

ABSTRACT OF REPORT PREPARED FOR ANNUAL MEETING
OF THE NORTHWEST SCIENTIFIC ASSOCIATION, SPOKANE,
WASHINGTON, DECEMBER 27, 1945

Results of Cultural Trials in the Establishment of Perennial Forage
Species on Abandoned Farmland in Southeastern Idaho

Prepared by

RUSSELL H. STARK¹

Field trials conducted at Aberdeen, Idaho, since 1939 by the Soil Conservation Service, U. S. Department of Agriculture, and the Idaho Agricultural Experiment Station demonstrate that desirable perennial forage species may be established on abandoned dryland under low rainfall conditions.

The average annual rainfall from 1912 to 1945 for the area in which the trials were conducted was slightly less than 9 inches. Yearly rainfall received during the trial period, 1939 to 1945, includes the highest as well as the lowest annual precipitation on record.

At the time the trials were established the vegetative cover supported by the area was primarily annual cheatgrass (*Bromus tectorum*). Only very scattered plants of perennial forage species were present.

The trials have included different cultural methods of seedbed preparation and common as well as newly introduced or recently domesticated species and strains. Plantings have been made with types of drills commonly used in dryland areas. Seedings were established on seedbeds prepared by summerfallow, duckfooting just prior to seeding, and burning in the early summer as well as on unprepared seedbeds. Most seedings were established in the fall, but early and late spring seedings have also been made. Pure stands as well as mixtures have been used.

Summerfallow is the surest and best method of preparing abandoned land for reseeding. It reduces competition

and destroys or partially eliminates undesirable species. Summerfallow also makes possible the use of a greater number of species and permits spring as well as fall seeding.

Satisfactory stands may be established on burned or duckfooted areas, but the plant development is retarded in comparison to similar stands on summerfallow. Some satisfactory stands were established on unprepared seedbeds, but the failures and spotted stands obtained indicate that this is not a reliable method for the establishment of perennial forage plants. Stand development on unprepared seedbeds was delayed from 2 to 3 years as compared with similar seedings on summerfallow land.

No significant differences have been obtained in yield from the use of different drills when seedings were made on summerfallow. The double disc drill produced the most uniform stands on duckfooted seedbeds while the deep furrow drill was superior on unprepared seedbeds.

Equal success has been obtained from fall and early spring seedings on summerfallow. Late spring seedings were successful in 2 out of 3 years.

Pure stands of crested wheat grass (*Agropyron cristatum*), blue bunch wheatgrass (*Agropyron spicatum*), and tall wheatgrass (*Agropyron elongatum*) seeded on summerfallow produce essentially the same grazing capacity per acre. The average grazing capacity of these three species was from 2 to 4 times that of the annual cheatgrass.

¹ Manager, Aberdeen Nursery Unit, Soil Conservation Service, U. S. Department of Agriculture.

The blue bunch and tall wheatgrass require at least a year longer than crested wheat for complete establishment. Fully established stands of western wheatgrass (*Agropyron smithii*) and thick-spike wheatgrass (*Agropyron dasystachyum*) were equal to the bunchtype wheat grasses in grazing capacity. Alfalfa has developed satisfactory stands on summerfallow but does not produce sufficiently under the condition of these trials.

Mixtures have no advantage from the standpoint of production over pure stands. The production of bluegrasses

or sod-type wheatgrasses in combination with bunch wheatgrasses is determined by the yield of the bunch wheatgrass.

Yields correlated with basal density of most species used in the trials. The average basal density of adapted perennial wheatgrasses was 2.67 per cent with an average yield of 1173 pounds of forage per acre. Cheatgrass with an average basal density of 2.64 produced 607 pounds per acre.

Complete results of this work are in manuscript form for publication as a bulletin by the University of Idaho.