

"How much of your revenue does your feed consume?"

Feed costs make up 50 to 60% of the total costs of milk production. This presents significant potential for optimization with a change in the feeding ration. Especially since feed markets, like milk prices, are highly volatile. When changing the feed ration, the question often arises: 'Am I really achieving higher milk revenue, or is the ration just becoming more expensive?' For this reason, American feeding specialists calculate the key figure **'Income Over Feed Cost' (IOFC)**: the 'revenue after feed costs.

The own IOFC for dairy sheep can be easily calculated for the farm by subtracting the total feed costs from the milk revenues:

• IOFC (€ per sheep) = Milk quantity (kg per sheep) x Milk price (€ per kg) – Feed costs (€ per sheep).

The result provides an overview of the feed costs in relation to the milk revenues. It indicates how well the herd converts feed into milk. The revenue after feed costs is then available to cover other cost categories such as labor, building costs, and other specialized expenses.

Example Calculation IOFC

	Farm A	Farm B
Milk yield per sheep per day (kg)	1	2
Milk revenue per sheep per day (€)	1,5	3,0
Feed costs per sheep per day (€)	ca. 0,8	ca. 1,1
IOFC per sheep per day (€)	0,7	1,9

In the overview, there are two examples of farms with their calculated IOFC. Farm B produces 2 kg of milk per sheep per day, while Farm A only produces 1 kg of milk. This results in a €1,50 lower milk revenue per sheep per day for Farm A compared to Farm B. The slightly lower feed costs cannot compensate for this difference. Therefore, the milk revenue after feed costs is €1,20 lower per sheep per day on Farm A. With a herd of 100 sheep, Farm B would thus realize an income that is €120 higher after feed costs than Farm A.

Are the feed ingredients used efficiently converted into milk ? This is an important question that farm managers should continually ask themselves. By evaluating the IOFC, decisions in the areas of feeding and herd management can be made more purposefully and confidently. Because if a change in feed or the addition of a feed ingredient increases milk revenues but also significantly raises feed costs, the IOFC per sheep per day can decrease.

When revenues decrease due to lower milk prices, a review of the ration is also necessary. The IOFC compares current milk revenues with current feed costs to assess whether they are in a good relationship to each other. However, it is important that when interpreting the IOFC and adjusting the ration, not only the economic aspects are considered but also the nutritional aspects.

A current and consistent data basis is crucial for the usability of the IOFC. The capture of the revenue side is straightforward: The delivered milk quantity is multiplied by the current milk price and then divided by the number of sheep. To gather the feed costs, knowledge of the feed loading plans, including feed leftovers, is necessary: How much do the sheep eat per day? Which components are fed, and what do they cost?

The prices for purchased feed are quickly found on the invoices from suppliers. In contrast, collecting the costs of basic feed is more challenging. You must first decide whether to calculate using market prices or production costs.



When calculating based on production costs, all factors are taken into account: yields, labor, proportional rent, ancillary land costs, machine depreciation, fertilizer costs, harvesting costs, etc. Sometimes, a branch accounting for forage production is already available, which you can use as a reference. Otherwise, it is worthwhile to record the farm's basic feed costs and allocate them to the revenues from forage production.

The calculation of basic feed costs using market prices is also possible. This is particularly suitable in regions with a strong forage market. It is important that the calculation is done consistently and with realistic, current prices.

The feed markets in Greece vary regionally. However, the classic basic feed ingredients in dairy sheep feeding are still grass and maize silage.



The IOFC evaluates feed costs in relation to milk revenues.

In addition to the concentrate feed components used, purchased juice feeds (e.g., brewer's grains, pomace, or press cake silage) often play a role. Dairy farmers have a variety of options for a balanced ration formulation. To ensure that the ration is not only suitable for ruminants, palatable, and cost-effective, each farm should ideally calculate its current IOFC monthly, or at least after each ration adjustment.

When considering the daily IOFC per sheep, the result is highly dependent on the stage of lactation. Especially at the beginning of lactation, sheep convert the offered feed into milk very efficiently. As a result, fresh milkers quickly achieve an IOFC of €1,5 to €2 per day. This result can be further increased with the right herd management. Towards the end of lactation, the efficiency with which feed is converted into milk decreases. Consequently, the IOFC also becomes lower. Values of €0,3 to €0,6 per sheep per day are desirable at this stage. If this value is not reached in the last third of lactation, it is often related to too high levels of concentrate feed. Therefore, the ration of older milkers should be carefully examined.

If the farm's own data basis allows for an IOFC calculation by lactation stages, as feeding groups and milk quantity measurements are available, a separate evaluation by feeding groups should be conducted. This makes it easier to identify possible sources of error in both feeding and herd management. For example, many sheep with colostrum milk lower the IOFC because they do not generate milk revenues but still incur feed costs. Additionally, the start of lactation is important for the IOFC result. Only if the sheep have a good start to lactation can both the initial performance and persistence be increased. This ultimately leads to higher feed efficiency, especially in the last third of lactation.

Does the ration become only more expensive when changing the feed, or does more of the milk revenue remain afterward? The IOFC shows this.

Many farms in Europe work with the IOFC metric. It particularly helps large or rapidly growing farms ensure economical feeding

and avoid poor decisions. Regional American model calculations for IOFC use average feed ingredient and milk prices. This allows for the determination of a standard IOFC, which farms can use for comparison.

There are two other values that dairy farms can orient themselves to: 'High IOFC Benchmark' and 'Low IOFC Benchmark.' When feed costs consume only 40% of milk revenues, nutritional specialists refer to this as a High IOFC Benchmark. In this case, milk production is profitable regarding the ratio of feed costs to milk revenues.

If 60% of the milk revenues are needed for feed costs, it represents a low IOFC benchmark. In this case, the feed intake (dry matter intake), the use of feed additives, and the amount of concentrate feed used should be critically examined. The feed costs would be too high in this scenario, leaving too little income for the other cost categories in milk production.

Conclusion: Decisions in the area of feeding can be made more purposefully and confidently using the IOFC. The ability to evaluate results by lactation stages is advantageous, as it allows for differentiated identification of errors in herd management or feeding. A fundamental requirement is a constant and up-to-date data basis, as well as regular evaluations. The IOFC results can be compared both internally within the farm and with other farms. This enables effective tracking of developments in the area of feeding.