Pellet Seeding of Grass On Rangelands Is Studied

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Thousands of acres of rangeland in the Southwest, which were formerly dominated by perennial grasses, are now practically devoid of vegetation or are partially to wholly dominated by undesirable species.

Revegetation of these seriously depleted rangelands by seeding adaptable, nutritious, and palatable grasses is vital for adequate forage production, profitable livestock raising and as a safeguard against erosion and flood damage.

All-in-One Pellets

Studies were initiated during the summer of 1961 by the range management staff of the Department of Watershed Management to test the feasibility of seeding depleted rangelands via the aerial dissemination of grass seed encased in earthen pellets. The pellets being tested consist of a homogenous mixture of grass seed, pulverized clay, fertilizer, and in some cases insect repellents, compressed into round quarter inch pellets.

Advantages advanced in favor of pellet seeding are: (1) They can be easily and uniformly distributed via aerial dissemination in areas which are inaccessible to conventional ground equipment; (2) The pellet provides a medium for germination and establishment which eliminates the need for seedbed preparation and seed coverage; and (3) Growth stimulants and insect and rodent repellents can be incorporated into the pellets.

A federal appropriation provided $50,000 to the University of Arizona for the purpose of pellet seeding on a purely experimental basis.

BLM Has Assisted

Under the terms of a cooperative agreement the Bureau of Land Management, Department of the Interior, has:

1. Provided approximately 400 acres near Congress and 200 acres near Cordes, both in Yavapai County, for use in the study;
2. Fenced the areas and agreed to withhold grazing in the areas for a minimum of three years, and
3. Absorbed the cost of the necessary seedbed preparations in the areas.

The author is a member of the Department of Watershed Management.

The program at Cordes is designed strictly to test pellet seeding under conditions for which the method was developed, i.e., seeding of inaccessible areas without benefit of seedbed preparation or seed coverage. Rainfall in the area averages slightly more than 14 inches annually. This site represents the most favorable rainfall conditions of B. L. M. lands in need of reseeding in the state. Lehmann and boer lovegrass were seeded there in both pelleted and non-pelleted form. These two species have proved valuable for reseeding in Arizona. They were seeded without benefit of seedbed preparation and seed coverage.

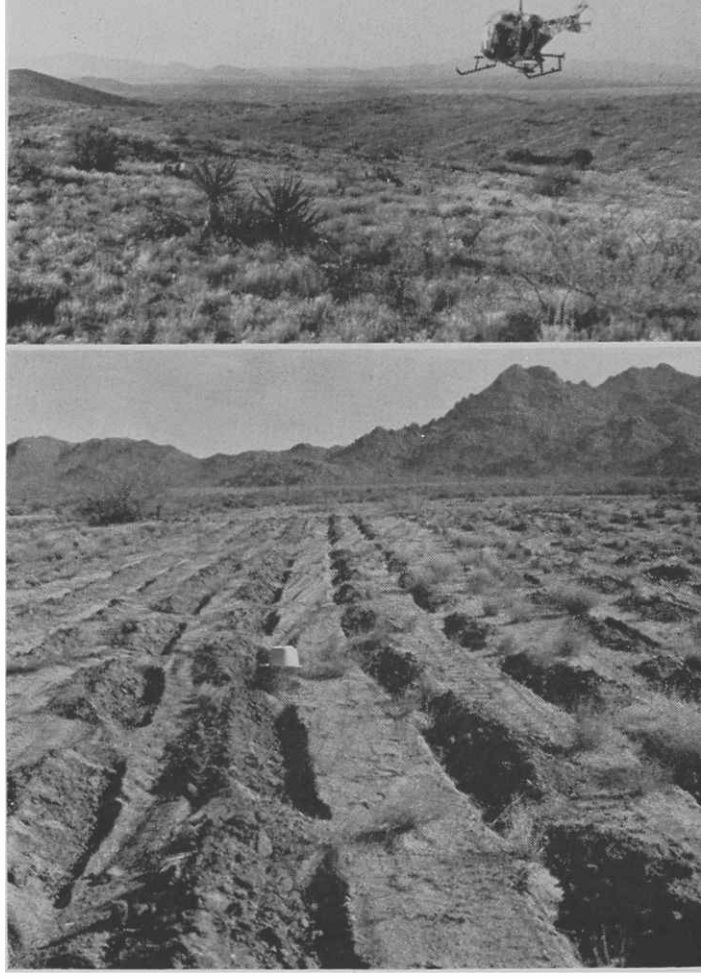
Where Rainfall is Less

In addition to being designed to test pellet seeding under conditions for which they were developed this part of the program was set up to determine methods for seeding in areas of questionable rainfall. Average annual rainfall in the area is about 11 inches.

Both boer and lehmann lovegrass and black grama, which is native to the area, were seeded in the Congress area. Various seedbed preparations and methods of seeding were used, including:

1. No seedbed preparation — air seeded,
2. Chained seedbed — air seeded,
3. Pitted seedbed — air seeded, and
4. Pitted seedbed — drill seeded.

Both pelleted and non-pelleted seed were seeded in each type of seedbed preparation and by each method of seeding.



TOP PICTURE shows aerial pellet seeding on rangeland without preparation of a seedbed. Below is shown the pitted seedbed for aerial and drill seeding of grasses. Note how pits can hold and store moisture to aid seed germination.

Includes Other Studies

Supplemental studies dealing with various sizes and shapes of pits, mulching, artificial rainfall, rabbit, rodent, and insect control, and soil moisture are also under way in the Congress area.

A second federal appropriation has made possible extension of these studies through the 1962 growing season.

Also planned for 1962 are: (1) a repeat study in the Congress area, (2) additional seeding near Willcox in Cochise County, where the average annual rainfall exceeds that at Congress, and (3) both summer and fall seeding in the "sagebrush country" near Fredonia in the Kaibab area, at the extreme north edge of the state.

Wild-Tame Oats Cross for Pasture

Experiment Station workers in Arizona are crossing domestic oats and wild oats to get a larger bulk of green forage than from any domestic oat variety, or from any barley variety excepting Harlan.

Rex Thompson at the Mesa Experiment Station and Tom Ramage, cytogeneticist with the U. S. Department of Agriculture, report on 1960 and 1961 trials at the Mesa Station. The cereal varieties in the trials were cut at the onset of jointing to simulate pasturing.

Harlan barley produced an average of 24.9 tons of forage per year, averaging the two years of trials. The wild oat-tame oat cross produced 97 per cent as much. On down the line, the others in the test, did as follows: Vaughn barley 86 per cent the yield of Harlan, Arivat 85 per cent, Indio oats 85 per cent, Markton oats 84 per cent, Hooded atlas barley 82 per cent, Palestine oats 80 per cent and Curt oats 80 per cent the yield of Harlan.

The Harlan was clipped six times during the year, as were the other barley varieties. All the oat varieties, and the wild-tame oat cross, were clipped seven times.

"The excellent showing of the bulk wild oats cross was enhanced to some extent by the complementary action of various characters, such as earliness and lateness," said Thompson. This resulted in sustained vegetative growth for a longer period, he points out.