Pork Production: Profitability in an Ever Changing World

A workshop for modern pork producers and their industry leaders.

David A. Widmar
July 24, 2011

A multidisciplinary approach to on-farm decision making.

Presentation Outline

- Workshop Development and Planning
- Workshop Objectives and Intended Outcomes
- Excerpt from Workshop
- Conclusions and Questions
Workshop Development & Planning

• Multidisciplinary Approach to Decision Making
  - Based on collaborative research
  - Target Audience: Swine Producers
    - Farm-specific data used during workshop to inform current on-farm decision making
  - Building ongoing relationship and collaboration with Indiana Pork Producers
    - Industry support!

Workshop Development & Planning

• Plan for implementation
  – Single day workshops at Purdue University
  – Questionnaires provided prior to workshop to facilitate information gathering of own-farm values
    – Samples can be found in handouts
  – Workshop evaluations to be collected from participants
    – Samples can be found in handouts
Workshop Objectives & Intended Outcomes

• Educational Objective
  1. understand implications of changing litter size
  2. evaluate implications of alternative management strategies
  3. provide a framework for producers to evaluate profitability of various marketing strategies

• Influence behavior through ...
  – Aiding producers to look at on-farm management decisions as it fits into whole-farm **profit maximization**
  – Recognizing multiple relationships between **biological performance and profit**

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**Agenda:**

<table>
<thead>
<tr>
<th>SESSION</th>
<th>TIME</th>
<th>PRESENTER</th>
<th>PROGRAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 AM</td>
<td>9:15 AM</td>
<td>Registration</td>
<td>Registration and Welcome!</td>
</tr>
<tr>
<td>1</td>
<td>9:15 AM</td>
<td>Dr. Allan Schrock</td>
<td>&quot;Genetic Improvements for a Changing Industry&quot;</td>
</tr>
<tr>
<td>2</td>
<td>10:00 AM</td>
<td>Dr. Brian Dickert</td>
<td>&quot;Biological Implications of Antibiotic Drug Use&quot;</td>
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<td></td>
<td>10:45 AM</td>
<td></td>
<td>BREAK</td>
</tr>
<tr>
<td>3</td>
<td>11:00 AM</td>
<td>Dr. Nicole Olyak</td>
<td>&quot;Alternative Management Strategies for a Changing World&quot;</td>
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<td></td>
<td>11:45 AM</td>
<td></td>
<td>Lunch</td>
</tr>
<tr>
<td>4</td>
<td>12:30 PM</td>
<td>David Wisnue</td>
<td>&quot;On-Farm Decisions and the Bottom Line&quot; A Guided use of decision tools for analysis of on-farm monitoring related decisions</td>
</tr>
<tr>
<td>5</td>
<td>2:00 PM</td>
<td>Meatboard Panel Discussion</td>
<td>Critical thinking about evolving swine operations management</td>
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See copy of schedule in your handouts ...
On-Farm Decisions and your Bottom Line” & Guided use of decision tool for analysis of own farm marketing-related decisions

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Introduction
I. Introduction

Objective:

– Evaluate aspects of the modern hog production system and how a change in the system, either biological or managerial, affects producer profitability.

Stochastic Bioeconomic Model

– Simulates the performance of an 85-head sow herd by tracking the biological and economic performance of individual piglets.
Modeling

Costs:
- Feed Costs
- Weaning Costs: $345/litter
- Direct Market Hog Costs: $10.05/hd
- Indirect Market Hog Costs: $28,863 for herd

Revenue:
- Carcass Weight
- % Lean and Carcass Weight Discounts

Outline

I. Changing Sow Litter Size
II. Light- and Heavy-Birth Weight Piglets
III. Standardizing Litter Sizes
I. Changing Sow Litter Sizes

Avg. Litter Size Increase: 7.5 to 9.5 (1985-2009)
(“Quick Facts…”, National Pork Board. 2009)

- Fixed Cost Spread Over More Units
- Reduced Biological Performance

Average Cost and Revenue per Head Marketed
I. Changing Litter Sizes

II. Evaluation of Light- and Heavy-Birth Weight Piglets

Light-Birth Weight Piglets:

- Slower Growth rates (Schinckel, et al., 2009a)
- Additional Days to Reach Targeted Body Weights at all stages of life (Quiniou, et al., 2002)

Light-Birth Weight: <= 1.0kg
Heavy-Birth Weight: > 1.0kg
Percent of Light- and Heavy-Birth Weight Piglets

<table>
<thead>
<tr>
<th>Litter Size</th>
<th>12.5</th>
<th>20.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent of Light-Birth Weight</td>
<td>14%</td>
<td>41%</td>
</tr>
<tr>
<td>Percent of Heavy-Birth Weight</td>
<td>86%</td>
<td>59%</td>
</tr>
</tbody>
</table>

II. Light- and Heavy-Birth Weight Piglets

Light- and Heavy-Birth Weight Performance at Mean Litter Size 12.5

![Graph showing average body weight in kg over days for Heavy-Birth and Light-Birth piglets. The graph indicates that Heavy-Birth piglets weigh more than Light-Birth piglets across all days.]
CDF for Avg. Piglet Profitability Light- and Heavy-Birth Weight Piglets*

*Mean Litter Size: 12.5

II. Light- and Heavy-Birth Weight Piglets

CDF for Avg. Piglet Return over F.C. Light- and Heavy-Birth Weight Piglets*

*Mean Litter Size: 12.5

II. Light- and Heavy-Birth Weight Piglets
Barn Profit with and without Light-Birth Weight Piglets*

$3,612 for the group
$24.06 per head

II. Light- and Heavy-Birth Weight Piglets

III. Standardizing Litter Sizes

LeDividich (1999) and National Swine Improvement Federation (1996)

Adjustment to piglet’s NAT
– Day-21 Body Weight Estimate

*Mean Litter Size: 12.5
III. Standardizing Litters

Profitability CDF. Standardized and Non-Standardized Litter Size of 8.5

FSD and SSD for Standardizing Litters, Compared to Not Standardizing

Average Gain from Standardizing: $235

Profitability CDF. Standardized and Non-Standardized Litter Size of 12.5

SSD for Standardizing Litter, compared to Not Standardizing

Average Gain From Standardizing: $13
Profitability CDF. Standardized and Non-Standardized Litter Size of 16.5

Average Gain from Not Standardizing: $488

III. Standardizing Litters

Conclusion

Economic Motivation for Larger Litters

Light-Birth Weight Piglets:
  – Grow Slower
  – Have a Positive Contribution Margin
  – More Prevalent in Larger Litters

Standardizing Litter
  – More Valuable at Smaller Litters
Questions?

Next: Using your own farm numbers in the facilitated use of the decision support model ...

"That's all folks!"

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