

Nutritional Value of High-Oil Oat Groats

Using grower pigs, DE content of high oil oat groats was 5% higher than regular oat groats. A subsequent performance trial with weaned pigs indicated that high oil oat groats resulted in a similar performance as regular oat groats if replaced on an equal weight basis.

NET BENEFIT: \$0.70/pig

Replacement of Soybean Meal with Canola Meal in Weaned Pigs

Inclusion of canola meal increased fibre content of the diet and reduced performance of weaned pigs. Inclusion of more than 8% canola meal in weaned pig diets may not be economically beneficial to the pork industry, without additional processing to reduce negative effects of fibre content.

NET BENEFIT: \$0.27/pig

The DE Content of Hulless Barley

Results indicate that the DE content of cleaned hulless barley is equal to that of wheat. This also means that uncleaned hull-less barley will have a lesser value than wheat and that the amount of hulls remaining in the sample should be taken into consideration on a weight basis for diet formulation or price paid.

NET BENEFIT: \$1.50/pig

THE BOTTOM LINE

Research pays big dividends. Applied near market research conducted at Prairie Swine Centre for the pork industry has and continues to provide significant benefit to pork producers and the entire pork industry. All pork producers will not be able to adopt all research results, in addition not all research projects are completely additive. Pork producers would still realize a significant improvement to their bottom line through the incorporation of any number of research results. If only 10% of the benefit was to be adopted it would improve net return over \$3.00 per hog marketed.

MANDATE

The mission of Prairie Swine Centre Inc. is "to provide a centre of excellence in research, graduate education, and technology transfer, all directed at efficient sustainable pork production in Canada."

The research program, with a decidedly near market emphasis, seeks to improve the financial position of pork producers by defining feeding and management systems that maximize net income. In addition, the Centre carries out research to address issues and opportunities in environment and animal well-being.

For details on how to implement the results of these trials on your farm go to our website

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Performance and Carcass Quality of Growing-Finishing Pigs Submitted to Reduced Nocturnal Temperatures

Trials showed that healthy growing-finishing pigs are not negatively affected by a large daily temperature fluctuation (up to 13°C) as long as this fluctuation is progressively achieved through the day-night outside temperature fluctuation. Based on this research, it is also suggested that summer temperature setpoints for growing-finishing pigs should not be increased to reduce daily temperature fluctuations. Allow temperature to fall overnight which stimulates appetite and growth rate.

NET BENEFIT: \$1.03/pig

MODERATE adopted projects

Response of Growing and Finishing Pigs to Dietary Energy Concentration

Feeding lower energy, lower cost diets, had no effect on ADG or on loin thickness, but did improve feed efficiency and reduced backfat thickness. These results indicate that lower energy diets may be used to increase net income. The applicability of these results on commercial herds depends on feed intake, and the ability of pigs to increase feed intake on the lower energy diets.

NET BENEFIT: \$0.60 - \$8.85/pig

Crowding Reduces Performance of Weanling Pigs

Crowding affects the productivity of grow/finish pigs and it is generally believed that floor types differ in required space. This study was designed to determine if there is a significant interaction between the two factors. Crowding resulted in a reduction in ADG, but the type of flooring did not make a difference.

NET BENEFIT: \$0.88/pig

Effect of Starter Feeding Regimen on Variability in Bodyweight and Performance in the Nursery

This experiment was designed to determine the effect of starter program on the variability in animal weights at nursery exit. Overall ADG was similar between programs, however, the ADFI differed thus, feed efficiency was affected by the program used. Variability in pig growth, determined as the coefficient of variation, was not affected by starter program

NET BENEFIT: \$0.31 - \$2.61/pig

Effects of Large Group Size on Productivity of Grower-Finisher Pigs

A study was conducted to assess the social aggression of growerfinisher pigs in large groups. Pigs with large social group experience displayed a significant reduction in aggressive behaviour compared to those living in small social groups.

NET BENEFIT: \$0.38/pig

Response to Dietary Energy Concentration and Stocking Density in Weaned Pigs

High stocking density can negatively impact piglet performance. In this study, crowded pigs had a 9.2% slower growth rate than the uncrowded pigs during the last week of the experiment. The weanling pig was able to compensate for reduced dietary DE through increased feed intake. Growth limitations in the weanling pig are not overcome simply by increasing dietary DE concentration.

NET BENEFIT: \$0.23 - \$0.90/pig

Effect of Gender and Crowding on Variation in Days to Market

Marketing strategies are affected by variation in days to market within groups of pigs. This study determined effects of gender and crowding on variation in body weight (BW) gain and days to market. Pigs were marketed individually at an identical market weight resulting in uniform carcass characteristics. Crowding did not increase variation; however, pigs marketed first were the heaviest piglets in the litter when traced back to farrowing.

NET BENEFIT: \$2.16/pig

EASY to adopt projects

Water Usage by Grower-Finisher Pigs Using Dry and Wet/Dry Feeders

Water waste from drinkers can be very different depending on drinker type and management. Well-managed nipple drinkers can reduce water waste to the same level as bowl drinkers. Well managed nipple drinkers could reduce water wastage without impairing pig performance and drinking behaviour.

NET BENEFIT: \$0.70/pig

Reducing Water Waste from Nipple Drinkers by Grower-Finisher Pigs

Major source and sink of water in hog operations are at the drinker and in the manure, respectively. In one study, water disappearance was reduced from 9.3 to 6.2 and manure volume decreased from 8.9 to 5.4 kg water/pig-day, respectively, when wet/dry feeders were used in place of dry feeders. Therefore, wet/dry feeders are an effective alternative for reducing water usage and manure volume of grower-finisher.

NET BENEFIT: \$0.11 - \$0.17/pig

Feed Processing and Nutritional Quality Among Wheat Classes

Feed processing and nutritional quality for CPS and durum wheats have traditionally been expected to be lower than for Hard Red Spring (HRS). Performance of weaned pigs was compared among six wheat classes, whilst considering particle size and diet pellet quality. Results indicated that feed processing quality and growth performance did not differ among wheat classes. Weaned pigs fed various classes of wheat including CPS and durum may grow similarly.

NET BENEFIT: \$0.72 - \$1.44/pig

Impact of Feeder Adjustment and Group Size/Density on Pig Performance

An experiment was conducted to examine the impact of group size / density and feeder adjustment on the performance of weanling pigs. Providing more floor space resulted in increased body weight at 10 weeks of age. Performance was maximized when the feeder gap allowed for 40% of the trough to be covered with feed. Moreover, proper adjustment of the feeder reduced the time spent eating and thus increased feeder capacity.

NET BENEFIT: \$0.05 - \$2.01/pig

The Effect of Ergot on the Performance of Weanlings

Ergot contains numerous alkaloids, which upon ingestion by animals may lead to poor growth rate, decreased feed consumption and poor feed efficiency. The effect will depend on the age or physiological stage of the animal, and the amount consumed. Results obtained in this study indicate that the consumption of diets containing more than 0.10% high alkaloid ergot by weanling pigs severely reduces growth rate, and feed consumption and impose a significant financial impact on an operation.

NET BENEFIT: \$1.96 - \$11.50/pig

Effect of Nipple Drinker Height and Flow Rate on Water Wastage

Results show water wastage can be reduced by up to 20% by adjusting nipple height. High flow rate resulted in higher water wastage. By adjusting nipple drinker height, water wastage can be reduced by up to 20% in grower/finisher pigs. High flow rate can result in more water spillage from nipple drinkers.

NET BENEFIT: \$0.09 - \$0.32/pig

Effect of Feed Presentation on the Feeding Behaviour of Grower-Finisher Pigs

Feed type (mash vs. pellets) and presentation (dry vs. wet/dry) have major affects on swine eating behaviour and, in turn, can influence productivity. Pigs fed dry mash diets spend more time eating, however this effect can be counteracted by the addition of water, such as in a wet/dry feeding system. This same effect does not appear to apply to wet/dry versus dry pellets, which could be due to a variety of factors.

NET BENEFIT: \$2.55/pig

RESEARCH profits everyone



ENHANCING COMPETITIVENESS THROUGH INNOVATION

DID YOU KNOW?

- » Prairie Swine Centre attracts research funding from more than 30 organizations from Canada, United States and Europe.
- » At any one time there is more than one million dollars in research being conducted at Prairie Swine Centre
- » On average, a new experiment starts every 11 days
- » Prairie Swine Centre staff participate in more than 20 events in western Canada each year
- » One of Prairie Swine Centre's research objectives is to increase net income by \$2.00 per pig sold

INTRODUCTION

Producers who are successful in identifying and implementing new technologies and management strategies create an advantage through lowering their cost of production, or increasing the amount of revenue generated. However, the perceived financial risks and rewards may limit technological action.

Estimating the economic impact of research on the commercial farm is extremely important when adopting new technologies or management strategies. To value the economic impact of research, a number of Prairie Swine Centre experiments between 1999-2004 were analyzed. In total 22 projects were selected for a detailed financial analysis using a financial model developed by PSC and the George Morris Centre. This model is capable of evaluating changes in production and financial performance for farms of various sizes. Result of this analysis being the net benefit of specific research projects. Research projects were then prioritized in terms of net benefit per hog marketed and ease of adoption.

Throughout the 1999-2004 time period, specific research projects generated a range of net financial benefit to pork producers from \$0.11 - \$8.84 per hog marketed. In addition, approximately 25% of the projects analyzed generated a net benefit of at least \$2.00 per hog marketed, while an additional 25% of research projects generated a return in excess of \$1.00 per hog marketed.



Prairie Swine Centre's facilities, located near Floral, Saskatchewan, house 300 sows farrow-to-finish

The overall objective of such an analytical tool is quite simply to assist pork producers in identifying ways to minimize costs and maximize revenues through:

- 1) Identifying those technologies that can be applied on their operation.
- 2) Prioritize their implementation in terms of ease of adoption.

The following is a list of projects and their net financial benefit on the basis of EASE OF ADOPTION.