

Bean Vine Meal in Chick Rations

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HIGH QUALITY bean vine meal in an all-mash chick ration compared favourably with clover leaf meal, as determined by chick weight at 10 weeks, feed consumption, feed efficiency and mortality. Low quality bean vine meal containing low protein and carotene should be avoided.

The poultry producer is constantly searching for feed ingredients which are readily available and will produce economical gains. The potential volume of bean vine meal and its chemical analysis suggested its possible use as a poultry feed ingredient to substitute in the rations for clover leaf meal.

The chemical composition of bean vine meal is controlled to a great extent by the age and condition of plants when they are harvested (Harris and Von Loesecke, 1960). Therefore, it was expected that chemical analysis would indicate some variations, due to the different harvests.

M a t e r i a l a n d M e t h o d s

The two meals prepared were processed from plants grown at Giza province in the springs of 1976 and 1977. The first meal was prepared from plants which were declining, the lower leaves had dropped off and the upper leaves had lost most of their chlorophyll. The second meal was prepared from plants when the beans were harvested for edible use. The bean vines were dehydrated in a commercial drying oven using over 180° for 60 min. The meal was prepared from the dried vines by passing the material through a hammer mill. The feeding trials were conducted using

the local Fayoumi breed. Three lots of 100 one-day old chicks each were used for each trial. The basal ration was an all-mash ration without clover leaf meal or bean vine meal as indicated in Table 1. Feed and water were available to the chicks at all times. The chicks were floor brooded for a duration of 10 weeks. The feed was analyzed for moisture, ash, crude fibre, crude fat, crude protein, calcium and phosphorus using the A.O.A.C. methods (1960). Carotene was determined by the method of Kimble (1939) as modified by Glick (1957).

Table 1 • Basal and Experimental Rations

Ingredients	%
Yellow corn	40
Ground wheat	15
Soybean meal	15
Wheat bran	10
Meat scraps	3
Fish meal	6
Yeast protein	7
Bone meal	2
Lime stone	1
Sodium chloride	0.75
Manganese sulphate	0.25
Total	100.00
Protein %	21.0

Experimental Ration No. 1 = Basal plus 6% Alfalfa leaf meal

Experimental Ration No. 2 = Basal plus 6% Bean vine meal

Experimental Ration No. 3 = Basal plus 9% Bean vine meal

Results and Discussion

Analysis of the bean vine meals is shown in Table 2. It is clear that the two meals differ in their protein, crude fibre, crude fat and calcium content. The carotene content is extremely different in the two meals prepared due to the presence of the leaves in the harvested plants.

Table 2 - Chemical Analysis of Bean Vine Meals

	Pro tein	Crude fat	Crude fibre	Ash	Ca	P	Caro tene	Mois ture
Low quality meal	7.79	3.53	14.79	10.02	2.33	0.21	1280	12.9
High quality meal	18.35	1.51	21.35	12.91	1.29	0.24	4776	10.7

Records of weight of chicks, feed consumption, mortality and general condition of the chicks were taken at weekly intervals. Results of the first trial are summarized in Table 3, with the results of duplicate pens combined. Feed efficiency and mortality data are given in Table 4.

A second trial was run in the same manner as the first trial with all chicks brooded in batteries, 25 Fayoumi chicks to each pen, duplicate pens for each ration, and given the same rations as in the first trial. Results are given in Tables 5 and 6.

The physical characteristics of bean vine meal were such as to make this product readily acceptable as a poultry mash ingredient. There appeared to be no difference in the ease with which it and alfalfa leaf meal could be incorporated in the mash. The mortality which occurred during the course of these experiments could not be attributed to the differences in feed. Much of the mortality experienced in lot 2 trial 1, occurred prior to the end of the second week. The high death losses during the second trial can be attributed to a sudden cold spell just after the experiment began.

Table (3): Average Weight per Chick -(in grams) at Start and at 10 Weeks, Trial 1

Lot	Initial All Chicks	10 weeks			All Chicks Adjusted*
		All Chicks	Cockerels,	Pullets	
1	36.46	812.28	882.63	736.68	809.66
2	36.40	682.43	765.87	614.86	690.36
3	35.86	721.92	770.70	659.19	714.94

Table (4): Mortality and Feed Consumption per Chick for 10 Weeks and Feed Efficiency, Trial 1.

Lot	No Chicks Started	Mortality	Percent Mortality	Av. Feed per Chick (Gms.)	Feed Efficiency
2	50	6	12.00	2,326.21	3.41
3	50	2	4.00	2,580.65	3.57

Table (5): Average Weight per Chick (in grams) at start and at 10 weeks Trial 1

Lot	Initial All Chicks	10 weeks			All Chicks Adjusted*
		All Chicks	Cockerels	Pullets	
1	42.36	867.62	970.00	769.50	869.75
2	42.07	879.24	980.65	797.28	888.97
3	42.66	886.89	959.38	807.82	883.60

Table (6): Mortality and Feed Consumption per Chick at 10 Weeks and Feed Efficiency, Trial 2.

Lot	No. Chicks Started	Mortality	Percent Mortality	Av. Feed per Chick (Gms.)	Feed Efficiency*
2	50	5	10.00	2,878.3	3.27
3	50	4	8.00	2,953.7	3.34

* Grams of feed for each gram of gain.

There was considerable difference in the performance of the chicks receiving the alfalfa leaf meal and bean vine meal in the first trial. The difference is explained by the rather poor quality bean vine meal used during this trial. There was no significant difference in chick performance on 6% alfalfa leaf meal or 6 or 9% bean vine meal during the second trial.

From the results of these trails, good quality bean vine meal would appear to be a satisfactory substitute for alfalfa leaf meal in chick rations. The wide variations in carotene and protein content of the various bean vine meals and the known requirement of chicks for these nutrients indicates that leaves low in chlorophyll and having excessive stems and other high fibrous residue should be avoided in the preparation of bean vine meal for chick rations.

References

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استخدام عرش الفول فى علائق الكتناكيت النامية

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المركز القومى للبحوث - معمل تغذية الحيوان والدواجن

استخدم عرش الفول المجفف صناعيا فى علائق الدجاج الفيومى النامى حتى عمر عشرة اسابيع وقد وجد ان عرش الفول المحتوى على نسبة عالية من الاوراق فى تركيبه يحتوى على نسبة عالية من البروتين والكاروتين . وكانت النتائج الخاصة بالنمو ومعدل استهلاك الغذاء ومعدل تحويل الغذاء ومعدل التفوق تؤكد امكان احلاله محل مسحوق البرسيم . وعند استخدام عرش الفول المجفف والذى تساقتت اوراقه فقد كانت النتائج غير مشجعة نتيجة لانخفاض نسبة الكاروتين والبروتين .