

ICOPP

Improved contribution of local feed to support 100 % organic feed supply to pigs and poultry



Aim of the project:

A key challenge in improving the sustainability of organic monogastric production is meeting the required levels of nutrients from locally sourced organic feeds. From 2014 all producers will be required to feed monogastric animals a 100 % organic diet. This raises a number of questions:

- What is the availability of relevant locally produced organic feed?
- What is the nutritive value of new feed items?
- Which impact does the use of new feed items have on productivity, health, behavior and welfare of pigs and poultry in different phases of their production cycle?
- How can inclusion of roughage in the feeding regimen contribute to meeting the nutritional and behavioral needs as well as supporting animal health?
- To what extent can direct foraging in the outdoor area contribute to meeting the animal's nutritional needs?



Main outcomes at this stage

Local feed availability

The nine countries involved in ICOPP cover 50 % of European organic arable land and produce 85 % and 80 % of organic pigs and poultries, respectively. Self-sufficiency of feed dry matter varies from 5 % to 430 % with an average of 69 %, whereas self-sufficiency of crude protein is on average 56 %. Thus, new and protein sources are needed for pigs and poultry.

Re. Pigs

- Sainfoin seeds are of high nutritional value, particularly if dehulled (similar to soybean cake), and can partially substitute commonly used protein sources also in feeding of weaners, which otherwise often are most difficult to feed on local feed resources.
- Nutrient content of grass pea seeds is slightly higher than that of faba beans, but caution must be taken due to antinutritional substances. Grass pea seeds can partially substitute commonly used protein if subjected to appropriate heat treatment, also for weaners.
- Mussel meal can replace common protein sources in feed for growing/finishing pigs with maintained production results in terms of growth, feed efficiency and carcass quality.

- Inclusion of roughage (grass-silage) in a mixed diet with concentrates for growing pigs does contribute to the protein supply and prevent ulcer damages, but the overall production results (daily gain and feed conversion rate) becomes poorer, and at the same time activity/competition at the feed trough may increase resulting in more skin lesions.
- Direct foraging on well-established lucerne can pose an important contribution to energy and protein supply in fattening pigs if the pigs are fed restrictively with a low-protein feed mixture and if the pigs get regularly access to new land (strip-grazing).

Re. Poultry

- Protein from organically produced Spirulina algae can fully replace protein from traditional organic sources in broiler diets.
- Refining of ingredients of plant origin enriching the relative content of Methionine seems to be a useful way to supply relevant protein sources for poultry, e.g. for sunflower seed expeller.
- Energy dilution of the diet, concomitant with a proportional reduction in other nutrients, e.g. dig. Methionine, is an option as well to fulfil the requirement of 100 % organic diets. This can e.g.



be relevant when including high quality roughage in the feed mixture for layers.

- Crushed mussel shells (particle size 10-20 mm) supplied in the litter on every day basis to layers affected neither birds' feather cover, nor other welfare parameters or production performance. Crushed mussel shells cannot fully replace dietary calcium as calcium source without impairing bone health and egg shell strength.
- Low-protein diets stimulate the broilers to forage on the range area and direct foraging can pose an important contribution to protein supply in broilers of slow-growing genotypes without detrimental effects on growth performance.



Recommendations to end-users

For farmers and farm advisors re. pigs feeding

- Sainfoin and grasspea seeds possess specific advantages under difficult growing conditions (marginal, dry or wet soil conditions). This may (partially) compensate their relatively low yields.
- If properly processed, both sainfoin seeds and grasspea seeds can be used to substitute for scarce protein sources (particularly soybean expeller) without affecting growth performance and health of weaned piglets.
- Mussel meal can substitute fish meal in diets for growing pigs provided that the price of mussel meal is competitive and that the hygienic quality is sufficient. Inclusion of mussel meal should not exceed the levels recommended for fish meal.
- Roughage (e.g. grass silage) can make an important contribution to protein supply if harvested at an early stage, chopped and mixed with concentrate.
- Well-established lucerne is a very suitable foraging crop for fattening pigs. The pigs clearly prefer to graze instead of rooting if the lucerne is well-established and of high nutritional value.



For poultry

- Reduce the energy content of the diet, while maintaining the energy: Met ratio, e.g. by feeding roughages or herbs.
- Local feed with algae performed well compared with soya control, even in winter.





Project meeting at Farm Animal Initiative (fai) in Oxford UK.

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New and important research questions

There seems to be an underutilized potential in how much foraging in a diverse range can contribute to the nutritional needs of monogastrics. However, in order to exploit this opportunity there is a need to further develop methods to estimate the intake by foraging for better use in research as well as in practical feeding planning



Find all publications at
orgprints.org/view/projects/ICOPP.html



Further information

This project is funded via the ERA-net CORE Organic II by national funds to each partner. CORE Organic II is a collaboration between 21 countries on initiating transnational research projects in the area of organic food and farming. In 2011, CORE Organic II selected ICOPP and 10 other projects.

Read more at coreorganic2.org/ICOPP.