

NEBRASKA TECHNICAL NOTE

U. S. DEPARTMENT OF AGRICULTURE



SOIL CONSERVATION SERVICE

December 1985

AGRONOMY TECHNICAL NOTE NO. 97
William E. Reinsch
Conservation Agronomist

SEED DISTRIBUTION, CALIBRATION OF DRILL AND DEBEARDED SEED

Refer to Nebraska T. G. Notice 211, Section II-D-6 for the Seed Distribution Table and formula used to calculate the table.

CALIBRATION OF DRILL

If a drill setting is available, fill drill with seed, make setting, and drive equipment over hard ground or canvas. Count number of seeds dropped per foot of row and adjust according to Table 1, Section II-D-6 of Technical Guide.

BROADCAST

Many seedings are made with broadcast seeders of various types. To calibrate, place canvas at several locations across the path of seed. Check canvas for proper seed count per square foot. Adjust for proper count according to Table 1, Section II-D-6 of Technical Guide.

NOTE: Several checks need to be made to determine width of strip seed being dispersed.

Another method of broadcasting seed is to mix seed with phosphate and/or potash fertilizer at a bulk fertilizer blending plant. Set the fertilizer buggy or easyflow type spreader for fertilizer rate to be applied. Check seed dispersal distance with canvas and adjust driving spacing accordingly.

NOTE: Seed should be mixed with fertilizer just prior to spreading to prevent seed damage from fertilizer. Blend fertilizer an extra amount of time to insure seed is well mixed with all fertilizer.

DEBEARDED SEED

Several warm-season grass species have light seed with seed appendages. Big bluestem, indiagrass, and little bluestem are those most likely to be used. The seed appendages, awns on the tip of the seed, and hairs on the base of the seed cause the seed to bridge severely in seeding equipment commonly used by midwestern farmers. This may limit acceptance of these species by many operators.

Seed of these species can be processed through a debearder to remove bothersome appendages. After debearding, the seed may be cleaned to a higher purity and seeded through various types of equipment, such as grain drills, billion seeders, etc.

Seeding debearded seed with specialized rangeland drills requires modification to reduce rate of seeding to recommended rates. Modification entails changing sprocket size and lengthening drive chains. This procedure is rather impractical if changing from debearded to nondebearded frequently.

Seeding with debearded seed can be accomplished with a variety of grain drills. Calibration of the equipment in most cases may be time consuming. Roughness of the field, speed of equipment, and type of metering of the equipment may alter the flow rate of the seed. Relative humidity may also affect the flowability of the seed.

Most grain drills are not designed to accurately meter this type of seed. Additional care must be used to obtain proper calibration. The preferred check for seeding rate is to count seeds per foot or square foot while the equipment is operating under field conditions.

A drill setting for smooth bromegrass should serve as a starting point for big bluestem. A setting for tall fescue may serve as a starting point for debearded indiagrass. Adjustments will need to be made as necessary.

Switchgrass may be seeded through the legume box on grain drills and a setting for alfalfa would be a starting point. This seed does not require debearding.

A concern in using grain drills for grass seedings is a lack of positive depth control. This will be improved if the seedbed is rolled or cultipacked ahead of the drill. Reducing the spring tension on the furrow openers will reduce penetration and assist in placing the seed in the upper half-inch of the seedbed.

Seed metering mechanisms in grain drills are usually corrugated rollers, seed cup, or double seed cup type. The corrugated roller type with agitators will probably work more effectively with the light debearded grass seeds. The seed cup without agitators will seed debearded seed, but limited experience has shown accurate calibration may be difficult to obtain depending on the range of adjustments available on the specific equipment.

Calibration should be made well ahead of expected planting to allow adequate time for adjustments. The accuracy of seed distribution will depend on the care taken to set up and calibrate the specific equipment used.

Broadcasting debearded seed by blending fertilizer with seed and spreading with a fertilizer truck or trailer has proven to be a very effective procedure. Fertilizer application rates should be adequate for equipment calibration.

Seeding in this way eliminates the difficulty of calibrating equipment. The fertilizer spreader application rate may be cut in half, drive at normal spacing, and then drive halfway between the original tracks the second time over. This has demonstrated even seed distribution. Rolling the seedbed to firm the soil and cover seed completes the planting. This procedure is quite simple and effective when seeding on a quality prepared seedbed.

Driving heavy fertilizer equipment over the seedbed when it is wet will cause severe compaction and crusting in the wheel tracks preventing seedling emergence. The seedbed should be dry on the surface during seeding and rolling if at all possible.

Nondebearded seed will not broadcast as effectively through fertilizer trucks or trailers. With seed appendages intact, seed dispersion will be in very narrow bands. Nondebearded seed may be distributed with a gravity type fertilizer spreader, as this equipment drops the seed rather than attempting to throw it. Other procedures would be the same.