
VICIA VILLOSA (VETCH): CHEMICAL COMPOSITION AND USE IN POULTRY RATIONS

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Vetch belongs to the genus *Vicia*, a group including probably 150 species. A survey of the literature, most of which is found in European journals, reveals many reports on the toxicity of various members of this family to hogs (Wilczek and Tschumi 1919) and to humans (Steyn 1933) and on its hydrocyanic-acid content (Stockman 1931, Rosenthaler 1928, and Schwartz and Finzenhagen 1937). Recently Horvath (1945) reported that the chickling vetch (*Lathyrus sativus*) is a valuable feed for hens, while the vetchling (*Lathyrus cicera*) seems to exert a toxic effect on hens. These species, however, are not members of the true vetch group but belong to the genus *Lathyrus*.

In this State two members of the genus *Vicia* are widely cultivated, namely, the common vetch (*Vicia sativa*) and the hairy vetch (*Vicia villosa*). The latter has been used in nutrition studies with rats in this station and it was found that the seed must be ground before it will be eaten. Apparently it is not palatable because it is not eaten unless ground finely and mixed intimately in the ration. Under these conditions 10 percent can be consumed by a rat without affecting its growth and reproduction. The larger quantities are not tolerated (unpublished data). A question has been raised as to whether the seed of hairy vetch, which is being grown in considerable quantities in this State, might be safely used in poultry rations.

EXPERIMENTAL

The vetch seed used in these experiments was locally grown and had the analysis: Moisture, 9.51; ash, 3.33; protein, 32.58; fat, 0.52; fiber, 7.04; N.F.E., 47.02; Ca, 0.062; P, 0.406.

Three chick starting mashers containing 10, 20, and 30 percent, respectively, of hairy vetch (*Vicia villosa*) were fed to Oklabar-New Hampshire crossbreeds during a growing period of six weeks. See Table I.

TABLE I
Starting mashers containing hairy vetch
(*Vicia villosa*)

	Lot 1 pounds	Lot 2 pounds	Lot 3 pounds
Yellow corn meal	57.	30.	25.5
Starch	3.5	22.5	20.0
Dehydrated alfalfa meal	8.0	8.0	8.0
Vetch (<i>Vicia villosa</i>)	10.0	20.0	30.0
Soy bean meal	5.0	5.0	5.0
Dried buttermilk	5.0	5.0	5.0
Casein (crude commercial)	4.0	3.0
Meat and bone scrap	5.0	5.0	5.0
Mineral mix	2.0	2.0	2.0
Cod-liver oil	.5	.5	.5
Percent protein	19.84	19.95	20.1

The protein content of each of the three mashers was standardized at the same level by substituting starch and casein for part of the ground yellow corn. The chicks were housed in an electric battery brooder and were allowed to eat and drink *ad libitum*. Individual weights were taken weekly. The average amount of feed consumed per chick was calculated from the total amount consumed per lot during the entire six-week feeding period.

CONCLUSIONS

Rate of gain was progressively decreased as the amount of vetch in the starting mash was increased (Table II). This variation in rate of gain among the 3 lots was apparent at the end of the first week, and became more pronounced toward the end of the feeding period. In Lot 1 where 10 percent of vetch was fed, the average gain per chick was below the average gain expected for chicks of that age on a normal ration. The chicks in all three lots had an unthrifty ragged appearance.

No conclusions can be drawn regarding mortality since no mortality occurred in Lots 2 and 3 which were fed the 20- and 30-percent-vetch rations, while the three chicks that died were in Lot 1 where the ration fed contained 10 percent of vetch.

The results of this feeding test would indicate that hairy vetch (*Vicia villosa*) is not a desirable ingredient in poultry rations.

TABLE II
Growth and feed consumption of chicks fed hairy vetch (Vicia villosa)

Lot number	No. chicks per lot	Mortality	Day-old	Average weight per chick in grams							Average feed consumption per chick in grams
				1-wk.	2-wk.	3-wk.	4-wk.	5-wk.	6-wk.		
I 10% vetch	12	3	35.9	70.1	107.4	160.4	214.3	275.8	337.8	2633.2	
II 20% vetch	12	0	35.3	61.8	78.6	103.8	140.7	183.4	224.1	2406.3	
III 30% vetch	12	0	41.0	57.1	61.6	74.5	91.3	126.0	124.7	2315.4	

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