



Extension FactSheet

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No-Till Corn Production Key Management Strategies for Success

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(Descriptions of the Management Strategies are on page 2)

Management Strategies		Landscape and Soil Types		
		Poorly Drained Soils • 0–2% Slopes • Medium to Heavy Texture Soil	Moderately Drained • 0–8% Slopes • Medium Texture Soil	Well Drained Soils • Level to Steep Slopes • Medium to Coarse Texture
		How Important is this Strategy for Your Landscape & Soil Type?		
1	Soil pH (6.0–7.0)	Critical	Critical	Critical
2	Improve Drainage	Critical	Important	Helpful
3	Treat Compaction	Critical	Critical	Critical
4	Fall or Spring Strip Till OR Surface Aeration	Important	Helpful	Not Necessary
5	Starter Nitrogen	Critical	Critical	Important
6	Reduce Residue In-Row	Critical	Important	Important
7	Use Seed Treated for: • Diseases • Insects	Critical	Important	Helpful
8	Hybrid Traits • High Emergence • Seedling Vigor • Disease Resistant	Critical	Critical	Critical
9	Pre-Plant Weed Control	Critical	Critical	Critical
10	Perennial Weed Control	Critical	Critical	Critical
11	Scouting for weeds, insects, diseases (IPM)	Critical	Critical	Critical
12	Plant 1½ to 2 in. deep	Critical	Critical	Critical
13	Avoid sidewall compaction	Critical	Critical	Critical
14	Seed firming devices	Helpful	Helpful	Helpful



Key Ohio No-Till Corn Management Strategies Descriptions

1. **Soil pH (6.0–7.0):** It is critical to have your soil pH, and in particular the surface pH, in the 6.0 to 7.0 range for optimum benefits from applied fertilizer and herbicides.
2. **Improve Drainage (subsurface, surface drainage, leveling):** Crop fields should be as smooth/level as possible to allow good planter operation and minimize ponding. On soils that are not well drained, surface and/or subsurface drainage will enhance yield potential. The combination of poor drainage and residue cover can delay planting, and thus reduce yield potential.
3. **Treat Compaction:** Surface and/or deep compaction is a major concern on many crop fields. Regardless of the soil type and slope, compaction layers must be removed before adopting a no-till system of crop production. Surface compaction (0–4 inches) can be treated with strip tillage (spring or fall), multiple coulters, or an AerWay or similar tool. Deeper compaction (10–14 inches) needs to be treated with a subsoiler.
4. **Fall or Spring Strip Till, OR Surface Aeration:** On poorly drained soils the addition of fall or spring strip tillage can provide a warmer and drier seedbed for the corn allowing the crop to get planted earlier and establish faster. Surface aeration (using an AerWay or a rolling harrow) that breaks the surface of the soil and fluffs the residue cover can allow the soil surface to dry and warm more quickly to allow more timely planting and crop establishment.
5. **Starter Nitrogen:** No-till corn needs a readily available source of nitrogen to get off to a good start. At least 30–40 lbs/ac of nitrogen (applied pre-plant, at planting time, or broadcast shortly after planting) is critical to get the corn off to a good start.
6. **Reduce Residue In-Row:** Reducing the residue in the planted row area can help increase soil temperature, giving quicker germination. Standard row cleaners, strip tillage, or multiple coulters can be used to reduce in-row residue cover.
7. **Seed Treatments:** Corn is subject to attack from several soil borne diseases (including fusarium and pythium) and insects (such as the seed corn maggot) during establishment. Seed treatments should be selected to address corn seedling diseases and insects.
8. **Hybrid Traits:** Regardless of your soil type, hybrids with high emergence, strong seedling vigor, and disease resistance should be selected for no-till corn. These traits help overcome the typical cool and wet spring conditions.
9. **Pre-Plant Weed Control:** Corn responds best when it is the only crop grown in the field. Weed control prior to or at planting will reduce insect and disease pressures as well as conserve more soil moisture for the growing crop.
10. **Perennial Weed Control:** As you move into continuous no-till there is generally a shift to more perennial weeds. Recognizing the perennial weeds and treating them promptly will provide more economical control and higher yields.
11. **Scouting for Weeds, Insects, and Diseases (IPM—Integrated Pest Management):** It is critical to scout (walk the fields in a systematic pattern) on a periodic basis to observe crop and pest conditions. Early detection of a problem allows you to evaluate if treatment is needed. Early treatment is usually a more economical treatment.
12. **Plant 1½–2 inches Deep:** Corn should always be planted at least 1½ to 2 inches deep due to the physiology of the plant. The main root system starts about 1 inch above the seed, so shallow planting will mean these roots are at or above the surface.
13. **Avoid Sidewall Compaction:** The combination of the double disk openers and gauge wheels can smear and compact the sides of the seed trench. This restricts the roots from developing laterally causing tomahawk roots. Treatment includes: planting in more ideal moisture conditions, using Case gauge wheels which limit sidewall pressure, using spike-type closing wheels, or a combination of these treatments.
14. **Seed Firming Devices:** A seed firming device behind the double disk openers helps assure more uniform seed placement and crop emergence, which translates into higher yield potential.

This fact sheet was prepared in cooperation with The Ohio No-Till Council, USDA-NRCS, and the Conservation Technology Information Center.

More information on all types of conservation tillage is available in the “Conservation Tillage Systems and Management” book (270 pages, MWPS-45). Contact your county OSU Extension office, or order direct from MWPS at: 800-562-3618 or www.MWPSHQ.org. Also available on a CD-ROM.

Visit Ohio State University Extension’s web site “Ohioline” at: <http://ohioline.osu.edu>

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