READ A LABEL

How to know if a feed correctly meets the nutritional demands of your horse?

INFORMATION SUPPLIED BY LABELS

COMPOSITION

Ingredients are listed by their **decreasing level of incorporation** (the most to the least). In consequence it is recommended to avoid a diet made up of raw ingredients and/or by-products which we have previously mentioned, above all if they are featured in the first lines.

ANALYTICAL CONSTITUENTS

Only the display of certain constituents is obligatory: **crude protein, crude oils and fats, crude cellulose (fibre)** and **crude ash**. Mentioning other values is optional (except for particular cases) and engages the manufacturers' responsibility as to the indicated values.

Whilst the display of the analytical constituents is obligatory, it actually provides us with little information on the **quality of the ingredients**. Effectively, the same value for a given constituent can be obtained by using a by-product or a noble raw ingredient. For example, distillers' spent grains, dehydrated co-products from the fabrication of ethanol contain the same quantity of crude protein as skimmed milk powder, that is to say 34% crude. However the quality of the proteins is far from being identical...

To be aware of the true nutritional value of a feed, we must use the levels of essential nutriments: starch, omega 3 and 6, lysine, etc.

To demonstrate, we have created a feed (fictive and non-commercialised) based upon by-products and declassed raw ingredients ("BY-PRODUCT" FORMULA) of which the obligatory analytical values are identical to ADULT ENERGY (Refer to the labels on page 76).

Victory is prepared at mealtimes too.

	ADULT ENERGY				
	FR - Aliment granulé pour chevaux adultes au travail.	GB - Pelleted feed for adult horses at work.			
1)	Composition : Orge, Avoine, Luzerne 17 cheval, Graines de lin extrudées, Maïs sans OGM*, Tourteau de soja sans OGM*, Sépiolite, Lithotamne, Phosphate bicalcique, Oligo-éléments, Vitamines. * Garani à 99 1% - Céréales d'origine françase Constituants analytiques Humidifé Humidifé Matières grasses brutes 2 millouise brutes Proteines brutes 95 % Cendres brutes Calcum 1 % Phosphore 0.5 % Maidrées grasses brutes 3 % Cendres brutes 9.5 % Calcum 1% Phosphore 0.5 % Maine Surge sesenties (Mg) 0.4 % Vitamine A 15000 Ul Vitamine B. (Mg) 15000 Ul Vitamine B. (Mg) 15000 Ul Vitamine B. (Mg) 10.5 g Acides inolénique (Omega 3). 10.5 g Acide saminés (Mg) Vitamine B3 (Po ou naiche). 200 mg Vitamine B3 (Po ou naiche). 00 mg Vitamine B5 (acide pantothénique). 0.5 mg Vitamine B6 (acide folique). 0.5 mg Vitamine B6 (acide folique). 0.5 mg	Composition : Barley, Oats, Alfalfa 17, Extruded linseed, Maize without GMO*, Sepiolite, Lithotamnion, Dicalcium phosphate, Trace elements, Vitamins. * duranteed 99.1 % - Cereals of french origin Nutrient analysis (kg) Humidity 11.5 % Crude protein 21 % Crude fore 5 % Crude diand fats. 5 % Crude fore 5 % Calcium 1 % Phosphorus 0.5 % Magnesium 4 % Carbohydrate (kg) 15.5 % Starch + sugar. 370 g Linolenic acid (omega 3) 10.5 g Linolenic acid (omega 6) 10.5 g Vitamin B2 (ribofavin) 20 mg Vitamin B2 (ribofavin) 20 mg Vitamin B2 (ribofavin) 20 mg Vitamin B5 (pantothenic acid) 20 mg Vitamin B2 (ribofavin) 20 mg Vitamin B5 (pantothenic acid) 20 mg Vitamin B5 (pantothenic acid) 20 mg Vitamin B6 (pontoxyne) 10 mg Mano acids (kg) Vitamin B6 (pontoxyne) 10 mg Vitamin B6 (pontoxyne) 10 mg Threonine			
	Conseils d'utilisation - Pour plus de détails voir fiche technique Densité : 1 L = 700 g Quantités pour un cheval de 500 kg, nourri avec du foin de prairie à volonté, une pierre de sel et de l'eau propre à disposition : 2.8 kg (4 L) à 5.6 kg (8 L) par jour, de préférence en 3 repas. Donner 4 L maximum par repas. Conserver dans un endroit sec, à l'abri de la lumière, à une température comprise entre 5 et 20° C.	Instructions - For more details, consult the technical datasheet Density : 1 L = 700 g Quantities for horses of 500 kg fed ad-lib quality hay with free access to a pure salt block and clean water. 2.8 kg (4 L) to 5.6 kg (8 L) per day, preferably in 3 feeds. Feed a maximum of 4 Lper feed. Keep in a dry place, protected from light, at a temperature between 5 and 20° C.			
4	SARTILLY INDUSTRIES SARL ZA des Mesnils - 50520 - Juvigny Le Tertre Tel : +33 2 33 91 35 60 www.reverdy.fr FR50323001	Poids: 25 kg Date fin de validité: Dateperempt Numéro du lot: NUMLOT Calculcodebarrel NUMLOT X XXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX			

(1) Very important

Ingredients are cited by their decreasing level of incorporation (from the greatest amount to the least). Reverdy feeds contain NO BY-PRODUCTS.

- The quality of our nutriments is regularly verified by independent laboratories.
 Guaranteed values, from certified suppliers.
- 3 Our commitment towards quality at every level: - Careful following of our raw ingredients. - A certified manufacturing process.

QR Code read using your smartphone to directly access the technical data sheet for that feed.

(5) An irreproachable traceability, from the arrival of raw ingredients until delivery to our customers.

COMPARATIVE STUDY OF TWO FEEDS

HUMIDITY

Providing it does not exceed 14% crude, it is not obligatory to display the humidity level. However this value is important as it translates the foods' aptitude for preservation. **The more humid the feed is, the lesser it will be preserved.**

CARBOHYDRATES

The "BY-PRODUCT FORMULA" is composed of wheat starch (contained in the wheat grains and in the bran), very fermentative and digestible. Furthermore, because of the addition of molasses, it contains 2.5 times as many simple sugars as ADULT ENERGY. To sum up, this feed is **rich in fast** to moderately **sugars** which are:

- Very fermentative, which increases the risks of appearance of gastric ulcers.

- Highly digestible, thus a high glycaemic index, from which there is a non-negligible risk of the following health problems appearing: tying-up, behavioural problems (excitability etc.), hormonal problems (equine metabolic syndrome, Cushing's disease etc.), laminitis, osteo-articular problems (OCD etc.). Furthermore, the massive arrival of sugar in the bloodstream after the meal will lead to the storing of sugars. This storage will take the form of fat giving the horse corpulence.

= A deception, because the horse looks normal, but it results more in the clogging of its organism rather than in its good health.

On the other hand, ADULT ENERGY is mainly composed by barley starch, slow releasing and not as prone to ferment. It is associated with maize and oat starches which are more digestible but present in smaller quantities. As for simple sugars, it contains only those naturally present in the raw ingredients. To sum up, ADULT ENERGY principally provides slow releasing sugars, protecting carbohydrate metabolism, whilst at the same time favouring the storage of energy into the muscles. It is therefore more **favourable to performance and limits a surcharge in fat**, ensuing a more harmonious morphology.

PROTEINS

The principal protein sources of the "BY-PRODUCT" FORMULA are, in decreasing order: wheat bran, maize gluten meal and distillers spent grains. Although the crude protein content is identical to ADULT ENERGY, this feed contains **30% less lysine and 25% less threonine**. So, even with an identical crude protein content to ADULT ENERGY, 5.5 kg of this feed + 8 kg of ordinary hay **does not cover the daily requirements in lysine and threonine for a 500kg adult horse in very hard work**: It provides 46.5g of lysine for a daily requirement of 54 g (INRA 2012). Furthermore, given that protein synthesis is carried out to the extent of lysine supply, as lysine is the most limiting amino acid (see the chapter "proteins", the diagram of the bucket), use of other amino acids cannot be fully optimised. **They must be eliminated by the emunctory organs (liver, intestines, kidneys, skin, etc.) which, yet again, burdens the organism.**

Regarding ADULT ENERGY, the principal protein sources are by decreasing order: alfalfa 17 (horse), soya bean meal 48 and extruded linseed. This association creates a feed containing **good quality protein**. Effectively:

- Satisfactory lysine content compared to the crude protein level.
- Feeding 5.5 kg of ADULT ENERGY + 8 kg of ordinary **hay meets the lysine requirements of a 500 kg adult horse in very hard work**: supplies 54.5 g of lysine for a daily requirement of 54 g.

LIPIDS

Only 24% of the total fat and oil content of the "BY-PRODUCT FORMULA" are omega 3s and omega 6s, the greater part of the rest is made up of saturated fatty acids found in palm oil. Furthermore the omega3/omega 6 ratio is equal to 0.1. To sum up, the fats and oils contained within this feed are **unfavourable to the good health of the organism**. Effectively:

- The part omega 3 + omega 6 is insufficient.

- The omega 3/omega 6 ratio is too low, the objective is to be higher than 1.
- The feed is high in saturated fatty acids, which are stored in priority, facilitating corpulence.

= A deception, because the horse looks normal but it results more in the clogging of its organism rather than in its good health.

Concerning ADULT ENERGY, omega 3s and omega 6s represent 55% of the total fat and oil content, thus more than a half. In addition the omega 3/omega 6 ratio equals 1.1. To sum up, the fats and oils contained within this feed **favour the good** health of the organism (immunity, fertility, regulation of inflammation, etc.). Effectively:

- Omega 3s + omega 6s make up a big part of the crude oil and fat content.
- The omega 3/omega 6 ratio is greater than 1 thanks to the extruded linseed.
- This feed is low in saturated fatty acids.

MINERALS

The "BY-PRODUCT FORMULA" is mainly composed from cereal envelopes, **rich in phytate phosphorus**. For example, wheat bran contains 3 times the phosphorus and 4.5 times the phytate phosphorus as barley or oats. Phytate phosphorus limits calcium and trace element absorption.

In consequence, horses that eat the "BY-PRODUCT FORMULA" can be susceptible to suffer from **assimilation deficiencies** of some minerals although the feed itself provides satisfactory quantities.

TO SUM UP

A healthy and balanced diet provides all the nutriments indispensable to the correct functioning of the organism whilst limiting clogging-up (liver, kidneys, intestines etc.). Thus, it favours performance and allows your horse to maintain its good health in the long term.

TO SUM UP

There can be the same quantity of proteins, lipids and carbohydrates but **raw ingredients quality is very different!**

PROTEINS	
"BY-PRODUCT FORMULA"	"ADULT ENERGY FORMULA"
Wheat bran	Alfalfa 17 (horse)
Maize gluten meal	French soya bean meal without GMO
Distillers spent grains	Bleu Blanc Cœur extruded linseeds

Optimal daily requirement of lysine (for a 500 kg adult horse in work) = 54 g

For 5.5 kg of feed + 8 kg of hay / day:	
46.5 g	54.5 g

In the "by-product formula" there is 30 % less lysine and 25 % less threonine

LIPIDS	
"BY-PRODUCT FORMULA"	"ADULT ENERGY FORMULA"
Omega 3 & 6 = 27.5 % of fats Rest is palm oil!	Omega 3 & 6 = 55 % of fats

Goal: omega 3 / omega 6 ratio >= 1



CARBOH	YDRATES
"BY-PRODUCT FORMULA"	"ADULT ENERGY FORMULA"
Wheat starch => Highly digestible thus very fermentative for stomach	Barley starch
	Maize and oat starches => more digestible but present in smaller quantities
Addition of MOLASSES = SUGAR => 2.5 times as many sugar as Adult Energy	No simple sugar
 FAST SUGAR: ✓ Increases the risks of appearance of gastric ulcers ✓ Very digestible = high glycaemic index => "tying-up", behavioural problems (nervosity), hormonal problems, etc. ✓ The storage will take the form of fat => overweight 	SLOW SUGAR: ✓ Favourable to performance ✓ Limits a surcharge in fat

COMPARISON WITH THE HUMAN DIET:

A hamburger, pizza or hotdog can contain the same amount of protein, fat and energy as a plate of fish, olive oil, brown rice and green beans.

Two different diets, two different effects on our organism and our health...

A comparison with human diet is presented next page.

FLAKES:

> Increase digestibility thus glycaemic index of cereals.

TOO MUCH FLAKES =

- Overweight
- Development of gastric ulcers
- Behavioural problems
- Muscular problems
- Metabolic problems

We strongly advice against flakes in breeding! (for broodmares in gestation and also young growing horses). They favour the development of osteoarticular disorders in young horses.

We advise using flakes with moderation, only on specific situations. (ex: horses in hard work which require high energy).

"FAST FOOD" MEAL







100 g of chips

burger

Caramel ice cream



"BY-PRODUCT" FORMULA

COMPOSITION

Wheat, Wheat bran, Buckwheat hulls, Molasses, Dehydrated sugar beet pulp, Distillers spent grains, Lithotamnion, Palm oil, Sepiolite, Maize gluten meal, Dicalcium phosphate, Trace elements, Vitamins.

ANALYTIC CONSTITUANTS

Humidity	12.5%
Crude Protein	12 %
Crude fats and oils	4%
Crude fibre	9.5%
Crude Ash	9%
Calcium	1%
Phosphorus	0.5%
CARBOHYDRATES / KG	
Starch	290 g
Starch and sugars	350 g
ESSENTIEL FATTY ACIDS / KG	
Acid Linolenic (Omega-3)	1 g
Acid Linoleic (Omega-6)	10 g
AMINO ACIDS / KG	
Lysine 3	,650mg
Threonine 3	,350 mg
Methionine 1	,950 mg

A "Fast Food" Meal contains the same quantity of Fats (33 g) and Proteins (24 g) than a balanced meal. However, how many athletes would choose the first meal?

"ATHLETE" MEAL



80 g of makerel



100 g of brown rice



100 g of green beans



1 spoon of nut oil (10 g)

2 spoons of sour cream



= Calories: 605 Kcal

Fats: **33 g**

Proteins : 24 g

ADULT ENERGY FORMULA

COMPOSITION

Barley, Oats, Alfalfa 17 (horse), Maize without GMO*, TRADI-LIN extruded linseed, French soya bean meal without GMO*, Sepiolite, Lithothamnion, Dicalcium phosphate, Sodium Chloride, Trace elements and Vitamins. * Guaranteed to 99.1% - French produced cereals

ANALYTIC CONSTITUANTS

Humidity	11.5 %	
Crude Protein	12 %	
Crude fats and oils	4%	
Crude fibre	9.5%	
Crude Ash	9%	
Calcium	1%	
Phosphorus	0.5%	
CARBOHYDRATES / KG		
Starch	340 g	
Starch and sugars	360 g	
ESSENTIEL FATTY ACIDS / KG		
Acid Linolenic (Omega-3)	10.5 g	
Acid Linoleic (Omega-6)	10.5 g	
AMINO ACIDS / KG	-	
Lysine	150 mg	
Threonine 4,8	500 mg	
Methionine 2,0	000 mg	