

RAW INGREDIENTS NOT USED

BY REVERDY EQUINE NUTRITION

THE PROBLEM

In the food industry, cereal grains undergo multiple treatments before being used in the human diet as flour (wheat, rye...), starch (maize), beer (barley) etc.

In parallel from “noble” products, different “waste”, **by-products and declassified raw ingredients** (example, mediocre wheat) result from these operations. Their nutritive value is very variable.

This “waste” cannot be used in the human diet. **Animal nutrition is therefore an interesting exit route** for the cereal industry, which valorises and justifies their usage by sometimes debatable arguments.

As for the equine industry, contrary to animals that have a production (litres of milk produced, carcass weight etc.) **it is not as easy to be aware of the real impact of nutrition in the horse.**

The **principal indicator used by horse owners is body condition**. This criterion is **not at all a measure of the quality of a feed**, on the contrary. To understand, you only have to observe the growing problems of obesity in the human population, notably within the disadvantaged social classes eating cheap food.

**A horse is not a beast to fatten, but an athlete or a future athlete.
The problem is different.**

The **QUALITY** of a feed must be evaluated using **objective indicators** of the horses' **health**:

- Sequence of races during the year.
- Veterinary records (known health problems etc.).
- Blood tests.
- Etc.

However, **keeping in mind that the majority of horse owners still consider that a feed is of quality if it maintains their horses' body condition, a good number of approximations are permitted.**

WHEAT

The use of wheat to feed horses is possible providing that it is of good quality and only a small quantity is incorporated into the feed. However, the wheat available for animal nutrition is very often of bad quality (rejected by the human food industry) and if included in too large an amount (figuring in one of the first positions on the list of ingredients), we risk the appearance of health problems associated with the characteristics of this cereal:

- The **high gluten content** increases the risk of **obstructing the digestive tract** of the horse (oesophagus blockage etc.) and even digestive intolerance to gluten.
- **The important quantity of very fermentable starch** leads to gastric fermentations (microbial) which favour the appearance or aggravation of **gastric ulcers**.
- The high digestibility of wheat starch triggers an important production of insulin which can be at the origin of harmful disturbances for the horse: behavioural problems (excitement), the muscular metabolism (tying-up) and osteo-articular (disrupted growth) etc.

For all of these reasons we have chosen not to use this cereal.

CEREAL BY-PRODUCTS

BRAN, TEGUMENTS, MIDDLING'S, PODS...

Bran is a co-product from the transformation of wheat grains, mainly constituted from the envelopes (teguments) and particles of grain from which the major part of the flour has been removed.

Middling's are co-products from the transformation of wheat grains, starch fractions and husks, of which the proportions are bigger or smaller depending on their origin (white millings, etc.).

As for **Pods, husks** and **teguments**, these are the envelopes of the cereal or grain.

All these co-products are **very rich in phosphorus** and notably in **phytate phosphorus** (for example: Wheat bran = 1% of phosphorus of which 80% is phytate phosphorus) **which perturbs the assimilation of calcium and trace elements**. Furthermore, these fragments of cereal envelopes contain a more or less large quantity of **starch** (20% starch in wheat bran!) which is **directly exposed to air**. Because of the **important water retaining capacity** of the fibres they contain, there is a high risk of them becoming **rancid**, of **fermenting and of developing mould**. Finally, whilst in the field, the seed envelopes are susceptible to collect heavy metals and pesticides.

SPENT GRAIN

Wet brewer's grains from brewing or distilling run the risk of **spoiling quickly**. Thus, it is best to exclude them from horses' diets altogether. The cellulose content is close to that of bran although they are richer in protein, albeit of a **mediocre quality**.

MAIZE GLUTEN MEAL

This is a co-product from the extraction of starch from maize, which is defined as a low quality protein concentrate (60% crude protein), (poor in lysine).

Furthermore the high gluten content increases the risks of **digestive intolerance**.

LACTOSERUM

Lactoserum is a dehydrated co-product from cheese making. It is also called "whey", and is obtained after the caseins, which represent 80% of proteins in cows' milk have coagulated. Thus it is **principally composed of lactose** (sugars: 60 to 70% crude) and is **considerably less rich in protein than skimmed milk** (3.5 times less).

Thus, when **used for foals**, it contributes more to **weight gain** (concentrated lactose) than to the correct progress of his osteoarticular development (low protein level).

SUGAR BEET

MOLASSES FROM SUGAR BEET

Molasses is co-product from the crystallization of sugar from sugar beet. It has **binding properties**, that is to say it helps to hold feeds together. Nevertheless it also agglomerates dust in the production line, which is far from being ideal from the health aspect.

Furthermore, by increasing appetency it can hide the taste of unappetising raw ingredients. Also, "**the very high appetency of molasses should certainly not be a pretext to feed your horse bad quality raw ingredients**".

Lastly, being composed of fast sugars it possesses therefore a high glycaemic index, which makes it an ingredient potentially **ulcerogenic and disruptive to the glycaemia etc.**

SUGAR BEET PULP

Sugar beet pulp is a dehydrated co-product from sugar production obtained after extraction of the juice from the sugar beet roots. "It must be of perfect quality to enter into the diet of the horse, and then is **only suited to rustic breeds**" (Wolter 1999). Indeed, if badly stored, the high water retaining capacity increases the risk of it becoming **rancid, fermenting and becoming mouldy**.

VEGETABLE OILS

SATURATED OILS (PALM, COPRA, ETC.)

These are rich in **saturated fatty acids**. For example, palm oil is richer in saturated fatty acids than pork fat! Saturated fatty acids contribute to "**clogging up the organism**" as the body prefers to store them. In humans they are responsible for high cholesterol levels and are implicated in heart disease.

SOYA OIL

Soya oil is the **most widely produced oil in the world**. Even if it does have a certain nutritional interest, the manner in which it is extracted has dissuaded us from using it. Extraction is maximised by subjecting it to numerous pressings at **high temperatures** and using **different solvents**, the oil produced in this way is then refined.

Finally, the oil obtained is very often of bad quality: The fatty acids carry a strong risk of being denatured and becoming **harmful for the organism**.