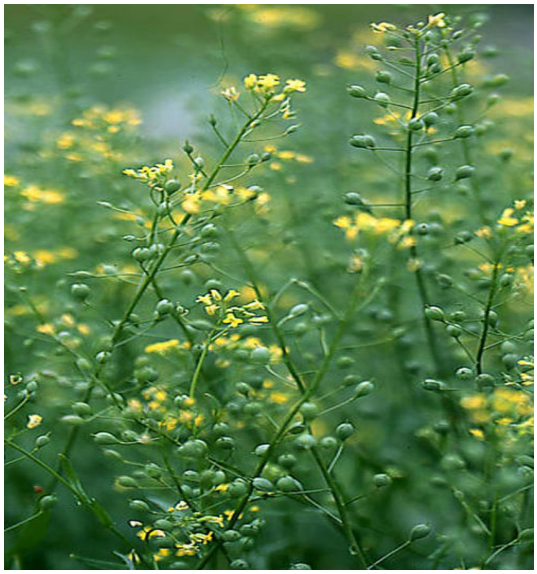
SOLUTIONS IN THE LAND

CROP PROFILE

CAMELINA

Camelina sativa
Member of the Brassicaceae family



History

Native to Europe and Central Asia, Camelina has been cultivated for over 3,00 years. Historically, its oil was used for cooking and fuel, while its meal was fed to livestock. By the mid-1900s, Camelina production in Europe and Russia declined as canola gained popularity due to its ease of hydrogenation.

Climate Needs

Camelina thrives in temperate climates and is well-suited to marginal land. It is a short-season crop (85–100 days), generally grown as an early summer annual oilseed crop or a winter annual in milder climates. Camelina germinates at low temperatures, and seedlings are very frost tolerant. It responds well under drought stress conditions and may be better suited to low rainfall regions than most other oilseed crops.

Camelina Description

Camelina, also known as “false flax,” is an oilseed in the Brassicaceae family. The seeds, containing about 35–42% oil, are ideal for food and industrial applications such as biodiesel and renewable aviation fuel. The US Air Force has flown planes using 100% Camelina-derived jet fuel, emphasizing its potential as a low-emission petroleum-based biofuel alternative.

Additionally, the high protein content of Camelina meal makes it a valuable feed for livestock and pets. The plants help reduce water contamination by absorbing nearly all labile soil nutrients, like nitrates and phosphorus, in autumn and spring, Camelina sativa is an annual in the mustard family that grows 1-3 ft tall with branched stems that become woody at maturity. Stems are generally smooth or sparsely hairy near their base and leaves are arrow-shaped, sharp-pointed, 2 to 3.5 inches long with smooth edges. It produces prolific small, pale yellow or greenish-yellow flowers with 4 petals. Its pear-shaped fruit pods contain small, pale yellow-brown seeds about ¼ to ½ in long with approximately 400,000 seeds/lb.

Soil

Camelina decomposes quickly, avoiding nitrogen tie-up in the soil, making it a suitable option before planting corn. It prefers well-drained soils with a soil pH ranging from 5.5 - 8.0.

Risk

Planting camelina after similar crops, such as canola, mustard, etc., increases the risk of insect and disease problems common to these species. Also, because all seeds are not collected during harvest, volunteer plants can become a problem

SOLUTIONS IN THE LAND

CROP PROFILE

Seeding

Winter Camelina should be planted from September to early October, following the harvest of crops like silage corn or spring wheat. Drilling is the recommended method of seeding at 6-8 lbs/acre. Alternatively, broadcast seeding can be used, requiring a higher seeding rate of 8-10 lbs/acre. Mixing rice hulls or other fillers with the seed helps ensure accurate seeding rates, and broadcast seeding should be followed by a roller harrow to press the seeds into the soil.

Weed Control

Winter Camelina can be terminated with broadleaf herbicides like glyphosate or 2,4-D in conventional systems, or through tillage in organic systems. It is highly sensitive to certain herbicides, such as imidazolinones and sulfentrazone, so field chemical history should be considered. Weed management is critical, as Camelina struggles against perennial weeds like bindweed, Canada thistle, and skeletonweed. Selecting fields with minimal weed pressure and a history of low weed seed production improves crop establishment and yields.

Highlights

Camelina can be interseeded into standing corn or soybeans. When grown as a cover crop, camelina can be mixed with winter rye to increase biomass. As an oilseed cash crop, winter camelina can be double or relay-cropped. Relay cropping involves planting soybeans into camelina skip rows in late April to early May. Camelina is harvested by late June to early July without damaging soybean plants, producing higher total yields compared to monocropping.

Pest & Disease Managment

Camelina is susceptible to several diseases, including downy mildew, a seed-borne fungal infection. Seeds from infected fields should not be saved for planting. Other issues include sclerotinia stem rot, Rhizoctonia fungus, and occasional winter kill. However, Camelina is resistant to blackleg, a major disease of canola.

Fertility

Camelina is a low-input crop that requires modest nitrogen. The recommended rate is 5 lbs N/acre per 100 lbs of expected seed yield. For sulfur, apply 5–10 lbs/acre in low-sulfur fields or where deficiencies are observed. Phosphorus application of up to 60 lbs/acre has also been shown to boost yield.

Harvest

Camelina should be harvested when 50–75% of pods are brown to prevent seed loss from shattering. Seed yields range from 800–1,500 lbs/acre. Harvesting can be done using a combine or by swathing and combining. Camelina is more resistant to shattering than canola.

Cleaning & Storage

After harvesting, lay the seeds on a tarp to dry for several days. Seeds can be removed from pods using manual methods such as rubbing or flailing. Once removed, winnowing can be used to clean the seeds before storage.

SOLUTIONS IN THE LAND

CROP PROFILE

Rating any crop's production opportunity or risk is subjective and depends on the region where the crop is to be raised. Genetic advancement for pathogen tolerance and adverse weather condition has been more significant for popular, high seed sales crops such as corn and soybeans. The below table lists some of the issues of producing specific crops and helps guide your process of selecting your cropping choice.

Average rating: 3.92

Issue	1	2	3	4	5
Seed availability				X	
Scouting requirements				X	
Drought tolerance					X
Waterlogged soil tolerance		X			
Disease pressure				X	
Wildlife concerns				X	
Yield swings			X		
Harvest ability				X	
Field loss				X	
Market demand				X	
Soil regeneration					X
Residue value			X		
Storability				X	
Benefit for following crop					X

1- very low 2- low 3- average 4- moderately high 5- very high

Seed availability – Price, lead time, and required lot size are consideration for these issues
Scouting requirements – What frequency does someone need to look at the crop?
Drought tolerance – Rainfall patterns are requiring crops go longer between rainfall events.
Waterlogged soil tolerance – Rainfall events tend to produce higher volumes than historical averages.
Disease pressure – Plant stress has increased with the rise of daytime temperatures
Wildlife concerns – Deer, rabbits, voles, resident geese, and others can destroy fragile crops.
Yield swings – How predictable will the income be when this crop goes to market?
Harvest ability – Do we need plans B & C if adverse conditions affect the harvest?
Field loss – How much will be left in the field and can we monetize field loss?
Market demand – Does this crop have an elastic delivery window and are there timing penalties?
Profitability – Is there potential for higher margins needed for a shrinking land base?
Soil regeneration – Does this crop support the next crop?
Residue value – What remains after the target crop? Can we monetize the residue?
Storability – How long can we hold this crop? Will quality be challenging to maintain?

CAMELINA