Integrating cover crops and zone till in organic vegetables

Building soil health

Crop rotations

Cover crops

Amendments

Reduced tillage

Strip tillage systems

Stacking tillage tools

Many different tools, consider depth

Maximizing winter hardy benefits

Mid-Sept
Seed cover crops

Early June
Manage cover crops at flowering

Mid-Late June
Prepare zones and plant

Mid-Sept
Harvest
Making the system work

• Minimize residue interference?
• Suppress weeds?
• Supply nitrogen?
• Maintain productivity?

Avoid winter rye in-row
Winter rye strips
Winter rye - hairy vetch
Winter rye - crimson clover
Hairy vetch

Sandy loam - Michigan

Winter rye

Michigan
Gravel loam

Cover crop biomass

New York

Vetch
Rye

Winter rye - Austrian winter pea

Cover crop nitrogen

Michigan

Sandy loam

Cover crop biomass

New York
N applied = 60 lbs N/acre

bloodmeal sidedress

Mow 2x + Till
Cut + Carry
Mulch

Cut and carry mulch

Plant available soil N...

and cabbage growth.
Cabbage yield

• Strip till similar to rototill
• Potential, small yield loss with cut + carry
• Vetch most productive without added N

Take homes
• Rye-based systems need equipment that performs in high residue, strips can help
• Manage for high-performing legume cover crops, vetch over crimson clover
• Consider tradeoffs for legume-dominated mixes
  – Less complicated operations and best yields in RT
  – Limited mulch, weed suppression benefits

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