

No-till Field Day

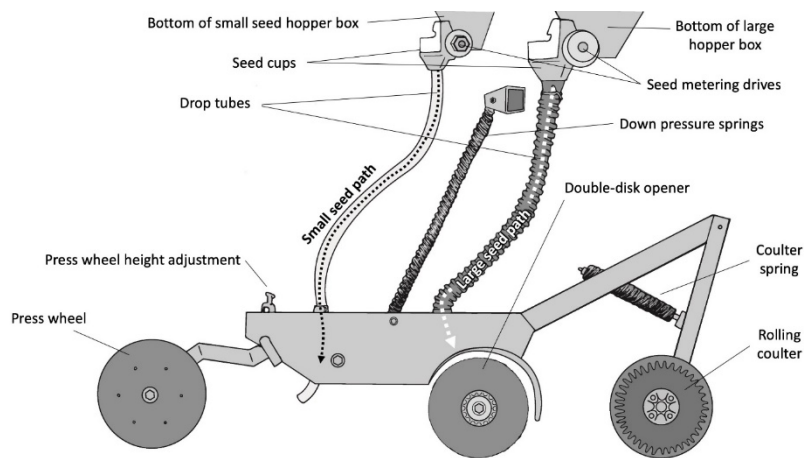
Types of No-Till Planting, Agronomy and Challenges

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Why are we doing this research?

- Water savings
- Tillage costs
- Early planting
- Different herbicides (costs and tackling herbicide resistance)

All of what we are looking at requires a no-till drill. Main difference is weight, rolling coulters (initial cut into soil and through residue), and cost.



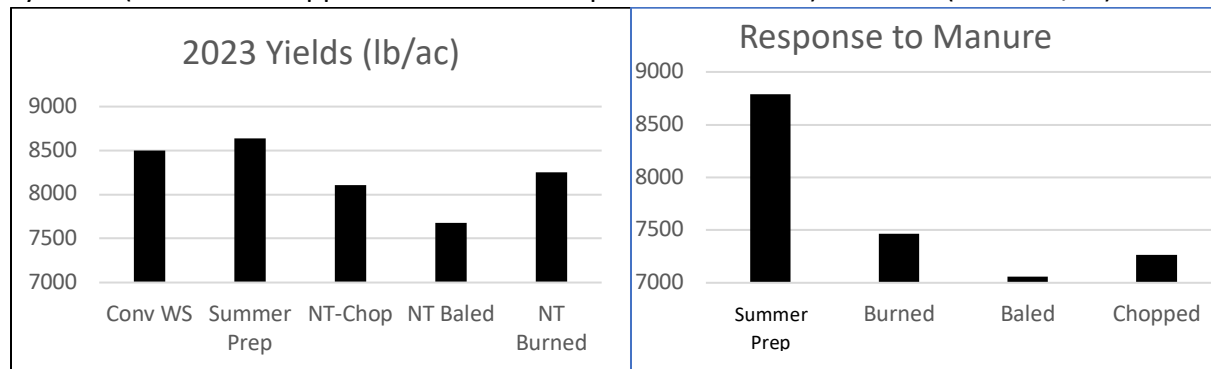
Different seedbeds: following fallow or following rice

Summer Prep: Field made into a seedbed the summer before-during the fallow period

Fall Prep: Rice grown the previous season; soil worked after harvest to make seedbed

No-till: Rice planted into a harvested rice field with no tillage following harvest. Seedbeds can differ depending on how straw was managed.

2023 yields. Good yields for RES in 2023. Maximum yields achieved with 175 lb N/ac in all systems (drill seeded applied as urea before permanent flood). Manure (125 lb N/ac).



2024 dates:

May 1: Plant
May 2/3: Flush
May 6: Drain
May 14: 50% emergence
May 26: Herbicide application
 Pendimethalin @ 2pts/Ac
 Super Wham @ 1.5gal/Ac
 Loyant @1.33pts/Ac
May 29: Fertilizer application
May 29/30: Permanent flood

Current and future research:

- Establishment
- Optimizing fertility for different systems (sources, splits, enhanced efficiency fertilizers)
- Quantifying water savings
- Quantifying GHG emissions
- Weed and pest management
- Testing on different soils through on-farm research

Take home lessons (agronomy):

- Seedbed: level for uniform seed placement
- Seedbed: ditches to move water on and off field quickly
- When to plant?
 - Soil needs to be dry enough to support equipment and not stick to coulter
 - Straw on top needs to be dry so the coulter cuts through it, instead of folding it
 - Can time planting for a rainfall event to help avoid flushing
 - Germination/emergence will depend on moisture and temperature (60 F). This is typically around mid-April.
- Flushing or not? An initial flush provides more uniformity of emergence (good rainfall may do the same). At station we went 25-30 days from initial flush to permanent flood with no flushes in between. Soil is dry to about 2 inches but water/roots below.
- When to go into a permanent flood: 3-4 leaf stage and soil is dry on surface.
- At 3-4 leaf stage the rice is shorter/smaller than in water seeded systems.
- Fertilizer application: apply just before permanent flood to a soil that is dry on surface. Using urea and a dry surface helps ensure fertilizer is pushed down into soil.
- Harvest:
 - Compared to water seeding, these systems will be delayed by 5-10 days.
 - In no-till systems you do not want to leave ruts/dips from combine