

## Rate forage after nutritive content

Forage and forage is not the same thing. How well the horse can digest the forage depends on the forage's cell wall content. Cell walls are composed of cellulose fibre, hemicellulose, pectins and cell wall protein. The cell wall can be more or less lignified and the later the stage of maturity of a plant the more lignified is the cell wall and the digestibility decreases. When digestibility decreases the nutritive value of the forage also decreases. Why not classify forage after nutritive content so it becomes easier to select the right forage for your horse?



Different types of horses have different requirements, the high performing athlete has a high energy requirement and needs forage with high energy density and early harvested forage can fulfil this. The pony or horse that doesn't perform any hard work has a much lower energy requirement but the same need for eating during longer periods of time and later harvested forage is therefore suitable for this type of horse. Then we have a range of different types of horses in between and broodmares and growing horses with higher protein requirements. Since there are so many different types of horses with different requirements and also forage with everything from low to high nutritive content it is possible to match each horse with forage suitable for its requirements.

Now there is a classification of forage and you can find it on Grovfoderbörsen [www.grovfoderborsen.se](http://www.grovfoderborsen.se) (in Swedish only) where you can also use the interactive guide to get help and a suggestion which forage class that suites your horse [www.grovfoderborsen.se/guide](http://www.grovfoderborsen.se/guide).

Here is a presentation of the forage classes:

- SLIM** This is the forage class for ponies and horses which easily becomes obese and don't do any exercise or only light exercise. Forage in the category SLIM contains maximum 6.9 MJ metabolizable energy/kg DM and maximum 70 g digestible crude protein/kg DM. *If necessary, mix in straw to lower the forage ration's content of energy and protein!*
- BASIC** This is the forage class for ponies and horses which have easier to put on weight and do light to medium exercise. Forage in the category BASIC contains 7.0–7.9 MJ metabolizable energy/kg DM and maximum 90 g digestible crude protein/kg DM.
- WORKING** This is the forage class for ponies and horses which exercise. Forage in the category WORKING contains 8.0–9.9 MJ metabolizable energy/kg DM and maximum 115 g digestible crude protein/kg DM.
- RACING** This is the forage class for larger ponies and horses which do hard to very hard exercise. Forage in the category RACING contains minimum 10.0 MJ metabolizable energy/kg DM and maximum 130 g digestible crude protein/kg DM.

**BREEDING** This is the forage class for broodmares. Forage in the category BREEDING contains minimum 9.0 MJ metabolizable energy/kg DM and minimum 85 g digestible crude protein/kg DM.

**GROWING** This is the forage class for growing ponies and horses. Forage in the category GROWING contains minimum 9.0 MJ metabolizable energy/kg DM and minimum 85 g digestible crude protein/kg DM.

The idea is to simplify, both for the forage producer and for those who has to find the right forage for their horse. With a classification of their forage it is easier for the forage producer to specify which horses the forage is suitable for and gives an opportunity to specialize on a certain category of forage. The forage producers that sell their forage via (the Swedish) Grovfoderbörsen automatically get their forage classified. Those responsible for feeding horses can by using the interactive guide on Grovfoderbörsen get suggestions of suitable forage classes and thereby knows what to look and ask for.

Here are some arithmetic examples: *(metabolizable energy = ME, digestible crude protein = dcp)*

#### SLIM

*Example horse: pony, 250 kg, easy keeper, does light exercise*

Maintenance requirement 31.5 MJ ME + light work 8 MJ ME/day → total requirement 39.5 MJ ME/day

Protein requirement maintenance + exercise (6 g dcp/MJ) → total requirement 237 g dcp/day

Forage 6.7 MJ ME/kg DM                      ration 6 kg DM/day                       $6.7 \times 6 = 40.2$  MJ ME/day

Forage 45 g dcp/kg DM                      ration 6 kg DM/day                       $45 \times 6 = 270$  g dcp/day

→ gives 2.4 kg DM/100 kg body weight and day

#### BASIC

*Example horse: horse, 450 kg, easy keeper, does medium exercise*

Maintenance requirement 49 MJ ME + medium work 24.5 MJ ME/day → total requirement 73.5 MJ ME/day

Protein requirement maintenance + exercise (6 g dcp/MJ) → total requirement 441 g dcp/day

Forage 7.5 MJ ME/kg DM                      ration 10 kg DM/day                       $7.5 \times 10 = 75$  MJ ME/day

Forage 55 g dcp/kg DM                      ration 10 kg DM/day                       $55 \times 10 = 550$  g dcp/day

→ gives 2.2 kg DM/100 kg body weight and day

#### WORKING

*Example horse: pony, 350 kg, normal keeper, does hard exercise*

Maintenance requirement 42.5 MJ ME + hard work 32 MJ ME/day → total requirement 74.5 MJ ME/day

Protein requirement maintenance + exercise (6 g dcp/MJ) → total requirement 447 g dcp/day

Forage 9.0 MJ ME/kg DM                      ration 8.5 kg DM/day                       $9.0 \times 8.5 = 76.5$  MJ ME/day

Forage 70 g dcp/kg DM                      ration 8.5 kg DM/day                       $70 \times 8.5 = 595$  g dcp/day

→ gives 2.4 kg DM/100 kg body weight and day

## RACING

*Example horse: horse, 500 kg, hard keeper, does very hard exercise*

Maintenance requirement 58 MJ ME + very hard work 70 MJ ME/day → total requirement 128 MJ ME/day

Protein requirement maintenance + exercise (6 g dcp/MJ) → total requirement 768 g dcp/day

Forage 11.5 MJ ME/kg DM                      ration 11.5 kg DM/day                       $11.5 \times 11.5 = 132$  MJ ME/day

Forage 95 g dcp/kg DM                      ration 11.5 kg DM/day                       $95 \times 11.5 = 1093$  g dcp/day

→ gives 2.3 kg DM/100 kg body weight and day

## BREEDING

*Example horse: pony, 350 kg, 10 month pregnant*

Maintenance requirement 43 MJ ME + pregnancy 11 MJ ME/day → total requirement 54 MJ ME/day

Protein requirement maintenance (6 g dcp/MJ) + pregnancy (12 g dcp/MJ) → total requirement 390 g dcp/day

Forage 9.5 MJ ME/kg DM                      ration 6 kg DM/day                       $9.5 \times 6 = 57$  MJ ME/day

Forage 100 g dcp/kg DM                      ration 6 kg DM/day                       $100 \times 6 = 600$  g dcp/day

→ gives 1.7 kg DM/100 kg body weight and day

## GROWING

*Example horse: horse, estimated adult body weight 500 kg, 20 month old*

Requirements for maintenance and growth 68 MJ ME → total requirement 68 MJ ME/day

Protein requirement maintenance + growth (6.5 g dcp/MJ) → total requirement 442 g dcp/day

Forage 9.5 MJ ME/kg DM                      ration 7.5 kg DM/day                       $9.5 \times 7.5 = 71.3$  MJ ME/day

Forage 100 g dcp/kg DM                      ration 7.5 kg DM/day                       $100 \times 7.5 = 750$  g dcp/day

*Don't forget that the exercising young horse should have an addition for exercise!*

For more information visit <http://www.grovfoderborsen.se/hastkunskap/the-forage-agency/>

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