

was blowing when the early-spring-burned pasture was burned; there was very little grass to burn and only about half the pasture burned. Very little of the late-burned pasture actually burned due to lack of old grass and much new growth. The deferred pasture, 6, was burned in late spring and more of it burned than any of the other burning treatments but parts of it failed to burn.

Despite greater precipitation in 1964, yields of herbage were not significantly greater than in the dry season of 1963. The growing season of 1963 had started with ample reserve of soil moisture, so herbage growth continued well into the summer. Amounts of moisture at the beginning of the 1964 season were low in the upper 6 feet of soil, and the reserve was not replenished during the year.

Amounts of mulch remaining at the close of the 1964 growing season were generally somewhat smaller than a year earlier, reflecting the reduced production of dry 1963.

Range condition estimates in 1964 revealed little change from 1963. Light stocking, deferred grazing, and mid- to late-spring burning have resulted in increased grass production, however.

Supplementing Prairie Hay Rations with Urea and Trace Minerals, 1964-65 (Project 253-4-6).

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The trace minerals, cobalt, iodine, copper, and zinc, were added to a prairie hay-limited sorghum grain ration in an effort to improve utilization of prairie hay. Since increased quantities of urea are being successfully used in high-energy rations, its value as a protein extender in a primarily prairie hay ration was tested.

Prairie hay and rolled sorghum grain were the base feeds in all rations. In two of the lots, 18 and 19, those two feeds supplied the only source of protein. Lot 19 was fed a trace mineral supplement described in Footnote 1, Table 24. Lots 20 and 21 received enough urea to build their protein equivalent intake to 1.50 pounds per animal daily; one of those lots, 21, received the trace mineral supplement. Lots 22 and 23 received soybean oil meal to increase protein intake to 1.50 pounds per steer daily; Lot 23 received the trace mineral supplement.

The 60 steer calves, 6 lots of 10 steers each, used in the trial were choice-grade feeder calves purchased near Alden, Kansas.

As much prairie hay was offered the calves as they would clean up without wasting it. The grain was fed once daily; mixed with it each day was 1 pound of finely ground sorghum grain carrier per steer to which the additives listed in Footnote 1, Table 24, were added as well as the urea and trace minerals for the indicated lots. Soybean meal fed to Lots 22 and 23 was fed once daily and mixed with the grain.

The urea supplement was unpalatable. It took from one feeding to another, 24 hours, for it to be eaten. After the first two weeks, 5% molasses was added but it seemed to have little effect. All the steers had been receiving some sorghum grain prior to the start of the test. The first one or two times urea was fed mixed with the sorghum grain, the animals ate it readily but then started to leave feed so that four hours after a feeding half the feed would be left. The cattle were not accustomed to soybean oil meal; lots receiving it did not clean up their feed the first one or two feedings but they quickly found it quite palatable.

Urea as well as soybean oil meal increased hay intake and rate of gain and reduced the amount of feed required to produce a pound of gain compared with the prairie hay-sorghum grain diet.

Performance was best in lots where soybean oil meal was fed.

This trial shows that urea is utilized in a prairie hay and limited sorghum grain diet but less efficiently than soybean oil meal.

The added cobalt, iodine, copper, and zinc seemed to have little measurable effect on the steers.

Table 24
Supplementing prairie hay rations with urea and trace minerals, December 23, 1964, to March 31, 1965—98 days.

Experimental treatment	Prairie hay, sorghum grain		Urea, sorghum grain		Soybean oil meal, prairie hay, sorghum grain	
	No trace minerals added	Trace minerals added	No trace minerals added	Trace minerals added	No trace minerals added	Trace minerals added
Lot no.	18	19	20	21	22	23
Initial wt. per steer, lbs.	438	450	447	454	441	436
Daily gain per steer, lbs.	.76	.88	1.28	1.14	1.66	1.67
Daily ration per steer, lbs.:						
Urea ¹	...	...	0.15	0.15	...	...
Soybean oil meal	...	...	...	...	1.0	1.0
Sorghum grain, rolled	5.0	5.0	4.85	4.85	4.0	4.0
Prairie hay	8.0	8.8	10.1	10.1	10.2	10.2
Trace minerals (cobalt, iodine, copper, and zinc) ¹	Yes	Yes	Yes	Yes	Yes	Yes
Monosodium phosphate, stibestrol, aureomycin, vitamin A and molasses ²	Yes	Yes	Yes	Yes	Yes	Yes
Feed per lb. of gain, lbs.:						
Concentrates	6.6	5.7	3.9	4.4	3.0	3.0
Prairie hay	10.5	10.1	7.8	8.9	6.2	6.1
Total	17.1	15.8	11.7	13.3	9.2	9.1

1. The urea and trace minerals were added to finely ground sorghum grain fed at 1 pound per steer daily. Cobalt sulfate, potassium iodine, copper carbonate, and zinc carbonate were added to supply per head daily: 1 mg. cobalt, 11 mg. iodine, 32 mg. copper, 312 mg. zinc. Other materials were fed in the following quantities: monosodium phosphate to supply 10 mg. phosphorus per head daily; stibestrol, 10 mg.; aureomycin, 10 mg.; vitamin A, 10,000 IU. per steer daily. Five percent molasses was added to the 1 pound of sorghum grain two weeks after the trial began.