Bahamas Agricultural Research Training And Development Project

POST-WEANING PERFORMANCE OF LAMBS GRAZING TRANSVALA, ALFALFA, AND ALFALFA-BUFFELGRASS PASTURES

A.E. & R.S. BAHAMAS
FINAL REPORT NO. 27

Final Report No. 27
September, 1977

BAHAMAS AGRICULTURAL
RESEARCH, TRAINING AND
DEVELOPMENT PROJECT

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INTRODUCTION: An important consideration in beef cattle or sheep production in a forage-based production environment is the availability of a high-quality forage for finishing slaughter lambs and cattle after weaning. Naturally, in the case of sheep and goats, many high-producing ewe and doe flocks can produce slaughter-weight, finished offspring at weaning. This is particularly true if a forward-grazing system is used in combination with rotational grazing. Another important factor is providing forages of sufficient quality and quantity during the "dry" seasons. Production during this season of the year is particularly important, since optimum lambing and calving dates are in the early spring just before the onset of the "wet" season. Alfalfa was a forage species introduced rather late in the project, but has produced extremely well during all seasons of the year. Due to the deep-rooted nature of alfalfa, production of quality and quantity forage during the "dry" season indicated that it may be quite useful in post-weaning finishing programs. The objectives of the trials reported herein were to obtain information on rates of gain of weaned lambs on alfalfa, alfalfa-buffelgrass and transvala.

PROCEDURE:

These trials were conducted in fields 4-12B and 4-12C on the BARTAD site. Both fields were established in July, 1975, with seedings of 10 pounds of Mesa-Sirsa alfalfa and 2 pounds of T4464 buffelgrass in the mixed pasture and 18 pounds of Mesa-Sirsa alfalfa in the straight-alfalfa pasture. The transvala

used in this trial was located in field 4-12A and was planted vegetatively at the rate of 10 bushels of material per acre in July, 1974. Fertilization at planting of the alfalfa and the alfalfa/buffelgrass was 1500 pounds per acre of 8-18-8. In October, 1975 and during 1976, a total of 250 pounds of P_2O_5 and K_2O, respectively, were applied. Fertilization practices on the transvala were 1,000 lbs per acre of 8-18-8 at planting. In October, 1974 and during 1975 and 1976, a total of 450 lbs of P_2O_5, 630 lbs of K_2O, and 450 lbs of N were applied.

In trial 1, initiated in November, 1975, two wethers and five ewe lambs, averaging 45.9 pounds were used on the transvala treatment, two wether and five ewe lambs averaging 45.6 pounds were used on the alfalfa, and two wethers and four ewe lambs averaging 45.5 pounds were used on the alfalfa/buffelgrass treatments. The lambs remained on the assigned pastures for 56 days, with weights taken after the lambs had been in the pasture for 28 days. Although there was abundant forage in each of the plots, the forage was also in a more advanced stage of maturity than would be desired. All lambs were treated with Loxon in recommended dosages before the start of the trials. Additional health treatment of all animals before the start of trial 1 were vaccinations with Lepto bacterins, Clostridium perfringens-C and D type, and Tenanus Toxoid. An additional 1 cc of Bo-Se was given at the start and during the middle of the trial. The vaccinations were given at the start and at the middle of the trial, as recommended by the veterinarians. Trial 1 was initiated immediately after weaning the lambs from the ewes.

A second lamb grazing trial was initiated on the same alfalfa and the alfalfa/buffelgrass pastures used in trial 1. Immediately after the above trial, the plots were mowed and fertilized with phosphorus and potassium. Eighteen lambs

were used in trial 2, consisting of 7 ewe and 2 wether lambs assigned to the alfalfa treatment, averaging 62.6 pounds, and 6 ewe and 3 wether lambs, averaging 60.5 pounds, alloted to the alfalfa/buffelgrass.

As will be indicated in discussion of the results of these trials, individual animal gains were more erratic in trial 2, and boron deficiencies were noted in the alfalfa of both the pure and mixed stands during the trial. This probably affected the performance of the lambs on the latter trial. There also was a rust infestation in the alfalfa which was of particular consequence in the pure alfalfa stand.

RESULTS AND DISCUSSION:

The average daily gains and weights to 28 days of the trial, and through 56 days of trial 1 are presented in Table 1. Although the alfalfa in the pure and mixed buffelgrass stands was more mature than would be ideal for grazing initiation, particularly with young animals, the relative stage of maturity of the three different species used in this trial were quite similar. It is interesting to note that the transvala pasture resulted in a slightly higher average daily gain during the first 28-day period than either of the alfalfa-containing pastures (0.31 versus 0.25 lbs/day, non-significant). However, during the second 28 days of the trial, this trend was reversed, and gains from the alfalfa-containing pastures were higher than those obtained from the transvala during the same period. As indicated, 56-day average daily gains for the alfalfa and alfalfa/buffelgrass mixture were very similar, averaging 0.31 and 0.34 lbs per day, respectively. Probably the best explanation for this was that the transvala tended to become more mature and of lesser quality more rapidly than did the alfalfa-containing grasses. It is unlikely that the buffelgrass and transvala

differ appreciably in the rapidity with which they become mature and thereby decrease in available energy and protein. However, with the availability of the alfalfa in the buffelgrass pasture, gains in the mixed pasture were sustained and even increased compared to the transvala pastures. There was a slight advantage for the alfalfa/buffelgrass mixture in comparison to the alfalfa pure stand over the entire trial. There was an advantage in average final weights of 6.1 and 7.9 pounds for the alfalfa and alfalfa/buffelgrass compared to the transvala.

Table 1. Average Daily Gains (ADG) and Weights of Lambs Grazing Transvala, Alfalfa and Alfalfa/Buffelgrass Pastures.[a]

Items	Transvala	Alfalfa	Alfalfa/Buffelgrass
No. lambs	7	7	6
Initial wt., lbs.	45.9	45.6	45.5
28-day wt., lbs.	54.5	52.8	53.1
28-day ADG, lbs.	0.31	0.25	0.25
28 to 56-day ADG, lbs.	0.09[b]	0.37[c]	0.43[c]
Final wt., lbs.	56.9	63.0	64.8
Trail ADG, lbs.	0.20	0.31	0.34

[a]Sex and initial weight effects held constant; a 480-lb. bull calf grazed with lambs on alfalfa and alfalfa/buffelgrass pastures.

[bc]Significant differences among averages ($P < .01$).

It should be mentioned that one bull calf, weighing approximately 480 pounds, was placed in each pasture on alfalfa and alfalfa/buffelgrass plots in addition to the lambs, to graze excess mature forage which was evident. Gains of these bull calves were approximately 1.2 pounds per head per day, and were not credited on the alfalfa or alfalfa/buffelgrass pasture productions in Table 1. At the end of the trial, the buffelgrass was grazed quite evenly, probably as a result of the additional

grazing pressure. These results, in addition to other BARTAD results indicate that mixed animal species grazing, particularly where grass-legume mixtures are used, will increase total efficiency of grazing and meat production per acre.

In trial 2, in which alfalfa and alfalfa/buffelgrass were compared, gains were appreciably less than in trial 1. This was a function not only of increased age and weight of the lambs, thereby indicating that they had reached a more mature state; but also the rust infestation of the alfalfa in both the pure and mixed stands, and the apparent boron deficiency which reduced both quality and quantity of available forage. Average per head gain for the trial was 2.4 pounds for the alfalfa and 0.5 pounds for the alfalfa/buffelgrass. Additional cattle were not grazed with the lambs during trial 2 in either of the pastures tested. Other observations with buffelgrass (see Final Report 21) and other data indicate that buffelgrass, particularly during the late part of the dry season, matures rather rapidly and may not be of sufficient quality to bring about desirable performance in young grazing lambs or maintain adequate productivity of mature lactating does or ewes. This observation regarding the rather low quality of buffelgrass during the dry season and the boron and rust problems with the alfalfa, explain most of the poor performance observed in this study. It is also rather apparent that gains of individual lambs were appreciably more erratic and variable in trial 2 than in trial 1.

Results from some of the small plot studies indicate that the production of alfalfa during the dry season from approximately November 1 thru April for alfalfa and transvala were 3.80 and 1.75 tons of dry matter per acre, respectively. Comparable yields for alfalfa/buffelgrass mixtures, similar to that used in these trials, was 2.58 tons of dry matter per acre. With the similarity in performance

of alfalfa and alfalfa/buffelgrass pastures, it appears more advantageous to consider the alfalfa-grass mixture, rather than the pure stand. This is particularly true when one considers the possible advantage of mixed livestock species grazing, and the chance of losing the alfalfa from rust, trace mineral deficiencies, or other as yet unknown alfalfa disease or insect infestations, or simply a lack of persistence under BARTAD conditions.

SUMMARY:

In two trials comparing alfalfa, alfalfa/buffelgrass, and transvala (transvala included in only one trial), alfalfa and alfalfa/buffelgrass were quite similar with regard to average daily gains for newly weaned lambs. Significant and important differences were noted between the transvala and the alfalfa pure and mixed stands, indicating that pastures containing alfalfa were more desirable for finishing lambs during the "dry" season. Average daily gain for the alfalfa-containing pastures averaged 0.32 pounds per head per day, which is satisfactory considering that no additional supplement was provided. There was an apparent difference in condition or fatness of the lambs in the transvala and alfalfa-containing pastures at the end of the trial, although carcass data were not collected. In trial 1, one bull calf were added to each alfalfa and alfalfa/buffelgrass swards, resulting in an acceptable rate of gain for the bull calves, without depressing rate of gain of the lambs or production of lamb per acre. This is one of the indications obtained from the livestock-forage trials which suggest that cattle and sheep can be grazed together and increase total productive efficiency.