Abstract: The viability of canola and winter cover crops as alternative ‘third’ crops in Iowa were studied. Though the alternative cropping systems were not as competitive on a production or economic basis, they did show tremendous promise in terms of reducing the potential for soil erosion and the leaching of nutrients into the water.

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Evaluating canola (Brassica napus) as an alternative oilseed crop and enhancing winter cover in Iowa

The project investigated winter canola’s winter hardiness, yield of winter and spring canola, and the ecological and economic performance of canola.

What was done and why?

Canola is a productive oilseed crop that is most commonly grown for the oil that is extracted from the seed for human consumption. It may have the potential to replace soybeans in the typical Iowa crop rotation. Because optimal planting dates for winter canola are in mid-September, it fits most easily into a crop rotation following a spring cereal grain that is harvested in mid-summer such as wheat (and vice-versa for winter wheat following spring canola in rotation).

The objectives of this research were to:
• investigate the viability of canola as an alternative oilseed or “third” crop in Iowa,
• explore the viability of winter annual crops/cover crops in Iowa, and
• assess the ecological and economic performance of alternative cropping systems.

What did we learn?

In terms of individual alternative or “third” crops, winter canola and winter wheat appear to show more promise in Iowa than their spring counterparts. Just where winter canola and winter wheat “fit” into contemporary cropping systems in Iowa requires further exploration. In this project, these winter annual crops were grown following a spring annual that is harvested in July. This allowed the fields to be consistently planted to winter canola in early September and winter wheat in early October. In a contemporary Iowa cropping system, however, a winter annual crop is likely to be planted after soybean harvest in the fall. This might provide more of an opportunity for winter wheat than winter canola as winter wheat planting can be pushed into mid-October. Planting winter canola in early or mid-October is prone to poor establishment or even winterkill.

Including canola, wheat and red clover in a cropping system significantly increased the length of survival time for living ground cover compared to the Corn-soybean system rotation. This was achieved by diversifying the number life cycles among the crops included in a cropping system.