SECURING A STAND USING SEGMENTED SEED

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In this discussion "Securing a Stand Using Segmented Seed," no effort will be made to enter into the technical and scientific phases of the subject. It is our desire to present the subject in a practical way from observations and experiences gained under actual field conditions and in the words and language of the man on the farm actually facing the problem.

Success in securing a stand must start with original seed of high quality and the actual practice of segmentation must be fully and carefully carried out. Seed of high viability must be used and the final seed segments must be uniformly and carefully graded.

From last year's experience some of our more serious problems in connection with securing a stand consisted of the following:

Irregularity of seeding
Inadequate preparation of seedbed with subsequent loss of surface moisture
Variation in depth of planting
Phosphate injury when too large amount was applied with seed at planting time
Loss of surface moisture caused by climatic conditions

One of the first problems which presents itself in the use of segmented seed is the type of seeding device available for the actual introduction of the seed units into the soil. The usual type of seeders or drills used to plant sugar-beet seed have not been called upon to do a precise and accurate job of planting, their mechanical weaknesses have been covered up by the practice of using large amounts of seed which because of the volume was fairly uniformly placed in the soil. When an effort was made to use a smaller amount of seed and to secure a more uniform placement, it was soon found that the drills in regular use were unsuited to do the job, consequently, manufacturers attempted various adjustments and improvements with some degree of success, but there is still much work to be done with the planting machines before seed placement is satisfactorily accomplished. If best results are to be attained it is necessary that the planting machine accurately meter the seed, place it uniformly in the row at a definite depth, and that the soil be left firmly in place about and over the seed. This latter requirement will necessitate improvements in furrow openers and press wheels for closing the furrows. The planting machine available should be placed in the very best possible mechanical condition regardless of the adaptation for segmented seed planting provided by the manufacturer. Drills with loose and worn parts will not do a satisfactory job regardless of all the improved mechanisms that may be introduced into the seed box.

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It is our opinion that farmers are going to have to give more attention to the preparation of seedbeds than ever before if the use of segmented seed is to become a uniformly satisfactory practice. In the area with which I am most familiar, early planting has proved itself completely. The farmer is faced, however, with the possibility of conditions such as warmth, sunshine, and wind which will take the moisture from his soil surface before irrigation water is available to him, consequently, the seedbed must be prepared with the minimum loss of moisture. This means rapid and effective operations with the minimum depth of stirring and working of the soil. A seedbed to hold moisture to the greatest degree must be firm and fairly fine but not completely dusty. If the soil is worked too fine, showers may create a crust condition which will delay and in many cases prevent the emergence of seedlings.

As to the depth of planting, it is useless to plant the seed shallower than available moisture unless irrigation is immediately available, therefore, the depth of planting should be adjusted to moisture conditions within the field. We believe that under conditions as found in our area that planting was generally too shallow in 1943. As a general practice, we believe that the planting depth should vary from 1 inch to 1-1/4 inches where natural moisture is expected to bring the stand. Where irrigation is used, the average depth of planting should probably be about 3/4 of an inch. It is our observation that more constant moisture conditions are needed when segmented seed is used than is the case with regular seed, therefore, if conditions have brought about a loss of the surface soil moisture, it is probably better to wait and plant after irrigation water is available than to place the seed in dry soil. This is also true if weeds are likely to be a problem. Observations indicate that segmented seed stands in many cases, probably due to moisture conditions, emerge more slowly than when regular seed is used. It may prove highly desirable to permit the germination of surface weed seeds, work the seedbed again, then plant and irrigate. In order to make it possible to soften crusts or to supply moisture for germination the drill used should be provided with furrowers that will leave a fairly deep and narrow irrigation furrow. Wide shallow furrows may create a condition favorable to loss of moisture from the sides of the seed rows.

Another factor according to our observations is the damage of germination and to seedlings where large amounts of commercial fertilizer is used in close proximity to the seed. In our opinion the use of commercial fertilizer at planting time should be restricted to an amount not to exceed 50 to 75 pounds per acre with present fertilizer attachments provided for drills. Larger amounts may be applied prior to the planting of the seed and in the preparation of the seedbed or used after seeding as a side dressing.

In conclusion, satisfactory stands can be secured using segmented seed, but does require better farming practices than has been the case with the regular seed. Where the planting has not been made too deep the use of corrugators on the drill so as to irrigate in case of loss of surface moisture or the formation of crusts is one of the most important factors in securing a stand with segmented seed.