

Studies confirm value of buffers in dairy ration

UNIVERSITY PARK — Dairy farmers are hearing a lot these days about improved milk yields from adding sodium bicarbonate to the rations. To verify individual experiments, scientists at four eastern universities made a joint study, the most comprehensive research to date on the use of rumen "buffers."

The results are affirmative. Cows fed 0.8 percent sodium bicarbonate in the ration averaged 3.6 pounds more milk per day than cows on standard feed.

Cows fed the 0.8 percent sodium bicarbonate reached their top milk production earlier and peaked higher than those fed no buffers, according to Larry D. Muller, dairy scientist at The Penn-

sylvania State University. He said the 3.6 pounds of increased milk per day returned 47 cents for each 7 cents of added feed cost during 16 weeks of lactation.

The experiments were applied to a total of 149 Holsteins in herds at Penn State, Cornell University, the University of Pennsylvania, and the University of Kentucky.

The rations were basically corn silage and ground shelled corn, supplemented with soybean meal and appropriate vitamins and minerals.

Cows fed 0.4 percent sodium bicarbonate in the total ration, half the recommended level, showed only a modest increase in milk. Moreover, doubling the recommended level to 1.6 percent of the

total ration caused cows to eat less and produce less milk than those fed the recommended 0.8 percent buffer.

Cows normally secrete large amounts of saliva with lots of sodium bicarbonate, it was noted. Large quantities of hay or long forages produce enough saliva to keep the rumen pH fairly stable between 6.2 and 6.8. However, as grain feeding increases in high energy rations, less saliva is produced and rumen acidity goes up.

The Penn State dairy scientist said a combination of buffers to control acids along the entire digestive tract may be better than a single buffer. When feeding sodium bicarbonate alone, include one-quarter to one-half pound per cow daily. This should make up six-tenths to eight-tenths percent of the total ration dry matter.

Magnesium oxide should be added at about one-half to one-third the amount of the added sodium bicarbonate, feeding no more than two-tenths pound per cow daily.

Sodium bicarbonate and

magnesium oxide appear to be of greatest benefit during early lactation. That's the time when large amounts of grain are fed, corn silage is often a major forage, fat tests are frequently low, and many "off-feed" problems are encountered. Off-feed cases in the experiments were fewest among cows fed buffers.

Bicarbonates such as baking soda are the only "true" rumen buffers, it was stated, since they help maintain the proper pH level and counteract acidity. Magnesium oxide likewise seems to have its greatest influence on fermentation in the rumen.

For rations mainly corn silage, magnesium may need to be supplemented with magnesium oxide, Muller suggested. Research at the University of Kentucky and Penn State suggest that magnesium levels may need to be above the normally recommended 0.2 percent in the total ration, perhaps 0.25 to 0.30 percent. However, don't feed more than 0.5 percent magnesium in the total ration dry matter, Dr. Muller advised.

Not all research on adding

buffers to dairy cow rations has been positive. Alfalfa has more natural buffering capacity than corn silage. Thus, do not expect as much response to added buffers when alfalfa hay is the major forage.

Generally, greatest improvement in milk fat tests comes from feeding buffers when fat tests are severely low, Muller affirmed. On the other hand, adding buffers to rations when cows have "normal" fat levels will seldom improve the tests.

The combined research at the four universities showed a need, above all, to balance total rations for energy, protein, and minerals — including calcium, magnesium, sodium, and chlorine. Feed more fiber, if available. If not, using buffers may be helpful.

Sale Reports

A Public Sale of farm equipment and mules was held February 9 by Elam K. & Malinda King, 1 mile east of Talmage off Route 772 in Lancaster Co., Pa.

Some prices included: pair mules \$1420, corn binder \$1025, iron wheeled wagon \$700, spring wagon \$545, market wagon \$750, disc harrow \$325, harness \$95 per set, Pequea hay tedder \$800, milk cans \$21 each and tobacco planter \$230.

Auctioneers were Robert E. & Jeffrey R. Martin & Frank L. Steller.

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A Public Auction of farm equipment was held February 11 by Lester P. Reimer, 1 mile east of Bangor along the road to Richmond, Northampton Co., Pa.

Some prices received were: Ford 6600 D tractor \$9500, White-Ford 3-bottom plow \$1150, J.D. 336 baler \$5000, 2 Danco 8'x16' metal side bale wagons \$1600 ea., Farmhand rake \$650, Farmall Super H tractor & loader \$2025, Gehl flail chopper \$450, Int. #16 forage harvester \$425, Int. 540 single beater manure spreader \$1350, Ferguson 30 tractor \$1500, Ford 3 pt 2-bottom plow \$300 and Farm Rite 200 gal. weed sprayer \$825.

Ralph W. Zettlemoyer Auction Co., Inc conducted the sale

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A Public Sale of farm machinery was held February 6 by Donald G. and Patricia D. Fantom on Flintville Road, York County, Pa.

Some prices were: Int. 986 D tractor \$13,200, Int. 403 combine w/corn & grain heads \$1900, hay tedder \$925, N.H. 518 manure spreader \$950, J.D. 42' elevator \$1050, Int. 574 D tractor loader \$9000, N.H. chuck wagon \$2000, A.C. corn planter \$3700, #1250 grinder-mixer \$4500, N.I. picker \$1700, #269 hay baler \$1400, N.H. #489 haybine \$5300, Int. grain drill \$1850, N.H. chuck wagon \$2900, N.H. 890 chopper \$4000, 2500 bale hay \$1.25 per bale and 2000 bale hay \$1.10 per bale.

Aberdeen Sales Co Inc sale Mgrs & Auc

A Public Sale of farm machinery and livestock was held February 9 by Mrs Fronie L. Yoder, 4 miles east of New Berlin, Pa.

Some items sold included: McCormick gasoline engine \$200, corn binder \$250, potato plow \$150, potato planter \$290, Hostettler flat rack wagon \$250, N.I. horse drawn manure spreader \$800, milk cans \$30 each and stainless steel milk pails \$20 & \$30 each.

The top animal, a second calf heifer sold for \$860 and the average of the 12 Holstein milk cows was \$500.

Wayne M. Hess was the auctioneer.

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A Public Auction of farm equipment was held February 10 by Mrs (Woodrow) Elva Werley between Hamburg and Sharlettsville, Berks Co., Pa.

Some prices were: A.C. 45 tractor \$525, A.C. D17 tractor \$4050, A.C. WC tractor \$230, A.C. 185 tractor \$9500, N.H. 315 baler w/thrower \$6400, A.C. Uni-System \$3200, N.I. conditioner \$540, Case 7' chisel plow \$700, N.H. 56 rake \$825, J.D.-FB 17 dbl disc grain drill \$1300 and butcher stove kettle & gas burner \$660.

Ralph W. Zettlemoyer Auction Co Inc conducted the sale

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A Public Auction of real estate was held February 10 by Mose and Nancy Fisher, 10 miles east of Gap, 1/2 mile south of Rt 30 along Mt. Vernon Rd., Lanc. Co., Pa.

The 4 bedroom house located on an 8 acre farmette was sold for \$100,000.

Steve Petersheim was the auctioneer.

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A Public Auction of farm equipment was held February 11 at Bartron's Equipment Co., Rt. 92, Tunkhannock, Wyoming Co., Pa. A big crowd attended the sale.

Some items sold were: JD 4030 tractor \$7400, J.D. blower \$1200, J.D. 336 baler \$3050, J.D. chopper \$4100, J.D. 9' haybine \$1000, Cornell barn cleaner \$700, and 16' silo unloader \$975

Jerry Burke was the auctioneer



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TRANSMISSION RANGE	POWERSHIFT MPH KM/H			REAR TIRE SIZE
	1	2	3 and R	
1	1 9/3 1	2 5/4 0	3 2/5 2	18 4 x 38 R1
2	3 2/5 2	4 3/6 9	5 4/8 7	
3	4 9/7 9	6 5/10 5	8 1/13 0	
4	9 9/15 9	13 2/21 2	18 1/29 1*	

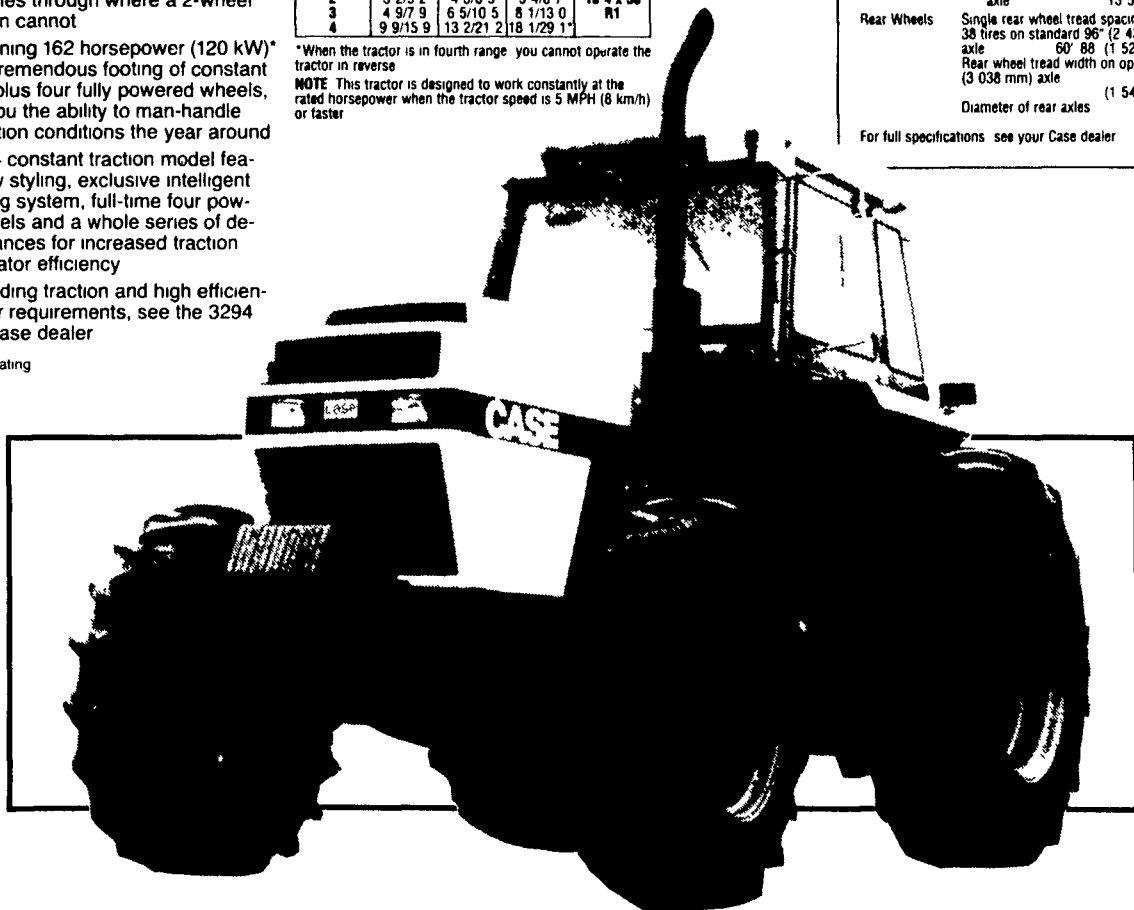
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with brakes	
Front Wheels	Tread spacing with 14 9 x 28 tires Ad
	adjustable front axle tread width
	Minimum 75 4" (1 915 mm)
	Second position 80 5" (2 045 mm)
	Third position 86 0" (2 184 mm)
	Maximum 91 1" (2 314 mm)
	Row crop clearance under front
	axle 13 5" (342 9 mm)
Rear Wheels	Single rear wheel tread spacing with 18 4 x
	38 tires on standard 96" (2 438 mm)
	axle 60" 88" (1 524 2 235 mm)
	Rear wheel tread width on optional 120"
	(3 038 mm) axle 60 112
	(1 542 2 845 mm)
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