



Moisture Management Programs with enhanced Feed Mill Efficiency in Animal Feed

[Moisture management](#) often not valued but plays a vital role in defining feed producers' profitability. Even distribution and absorption of moisture can prevent uncontrolled microbial load growth, supporting pellet quality and feed utilization while reducing production process loss and shrink. Moisture is a significant factor in determining high-quality pellets in animal feed.

Moisture-Related Challenges in the Feed Milling Process:

The moisture content of feed is variable and, in most cases, altered during the feed milling process. Moisture loss is problematic for producers and end users, significantly impacting nutrient distribution, inventory loss, feed costs, yield, and profitability.

Addressing moisture loss is not as simple as adding moisture back into the feed mixing process. Water has high surface tension, often resulting in poor absorption by feed if added directly, allowing water to flash off in the press and cooler or remain free.

Uneven or incomplete water absorption in feed causes issues such as low pellet quality, nutrient segregation, and spoilage. High and low moisture content in feed is problematic. High moisture reduces throughput, increases the energy required by the pellet making process leads to feed spoilage and creates dense brittle pellets. However, low moisture reduces yields, increases fines, nutrient over formulation and easily broken pellets.

Proper moisture management helps in good quality pellet and feed utilization, reduces process loss, prevents feed spoilage, and improves batch yield through reduced shrink. Effective moisture optimization and management in feed requires the producer to examine the factors impacting moisture level throughout the feed mixing and pellet-making process.

Moisture Assists the Pellet-Making Process

Moisture is vital to diets and is critical in the pellet-making process. Adequate moisture supports the binding of feed particles, gelatinization, pellet quality, mill energy consumption and profitability. High moisture can cause choked and reduced throughput within the mill, leading to heightened energy consumption and excessive microbial growth. In contrast, low feed moisture results in brittle pellets that lead to increased fines and poor feed utilization on

the farm. In poultry feed, evidence supports that improved physical feed quality maximizes FCR, reduces mortality, improves animal yields, and helps manage excess feed costs.

[Fylax Forte-HC liquid](#) is a liquid mould inhibitor with a synergistic blend of organic acids, as well as surfactants. This can significantly reduce press resistance and energy consumption, decreasing the risk of feed blockages at the pelletizer without increasing the risk of microbial growth during feed storage. Trouw Nutrition's liquid mould inhibitor Fylax Forte HC Liquid contains a patent pending technology, called **ActiProp®**; a blend of buffered and non-buffered organic acids combined with surfactants and emulsifiers to guarantee reduction, milling efficiency increase, nutrient value preservation and feed shelf-life prolongation. This solution has been proven in multiple commercial situations.

- The activated propionates technology increases the porosity of moulds' outer layers effectively eliminating moulds.
- The surfactants ingredient in [Fylax Forte](#) lowers the surface tension of water, ensuring an optimal distribution of the hydrating solution throughout the complete batch of mixed ingredients.

Benefits of Fylax Forte HC liquid:

- Activated propionates for effective mould control in feed.
- Prolongs shelf-life of raw materials, compound feed.
- Protects nutritional value.
- Helps retain moisture content and improving production capacity.
- Stable propionic acid recovery of >95% after extrusion
- Reduces fines %

Trial reports of [Fylax Forte](#) HC Liq has shown improved feed mill efficiency by reducing energy consumption in the pellet mill by 19%, increasing throughput by 20% in comparison to Product MC. Fylax Forte HC Liq outperformed in feed quality parameters, such as: PDI 6% better, 53% less fines collected at the bagging, increased shelf-life of 44% and reduced moisture loss by 62% after 2 weeks of storage.

Trial Summary

Application	Pelleted broiler finisher feed	Objective	Feed Processing and moisture management
Product	Fylax Forte HC Liq, Product MC	Country & year	India, 2022
Inclusion rate	Fylax Forte HC liq 0.5 kg/t + 9 kg/t water Product MC 0.6 kg/t + 9 kg/t water	Type of trial	Field trial

Table 1: Trial design in Indian Feed Mill 2022

The trial was done at a feed mill with a production capacity of 110,000-ton poultry feed annually. The effect of Fylax Forte HC liq was assessed in comparison to Product MC. Product functionality was evaluated in a standard broiler finisher recipe. Both treatments were applied as a hydrating solution (Table 1) via Selko’s Moisture Dosing System (MDS) installed at the feed mill. The MDS is a PLC controlled dosing system where water is combined with [Fylax Forte](#) HC liq in a pre-set ratio in an integrated tank to be used as hydrating solution. The precise dosing is ensured by an electromagnetic flow meter. The hydrating solution was sprayed using flat spray nozzles into the mixer direct to the mash feed. The hydrating solution was added after dry mixing and before adding oil. For each treatment 5 replicates of 2 tons were pelleted. The production parameters (throughput, energy consumption, pellet mill capacity) were measured and the average calculated after stabilization (the first and last readings were ignored). The pellet quality parameters (PDI, % of fines, moisture retention, and shelf life) were also measured from the feed collected at the bagging point (Table 2). For moisture retention the feed was stored in 60 kg bags, closed by stitching for two weeks, with weekly weight check for moisture loss check.

PARAMETERS	Final Feed Moisture (%)	Pellet mill throughput (t/h)	Energy consumption (kWh/t)	Pellet mill utilization (%)	Fines (%)	PDI	Accelerated shelf life (stress days)	Weight loss during storage (2 weeks, kg)
Product MC 0.6 kg/t + 9 kg/t water	12.4	7.9	18.3	53	5.27	64	9	0.39
Fylax Forte HC liq 0.5 kg/t + 9 kg/t water	12.5	10.0	14.8	66.5	2.48	68	13	0.15
% Difference (Fylax x MC)	-	+ 21	- 19.2	+ 20.3	- 52.9	+ 5.8	+ 44	- 61.5

Table 2: Comparison of Fylax Forte HC liq and Product MC

- In summary, reducing the energy usage of a feed mill producing 110,000 ton/annual by 12%, would result in a saving of Rs 15 lacs approx. annually in energy cost and the increased capacity would give additional 11,000 ton each year. Furthermore, [Fylax Forte](#) HC hydrating solution improves feed quality parameters and extends its shelf life.

(Sources: Trouw Nutrition - Internal Field Trials)

For further information, kindly write to us at customercareindia@trouwnutrition.com or visit our website: <https://www.trouwnutritionasiapacific.com/en-in/>

