LIVESTOCK RECORDING AND IMPROVEMENT IN SOUTH AFRICA: CHALLENGES AND MAJOR DRIVERS

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**Brief history of Livestock Recording & GE in South Africa**

<table>
<thead>
<tr>
<th>Event</th>
<th>Year</th>
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<tbody>
<tr>
<td>Stud Book established</td>
<td>1905</td>
</tr>
<tr>
<td>Milk Recording</td>
<td>1917</td>
</tr>
<tr>
<td>Small Stock (Wooled sheep) Recording</td>
<td>1956</td>
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<tr>
<td>Beef Cattle Recording</td>
<td>1959</td>
</tr>
<tr>
<td>Integration Registration &amp; Production</td>
<td>1985+</td>
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<tr>
<td>BLUP Sheep (Experimental)</td>
<td>1986</td>
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<tr>
<td>BLUP Dairy Cattle</td>
<td>1987</td>
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<tr>
<td>BLUP Beef Cattle</td>
<td>1993</td>
</tr>
<tr>
<td>Interbull MACE</td>
<td>2000</td>
</tr>
<tr>
<td>Total privatisation of Stud/Seedstock industry</td>
<td>2012</td>
</tr>
<tr>
<td>Genomic GE Beef Cattle</td>
<td>2017</td>
</tr>
<tr>
<td>Genomic GE Dairy Cattle</td>
<td>2020</td>
</tr>
<tr>
<td>Genomic GE Sheep</td>
<td>2021</td>
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</tbody>
</table>
Focus on inclusive participation & comprehensive service

- Accurate & Affordable Registration & Recording for economic important traits & properties
- Optimal use of recorded data & information
  - Management decisions
  - Genetic selection & matings
- Expansion of participation
- Uptake & integration of new technologies
South Africa: still reflecting the recent past

60 Million consumers

"Formal" consumers

Meat processors

Feedlot sector

Commercial producers

Stud/Seedstock breeders

Successful emerging farmers

Developed sector

Developing sector

All slaughterings

"Informal" consumers

Local butchers / on-farm slaughtering

Communal or leased grazing

"Disadvantaged" smallholders

Adapted from http://www.rmrdsa.co.za/REDMEATINDUSTRY/Valuechains.aspx and van Marle-Köster & Visser 2018
2800 Seed Stock Breeders

40,000 Large commercial Beef Cattle Farmers

85,000 Beef Cattle Farmers with potential to commercialize

240,000 Beef Cattle keepers known as emerging (small) farmers

3 million Beef Cattle keepers - “subsistence farmers”
Livestock recording: Governance and Current Situation

• Legislation for Registration & Recording: Stud animals
• Registering Authorities
  • Stud Book = Registering Authority (>80 breed x species)
  • Comply with ICAR CoQ
  • Fully industry funded
• Breeders’ Societies
  • Breed standards, inspections, promotion
• Few non-Stud animals centrally recorded
• Very low participation in Milk Recording (in comparison)
• Mostly owner sampling, measurement & recording
Major challenges

• Data quality assurance (trustworthy application)
• Acceptance & Uptake of Scientifically developed technology
• Mutual understanding & Insight
  • Correct use of genetic & management information
• Funding & Allocation -> R&D
• Investment in training & Education
  • Scientific & Technical staff (HR development)
  • Farmers / Breeders / Trainers
Major drivers

• Sustainable **PROFIT**
  • Local & Internationally competitive
  • Natural resource usage & environmental impact
• Knowledge & ability
  • Use and utilising genetic gains of seedstock animals
• Timely adjustments & Application
  • Driver: new scientific & industry knowledge
  • Changing markets & economic realities
  • Funding realities & human demographies
Focus: current developments

• Model development & implementation
  • Expanding GE production accuracy – SS gBLUP
• Interactive data & information exchange
  • Farm, laboratory, database
• Management information
  • Benchmarking & Timely decisions
• Selection index uptake & timely adaptations
• Web-based tools
  • Optimal breeding objectives – different environments & systems
  • Selection - herd & breed levels
  • Mating plans.
Historic past & current challenges

• Fast tracking of opportunities & resource
• Research priorities with public funding
• National infrastructure & public services
  • Animal health
  • Export protocols
• Public X Private partnerships
Thank you

Dankie

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Profit through genetics