

Atlantic Poultry Research Institute

APRI FACTS



FACTSHEET #15
April 2002

EVALUATING WHOLE HULLESS OATS FEEDING FOR BROILER CHICKENS

Introduction

The practice of diluting broiler diets with unprocessed whole wheat has become quite popular. A number of research studies have reported improved average market body weights, feed conversion and returns. Since the nutrient composition of whole hulless oats is comparable, it is a possible alternative to whole wheat. Hulless oats has a slightly higher energy value and a similar protein value to wheat. Dilution of broiler diets with locally grown hulless oats is attractive as it would allow the use of a grain that is widely adapted to various growing conditions in the region.

Hulless oats has been successfully used as a feed ingredient in broiler diets, provided the supplemental enzyme β -glucanase is added to the diet. Hulless oats contains the anti-nutritional factor β -glucans which the enzyme acts on.

Trial

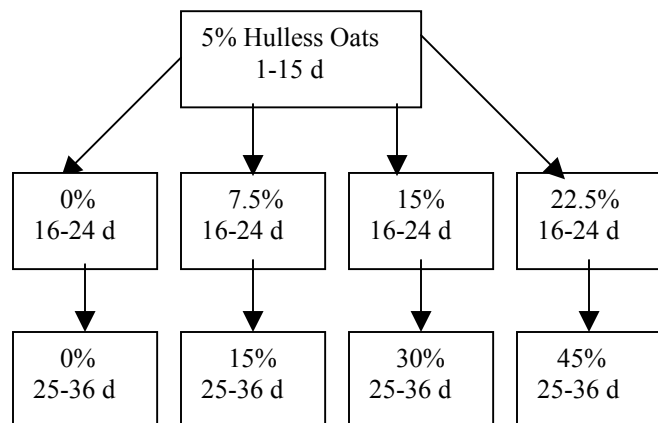
In this study with broilers, the starter, grower and finisher diets were diluted with locally grown hulless oats (AC Baton). The whole hulless oats was mixed with the standard starter diet (Table 1) at a level of 5% (Figure 1) and was fed to all birds from 1 to 14 days of age. From 15 to 24 days, the standard grower diet (Table 1) was diluted with hulless oats at levels of 0, 7.5, 15 and 22.5% (Figure 1). From 25 to 36 days of age, the finisher diets (Table 1) were diluted with hulless oats at levels from 0, 15, 30 and 45% (Figure 1). All diets

contained a commercial β -glucanase enzyme. At dilution levels greater than 20%, the vitamin/mineral premix, enzyme and medication levels were increased in the mixed portion of the ration to compensate for dilution when hulless oats were added.

Table 1. Standard Diet Composition

Age	Diet	CP	Energy
(Days)		(%)	(kcal/kg)
1-14	Starter	23	3050
15-24	Grower	20	3150
25-36	Finisher	18	3200

Figure 1. Dietary Treatments



Results

Growth

Birds fed the diets diluted with 22.5% hullless oats during the grower period and 45% hullless oats during the finisher period had significantly lower 24 and 36 d body weights (Figure 2). Level of dilution did not affect feed consumption during either growth period (Figure 3). Birds fed the grower diets diluted with all levels of hullless oats were significantly less efficient than those fed the non-diluted diet (Figure 4). During the finisher period, birds fed the diets diluted with 30% and 45% hullless oats were significantly less efficient than those fed the 15% diluted diet and the non-diluted diets (Figure 4).

Figure 2. Effect of Level of Hullless Oats Dilution on

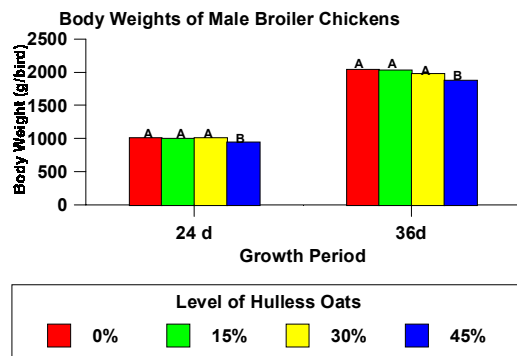


Figure 3. Effect of Level of Hullless Oats Dilution on

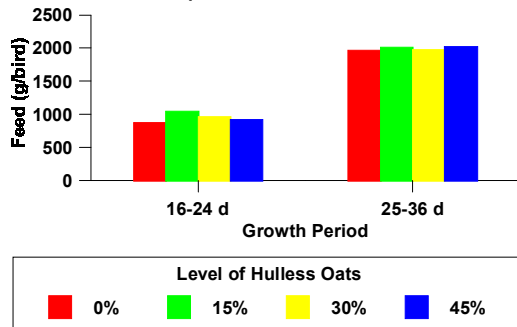
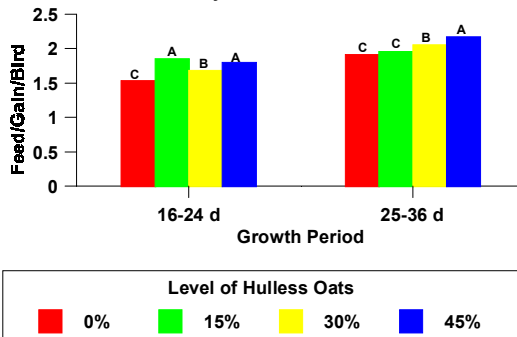


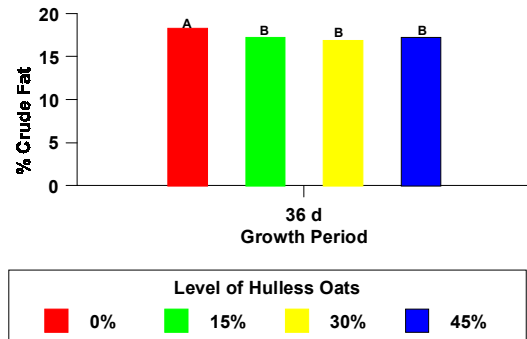
Figure 4. Effect of Level of Hullless Oats Dilution on



Carcass Composition

Diluting the diets with hullless oats at all levels resulted in significantly lower carcass fat content (Figure 5). There were no differences among the treatments for carcass protein content.

Figure 5. Effect of Level of Hullless Oats Dilution on



Industry Impact

Broiler diets may be diluted with whole hullless oats up to a level of 15% during the grower period and 30% during the finisher period without an adverse effect on growth rate. Dilution with hullless oats during the grower period at any level and at levels greater than 15% in the finisher period may result in poorer feed efficiency. However, to be economically beneficial, the level of hullless oats dilution to be used with broilers will depend on its purchase price. Reduced carcass fat is a concern to both processors and consumers. Hullless oats dilution may have the potential to help reduce carcass fat.

Researchers:

D.M. Anderson, Dept. Plant and Animal Sciences, Nova Scotia Agricultural College, Truro, NS
 J.L. MacIsaac, Atlantic Poultry Research Institute, Truro, NS
 C. Lewis, Dept. Plant and Animal Sciences, Nova Scotia Agricultural College, Truro, NS

Funding Source:

Nova Scotia Department of Agriculture & Fisheries - Agri-Focus 2000

For more information on this project or any other APRI project contact: Janice MacIsaac at JMacIsaac@nsac.ns.ca