

D3.1: WP3 progress report
Report by Thuenen-Institute (TI)

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Meeting concerning ICOPP 12 month project meeting, 9 – 10 October 2012, The Field Station, Wytham, Oxford, GB

A WP3 description

WP3: Impact of different types of local concentrates on productivity, health, behaviour and welfare of pigs and poultry in different production phases

There are 9 activities, addressing regionally based feeding strategies which shall ensure an appropriate nutrient supply for pigs and poultry:

No.	Description	Month
3.1	Workshops for common planning and interpretation of results (D3.4)	3,12, 24
3.2	The effects of different proportions of processed and unprocessed seeds of grass pea (<i>Lathyrus sativus</i>) and sainfoin (<i>Onobrychis viciifolia</i>) for weaned piglets will be studied by BOKU. Our hypothesis is that these feed components can be included into diets for weaned piglets without impairing growth performance or health status and that thermal treatment may improve utilizability of these legume seeds. Response criteria will involve growth rate and related performance traits, and health status with a particular focus on gut health and behaviour disorders (D3.6)	2-24
3.3	The possibility to use protein from black soldier fly (<i>Hermetia illucens</i>) larvae for piglets from the suckling period and until 3 weeks after weaning will be investigated by FiBL with a focus on response variables including feed consumption, weight gain and health status of individual piglets. Earlier studies have demonstrated the good potential of <i>H. illucens</i> larvae collected from cattle feces as feed component for pigs. Meanwhile, a controlled production system for <i>H. illucens</i> larvae has been developed. It will deliver a standardised insect product fulfilling hygienic standards thus having the potential of becoming a valuable component of modern pig feeds supporting their needs of limiting amino acids (D3.10)	2-24
3.4	Six different feeding strategies - 3 concentrates (standard vs. high input vs. low input) combined with 2 roughages (grass-glover-silage vs. straw) - for piglets will be tested by vTI. Additionally a random sample of piglets of each feeding strategy and run will be used for verification of fattening success (e.g. lean meat content) with 100% organic diets (D3.3). It is hypothesized that the low-input-strategy will lead to healthy piglets with good growth performance, to reduced time and effort in feed and feeding management, to lower feed costs and to improved economics.	2-30
3.5	Mussel meal as a protein source in diets for growing/finishing pigs of different genotypes will be investigated by SLU in a 2x2 design. Mussel meal has high protein content and a balanced amino acid pattern for animal growth, and it is hypothesized that pigs will perform well, with maintained production results in terms of growth, feed use, carcass and meat quality, when mussel meal replaces conventional protein feed resources (D3.2)	13-23
3.6	Information on feeding of sows with locally produced organic feedstuffs (peas, faba beans, cold-pressed rapeseed cake) is inconsistent and needs updating; varieties of legumes have developed during the past decades influencing content of ANF etc. In addition, phase feeding of sows during gestation and lactation could better meet the sow's amino acid requirements during gestation and lactation and avoid excess N excretion. The hypothesis that multi-phase feeding based on cereals, legume and rape seed during gestation and lactation would have positive impact on sow and piglet performance and N utilization without compromising sow	1-30

	body condition during lactation, will be tested at MTT. (D3.7)	
3.7	The dietary inclusion and/or spreading out of coarse ground Blue mussel (<i>Mytilus edulis</i>) shells into the litter floor material for laying hens in order to increase occupation among birds and hence, reducing the risk for feather pecking behaviour and increase egg shell strength will be studied at SLU, with two non beak-trimmed genotypes, i.e. Lohmann Selected Leghorns (LSL) and Lohmann Brown which are supposed to be differently predisposed to feather pecking activity (D3.5)	6-21
3.8	Various organic feed ingredients, to fulfil the 100% organic requirements (among others the inclusion of animal protein sources in the diets) will be tested by WUR-LR in practical feeding trials. Moreover, interaction between diets with 100% organic ingredients and strain will be investigated in these studies (D3.9).	24
3.9	The project will investigate various locally available organic feed/protein combinations identified in WP1. On-station group feed trials will be carried out on modern breeding lines of broilers by FAI/ORC: chicks (groups of 100) and growers (groups of 20 birds) (10 replicates per feed combination) over two opposing seasons. The main production parameters to be monitored are: growth, feed conversion, breast meat yield, and animal health and welfare assessments including gait scoring, foot pad lesions, mortalities and culls. Our hypothesis is that there will be maintained production results with no reduction in welfare, when conventional protein feed resources are replaced by European sourced organic ingredients (D3.8)	2-24

B 12-months status

Activity 3.1: OK

Activity 3.2 – Boku (A): The experiment with sainfoin seeds in Austria is finished, results are presented. It was concluded that sainfoin seeds as protein source for piglets can be recommended when available. A trial with grass pea is currently carried out.

Activity 3.3 – Fibl (CH): On standby; there are some problems in relation to the fly larvae activity regarding the possible legal aspects related to its use.

Activity 3.4 – TI (D): In progress, presentation of the current status on piglet's trial.

Activity 3.5 – SLU (S): In progress, presentation of the plans for the trial with mussel meal for pigs.

Activity 3.6 – MTT (FIN): In progress, presentation of a pre-trial. The idea of different amino acid requirements was discussed.

Activity 3.7 – SLU (S): In progress, presentation of preliminary results from the project with mussel shells for laying hens.

Activity 3.8 – WUR (NL): In progress, presentation of results from another Dutch project with alternative protein sources. It was concluded that pea and rapeseed protein seemed to be the most promising ingredients.

Activity 3.9 – FAI (GB): In progress, presentation of some results on algae in poultry diets - indicating that algae may be used as protein source even though there are some challenges, a. o. in relation to the price.

Milestones

M3.1 OK

M3.2 OK

Deliverables

D3.1 Progress report to national funding body has to be completed by each wp partner

C Participants

Lisa Baldinger, Werner Zollitsch, Ruth Clements, Barbara Frueh, Veronika Maurer, Helga Willer, Salomé Carrasco, Virgilijus Skulskis, Monique Bestman, Kirsi Partanen, Hilikka Siljander-Rasi, Liisa Voutila, Rebecca Nelder, , Malin Karlsson, Maria Neil, Helena Wall, Friedrich Weissmann, Paul Bikker, Herman Ver-meer, Bruce D. Pearce, John Erik Hermansen, Klaus Horsted, Sanna Steinfeldt, Mike Gooding

Excused: Jo Smith, Gerhard Bellof, Antoine Roinsard, Hervé Juin, Joannie Leroyer, Jan-Paul Wagenaar, Anne G. Kongsted, Kristina Andersson, Lotta Jönsson, Ragnar Tauson

In addition Stephen Edge (ADAS) from the 'Healthyhens' project participated day one.