

Immediate Release

December 21, 2020

James J. Hoorman
Hoorman Soil Health Services
Website: HoormanSoilHealth.com
Email: HoormanSoilHealthServices@gmail.com
Cell: 419-421-7255

Inter-seeding Cover Crops into Corn

Getting a good cover crop stand after harvest can be difficult, so farmers are inter-seeding cover crops early into standing corn. Benefits include erosion control, extra nitrogen from legumes or clovers, using grasses as nitrogen scavengers, weed suppression, and livestock forage (grazed or hayed). Inter-seeding cover crops into corn early takes some planning; especially on timing, planting equipment, and selecting cover crop mixes, seeding rates and herbicides.

Timing is critical so inter-seed before the corn canopies but not too early so that corn has to compete for moisture and sunlight. Penn State research shows that about V5 (V4-V6) or when corn has five true leaves is the ideal time. Planting earlier than V4 often results in competition from the cover crops and corn yield losses. Planting after V6 may be successful, but the amount of cover crop biomass may decline due to moisture and sunlight limitations. The goal is to get a head start on cover crop growth before corn is harvested. If corn is growing slowly due to weather, delay inter-seeding to avoid competition. Due to exponential corn growth under good growing conditions, the inter-seeding planting window can be small and narrow, so be ready to inter-seed cover crops on a timely basis.

Farmers often use a modified high clearance drill to inter-seed cover crops between corn rows. Generally, cover crops are drilled into 2-3 rows between the growing corn (30-inch rows up to 60-inch twin rows). Commercial inter-seeders are available including the Penn State “InterSeeder” and Hiniker. These seeders are adapted to apply nitrogen and herbicides. If you decide to build or modify your own inter-seeder, plan ahead by thinking about how the unit will be used (cover crops, fertilizer, spray) but also about how the seed will be planted (drilled or broadcast). Larger seed should be drilled while small seed may be broadcast. Also, most inter-seeders are attached with 3-point hitch (6 rows) on corn in 30 inches rows. Larger farmers are experimenting with larger units.

Many different cover crops can be inter-seeded but the best ones tolerate shade and low moisture. Cover crop seeding rates are quite variable. In cover crop mixtures, divide the full seeding rate for each species by the number of cover crops in the mixture to determine the

approximate seeding rate in a mixture. See the Midwest Cover Crop Field Guide for full seeding rates.

For soybeans, plant 12-20# (Group 7 soybeans) and put the seed close to the row to get a 5-12 corn bushel advantage in a good year. For legumes, winter peas work well in a wet year while cowpeas do better under dry conditions (6-12#). Hairy vetch (2#) prefers well drained soil while red clover (4-6#) can tolerate wetter soils or add Sunn hemp (5#). For small seeded clovers; rates are generally low and might include crimson (4-6#), balansa (1-3#), red (4-6#), or berseem clover (4-6#). All legume and clovers should be inoculated with the right species AT planting. For grasses; oats (6-12#), annual ryegrass (6-12#), or cereal rye have been successful. Daikon radish, kale, rape seed, and turnips (all brassicas) are seeded at low rates (.25-.75#) or add pollinators to a mix like buckwheat (3-5#) or phacelia (.5#), or chicory or flax at low rates.

For corn herbicides; salfluenacil (Sharpen), rimsulfuron (Resolve and Basis), or Clarity and Banvel (wait 15 days per 8 fluid oz) herbicides have the least herbicide injury to legumes, clovers, grasses, and brassica cover crop mixtures. For 2-4D, all grasses are safe but broadleaves need to wait 15-30 days before planting. Surestart + Atrazine is generally safe except for hairy vetch. Since each field is different with different weed and cover crop species, general recommendations are difficult. Check out Penn State (Curran and Lingenfelter), University of Wisconsin (Herbicide Rotation Restrictions), and University of Missouri (Kevin Bradley) who have extensive herbicide resources on corn inter-seeding.

Most university research shows no corn yield loss on late seeded cover crop mixtures in most years. If planted too early or if severe drought occurs, yield losses can be severe (160 bushel in one case). For crop insurance, check out the USDA-RMA cover crop guidelines. Your crop insurance payment might be impacted if a crop loss occurs and you do not follow these guidelines. Contact your crop insurance agent or University Extension and NRCS personnel to avoid problems. Inter-seeding cover crops is still experimental but farmers are succeeding. PS: Last week I mis-classified Trichoderma as bacteria, they are actually fungi!