is the subject of intensive research, but the economic consequences of animal welfare measures are rarely being taken into consideration.**
- **Studies suggest that calf rearing with cow contact yields health benefits for the animals, but is also associated with higher costs.**
- **Although a larger space allowance for livestock improves animal welfare, without compensatory measures (higher prices, subsidies) it reduces the profitability of farms.**
- **Studies on alternative housing systems for cows and heifers show improved calf growth, changes in milk composition and increased construction costs.**
- **There is a need for comprehensive studies on the overall economic situation on farms with animal welfare measures in cattle farming.**

State of research on animal welfare in cattle farming

Numerous studies are currently being conducted on the subject of animal welfare in general and animal welfare in cattle farming in particular. The effects of animal welfare measures on the behaviour of livestock, the germ pressure in the barn, the excretion of climate-relevant gases, etc. have already been comprehensively investigated and documented. Given the above, it is surprising that only a few of these studies have focussed on the economic impact of the investigated measures. Yet economic aspects often decide whether the specific package of measures is implemented or not. The following section presents studies in which economic aspects were addressed.

Studies on calf rearing with cow contact and its economic effects

Various studies have investigated aspects of calf rearing with cow contact and their effects on the economic viability of production. Knierim et al. (2020) identified monetary (e.g. construction and labour costs) and non-monetary (e.g. milk consumption, weaning weight, calf losses) factors for a socio-economic evaluation of dairy calf rearing systems with or without cow contact. Wicklow (2016) found that calf rearing with cow contact in organic dairy farming is an economically viable alternative to traditional calf rearing. Barth et al. (2022) showed that the implementation of cow-calf contact in practice is associated with higher costs than conventional bucket feeding, which is why a higher milk price is required. Tergast et al. (2019) determined the cost differences between rearing with cow-calf

contact and with the automatic feeder, with cow-calf contact rearing causing higher opportunity costs in the form of lost milk revenue. Junqueira et al. (2005) compared the production and profitability of milking F1 Holstein x Gir cows with and without calf stimulation of the cow. The additional expenditure in the group with calf stimulation was outweighed by the additional milk yield, resulting in an overall better profitability in the group with calf stimulation. Overall, the studies show that calf rearing with cow contact offers advantages in terms of calf growth and health, but can also be associated with higher costs. A precise assessment of the economic viability depends on the individual circumstances and objectives of the farm.

Space allowance and profitability in cattle farming

Studies on this issue show that increased space allowance for cattle (cows, calves and beef cattle) leads to improved animal welfare, but is also associated with higher costs for farmers. In Sweden, a reduction in gross margins with increased space for calves and a decreasing profit per animal for cattle was modelled (Ahmed et al. 2021). In Finland, a good level of animal welfare (e.g. rubber-mats, bedding) promoted animal performance, but there was a conflict between space allowance and animal welfare on the one hand and profitability on the other hand (Herva 2015). A reform of the subsidy system (linking subsidies to space allowance) is proposed to solve these problems. In Brazil, on the other hand, it has been shown that increasing

¹ InnoRind – sustainable cattle farming in Germany with respect to animal welfare, environmental impact and social acceptance

the space available for grazing improves profitability and reduces the risk of financial losses (Montelli, Natalia Ludmila Lima et al. 2019). These findings make it clear that the optimisation of animal welfare and profitability in cattle farming requires careful consideration and possibly also political support in order to meet the needs of both the animals and the farmers.

Alternative housing systems and their effects

These studies look at the economic, environmental and welfare impacts of alternative housing systems for cows and heifers. French et al. (2015) focus on maximising the grazing period and emphasise that different out-wintering pads have minimal effects on dairy cow productivity and the only differences are in costs with low-cost cubicle system being the most profitable option. Hawkins et al. (2020) developed an economic model to determine the costs of rearing replacement heifers in the USA and show that year-round grazing leads to lower overall costs than housing. Hawkins et al. (2019) developed a model to calculate the costs of rearing heifers. The total cost of housing calves varied depending on the housing system, with construction costs

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in indoor housing and bedding in single outdoor housing being the largest cost factors. Despite a reduction in labour costs from individual to group housing, total costs increased due to additional expenditure for feeders, maintenance and barn infrastructure.

Need for further research

Although the existing studies on animal welfare in cattle production touch on some important aspects of economics, they do not provide comprehensive analyses of this topic. They mainly focus on the effects of animal welfare measures such as rearing cow-calf contact on animal health and growth, with the economic consequences of these measures often being only marginally addressed. Existing research points to potential cost increases from improved animal welfare practices, but lacks a detailed and holistic analysis of the economic impacts. This emphasises the need for further research to fully understand the economic implications of animal welfare measures in cattle farming.

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Project logo



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