

Bentoli® CONNECT

Issue: May 2020

Inside News

BENTOLI® INTRODUCES Metostim® IN THE INDIAN MARKET

In March 2020, Bentoli® India organized a launch program for its Metostim® in Hyderabad. Metostim® is a global brand of Bentoli® a research-based unique metabolic stimulant and growth promoter in multiple species. Metostim® is powered by 18 essential and non-essential amino acids, 14 vitamins, trace minerals, electrolytes, osmo-regulating factors, plant extracts, Prokura® probiotic and energy enhancers.

Metostim® is uniquely designed to build and strengthen digestive system and potentiated with highly assimilable amino acids, vitamins and other essential nutrients for faster growth and performance. We, Bentolians feel happy to share some candid moments of the Metostim® Launch programme.



Unveiling of innovative Metostim® pack by a few members of the team



Team photograph exhibiting the goodness of Metostim®



1 Kg Canister

1

Metostim® is an unique metabolic stimulant and growth promoter in multiple species.

2

Pellet feeding influences the feed consumption

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COVID-19, An opportunity to re-think

Pellet feeding influences the feed consumption and performance of the flock

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The performance of commercial broilers not only depends on balanced nutritional diet, but also is greatly influenced by form of feed. It is found that pellet feed significantly influences the performance of the flock because of several reasons-

Feed form comprises of two distinct elements, first the microstructure, that describes the particle size and uniformity and, secondly the macrostructures that describes pellet size, hardness, and quality. These two factors are linked as all feeds are first reduced to particle (mash) before are pelleted. Feed is the link factor between formulator(nutritionist) and farm. So, not only nutritional value is important but also delivery of those nutrients through quality feed is equally important.

Grinding the feed ingredients into finer particles is key factor to start quality pellet manufacturing. Particle size should be so fine that may impact digestibility of feed. Small particle size of feed

Diet particle	Nitrogen retention	Dry matter retention
µm	%	%
561	50 ^c	72 ^c
783	57 ^b	75 ^b
997	59 ^a	77 ^a
Probability	0.001	0.001

In a study given in **Table-1** (Krabble,2000) it is found that nitrogen retention and dry matter retention were significantly improved on metabolic response of 7 days older broiler.

Table-2 shows the impact of particle size in feed on economic and tissue characters of broilers

Parameter	Particle size (µm)				
	337	574	679	777	867
Feed intake (g)	2412 ^b	2414 ^b	2444 ^{ab}	2604 ^{ab}	2623 ^a
Weight gain (g)	1430 ^b	1529 ^{ab}	1543 ^{ab}	1569 ^a	1613 ^a
FCR	1.69 ^a	1.58 ^b	1.59 ^b	1.66 ^{ab}	1.63 ^{ab}
Gizzard weight (g)	26 ^d	36 ^{bc}	35 ^c	41 ^{ab}	42 ^a
Breast weight (g)	466	486	491	484	501
Leg weight (g)	470 ^b	513 ^a	496 ^{ab}	501 ^{ab}	509 ^{ab}

causes gizzard atrophy and intestinal hypertrophy caused by bacterial fermentation

When particles are large, breakdown of feed particles at proximal small intestine will be slower. Gizzard is the pacemaker of GI tract. When finer feed is given, gizzard acts as a transit rather a grinding organ. Less retention in gizzard leads to less exposures to proventriculus enzymes. It is found that finely ground diet (560µm) compromised nutritional metabolism as particle size affecting ME, nitrogen retention and DM retention. If the particle size is small (< 800 micron) feed intake is significantly reduced. On an average, a reduction of mean particle size of 100 micron will lead to a decreased feed intake of 4%

If the feed particles are too coarse, it makes it difficult to mix a homogenous diet and feed selection. The best performance is obtained with the medium size particles 1.13 mm to 1.23 mm. it is true that a more coarsely ground maize leads to improved nutrient utilization by the birds and this remains the case when after pelleting, although the pellet press will regrind many of the larger particles. Roller mill tends to produce particles evenly distributed across a weight range, whereas hammer mill tends to produce a greater proportion of fines and coarse particles.

Diet particle size positively influences the performance and organ and tissue growth of 21-72-day old broilers(Magro and Penz,1998). Feed wastage tends to be higher when mash feeds are fed. In addition, the bird covers each with mucin before swallowing, which needs both protein and energy.

Nowadays most of the broiler feeds are fed in pelleted form. Injecting steam into the feed during conditioning and subsequent pressing through pellet die improves pellet durability. It is now well-established commercial activity to manufacture and offer pellet feed in commercial broilers because of following reasons-

- Feed homogeneity is improved because feed separation is greatly reduced
- Less feed is wasted when pellets are fed
- Pelleting should slightly improve the energy value through the chemical changes brought about by heat moisture and pressure
- Much of the improvement is measured energy value of pellets results from the fact that birds spend less time eating them and so their energy requirement for eating and digestion is reduced. Although pellet size may play a role in feed intake.

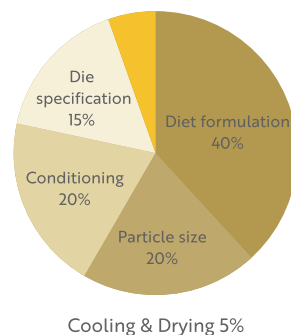
Table-3 showed behavioural changes of chicken (21-28 days) when fed mash of pellet feed (Jensen et al., 1962)

	Mash	Pellet
Number of meals per day	35	27
Length of meals (mns)	2.9	103
Consumption per meal (g)	1.1	104
Time spent eating (Mins/ 12 hr)	103	34
Feed consumed (g/ day)	38	37

Pellet quality depends on three major factors-

Formulation: Formulation plays a vital role in pellet quality but it is not the only factor. Ingredient composition like moisture percentage, fat percentage, protein percentage, starch content are important nutritional factors to be considered for good quality pellet production. Corn-soya diet is considered as the best formulation for getting better pellet quality. Dietary inclusion 10-15% of wheat or wheat middlings or addition of as little as 5% sunflower oilcake will result in good quality pellet. It is found that addition of 1% oil in diet reduces pellet durability by 8-10%. Each 10% increase in fines is equal to about 0.016 kcal per kg reduction in energy.

It is quite evident that mash diet reduces average daily weight gain by 6% and FCR by 6-7% which is average 3-4 days of growing time.



Component	Physical Pellet Quality*	Explanation*
Fat	Added fat decreases pellet quality	Hydrophobic and lubricative nature affect binding pressure
Starch	Generally decreases pellet quality	Starch gelatinization positively affects pellet binding
Fibre (Insoluble)	Effect dependent on processing	Sufficient grinding and conditioning increase physical quality
Protein	Increases physical pellet quality	Protein denaturation positively affects pellet binding
Moisture	Increases physical pellet quality	Increases starch gelatinization and may increase protein denaturation

Apart from proximate values of feed ingredients, some other physical qualities like abrasiveness, pellet quality factor, colour and density impact on pellet quality and durability. Pellet quality factor (PQF) has a score from 0 to 10 where 0 predicts poor quality and 10 indicates good pellet binding quality. Abrasiveness factor of ingredient is just opposite to pellet quality factor. Lower the factor value higher is the binding capacity. Adding pellet binder in diet improves binding capacity and durability of pellet. There are several available options like synthetic polymer-based binder, natural resin-based binder, lignosulphonate and bentonite. But selection of best binder is very critical and should be based on

higher pellet quality factor and mode of binding. Synthetic resin has pellet quality factor 40 and can irreversibly bind at high pelleting temperature and conditioning moisture.

Processing equipment: quality and die capacity are important for good quality pellet. Compression length and diameter of the compression hole are important factors for deciding the pellet quality. If thickness of the die increases, then pellet durability will improve but inversely throughput of pellet will decrease. So, trading off these two factors are very important. Similarly die set up, cooler set up and screen set up are deciding factors for good quality pellet.

Processing standard: As discussed earlier, grinding and pulverization during milling is another deciding factor for good quality pellet. In commercial broiler below 300-micron particle size during grinding helps in better gelatinization during conditioning resulting into good durable pellet. Similarly standardizing the conditioning parameter like temperature, moisture percentage, steam injection and steam pressure, retention time are equally important.

Table-4 shows good quality and pellet size influences the economic traits of broiler while fed 11-35 days post hatch (Singh et al., 2012)

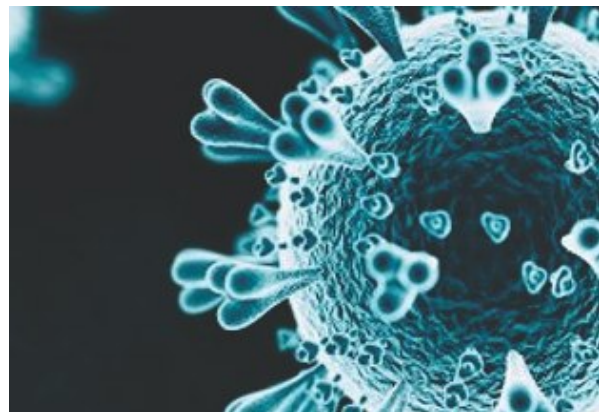
Pellet Diameter	Gain (g)	Feed Intake (g)	FCR
3.00 mm	1765	3171	1.809
4.76 mm	1856	3138	1.690
P Value	0.0001	NS	0.0001

Conclusion: During processing reduction of particle size is a significant influencing factor for better pellet quality and positively influences the performance of the birds. Formulation specially in terms of inclusion of certain feed ingredients are to be considered judiciously. Similarly standardization of processing equipment and process flow are equally important for pellet quality consistency.

COVID-19

An opportunity to “Re-think”, a perspective of animal nutrition industry

Global pandemic COVID-19 is showing its strength at every nook and corner of the world. Global economy is at brim and struggling to come out from this situation. Animal nutrition industry experts look at this crisis as an opportunity in future. Though like any other industries, animal industry is equally impacted at spike moment of global outbreak of COVID-19, but it is assumed to get back its position in economy faster than other industries. Being essential food items and need of animal proteins in regular diet, demand of egg, meat, milk and fish will continue. Though market volume may be reduced for the time being but there are certain positive changes bound to happen and as producers and stakeholders, we should look into these factors to fit in this whole ecosystem-



- Consolidation will be faster and oligopolistic situation will be evident at the farm produce level specially in poultry sector
- Supply chain will be very critical and there will be significant reduction of market share holding in wet market. Dominance of online players and modern trade will gradually increase. Social distancing and celebrity influencers will make paradigm shift in consumer's purchase behaviour.
- Food safety and quality standards will evolve as top priority and would be preferred. Better price tags on quality and hygienic standards would be accepted even in price sensitive market like India and other developing nations.
- Online and social media will be preferred choice for business communication, negotiation and business transaction.
- To manage social distancing, key account sellers and buyers will be more organized in sales & purchase decision flow. There will be paradigm shift on procurement based on country of origin.
- Consumer will be more concerned about the environment and will influence in wholesomeness of farm produces
- To improve general health and immunity, demand of quality animal protein will increase
- Some countries like Thailand, Vietnam already have seen COVID-19 as global opportunity and practicing global standard of operation and production has offered them leading position in exports of value-added animal products.
- As a short-term strategy to derisk the business, significantly large and medium size integrators (either regional or global level) have started to hedge the farm inputs which has shown a spurt of sales of certain commodities
- As a short-term crisis, availability of farm workers is very much prominent and may hinder the regular farm husbandry activities
- Business will trend to move more on better credit terms and secured nature.
- Govt involvement on MSME's & SME's upliftment will help to induct some funds to revive the industry will give the sector a boost.
- Companies only focusing on Animal Nutrition will also think on expansion of their product portfolio on other upcoming areas.

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