

Atlantic Poultry Research Institute

APRI FACTS



January 1998 #4

EVALUATING WHOLE WHEAT FEEDING FOR BROILER CHICKENS

Industry Impact

High feed prices and termination of feed freight assistance has increased the need for Atlantic poultry producers to find cost-effective feed alternatives. One possible method is altering the method of feeding the birds. In Western Canada, as well as Holland, whole wheat feeding of broilers has recently become popular. In Holland, approximately 60% of the broiler chicken producers are supplementing or 'diluting' their feed with whole wheat (Jansen 1996). The lighting system commonly used in Holland is an intermittent lighting program (1L:3D). The lighting programs in Nova Scotia that are successful are the decreasing day-length program of 16 hr L from day 4 to market or 16 hr L to 28 days then gradually 17L:7D, 18L:6D and 19L:5D to market or an intermittent program of 1L:3D. The use of locally grown wheat is attractive as it would eliminate the cost of freight charges, however, there is the possibility of nutritional differences between locally grown and commercially available wheat.

Trials

At the Nova Scotia Agricultural College, two trials were conducted in which the standard starter and finisher broiler diets (Table 1)

were supplemented with locally grown and commercially available whole wheat. The whole wheat was mixed with the standard starter diet at a level of 5% and was fed from 10 to 21 days of age. The whole wheat was mixed with the standard finisher diet at a level of 10% from day 21 to day 29 and at a level of 15% from day 29 to 38 days of age.

For the first trial the lighting program was the decreasing day-length program and for the second trial the intermittent program.

Table 1. Diet Composition

Age (days)	Diet	ME (kcal/kg)	CP (%)
1-21	Starter	3050	23
22-38	Finisher	3200	18

Results

In Trial 1, feeding whole wheat did not affect 38-day body weights (Table 2, Graph 1), 10-38 day feed efficiency ratios, or 10-38 day feed consumption rates (Table 2), regardless of the type of whole wheat. In Trial 2, feeding whole wheat did not affect 38-day body weights (Table 3, Graph 2), however, birds fed the

supplemental commercial wheat had significantly higher feed consumption rates than the other two treatments. Feed efficiency ratios did not however differ significantly (Table 3).

**Table 2. Growth Performance
Trial 1 - Decreasing Day-Length Program**

	Treatment		
	Standard	+Local Wheat	+Commercial Wheat
Body Weight (g/bird)	2035	2021	2036
Feed Consumed (g/bird)	3716	3677	3724
Feed Efficiency (feed/gain/bird)	1.97	1.97	1.98

Means are not significantly different ($P > 0.05$)

**Table 3. Growth Performance
Trial 2 - Intermittent Program**

	Treatment		
	Standard	+Local Wheat	+Commercial Wheat
Body Weight (g/bird)	1811	1788	1893
Feed Consumed (g/bird)	3131 ^b	3024 ^b	3343 ^a
Feed Efficiency (feed/gain/bird)	1.86	1.83	1.90

^{a,b} Means are significantly different ($P \leq 0.05$)

Conclusion

Optimum growth performance and potential economic savings may be achieved with whole wheat feeding.

References:

Jansen, H. 1996. NS Dept. Agriculture & Marketing Poultry Fact Sheet.

Figure 1. Effect of Whole Wheat Feeding on 38-Day Body Weights (Trial 1)

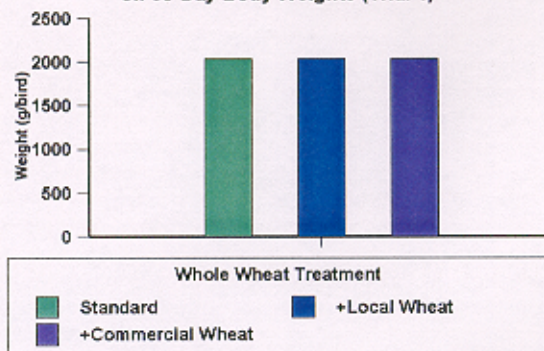
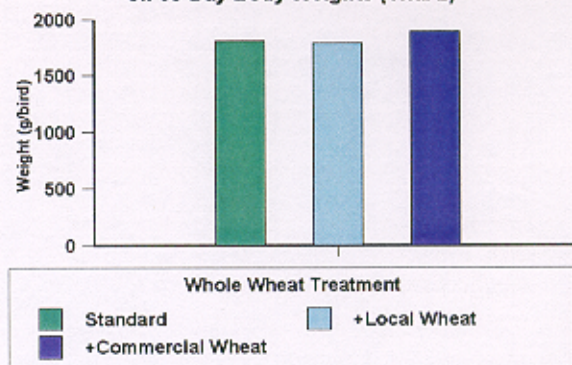


Figure 2. Effect of Whole Wheat Feeding on 38-Day Body Weights (Trial 2)



Researchers: J.L. MacLean, Atlantic Poultry Research Institute
D.C. Crober, Atlantic Poultry Research Institute
A. Oderkirk, Production Technology Branch, Dept. Agriculture & Marketing

Research Note: Differences in body weights between trials are due to different ages of the broiler breeders used to produce the chicks. Effects of different breeder ages on growth performance will be presented in a future Fact Sheet.