



WP7 – Balanced breeding goals for resilience and efficiency that promote diversity-rich sheep and goat breeding

ABACUSBIO, INRAE, IDELE, AUTH, INIA-UY, ARAL, CNR, OVIGEN, FRIZARTA

Final annual meeting: Toledo
22-23 May 2023



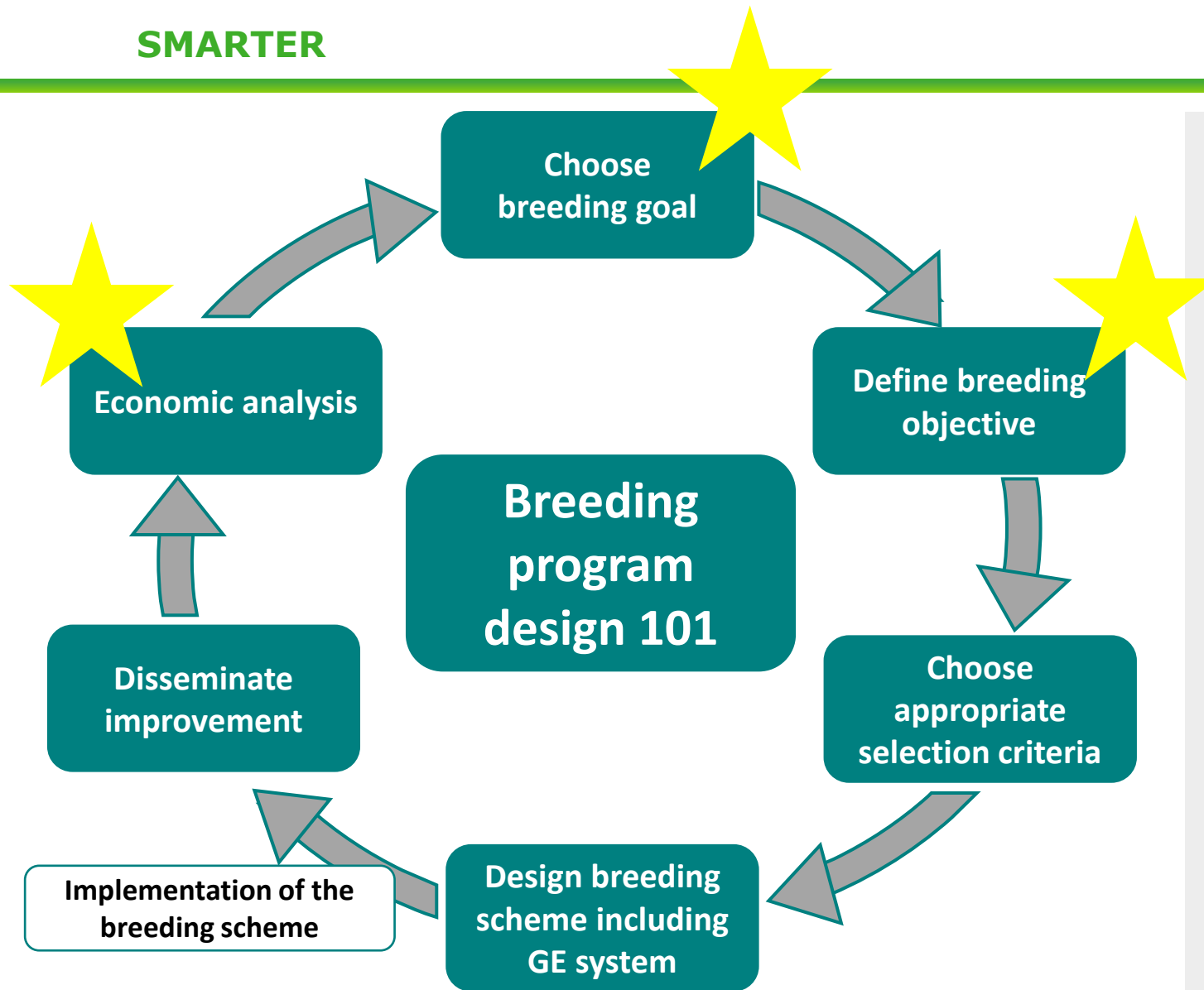


Delivering more systematic breeding goals for small ruminants in Europe

Tim Byrne (AbacusBio)

Final annual meeting: AbacusBio, Toledo
22-23 of May 2023





Best-practice says that economics starts & ends it all

Economic breeding objectives

- Set the long-term direction for producers

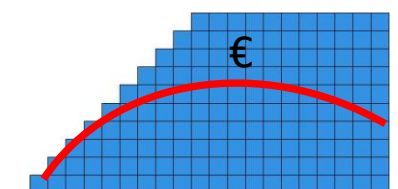


- Summarise detail/ ease interpretation

Breed		Production (kg/100kg liveweight)										Efficiency										Resilience									
Genetic	Protein	Meat	Wool	Stomach	Intestine	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large								
...								



- Allow genetic gain to be valued (€ & GHG)



Reminder of WP7 work

Designing and developing balanced breeding goals for resilience and efficiency (R&E) that promote diversity-rich sheep and goat breeding, with insights into:

- Farm system impacts of genetic trait changes
- Breeder/ producer needs and perceptions regarding trait targets
- The impact of labour on trait EVs + environmental impact of trait changes
- The long-term outcomes (20 years) of including R&E traits

But where does it all get implemented/ integrated into industry?

Routine use of economic objectives?

Country industry	Use of economic indexes
Ireland	✓
UK	✗ (except for Texel society)
Greece	✗
France	✗
Uruguay	✗
Italy	✗
Spain	✗
Norway	✗

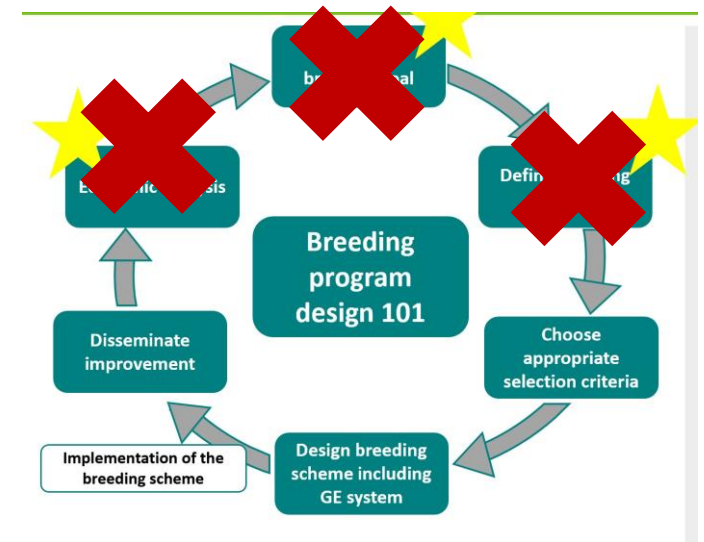
- Meat: Desired gains or converted to mean of 100 and SD of X
- Milk: Converted milk volume, including a pseudo volume, whatever component traits

Missing an opportunity

- Economic indexes not common for small ruminants in Europe (and wider)
- Missed opportunity to:
 - Set the direction of genetic gain for the benefit of commercial producers
 - Clearly communicate the value of genetic improvement to breeders/commercial producers
 - Quantify the economic impact of genetic gain – justify investment
 - Quantify the GHG impact of genetic gain
 - Understand economic vs GHG trade-offs

Why is this important?

- Breeding and genetic improvement is multi-faceted, and requires a systematic approach
 - Missing economic breeding objectives is missing part of the system
 - Economic based indexes make it possible to build a strong business and environmental case for investment in recording and genotyping
 - Genomics-enabled speed means that direction is even more important
 - Multiple-trait economic breeding objectives and selection indexes are more important than ever in diversity-rich sheep and goat breeding



What could be done?

- An systematic approach to the calculation of economic breeding objectives and selection indexes
 - Aligns with international evaluations work (WP6)?
- A framework for integration of breeding objective outcomes into routine genetic evaluations
- National or research flock/ herds lead by example
- Engage with breeders/ breeding orgs and commercial producers early, to build understanding and get buy-in
- Demonstrating environmental sustainability using indexes is a core requirement

SMARTER PARTNERS



Thank you for your attention

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