

Forage Research in Texas

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Workers: J. Moore
J. M. Murphy
F. M. Rouquette. Jr.
E. C. Holt

Location: Texas A&M Ag. Research
Station at Pecos

(INFLUENCE OF) DEFOLIATION HEIGHT AND FREQUENCY ON YIELD AND
IN VITRO DRY-MATTER DIGESTIBILITY OF JOSE TALL WHEATGRASS

OBJECTIVES:

To determine the influence of defoliation height and frequency on dry-matter yield and in vitro dry-matter digestibility of "Jose" tall wheatgrass in the Trans-Pecos area.

PROCEDURE:

Two locations were selected for the study. One site was located on the Texas Agricultural Experiment Station at Pecos under a moveable, solid-set sprinkler system on a Hoban silty clay loam soil. The other was located off-station under a center pivot irrigation system on a Verhalen clay loam soil. Both locations contained one year old stands of Jose wheatgrass. Plots were divided into six subplots and replicated four times at each location. The following clipping treatments were used: clip to 2-inch stubble height every seven days; clip to 5-inch stubble height every seven days; clip to 2-inch stubble height every 21 days; clip to 5-inch stubble height every 21 days, and quarterly clip to a 2-inch stubble height in November, February, May, and August. The sixth subplot was sampled every seven days for quality only and then clipped to a 2-inch stubble height at the end of each quarter. Sub-samples for in vitro dry-matter digestibility (IVDMD) were taken at each harvest. Yields were determined by conversion of field weights to dry-matter basis from oven dried sub-samples collected at each harvest. Carbohydrate reserve samples were also collected at monthly intervals on all 2-inch and 5-inch clipping heights.

RESULTS AND DISCUSSION:

Total dry-matter yields obtained from the various clipping heights and frequencies are shown in Table 1. These yields represent two years data. IVDM results are summarized by month and shown in Table 2 for 1979 only. Since little variance was obtained through different treatments, IVDM sampling was discontinued for the 1980 season. The results of this two year study indicate that Jose tall wheatgrass yield and digestibility are not greatly influenced by defoliation height and frequency. Therefore, Jose tall wheatgrass is capable of being utilized in an intensive grazing program. Results of carbohydrate reserve sampling are not available.

Table 1. Dry-matter yield of Jose tall wheatgrass derived from various clipping heights and intervals.

| Location | Harvest height and frequency | | | | |
|---------------|------------------------------|------------|-----------|------------|------------|
| | 2"-7 days | 2"-21 days | 5"-7 days | 5"-21 days | 2"-90 days |
| Pecos Station | | | | | |
| 1979 | 9,354 | 9,607 | 4,778 | 7,298 | 10,569 |
| 1980 | 7,139 | 7,476 | 5,075 | 6,989 | 7,991 |
| Off-Station | | | | | |
| 1979 | 8,171 | 6,259 | 3,992 | 4,847 | 13,125 |
| 1980 | 7,779 | 7,497 | 4,678 | 6,228 | 11,145 |

Table 2. In vitro dry matter digestibility from various clipping heights and frequencies of Jose tall wheatgrass summarized by month.

| Month | Harvest height and frequency * | | | | |
|------------|--------------------------------|------------|-----------|------------|------------|
| | 2"-7 days | 2"-21 days | 5"-7 days | 5"-21 days | 2"-90 days |
| November | 61 | 61 | 66 | 63 | 64 |
| December | 58 | 59 | 67 | 69 | |
| January | 66 | 62 | 67 | 64 | |
| February** | | 72 | | 65 | 67 |
| March | 72 | 72 | 73 | 72 | |
| April | 72 | 67 | 69 | 66 | |
| May | 67 | 60 | 65 | 63 | 57 |
| June | 64 | 63 | 62 | 64 | |
| July | 64 | 64 | 62 | 61 | |
| August | 63 | 59 | 62 | 60 | 56 |

* Includes data from both study locations.

** Not enough growth on 7 day intervals to sample.