



# MSU Agriculture Innovation Day

## Focus on Fruit and Vegetable Technologies

Making Cover Crops a Priority

Cover crop choices should be guided by two key questions:

### 1) What is your management goal?

- Cover crops can be divided into different “functional groups” based on:
  - Their primary purpose (e.g. N-fixer, biofumigant, soil organic matter builder, weed suppressor)
  - Their period of optimal growth (e.g. cool season, warm season).

### 2) What is your planting window?

The Midwest Cover Crop Council’s online cover crop selector tool (<http://mccc.msu.edu/selector-tool/>) helps growers select the most appropriate cover crops given their goals and planting windows.

Windows of opportunity for planting cover crops (yellow boxes) in vegetable crop rotations (green boxes) range from very narrow (window 1: late-harvested cash crops followed by early planted vegetables) to very wide (window 9: multi-year fallow).

This year												Next year																			
Spring				Summer				Fall				Winter				Spring				Summer				Fall				Winter			
M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F								
Late Harvested				Window 1				Early Planted								Late Planted															
				Window 2																											
				Window 3																											
Early Harvested				Window 4				Early Planted																							
				Window 5								Late Planted																			
				Window 6																											
Window 7								Early Planted																							
Window 8												Late Planted																			
Window 9																															

Segregated planting of a mixture of oilseed radish and oats. Tractor guidance systems and precision planters allow targeted placement of cover crops that may improve their performance.



## Cover crop mixtures (or “cocktails”) can enhance cover crop benefits.

Mixtures of 4-5 species representing different functional groups have potential benefits relative to monocultures of single species. These benefits may include:

- Reduced risks of cover crop failure

- Enhanced soil microbial activity

- Promotion of beneficial insects

## However, planting species for the sake of increasing diversity may be counterproductive if:

- Those species do not match the planting window

- They host insect or disease pests of related vegetables in rotation.

This summer cover crop mixture includes buckwheat, sorghum sudangrass, cowpea and sunhemp (all visible) as well as several shorter clover and mustard family species which are not visible in the photo



## Advances in “precision” cover cropping may further enhance cover crop performance.

Recent research suggests that greater attention to cover crop establishment methods and fertilization can enhance cover crop performance.

Greater availability of precision seeders and tractor guidance systems also improve the potential for optimal plant spacing or alternative planting arrangements that may enhance performance.