COST AND BENEFITS OF ANIMAL IDENTIFICATION AND PERFORMANCE RECORDING

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April 22, 2015
COST AND BENEFITS OF ANIMAL IDENTIFICATION AND PERFORMANCE RECORDING:

AN ECONOMIC EVALUATION OF COMMERCIAL BEEF CATTLE PRODUCERS

April 22, 2015
CONTENT

• Introduction
• Economic evaluation and the concept of opportunity cost
• Different applications of AI and PR among producers
  – Stud breeders
  – Commercial producers
• Cost and benefits of AI and PR
• Comparing the cost and benefits
• Conclusion
INTRODUCTION

• Main objective of AI and PR?
  – Evaluation of farm livestock

• How to achieve objective?
  – Convince as many livestock farmers as possible to participate in the identified animal recording scheme

• But…
  – How do you convince a producer to participate
INTRODUCTION

• Commercial beef cattle producer
  – Goal: Maximize monetary returns from operations
  – Extensive production → Challenges, cyclical
  – More concerned about own herd than national herd

• How to encourage participation
  – Cost / benefit analysis → Benefits > Cost

• Calculate according to economic outcome, not accounting outcome
ECONOMIC EVALUATION AND THE CONCEPT OF OPPORTUNITY COST

• Income (Revenue) – Cost = Profit

• Accounting profit
  – *Difference between all revenues or receipts of the firm and all expenses paid.*

• Economic profit
  – *Difference between all revenues or receipts of the firm and the value of all inputs used by the firm, whether paid for or not.*

• Economic profit takes *opportunity cost* into account
  – *The value of a resource in its highest alternative use.*
DIFFERENT APPLICATION OF AI AND PR AMONG PRODUCERS

• Diverse differences between beef cattle producers → Impossible to calculate the generic cost and benefits

• Producers classified into:
  – Stud breeders
  – Commercial producers

• Stud breeders and commercial producers further classified:
  – Size of operation (number of animals)
  – Type of production system
DIFFERENT APPLICATION OF AI AND PR AMONG PRODUCERS

• Stud breeders: Registered stud of certain breed
• Forced by specific Breeders’ Society to do PR for each calve:
  – Registration numbers of Dam and Sire
  – Weaning weight
  – Female calves: 12 or 18 month weight
  – Male calves: 12 and 18 month weight / Growth test (FCR & ADG)
  – DNA Test if Sire is unknown

• Commercial producers: Any breed / cross-bred
  – Do not have to comply to any type of PR
  – Records for own use → Varies between producers
  – Some producers same PR as stud breeders
  – Some producers do not even use individual identification
COST AND BENEFITS OF AI AND PR

• Varies between producers/breeders and is thus subjective

• Costs
  – Commercial producers
    o Identification mark (Ear tag)
    o Data recording (PC Programme / PR fees)
    o Opportunity cost (Extra time of producers / workers)
  – Stud breeders
    o Registering authority fees (SA Studbook)
    o Breeders’ Society fees
COST AND BENEFITS OF AI AND PR

• Takes time to realise all possible benefits

• Benefits
  – Commercial producers
    o Increase in weaning percentage
    o Better calves (weaning weight)
    o Bulls chosen on breeding values
  – Stud breeders
    o Higher prices for registered/stud calves
    o Generic marketing
    o Generic breed research
### Farm Information

<table>
<thead>
<tr>
<th>Animal Type</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Productive cows</td>
<td>200</td>
</tr>
<tr>
<td>Bulls</td>
<td>6</td>
</tr>
<tr>
<td>Heifers at bull</td>
<td>30</td>
</tr>
<tr>
<td>Young heifers</td>
<td>30</td>
</tr>
<tr>
<td>Total Animals</td>
<td>266</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Animal Type</th>
<th>Base</th>
<th>Commercial</th>
<th>Stud</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weaner R/kg</td>
<td>R19.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C-grade R/kg</td>
<td>R44.00</td>
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</tr>
</tbody>
</table>

### Production System

<table>
<thead>
<tr>
<th>Physical Information</th>
<th>Base</th>
<th>Commercial</th>
<th>Stud</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weaning %</td>
<td>65%</td>
<td>88%</td>
<td>88%</td>
</tr>
<tr>
<td>Calves weaned</td>
<td>130</td>
<td>176</td>
<td>176</td>
</tr>
<tr>
<td>Calves marketed</td>
<td>100</td>
<td>146</td>
<td>73</td>
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<tr>
<td>Cows culled</td>
<td>30</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Stud Females</td>
<td>0</td>
<td>0</td>
<td>36</td>
</tr>
<tr>
<td>Stud Males</td>
<td>0</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Weaning weight</td>
<td>220</td>
<td>230</td>
<td>230</td>
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</table>
## COMPARING THE COST AND BENEFITS

<table>
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<th></th>
<th>Base</th>
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<th>Stud</th>
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</thead>
<tbody>
<tr>
<td><strong>Income</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calves</td>
<td>R418 000</td>
<td>R638 020</td>
<td>R319 010</td>
</tr>
<tr>
<td>Cows</td>
<td>R330 000</td>
<td>R330 000</td>
<td>R330 000</td>
</tr>
<tr>
<td>Stud Females</td>
<td>R-</td>
<td>R-</td>
<td>R314 640</td>
</tr>
<tr>
<td>Stud Males</td>
<td>R-</td>
<td>R-</td>
<td>R91 770</td>
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<tr>
<td><strong>Cost of I &amp; PR</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Tags</td>
<td>R-</td>
<td>R3 990</td>
<td>R3 990</td>
</tr>
<tr>
<td>Production Records</td>
<td>R-</td>
<td>R3 232</td>
<td>R3 232</td>
</tr>
<tr>
<td>Opportunity Costs</td>
<td>R-</td>
<td>R8 000</td>
<td>R8 000</td>
</tr>
<tr>
<td>Registration Costs</td>
<td>R-</td>
<td>R-</td>
<td>R10 019</td>
</tr>
<tr>
<td><strong>Net Benefits</strong></td>
<td>R748 000</td>
<td>R952 798</td>
<td>R1 030 179</td>
</tr>
<tr>
<td><strong>% Difference</strong></td>
<td>27%</td>
<td>38%</td>
<td></td>
</tr>
</tbody>
</table>
CONCLUSION

• The estimated results showed that AI and PR may have more benefits than costs.

• In order to start and AIR scheme in a country, the first thing you need is participants (producers).

• If an AIR scheme is started without participants it will run at a loss for many years.

Thus, start at the beginning and take small steps to achieve big things.
Thank You

Dankie

Ke a leboha

Frikkie Maré

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