

Towards animal oriented rearing methods in organic production systems

Quality Low Input Food (QLIF)

PROCEEDINGS
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CONTENTS

CONTENTS	1
INTRODUCTION	2
GOALS.....	2
PROGRAMME.....	3
SUMMARIES.....	5
FIELD VISIT DAIRY CATTLE FARMS	19

INTRODUCTION

One of the foundations of organic animal production systems is that animals are kept in a more natural way. In terms of housing, animals get more space, have access to outside areas and are fed organic rations. This results in unique, farm-specific production systems with emphasis on animal welfare and product quality. In recent years it has become clear that strategies to rear replacement animals are getting more important. There is a public demand for more animal oriented, sustainable production systems. Also farmers realize that rearing is the key to raise suitable animals that fit into their production system. Circumstances during the rearing period affect health, wellbeing and production, not only during the rearing period itself, but also during later life. In organic egg production and in organic milk production farmers realize that organic production requires organically sound rearing practices!

As part of the EU-programme Quality of Low Input Food (QLIF; see [www.qlif.org](http://www qlif.org)) a meeting will be organised for researchers with as topic the case of rearing laying pullets and dairy calves.

The aims of the meeting are:

1. Draw up scientific framework regarding importance of good rearing practices
2. Exchange of ongoing research
3. Translation of research findings to farmers' practice
4. Indicate future research needs and priorities

GOALS

The goals of the workshop are as follows:

- Highlight the importance of animal oriented rearing practices
- Exchange ongoing research
- Exchange of views and experiences
- To translate research findings to farmers' practice, but also translate farmers' needs and experiences into research
- Do we do enough to get research into animal oriented rearing a proper place?
- How should we address research needs and priorities?

PROGRAMME

Monday 20 February 2006

- 13.00 Arrival and registration
- 13.30 Introduction
- 14.00 Dr. Paul Koene
Applied ethologist, Wageningen University, the Netherlands
Rearing conditions and adult performance: a scientific framework with examples of poultry and cattle husbandry
- 15.00 Short break
- 15.15 Ir. Monique Bestman
researcher Organic Poultry, Louis Bolk Institute, the Netherlands
Best rearing practices for organic laying hens
- 15.45 Ir. Ron Methorst
AgroEco Consultancy, the Netherlands
How to support farmers in changing to animal oriented rearing: case of laying hens in the Netherlands
- 16.15 Tea break
- 16.45 Ir. Jos Langhout
researcher Dairy Cattle, Louis Bolk Institute, the Netherlands
Suckling systems in modern dairy farming
- 17.15 Prof. Dr. Ton Baars
University of Kassel, Witzenhausen, Germany
Suckling systems: validation of an alternative rearing system
- 18.00 End of first day, Buffet at Kraaybekerhof

Tuesday 21 February 2006

- 08.30 Departure field visit from Louis Bolk Institute
Dairy cattle farms of Jan Vrolijk, Oosthuizen, Noord-Holland
- 12.30 Lunch
Dairy cattle farms of Nils Spaans, Broek in Waterland, Noord-Holland
- 14.30 Arrival back at Louis Bolk Institute
- 15.00 Berry Reuvekamp
Animal Sciences Group, Wageningen University, the Netherlands
Experiences with pullet rearing (on research station)

- 15.45 Tea Break
- 16.00 Exchange of ongoing research by participants
- 17.30 End of second day, no dinner organized

Wednesday 22 February 2006

- 09.00 Prof. Dr. Ute Knierim
University of Kassel, Witzenhausen, Germany
Welfare aspects of pullet rearing – behavioural freedom versus health?
- 10.00 Dr. Kathryn Ellis
Glasgow Veterinary School, UK
Animal health in organic dairy production in practice
- 11.00 Coffee break
- 11.30 Final session: put together important conclusions and findings; indicate future
research needs and priorities
- 12.30 Lunch and departure

SUMMARIES

Rearing conditions and adult performance – a scientific framework with examples from poultry and cattle husbandry.....	6
Paul Koene	
Best rearing practices for organic laying hens.....	8
Monique Bestman	
Developing rearing practices for the future.....	10
Ron Methorst	
Suckling systems at organic dairy farms in The Netherlands.....	11
Jos Langhout	
Calf rearing at Frankenhausen research farm and organic pilot farms.....	13
Ton Baars and Jenifer Wohlers	
Experiences with rearing from a research point of view.....	15
Berry Reuvekamp	
Welfare aspects of pullet rearing – behavioural freedom versus health?.....	16
Ute Knierim	
Animal health in organic production systems in practice.....	17
Katryn Ellis	

Rearing conditions and adult performance – a scientific framework with examples from poultry and cattle husbandry

Paul Koene, Wageningen University, Wageningen, the Netherlands, paul.koene@wur.nl

Effects of rearing conditions on adult behaviour

Studies in rats proved that environmental enrichment during rearing improves the performances in a maze run. Environmental enrichment during rearing has been shown to lead to more synapses in the brain, greater acetylcholine production and a thicker cerebral cortex. This counts for both mammals and birds. Extreme rearing conditions can have far-reaching consequences. Harlow grew monkeys without mother and without other conspecifics. In adult life these animals showed pathologies, withdrawal from social interactions, self-mutilation, deficits in sexual behaviour, failing to care for own young, etc.. How animals are reared has an important impact on their later behaviour. Early access to commodities affects later abilities. Fear and stress play major roles during ontogeny. Recommendations: fear and stress should be avoided during rearing, animals should be prepared thoroughly for the recourses they will encounter as adults and early investment in the behaviour of young animals may save time and money.

Concept of potential wildness

The concept of potential wildness, indicating the ability to show wild-type behaviour and to survive in the wild, is introduced to weigh species-specific behaviour, environmental requirements and animal welfare (behavioural needs), ranging between natural and captive conditions. The higher the potential wildness of an animal, the higher its environmental requirements. For example the potential wildness of a bankiva is higher than that of a broiler. The fundamental difference between environmental requirements and environmental enrichment is that by satisfying the first, the environment only offers the basic needs and this only reduces suffering. However, by offering the second, the environment may even induce states of pleasure in the animal.

Environment of adaptedness

Animals are adapted to react on stimuli from the environment according to the rules that developed in environments on 3 different levels: evolution, domestication and the current situation. If there is a mismatch between these 3 environments, an animal has problems with adapting to its current environment. The idea of the environments of adaptedness is valuable to emphasize the fact that contemporary organisms may exist in an environment very different from that in which many of their traits were first selected. Any difference between these environments could be a source of stress for which contemporary animals would try to compensate. In practice, the environments of evolution and domestication are frequently mismatched to the current environment and thus animals find themselves doing the best they can, to deal with contemporary stimuli using the traits they evolutionary possess. If the time budget of contemporary animals differs much from the time budget of the same species or its ancestors in an environment where it may first be adapted to, this is an indication for a mismatch between the environments of adaptedness. An example is the almost 100% foraging and feeding behaviour in bankiva's, compared to 70% resting behaviour in broilers.

Actions needed

As human actions for poultry are mentioned more space per facility (foraging, dust-bathing, etc.), plants or stimuli in the environment (make them feel safe), mother hen, more space outside, less stress during rearing, better rearing conditions in preparation for adult environment, substrate, exploration and enrichment in the first 4 weeks. As human actions for adult cows are mentioned: pasture, adequate floors and rearing calf with mother. For calves roughage, more milk, group housing and rearing with mother are mentioned.

Conclusions

It is concluded that there is a lack of literature concerning the influence of rearing conditions on adult behaviour in domestic animals, that current rearing conditions should be adapted and that more research has to be done on wild, feral and extensively kept 'domestic' animals has to be done in order to be able to match the 3 levels of environmental adaptedness.

Overall conclusions by editors

- **Effect of rearing circumstances have neuro-physiological base and are long lasting**
- **Circumstances during early rearing, or during specific short periods in early life, have big effects on an animals life**
- **A change of environment can only be called an enrichment if it leads to pleasure for the animal**
- **The wild ancestor of a species is often referred to in the case of increasing animal welfare, while we should look at the environment in which a species has been domesticated. Example: bankiva – layer – broiler and feeding behaviour, rest behaviour and abnormal behaviour.**
- **There is a difference between natural and unnatural suffering. Natural suffering animals can cope with because they still have the tools to do so. Unnatural suffering is caused by artificial living circumstances. Animals don't have a behavioural repertoire to deal with this.**

Best rearing practices for organic laying hens

Monique Bestman, Louis Bolk Institute, Driebergen, the Netherlands, m.bestman@louisbolk.nl

Feather pecking in rearing hens

Feather pecking is the main welfare problem in laying hens, also in alternative systems. Several studies showed that the rearing factors are of crucial importance for feather pecking, not only during the rearing period, but also during the laying period. Only some studies have been done in 'the field' instead of in experimental situations. Because we intended to write a handbook for organic farmers about the prevention of feather pecking, we were interested in information about this behaviour in this specific group of rearing farms. We wanted to know the degree of feather pecking in rearing hens, risk factors for feather pecking in rearing hens and the persistence of feather pecking throughout life, once it had started during the rearing period.

Monitoring of rearing flocks

We monitored 29 flocks of pullets which were reared on different farms. We collected data from week 1 to week 30 about management, housing and feather pecking damage. The pullets were visited at 5 ages during rearing and once they were 30 weeks old on the laying farm. On the laying farms, again data were collected about housing, management and feather damage.

Results

During the rearing period feather pecking was seen in 13 out of 24 flocks (54%). Although nearly all the differences between the categories 'flocks that did feather peck' and 'flocks that did not feather peck', were the same as expected from literature results (for example 'larger group size leads to more feather pecking'), in our study we could identify only one risk factor being statistically significant. In the feather pecking category the density during the first 4 weeks of life was 35 chicks/m², while in the non-feather pecking category it was 22 chicks/m². Of 21 flocks we had information on feather pecking both during rearing and during laying. Of 11 flocks that feather pecked during rearing, 9 (82%) of them did so during lay. Of 10 flocks that did not feather peck during rearing, 9 (90%) neither did so during lay.

Discussion

We found that more than half of the rearing flocks showed feather pecking behaviour. This means that the current situation of organic rearing in the Netherlands is far from ideal. Especially when we take into account that feather pecking is very persistent throughout the whole chicken life. This means that the laying farmer cannot do so much anymore to stop this unwanted behaviour. We found that high density during the first 4 weeks of life is the main risk factor for feather pecking. Although the other factors we looked at, were no risk factors in the sense of being statistically significant, they in general are known to increase the risk of feather pecking, for example the use of grid floors during the first weeks of life, the absence of perches and no additional grain scattered as a pecking incentive.

Conclusions

It was concluded that the degree of feather pecking during rearing is underestimated, that feather pecking during rearing predicts feather pecking during lay and that the main risk factors are high density and a poor environment, especially during the first 4 weeks of life. The feather pecking problem in general should be solved by fundamental research, as well as practical research (like

the study presented), followed by effective communication of the results from research to the farmers.

Overall conclusions by editors

- Degree of feather pecking during rearing underestimated
- Feather pecking during rearing predicts fp during lay
- Main risks are high density and poor environments

Risk factors 0-6 weeks

- group size
- density
- floor cover
- Risk factor 7-17 weeks
- scattered grain

How to solve the feather pecking problem

- Fundamental scientific research
- Practical research
- Effective communication of results to farmers
- Evaluation of implication in daily farming practice

Developing rearing practices for the future

Ron Methorst, Agro Eco Consultancy, Bennekom, the Netherlands

Image versus reality

The image of organic poultry farming is better than the reality. Consumers think that all chickens are being kept outdoors and that they look very fine. The reality is that on a part of the farms the chickens show signs of feather pecking and that the outdoor run is not used so well. Not all farmers see this as a problem. For those type of farmers only a strict control system can help them to develop in a good direction. Also, organic rearing does not receive the attention it needs to have. This is because a lack of standards and because there is no demand from laying hen farmers or even from consumers to trigger a good development.

What is needed in order to improve the situation

There should be standards in order to force poultry farmers to doing better. At the same time farmers should be more aware of the importance of good pullet quality. In order to develop more knowledge, scientific research should be linked to the farming practice and practical individual farmers knowledge should be made available to other farmers. If more stakeholders such as breeding companies are involved, responsibility is in more hands which might be more effective. Results from research should be reported in a way close to the practice. At the same time study groups should be organised where farmers themselves are in the lead, which means that farmers are being facilitated in their own learning process.

Conclusions

In order to improve organic poultry husbandry, the rearing of the laying hens needs more attention. This should be done by regulation as well as better communication.

Overall conclusions by editors

- Dutch laying sector creates an image that does not exist

- **Quality of rearing layers in the Netherlands is poor**
-
- **In the Netherlands there are two types of farmers:**
 - **farmers who really like to go organic**
 - **farmers who want to make money**

That's why there is a need for strict and clear rules and a strong controlling body

Suckling systems at organic dairy farms in The Netherlands

Jos Langhout, Louis Bolk Institute, Driebergen, the Netherlands, j.langhout@louisbolk.nl

Introduction

Both farmers and consumers increasingly ask for a more natural calf rearing method than bucket feeding in organic dairy farming. Only few farmers are familiar with more natural rearing systems which are based on maternal behaviour and the importance of bonding between cow and calf. Compared to artificial calf rearing, suckling systems are beneficial to the welfare of calves. The calves will be nursed by their mother, suckled with milk, learn to eat roughage at a younger age, have social contact with other calves and cows and have space enough to exercise and play. Most of these factors are absent in artificial calf rearing systems. Bucket feeding reduces contact between cow and calf to a minimum. Long accepted housing and milking concepts are barriers for farmers to move away from bucket feeding. The benefits of rearing calves with the mother's involvement, such as weight gain potential, efficient colostrum intake, adding value to milk of animals otherwise discarded and increased activity of cow and calf are underestimated.

Different methods are practised., three suckling methods can be distinguished. Single suckling during the colostrum period is practised during the first three days postpartum. The mother is not milked mechanically unless this is necessary for udder health or when there is a need to support the calf with additional feeding. After this period, there are two options: single suckling with additional milking or multiple sucking without additional milking. When single suckling is practiced, the calf is introduced with its mother into the dairy herd mother and the mother is milked mechanically twice a day. With multiple suckling is the calf is removed from its mother and moved to a nurse cow. The nurse cow is housed separately from the dairy herd, not milked mechanically but sucked by one up to three calves.

In a pilot study two calf rearing methods were evaluated at two organic farms. The aim of the overall project is to develop an alternative calf rearing system for replacement calves that will improve animal welfare on dairy farms and meets the requirements of farmers in terms of practicality and cost.

Results

Youth growth on milk seems relatively easy. Suckling calves show increased growth compared to bucket fed calves. The difference in weight develops in the first months. At farm two the mean growth of suckled calves pre weaning was 0.97 kg/day vs. 0.59 kg/day for bucket fed calves, the difference is 0.38 kg/day ($P < 0.1$). For the second month a difference of 0,5 kg per day was found ($P < 0.001$). There was also a difference in weight development of suckled calves between farms. This can be explained by the duration of the suckling period. After weaning the increased growth levels out, nevertheless the difference in liveweight accomplished in the first months holds. From the age of 18 months partum affects the weight development. After calves are weaned their ration largely exists of roughage, often of inferior quality, because the best quality roughage goes to producing animals. Moreover, because of the relative high cost of organic concentrate feed, calves receive a limited quantity. As a result sub-optimal feeding conditions might occur. The average age at calving of heifers at organic or extensive conventional farms is higher than on conventional farms. On this basis it is hard and costly to reduce the age at first calving. At farm one the

development (weight) of calves was such that the farmer decided to introduce the suckling calves at an earlier age to the bull than the bucket fed calves.

Overall conclusions by editors

- **Alternative calf rearing systems are developed by motivated farmers who initiate a new system, adapt it and make it work for on their farm. It's the essence of innovation**
- **If farmers learn to trust and to apply the system, there can be a lot of benefits (labour, calf growth, welfare)**
- **Strong point: it is good for the image (consumers)**
- **If your aim is to increase natural behaviour, you also have to accept the consequences (man-animal relation, milk let-down, etc)**

Calf rearing at Frankenhausen research farm and organic pilot farms

Ton Baars and Jenifer Wohlers, Faculty of organic agriculture, Kassel University, Witzenhausen, Germany.

Ton Baars initiated calf rearing in a suckling system at Frankenhausen research farm in September 2005. So far focus has been on acceptance and development of the system and the participative process with responsible co-workers. Project activities should take place between July 2006 and December 2008.

Research goals are:

- Improved mother-child relationship
- Improved herd structure (horned animals)
- Development of ruminant in terms of fat, growth, rumen development
- Balance between wild and domesticated behaviour
- Find a solution for additional costs and losses

In more detail the research will look at:

- First 5 days after birth: attention to mother or caretaker, milking
- Control of milk consumption
- Mother or nurse cow?
- Weaning: gradual or abrupt?
- Post-weaning feeding

It is very important to validate that suckling systems are advantageous and to make clear to farmers and researchers that it works. Thus there is a need to make things measurable.

Options are:

- Non-evasive methods for stress: e.g. heart frequency, as an instrument to understand and improve the impact of the rearing system
- Behavioural studies
- Weight development
- Health
- Man-animal relationship
- Co-operation with experienced pioneers, "systems that work", exchange and mutual learning

It was explained that starting a new calf rearing system at a research farm was not an easy process. At the start all possible negative aspects are brought forward. It takes time and effort to deal with this. At the same time it is very important that before the start of the research experience is gained with the system, because otherwise it is impossible to use the first research data.

Therefore it was decided to, at the same time, start a field research. In Germany there are at least 40 dairy farms which practice suckling during calf rearing. A comparative study could be carried out, e.g. farms which are satisfied with the systems and farms which are not.

A selection of experiences which were presented:

- A cow which was calving down was placed in the herd. The cow saw a young calf and stopped giving birth.
- First calves which were reared in a suckling system were relatively wild, afraid of people
- After weaning nose-contact should remain possible, but access to udder should be prevented at all times.

Illness of responsible caretaker had substantial impact on behaviour of animals

Overall conclusions by editors

- **Importance of man-animal relationship!**
- **"self-chosen prototypes" ; farmers who go for it themselves create systems that work. You can't force innovations upon farmers.**

Experiences with rearing from a research point of view

Berry Reuvekamp, Animal Sciences Group from Wageningen UR, Lelystad, the Netherlands,
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How to receive good quality pullets as a laying hen owner

Order your replacement hens in time. Do know what is important in order to demand the right things. Make clear what you want by contract and what will be done when something goes wrong. Stay in good contact with the persons who are responsible for the rearing of your hens. Make additional agreements about the vaccination schedule, litter, additional grain scattered, perches, feeding programme, outdoor area, growth, light schedule, health tests and administration by the rearing farm. Last but not least, visit the rearing farm at crucial moments. Pay extra attention to your animals the first time after they arrived on your farm.

Research topics for the future

100% organic feed. Is roughage needed and if so: of what type and how much? What is the right weight gain? At what ages and how much should the following be provided: litter, scattered grain, perches. How to get all demands satisfied in different types of stables? At what time should an outdoor run be available and what should it look like? What is the effect of a winter garden and what should it look like?

How to get rearing farms do the right thing

Bring the farmers together to exchange their knowledge. Make them aware of why things are important. Show the effects of rearing conditions by together looking at the animals when adults. Be willing to pay more for the hens, if necessary.

Overall conclusions by editors

- showed many examples of enrichment in poultry rearing; how to set priorities?
- If you want good quality laying hens, you have to make clear arrangements (contracts) and be willing to pay more

Welfare aspects of pullet rearing – behavioural freedom versus health?

Ute Knierim, University of Kassel, Witzenhausen, Germany

Animal health versus animal welfare?

Animal welfare consists of a physical and a psychological component. Both should be all right in order to reach a good welfare. They can be measured by measuring health and behaviour. Welfare is a gradual parameter, not just a yes/no parameter. In poultry husbandry several resources can be called necessary for animal welfare, but at the same time they can form a risk for animal health. These resources are daylight, perches, substrate for dust-bathing and foraging, space, a suitable group size and access to a free range area (see later in this text).

Possible health problems in alternative systems (such as organic), are infectious diseases, parasites, bone fractures (because of bad perches or shortage of calcium), bumble foot, fatty livers, feather pecking, cannibalism and predation. Concerning infectious diseases we should look for the right balance between offering stimuli in order to develop the immune system and good hygiene in order to prevent 'unnecessary' illness.

Naturally, animals are born and reared in the same environment as their parents. This prepares them for infections by receiving antibodies that are fit to the place they are living in. In modern poultry husbandry (also organic), the different generations are kept separated from each other and during its life, a chicken is moved several times from the one place to the other. To which environment can or should such an animal adapt? Breaking the natural 'cycle' of all generations living in the same area, may lead to not being fully prepared for the production period, from the immunological point of view. Against certain diseases, vaccinations can be given. However, vaccinations could have side effects.

As mentioned before, some aspects that are beneficial to animal welfare, might be a risk for animal health. Daylight increases the general activity. If there is already feather pecking, this will be increased too. Perches can house blood mites and if not shaped properly, may lead to bumble foot. Substrate, if not managed properly, can form a risk for diseases. More space and lower stocking density make rearing expensive. A free range area contains also certain pathogens.

Conclusions

Many resources necessary for greater behavioural freedom are also beneficial in health terms if managed properly. Economy poses the greatest restrictions. However, infectious diseases are a special problem. Even in organic husbandry, breeding, rearing and keeping of poultry are far away from natural conditions. Keeping of flocks of some hundreds or thousands of birds is not possible without certain interventions. Their nature and degree needs further research.

Overall conclusions by editors

Health in agricultural system is complicated through breaking the natural life cycle of being born, raised and live on the same spot. Animals in immunological way are probably not ready for the place were they have to produce.

Animal health in organic production systems in practice

Kathryn Ellis, University of Glasgow, Faculty of Veterinary School

The Veterinary school is involved in several case studies / field programmes. Presented were three case studies: 1) calf rearing on an organic farm, 2) a mastitis investigation on an organic farm, 3) veterinary education regarding organic systems. In general, each case study approach involves farm visits & discussion, report in writing, list of action points (immediate, medium and long term advice) and follow-up.

Calf rearing

Currently little data is available detailing organic dairy farmers' approaches to calf rearing in the UK. Also farmer participation is a constraint.

In calf rearing problem presented, which concerned an increase in calf mortality, ill-thrift and poor nutritional management the suggested advice was:

- Short-term:
 - Reduce calf density
 - Better feed availability
 - More consistent milk routine
 - Monitor calf health closely (a check list was provided for the stockman)
 - Suggest that one person is responsible for calf rearing
 - Revise calving practice (clean pens, dip navels)
 - Method of castration changed? (from surgical to non-surgical)
- Medium term: Consider other accommodation options on the farm
- Long term: Consider change in rearing system? (Longer suckling times for calves)

Mastitis control

Encountered problem was a rising bulk tank SCC problem. Intervention is stimulated by threat of no milk sales from buyer as geometric mean SCC >400,000 cells/ml.

Clinical treatments consisted out of:

- Homoeopathy (vulval spray)
- Herbal lactating cow intra-mammary tubes (*Aloe vera* based tubes and tea tree oil based tubes)
- Antimicrobial

Results

Short term advice:

- To reduce BTSCC < 400,000 cells/ml (to allow sale of milk). Milk high SCC cows as a separate 'dirty' herd not contributing to the bulk tank.
- Cull a number of cows based on bacteriology & mastitis history
- Antimicrobial treatment where appropriate: some high SCC milk was being withheld anyway so increased withdrawal due to antibiotics was not a problem
- Ensure closure of the teat sphincter after milking, confine cows to standing area of at least 20 minutes

- Further investigation: California Mastitis Testing (CMT) and bacteriological examination
- Targeted sampling bacteriology

Medium and long term advice:

- Culling policy: cows with > 3 cases of mastitis in the same quarter, or > 5 cases of mastitis in any quarters in one lactation should be prioritised for culling
- Consider use of internal teat sealant at drying off (i.e. Orbeseal, Pfizer)
- Continue bacteriological monitoring of cases

Veterinary education

An important question in the presentation of Kathryn Ellis was where do vets fit in to organic farming? According to Kathryn it is important for a good vet to understand the 'whole food chain approach' (including consumer and farming legislation). They should focus on understanding what their clients are trying to achieve. Vets can potentially make an important contribution to organic farming as they receive training in disease epidemiology, economics, control and prevention.

They should:

- consider all aspects of disease (aetiology, risk factors, treatment, control)
- be able to offer advice
 - short term help
 - long term achievement of organic principles

Vet and farmer should learn from each other along the way! Vets should realize that potentially there is an extra dimension of job satisfaction in dealing with organic farmers.

Vets should also acknowledge the existing variety of farmers in terms of general stockmanship and be prepared to work along organic regulations and organic principles.

Organic research Project on Organic dairy calf rearing (summer student 2006)

Project aims:

- To collect baseline information on dairy calf rearing practices and calf health on organic dairies in Scotland.
- To evaluate under what circumstances farmers would consider participating in a wider study of suckled calf rearing of dairy calves
- To establish realistic markers of cow and calf health and production under organic systems
- To start planning of larger intervention study, including behavioural and welfare aspects of suckled dairy calf rearing in UK systems

Overall conclusions by editors

The role of the veterinarian should be much more than acute problem solving. Both veterinarians and farmers should be aware of this. Especially in organic farming more skills are needed from the veterinarian, such as a broader view on health care.

'Rearing of veterinarians'.

FIELD VISIT DAIRY CATTLE FARMS

Jan Vrolijk, Oosthuizen:

"You can clearly observe natural behaviour in suckling systems"

In the summer of 2002 dairy farmer Jan Vrolijk started with a new method to rear the calves he wanted to keep to replace his dairy cows. One reason to change was the persistent question of consumers why calves were being taken away from their mothers just after birth. A second reason was that the new rearing method fitted in very well with Jan's extensive style of farming. But there were more reasons: Jan believed intake of colostrum and milk, combined with a controlled and gradual contact with prevalent germs at his farm, should boost the development of general resistance of his future dairy cows.

The first year Jan experienced that just after weaning calves and their mothers were very unsettled and stressed. Sometimes cows had more problems with the separation than calves. Because of this Jan adapted his approach. In summer newly born calves stay with their mother and go to the pasture. In winter newly born calves stay with a nurse cow in a separate pen in the stable.

Some farmers say that rearing calves in a suckling system makes them less easy to handle or even wild. Jan doesn't notice this. *"Because I often walk through the milking herd, the animals are very tame. And because calves born in summer go to the pasture with the rest of the dairy herd they develop a herd mentality early on. They know the routine."*

In autumn 2004 the first suckling calves became cows. Jan observes increased natural behaviour in those animals. *"That's nice, but we also have to learn to deal with the negative aspects of natural behaviour. For example disruption after weaning and cows not letting drop their milk when they are suckling. The farmer too is part of a process of change."*

Nils Spaans, Broek in Waterland:

"Healthy calves and little work"

Because he was not satisfied with the development and growth of his calves, 3 years ago Nils Spaans started to rear calves with nurse cows instead of rearing them on a brand new automatic milk dispenser for calves. A crippled cow which produced little milk and could not be milked by the milking robot was the start for a change. She became the first nurse cow.

According to Nils it is important that calf and nurse cow spend the first ten to fourteen days separate from other animals. *"You have to keep an eye out for everything to go right this first period and if they are in a bigger group you lose the overview"*.

Weaning is another point of attention. It is a very stressful moment for both calf and cow. Nils tries to decrease the stress by always making sure weaning takes place inside the stable. During the weaning process Nils makes sure cow and calf can still see each other after the physical separation. *"If you wean when animals which already go grazing, cow and calf make a lot of effort to find each other and you end up looking for lost calves."*

Future strategy is to let the cows calve down during the summer period. Thus calves can spend a lot of time outside. This results in fewer problems with housing space and better hygiene.

Nils states that as a farmer you need some guts to give the cows the responsibility to rear the calves. *"But you learn quickly. You learn to distinguish between a real sick animal and an animal*

which just doesn't feel well for a day. When I started my motivation was to satisfy consumer's demand. Now I just do it for myself because I like it."

Overall conclusions by editors:

- **Farmers: self-chosen prototypes with vision and enthusiasm do make it!**
- **suckling systems can be implemented in different ways and under different circumstances (farming styles)**
- **It is real! It can work technically, financially and practically**