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Natural Protein Important in Molasses Supplements for Yearling Heifers

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Many cattle producers and researchers strongly question the use of high levels of non-protein nitrogen (urea) in supplements fed to breeding cattle. There has been special concern with feeding urea to young cattle, and especially to cattle fed medium to low quality forages as is the normal situation for pastures and hay in Florida.

The Range Cattle Research and Education Center at Ona recently completed a series of four trials which compared two molasses-based supplements containing 20 percent crude protein. One supplement was formulated with urea (4.5 percent) and a second was formulated with natural protein. The natural protein used in the second supplement was derived from either cottonseed meal or feather meal, and a small amount of urea (1.5 percent) was also added.

Heifers used in each of the four trials averaged 525 to 550 pounds at weaning in September. After weaning heifers were first fed a dry weaning feed for two to three weeks. They were then fed the respective molasses supplements for 175 to 200 days, which included a 60 day breeding season. Heifers were grazed on bahiagrass pasture and fed medium quality (50-55 percent TDN, 8-10 percent crude protein) stargrass hay from mid-December through April.

Average daily gain and pregnancy results are presented in the table below. In all but one study heifers fed the supplement containing natural protein gained faster than heifers fed the supplement containing urea. In trial 2, gains were the same for heifers fed both supplements. In all four trials, heifers fed the supplement containing natural protein had a much higher pregnancy rate than heifers fed the supplement containing urea.

The poorer reproductive performance obtained with heifers fed the supplement containing urea was in part due to their slower gain, which resulted in a lighter body weight at breeding. However, we noticed that even good heavy heifers fed the supplement containing urea had a lower pregnancy percentage than comparable heifers fed the supplement containing natural protein. It appears that urea itself has a negative effect on reproduction in young cattle.

Based on these results we feel that yearling heifers consuming Florida grasses either as pasture or as hay should be fed molasses-base supplements formulated with mostly natural protein and not nonprotein nitrogen such as urea. The percent equivalent of crude protein in a supplement derived from nonprotein nitrogen is listed on the feed tag.

TABLE. Effect of urea and natural protein in molasses-based supplements fed to yearling heifers on rate of gain and pregnancy percentage.

		Average	Pregnancy
Trial	Supplement	daily gain, lbs/day	rate, %
Trial 1	Molasses-urea	0.1	7
	Molasses-feather meal	0.5	48
	Molasses-cottonseed meal	0.6	48
Trial 2	Molasses-urea	0.9	32
	Molasses-cottonseed meal	0.9	43
Trial 3	Molasses-urea	0.5	19
	Molasses-cottonseed meal	0.8	43
Trial 4	Molasses-	-0.1	16

	urea		
	Molasses- feather meal	0.1	42