

# COVER CROP-BASED PRODUCTION OF VEGETABLE CROPS

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# COVER CROPS FOR SOIL HEALTH

**RECOMMENDATION: GROWERS SHOULD CONSIDER OFF-SEASON PRODUCTION OF COVER CROPS OF EQUAL IMPORTANCE AS IN-SEASON PRODUCTION OF CASH CROPS (vegetable, flower and small fruit crops).**

# SOIL HEALTH DEFINED

**“Soil’s capacity to consistently produce high crop yields, using few off-farm inputs, with little or no harm to the environment.”**

# MAINTAINING SOIL HEALTH

- SOIL HEALTH is dynamic; it can be managed.
- SOIL HEALTH declines during production of cash crops.
- SOIL HEALTH is restored when cover crops are produced during the off-season.







# **ROLE OF CONSERVATION AGRICULTURE (CA)**

**CA is a philosophy, with specific objectives and practices, designed to sustain and promote soil health.**

# COVER CROPPING IS PART OF ALL THREE OBJECTIVES OF CONSERVATION AGRICULTURE:

- *Minimize* soil disturbance (reduced tillage)
- Maximize year-round soil coverage
- Maximize farm and field plant diversity

# METHODS OF ESTABLISHING COVER CROPS

*Seed drills* function best to distribute different sole or mix (cocktail) of cover crops in ADJACENT ZONES of field beds.



# GROW ZONES AND TRAFFIC ZONES DEFINED

GROW ZONES: space (2-4 ft wide), where legume cover crops and succeeding cash crops are grown.

TRAFFIC ZONE: space (2-3 ft wide), between grow zones, where grass cover crops are grown and retained as a living or dead mulch.





# COVER CROP-CASH CROP SEQUENCES

## IN GROW ZONES:

- Legume-based cover crops are grown.
- Cover crops are killed and managed.
- Cash crops planted in NT or ZT systems.



# SELECTING THE BEST COVER CROPS

- No two cover crops are alike.
- Long-term planning is important to grow the best cover crops for each type of cash crop (spring, summer or fall).

# SELECTING THE BEST COVER CROPS

**SPRING VEGETABLES:** Onion, Pea, Irish potato

**WINTER-KILLED** summer cover crops are best:

**Examples:** Berseem Clover & Spring Oats, Forage Radish & Spring Oats—seeded in July or August of the previous year.





# SELECTING THE BEST COVER CROPS

**SUMMER VEGETABLES:** Tomato, Pumpkin

**WINTER** cover crops are *best*.

**Examples:** Crimson Clover & Barley, Hairy Vetch & Rye,  
Austrian WP & Triticale—seeded in Sept/Oct of the  
previous year.









# SELECTING THE BEST COVER CROPS

**FALL VEGETABLES:** Cabbage, Broccoli

**SUMMER** cover crops are *best*.

**Examples:** Cowpea & Foxtail Millet, Sunn Hemp & Sorghum-Sudangrass—seeded in May or June of the current year.











# COVER CROP-CASH CROP SEQUENCES

**Wide Zone-Till is Recommended, Because:**

- **Zone-till equipment is available and affordable.**
- **Likelihood of success is high, especially if plastic mulch is used to cover the tilled grow zones.**
- **Living or dead grass-based cover crop mulch is grown and retained in traffic zones.**









# MAKING NO-TILL WORK ON SMALL FARMS

## FOUR STEPS TO SUCCESS:

**ONE:** Produce uniform, high-residue cover crops (3 or more tons/acre).

**TWO:** Kill cover crops, leaving a uniform, dense mulch.

**THREE:** Establish cash crops by hand, or use no-till transplanters or seeders.

**FOUR:** Manage weeds, using high-residue mulch, and/or herbicides.