



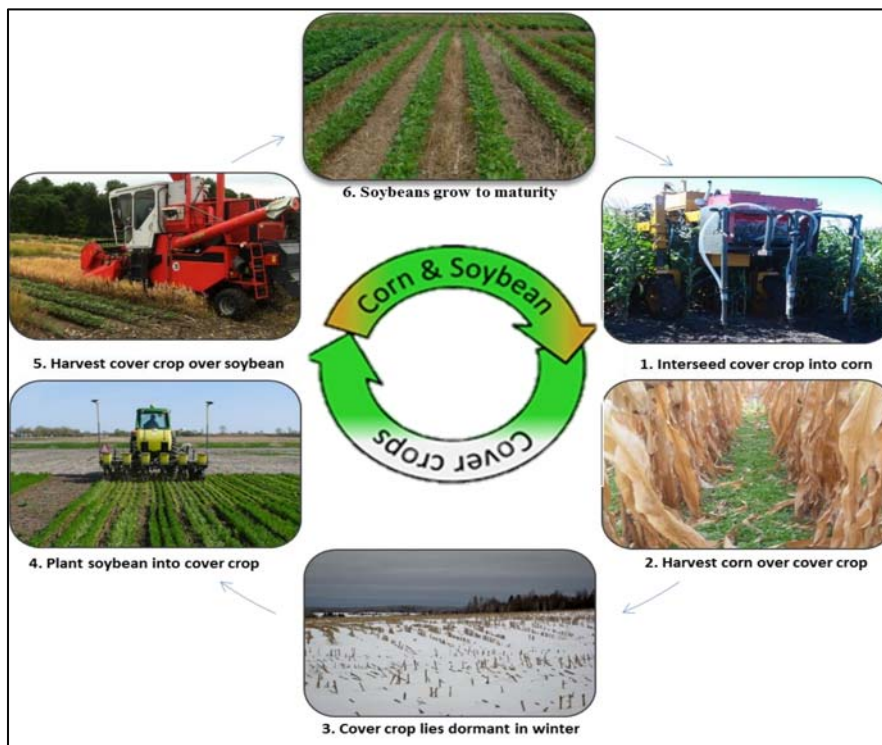
Winter Oilseeds as Cash Cover Crops in Corn and Soybean Rotations

Winter Camelina (*Camelina sativa*) and Pennycress (*Thlaspi arvense*)

- Brassicaceae (mustard family)
- Cold-tolerant winter annual
- Flowers in mid-spring
- Rapid seed maturity
- High oil content
- Potential as a double or relay crop with corn and soybean

Economic viability:

- Oil for food and/or biodiesel
- Protein for food and/or animal feed



Relay Crop

Figure 1: Schematic showing the relay cropping system including winter annual oilseed cover crops.

Year 1

September- *Interseed cover crop into corn*

Oct/Nov- *Harvest corn above cover crop*

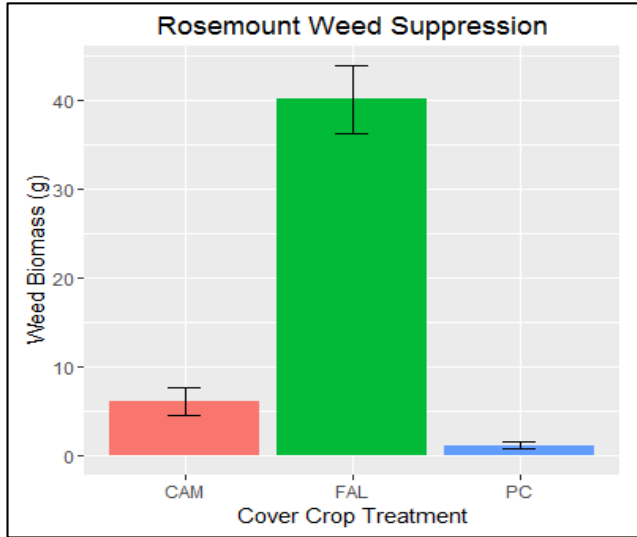
December- *Cover crop dormant*

Year 2

May- *Plant soybean into cover crop*

June- *Harvest cover crop above soybeans*

October- *Harvest soybeans*



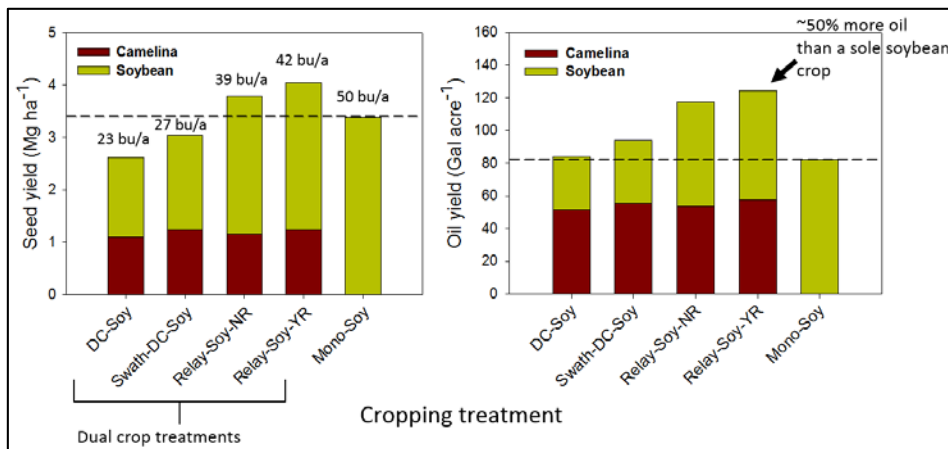
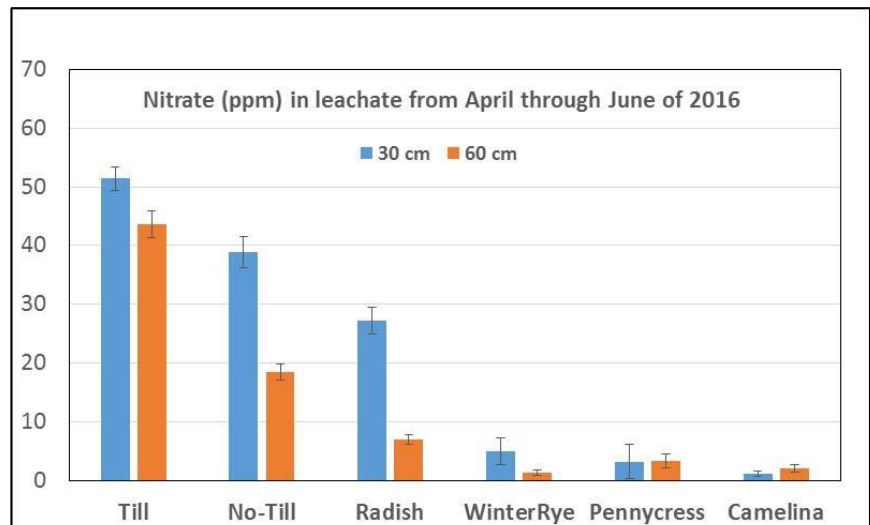
Weed Suppression

Figure 2: Weed Suppression data collected at Rosemount Field Site. Three cropping treatments are represented. CAM = Camelina cover crop, FAL= No cover crop, PC= Pennycress cover crop. (Hoerning, 2016-unpublished data)

The pennycress reduced weed biomass by 97%, and the camelina by 84% compared to the control.

Nitrate Leaching

Figure 3: Nitrate leaching data collected at Morris Field Site. Lysimeters were placed at 30 and 60 cm soil depths in seven cropping treatments. (adopted from Ott, 2015-unpublished data)



Economic Potential

Figure 4: Productivity of different cropping systems. Note: Relay cropping system, including camelina, produced 50% more oil than sole soybean crop (adopted from Gesch, 2015).