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'The New Feeding Concept'

Roughage advice



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'The New Feeding Concept', back to the horse's natural roughage needs

Sufficient suitable roughage is the basis of a horse's diet, but what exactly is this? Biodiverse, well-dried roughage containing a variety of different grasses and herbs is best if you want to do your horse's intestinal flora a real favour.

The international roughage norm for horses and ponies is a minimum of 1,5% of their body weight in dry matter for nutritional fibres. In nature, a horse will eat about 2-2,5% and a pony will even eat 3,5% of their body weight in dry matter

when offered unlimited roughage. Instead of normal roughage, other (low-energy) high-fibre products such as alfalfa, carrots, roughage mixes, bran, soaked beetroot mash or 'green' light muesli's can also be fed.

Roughage needs in kg of dry matter			Average hay kg 80% dry matter			Haylage kg 70% dry matter			Grass kg 23% dry matter			weight horse kg
min 1,5%	2%	unlimited	min 1,5%	2%	unlimited	min 1,5%	2%	unlimited	min 1,5%	2%	unlimited	
10,5	14	17,5	13,1	17,5	21,9	15,0	20,0	25,0	45,7	60,9	76,1	700
9	12	15	11,3	15,0	18,8	12,9	17,1	21,4	39,1	52,2	65,2	600
7,5	10	12,5	9,4	12,5	15,6	10,7	14,3	17,9	32,6	43,5	54,3	500
6	8	10	7,5	10,0	12,5	8,6	11,4	14,3	26,1	34,8	43,5	400
4,5	6	10,5	5,6	7,5	13,1	6,4	8,6	15,0	19,6	26,1	45,7	300
3	4	7	3,8	5,0	8,8	4,3	5,7	10,0	13,0	17,4	30,4	200
1,5	2	3,5	1,9	2,5	4,4	2,1	2,9	5,0	6,5	8,7	15,2	100

COMMON ROUGHAGE MISTAKES:

- 24hr grazing for overweight horses
- Young, low-texture grass for a horse with sensitive intestines
- Coarse, stemmy hay for a senior horse
- Soft, fine hay or (unfertilised) high-sugar grass for sober breeds
- Mouldy hay or very wet haylage for any horse or pony (haylage with dry matter below <70 %)

Coarse roughage (stemmy, a lot of texture) < 10% sugar	Medium roughage 10-12% sugar	Rich roughage (leafy, first cut) > 12% sugar
Overweight horses	Growth & develop- ment 2nd + 3rd year	End of gestation and lactation
Sober breeds	Sport horses	Growth & development in the 1st year
Light recreational work up to M level	Lean horses	Endurance, eventing, trots and racehorses

Average grass intake horse/hour

+/- 4,5kg in the first 4 hours,
+/- 2 kg after that

Average grass intake pony/hour

+/- 3kg in the first 4 hours,
+/- 1 kg after that

* minimum 1,5 % of the horse's/pony's body weight

** maximum 2 % of the horse's/pony's body weight





Roughage quality

The cattle industry has different standards for roughage than we feel is desirable for horses. The perspective of the farm workers also differs. This generally results in fast-growing grasses with a high energy- and protein yield and low- to acceptable levels of crude fibre, preferably harvestable several times per year. Horses have different needs for good roughage:

- High levels of crude fibre and nutritional fibres;
- Not too much energy, low in sugar, maximum 12% sugar in dry matter for healthy horses;
- Reasonable levels of protein and plenty of essential amino acids;
- Sufficient vitamins and minerals, meeting the horse's natural needs;

- And mainly as dry as possible (dry matter content above 70%) and not dusty, mouldy or rotten.

Due to the depletion of agricultural land and the relatively one-sided crops being grown, modern roughage often tends to be incomplete and unbalanced. Especially minerals are regularly lacking, for instance sodium, selenium, zinc and copper. Almost no vitamin E is found in dried roughage anymore, and carotene (converted to vitamin A in the liver) levels are disappearing. A horse needs sufficient vitamins and minerals to keep their body healthy.



How to judge roughage yourself?

What makes roughage suitable for horses?

> The harvest stage of the roughage

Is the roughage cut before bloom, at the beginning of the bloom period, in the middle of the bloom period or in the seeding stage? Check if you can see any grass flowers (foxtails). If no foxtails are visible, this could mean the grass was cut before bloom or at the beginning of the bloom period. At that time, the grass contains high levels of sugar and not much fibres. Often you can also see a lot of leaves in the roughage. This is an undesirable harvest stage for horses not in work. Harvesting the grass in the middle of the bloom period yields better hay for horses.

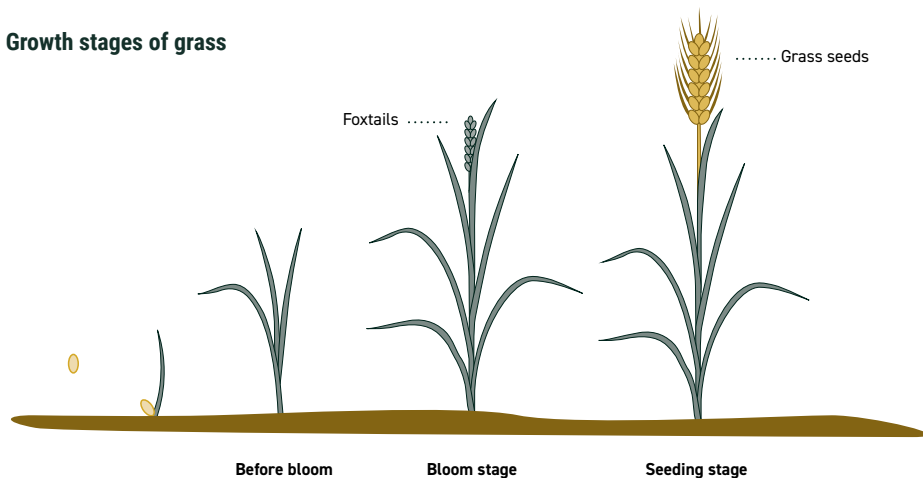
The grass will put all of its energy into blooming, and it will not store as much

sugar. When the grass was cut in the seeding stage, a lot of seeds will be visible on a light-coloured surface.

In the seeding stage, the grass will contain a lot of fibres, and the stems are woody, which is more suitable for the horse. However, the grass will also store sugars in this stage.

If foxtails are visible, also look at the number of different types. Roughage with different types of foxtails is preferable. This means a mixed turf with various different grasses. Multiple different grasses also contain multiple different nutritional fibres, which is beneficial for the microbiome.

Growth stages of grass



> **How is the roughage to the touch?**

Is the texture of the roughage soft? Very soft? Slightly firm? Or so coarse it requires gloves to handle? The stems of the grass are most suitable for the majority of horses. These contain most fibres, but sugar as well, and they are low in protein. Roughage for horses that are in relatively light work should therefore feel hard/coarse to the touch.

> **First or later cuts**

The first cut usually yields the richest roughage and is generally not suitable for most horses. Horses in the Endurance sport, eventing, (harness) racing or other high-intensity, demanding disciplines can digest richer roughage. Their roughage can contain more leaves. If the roughage is soft and leafy, this usually indicates higher protein- and sugar levels. Second cut roughage and later cuts are more suitable for most horses.

Other influences on the nutritional value of the roughage

The type of soil on which the grass is grown and the extent to which it was fertilised will impact the nutritional value of the eventual roughage. Unfertilised roughage and roughage from nature reserves can contain high levels of sugar (even up to 20% of dry matter) and be very poor in protein. Sand soil will generally yield roughage which is poorer in minerals than loam or clay soil. The number of hours of sunlight and rainfall will also influence the

eventual nutritional value of the roughage. Harvesting in the morning, after a night that was not too cold, will ensure lower sugar and fructan levels in the roughage. Harvesting directly in the morning after a cold night will have the opposite effect and yield roughage with very high levels of fructan and sugars.

> **The colour of the roughage**

Roughage that is light green or natural green in colour, was often harvested in a leafy stage and was not given enough time to lie on the land to dry completely. This has several disadvantages. There are a lot of sugars and protein in the leaves and because it was not given time to dry out, the dry matter content will be lower.

For a horse, a higher dry matter content is better. The higher the dry matter content, the more the horse has to chew their roughage, giving them a more satisfied feeling. In addition, roughage with a high dry matter content will also spoil less quickly. Mouldy roughage will change colour. First a white veil will become visible, before turning brown and then even black. Roughage should be yellow in colour, with light green streaks.

> **The smell of the roughage**

Does the roughage smell fresh, dusty, mouldy, fungal, sour or maybe even caramelly? Of course, roughage should smell fresh, and any other smells are usually a sign of poor quality. Hay can be especially

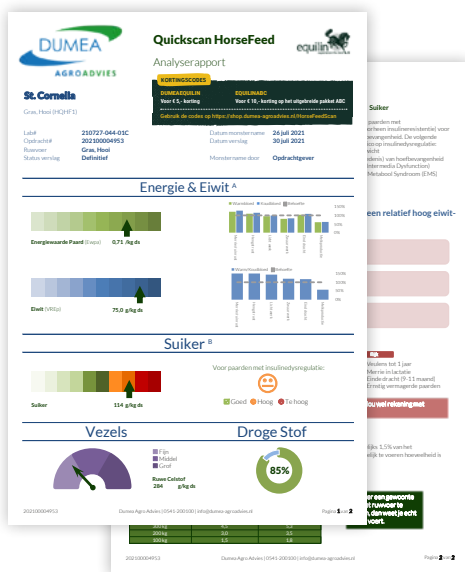


prone to smelling dusty, mouldy or fungal. Haylage smells sour, and a slightly sour whiff is allowed if it still smells fresh. A scent of caramel is a sign of heat generation in the bale.

➤ Roughage analysis

The external properties of a batch of roughage might give you some idea of whether or not it is suitable to feed to your horse. Mould, rot, protein- and energy levels are factors you can judge by eye. The mineral-, trace element- and sugar contents are very difficult to estimate. It is impossible to see from the outside whether the roughage contains everything the horse needs to keep their body healthy. If there is no roughage analysis available, the average analyses of roughage from the area can be taken to draw the careful conclusion that a horse cannot live on roughage alone. Most batches of roughage nowadays contain far too little selenium, copper and zinc, and extremely high levels of iron and potassium. This goes for most European countries.

Average analyses show that in addition to sufficient average roughage, a horse needs a minimum of 2kg traditional concentrates to gain all the necessary minerals and vitamins. Given the workload of most modern horses and the impact this has on the intestinal flora, this is highly undesirable. As an alternative, a specific mineral balancer can be fed, supplemented with 0,5-1,5kg concentrates should the horse have an increased energy- and protein need.



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