

Do Cover Crops Pay?

RICHARD VYN, UNIVERSITY OF GUELPH RIDGETOWN
CAMPUS

FARMSMART 2020

JAN 18, 2020

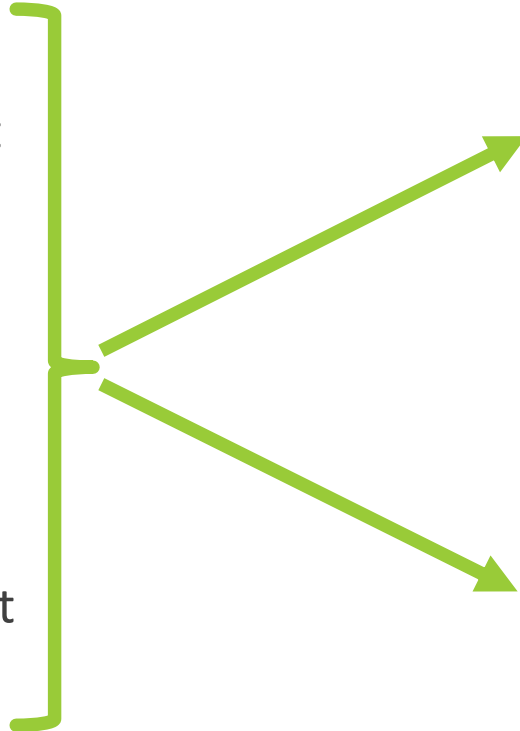
A solid green horizontal bar at the bottom of the slide.

Cover Crop Experiment

- Conducted by Dr. Laura Van Eerd at the Ridgetown Campus
- Two sites, began in 2007
- 4 cover crop treatments:
 - Oats
 - Rye
 - Oilseed Radish (OSR)
 - OSR + Rye

Crop Rotation

- Sweet Corn
- Spring Wheat
- Tomatoes
- Grain Corn
- Squash
- Soybeans
- Winter Wheat
- Tomatoes



- Grain and Oilseed Crops
 - Spring Wheat
 - Grain Corn
 - Soybeans
 - Winter Wheat

- Processing Vegetable Crops
 - Sweet Corn
 - Tomatoes (X2)
 - Squash


Economic Analysis

- Estimated impacts of each cover crop treatment on yield and profit
 - Relative to treatment with no cover crops
- Accounted for differences in costs of cover crops
 - Seed, planting, herbicide, application
- All other costs were assumed to be the same across all treatments

Results: All Crops

CC Treatment	Impact on Yield
Oats	—
Rye	—
OSR	↑ 11%
OSR+Rye	↑ 9%

Results: All Crops

CC Treatment	Impact on Profit
Oats	—
Rye	—
OSR	 7%
OSR+Rye	—

Results: G&O vs Vegetable

CC Treatment	Impact on Yield	
	Grain & Oilseed	Vegetable
Oats	—	—
Rye	—	↑ 9%
OSR	—	↑ 16%
OSR+Rye	—	↑ 13%

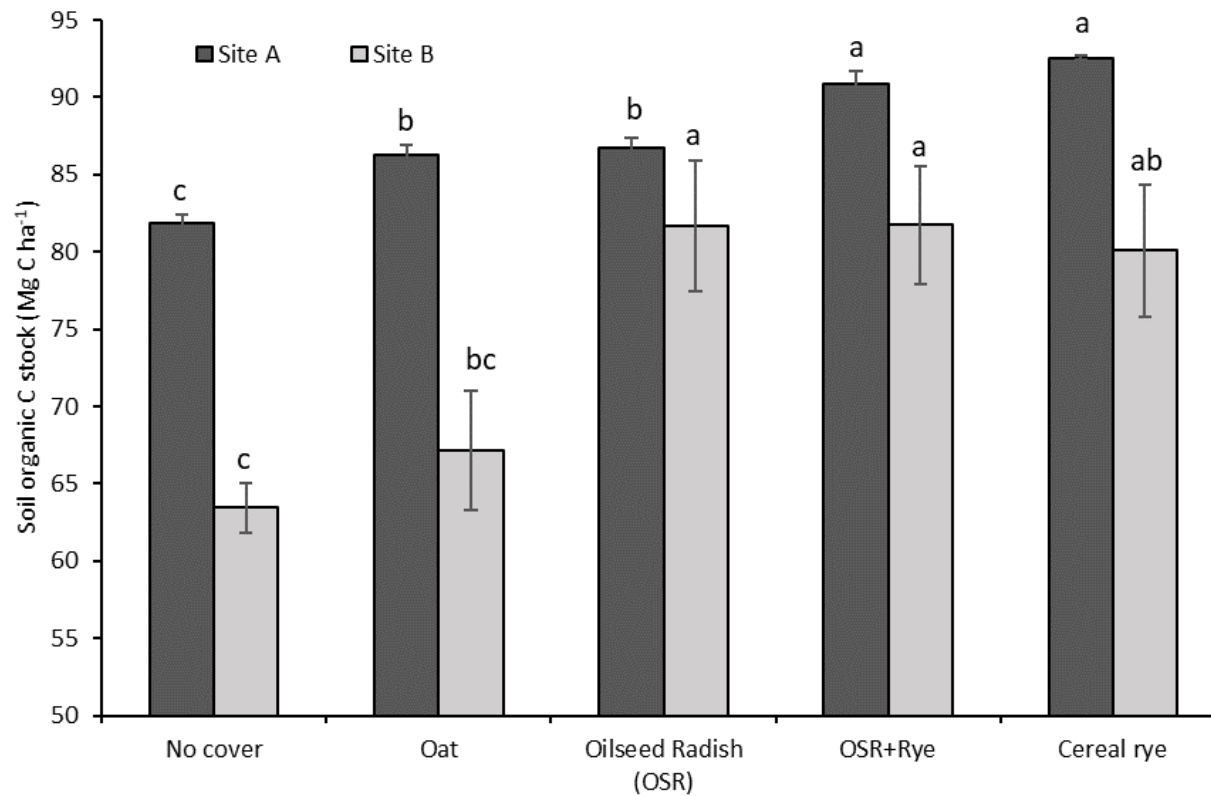
Results: G&O vs Vegetable

CC Treatment	Impact on Profit	
	Grain & Oilseed	Vegetable
Oats	—	—
Rye	↓ 13%	↑ 8%
OSR	↓ 7%	↑ 16%
OSR+Rye	↓ 10%	↑ 12%

Implications

- Results imply lack of incentive for G&O producers to use cover crops
 - Environmental benefits don't translate into on-farm economic benefits
- Compensation may be needed to offset costs
 - Could be tied to environmental benefits of cover crops
- One option: provide compensation for carbon sequestration through the carbon pricing policy

Cover Crops and Soil Organic Carbon



Accounting for Value of SOC

- Assume compensation for additional SOC @ \$50/tonne (projected 2022 carbon price)
- Average compensation by treatment:
 - Oats: \$33.86/ha
 - Rye: \$113.94/ha
 - OSR: \$96.24/ha
 - OSR+Rye: \$113.90/ha
- Account for compensation in calculation of profit
- How does this change the results?

Results with Compensation for SOC @ \$50/tonne

CC Treatment	Impact on Profit	
	Grain & Oilseed	Vegetable
Oats	—	—
Rye	—	↑ 9%
OSR	—	↑ 17%
OSR+Rye	—	↑ 13%

Summary

- Cover crops are found to have positive economic benefits for vegetable crops
- Results may indicate why relatively few G&O producers use cover crops
- Compensation from gov't may be needed to provide incentive for greater use by G&O producers