

## **ABSTRACTS OF RESEARCH IN GRASS AND LEGUME INVESTIGATIONS - 1953**

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#### **TAME GRASS HAY YIELDS**

The character of the growing season, with abundant and timely rains in the early part of the season, was very favorable to the growth of cool season tame grasses. The average production of the ten species and strains in the trial seeded in 1951 was 1955 pounds per acre this season in contrast to an average production of 1089 pounds per acre last year. Standard crested wheatgrass, S-571 crested wheatgrass, green stipagrass, and Fairway crested wheatgrass averaged better than a ton of hay to the acre.

Intermediate wheatgrass and pubescent wheatgrass averaged about 1900 and 1800 pounds per acre respectively. Lincoln bromegrass and northern bromegrass averaged just slightly less. Tall wheatgrass and Russian wildrye were the lowest producers at about 1600 pounds per acre for the former and 1100 pounds for the latter.

#### **GRASS-ALFALFA MIXTURE TRIALS**

The grass and alfalfa mixture trials seeded in the spring of 1951 were harvested in part for hay for the second season. The combination of intermediate wheatgrass and alfalfa was the top producer for the second time. The average yield from this combination was 3783 pounds per acre. Alfalfa alone averaged 3388 pounds per acre. Crested wheatgrass and alfalfa produced 2813 pounds per acre, only slightly more than crested wheatgrass alone. The average production of all plots containing grass alone was 2148 pounds, while the plots containing combinations of grass and alfalfa averaged 3222 pounds per acre, a yield advantage of 50 per cent for plots containing alfalfa. The average yield advantage for combinations of grass and alfalfa over grasses alone for the two seasons is 36 per cent.

## NITROGEN FERTILIZER ON OLD CRESTED WHEATGRASS

As in the past two seasons nitrogen fertilizer produced substantial increases in hay yields from old crested wheatgrass stands. There were strong residual effects from the applications made in the spring of 1952, and somewhat weaker effects from applications made in 1951. The cost of 100 pounds of nitrogen (300 pounds of fertilizer) is slightly more than the value of a ton of hay at current prices. On this basis, and considering the type of residual responses indicated thus far in this study, the use of nitrogen fertilizer on old crested wheatgrass stands of this kind may not be entirely justifiable from the economic standpoint.

### CRESTED WHEATGRASS RENOVATION TRIAL

The results of a renovation trial on old crested wheatgrass stands indicate that disking to reduce the density of plant cover has little or no stimulatory effect on production of hay. Where nitrogen at the rate of 100 pounds per acre was added at the time of treatment in the spring of 1952 very small increases were obtained the first season because of unusually dry weather, but yields were very substantially increased in the 1953 season. This was on both disked and undisked plots.

Where plots were disked and seeded to either sweetclover or alfalfa, yields were depressed the first season and have as yet shown little stimulation. Poor stands of the legumes were obtained the first season because of dry weather. However, some of the seed which did not germinate in the 1951 season, germinated in the 1952 season and there are now indications that fair stands of legumes will be obtained. Further time will be required before conclusions can be made as to the possibilities of renovating old crested wheatgrass stands by disking and seeding to legumes in this dryland section.

### NATIVE GRASS PASTURE YIELDS

Production on all native grass types in the pasture on the livestock farm at the Dickinson Station was the highest in eight years of record. The production of all types averaged together was 2503 pounds of dry material per acre this year. This contrasts with 950 pounds last year, and the eight-year average of 1324 pounds per acre. The production for this season is probably close to a record for the period that the white man has been in this section of the country.

## DRYLAND ALFALFA YIELDS

This is the first year of harvest from dryland alfalfa plots where 11 varieties are under test. Narragansett topped all other varieties with a yield of 2.18 tons per acre from one cutting. Ladak was next with 2.09 tons, followed by Cossack at 2.04 tons. Grimm yielded 1.80 tons and Ranger 1.73 tons. The lowest yielder was named Nomad, a so-called creeping alfalfa at 1.68 tons. All yields were unusually good considering that only one cutting was obtained.

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