

SOME IMPLICATIONS OF EARLY SPRING TURNOUT

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The turnout date for livestock in the "high desert" area is of considerable economic importance. Short feed supplies and flooding of feeding and calving grounds necessitates moving of livestock earlier than usual in certain years. Otherwise, turnout date varies with ranchers. Some use only a calendar date; whereas, others use the concept of range readiness - that time at which plants have made adequate growth to replenish root reserves. The readiness of the range to meet animal needs during the early spring period has received less attention than plant requirements.

Nutrient quality and forage availability are the primary causes of limited animal production on early spring ranges.

NUTRIENT QUALITY

Usually, nutrient concentration of early-growth herbage meets or exceeds the requirement of most classes of animals for maximum production. Furthermore, the utilization of these nutrients is high. Dry matter digestibility is initially high but declines with advance in season.

In vitro dry matter digestibility of crested wheatgrass was determined on forage collected in 1970 and 1971 (Table 1).

Table 1. In vitro dry matter digestibility of crested wheatgrass herbage available to grazing animals at various dates

Date grazed	Digestibility
	%
April 16	55
April 29	65
May 5	65
May 14	65
May 27	64
June 7	61
June 12	58
June 17	57

The low value found on April 16 was caused by dilution of the sample with forage from the previous year. Because of the short stature of the grass at this time of the year, physical separation of old and new growth was difficult.

Forage from the previous growing season would dilute the nutrient quality of the diet of grazing animals in direct proportion to the amount selected. Observation and some preliminary studies have shown this proportion to be quite variable. Carryover forage has been used by the Squaw Butte cow herd for several years; however, samples of grazed forage collected via esophageal fistulae as early as April 12 were greater than 95% new-growth herbage.

FORAGE AVAILABILITY

To obtain maximum weight gains or milk production, the grazing animal must consume its maximum potential intake of herbage. Knowledge concerning the relationship between herbage availability and intake of animals grazing arid ranges is scarce. Some work has been done on highly productive pastures but seems to have no application to less productive ranges in arid regions. In most of these studies intake became constant only when herbage availability exceeded 1,000-3,000 pounds per acre. Total production on most arid ranges seldom reaches 1,000 pounds per acre.

In 1970, research was initiated at the Squaw Butte Experimental Range to study the influence of crested wheatgrass herbage availability on the total herbage dry matter intake of grazing yearling steers. The potential production of this area, under existing conditions, was about 800 pounds per acre.

Twelve trials were run in 1970 and 1971 between April 12 and June 17. Intake was determined indirectly from estimates of total fecal production and indigestibility. Corresponding herbage production was estimated by clipping numerous 9.6 ft² plots. Most previous years growth had been removed by rotobearing prior to initiation of spring growth.

On this area, voluntary intake was not limited when available herbage exceeded about 140 pounds per acre (figure 1). This amount of forage may be available as early as April 1 or as late as May 10 depending on the yearly variation. Normally, crested wheatgrass would not be expected to reach this production until about April 20, at 4,000-4,500 feet elevation.

Of course, the practical approach to dealing with annual fluctuations in herbage production is to insure alternative sources of early spring forage. Carryover of native range forage is often used to supply carrying capacity at this time of the year. Carryover crested wheatgrass is not as desirable as native forage, and can result in management problems.

Stocking rate on early spring crested wheatgrass range should be conservative and flexible. From April 15 to May 15, these pastures grow only about 0.5 to 1.0% of their potential production per day. Therefore, if animals are turned in at the time forage production reaches 140 pounds/acre (on an 800 lb/acre range), stocking rate should not exceed the daily forage production. Even though maximum livestock performance can be attained on early spring ranges

above this threshold level of forage production, use of forage at this time of the year is expensive in terms of carrying capacity. Some suggested stocking rates for a crested wheatgrass range capable of 800 pounds per acre mature production in an average year are given in Table 2.

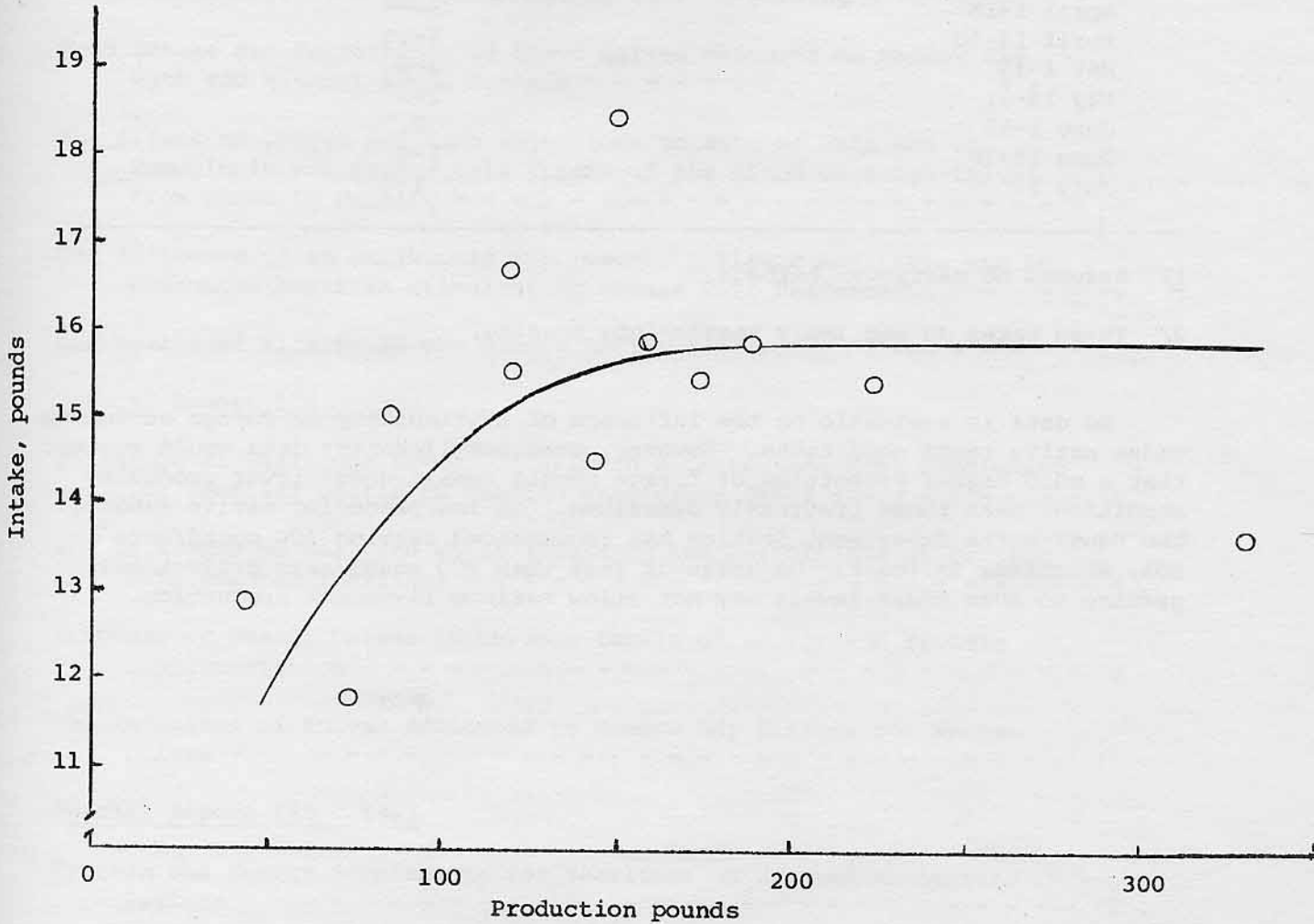


Figure 1. Relationship between available forage per acre and total voluntary intake of grazing steers.

In other words an AUM of feed on April 15 must be worth at least 2 times as much as on May 1, 3-5 times as much as on June 1, or 6-10 times as much as on July 1 in order to justify early turnout.

Table 2. Suggested stocking rates for crested wheatgrass at various turnout dates^{1,2/}

Period	Stocking rate acres/AUM
April 1-15	----
April 15-30	6-10
May 1-15	4-5
May 15-31	2-3
June 1-15	2
June 15-30	1-5
July 1-	1

1/ Assumes no carryover herbage.

2/ These rates do not imply season-long grazing.

No data is available on the influence of availability of forage on intake under native range conditions. However, some complimentary data would suggest that a much higher proportion of forage should remain under lower producing conditions than those previously described. On low producing native ranges, the Squaw Butte Experiment Station has recommended leaving 300 pound/acre or 50%, whichever is least. On areas of less than 200 pound/acre production, grazing to even these levels may not allow maximum livestock production.