

ANIMAL WELFARE ON ORGANIC FARMS FACT SHEET SERIES

RAISING CALVES ON ORGANIC DAIRY FARMS

Produced in consultation with the ECOA Animal Welfare Task Force, July 2009

BACKGROUND

On many organic farms there is little difference in approach between the methods used to rear dairy calves and those used on non-organic farms. Calves are separated soon after birth and raised in some form of individual housing only being grouped with others after weaning. The key differences, dictated by the Canadian Organic Standard, address welfare concerns:

- Organic dairy calves cannot be housed individually over 3 months of age;
- The pen or hutch must have bedding, a minimum size of at least 2.5m² and allow the calf to move freely, and see, smell and hear other calves;
- Tethering is prohibited.

In natural conditions calves have a strong motivation to suck; they form strong bonds with their mother and seek out social contact with other calves which provides the opportunity for play and the development of social skills. In order to meet these behavioural needs, an alternative to artificial rearing where calves are kept with the cows, is being increasingly trialed on European and North American organic dairy farms.

For the most part, research in North America has focused on the relative benefits of group versus individual housing and has not considered a suckling system where the calf is raised with its mother initially and then with a nurse cow. This fact sheet provides guidance for best management practices to overcome potential problems with each of these systems.

Regardless of the method used to raise calves, it is essential that calves ingest enough milk. The dairy code stipulates that calves receive 20% of their body weight of milk per day.

1. USING NURSE COWS

The experience of farmers and veterinarians who have worked with nurse cows indicates that their use warrants serious consideration by organic farmers and further research by the scientific community.



Photo credit: Lawrence Andres

Research results to date are few and are based on European examples using two different systems. One allowed restricted suckling on the mother for a 6-8 week period with machine milking, the other used nurse cows for 3-4 months with no machine milking.

The research and case studies in the literature reported the following advantages compared to other systems using restricted feeding:

- Provides the opportunity for more "natural" rearing allowing for maternal and social behaviour. ⁽⁵⁾
- Suckling systems make better use of growing potential of calves between birth and weaning ⁽⁹⁾

- Calves learn to eat roughage at an earlier age, provided it is available to them.
- Diarrhea was less frequent resulting in optimum milk intake and digestion.⁽⁹⁾
- Better growth rates: 1.080 kg/day compared to 0.658 kg/per day for bucket-fed tank milk.⁽⁹⁾ And in one Norwegian herd: 1.2 kg/day for calves up to 13 weeks of age.⁽³⁾
- Increased milk consumption results in a 30-40 kg live weight difference at 90 days.⁽⁹⁾
- Increased weight at weaning has a positive impact on milk production at first lactation.
- A restricted suckling system with Holstein cows reduced cross sucking and licking objects and tended to improve udder health.⁽²⁾
- Cows had fewer problems with high cell count and udder health.
- Better disease resistance and absence of illness in calves, young stock and growing bulls.⁽³⁾

In general farmers who have experimented with suckling systems prefer using nurse cows with two or three calves each over keeping calves with their own mothers. Given that each calf should have up to 8-10 kg of milk per day, the nurse cow should produce enough milk to support the total requirement of her suckling calves.

A CANADIAN CASE STUDY

The experience of Canadian organic dairy pioneer Lawrence Andres provides valuable insights into the use of nurse cows. He started experimenting with this system 10 years ago and for the last 3 years has raised all his calves on nurse cows (an average 50 calves/year with 15 nurse cows).



Photo credit: Lawrence Andres

The following summarizes his methods and his recommendations based on this experience:

- Calves are left with the mother for a minimum of 4 days then moved to the nurse cow, unless the mother is also to foster other calves.
- Select nurse cows that will readily nurse any calf. Older cows are generally more experienced and less likely to reject calves, but it can work well even with first calf heifers.
- Nurse cows should have unsoiled and healthy udders; do not choose cows with high somatic cell counts. The udder position (preferably above the hocks) and the angle of the teats are also important to allow easy access for all the calves. Nurse cows should not be carriers of infectious diseases; they must be Johnes negative.
- Calves are kept with cows at all times so they are never hungry and the sucking need is fully satisfied. The exception is during the grazing season when the cows are on pasture for some of the time leaving young calves in the barn. Older calves join mothers on pasture. Free access means the udder never gets full which is better for the cow's health.
- Good observation is important in the first few weeks to ensure all are feeding. Check all quarters of the udder; if one is still full, check that all calves are sucking. The cow will pay more attention to the calf that is not doing well.
- Once past the critical stage (3-4 weeks) 2 cows and 4-6 calves can be housed together.
- The preferred timing is to put calves on a cow after she has been rebred. This eliminates the main drawback of the suckling system; that it is more difficult to detect heat if cows are nursing with the result that cows are bred later and it is difficult to regain body condition.
- As lactation declines the calves will become less dependent on nursing. Calves will also copy the cows feeding patterns and eat more solid food.
- Calves are weaned at 7-8 months as they would be naturally, timed to coincide with declining milk production. Or when calves start to get rough and the cow becomes uncomfortable. Weaning can be from four months.
- Weaning is done using the fence line method with a partition separating the cows from the

calves. As long as they continue to see, smell and have nose contact with each other, stress is greatly reduced.

- If the cow is near the end of the lactation, calves can be left on for longer until the cow dries up.
- Pay attention to the nutrition levels for nurse cows; they will produce 10-20% more milk when constantly nursing so will lose condition faster and take longer to regain body condition.
- If a nurse cow has recently freshened it is possible to use her for two batches of calves or to return her to the milking string, but then there can be a problem with the cow not letting the milk down.
- Calves with a cow will have a larger flight zone (i.e. the area around the animal that if encroached upon will cause alarm and escape behaviour) than those raised individually. Ensure calves get a chance to see, smell and to get close to people so that they become accustomed to interacting with humans.
- Do not put four calves on one cow. Stronger calves will change teats constantly, pushing off a weaker calf. This creates more of a problem when there is only the one teat/calf.
- Do not put calves on a cow if they have already been accustomed to feeding with a rubber nipple. They are more likely to use their teeth which can cause scratching of the teat. If introducing an older calf it will often not be tolerated by the cow.
- A system where a cow nurses a calf and is also milked was not found to be satisfactory as the cow will not let milk down when on the machine.
- Farm set up, farmer attitude and interest in making the system work are important for success. Extra barn space will be needed.

Lawrence Andres has found the condition and vigour of the calves at weaning to be far superior to those he has raised without cows. They were also more disease resistant and better able to function in the herd and cope with changes.

2. ARTIFICIAL REARING

Calf mortality rates can be high (10% or more) from birth to weaning. Surveys have shown that diarrhoea affects 10-35% of dairy calves and accounts for 14% of deaths. Respiratory problems are found in 8-15% of calves and account for 46% of deaths. Farmers should be

concerned if mortality rates are above 2% and make adjustments to their husbandry methods.

When raising calves artificially, the quantity of milk fed is a key factor in determining the health and well being of the calf. They should be fed at least 20% of their body weight per day of milk or 8-10 litres/day for calves aged 1-28 days (1L= 1.03 Kg) using artificial teats not buckets. Calves should be encouraged to drink as much good quality colostrum as possible; at least 6L during the first 24 hours after birth and preferably 4L as soon as possible with a further 2L at or before 12 hours after birth.

Research has shown short term sucking has more advantages than disadvantages on production, health and behaviour of both cow and calf compared with immediate separation after birth.⁽⁴⁾ If the calf is allowed to suck for several days there are health benefits for the cow with reduced incidence of mastitis and placental retention. The disadvantage may be increased separation stress. After removing the calf from its mother, provide milk in three or four feedings a day rather than a larger quantity twice a day.

To reduce stress when weaning, gradually decrease the amount of milk over the last week and leave the teat for another few days (without milk) before removing it.

Whichever method of housing is used, a dry bedding area for lying is necessary. A minimum depth of 15cm is recommended.



Photo credit: Anne Macey

GROUP HOUSING

Research has shown the following welfare advantages of group housing over individual housing:

- Provides more space for calf to run and jump.
- Over the life of a cow, increased exercise, especially from an early age has been shown to improve bone development, muscle and cardiovascular systems.
- Results in calves better able to cope with unusual situations and to maintain balance more easily on slippery floors.
- Allows calves to engage in more social interactions; in natural situations calves join other calves at 1-3 weeks and calves will actively seek social contact.
- Allows calves to develop skills needed for group living through play behaviour; calves housed in groups will become dominant when housed with calves raised individually.
- Reduction in labour per calf per day from 10 minutes for individual pens to 1 minute in group housing.

However, concerns over the increased potential for disease transmission, problems with cross sucking which can damage undeveloped udders or aggressive interactions when competition arises at feeding, have limited the adoption of group housing for young calves.

Recommendations for dealing with potential problems:

- Incidence of respiratory disease is reduced if groups are kept to no more than 6-8 animals. Diarrhoea is less severe in smaller groups. Small groups record highest gains.
- Cleanliness, adequate ventilation and feeding management are considered more important than housing type for disease prevention.
- It is important that calves feed using a teat (nipple bucket or bottle) rather than a bucket and are allowed to suck for an adequate time after their meal to eliminate problems with cross sucking. The sucking motivation is elicited by the taste of lactose and wanes 10 minutes after a meal.
- A "calf bar" or rectangular box with "peach" teats is much easier to clean than large barrels with tubes which draw milk to the nipples. Dirty feeders can be a cause of scours especially in hot, humid weather.
- Too many calves for the number of teats increases social competition and reduces intake. Keep group size small and increase

ratio of teats to calves. Check calves to make sure all have enough.

- Calves in a group should preferably be of the same age.



Photo credit: Jane Morigan

INDIVIDUAL HOUSING

Although individual housing may simplify feeding and disease detection, this approach is being increasingly criticised because it limits the extent to which the calf can behave naturally. Individual housing is considered the least preferable option for organic systems in that it is the most restrictive with respect to natural behaviours.

Practices which help minimise negative impacts:

- Always provide milk via a teat to satisfy the motivation to suck. Do not use buckets.
- Provide calves with an opportunity to exercise and engage in normal social behaviour for some time each day.
- Outdoor hutches reduce disease and mortality compared with indoor housing but there is slower or no growth in winter months if farmers do not adjust milk volumes sufficiently.
- Position hutches to minimize environmental impacts e.g. out of wind, facing south and in shaded areas.



Photo credit: Marina von Keyserlingk

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CREDITS & ACKNOWLEDGEMENTS

Research and writing: Anne Macey with assistance from Lawrence Andres and the ECOA Animal Welfare Task Force.

Production of this bulletin was supported by: the BC Organic Sector Development Fund.



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