MILK REPLACERS: Wheat ingredients for advanced efficacy

When it comes to quality and composition of feed, farmers focus on economically viable solutions that will help young animals grow and reach their full performance potential. Crespeo's wheat-based ingredients help feed producers best meet the needs of those farmers: ensuring optimal nutrient supply, necessary hygiene and product safety, and practicable handling that guarantees consistent quality.

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After the colostrum phase, calves receive different dietary nutrition, depending on whether they will be used as dairy cows, for meat production or for veal fattening. Therefore, targeted feed applications are required.

Individual differences in nutrient composition take into account the physiological characteristics of different breeds, as well as the husbandry system of the respective farm and the targeted daily gains.

Feed must be well tolerated

All feed, however, must be easy to handle and, of course, well tolerated and accepted by the calf. Crespeo offers wheat-based protein components and cold swelling pregelatinised flours that optimise the production of youngstock feed, and improve the quality of the end product.

Thanks to expertise in wheat ingredients spanning more than 160 years, Crespeo's parent company Crespel & Deiters Group is able to support product development for both pet food and feed applications, and human nutrition solutions.

Early life nutrition lays the foundation for long-term effects on animal health and profitability. For ruminants at this stage a healthy digestive system and effective milk production is determined. Besides trace elements and vitamins, a balanced supply of macronutrients such as carbohydrates and proteins is of great importance.

Studies have shown that calves tolerate and convert plant-based protein contents in hybrid milk replacers without negative impact on health or weight development.

Hydrolysed protein and extruded flours

Hydrolysed ingredients such as Crespovit Protein, containing more than 82.3% (Nx6.25) proteins, are suitable for enriching milk replacers with valuable plant-based components.

It is characterised by very good dispersibility even in cold water; at a pH value of 6.2, the solubility is ›60%. Despite the high protein content, no solids settle in the end product and no foaming occurs, so the homogeneity of the end product is assured. Furthermore, extruded wheat-sourced flours score highly as a nutritional supplement with added value. In addition to readily available carbohydrates, which support the targeted daily weight gains of the calves, Crespovit Flour contributes to the optimal viscosity of the formulation at a recommended use rate of 5-15% in milk replacers.

Like the protein component, the pregelatinised flour reacts optimally with water (solubility ›25%) and has a very good water-binding capacity in a ratio of 1:6.

The flour prevents lump formation as well as sedimentation of individual components. Due to inactivated enzymes, liquefaction is restrained. Crespovit Flour is highly digestible and enriches feed with important nutrients because up to 77% of its starch content has already been enzymatically broken down.

Failure-free nutrient intake

Both Crespovit Protein and Crespovit Flour can be added to cold or heated water. This supports easy handling, because mixing does not rely on the maintenance of an exact temperature. Due to an appealing, milk-like consistency and colour, young animals tolerate these hybrid products containing Crespeo's wheat-based ingredients very well.

All wheat-based ingredients of the Crespovit range are neutral in taste and smell, with no bitter off-flavours which may affect the animal's appetite. The hydrolysate and the extrudate result in a homogeneous mixture, ensuring constant and failure-free nutrient intake.

Advanced processing technology

Although wheat is one of the oldest cultivated plants, new processing techniques allow for new applications and ways to optimise finished products. Thanks to specific modification, hydrolysed proteins and the extruded flours promise multiple beneficial properties.

Crespovit Protein has a modified molecular structure achieved by enzymatic hydrolysis that results in excellent water solubility. Wheat gluten essentially consists of the protein fractions glutenin and gliadin.

The unmodified gluten – often referred to as vital wheat gluten – forms its characteristic network in aqueous systems, with rather hydrophobic protein sections directed inwards and the rather hydrophilic ones outwards. This is how water-repellent agglomerates are formed, giving doughs a viscoelastic structure. In hydrolysed protein, however, the molecular chains are enzymatically shortened, so there is no agglomeration. On the contrary, it dissolves easily in water, with no gel or lump formation.

Extrusion has become one of the most important and future-oriented process technologies in the food and animal feed industries.

During this physical process, the flour is pressed through a defined opening at high pressure and temperature, and thus specific properties are achieved.

Extruded wheat pregelatinised flours such as Crespovit Flour stabilise various feedstuffs and are therefore ideal binders and carriers for fat-containing products.

Safety and functionality

The Crespel & Deiters Group only processes EU wheat, which is strictly controlled and guaranteed to contain no chemical residues or genetically modified plants.

Over 300,000 tonnes of the raw material are turned into functional ingredients for optimising food, pet food and feed every year.

Product safety is of the utmost importance and the company can rely on years of experience with hygiene concepts and processing. Various measures are taken to ensure best quality during storage and application in agriculture.

By sterilising the flour, microbiological activities are avoided and contamination with pathogens is minimised. The feed is thus preserved in a completely natural way.

Naturally enhanced products

While price pressure on animal products has been an issue for years, farmers are under increasing pressure to combine economic and ecologically sound practices.

With the use of natural, sustainable and GMO-free ingredients from Crespeo, manufacturers of animal feed can rely on functional added value that leads to an optimised end product without the use of synthetic additives. ■

References are available from the author on request