

## Weed Management

Carinata is an aggressive crop and will outcompete many winter weeds. That said, wild radish may cause a reduction in harvest value by decreasing oil quality if a significant amount of wild radish seed is included in the harvest. Therefore, identify fields with low weed pressure, particularly for wild radish and wild mustard. These two weeds are more likely to survive carinata registered herbicides and to compete and reduce yields.

It is very important to start the season with a clean field. Therefore, preplant burndown applications with postemergence herbicides with no residual activity such as glyphosate, glufosinate, paraquat, 2,4-D or carfentrazone are important especially in no-till or reduced-tillage fields. These applications must be done at least 7 days before planting. A preplant soil incorporated (PPI) application of a residual herbicide such as trifluralin or ethalfluralin will reduce weed pressure during the first 4 to 6 weeks of the growing season giving time to carinata to get established and grow taller than the weeds.

Planting in narrow rows (no more than 14 inches and preferably 7.5 inches) and using high seeding rates (at least 5 lb/acre) will favor rapid canopy closure and weed suppression. Carinata has wide leaves that can shade the ground and reduce weed emergence and growth. If you have weedy fields, limit your nitrogen fertilization at planting to the minimum recommended. This will reduce the number of weeds emerging with the crop (Figure 1).

## Herbicides

Carinata falls into EPA Oilseed Crop Group 20 and Rapeseed Subgroup 20A (Protection to Environment 2016) where permanent tolerances for a number of selective herbicides have been published in the Federal Register, which supports regulatory approvals without additional residue research. Carinata tolerance to commercially available herbicides is still being studied. There are several products available for weed control (Table 1). **Check label information for restrictions before planting carinata.**

Currently, there are no selective herbicides for control of broadleaf weeds once carinata is established. However, grass herbicides including sethoxydim, quizalofop and clethodim are safe to use on carinata and can help control grassy weeds. There are populations of perennial ryegrass that have evolved resistance to those herbicides. In those cases, the use of PPI herbicides is critical.

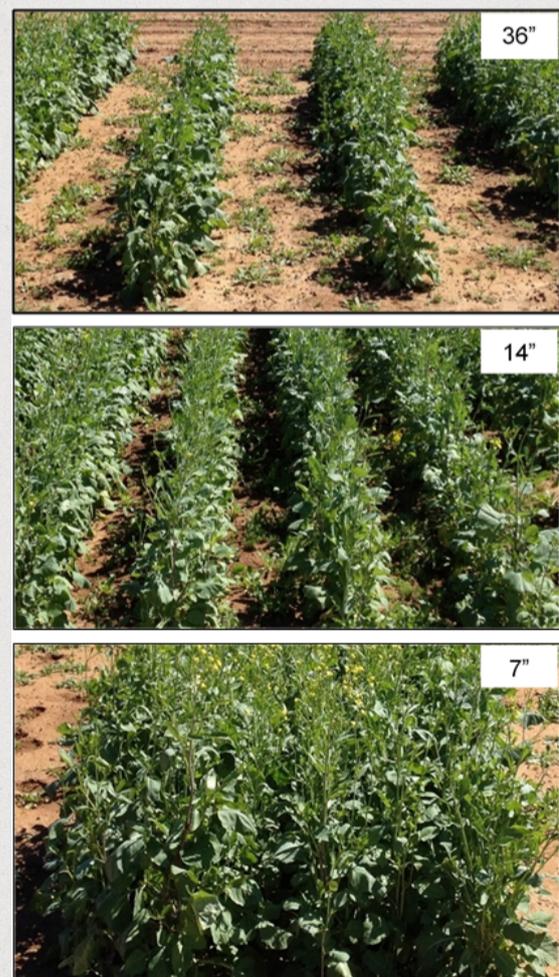


Figure 1. Wide row spacing favors weed growth while narrow row spacings increase shading by carinata canopy and favor weed suppression. Credit: Ramon Leon

Carinata is susceptible to residual herbicides, such as Cadre (imazapic), commonly used in cotton-peanut rotations, so it is critical to consider the herbicide history of the field before planting. Herbicides used in cotton-peanut rotations may reduce carinata establishment, growth, and yield. Most residual herbicides used in other summer rotational crops such as corn, cotton, and soybeans should not represent a major risk for carinata establishment as long as they are applied in early in the spring and rotational intervals are met. Table 2 provides canola's crop rotation restrictions for some of the most restrictive residual herbicides due to their persistence in the soil. This table may be used as a preliminary guide for carinata rotation intervals.

Tillage before planting can help eliminate early emerging weeds that will be competing with the crop. Cultivation is not recommended for narrow rows to avoid crop damage.

Table 1. Registered herbicides for carinata. Always read and follow label instructions before use.

Timing	Herbicide	Trade name	Weeds	Rate
Preplant burndown	2,4-D amine or ester	various	Broadleaf weeds	0.37-1 lb ai/a
	Carfentrazone-ethyl	Aim EC	Broadleaf weeds	up to 2.0 fl oz/a 0.031 lb ai/a
	Glufosinate	Liberty 280 SL	Most annual broadleaf and grass weeds	29-36 fl oz/a
	Glyphosate	Roundup and others	Most annual and perennial broadleaf and grass weeds	up to 1.55 lb ae/a
	Paraquat	Gramoxone and others	Most annual broadleaf and grass weeds	2.5-4 pt/a
Preplant incorporated or Pre-emergence	Ethalfluralin	Sonalan	Broadleaf and grass weeds	Depending on soil texture:
				Coarse 1.72 lb ai/a
				Medium 2.34 lb ai/a Fine 3.0 lb ai/a
	Trifluralin	Treflan	Broadleaf and grass weeds	Depending on soil texture:
				Coarse 0.5 lb ai/a
				Medium 0.75 lb ai/a Fine 1.0 lb ai/a
Post-Emergence (2 to 6-inch weeds)	Clethodim	Select Max, Shadow	Grass weeds	up to 0.091 lb ai/a
	Sethoxydim	Poast	Grass weeds	up to 0.47 lb ai/a
	Quizalofop-ethyl	Assure II	Grass weeds	up to 0.082 lb ai/a
Pre-harvest (middle pods starting to turn in color)	Saflufenacil	Sharpen	Harvest aid/desiccation	1.0 to 2.0 fl oz/a
				0.022 to 0.044 lb ai/a

Table 2. Crop rotation restrictions of some commonly used herbicides for canola based on product label guidelines. Always read and follow label instructions before use.

Trade name	Active ingredient	Crop rotation restriction (months)
<b>Group 2 (ALS-inhibitors)</b>		
Cadre	Imazapic	40
Classic	Chlorimuron	18
Permit or Sandea	Halosulfuron-Methyl	15
Pursuit	Imazethapyr	40
Staple	Pyriithiobac sodium	10*
Strongarm	Diclosulam	30*
<b>Group 14 (PPO-inhibitors)</b>		
Reflex	Fomesafen	18
Valor	Flumioxazin	4 to 18**
*With a successful field bioassay.		
**Depending on quantity applied and tillage.		