

# **Keys to Successful Free-Access feeding of Milk Acidified with Formic Acid**

1. Start with a good product. Clean, fresh milk with low bacteria count.
2. Start with clean equipment.
3. Prepare it properly. Cooler milk (50°F) acidifies better than warmer milk (over 75°F) and requires less stirring when feeding.
4. Safety First! “Formic acid 85% is hazardous to skin, eyes and lungs. For safety, dilute acid 1 in 10 with water and work with weaker acid. Store acids safely and keep them out of reach of children.” (Anderson, 2006)
5. Always add dilute acid solution to milk. Never add milk to acid. Stirring while adding acid results in a product superior to that when a large volume of acid is poured in all at once and then milk is stirred.
6. Remember to allow adequate contact time for the acid to work on bacteria. Depending on bacteria contamination level contact times may vary from 6 hours to 48 hours.
7. Feed acidified milk well below calf body temperature to minimize scours. Acidified milk over 75°F is not recommended although many folks do feed at 80°F. Do not expose milk to sunlight. Stirring 3 to 4 times a day will help maintain a uniform “as-fed” product.
8. A ratio of 1:1 teats-to-calves recommended although 1:3 might give adequate growth. A high ratio of calves to nipples is likely to result in uneven growth rates among calves.
9. Volume of milk per calf – the first two weeks of life calves may be expected to consume around 10 percent of their live body weight. Calves five to six weeks old may consume in the range of 12 to 15 quarts daily.

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For Calves with Sam blog go to [dairycalfcare.blogspot.com](http://dairycalfcare.blogspot.com)  
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10. Group size of 4 to 10 is recommended.
11. Expect well-fed calves to behave differently than calves fed only twice daily. Fewer vocal calves as well as less sucking behavior is normal when calves have plenty to eat.
12. If acidified milk pH is kept low (4.0 to 4.5) equipment should be cleaned every three days. However, in practice, longer intervals between cleaning may be satisfactory. If acidified milk pH is higher than 4.5 then equipment may need to be cleaned daily.
13. Free access should be provided for both water and calf starter grain.

Several detailed documents are available either from your veterinarian or on the Internet.

One is a 17-page paper by Dr. Neil Anderson from the Ontario Ministry of Agriculture, Food and Rural Affairs, “Mimicking Nature’s Way for Milk-Fed Dairy Calves: Free Access Feeding with Acidified Milk.” In addition to practical guidelines for using acidified milk for feeding this guide also has an extensive reading list. The URL is:

<http://www.dairyweb.ca/Resources/AABP2008/Anderson.pdf>

Additional resources also by Dr. Anderson with practical advice on setting up to feed acidified product may be found at:

<http://www.omafra.gov.on.ca/english/livestock/dairy/facts/grouphousing.htm>

and this resource gives directions how to build a warm milk bar box for cold housing:

<http://www.omafra.gov.on.ca/english/livestock/dairy/facts/milkbox.htm>