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


Knowledge Transfer Network
Biosciences
EBLEX
Cobb
SYSAAF
CRV
AquaGen
GROUPE GRIMAUD
Giving life to Performance
Genus
LOHMANN TIERZUCHT
Aviagen
FBF
MERIAL
VIKINGGENETICS
Cherry Valley
ICBF.com
ANPS
INSEME
UNCEIA
TOPIGS
Progress in Pigs
geno global
marineharvest
excellence in seafood
HENDRIX GENETICS
MERCK
Animal Health
VSP
PIG RESEARCH CENTRE
norsvin
ifip

EFFAB influence

- How?
- Who? Commission, European Parliament, Council, others.....

Lithuanian Presidency of the Council of the European Union 2013

efsa

European Food Safety Authority

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

ESA
EUROPEAN SEED ASSOCIATION

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?

Foresight

Global Food and Farming Futures

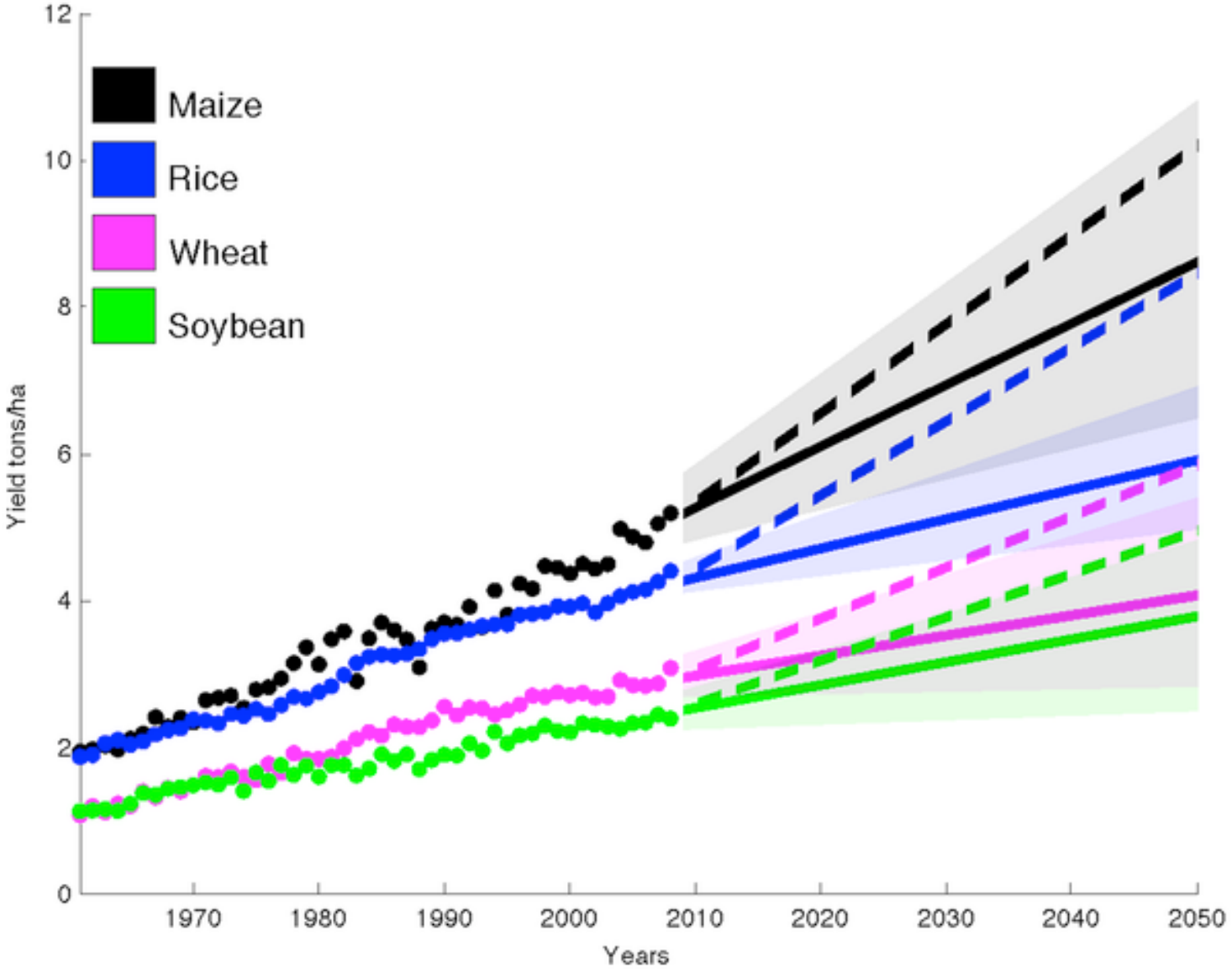
- explores increasing pressures on the global food system between now and **2050**

- highlights decisions needed to sustainably feed a global population of over **nine billion**

…..World Bank predicts food shortages by 2030……..

Food production must rise by 70% to meet increasing **population** demands and **climate change**

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)

OECD-FAO Agricultural Outlook 2013-2022

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

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