

## **Ethical aspects of breeding in organic pig production**

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### **Animal breeding for organic production**

Organic animal production is becoming more common in many European countries. While much effort has been put on the development and promotion of organic products, little attention has been paid to one of the most important foundations of organic animal production, i.e. the animal material used. The breeding strategy currently applied by most farmers is to use the same breeds and lines as used in conventional production. These animals are selected for high production in conventional production environments. In order to assess if this is a sustainable and suitable breeding strategy and to assess other potential breeding strategies, several issues need to be investigated. The process of developing sustainable breeding strategies for organic animal production should involve identification of environmental demands on the pigs (including environmental variation within and between farms and regions), identification of traits especially important and the relative importance of different traits in these production environments and assessment of interactions between genotype and environment. Moreover, factors such as population size, use of reproduction techniques and the structure and cost of breeding programs are important for the outcome of the breeding activities and should be considered.

### **Principals and aims of organic production**

Organic production is based on an ethical framework set up by the organic movements (joined under IFOAM, International Federation of Organic Agricultural Movements) and the four basic principles are health, ecology, fairness and care. Moreover, organic food production strives to have a holistic and systemic approach, aiming towards environmental, social and economical sustainability. IFOAM's general principles (stated in IFOAM's basic standards which include criteria that organic certification organisations follow) emphasize that animal husbandry should be an integrated part of the agro-ecosystem and embrace good animal welfare and health. Thus, the development of organic pig production systems (and breeding activities for these production systems) needs to balance the interests of humans (including both consumers, farmers and the broader society), animals (pigs) and environment, both locally and globally. Ethical dilemmas, conflicts and tradeoffs between different interests are natural consequences of the ambitious aims and principals of organic production, and these conflicts lead to a constant revision of organic standards and development of organic production systems.

### **Ethical key issues relevant for organic pig production**

The fact that producers in many cases only can access pig breeds and lines bred for high production in conventional production environments can be a dilemma. This is especially problematic if the breeding goals for those breeds and lines differ from what would be desired in animals on their own farm. Interesting examples are traits affected by difference in the nutrient content of diets and housing conditions.

The nutrient content in pig diets composed of organic and locally produced feedstuff is usually less optimal in relation to pig requirements, compared to diets composed of feedstuff used in conventional production. Pigs bred for improved production on diets with high nutrient quality will have a poor feed conversion when fed diets with lower nutrient quality. Poor feed conversion lead to increased nutrient leakage and this conflict with the aim of environmental sustainability. Thus, pigs for organic production systems should be bred for improved feed conversion when fed diets composed of organic and locally produced feedstuff.

Breeding goals for pig dam lines have been focused on increased litter size for a long time. Additionally, most breeding companies produce hybrid sows for commercial producers in order to make use of hybrid vigour, i.e. increase litter size even further than in the pure bred animals. Consequently, the litter size in commercial pig production has increased considerably the last decades. The goal trait is number of weaned (or slaughtered) pigs per sow and year, and these numbers has increased with increased litter size at birth. However, other and less favourable consequences are that piglet birth weight and piglet survival has decreased. Piglet mortality is often higher in organic than in conventional production systems. Likewise, more pigs die during the growing/finishing period. The main reason for the high mortality is the more extensive housing conditions (outdoor access, loose and group housed) leading to larger environmental variations, higher disease pressure (for some diseases) and reduced possibilities for humans to care for individual pigs. Furthermore, due to large space allowance and rough ground surface, the stress on pigs' legs is often high in organic production systems, and lameness is frequently occurring. Sows, piglets and growing pigs for organic production should be bred for improved survival, better disease resistance and stronger legs.

Other, and in this context less central, examples of ethical issues in organic pig production that could (at least to some extent) be related to breeding activities are the issue of boar taint/castration and the reduction in productivity caused by sows' timing of oestrous when they are group housed.

In summary, pigs for organic production should preferably be bred for improved ability to adapt to environmental variations (e.g. climate changes between seasons and variation in diet composition between years), ability to utilise local feed resources (including diets with less optimal nutrient quality), survival (piglet and growing pig survival as well as sow longevity), disease resistance and leg strength.