European Forum of Farm Animal Breeders

How sustainable animal breeding is helping to feed the world

Dawn Howard, Director
EAAP Nantes, August 2013
What is EFFAB?

EFFAB is the only independent European organisation representing farm animal reproduction and selection

✓ promoting a **positive image** of animal breeding as an integral part of the food supply chain
✓ representing pig, poultry, cattle and aquaculture sectors
EFFAB influence

- How?
Topical issues

- Animal Welfare
- EU Animal Health Regulation
- Cloning
- Research funding – Horizon 2020
- Genetic resources
EU Research Funding

EU Technology Platform - Sustainable Farm Animal Breeding & Reproduction

- Industry-led public/private partnership
- Self funding
- INRA, WUR, Nofima, BKTN & EFFAB
EU Research Funding

- FABRE-TP representing breeding sector
- Member & Vice-Chair of Stakeholder Advisory Board
EU Research Funding

Animal Task Force

- Promoting sustainable livestock sector in Europe
- Horizon 2020 – improved share for livestock research
- White Paper
  http://www.animaltaskforce.eu/

EAAP session Thursday morning!
Genetic Resources

- EU implementation of the Nagoya Protocol
- Access and benefit sharing
- EFFAB working with other stakeholders
  - Joint breeding sector response
Genetic resources

- Code of Good Practice for Farm Animal Breeding
- Future review of Code
  - Member consultation 2013
  - Relaunch new COP 2014
How is sustainable animal breeding helping to feed the world?

Why is it needed?
Global Food and Farming Futures

- explores increasing pressures on the global food system between now and 2050

- highlights decisions needed to sustainably feed a global population of over nine billion
Food production must rise by 70% to meet increasing population demands and climate change.

World Bank predicts food shortages by 2030.

Food crop yield increases now stagnating.
Yield Trends Are Insufficient to Double Global Crop Production by 2050
Deepak K. Ray mail, Nathaniel D. Mueller, Paul C. West, Jonathan A. Foley
(2013)
Prediction of slower growth in agricultural productivity

- Global agricultural production projected to grow at **1.5%** compared to **2.1% in the previous decade**.
- Slower growth expected for all crop sectors and **livestock production**.
- Reflects **rising costs**, **growing resource constraints** and **environmental pressures** - inhibit supply response in all regions.
How are we going to feed the future??
Sustainable farm animal breeding

Addressing balance of

- global food access
- biodiversity
- ecosystems
- societal expectations
Sustainable farm animal breeding

Animal breeding = balanced breeding

Since **1950s** much broader breeding goals, focus on:

- Environmental adaptation
- Improved productivity
- More efficient
- Robust health
- Welfare traits
- Genetic diversity
Sustainable farm animal breeding

- Extensive breeding programmes
- Wide genetic base - avoid inbreeding
- Introduction of improved genetics
- Investment in data collection & data management
- Added value
Sustainable farm animal breeding

- Delivering environmental benefits
- Food-feed-fuel?? Land & water competition
- Improved poultry feed conversion (FCR) -> reduced by 2 million tonnes pa
- Reduces area of land by 4000 sq km

Area larger than Luxembourg
Sustainable farm animal breeding

- Breeding  →  Productivity increases 1% year-on-year over last 50 years
- Added-value for EU livestock breeding €2 billion p.a.
- Sustainable benefits for EU agriculture & food security
Sustainable farm animal breeding

- Reduced GHG mitigation
- Fewer production days -> improved LCA
  e.g. nitrogen excretion from pigs reduced by 25% over last 35 years
- Improved welfare, disease resistance & management -> improved liveability
- Combination of factors reduces GHG emissions

Breeding = year on year, cumulative benefits
Local breeds

- May be vulnerable, endangered
  e.g. low fertility, poor productivity, disease susceptible
- Developing economies need access to improved livestock genetics
- Better access to animal protein helps move out of poverty
- Improved productivity, food security
- Identify local market, added-value, ecosystem services, societal benefits....etc
Hebridean sheep
An old breed for modern times......
Heritage meat
Wensleydale sheep and wool
Local breeds

- Sustainable intensification
- Better adapted to local environment, farming systems or market needs
- Disease resistance
- Genomic information needed to identify best phenotypes
- Constrained by increasing urbanisation, loss of land and skills
Animal breeding
Local breeds

Also need balanced breeding

- Data recording, benchmarking, reliability
- Develop practical breeding tools – benefit from cost-effective genomic technologies
- Genetic markers for health, productivity, sustainability
- As important as for commercial breeds
Conclusion

- Great potential to improve local breeds
- Work needed to collect data, genotype, phenotype, database of breeds
- Better genetic resource management
- Identify market for breed (commercial, environmental, social)
- Genetic improvement can deliver more sustainable local breeds and food security for rural areas/regions
Conclusion

- Role for both imported genetics & knowledge transfer - to help improve and direct breeding programmes for local breeds
- Sustainable animal breeding will continue to play an important role in securing global food security.
EU Commission call to boost genetic resources

- Call for tender for an assessment
- Up to €1.5 million
- How to improve conservation of genetic resources of EU farms?
- Preserving the use of agricultural genetic resources
  - breeding, at local level
  - adaptation to climatic change
  - pests & diseases

http://ec.europa.eu/agriculture/calls-for-tender/2013-271472_en.htm
Thank you for your attention!
dawn.howard@effab.info