ANIPLAN calf
Health and welfare planning for calves in organic dairy production

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As a part of ANIPLAN, Norway wanted to look at health and welfare planning for calves in organic dairy production. One reason for this was relevant ongoing activity on calves in Norway. There was also information from earlier projects on welfare assessment (Good animal welfare in organic farming, Animal welfare in Arctic farming) in dairy herds, which showed that calf welfare is a challenge in many herds, both organic and conventional. Whereas the registration of diseases in dairy cows is considered to be very reliable in the national health recording system in Norway, this is not the case for calves. A survey found a 40% underreporting of calf diseases and treatments. It is therefore difficult to rely on the central records when dealing with calf health.

In organic farming we aim to achieve good animal health and welfare, and it is important to work for this in all parts of the production system and for all categories of animals in a herd.

The objective of the calf part of ANIPLAN was to develop a calf welfare assessment system to be used in advisory service and welfare planning in organic dairy production. By developing a welfare assessment system and planning tool for calves, we hope that this will result in healthy and happy calves which in turn develop into robust dairy cows so that medicine use in milk production can be minimised.

The idea behind the planning process is identical to that for cows in ANIPLAN: Planning should be a continuous process of assessment of health and welfare status and identification of risks factors, evaluation, getting ideas and setting aims of how to change or improve, implement chosen actions and later again do a new assessment and evaluation of the situation.

Principles of welfare planning
ANIPLAN agreed on a set of principles for the planning process we wanted to achieve together with the farmer (table 1). The principles are explained in details in OTHER PUBLICATION/CHAPTER (?).
The system for calf planning should be a continuous process of development and improvement. The assessment and evaluation of the status on the farm should be based on input from outside and include current status and risk of injuries or illness, or poor welfare. It is important that the evaluation, planning process and action plan is farm specific, and the farmer must be involved in the whole process. The aim is that the farmer feels ownership and thereby is more motivated to implement improvements. To keep motivation high, it is also important to acknowledge good aspects.

The planning process should involve a written action plan, of what to improve on the farm and how to carry out the improvements. This is a working document for the farmer, with the farmers own targets. The plan should be frequently revised.

These general principles of welfare planning are valid for health and welfare planning of both calves and dairy cows.

Developing a calf health and welfare protocol
One of the objectives of the calf plan in ANIPLAN was to develop a protocol for calf health and welfare assessment. We started this process by studying existing assessment systems for calf welfare and also cattle in general and even other species. One of these was a welfare assessment system developed in Norway in an earlier project, “Organic cow comfort”. This was for organic dairy production in general, with assessment of welfare of cows, calves, heifers and bulls. However, very few parameters on calves were included. Furthermore, “Organic cow comfort” has been used only in time limited research projects. “Calf life 100” is a calf welfare assessment protocol developed in Denmark, and has been used as a public advisory tool for Danich organic farmers since 2004. “Calf life 100” covers calves 0-6 months old. The whole procedure may be accomplished within 1.5 hours, and deals with three main areas: naturalness, human care, and the calf’s response. “Naturalness” deals with natural living conditions, for example access to daylight, fresh air, loose housing with access to outdoor, freedom of choice, social contact and calf’s possibility to suckle its mother. “Care” includes human attention and care, but also intervention when necessary and of relevance. “Calf’s response” includes animal-based parameters such as body condition,
injuries, skin condition, diseases, and response to unfamiliar persons. The assessment does not include other behavioural observations. The animals are divided into five age groups/time periods.

We also looked at the work on calves in the EU project Welfare Quality and got an introduction to the system in Vienna in autumn 2007. They included behavioural assessment, observing the animals in 30 minutes for each category, looking at abnormal behaviours, agonistic and cohesive behaviours, play behavior, social behavior etc. To evaluate the human-animal interaction they looked at avoidance distance at the feeding place. They also included Qualitative Behavioural Assessment (QBA), developed by Francoise Wemelsfelder. We had already experience with this QBA method in another calf project running at the National Veterinary Institute One other important part was clinical examination with body condition score, lameness, cleanliness, integument condition and health parameters. The system included a resource checklist and a management questionnaire. The whole assessment would take about 7.5 hours.

Université Laval in Québec in Canada was working with a protocol for calf welfare with special focus on colostrum. We exchanged information with this research group and got some inputs on our protocol. We also had contact with reasearchers in Sweeden working on welfare assessment of calves.

To get input from Norwegian stakeholders early in the process, we invited several researchers, organisations and persons working on or having interest in calf health and welfare to a meeting. At this meeting we discussed and informed eachother about ongoing projects and work.

An Internet-based questionnaire (QuestBack™) was distributed among 400 Norwegian large animal practitioners and 400 agricultural advisors in January 2008 asking about different parameters related to calf health, housing and behaviour and what they considered to be the greatest welfare advantages and most important critical factors for calves in organic dairy herds. This was done to get information on the situation in « real life » and thus be sure to emphasis the most important factors in the calf welfare assessment protocol.

The most common perception of both the veterinarians and the agricultural advisors was that organic calves did not have any significant welfare advantages over conventional calves (Ellingsen et al., in preparation). Nevertheless, keeping calf and dam together, as well as the stockperson’s care for the animals were seen as the most important welfare advantages in organic farming. Calves in organic herds were also reported to have significantly higher space allowance and better confidence in people, which is in accordance with the positive impression of the stockperson. Feed quality, on the other hand, was considered worse in organic production compared with conventional. Calf mortality is generally low in Norway, and low calf mortality was the factor deemed most favourable in organic farming, both by the veterinarians and the agricultural advisors. Bad hygiene was also mentioned as a problem area.

**ANIPLAN-calf workshop**

In spring 2008 the Norwegian ANIPLAN-team, with financial support by the Norwegian Research Council, invited the ANIPLAN partners and other Norwegian stakeholders and foreign speakers to a calf welfare workshop 'Calf welfare in organic herds - planning for the future' at Fokhol farm in Stange, Norway. The aim of this workshop was to discuss a broad spectrum of issues related to organic calf welfare assessment and caring management of organic calves, to get inputs on how to work out our calf welfare protocol. Proceedings form the workshop was later printed as a report (Veterinærinstituttets rapport nr. 14, 2009).

The workshop covered three aspects of calf welfare implementation. The first was to ask and discuss the question ‘What makes a happy organic calf?’ Second, the issue of how to measure and register welfare status on the herd level was addressed. Finally, the important - and often
neglected - aspet of how to encourage the farmer to solve problems and improve system weaknesses was discussed in terms of herd welfare plans and welfare planning.

In addition to several presentations, we had discussion groups about identifying the critical calf welfare points and how to assess them. The practical procedures to be carried out by the auditor when visiting the farm were also discussed. We also tested some of the parameters, among them QBA and a human-animal relation test on three farms.

The first point made was that the purpose of the assessment decides its design - that is, whether the aim is advisory, certification, or some other must influence what to assess and also how. The focus of the audit should be the individual calf, and animal-based indicators are important. However, resource-based indicators should also be included as they provide information about risk factors. Calf behaviour should be registered, and ‘positive welfare’ indicators like play behaviour. This is difficult to see within a short time, like two hours as suggested in the group work. Two hours was though suggested as an absolute minimum for a reliable audit. Several groups suggested a two step procedure, where a quick scan of the herd is followed by a closer look at areas that may have problems.

**The final protocol**

Based on other protocols, the results from the questionnaire, and the outcome of the workshop, a calf welfare protocol was worked out. The protocol was sent out to different resource persons for inputs and comments, revised and tested on five farms by two assessors in the project to i.a. look at feasibility, time consumption and inter observer agreement.

At the same time a master student from the University of Hohenheim in Germany was involved in the project, looking at animal welfare approaches and the concept of naturalness in organic dairy calf management. A bachelor student from the North Trøndelag University College started with looking at feasibility and reliability of two different tests for human-calf-interaction, but did unfortunately not manage to fulfil the work.

We decided that the visit on the farm should not take more than two to three hours. The farmer should join the assessor during the assessment. This to promote farmer ownership, and to better discuss and evaluate the calf welfare situation with the farmer. The protocol includes both animal based and resource based parameters, and questions about management to the farmer. It is a two step evaluation with some key parameters within every main welfare issues, and some more detailed evaluation on areas that may have problems. The protocol includes parameters and questions on calf management, behaviour, health, environment, housing, feeding and care. Every parameter gets a score from one to three, one means good and action unnecessary, two means satisfying but action necessary over time and three means unsatisfying and action needed immediately. The protocol is divided in six parts; general information about the farm, collection of health data, behavioural assessment, clinical score, housing conditions and feeding routines.

**General information about the farm**

The general information is the farmer’s name and address, number of calves at in different groups, breed, housing system etc. In this part you write down how the different groups of calves are housed, and how and when the calves are moved from the different stalling systems and/or groups. The assessor draws a rough sketch of the barn, where every pen gets a number and the observation points for the QBA-test is indicated. He/she should also write how many animals there are in each pen and if they are weaned or not.
**Collection of health data**

Information about the farm animals should be collected from National recordings. In Norway that is data from the annual report, individual health record (heifer calves < 6 month), individual health record - beef production (bull calves < 6 month) and heard health report (calves 0-6 month). This is important to get information about diseases and the health situation on the farm, but also to create focus on reporting on the calves’ health, both from farmer and the veterinarians. Reporting of calf diseases is unfortunately not always done and data is far less reliable for calves than for cows. In addition to this, the farmer should be asked about use of alternative treatments like homeopathy, acupuncture and phytotherapy, and about calf mortality.

**Behavioural assessment**

The protocol includes two behavioural assessments. One is qualitative behaviour assessment (QBA) of group housed calves, developed by Francoise Wemelsfelder. The groups of calves are observed for a total of 15 minutes, and their behavioural expression (‘body language’) is assessed by scoring 21 different terms. The other behaviour assessment is a qualitative evaluation of the calves’ reactions on the stockman's handling procedure while doing the chest girth measurement. This is an indication on the stockman-calf relationship. The test is a total assessment of a group of calves by scoring similar terms as the QBA.

**Clinical score**

Every calf, or a minimum of 15 calves, should be assessed. Parameters recorded are body condition, respiration, discharges from eyes and nose, navel disorders, diarrhea, swollen joints/ locomotion problems, cleanliness, skin lesions and fur quality.

**Housing conditions**

The evaluation of the housing conditions are divided according to the different groups of calves (< 1 week, 1-4 weeks, 1-3 month and 3-6 month old), calves outdoors, and the use of the pen (calving pen or pen for sick animals). Parameters about quality and/or availability of fodder, water, laying area, space, draught, light and air is included. Also age and size per group, social contact and stability of groups is evaluated.

**Feeding routines**

The farmer’s routine around feeding of colostrum is very important to address and should be discussed with the farmer. How is colostrum intake ensured within 6 and 12 hours, how are the suckling routines the first three days after calving (mandatory in Norway), how are the routines right after calving and when the calves are ill? Routines around feeding of milk to older calves are also addressed (amount and number of meals, storage, acidification and weaning).

**Experiences so far**

The final protocol is tested on nine farms. The experiences are that the welfare assessment on farm is feasible within two hours. It is very important with experienced and well trained assessors, and a detailed guideline to the protocol is needed. Sometimes the protocol was not detailed enough, and remarks had to be written to remember how the situation actually was on the farm.

The whole planning process was conducted on three of the nine farms. This process showed that visits once a year is not enough to keep attention to the welfare issues promoted. It is important that the farmers are interested and motivated. The farmers wanted closer follow up, and stable schools in between the assessment visits could perhaps be a possible positive solution. The farmers
appreciated the written report from the farm visit, and this report is an important tool both for the farmer and the advisor, in addition to the health and welfare plan.

**Welfare planning in Norway**
The main advisory service for dairy farmers in Norway embracing both animal health and welfare is the Norwegian Cattle Health Services. Norwegian Cattle Health Services collaborates with veterinarians trained in preventive health, and special advisors in feeding, milk quality, technology and buildings from TINE dairy company.

From next year (2011) the Norwegian Cattle Health Services hope to be able to offer assistance in developing health and welfare plans, and welfare planning via stable schools, for both organic and conventional farmers. In that context they want to implement parts of the ANIPLAN welfare planning system and calf protocol.

Although most of the formal health services go through the Norwegian Cattle Health Services, other persons and organizations can also be involved in a welfare planning process on the organic dairy farms in Norway. Veterinarians in private practice (not engaged through NCHS) sometimes make agreements with farmers about regular visits to the farm for evaluation of status and advice on animal health and welfare improvements. Debio, the certification body in Norway, have included a short checklist on animal welfare in their control visits on organic dairy farms. This to get an impression of the animals’ welfare on the farm. Results from this short welfare evaluation can be potential inputs for the farmer in his/her planning process. The Norwegian Agricultural Extension Service (Norsk Landbruksrådgiving) has especially trained persons giving advice for organic farmers. The primary task of the Agricultural Extension Service is giving advice based on local research regarding all kinds of crop production. They offer both one to one advice and arrange group meetings on different issues. For example, in areas with many dairy producers the topic for a group meeting can be related to health and welfare.

**Additional value ANIPLAN-calf**
The health and welfare assessment and planning tool developed for organic calf production in Norway can easily be adapted to calf production in other countries. The other partners in ANIPLAN have been involved in the process of developing the system by contributing to the calf workshop in Norway. The principles of planning are the same as developed and used for the cow planning in ANIPLAN. It is important with good animal health and welfare in the whole production system on organic farms, and the welfare assessment and planning tool for calf health and welfare will contribute to this. Calf welfare is also found to be a challenge on both organic and conventional farms.