

Dried Distillers Grains with Solubles (DDGS) Feeding

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Introduction

The inevitable increase in ethanol production in Ontario and the massive expansion in the USA will create a surplus level of (DDGS) which will lower its value. The use of DDGS, as a ration ingredient, has been successfully investigated in the United States. However, very little research has been completed in Ontario using product manufactured by Commercial Alcohols Inc. from their Chatham plant. Since variation in product quality can exist from one plant to the next, feeding trial initiatives were needed to quantify the economic ramifications of feeding DDGS (Chatham) to swine herds in Ontario.

Objective

The project evaluated the effects of feeding Chatham co-product (DDGS) to pigs based on measurements of growth, feed intake, economic returns and carcass quality. The following objectives were specifically addressed:

- 1) To determine the effects of feeding DDGS (Commercial Alcohols Inc. - Chatham Plant) at a 10 and 20 percent ration inclusion rate based on pig growth rate, feed intake and efficiency.
- 2) To determine the economic benefits or drawbacks of using DDGS from the Chatham plant in pig grower and finisher diets.
- 3) To determine if there are significant differences in performance with DDGS from the Chatham plant compared to previous DDGS studies completed in the United States.

Experimental Procedures:

After a three week adjustment period, ninety-six pigs (33.2 ± 5.8 kg) officially began the trial on July 13th, 2004. Each pen (3 barrows and 3 gilts) was randomly assigned to one of the three grower diets until they were 70 kilograms body weight (BW). They were then fed an assigned finisher diet until they were marketed (≥ 110 kg BW) by pen. The following dietary treatments were formulated and fed:

1. Grain corn, SBM and premix. A grower diet (0.83 % lysine) was fed until the pigs were 70 kg (per pen) followed by a finisher diet (0.69 % lysine) until they were marketed.
2. Similar diets and feeding strategy to control group. However a 10 percent inclusion rate of DDGS was added to replace some of the SBM as a protein source. The grower diet was formulated to contain 0.83 percent lysine while the finisher diet contained 0.68 percent. To achieve both levels of lysine an increased protein (CP) percentage was needed in both the grower (19.1%) and finisher (16.8%) diets.
3. Similar diets and feeding strategy to control group. However 20 percent DDGS was added to replace a greater amount of SBM as a protein source. The grower diet contained 0.82 percent lysine while the finisher diet contained 0.67 percent. To achieve desired levels of lysine, an increased protein (CP) percentage was needed in the grower (20.5%) and finisher (18.2%) diets.

The pigs (pens) were fed *ad libitum* with a required feed refusal or weighback taken once weekly. Ultrasound measurements (backfat and loin eye depth) were taken at the start of the trial, five weeks later and before the pigs were marketed by pen. The pigs were weighed weekly and were marketed after achieving an average 110 kg BW. All pigs were slaughtered at one location (Quality Meats) where carcasses were weighed and graded. The data was then entered and analyzed in an appropriate manner using SAS (2001) statistical procedures.

Results:

Table 3. Effects of dietary treatment on pig growth rate, feed intake and carcass quality.

	Control Diet	10% DDGS Diet	20% DDGS Diet
Growth Rate			
Number of pigs	30	36	30
Final Weight (kg)	113.3	114.0	113.6
Days to Market (by pen)	75.7	78.0	77.9
Average Daily Gain (kg)	1.06	1.04	1.04
Feed Intake – per pig (collected by pen)			
Total Feed Intake (kg)	220.5	218.4	215.7
Average feed intake (kg/d)	2.9	2.8	2.8
Feed efficiency (F/G)	2.7	2.7	2.7
Carcass Data			
Hot Carcass weight (kg)	91.8	92.5	91.7
Yield Index (%)	60.4	60.0	60.3
Grade Fat (mm)	19.3	20.4	19.0
Meat depth (mm)	61.7	62.8	62.1

^a and ^b LS means within row that do not share a common superscript differ significantly ($p < 0.05$).

Conclusions:

- When diets were balanced to a constant lysine level (growing and finishing phase) – similar growth rate, feed intake and efficiency estimates were obtain for diets containing 0, 10 or 20 percent DDGS.
- In this trial, gain costs were similar for each DDGS inclusion rate. However due to similar feed efficiencies, costs of gain were strongly related to ingredient costs. Therefore producers are advised to incorporate DDGS when this co-product is favorably priced relative to corn and soybean meal.

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