

PROCEEDINGS

FIFTEENTH HARD RED WINTER WHEAT WORKERS CONFERENCE

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STUDENT CENTER
COLORADO STATE UNIVERSITY
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THE HARD RED WINTER WHEAT
IMPROVEMENT COMMITTEE

SEEDING OPERATIONS

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Successful winter wheat seeding occurs when the seed is placed firmly into moist soil with a covering of firm, preferably moist, soil about 1 to 1½ inches thick to keep the seed from drying out before it has time to germinate and establish roots for self-sustained growth. This is not difficult in humid areas where the soil is rewet by frequent rains. However, in the semiarid Great Plains where the surface 3 to 5 inches of soil is frequently dry and will remain in that condition for much of the time, successful seeding may be difficult to achieve.

Another problem frequently associated with seeding in the semiarid Great Plains is the presence of large quantities of residue from the previous crop. This is especially true where minimum or no-till fallow methods were used and residue quantity frequently exceeds 2,000 lb/ac at the end of fallow. Seeding in such conditions is extremely difficult with existing commercially available drills. The residue may be loose and fluffy and may contain large dead weeds, both of which are difficult to get to pass through drills. Best results to date have been obtained with hoe-type drills modified to have a rolling coulter placed in front of each hoe opener. For the coulter to operate properly, they must penetrate the soil so that all trash and residue is cut, not just pushed into the soil. To get proper penetration, each coulter requires about 300 pounds. For sufficient clearance for the trash, the hoe openers should have a minimum working clearance of at least 24 inches in all directions. Hoe openers pass trash best when they are narrow, smooth, and straight.

Minimum and no-till fallow usually provide adequate soil water within the surface 3 inches of soil. But the surface soil is often cloddy and care has to be taken to avoid excessive air pockets in the seed zone, therefore a positive action seed firming wheel or press wheel is a necessity. A second necessity is that the seed dispersing device be such that the seed is dropped no more than one-half inch from the bottom of the slot made by the hoe and as close to the back of the opener as possible. This is necessary to insure that the seed is dropped on moist soil and is pressed into moist soil regardless of whether dry soil falls on top of the seed when being pressed into the moist soil. If the distance from the seed dispensing device and the bottom of the slot exceeds one-half inch and there is any distance between the seed dispensing device and the back of the hoe opener, dry soil will flow into the furrow before the seed can be dropped on the moist soil and poor germination results.

Disk-type drills, single, double, and triple disk, have not been successful because of their lack of ability to penetrate soil to depths necessary to reach the moist soil line. A second disadvantage to disk drills is the fact that they cut and destroy clods which are necessary for wind erosion control.