



# UNIVERSITY OF MINNESOTA Forever Green: Pennycress and Camelina



Winter oilseeds Benefit Pollinators

**Environmental Benefits**

- Erosion control from September-May
- Nutrient capture to reduced N leaching
- Pollinator support- flowers in early spring provide nectar and pollen
- Weed control in both fall and spring
- Field pennycress is a potential bio-fumigant for managing nematodes.

**University of Minnesota Research**

**Ongoing and Future Research Needs**

**Improved germplasm** for consistent germination, early flowering, reduced seed shatter, and increased seed size to produce more floral nectar and higher yields.

**Reduced glucosinolate production** in pennycress to produce human and animal feed quality oil.

**Identification of more winter growth types** in camelina.

**Management recommendations** to maximize productivity and environmental benefits at the same time.

**Market, supply-chain development and grower outreach.**



Edible camelina oil

**Market Drivers**

**Winter oilseeds Have Commercial Value**

Camelina oil is edible and heart-healthy, plus it has a long shelf-life and is highly versatile (from salad dressings to deep frying).

Pennycress seeds have high oil content making this crop an outstanding non-food based source of biofuel. The oil has good cold temperature tolerance, so it can be used to make higher priced jet fuel, biodiesel, and lubricants.

Pennycress and camelina meal, or the by-product of the de-oiling process, is a high value animal feed.



**Winter oilseeds Improve Water Quality**

- Pennycress and camelina are ideal winter annual cover crops providing both soil protection and income for the farmer.
- UMN and USDA research has shown that pennycress and camelina capture soil N left behind by previous crops- which might otherwise be leached into ground water.

**Winter Oilseeds benefit pollinators**

- Pennycress and camelina flower from late April through May, the time when honey bees return to Minnesota from California.
- Flowers of these crops can support high densities of bees and eliminate needs for artificial feeding of bees.



**Winter oilseeds on the Landscape**  
Protecting the soil with a cash crop

Agronomic best management guidelines are needed to ensure that the integration of these new value-added, multiservice crops into grain corn and soybean cropping systems is both profitable and ecologically beneficial.

**Dual-Cropping** researchers at the University of Minnesota and USDA-ARS evaluates interseeding field pennycress and camelina into standing corn and soybean in late summer and the reverse in early spring. Thus, growth and harvest of two crops in the same field in one year!

