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ICOPP

Improved Contribution of Local Feed to Support 100% Organic Feed Supply to Pigs and Poultry

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Background

- A key challenge in improving the sustainability of organic monogastric production is meeting the required levels of nutrients from locally sourced organic feeds.
- From December 2017 all producers will be required to feed monogastric animals a 100 % organic diet.

- This raises a number of questions…

Key questions

- ? What is the availability of relevant locally produced organic feed?
- ? What is the nutritive value of new feed items?
- ? What impact does the use of new feed items have on productivity, health, behaviour 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 behavioural 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?

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Local feed availability

- The nine countries involved in ICOPP cover 50 % of European organic arable land and produce 85% of organic pigs and 80 % of organic poultry, respectively.
- Self-sufficiency of feed dry matter varies from 5 % to 430 % with an average of 69 %. (UK self sufficiency in concentrate feed (DM) is estimated at 43%).
- Self-sufficiency of crude protein is on average 56 % (UK self-sufficiency is estimated at about 30%).
- Thus, new protein sources are needed for pigs and poultry.

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Nutritive feed value of new feed items

Analyses of nutrient composition and feed value by MTT

New high quality, protein rich feedstuffs:

- Algae
- Insects
- Mussel meal
- Sainfoin
- Grass pea
- Okara (soybean by-product)

Organic cereals and protein feeds:

- Cereals (barley, wheat, oats)
- Linseed
- Peas
- Faba beans
- Sweet lupins
- Potato

Organic roughage:

- Lucerne fresh and ensiled
- Grass clover silage

http://www.mtt.fi/mttraportti/pdf/mttraportti164.pdf

Nutrient contents translated into feeding values according to feed evaluation systems used in different European countries

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Pigs – project summary results

- Sainfoin seeds are of high nutritional value, particularly if dehulled. Can even partially substitute commonly used protein sources in feeding of weaners.

- Nutrient content of grass pea seeds is slightly higher than that of faba beans, caution needed to antinutritional substances (use appropriate heat treatment).

- 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.

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Pigs – project summary results

- Inclusion of roughage (grass-silage) in a mixed diet with concentrates for growing pigs contributes to protein supply and prevents ulcer damage, but daily gain and FCR can become poorer, and activity/competition at the trough may increase resulting in more skin lesions.
- Direct foraging on well-established lucerne can pose an important contribution to energy and protein if the pigs get regular access to new land (strip-grazing).

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ORC and FAI work on pigs

- 3 diets: 55% lucerne silage + 14% soya, peas or beans
- Gloucester Old Spot piglets
- Repeated the feed trial in summer/autumn and winter/spring

- 2 pens for each diet: one of males and one of females.
- Took weights weekly.

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The results of the PRELIMINARY trials suggest…

- Replacing Soya with Peas in Lucerne Silage based diets
  - **Did not compromise growth performance**
- Replacing Soya with Beans in Lucerne Silage based diets
  - **Slightly reduced growth rate**
  - **Could be related to lysine availability**
- Beans and peas are a potentially viable alternative to soya in nutritionally balanced pig diets
- Statistical analysis and results on carcass quality are currently being worked on at FAI and results will be available soon…

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Poultry – project summary results

- Organically produced *Spirulina* algae may be able to replace traditional organic protein sources for broilers.
- 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. sunflower seed expeller.

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Poultry – project summary results

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.

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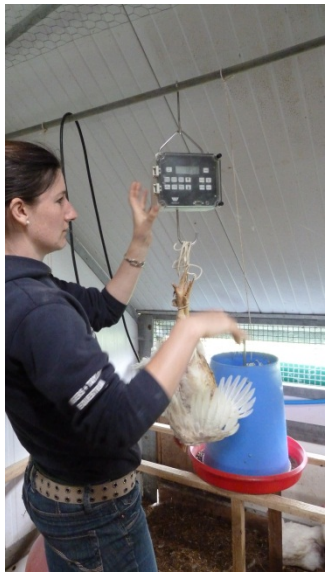
ORC and FAI work on poultry



- Preliminary feeding trials carried out with broilers in summer and winter in the UK.
- 3 diets
  - **control diet** with globally sourced ingredients including **soyabean expeller**,
  - a diet based on **locally sourced** (i.e. within Europe) organic ingredients,
  - a diet based on **locally sourced** organic ingredients and **algae** (good source of methionine).

- The results of the **summer feed trial** showed that there were **no significant differences** in broiler weight gains.

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- In the winter feed trial there was a **significant difference** (p=0.034) in weight gain over the trial period **between the local feed** (lower weight gain) and the **local feed with algae**.
- Also a **significant difference in feed conversion ratio** (FCR) (p=0.029) between the local feed (higher FCR) and the control.
- There were no significant differences in breast feather coverage or hock lesion scores.
- These preliminary feed trials indicate that there is **no significant impact** on broiler performance or animal welfare parameters when **replacing soya with local protein sources including algae**.

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ICOPP: New research question

- How much can foraging in a diverse range contribute to the nutritional needs of monogastrics?
- 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

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