Can pig breeding contribute to the sustainability of low input production systems?

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Abstract: Low input systems (LIS) are often based on specific values such as cultural traditions or principles for organic production. Low amounts of external inputs imply a closed nutrient cycle. Climate change, growing world population and loss of biodiversity put high demands on all systems; conventional as well as LIS have to be efficient. A LIS breeding goal typically includes pigs' ability to efficiently use local feed (preferably waste and by-products), thrive in their climate (heating and cooling are energy consuming), stay healthy (limited use of chemotherapy), and maternal ability (piglet mortality decreases efficiency and sow milk alternatives are external inputs). With grazing, strong legs are needed. Systems based on internal inputs are exposed to larger variation in feed quality than conventional systems where inputs come from a global market. Thus, low environmental sensitivity is an additional goal trait. Traits listed above are relevant also for conventional production, but economic weights differ between systems. Socio-economic impact and acceptance of goal traits must be considered for each LIS. Organic producers in Sweden want higher weight on disease and parasite resistance. In a EU project, 15 production systems were studied. Many alternative systems used animals bred for conventional production. The claimed added values of the products were therefor not reflected in the breeding. Some systems with local breeds were studied. Pig population size and human and technical resources were limiting factors for their breeding work. This illustrates that the small scale of LIS (related to their local nature) is problematic, since breeding is more efficient for large populations. Choosing animals suitable for LIS from a conventional breeding programme can be a more realistic strategy than specific LIS breeding.

Reference: Rydhmer, L., Gourdine, J.-L. 2013. Can pig breeding contribute to the sustainability of low input production systems? Proc. 64th Annual Meeting of the European Association for Animal Production, session 42, Breeding in low input production systems. Nantes, France.