

Lessons from LowInputBreeds & ProPIG



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CORE organic II

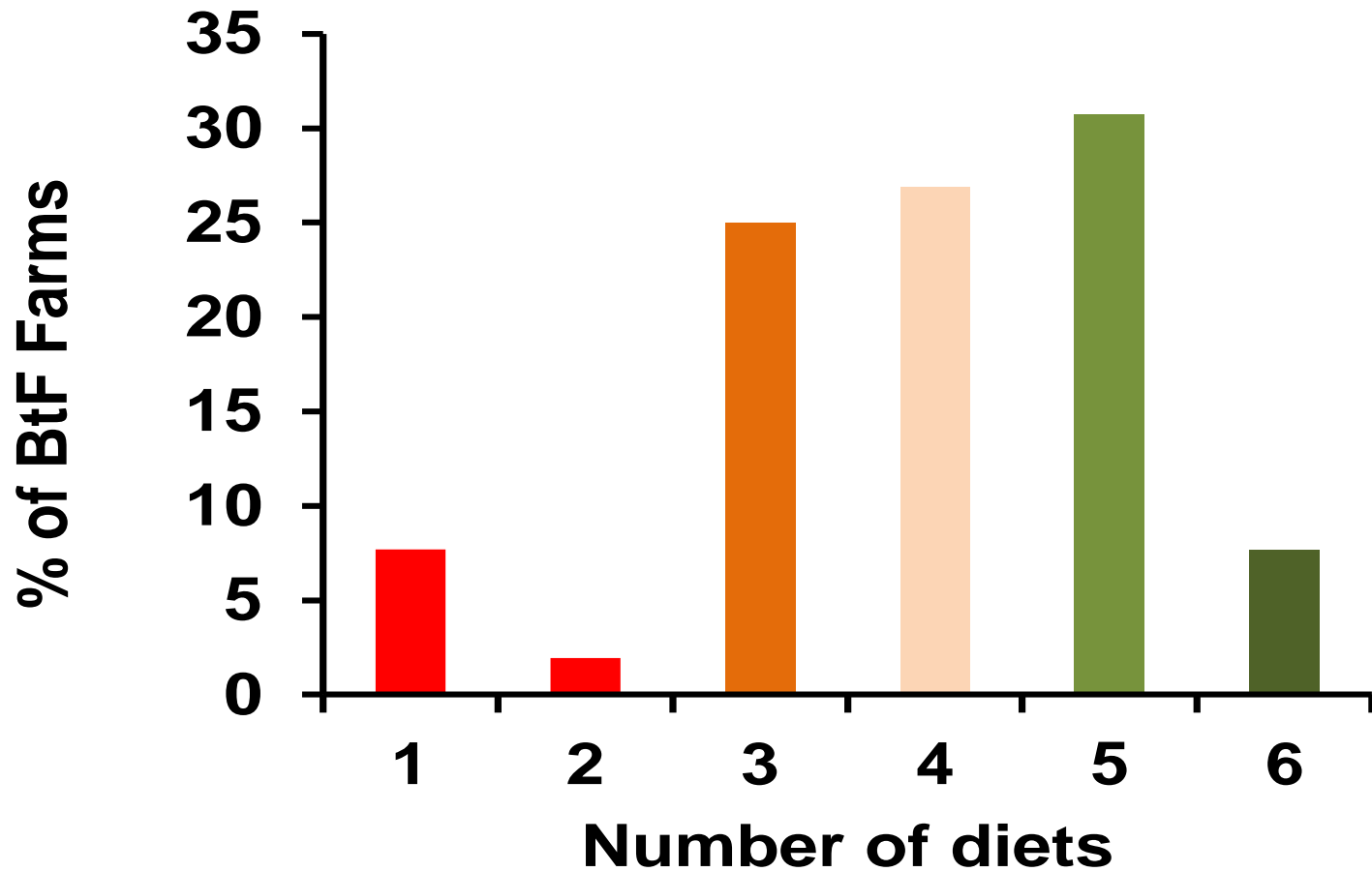


- CORE organic II project, 10 European partners
- Hypothesis: environmental impact reduced by healthy, happy, well fed pigs
- Monitoring organic pig farms – assess strengths & weaknesses
- Identify & adopt good practice
- Monitoring improvement in follow-up visit
- Share findings; industry and research community

Feeding organic pigs – the reality

- ProPIG study in 2012; 72 farms in 7 countries
- Questionnaire identifying feeding management – number of differing diets offered
- Not all farms with same stages of production chain
 - Farrowing to finish systems n=52
 - Finishing only n=12
 - Other (part system only) n=6+1+1
- Findings presented by Armelle Prunier, INRA, France at the European Association of Animal Production (EAAP) August 2014

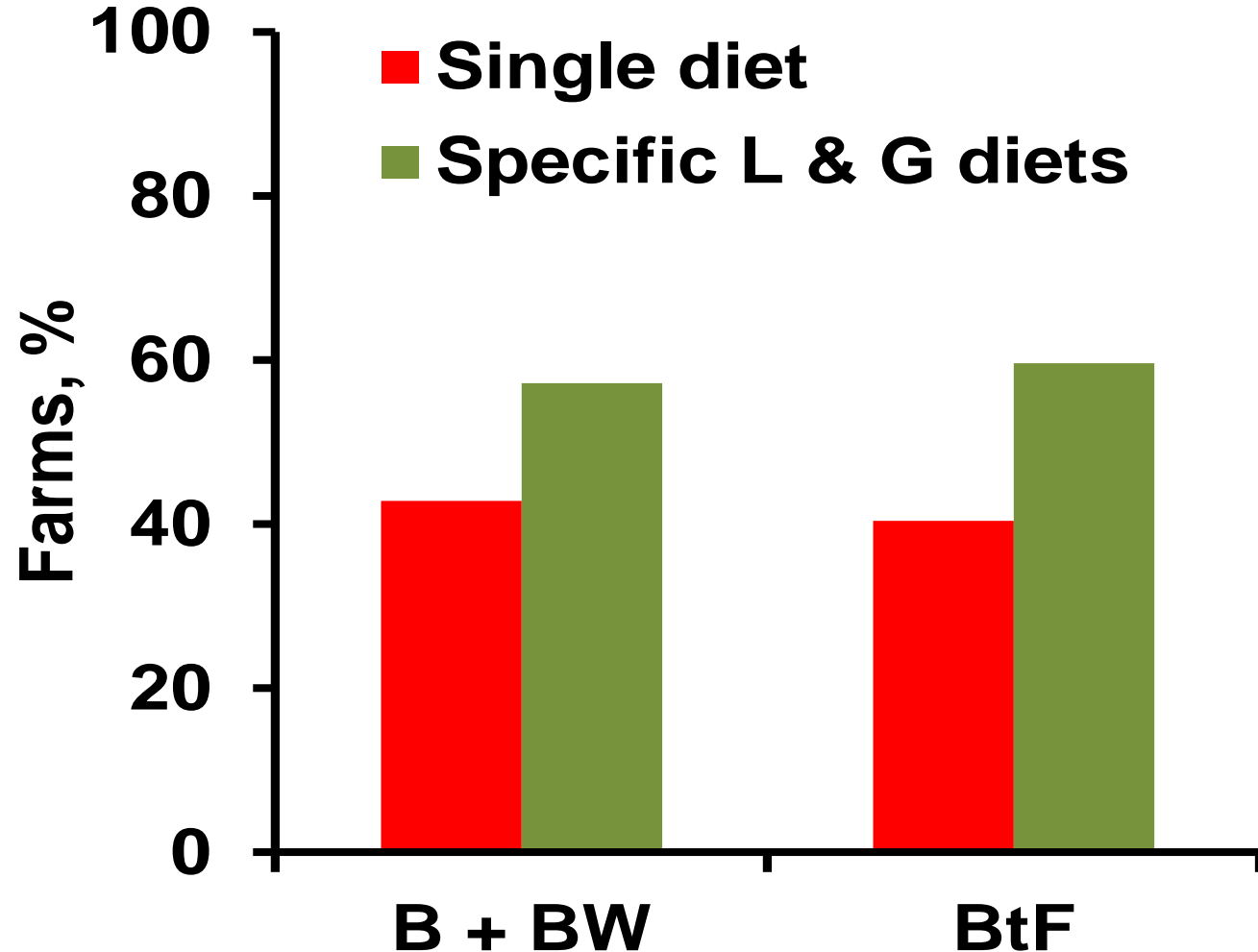
Number of diets: birth to finish farms

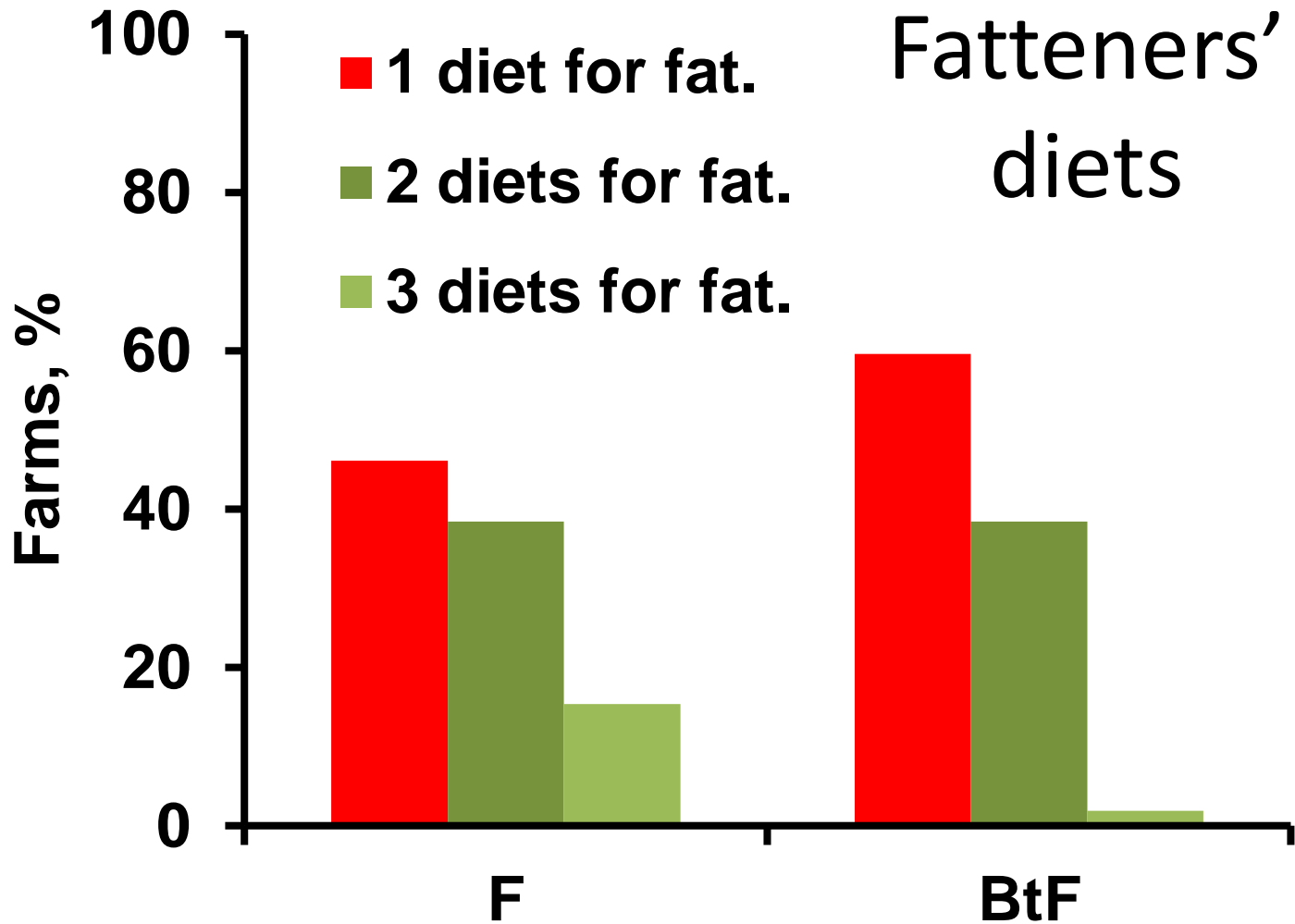


1. Some farms have a unique diet for all stage (4/52)
2. Only a minority have 5 or 6 diets (20/52)

Sow diets

- One diet for pregnant and lactating sows: 24/59 farms

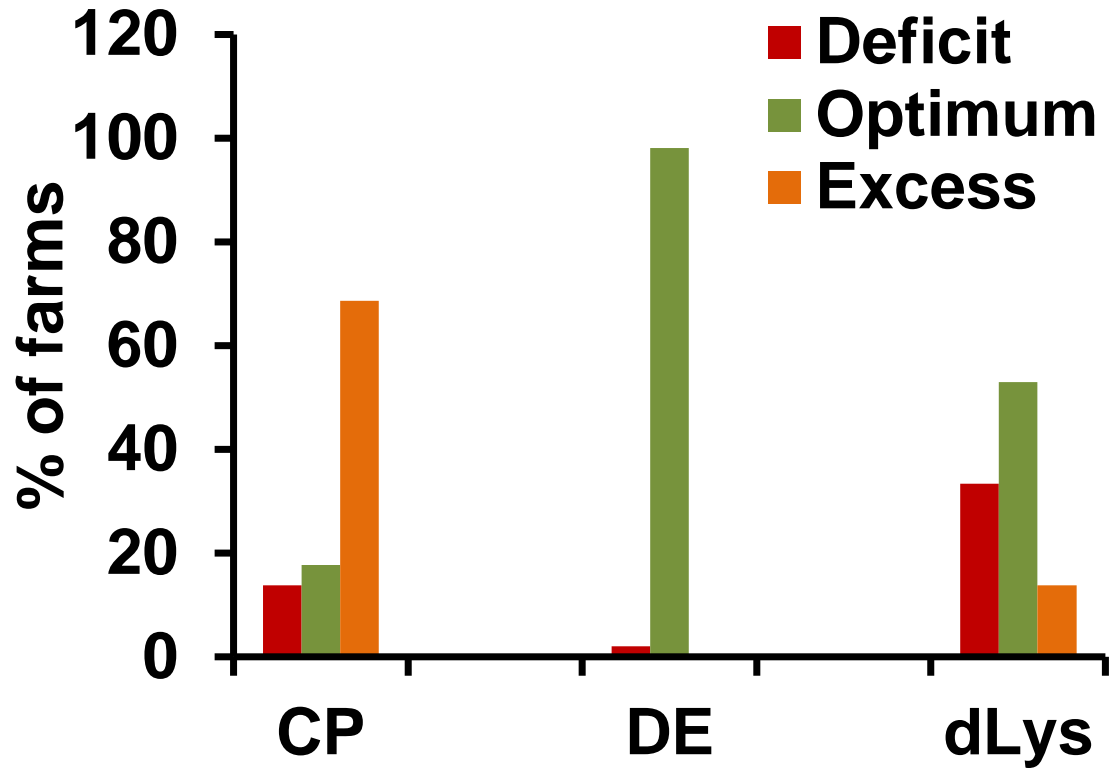




- Majority of farms have a single diet for fatteners: 37/65 farms

Adequacy of feeding

Diets classification according to recommendations for growing pigs (IFIP, 2013)
Optimum if 0.9-1.1 [optimum], < deficit, > excess



- Excess Proteins: probably to *secure* essential amino acid intake
- Digestible Energy: OK
- Digestible lysine: numerous farms with deficit

Conclusions

- ***Could do better***
 - Specific diets for various stages
 - Better diet formulation to meet animals' needs

- **BUT challenges**
 - Availability and cost of organic ingredients, high in essential amino acids (lysine, tryptophan...)



LOW Input Breeds

- Developing integrated livestock breeding and management strategies to improve animal health, product quality and performance in European organic and *low input* milk, meat and egg production (EU grant agreement No 222623)
- Cattle (dairy and beef), sheep (dairy and meat), **pigs & poultry**
- Coordination: Newcastle University and Research Institute of Organic Agriculture (FiBL)
- Check out the website: www.lowinputbreeds.org

Technical notes

Conference papers

Newsletters

Scientific publications



Home

LowInputBreeds - Development of integrated livestock breeding and management strategies to improve animal health, product quality and performance in European organic and 'low input' milk, meat and egg production was a 5-year (2009-2014) EU Collaborative Project, funded under the Seventh Framework Programme of the European Community for Research, Technological Development and Demonstration Activities.

On this website the project results are presented.

News

Final LowInputBreeds Newsletter now online

(26.08.2014) This Newsletter includes an executive summary of project outputs - 5 years' work by the project partners distilled down to 4000 characters - and the abstracts of papers... [read more](#)

More LowInputBreeds Technical Notes now online

(16.06.2014) The European LowInputBreeds project is producing a number of Technical Notes. The Technical Notes cover key themes and results from the LowInputBreeds project. [read more](#)

Proceedings of the 14th International Seminar of the FAO-CIHEAM Network on Sheep and Goats Sub-Network on Nutrition now available

(15.04.2014) The second LowInputBreeds Symposium took place in the framework of the 14th International Seminar of the FAO-CIHEAM Network on Sheep and Goats Sub-Network on Nutrition.... [read more](#)



LowInputBreeds: Key facts & figures

Development of integrated livestock breeding and management strategies to improve animal health, product quality and performance in European organic and 'low input' milk, meat and egg production - LowInputBreeds

- > 5-year EU Collaborative Project, funded under the Seventh Framework Programme of the European Community for Research, Technological Development and Demonstration Activities
- > Contract No. 222623
- > 94 person-years of research
- > Over 60 scientists
- > 21 leading research and industrial organisations
- > 15 countries
- > 4 livestock species: cattle (dairy and beef), sheep (dairy and meat), pigs, poultry
- > Running from 2009-2014
- > Project coordination: Newcastle University and Research Institute of Organic Agriculture FiBL
- > www.lowinputbreeds.org

Large Collaborative Project

- 2009 – 2014
- 17 research centres
- 6 industrial partners
- 4 non-European partners
- 17 countries
- 94 person-years of research
- > 60 scientists
- Budget: 8.9 Mi €
- EC contribution: 6 Mi €



Universidade Federal de Viçosa



Nafferton Ecological Farming Group



Why LIB?

- Animal breeding focus on **intensive production** systems
- Dominated by big business
- Selection on **performance**
- Modern genotypes only successful if supported by **high inputs**
- **Functional traits** low priority
- Organic and low-input systems need **robust** animals
- Diverse & relatively small *market*



www.ploegint.nl/dutch/frames/frames-breeds.html

www.hijsenyu.com



www.agripinoy.net/commercial-egg-production-and-processing.html

Pigs: Project goals



- Suitable breeds for low input systems
- Design breeding systems low input systems
- Breed for heat tolerant sows
- Reduce piglet mortality by breeding & management
- Improve product quality by breed choice & feeding regime

Breed choice?

Literature review and farm surveys to evaluate suitability

Conventional

- Often used in commercial organic/low input pig production
- May be less suited for these systems



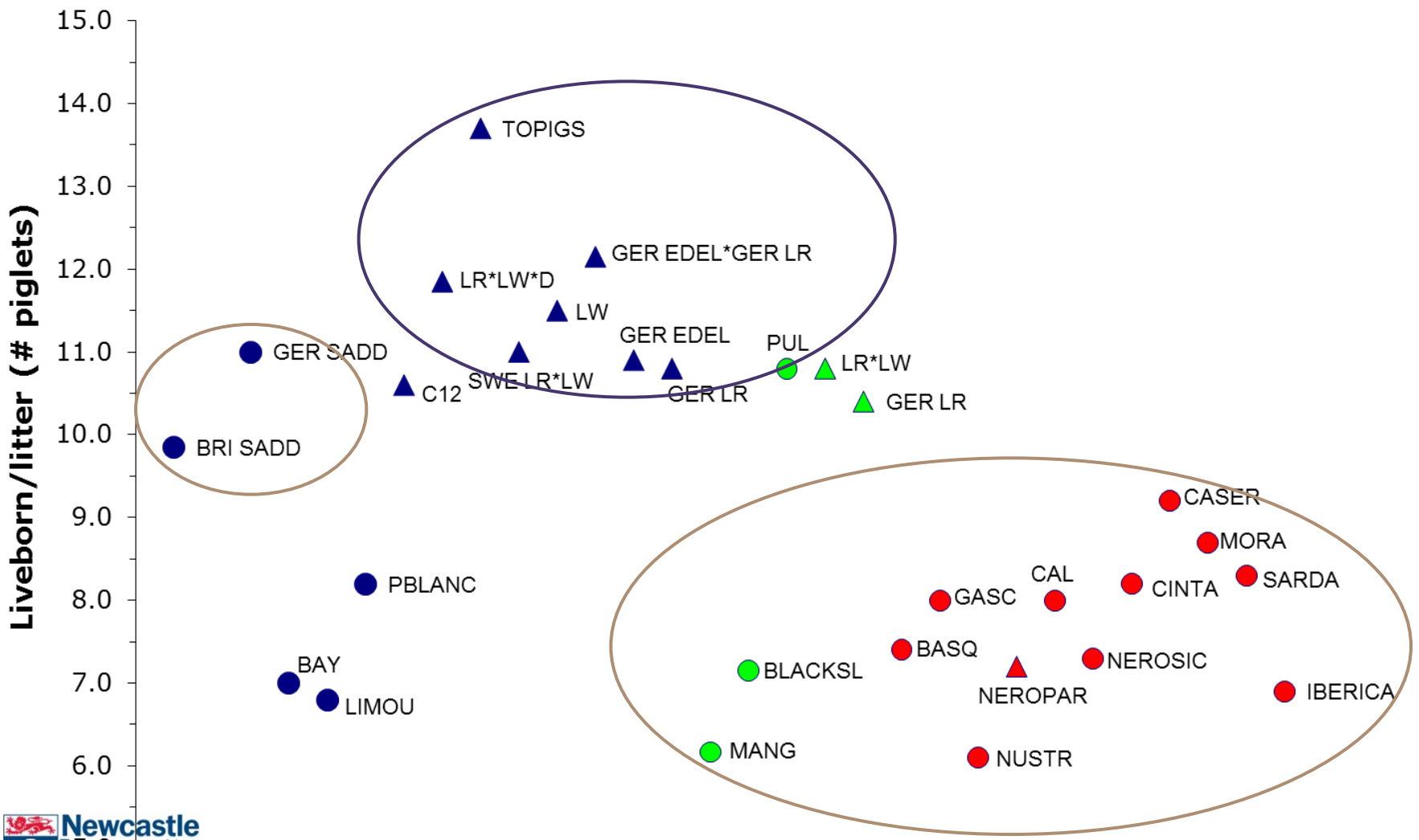
Traditional

- Favoured by organic production standards
- Prolificacy and carcass quality may be less suitable for *commodity* pork market



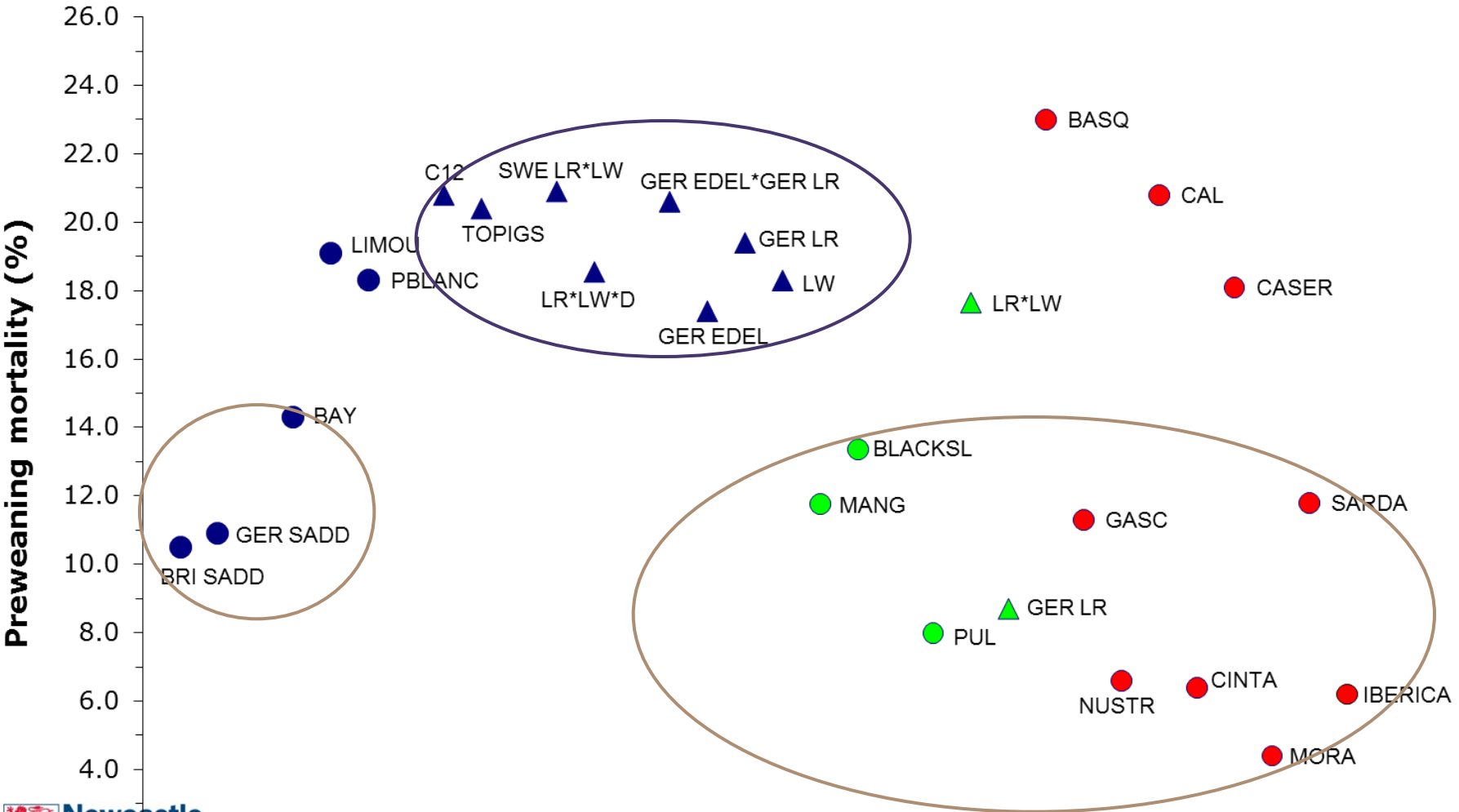
Traditional vs. Conventional breeds

Litter size



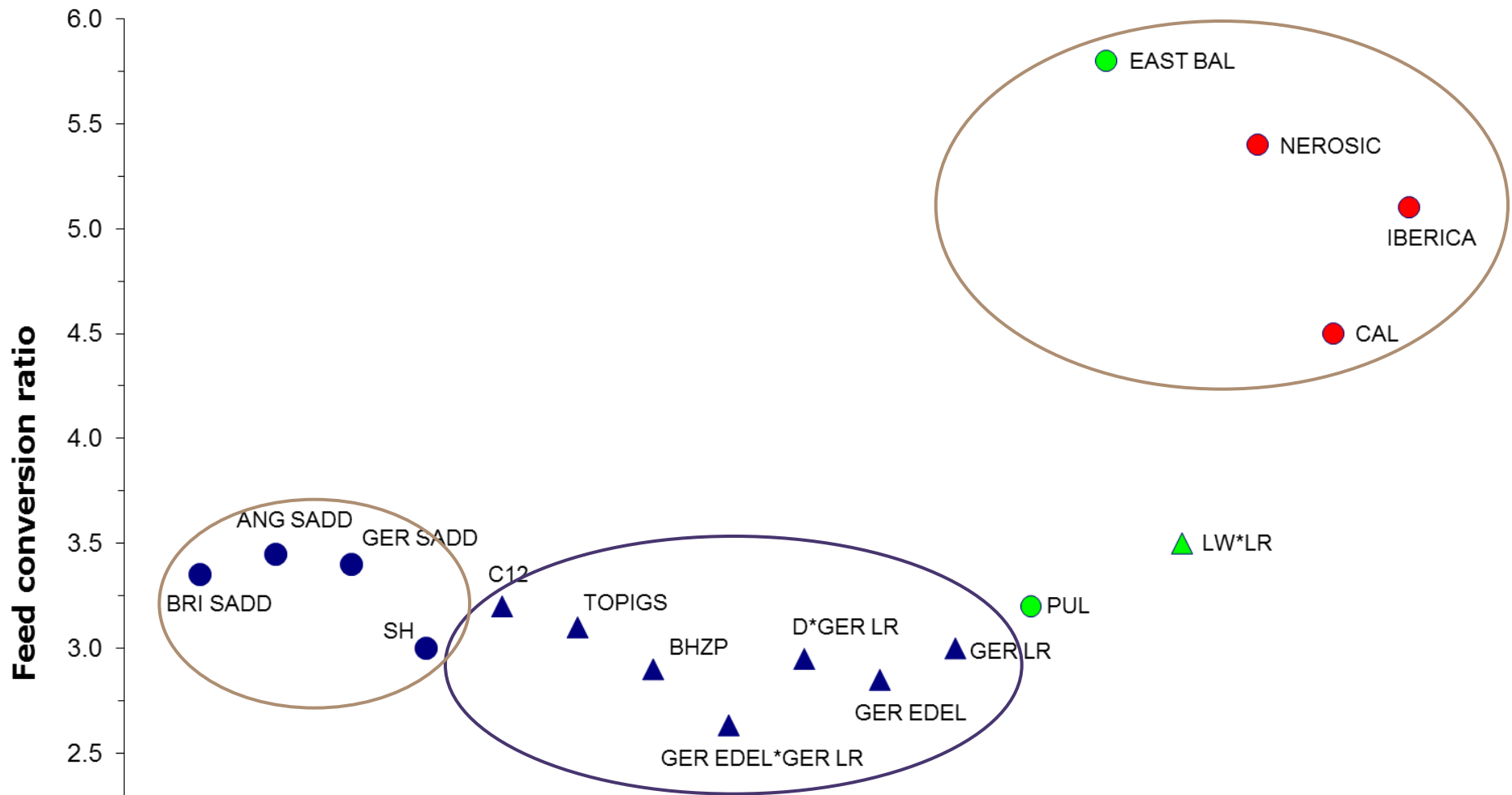
Traditional vs. Conventional breeds

Piglet mortality



Traditional vs. Conventional breeds

Feed conversion



Breed choice: Conclusions



Conventional

- Large litters
 - High mortality
 - Fast growth, efficient
 - Lean
-
- Temperate climates
 - Controlled environment
 - Commodity pork



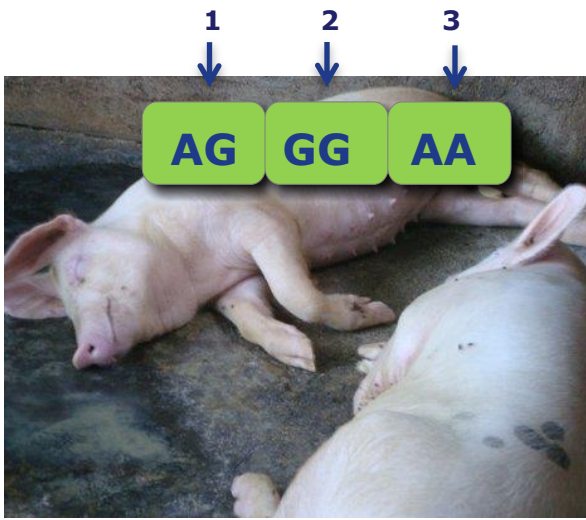
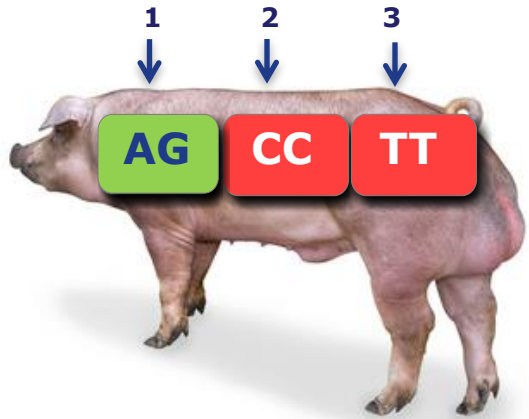
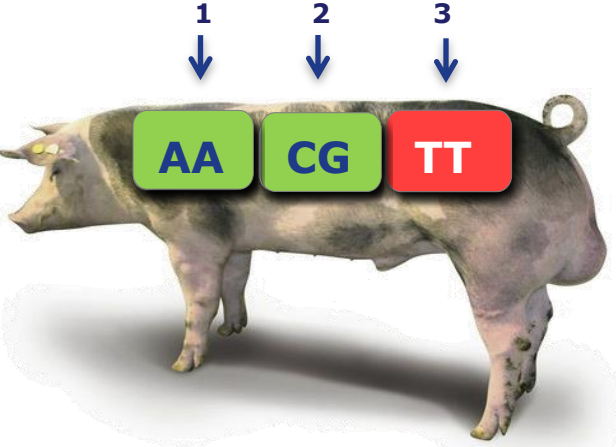
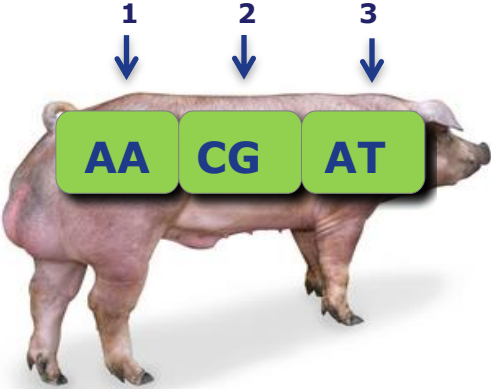
Traditional

- Smaller litters
 - Low mortality
 - Slow growth, less efficient
 - Fat (feeding?)
- 1. Prolific breeds** Good finishing performance, suited to *commodity pork*
 - 2. Special meat breeds** Less prolific and fat good for *added value* products

Finisher survival



Finding families that affect finisher Survival (which sires to avoid)



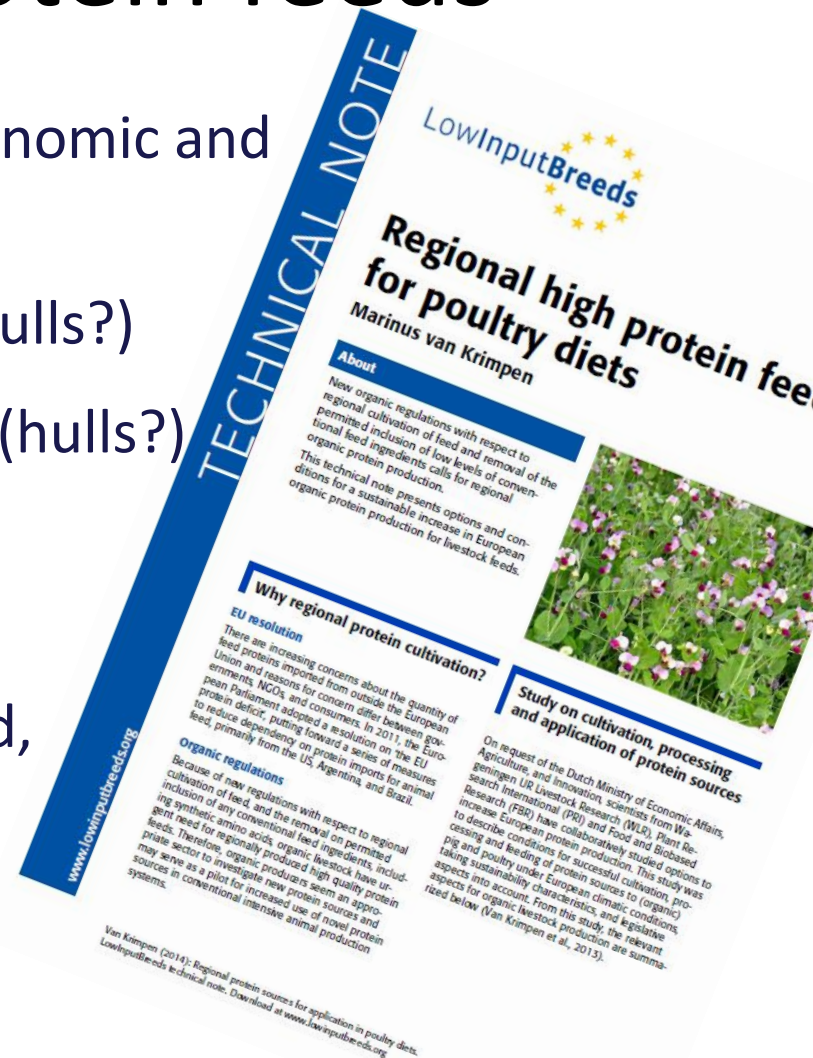
Goals: poultry

1. Develop a participatory breeding system suited to free range and organic systems
2. Management for free range and organic farms to improve diets and reduce feather pecking
3. Scope to extend productive life of laying hens
4. Considering the impact on egg quality



Alternative high protein feeds

- Active research; health, welfare, economic and environmental impact
- Oilseeds: soya? rape or sunflower (hulls?)
- Grain legumes: peas, beans, lupines (hulls?)
- Forage legumes: red clover, lucerne (from range?)
- Aquatic plants: micro algae, seaweed, duck weed
- Extracting protein: potatoes, oats quinoa
- Invertebrates: mealworms, housefly, earthworms



Hens: summary of findings

- Monitoring farms and producer groups in France, Netherlands and Switzerland; 20 different strains of hen
- Mortality and production worse in organic flocks cf free range
- White hens tended to perform better than brown - silver birds had higher mortality and lower production
- No apparent relationship between production, mortality, feather condition, use of outside run or flock size
- High organic feed costs may favour [robust] smaller hens
- Raising *laying* cockerels for meat uncompetitive compared with broilers

Pig diets?



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