Feeding Value of Triticale For Turkeys and Hens

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In the late 1950's, an intensive research program was initiated at the University of Manitoba, Winnipeg, to develop and improve a new grain which appeared to have great agronomic potential (Shebeski, 1959). The new grain, termed **Triticale,** is a synthesized species which combines the genomes of **Triticum** (wheat) and **Secale** (rye). Enough of this grain was available by 1960 to begin evaluating its potential as a feedstuff. Preliminary studies[1] conducted with initial crops of **Triticale** indicated that this grain was approximately equal pound for pound, in nutritive value to hard red spring wheat, when used as the principal ingredient of chick and hen rations. Sell **et al** (1962), in a more detailed evaluation, found that **Triticale** was comparable to wheat in terms of metabolizable energy content as well as amino acid balance for chicks.

Recently, relatively sizable quantities of **Triticale** have been grown and some North Dakota poultry producers have purchased large amounts at highly competitive prices. This has created a great deal of interest in the potential feed value of **Triticale** for poultry, particularly turkeys. Therefore, experiments were conducted to determine the nutritive value of this grain for young turkeys and laying hens.

The **Triticales** tested were obtained from two sources and will be referred to as **Triticale** A and

[1]Hodgson, G. C., Department of Animal Science, University of Manitoba, Winnipeg, Manitoba, unpublished data.

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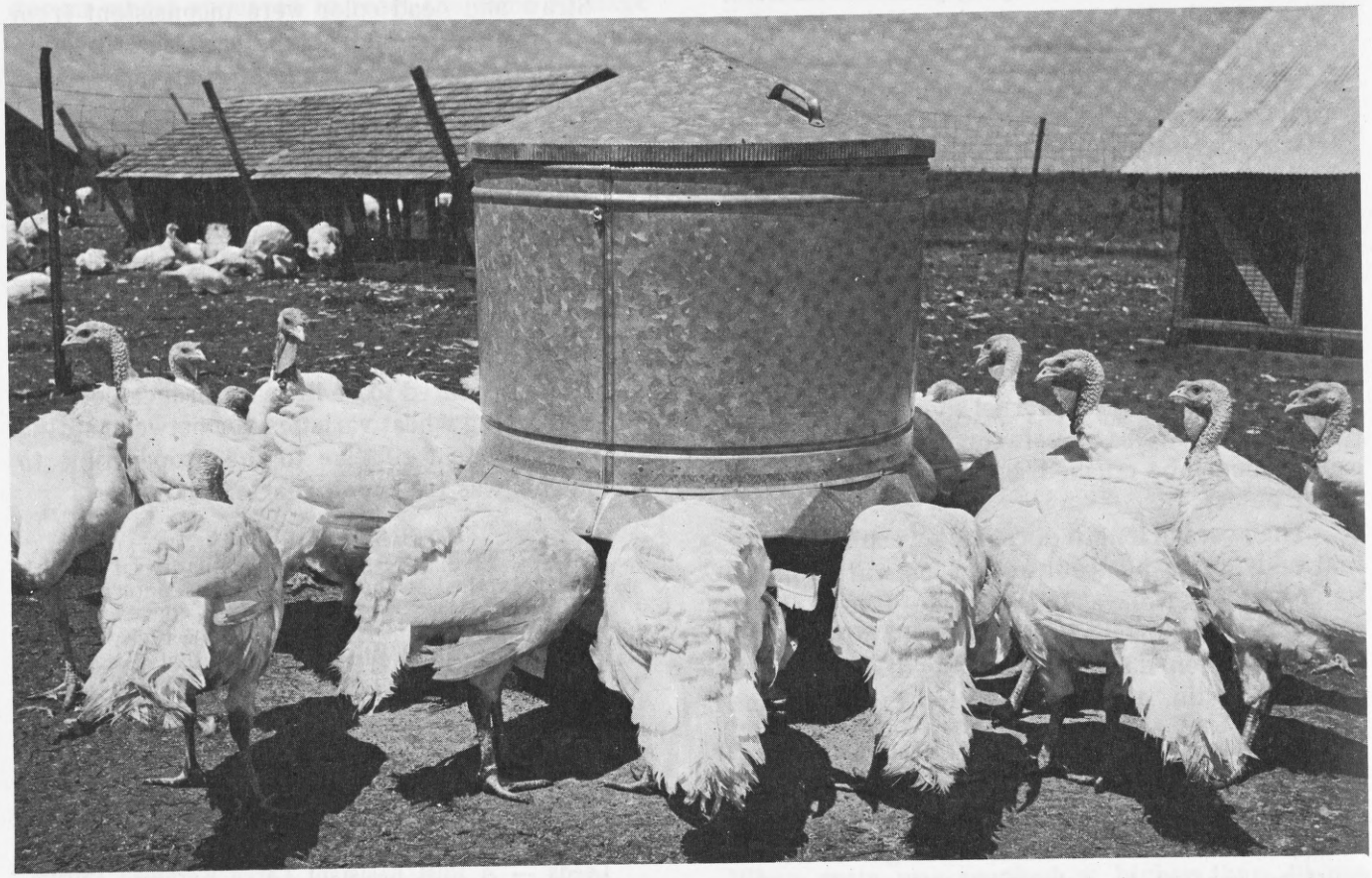

Triticale B. Analysis of representative samples of **Triticales** A and B and durum wheat showed that all three grains were very similar in gross nutrient composition. Therefore, **Triticale** was substituted, pound for pound, for durum wheat in the test rations. The **Triticale** A was relatively free of ergot. **Triticale** B was obtained in crushed form so that possible contamination with ergot could not be determined.

In the first experiment, **Triticales** A and B were compared with durum wheat as a principal component of a nutritionally balanced turkey poult starter ration. The grains comprised 42 per cent of each test ration. Weight gain of poults from one day to three weeks of age was approximately equal for all grains (Table 1). Efficiency of feed utilization during the same period was similar for poults fed wheat or **Triticale** A, while poults fed **Triticale** B utilized feed less efficiently. The metabolizable

Table 1. Performance of turkey poults fed rations containing durum wheat or "Triticale".

	Performance from 1 day to 3 weeks of age		
	Weight Gain	Efficiency of Feed Utilization	Metabolizable Energy Content
	(lbs)	(lbs feed/lb gain)	(Kcal/lb)
Durum Wheat	1.38[a1]	1.48[a]	1395[a]
Triticale A	1.36[a]	1.50[a]	1400[a]
Triticale B	1.32[a]	1.61[b]	1240[b]

	Performance from 3 weeks to 6 weeks of age	
	Weight Gain	Efficiency of Feed Utilization
	(lbs)	(lbs feed/lb gain)
Durum Wheat	3.03[a]	1.66[a]
Triticale B	3.15[a]	1.80[b]

[1]Means not followed by the same superscript letter are significantly different ($P<-0.05$).

energy values of the grains determined when the poults were three weeks of age corroborated the efficiency of feed utilization data. The metabolizable energy content of wheat and **Triticale** A was similar, and so utilization of rations based on these two grains was similar. On the other hand, the metabolizable energy content of **Triticale** B was relatively low, thus more feed was required per pound of weight gain.

In the second part of experiment 1, weight gains of poults from three to six weeks of age were essentially the same whether fed **Triticale** B or wheat (Table 1). However, the lower metabolizable energy content of **Triticale** B again resulted in less efficient use of feed. Not enough **Triticale** A was available to include it in this portion of the evaluation, but the results of the first part of this experiment indicate that it would have supported the same poult performance as did wheat.

The fact that weight gains in both parts of this experiment were not adversely affected indicates that there was little, if any, ergot contamination of the **Triticale** samples.

A second experiment was conducted to determine the metabolizable energy content of the **Triticales** and wheat for laying hens. In this test the grains comprised 53 per cent of each ration. Single Comb White Leghorn hens, kept in wire-mesh cages and producing eggs at a high rate, were used. The results were similar to those obtained with turkey poults. The metabolizable energy content of **Triticale** A was similar to that of durum wheat, while that of **Triticale** B was relatively low (Table 2).

Table 2. The metabolizable energy content of durum wheat and "Triticale" for laying hens.

	Ration Metabolizable Energy
	(Kcal/lb)
Durum Wheat	1350[a1]
Titricale A	1324[a]
Triticale B	1275[b]

[1]Means not followed by the same superscript letter are significantly different ($P<-0.05$).

Differences observed in metabolizable energy content of **Triticales** A and B for poults and hens probably were related to the relative amounts of extraneous material contained in the grain samples. **Triticale** A had been cleaned prior to purchase, while **Triticale** B had not and there was considerable weed seed in it.

Summary

Triticale was found to be comparable to durum wheat for support of gain in body weight by young turkeys. **Triticale** that had been cleaned prior to feeding was also equal to wheat in terms of feed utilization efficiency and metabolizable energy content. Thus, it appears that clean **Triticale,** relatively free of ergot, is a satisfactory feedstuff for poultry and compares favorably with wheat in nutritional value.

Acknowledgements

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