



Grow With Confidence

CONTACT:

Best Practices #02: Tillage & Field Operations

Different fields require different tillage and field operations. Corn-on-corn producers all have their individual, unique routines, but experience shows successful growers are timely and consistent in performing field operations. Many point to their tillage practices and planting standards as critical.

Research from many sources points to an expected 10% yield penalty when corn follows corn. Yet, there are many continuous corn growers experiencing minimal or no penalty, and some recording higher yields. The difference? No single management practice appears to be key, but routine, systematic tillage and field practices seem to be integral. Tillage and field operation best-practice recommendations are:

- Aggressive fall tillage to cut up and mix residue into the soil to maximize breakdown of plant tissues and utilize the warming effects of tillage at planting time. Good field tillage also helps to overcome the allelopathic properties of corn residue.
- Strip till is an option for some select situations and managers. It is suggested that row cleaners be put on planters to push aside old corn root balls when planting.



YIELD RESPONSE TO STRIP PREPARATION, CHALMERS SILTY CLAY LOAM

TILLAGE	CORN AFTER CORN bu/a	CORN AFTER SOYBEANS bu/a	SOYBEANS AFTER CORN bu/a
Fall Plow	171	173	51
No-Till	152	175	50
No-Till + RR	159	177	50
3 Coulters	154	172	51
3 Coulters + RR	161	172	52
Mini-Tiller	151	176	52
Mini-Tiller + RR	154	171	50

RR - RESIDUE REMOVED

CT-4, Conservation Tillage, Strip Preparation for No-Till Corn and Soybeans, Purdue University and U.S. Department of Agriculture





CONTINUOUS CORN RESPONSE TO STRIP PREPARATION, TORONTO SILT LOAM

	Position "B" of rows	Soil "C" Temp.	50% Emergence (days)	Stand At 4 wk	Height At 8 wk	50% Tassel (days)	Yield
No-Till	in	62.5	21	21,500	38	84	163
No-Till	bet.	61.5	19	24,958	42	82	184
Spring Strip-Prep "A"	bet.	62.2	19	22,958	43	82	177
Fall Strip-Prep	bet.	63.4	17	25,708	43	80	189
Fall Plow	--	65.8	15	25,667	57	78	223

A - Strip prep included row cleaners plus 3 fluted coulters per row

B - In or between last year's corn rows

C - Average daily soil temperature for first 5 weeks

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- Nitrogen or other products may need to be applied before fall tillage to aid the breakdown of late harvested fields or fields with excessive amounts of residue.
- Plan on a spring tillage pass to prepare seedbeds prior to planting. Avoid spring applications of anhydrous or early chemical programs—every pass compacts soil, limiting yield potential.
- Adjust planting dates to factor in higher residue amounts that could delay soil warming and readiness for planting.
- Plant with impeccable standards—for example, 5 mph + 2" deep to help with uniform emergence, spacing between plants and maximizing root masses. Check planter specs for optimal recommendations.
- Consider increasing planting population by 500-1000/acre to offset potential yield penalty.

Bottom Line: Tillage reduces compaction, breaks residue and mixes fertility and pH. Pay attention to fieldwork details (e.g., planting rates, depth). Follow conservation tillage practices recommended for your growing environment to minimize soil erosion. A systematic approach to tillage, planting and other field operations is critical to corn-on-corn success.

