



# Ranvet

## HORSING AROUND

### **DEFINING AND APPLYING COOL FEEDS**

Most horse owners find out the hard way that their horse is sensitive to a grain based ration. With this in mind, horse feed manufacturers have developed a significant market for 'cool' horse products which is evident when walking into your local produce store. However, does the labelling 'cool feed' mean just that? By examining what qualifies a product to be labelled a 'cool feed', horse owners will be able to make more informed decisions when purchasing their feedstuffs, benefiting both horse and owner.

#### **Starch**

Starch is essentially glucose molecules bonded together in bundles, providing one of the primary energy substrates for exercising horses. The higher the amount of unprocessed starch contained in a diet, the greater risk of hyper-energetic behaviour and in some cases, metabolic disturbance. The problems associated with starch based rations are two-fold; the enzymatic breakdown of starch produces glucose which enters the bloodstream providing stimulus for hyper-energetic behaviour, commonly seen when starch provision does not suit exercise intensity. While further along the digestive tract, undigested starch may overflow into the hindgut, the fermentation of which can lead to hindgut acidosis which instigates an array of problems, one of them being an unbalanced hindgut population.

*The gastrointestinal tract of the horse has evolved to primarily digest and utilise fibre and has limited ability to digest starch.*

### **Starch Digestion**

*Mouth-Mechanical breakdown of starch molecules (chewing).*

*Stomach - Gastric acid digests small quantities of starch.*

*Small intestine - Primary site of starch digestion completed by enzymes secreted from the pancreas.*

*Hindgut- Undigested starch passes into the hindgut and is fermented by hindgut microflora leading to hindgut acidosis. As feed manufacturer's are aware of the potential deleterious effects of excessive starch consumption on horse behaviour, the limiting of starch in horse feed products provides owners with the reassurance that their feed selection will not lead to unpredictable or unruly behaviour.*

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## What makes a 'cool feed' cool?

In general, raw starch from unprocessed grains will increase the incidence of hyper-energetic behaviour, particularly in horses with a natural predisposition to erratic behaviour. Processing methods such as micronisation and extrusion act to disrupt the starch molecules present in grain, rendering the glucose units more available for digestion. Careful monitoring of processed grain intake would be advised, as feeding excessive amounts can be detrimental due to processed grain in the hindgut fermenting at a faster rate than un-processed grains.

## Why do horses need starch?

When digested and absorbed as glucose molecules, the release of insulin is stimulated, promoting the removal of glucose from the bloodstream, stored as muscle glycogen. High intensity activities such as galloping or sprinting have a high reliance on stored muscle glycogen. Additionally, in growing horses rations, starch is necessary to stimulate skeletal growth however, high levels of starch can have an adverse affect on cartilage development and skeletal growth such as developmental orthopaedic disorders (DOD's). When examining the bag of a 'cool feed' product pay careful attention to the ingredients listed and not the well-designed packaging.

### Acceptable 'cool' feed ingredients and their starch content:

**Soybean and lupin hulls;** Known as 'super fibres' which contain approximately 90% of the energy of cereal grains and contain very little or no starch (0-2%). The addition of oil to soybean or lupin hull rations will provide a low starch ration suitable for horses prone to a variety of metabolic syndromes such as laminitis, 'tying up' or have been diagnosed with Insulin Resistance (IR) or Equine Cushings Syndrome (ECS).



**Millmix, millrun or grain by-products;** Comprised of bran and pollard, millmix is a by-product of milling grain (wheat, triticale or rye) for flour. Starch levels can vary from approximately 2-20% (average approx. 14%) due to processing. The main drawback of millmix is the low level of calcium, therefore ensuring the feed has adequate calcium fortification to provide an appropriate calcium to phosphorus ratio is crucial.



**Copra meal;** A by-product of coconut oil production, consists of the white part of a coconut after undergoing heat treatment and being pressed for oil extraction, containing very low starch levels (<2%).



**Rice bran;** A by-product produced by milling the outer layer of brown rice into white rice. Contains low levels of starch (approx. 20%) and very high oil content (approx. 15-20%).



**TAKE HOME MESSAGE:**  
Monitor processed grain intake and ensure you know exactly what is present in the feed by examining the ingredients. If you are uncertain of any ingredient, contact your nutritionist or veterinarian for verification.

**NEXT MONTH;  
Metabolic syndromes;  
Is there cause for concern?**

**Ranvet's Nutritional Consultation Service for your horse's every need;**

- Customised diets
- Vitamin & electrolyte requirement
- Correcting metabolic disturbance
- Energetic demands
- Growth & development needs

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