

Calculating the cost of the daily ration

It is important to calculate the cost of a ration for either one horse or a stable of horses. The operating costs of feeding horses (buying forage and concentrates) represent 20 of 50% of the total expenses of breeding and equestrian facilities (S. Boyer, REFERENCEs 2011).

A horse's diet must be prepared in relation to its age, physiological stage and activity. The objective is to find the balance that ensures both reasonable cost and desired animal performance..

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Technical level   



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Defining a daily ration

A horse's daily ration is often composed of:

- Fodder: usually hay sometimes baleage, which is either distributed on a self-service basis or in the form of one or more meals during the day.
- A concentrate: cereals, pellets or flakes

- Possible food supplements (minerals, vitamins and other food supplements).
- Straw eaten in the stall

By being methodical and preparing a ration for each horse according to its daily needs, it is possible to evaluate (and compare) the daily cost for a horse and a stable, according to the type of feed chosen and changes in the cost of the feed used, in order to optimise production costs

Measuring feed



Weighing a 2L dose © L. Marnay-Le Masne

In general, a 2-litre dose is used, which makes calculations quite simple... but many different “feeding bowls” can be found in different stables. The important thing is to know the weight (in kg) of each food the bowl contains. To do this, nothing could be easier: all you need to do is pour the contents of the bowl into a bag and weigh it on a kitchen scale. This technique can be repeated for each of the ingredients in your feed, or for your mixture if it is homogeneous.

Density of commonly used feeds

Feed (in kg)	2 litres weigh approx. ... (in kg)	i.e. for 1L ... (in kg)
Whole Oats	1.0	0.500
Rolled Oats	0.440	0.220
Whole barley	1.2	0.600
Rolled barley	0.600 to 0.800	0.300 to 0.400
Flaked barley	0.900	0.450
Alfalfa pellets	1.2	0.600
Cracked corn	1.2	0.600

Feed (in kg)	2 litres weigh approx. ... (in kg)	i.e. for 1L ... (in kg)
Soya meal	1.2	0.600
Commercial pellets	1.0 to 1.2	0.500 to 0.600
Commercial flaked products	0.700 to 1.0	0.350 to 0.500

Then you have to count the number of litres/bowl distributed per day to your horse (or to your herd) and deduct the number of kilos.

Example:

- Ration horse A: 2(morning) 2(noon) 2(evening) = 6 litres or kilos
- Ration horse B: 4(morning) 3(noon) 4(evening) = 11 litres or kilos

Fodder

Freely available hay



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Count the time it takes to consume a storage unit (a 20 kg bale, a 300 kg bale.). This will give you not the amount consumed but the amount consumed + wasted. It is important to know that depending on the method of distribution (type of rack used), the amount wasted varies from 6% to almost 60% (without a rack) of the quantity distributed. Buying a rack often quickly pays for itself through the **savings in forage** and labour costs.

In the stall



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It is difficult to assess the quantity distributed each day and often, major errors of judgement can be made. The solution:

- Either divide the weight of the packaged product by the number of rations made (possibly over several days)
- Or, once or twice daily weigh the amount of hay given (which is equivalent to calibrating a "container" (an 80 l bin for example).

Only hay on a self-service basis

In this case, hay consumption is about 2 to 2.8 kg raw hay per 100 kg live weight, i.e. between 10 and 14 kg for a horse weighing 500 to 600 kg to maintain its weight. Of course, as soon as a concentrate supplement is given, hay consumption decreases, but the horse is still able to eat more than it needs to cover its needs, especially if the hay is of good quality.

Straw

In general, straw is used as bedding. However, it is also consumed by the horse. When a horse has sufficient (good quality) straw, it rarely consumes more than 2-3kg per day. Beyond that, the horse potentially runs digestive risks unless it is chopped up (accumulative colic due to excess food, overweight). Nevertheless, under classic stable management conditions, and taking into account the bedding, the daily quantity used is about 8 to 15 kg/day depending on the cleaning method.

Knowing the price of feed per kilo

Note: Here we compare either prices including VAT or prices excluding VAT.

Concentrates

All you need to do is divide the purchase price by the number of kilograms in the packaged product.

Example: my bag of pellets costs €14.50 for 25 kg. It therefore costs $14.5/25$ or €0.58/kg.

Note: for cereals, the price is often also quoted per tonne (1,000 kg) or per quintal (100 kg).

How to compare the cost of 2 concentrates

Concentrates are usually given to sports horses to provide a source of energy. BE CAREFUL, not all commercial foods have the same energy value. The Horse Feed Unit (HFU) content can vary from 0.65 to 1.1.

In other words, 1.7 times more of the first food would have to be distributed than of the second to provide the same energy intake. Hence the value of knowing the energy value of the food and calculating its price per HFU:

Example:

- 1 pellet at €0.54 per kilo providing 0.8 HFU/kg costs $0.54/0.8 = €0.675$ per HFU
- 1 pellet at €0.72 per kilo but providing 1.1 HFU/kg costs $0.72/1.1 = €0.650$ per HFU

In the same way, for a feed intended for breeding stock (in particular mares and foals), it is possible to compare the cost per g of MADC (French acronym for digestible crude protein for the horse) with the same HFU content as a kg of feed, taking care to check the qualitative intake of amino acids.

Hay

One **tonne** (1,000 Kg) of **hay costs between €60 and €200** on average but can rise to as much as €300 for Crau hay (PDO Protected Designation of Origin). The price varies according to the year, the purchase period, the packaging, the delivery distance...

A kilo of hay therefore costs anything between €0.06 and €0.20 or even €0.30. In other words, a daily consumption of 7 kg can cost between €0.42 and €2.10! The cost of wasted fodder is also worth noting. Without a rack, with 60% loss, this daily cost can easily reach €4.20 (including wastage and overconsumption).

Obviously, for the same quantity distributed, hay with a good feed value can cover a greater part of the horse's daily needs. It is therefore important to know how to assess the quality of feed, in particular through a chemical test to make substantial savings in concentrates.

Straw

On average, a **ton of straw costs between €50 and €150**. The price also varies according to the year, the purchase period, the packaging, the delivery distance...

A kilo of hay therefore costs between €0.05 and €0.15.

In other words, a daily consumption of 8 kg can cost from €0.40 to €1.20.

Calculating daily food costs

Practical example for a horse

Feed making up the ration	Daily quantity distributed (kg)	Cost per kg	Daily cost
Pellets X	8 L = 4 kg	€0.58	€2.32
Hay (€90/tonne)	7 kg	€0.09	€0.63
Straw (€70/tonne)	8 kg (including bedding)	€0.07	€0.56
Total (1)			€3.51
Annual total (= (1) x 365 days)			€1 281.15
Average monthly total (= annual /12)			€106.76

Implementation: calculating the cost of the daily ration of a stable

Feed making up the ration	Daily quantity distributed	Cost per kg	Daily cost
Concentrate 1			
Concentrate 2 (optional)			
Concentrate 3 (optional)			
Fodder			
Straw			

Feed making up the ration	Daily quantity distributed	Cost per kg	Daily cost
Possible dietary supplement* (CMV or other)			
Possible dietary supplement 2*			
Total (1)			
Annual total (= (1) x 365 days)			
Average monthly total (= annual /12)			

Depending on the feed used, for the same feed balance, the **cost of the ration per horse** can thus vary from one to four times that amount, which is significant! The often high cost difference between a pellet and a flake (more expensive) of the same feed value should also be noted.

Note: CMV and certain other supplements are distributed at 50-100 g/d, i.e. 0.05-0.1 kg.

Be careful when calculating the daily cost of this!

Conclusion

Calculating the ration cost allows the "feed" part of the stable's overheads to be controlled by:

- Comparing the price of balanced rations to make informed choices.
- Monitoring changes in the cost of a ration from one year to the next with that of the cost of raw materials

Things to remember

For concentrates

Always compare the cost in € of the HFU/Kg between two concentrates and not in €/Kg only. Estimate the cost in € of MADC/Kg for a feed intended for the stable.

For forage

- Estimate the consumption of fodder and straw/bedding by counting the quantity distributed per period of time (stock management according to forage per week, per month).
- Manage waste and over-consumption, which are a source of unnecessary expenditure and can be potentially harmful to the health of your horse.
- Estimate the quality of the hay (qualitative estimation: go and see the hay before buying it).
- Know the feed value of the feed you buy (chemical analysis): hay harvested in good conditions and produced locally can compete with "de Crau" hay!

Warning!!! Calculating the cost of the ration is different to calculating the cost of maintaining a horse or stable. Remember that the following costs are added to the feedstock to calculate the cost of maintenance:



- Purchase of bedding (if not straw)
- Veterinary and farrier care
- Stable and support staff (secretary, accountant...)
- Water + electricity
- Amortisation of facilities and equipment
- Insurance
- Miscellaneous expenses (MSA : French agricultural social contributions, etc.)

About our writers

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