

Potassium increases beef cow herd productivity

CARAMIE, Wy. — "Potassium supplementation has been shown to increase milk production, calf survival rate, calf weaning weight and cow reproductive efficiency," according to J.W. Waggoner, University of Wyoming animal nutritionist. "Potassium is a tool that when used properly will increase the productivity and performance of the beef cow herd."

Potassium deficiencies are characterized by symptoms that include decreased feed intake coupled with a subsequent decline in the ability to use digested protein and energy. As a result, the growth rate of young cows declines and overall herd milk productivity and reproductive efficiency

decrease. The end result is a decline in weaning weights of calves currently on the ground, plus fewer calves born over a longer period the following year. In a severe deficiency, production declines are often accompanied by pica (hair licking, wood chewing), muscular weakness and stiffness.

"Evaluation of wide range of feedstuffs routinely used by cow-calf operators indicates that dietary potassium deficiencies may be a common problem," Waggoner suggests. "And it's a problem that may have gone overlooked or unrecognized for years, especially in cows grazed during portions of the year on cured forages or crop aftermath."

In a Wyoming study started in December, 1977, he continues, 271 pregnant crossbred spring-calving cows of mixed ages were divided into two groups. One group was fed free choice 37% crude protein molasses blocks containing 2.25% potassium. The other group was fed free-choice similar blocks containing 4.15% potassium. Potassium chloride was used to provide the additional potassium in the supplements. (In June the two groups were combined and run as a common herd on native range with no block supplement fed.)

Throughout the entire 288-day study period, which included the potassium-supplemented winter period as well as the summer

period, cows in the high-potassium group lost an average of 11 lbs. less than cows in the low-potassium group. And, during the 76-day period of April 3 - June 19, which included calving and early lactation, low-potassium cows lost 66 lbs. more than high-potassium cows.

"This suggests," Waggoner explains, "that cows on the elevated level of potassium supplementation recovered more rapidly from calving and were stressed less during early lactation than similar cows fed the lower level of potassium." See Table 1.

Table 1: Cow weights and weight changes as affected by potassium level in the winter supplement (Wyoming winter, 1977-1978)

| Item | 2.25% potassium (lb) | 4.15% potassium (lb) |
|---|----------------------|----------------------|
| Cow Weights | | |
| Initial (Dec 15, 1977) | 970 | 986 |
| Feb 6, 1978 | 999 | 1010 |
| Pre-calving (April 3, 1978) | 1054 | 1043 |
| Post-calving (June 19, 1978) | 887 | 942 |
| Final (weaning, Sept 29, 1978) | 915 | 942 |
| Cow Weight Changes | | |
| Initial to Feb 5, 1978 (53 days) | 29 | 24 |
| Initial to Pre-calving (109 days) | 84 | 57 |
| Initial to Post-calving (186 days) | -83 | -44 |
| Initial to Final (288 days) | -55 | -44 |
| Calving changes (post-calving minus pre-calving, 76 days) | -167 | -101 |

At branding, "calves suckling cows wintered on the high-potassium supplement were 15 lbs. heavier than similar-sired calves whose dams were fed the low-

potassium supplement," Waggoner says, "And at weaning, calves on the high-potassium cows were still 11 lbs. heavier." See Table 2.

Table 2: Calf weights as affected by potassium level in the winter supplement of their dams (Wyoming winter, 1977-1978).

| Item | 2.25% potassium supplement | 4.15% potassium supplement |
|------------------------------------|----------------------------|----------------------------|
| Average birth date | April 18 | April 19 |
| Birth weight, lbs. | 75 | 75 |
| Branding wt. (June 19, 1978), lbs. | 172 | 187 |
| Weaning wt. (Sept. 29, 1978), lbs. | 396 | 406 |

"When rebreeding efficiency was considered," he continues, "there was a definite trend favoring higher conception rates for high-potassium cows bred artificially using estrus synchronization followed by a 45-day

bull clean-up period than for the low-potassium cows. (See Table 3.) The breeding response of this herd to an increased level of potassium illustrates the importance this nutrient could have on

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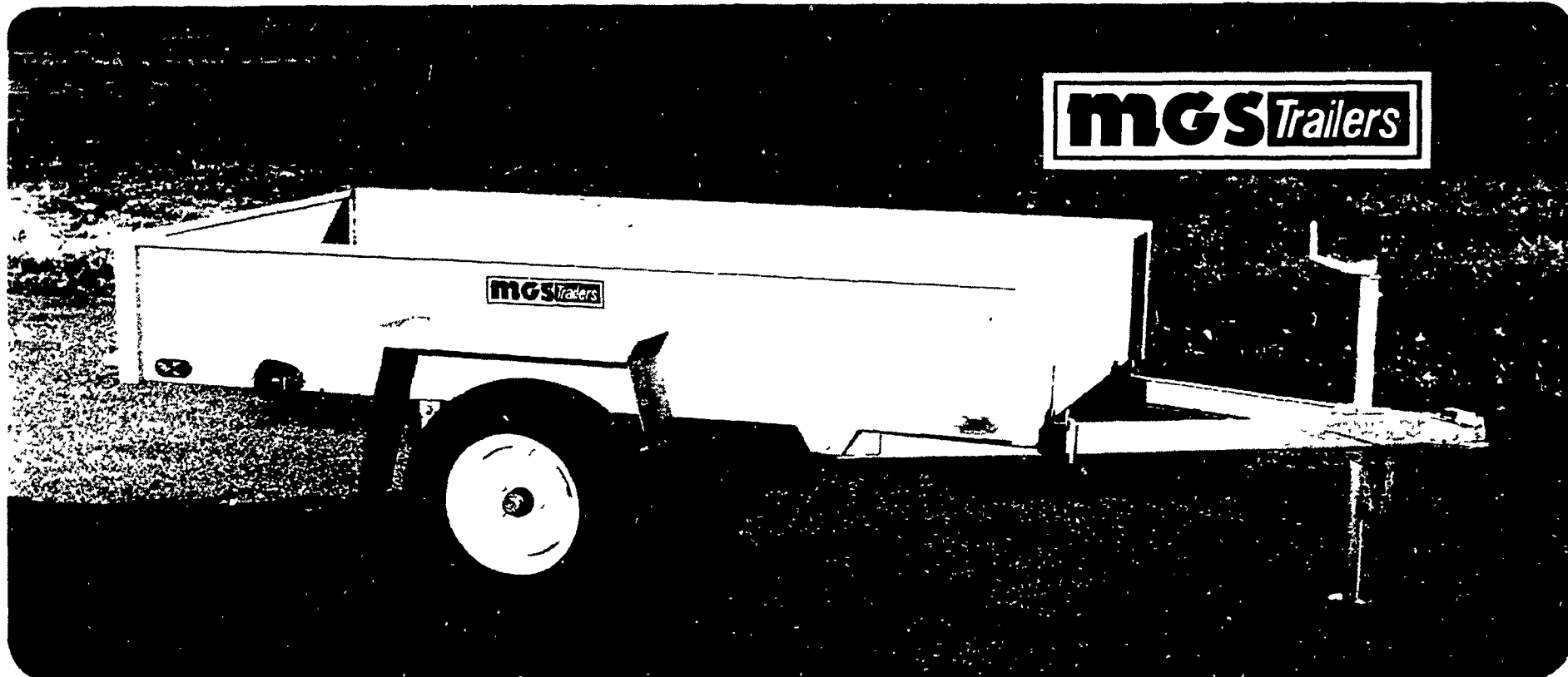
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