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Changes in Cattle Body Weight Associated With Onset of Ryegrass Grazing

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Summary

Body weight changes of heifers and young bulls when beginning ryegrass grazing was studied in two trials. Significant body weight losses occurred during the first three days on ryegrass with heifers. Heifers weighed less while young bulls weighed only slightly more after the first 14 days of ryegrass grazing. Weight gains on ryegrass after 14 days, with either heifers or young bulls, was good to excellent.

Feeding hay free-choice to young bulls for the first 28 days on ryegrass did not significantly affect changes in liveweight.

Intermittent overnight fast at 14 and 28 day interval, as sometimes done prior to weighing of cattle grazing experimental pastures, did not adversely affect heifer liveweight gain.

Introduction

It is generally assumed that cattle moving from a low quality roughage diet such as late season summer pasture or dry hay to lush winter annual grass pastures such as wheat or ryegrass, will experience an adjustment period during which little or no gain may be expected. It has been assumed that little or no gain in body weight may occur for the first 30 to 45 days of a 120-150 day grazing season. Dehydration is commonly observed and signs of respiratory stress may occur. A whitish-yellow diarrhea within 2-3 days of entering a cool season annual grass pasture is reported occasionally. If cattle are subjected to stress in addition to the change in diet, potential problems associated with adaptation to diet might be magnified.

If cattle make little or no gain for the first 30 to 45 days on usually expensive winter annual pasture, then economic loss may be incurred; provided, of course, this is not offset by compensatory gain later in the grazing season. For this reason, additional insights into the time and magnitude of body weight changes when cattle first graze winter annual pastures are needed. Additionally, knowledge of how this might be modified by management or feeding would be useful.

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KEY WORDS: ryegrass/early winter grazing/cool-season grass/animal body weight changes.

Procedure

Two trials were conducted to gain insight into the time and magnitude of body weight changes occurring at the initiation of winter annual pasture grazing.

Trial I was conducted to determine the effect of recurring 18-hr withholding of feed and water on weight gains of heifers grazing 'Gulf' ryegrass, Lolium multiflorum, pastures. Following grazing on common bermuda-dallisgrass pasture supplemented with protein and hay, eighteen month old F₁ Hereford X Brahman (1H1B) heifers were introduced to ryegrass pasture on two dates: December 14 and January 19 when ryegrass growth had advanced for more than a month and presumably with a higher indigestible fiber content. Before being introduced to ryegrass pasture, heifers were weighed full on the afternoon preceeding and again following an overnight period (18-hr) without feed or water. Seven heifers were fed hay to fill after the morning weighing and before being introduced to ryegrass pasture on December 14 (Group I) while the remaining 7 heifers (Group II) were introduced to ryegrass pasture immediately after weighing. Both groups were placed on the same pasture and allowed access to hay for the first 7 days. They consumed 7 lbs/hd/day average.

Groups III and IV continued on dormant summer pasture from December 13 to January 18 and were supplemented with an average 4.9 lb grain, 0.7 lb cottonseed cake and 16 lb hay/hd/day.

Groups III and IV (seven heifers each) were introduced to ryegrass pasture on January 19. Ryegrass grazing began after a full body weight on January 18 followed by an overnight period (18-hr) without feed or water and then weighed again. Group IV was introduced to ryegrass pasture immediately after the January 19 AM weighing while Group III was fed hay to fill before being introduced to the same pasture. Both groups were allowed access to hay for the first 7 days on pasture and consumed approximately 6 lbs/hd/day. Afterwards, all groups were maintained on the same pasture until the end of the trial on May 4.

Trial II involved two groups of five F₁ Angus X Brahman (1A1B) young bulls, approximately 10 months of age at the beginning of the trial. Both groups were weighed full on the afternoon of December 27. Prior to this, the bulls had been maintained on a common bermuda-dallisgrass pasture after mid-October weaning and supplemented with ryegrass silage or hay for the preceeding 69 days. Both groups were held without feed or water overnight (18-hr) and weighed again December 28. Group I was moved to 'Gulf' ryegrass pasture immediately after weighing. Group II calves were fed grass hay to fill after weighing and then placed on ryegrass pasture. Group II was fed hay on pasture daily for 28 days. For the first 7 days, the calves consumed 8.6 lbs/hd/day. Thereafter, for days 8 through 28, hay consumption averaged 5.7 lbs/hd/day. Hay was not always consumed on the day fed but all accumulated plus fed was cleared up the next day or two.

The calves were weighed every 14 days for the first six weeks, then at approximately 4-week intervals until ryegrass grazing was terminated on May 2.

Grazing was considered always adequate with forage dry matter available generally exceeding 2000 lbs per acre throughout the grazing season.

Results

Trial I

Groups I and II were weighed directly off pasture on December 17, 3 days after entering ryegrass pasture on December 14. Body weight losses (Table 1) were 26 and 21 lbs/hd. Some loss had been regained on December 28; however, body weight on January 11 were only slightly higher than initial weight on December 14. Thus, net body weight changes for the first 29 days on ryegrass pastures were small. Average daily body weight gain for the next 21 days until February 1 was 1.55 lbs/hd/day. Body weight gains during February and March exceeded 2.3 lbs/hd/day with gains somewhat reduced in April as the ryegrass was maturing.

Body weight changes for Groups III and IV during the first 30 days on ryegrass (January 18 to February 17) were generally similar to the gain of Groups I and II for the first 30 days on ryegrass (Table 1). There was a slight further reduction in body weight, however, between day 3 and 14 for Groups III and IV. This may have been because of difference in rumen fill at time of entry into ryegrass pasture. After February 17, gains were rapid and generally paralleled those for Groups I and II.

Recurring 18-hour periods of fast during the grazing season (seven times for Group II and five for Group IV) did not adversely affect changes in body weight (Table 1).

Trial II

Young bulls, whether or not fed grass hay on ryegrass pasture, had a small increase in body weight for the first 14 days on pasture (Table 2). Group II fed hay may have had a slight advantage for the first 14 days but this was not sustained through the next 14 days. Thereafter, the gains for both groups exceeded 3 lbs/hd/day through February, March and April.

The ryegrass pastures for both trials were similar. The difference in time required for apparent adjustment to the ryegrass as well as season long gains between the heifers in Trial I and young bulls in Trial II was striking.

Table 1. Body weight (lbs) changes of 1H1B heifers grazing Gulf ryegrass.

Date	Full body weight of group				Fasted weight ¹ of group	
	I	II	III	IV	II	IV
Dec. 13	557 ²	558 ²	555	559	533 ²	535
Dec. 17	531	537				
Dec. 28	544	547			512	
Jan. 11	570	569			532	
Jan. 18			600 ²	609 ²		580 ²
Jan. 21			570	577		
Feb. 1	597	607	567	565	575	536
Feb. 17	644	650	609	614	619	587
Mar. 7	679	690	652	660	655	628
Apr. 6	748	764	722	744	720	702
May 4	795	805	769	794	768	753

¹Fasted weights followed full body weight by 18 hours.²Date at entry into ryegrass pasture.

Table 2. Body weight (lbs) changes of 1A1B bull calves grazing Gulf ryegrass with and without free choice grass hay first 28 days.

Date	Full body weight		Fasted weight ¹	
	No hay	Hay	No hay	Hay
Dec. 28	497	496	472	472
Jan. 11	503	511		
Jan. 25	544	536		
Feb. 8	587	583		
Mar. 8	684	678		
Apr. 4	773	769		
May 2	856	857	809	809
Total gain	359	361	337	337

¹Fasted weight followed full body weight by 18 hours.