

# How to use buffers in dairy rations

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Currently there is a renewed interest in the use of feed ingredients commonly referred to as "buffers" in dairy cow rations.

Buffers are a common term for a class of feed ingredients which when fed, tend to stabilize pH in the rumen of the cow. These properties are especially important when cattle are on high levels of concentrates and corn silage is used as the main roughage source.

Normally cows maintain rumen pH by secretion of the buffer, sodium bicarbonate in the saliva which in turn helps maintain rumen pH.

However, there is evidence that show that cows on high concentrate diets, especially during the initial adaptation to these diets, do

not secrete sufficient sodium bicarbonate and other buffering compounds in saliva to maintain rumen pH.

Since the rumen is really a fermentation vat, changes in pH can have a large effect on the ways feed is fermented in the rumen.

The most commonly used and studied buffering compounds include: sodium bicarbonate, potassium bicarbonate, magnesium oxide and sodium bentonite.

One common problem associated with high grain diets in dairy cattle has been depression in milk fat test. This problem has increased over the years as the level of grain feeding has increased.

Cows early in lactation, especially those with unlimited access to grain such as those on magnetic

feeders may have greatly depressed milk fat tests.

Usually this problem is associated with a lack of coarse roughage in the diet.

NRC requirements call for at least 21 percent acid detergent fiber in the total ration to maintain normal fat tests. Not only amount of roughage, but also physical form make a difference.

For instance, chopping forages too fine for silage (less than 5/8" theoretical cut) can result in fat test problems whereas inclusion of at least five pounds of long hay in the ration helps maintain test.

Many times inclusion of long hay will correct the problem but sometimes this is not possible.

Dairymen relying on stored feed have no alternative but to use the forages that are on hand. In these

instances, addition of dietary buffers can be of great help.

Sodium bicarbonate and magnesium oxide have been the most commonly studied and used dietary buffers.

Common recommendations would be for 30 to 40 pounds of sodium bicarbonate or 15 to 20 pounds of magnesium oxide per ton of concentrate mix.

There is some evidence that a combination of slightly lower levels of both may be more effective than either buffer alone. Caution should be given to addition of higher levels since both sodium bicarbonate and magnesium oxide are unpalatable and may reduce intake of concentrates.

One important point to remember is that buffers will not raise milk fat test where tests are already

normal. For dairymen interested, most feed suppliers will have sodium bicarbonate and magnesium oxide on hand.

Responses in fat test should be seen in two to three weeks following inclusion in the ration.

Limited work on milk fat depression has been conducted with other buffers

such as sodium bentonite but it is difficult at this time to give a good recommendation on the amounts to use.

For dairymen using magnetic feeders, inclusion of sodium bicarbonate and/or magnesium oxide may be an excellent way of maintaining fat test in individual cows that tend to overcome grain.

## Microwave is used to sterilize potting soil

**MEDIA** — The advantages of using garden soil in "home-brewed" potting mixes prepared for house plant and home greenhouse use is well documented, according to James J. McKeehen, Delaware County Extension Agricultural Agent.

As a result, garden soil, is either not used or it's added unsterilized. A new dimension on soil sterilization using microwave ovens comes from the University of Minnesota.

The regular kitchen-sized microwave oven proved capable of sterilizing infected soil of disease problems in less than 15 minutes provided there was adequate moisture available.

Many people, find that to purchase sterilized soil is too costly or that the procedure of sterilization in the oven is tedious and smelly.

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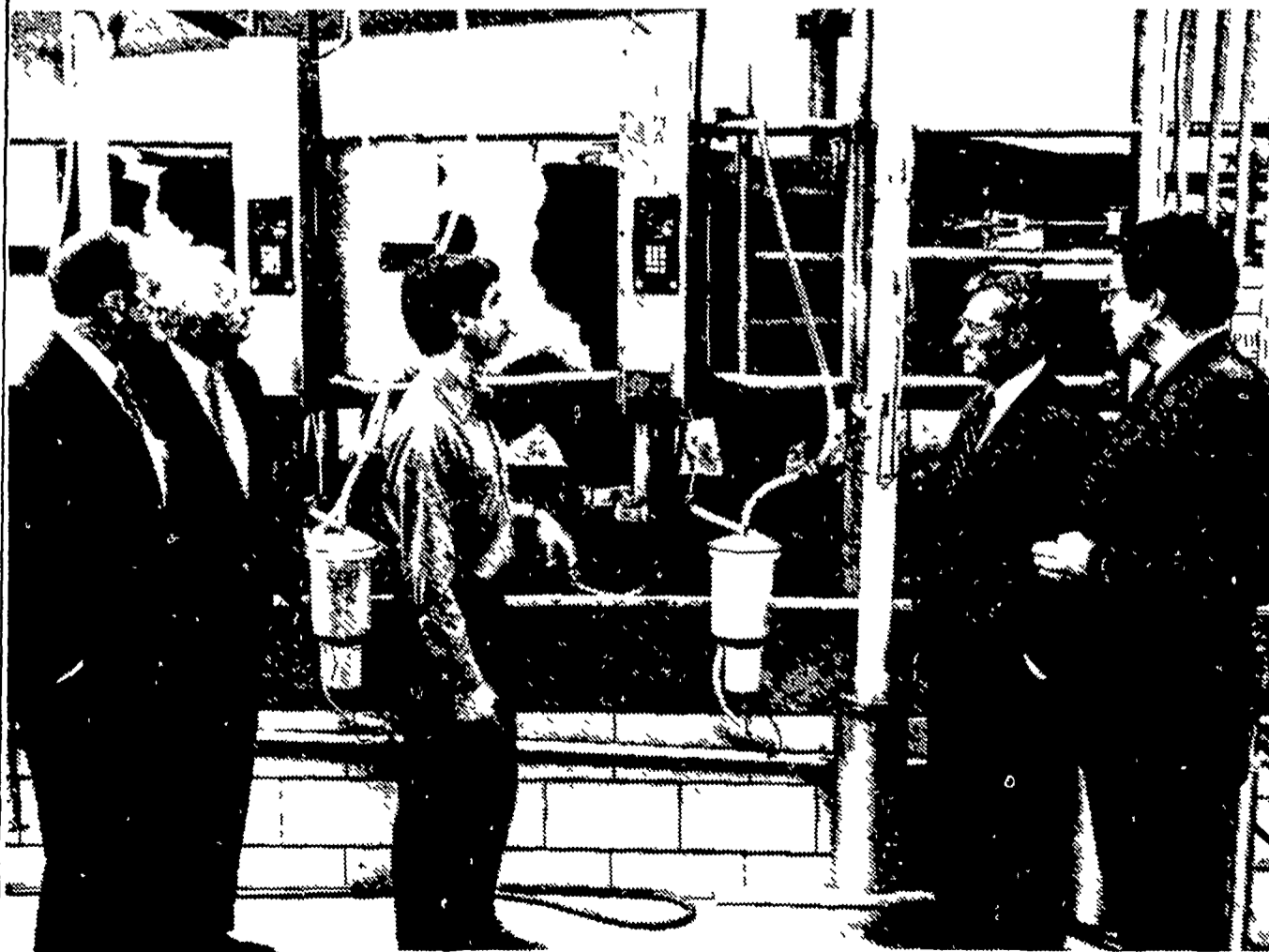
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Wayne L. Armacost (center), dairy specialist and one of the principals of Hickory Hill Farms, Inc. at Upperco, Maryland, is pictured in the 24 stall polygon milking parlor describing the operational features including automatic detachers, electronic weighing device and computer production recorder to National Central Bank representatives (left to right) Charles H. Falkler, Senior Vice President and York Regional Administrator, John C. Tuten, Chairman of the Executive Committee, Board of Directors, National Central Bank, Paul E. Spears, Member of the Hanover Advisory Board and Member of the Board of Directors, National Central Bank, N. T. Washburn, Chairman of the Hanover Advisory Board and Member of the Board of Directors, National Central Bank.



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