

ROW CLEANER EVALUATIONS ON NO-TILL CORN Greg W. Roth Penn State Agronomy Assistant Professor

During the past three years, we have evaluated the potential of various row cleaning devices on no-till corn under different situations to assess their potential under Pennsylvania conditions.

The potential advantages of

row cleaners are to move residue out of the seed zone and reduce the potential for residue interfering with seed-to-soil contact. They also can help increase the soil temperature in the seed zone, which could potentially increase early season plant growth and development. Ultimately, this could hasten crop maturity and improve yield potential.

The concept is an attractive one that could allow us toachieve the best of both worlds

— the labor savings and soil erosion benefits of no-till and the even stands and good early season growth associated with tilled systems. Another benefit of row cleaners is that they allow you to see where you planted, which is sometime helpful during planting or spraying.

On the downside, no-tillers who are satisfied with their corn stands and early season growth may question the cost effectiveness of these attachments. In areas where cool soils are generally not a limiting factor in no-till corn or under late planting conditions, it will be difficult to show a benefit. In fact, some studies in Kentucky have suggested that residue removal may reduce the mulching effect from no-till.

In our study, we planted corn no-till in different situations over a three-year period. We planted early into cornstalks,

late into cornstalk stubble, early into soybean stubble, and late into soybean stubble. We outfitted a Deere 7240 planter with a variety of coulter/row cleaner attachments. These included a normal bubble coulter, an 8-wave fluted coulter, an Acra trashwhipper, a Dawn trashwheel, and a Rawson coulter system. We then planted replicated trials and monitored seed zone temperatures, plant populations, and grain yields.

The study provided some interesting findings that in general supported the results of others. Our results showed fairly consistent increases in seed zone temperature, averaging about 2 degrees across all locations. Plant populations were increased at four of eight locations with the row cleaning devices. Yields were increased with row cleaners at two of the locations. Averaged over all locations, yields from the

bubble coulter averaged 113, while the fluted coulter averaged 116 bushels/acre and the row cleaner treatments average 118 bushels/acre.

There were few consistent differences among the row cleaners and the fluted coulter appeared to alleviate most of the problems associated with the bubble coulter. Based on our study, we conclude that row cleaners have the most potential for growers who plant early into heavy residue or manure conditions. They should also be better adapted to cooler areas with heavier and or wetter soils that warm up slower in the

In summary, the benefits to row cleaners and zone tillage systems will vary depending on crop residues, soils, and climate, but in some cases can be an effective part of a successful no-till program.

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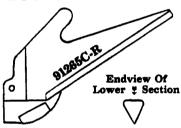
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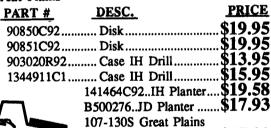


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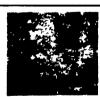
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