



Oklahoma GOLD Q&A

Late-season Supplementation Program for Stocker Cattle

The Oklahoma Cooperative Extension Service

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Extension carries out programs in the broad categories of agriculture, natural resources and environment; family and consumer sciences; 4-H and other youth; and community resource development. Extension staff members live and work among the people they serve to help stimulate and educate Americans to plan ahead and cope with their problems.

Some characteristics of the Cooperative Extension system are:

- The federal, state, and local governments cooperatively share in its financial support and program direction.
- It is administered by the land-grant university as designated by the state legislature through an Extension director.
- Extension programs are nonpolitical, objective, and research-based information.

- It provides practical, problem-oriented education for people of all ages. It is designated to take the knowledge of the university to those persons who do not or cannot participate in the formal classroom instruction of the university.
- It utilizes research from university, government, and other sources to help people make their own decisions.
- More than a million volunteers help multiply the impact of the Extension professional staff.
- It dispenses no funds to the public.
- It is not a regulatory agency, but it does inform people of regulations and of their options in meeting them.
- Local programs are developed and carried out in full recognition of national problems and goals.
- The Extension staff educates people through personal contacts, meetings, demonstrations, and the mass media.
- Extension has the built-in flexibility to adjust its programs and subject matter to meet new needs. Activities shift from year to year as citizen groups and Extension workers close to the problems advise changes.

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Native range forage quality rapidly declines during mid-summer. As a consequence, stocker cattle gains can fall from performance highs of 2 to 3 lb. per day during spring and early summer, to below one pound per day through the late summer grazing period.

Cattle perform to a level consistent with the most limiting nutrient in their diet. For example, a 550-pound steer gaining 1.5 pounds per day requires a diet containing a minimum of 10% crude protein on a dry matter basis. Figure 1 indicates that protein concentration in native range forage rapidly declines below this point after the month of May. A deficiency

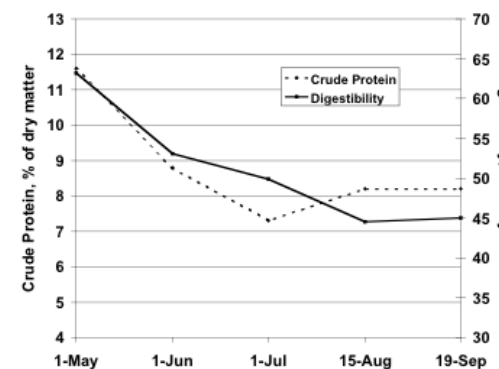


Figure 1. Protein and digestibility of native range forage during summer (Two-year trial summary). Source: Bogle, Engle and McCollum. 1989. Nutritive Value of Range Plants in the Cross Timbers.

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in dietary protein causes dramatic reductions in forage intake and digestibility. The result is realized in summer weight gains of around 1 pound per day.

In several trials conducted at OSU with prairie hay harvested in mid-summer, forage intake was increased by 20 to 30% and digestibility was improved by 15 to 20% when cattle were supplemented with one pound of a 38 to 41% protein supplement. This improvement in forage utilization results in increased weight gain of stocker cattle grazing summer pastures. Logically, this assumes that forage availability is adequate. A small quantity of high protein supplement will not improve weight gain if pastures are overgrazed. Table 1 summarizes research trials in which weight gain of non-supplemented calves was compared to weight gain of calves supplemented with .9 to 1.2 lb per day of 38 to 41% protein feed. The average protein supplement conversion from the trials summarized was 2.7 lb. of supplement per pound of added gain. When energy supplements are fed, supplement conversions are usually in the 8 to 10 lb. range.

These concepts, along with results from numerous experiments led to the development of the Oklahoma Gold supplementation program, designed for weaned calves and stocker cattle grazing low quality forage during late-summer and fall. The following question and answer series provides details regarding supplement content, feeding recommendations and situations where this program should and should not be applied.

Table 1. Summary of trials evaluating response of grazing cattle to protein supplement^a.

Initiation Date	Trial length, days	Initial Cattle Weight	Control ADG, Lb.	Sup. ADG, Lb.	Added Gain, Lb./day	Sup. Conversion, Lb. sup/Lb. added gain	OSU Animal Science Research Report Reference
7/16	96	580	1.44	1.88	.44	1.8	MP - 112, 1982
7/20	56	350	1.35	1.72	.37	2.2	MP - 114, 1983
7/20	62	616	1.06	1.39	.33	3.2	MP - 117, 1985
8/16	56	490	.83	1.32	.49	2.0	MP - 117, 1985
8/16 ^b	57	440	.95	1.25	.30	3.3	MP - 117, 1985
7/16	84	645	.83	1.25	.42	2.9	MP - 118, 1986
5/25	84	365	1.48	1.75	.27	3.7	P - 939, 1994
Average	71	498	1.13	1.51	.37	2.7	

^a Supplement amount ranged from .9 to 1.2 pounds per day and contained 38 to 41% crude protein on a dry matter basis. All supplements were formulated with soybean meal and/or cottonseed meal as the protein source.

^b Forage base was bermuda grass pasture. All other studies utilized native range pastures.

1. Why is the feed efficiency with protein supplements better than with energy feeds with summer stockers?

The protein supplement (small amounts) causes an increase in both forage intake and digestibility. The added efficiency comes from the increased forage utilization. Energy supplements usually cause a slight drop in forage digestibility and either have no or a negative effect on forage intake.

2. Define a protein supplement for the Oklahoma Gold Program for summer stockers.

The protein supplement must contain at least 38% crude protein from natural sources and it should contain at least 1% phosphorus. It should not contain feed grains or other feeds high in starch, which may depress forage digestibility. It should contain 200-400 grams per ton of either Rumensin® or Bovatec® or 700 grams per ton of Aureomycin®.

3. Will 20% protein range cubes work?

Not as well as a 38-40% protein supplements. Cattle grazing late summer forage typically require .3-.4 lbs of supplemental protein to optimize forage utilization and increase weight gain. One pound of 20% protein cubes supplies only 1/3 to 1/2 of this amount.

4. What cautions do I need to be aware of?

The high protein program is designed to stimulate forage intake. If forage is limited it will not work. It is likely that in some cases the cattle will consume up to 25% more forage. Cattlemen need to ensure that the cattle do not run out of forage. See NREM-2869 for more details on grazing management and stocking rates. If the cattle run short of grass the advantage of the program can be lost in just a few days. Cattle may need to be sold or shipped early in drought situations.

5. What are the advantages and disadvantages of increasing forage intake?

The advantages are associated with increased rates of gain and the reduction in overhead costs. The disadvantage is that increased pasture use could necessitate early shipment of the cattle. Depending on market conditions this may or may not be a disadvantage.

6. Should cattle on this program be implanted?

Yes, the effects of feeding programs and implants are 100% additive. The advantage of implanting becomes larger as the rate of gain increases. For example, if the cattle gain 1 pound per day the implant can be expected to increase gain up to 1.12 pounds per day or an additional 18 pounds if the cattle are run for 150 days. If the Gold Program increases the base gain to 1.6 pounds per day, then implanting will again increase gain 12%. However, the return will be greater on the higher gaining cattle as shown in the following calculations:

1.6 pounds per day X 12% increase in gain X 150 days = 28.8 pounds per season

The Oklahoma Gold Program for summer stockers will increase the return from implanting.

7. What are the feeding recommendations?

Feed the Oklahoma Gold at a rate equivalent to 1 lb/head/day. This may be 1 pound each day, or 2 pounds every other day, or even 2.3 pounds on Monday, Wednesday, and Friday.

8. Are Rumensin® and Bovatec® supposed to be fed daily?

It is possible that the response to the ionophore is a little better if they are fed daily compared to every other day. However, neither Bovatec® nor Rumensin® will work properly unless the animal receives the proper dosage constantly at least every other day. (See questions 9 and 10)

9. What dosage of Rumensin® does OSU recommend?

OSU recommends that Rumensin® be fed at a rate of 100 mg/head/day (200 grams per ton in a feed tagged for feeding 1 lb/head/day). The rate can go up to twice this level for larger cattle. Rumensin® is also approved for every other day feeding.

10. What feeding rate of Bovatec® does OSU recommend?

OSU recommends that Bovatec® be fed at a rate of 100-200 mg/head/day (200-400 grams per ton in a feed tagged for feeding 1 lb/head/day). The rate may be increased. Optimum performance is generally seen when cattle receive between 150 and 200 mg/hd/day. CAUTION: Regulations state that Bovatec® should be fed daily.

11. How can 1 lb of high protein feed (cottonseed meal or soybean meal) be enough to increase gains up to 1/2 pound per day?

The effect of the high protein meal is to improve forage utilization by the animal. The digestibility of the forage is increased which, in turn, increases forage intake. When both forage digestibility and intake are increased, the result is much greater energy intake by the animal.

12. Are the supplements used in this program toxic to horses?

Yes. However, the horse would have to eat quite a bit of feed (about 10 pounds with Rumensin®, or 100 pounds with Bovatec®). Horses should never be allowed access to feeds that contain an ionophore. Do not allow horses to consume these cattle feeds.

13. When should I start feeding the cattle?

About June 15, but earlier or later is still beneficial as long as there is an adequate quantity of forage.

14. Is there a best time of the day to feed the supplement?

With high protein supplements time is not as important as it is with energy feed. Most cattlemen who feed every other day or three times a week will most likely feed either early in the morning or in the evening when the cattle are easier to gather.

15. Are protein supplements dangerous to the cattle?

No. Most of the problems with grazing cattle that have been fed have been acidosis or grain overload (too much sugar or starch) or urea toxicity. Supplements qualifying for this program do not contain large quantities of grain or urea.

16. My cattle will not eat the supplement. Why?

When first offering 2 pounds every other day, some cattle may not clean up the supplement by the time it is to be fed again. This is due to two possible problems: 1. The cattle may not know what feed is. If so, just give them some time. 2. Cattle may not like the

taste of the feed or feed additive, again give the cattle time. This situation is more frequently observed with Rumensin® compared to Bovatec®. If they still will not clean up the feed, cutback the amount fed but keep on the feeding schedule. It is not abnormal for cattle to take 3 or 4 weeks to get on a schedule where they eat the feed in a short period of time.

17. Cattle do not seem to like the high protein supplement with an ionophore as well as they do "energy" feeds. Should I switch feeds?

No. It is normal that ionophores, particularly Rumensin® somewhat suppress feed intake. The slower rate of consumption also leads to more even rate of intake among the timid and aggressive eaters. Be patient, it is important that all your cattle get the proper amount of feed. Many stocker cattle have not been exposed to cattle cubes before. There is an advantage to starting feeding a couple weeks before the cattle really need the feed.

18. High protein feeds cost more than other feeds. Can they really be more economical?

You can expect 1 pound of beef gain for each 1-3 pounds of the feed specified for this program.

19. Does this program make the grass last longer?

No.

20. Does this program substitute for good management?

No. The best managers will get the best results. It will take a total cattle management program to be successful, even though this program is simple and easy to implement.

21. Has this program been tested and does it work?

Seven recent research trials and the experience of a number of Oklahoma cattlemen have clearly demonstrated that this program works over a wide range of forage types and locations. It has worked on small cattle to large cattle, fancy cattle to very plain cattle. The odds are it will work for you.

22. Can this program be used to help grow out replacement heifers?

Yes. In many cases an additional 0.6 lb/day in the summer and early fall can make the difference in a successful breeding program. The economy of this program has a lot going for it.

23. You recommend the feeding of 1 lb/day in this program. Can this amount be increased or decreased?

Maybe. The amount fed is always a compromise. The inclusion of the ionophore makes the program a little more limited. However, the feeding from 0.6-2 lb/day will fall within label requirements of Bovatec® and

Rumensin®. The 1 lb level is recommended because the return on the dollars invested in feed is near its high. In some cases, it may make more money for cattlemen to feed 2 lbs even though his return on dollars invested in feed may be less. If for some reason you want to greatly change the amount fed, contact your feed supplier and he can possibly offer alternate ionophore levels.

24. I want to calculate my own feeding rate. How do I predict response?

The following prediction equations are used in the OSU budgets:

- a. Response to energy feed 0.09 lb gain/lb feed.
- b. One time response to high protein feed = 0.32 pound gain per day.
- c. Response protein supplement 0.09 lb gain/lb feed per day.
- d. Response to ionophore at the proper level = 0.15 to 0.20 pounds per day.

Example 1: Feed 1 pound of high protein cube with ionophore. (0.32 one time protein response + 0.09 feed response + 0.20 ionophore response = 0.61 pounds per day).

Example 2: Feed 2 pounds per day of high protein cube with an ionophore. (0.32 one time protein response + 0.18 (2 X 0.09) feed response + 0.20 ionophore response = .70 pounds per day).

Example 3: Feed 4 pounds of energy feed per day without an ionophore. (4 X 0.09 energy feed response = 0.36 pounds per day).

25. What do cattlemen who have used this program have to say about the program?

"This program is the key to maintaining steady and profitable gains during late summer and early fall."

26. Other feeds such as cottonseed meal pellets are very similar to Oklahoma Gold cubes what is the difference?

One pound of cottonseed cubes will likely increase gain in mid-summer about 0.4 pounds per day. While 1 pound of Oklahoma Gold cubes should increase gain about 0.6 pounds per day. Either feed should be very profitable to feed. Because of the feed additive (Rumensin®, Bovatec®, or Aureomycin®) the Gold Cube should produce gain worth (0.2 X \$.60 per pound) or \$.12 more per day. If the Gold cube cost \$10.50 per CWT and the cottonseed cube was free the producer would still be ahead to feed the Gold cube at these feeding levels.