

Indiana - May 2009 (ver. 1.0)

Recommended Cover Crop Seeding Methods and Tools

Cover crops provide numerous benefits and these are greatest when a good stand is established with minimal soil disturbance. To maximize benefits, the seeding tool or method should have a calculated Soil Tillage Intensity Rating (STIR) rating of 20 or less according to Revised Universal Soil Loss Equation (RUSLE2).

Factors affecting establishment of cover crops:
 Cover crop success is dependent on several factors: seeding date, weather (temperature and moisture) after seeding, seedbed conditions, fertility, depth and volume of previous crop residues, planting depth, seed soil contact, seeding rate, seed quality (germination and % purity), time of freeze after seeding, insects and diseases.

The following are recommended seeding methods and tools which optimize the above factors.

No-Till Drilling: Use a no-till drill that is designed to handle heavy crop residues and the type of seed being planted (especially important for small seeded species). Set the no-till drill to provide good seed-to-soil contact and a planting depth preferred for the desired species to be planted. Depth control for most drills is not precise, so it is important to set it for the optimum depth, and check often to assure placement doesn't exceed the maximum depth for selected species. Soils that are too wet or too dry can also cause improper seed placement.



No-Till Drilling (heavy or light residue crops)

Harrow Seeding: Rotary harrows, coultter harrow type vertical tillage tools or similar tools can be used to aid in fluffing or cutting residue to allow improved contact with the seed and soil. Air delivery seeders can be mounted to these tools to deliver the seed to the soil as the residue is lifted or cut. The implement shall be set to run no deeper than 1" and not be designed to invert the soil or to bury the crop residue. Coultters will be set to run straight and not be cupped or concave. Tools with multiple operation gangs should only utilize the coultters with the rear harrow gangs raised or detached. This prevents excessive soil disturbance that will reduce the benefit of the cover crop. This shall be a single pass operation.

Seeding depth guidance		
groups	optimum	maximum
Brassicas, clovers, small seeded legumes, small seeded grasses	¼"	¾"
Vetches, sorghums, wildryes	½"	1"
Cereal grains	¾"	1 ½"
Beans, peas, corn	1 ½"	2"



Rotary Harrow Seeding - mounted air delivery seeder in light residue crops



Rotary Harrow Seeding - seed delivery ports



Rear harrow gang should be raised

Coultter Harrow Seeding - air delivery seeder on a coultter harrow in heavy residue crops

Aerial Inter-Crop Seeding: This method does not include a seedbed preparation. Broadcast via a plane, helicopter or high clearance spreader into existing vegetation or residues. This method relies on rain, freeze/thaw cycles, or snow to incorporate the seed. Timing in the fall should be just prior to leaf drop or crop maturity for most cover crops. Some shade tolerant species may be adapted to earlier seeding. Earlier seeding is desirable when the cover crop will be used for fall forage. An attempt should be made to seed just ahead of predicted rain. Seeding rates should be adjusted up by at least 15%. Only seed mixes of species with similar density should be considered. Aerial applicators should be knowledgeable of the spreading width and the weight of the planned species. Wind speed should be 15 m.p.h. or less when broadcasting.

Airflow Applicator →



Aerial Inter-Crop Seeding



Aerial Inter-Crop Seeding - established in standing soybeans

Broadcast Seeding: Seed may be broadcast into light residue crops, without a seedbed preparation, if completed in a uniform manner. Heavier seed such as cereal grains are more adapted to this method when seeding into freshly harvested crop residues. Seeding rates should be adjusted up by at least 15%. Pre-mixing the seed with 200 lbs. per acre of pelletized lime or blended with the fertilizer intended for the subsequent crop is acceptable if using an airflow applicator. Seed blended with Fertilizer should be immediately spread to prevent damage to the seed. Wind speed should be 15 m.p.h. or less when broadcasting light seed such as annual ryegrass. A harrow, meeting the same specifications as **Harrow Seeding** above, may be used immediately following the spreader to improve seed to soil contact.

