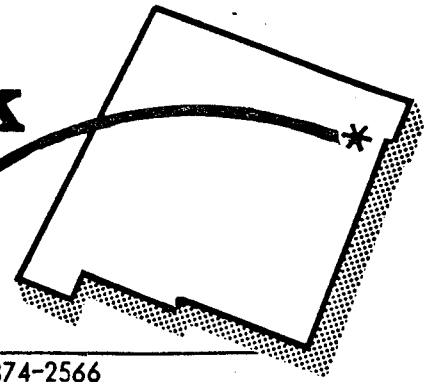




Clayton Livestock Research Center

PROGRESS REPORT



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SUPPLEMENTING STOCKERS ON WHEAT PASTURE

Mark Grigsby

Different supplements for stockers grazing winter wheat pasture are being evaluated in an effort to determine which types and amounts of supplement are most effective in increasing gains economically. This is a long term project with two trials completed and additional trials planned for 1983-84 and subsequent seasons. A 120-acre field with a center-pivot irrigation system is divided into eight 15-acre pastures, each with an automatic, heated drinker. This is planted in the fall and used for wheat pasture research.

Wheat pasture is high in total protein, commonly having about 25% crude protein (CP); however, a high proportion of the protein is highly soluble in the rumen. Therefore, the initial trial (trial 1) evaluated different levels of protein in supplements. Eighty Longhorn-cross heifers were placed on wheat following a 28-day receiving period during which they were fed a 75% concentrate ration and gained an average of 2.62 lb/day. There were 4 treatments with 2 pastures/treatment, 10 head/pasture and 1.5 acres/head. Treatments were (1) unsupplemented controls, (2) 11% CP supplement, (3) 26% CP supplement, and (4) 44% CP supplement. The composition of the supplements is given in table 1. All supplements were fed 3 times/week (Mon., Wed. and Fri.) at a rate equivalent to 3 lb/head/day. Supplemented cattle had access to plain salt while the controls had access to salt-mineral blocks. Trial 1 was run for 134 days, from Nov. 17, 1981 to Mar. 31, 1982.

Table 1. Composition of supplements fed in trial 1 (percent as fed).

Ingredient	11% CP ¹	26% CP ¹	44% CP ¹
Steam flaked corn	81.4	46.4	11.4
Soybean meal	-	35.0	70.0
Molasses	10.0	10.0	10.0
Fat	4.0	4.0	4.0
Limestone, ground	2.5	2.5	2.5
Dicalcium phosphate	1.5	1.5	1.5
Hominy feed ²	.6	.6	.6
Dry matter (%) ³	81.1	83.6	86.8
Crude protein (% as fed) ³	9.0	21.5	37.9

¹Approximate crude protein content (dry matter basis).

²Carrier for monensin, providing 27 mg monensin/head/day.

³Calculated values.

Ninety-six mixed steers of Florida origin were used in trial 2. These steers had been fed a 75% concentrate ration during a 4-week receiving period and had gained 2.79 lb/day from the day of processing. The average weight at the start of the grazing trial was 404 lb and they were stocked at 1.25 acres/head. The steers were allotted to 1 of 8 pastures with 2

Appreciation is expressed to Mike Shafer and Danny Garcia for care of the cattle and to Dr. Glen Lofgreen for his assistance.

pastures/treatment and 12 head/pasture. Treatments were (1) unsupplemented controls, (2) 11% CP supplement without Rumensin®, (3) 11% CP supplement supplying 160 mg Rumensin®/head/day (11% CP+R), and (4) 23% CP supplement providing 160 mg Rumensin®/head/day. The composition of the supplements is given in table 2. All supplements were fed 3 times/week (Mon., Wed., Fri.) at a rate equivalent to 2.4 lb/head/day and all steers had access to salt-mineral blocks. Trial 2 was run for 123 days, from Nov. 12, 1982 to Mar. 15, 1983.

Table 2. Composition of supplements fed in trial 2 (percent as fed).

Ingredient	11% CP ¹	11% CP+R ¹	23% CP ¹
Steam flaked milo	88.5	88.5	58.5
Soybean meal	-	-	30.0
Molasses	7.0	7.0	7.0
Hominy feed	4.5	4.5	4.5
Rumensin (mg/lb)	0	67	67
Dry matter (%) ²	84.5	84.5	85.7
Crude protein (%) as-fed) ²	9.4	9.4	19.8

¹ Approximate crude protein content (dry matter basis).

² Calculated values.

The results of trial 1 are summarized in table 3. Heifers fed either the 11% or 26% supplements gained significantly more than unsupplemented controls (P<.05). The additional gain by these two supplemented groups required 10.9 and 9.7 lb feed for each extra lb of gain above the controls for the 11% and 26% CP fed groups, respectively. Although there was no difference in gains between the 11% and 26% CP fed heifers, the 11% CP supplemented would be less expensive to feed. Feeding the 44% CP supplement resulted in gains which were not significantly different from the controls or the 26% CP heifers and required nearly 30 lb feed to produce an extra lb of gain.

The results of trial 2 are summarized in table 4. Steers fed any of the three supplements gained significantly more than unsupplemented controls. Increased ADG above the controls was .22, .26 and .42 lb/day for steers fed the 23% CP, 11% CP and 11% CP+R and required 10.5, 9.3 and 5.6 lb feed for each lb of extra gain above the controls, respectively. Steers fed the 11% CP+R had a significantly higher ADG (P<.01) than steers fed the 23% CP supplement, which supplied the same level of Rumensin®, and also had a higher ADG (P<.05) than steers fed the 11% CP without Rumensin®.

It can be concluded from the results of these trials that feeding grain supplements to stockers grazing winter wheat pasture will increase ADG. Heifers fed 3 lb/day of an 11%

Table 3. Performance of heifers grazing winter wheat pasture in trial 1 (pounds)¹.

	Controls	11% CP	26% CP	44% CP
Initial wt.	403	396	408	413
Final wt.	602	631	648	626
Gain	199	235	240	213
Av. daily gain ²	1.48a	1.76b	1.78b	1.59ab
Feed/gain increase ³	-	10.9	9.7	29.9

¹ Trial was from Nov. 17, 1981 to Mar. 31, 1982 (134 days).

² Means within a row with unlike superscripts differ significantly (P<.05).

³ Lb feed required for each lb gain above controls.

Table 4. Performance of steers grazing winter wheat pasture in trial 2 (pounds)¹.

	Controls	11% CP	11% CP+R	23% CP
Initial wt.	407	398	406	408
Final wt.	592	614	643	620
Gain	184	216	237	212
Av. daily gain ²	1.50 ^a	1.76 ^{bc}	1.92 ^c	1.72 ^b
Feed/gain increase ³	-	9.3	5.6	10.5

¹Trial was from Nov. 12, 1982 to Mar. 15, 1983 (123 days).

²Means within a row with unlike superscripts differ significantly (P<.05).

³Lb feed required for each lb gain above controls.

CP supplement gained 18.9% more than controls in trial 1 while steers fed 2.4 lb/day of an 11% CP supplement without Rumensin® had a 17.3% higher ADG than controls in trial 2.

Including Rumensin® in the 11% CP supplement at 160 mg/head/day (trial 2) increased ADG an additional 9.1% over those fed the 11% CP without Rumensin®. Additional protein was not beneficial. It appears that optimum performance of stockers on wheat pasture can be obtained by feeding low levels of a grain-based supplement containing Rumensin®. Such supplemental programs provided significant increases in ADG over unsupplemented controls while requiring low levels of supplement to produce each pound of extra gain. Although whether or not supplementing is profitable will depend on the cost of the supplement and labor to feed it and the value of the added gain, this appears to be a practical and economical supplement to feed to stockers grazing winter wheat pasture.

One additional benefit to feeding a supplement containing Rumensin may be a reduced incidence of bloat. A 56-day graze-out trial was conducted from March 15-May 10, 1983, during the period when bloat is a major problem. There were 4 treatments: 1) unsupplemented controls (C), 2) supplement with no additive (S), 3) supplement containing sodium bicarbonate (SB), and 4) supplement which supplied 160 mg Rumensin/head/day (SR). Supplements contained 85% flaked milo, 10% hominy feed and 5% molasses (as fed) and were fed 3 times/week at a rate equal to 1.3 lb/head/day. There were 36 steers/treatment at the start of the trial and

each steer was observed 5 days/week and given a score of 0-5 for degree of bloat (0 = no observable bloat; 1 = slight distension of left side; 2 = moderate distension of left side; 3 = significant distension of left side; 4 = severe distension of left side, slight distension of right side; 5 = severe distension of left and right sides). This was an excellent year for wheat and there was an excess of available forage in all pastures throughout the trial. The ADG's for C, S, SB and SR, respectively, were 2.33, 2.18, 2.23 and 2.93 lb/day. Feeding the supplement alone or with the addition of sodium bicarbonate did not improve gains but the supplement with Rumensin significantly increased ADG. The supplement alone or with sodium bicarbonate had no effect on the incidence or severity of bloat compared to controls. However, the supplement with Rumensin reduced the total bloat days, 176 (C) vs 60 (SR), reduced the % of total head days with bloat, 20.9% (C) vs 6.4% (SR), and reduced the average bloat score, 2.66 (C) vs 1.52 (SR). This suggests that feeding low levels of grain-based supplement 3 times/week supplying at least 160 mg/head/day Rumensin has the potential for reducing the incidence and severity of wheat pasture bloat in addition to increasing gains.

The addition of Rumensin® appears to be the key to maximize benefits of supplementation since grain alone had no effect on the incidence of bloat or daily gains. The use of Bovatech should also be effective since it has the same mode of action as Rumensin; however, we have no data using Bovatech® in wheat pasture supplements.

The Clayton Livestock Research Center will be holding a field day at the Center on Thursday, May 24. Registration will begin at 9:00, along with coffee and donuts, and the program will begin at 9:30. Reports will be given on the results of recent experiments. Dr. Glen Lofgreen will discuss mass medication for native calves going into the feedlot and the effect of delaying processing of newly received calves. Dr. Mark Grigsby will discuss the effectiveness of mass medication for calves received on wheat pasture and implants for stockers on native range. A presentation of the feedlot performance of steers after grazing Kochia and when fed a combination of steam flaked and whole milo

will be made by Dr. Herman Kiesling, and Dr. Mike Galyean will present results of a trial at Ft. Stanton on the forage intake and chemical composition of forage selected by steers grazing blue grama range. Guest speaker will be Dr. Clair Hibbs, Director of the New Mexico Veterinary Diagnostic Lab. He will discuss the services, objectives and operations of the Diagnostic Lab and will include some recent cases of disease outbreaks in cattle in northern New Mexico. The formal program will conclude with lunch, after which the speakers and other university personnel will be available to answer questions and Center facilities will be open for your inspection.

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