

Feeding trial

HP AviStart replaces meat and bone meal to move to all-veg diets



Summary

5% inclusion of **HP AviStart** day 0-14 and 3% inclusion of meat and bone meal (MBM) day 0-56 result in equal performance. Trial results indicate that **HP AviStart** is the best vegetable protein alternative to MBM in broiler chicken diets.

Objective(s)

To show that 5% inclusion of HP AviStart is the vegetable protein source of choice when replacing meat and bone meal (MBM) in starter diets for broiler chickens.

Results

- In starter diets balanced to be iso-nitrogenous on digestible AAs, use of HP AviStart at 5% inclusion both secure AAs to meet requirements while reducing the amount of SBM-delivered ANFs as not achieved by other vegetable protein sources (table 1).
- HP AviStart results in equally good performance as MBM evident by no significant difference in BWG and FCR between HP AviStart and MBM at the three significant market ages day 35, 42 and 56 (figure 1 and 2).
- HP AviStart numerically improved BWG by 0.200 and 0.230 lbs compared to CGM and DDGs day 0-56 (figure 1).
- ROI improves by 35.07 and 3.34 US\$ when including HP AviStart in starter diets compared to CGM and DDGs, respectively.
- The 3% inclusion rate of alternative protein sources is due to inconsistent product quality (e.g. fiber content and mineral content), and risk of footpad dermatitis and necrotic enteritis. Risks that are decreased with a 5% minimum inclusion of HP AviStart.



Image from Hamlet Protein database.
Not specific for this trial.



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HP AviStart reduces the content of anti-nutritional factors (ANF) in starter diets for broiler chickens

Table 1. Content of anti-nutritional factors (ANF) in the four starter diets.

ANF content, Starter diets	CGM (34.4% SBM; 3% CGM)	DDGs (35.2% SBM; 3% DDGs)	HP AviStart (29.7% SBM; 5% HP AviStart)	MBM (33.3% SBM; 3% MBM)
TI, mg/g	1.00	1.02	0.92	0.97
Stachyose+raffinose, %	2.68	2.75	2.35	2.60
ß-conglycinin, ppm	7,678	7,857	6,629	7,433

HP AviStart and MBM results in equal growth

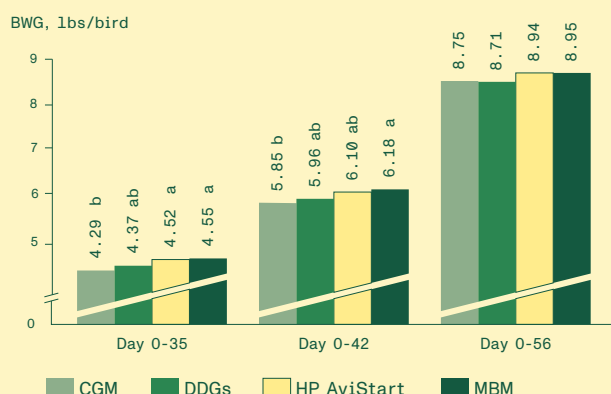


Figure 1. Body weight gain (BWG, lbs/bird) day 0-35, day 0-42 and day 0-56 of chickens fed starter diets where SBM was partially replaced by CGM, DDGs, HP AviStart or MBM. Different letters within period indicate significant difference ($p < 0.05$).

Improve FCR with HP AviStart

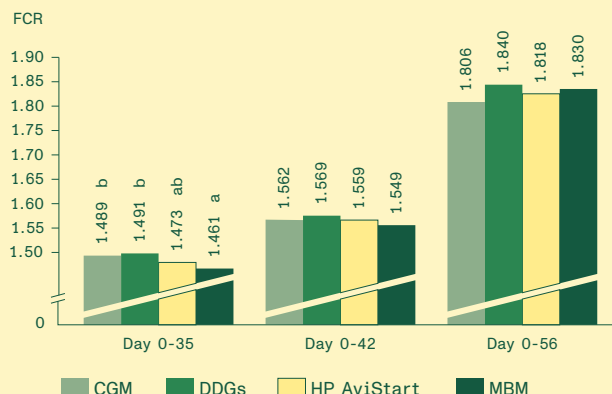


Figure 2. Feed conversion ratio (FCR) day 0-35, day 0-42, day 0-56 of chickens fed starter diets where SBM was partially replaced by CGM, DDGs, HP AviStart or MBM. Different letters within period indicate significant difference ($p < 0.05$).

HP AviStart improves ROI compared to other vegetable protein sources

ROI, US\$	Day 56
HP AviStart v. CGM	35.07
HP AviStart v. DDGs	3.34
HP AviStart v. MBM	-15.18

Table 2. Ingredients cost (US\$/ton): corn: \$157.00; SBM: \$325.00; soy oil: \$520.00; Ca carbonate: \$400.00; defflouri-nated P: \$375.00; Na bicarbonate: \$500.00; salt: \$125.00; vitamins & trace minerals: \$500.00; L-Lys HCL 78.8% : \$1,600.00; DL-Met 99%: \$2550.00; Choline Cl 50%: \$1020.00; L-Thr 98.5%: \$1,500.00; Xylanase: \$ 7,200.00; Phytase: \$5,100.00; corn gluten meal: \$640.00; corn distillers grain w/ solubles: \$175.00; meat and bone meal: \$350.00; HP AviStart: \$700.00 (this is a reference price. For price information please contact Hamlet Protein delegate or distributor in your country)

Materials and methods

680 day-old male Ross 708 broilers on day 0; 600 broilers at day 7.

10 replicates/dietary treatment, 17 birds/replicate on day 0; 15 birds/replicate on day 7.

4 treatments: 5% HP AviStart day 0-14; 0% HP AviStart day 14-56, 3% CGM day 0-56, 3% DDGs day 0-56, 3% MBM day 0-56.

Starter, grower, finisher and withdrawal diets were formulated to contain 1.2%, 1.07%, 0.96% and 0.88% dLys, respectively.

Power value of 80% by 10 replicates and a 2% difference in FCR.

Location

Colorado Quality Research, US, 2019.