

BASIC EARTH WORKING WITH NATURE

ENVIRONMENTAL BENEFITS



NEMATODE CONTROL

Some varieties of white mustard have shown to be effective at controlling Beet Cyst nematodes (*Heterodera schachtii*), Columbia Root-Knot nematode (*Meloidogyne chitwoodii*) and False Columbia Root-Knot nematode (*Meloidogyne fallax*) among others.



FERTILITY IMPROVEMENT

Quick growing, mustards can produce up to 8,000 lbs of biomass per acre. While mustards don't set nitrogen, they are proficient scavengers of it. The catch crop of nitrogen gleaned from the soil profile is held in the decomposing plant material and is subsequently available for the following crop. With roots reaching depths of 6+ feet, they can also scavenge nutrients from below the reach of most other crops (1).



WEED SUPPRESSION

White mustard will emerge quickly, effectively shading out weeds. When the mustard crop is mulched and incorporated into the soil, the breakdown of glucosinolates in the plants will produce other chemicals that act against weeds and pests. Those secondary chemicals behave like the active chemical in commercial fumigants like metam sodium. This natural fumigant can leave a nearly weed-free seed bed.

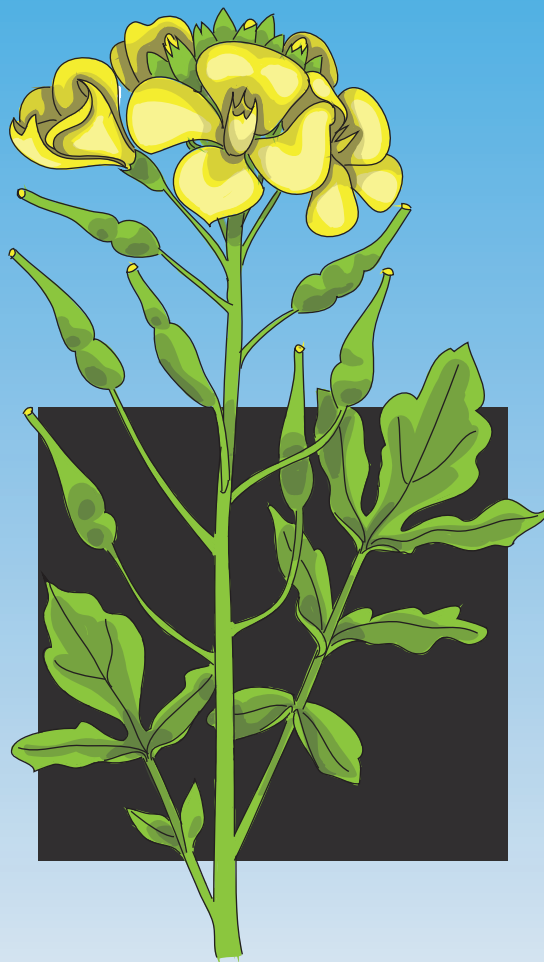


WATER MANAGEMENT

White Mustard improves the water infiltration and moisture holding ability of the soil. Its deep reaching roots create channels in the soil that allow better movement of water and air. These channels also improve soil penetration by the roots of the subsequent crop.

WHITE MUSTARD

Sinapis alba
or *Brassica alba*



There are two types of Mustard generally used for cover crops; Brown (Indian) Mustard (*Brassica juncea*) and White (Yellow) Mustard (*Sinapis alba*, sometimes called *Brassica alba*). White Mustard has been improved by European plant breeders for use as a cover crop and for the control of nematodes (1). The glucosinolate content of these new mustards is very high compared to the true Brassicas. Mustards are sensitive to cold temperatures, winter-killing at about 25°F. Later maturing varieties are the easiest to manage as farmers do not want mustards to go to seed and become a contaminant in future crops.



Novel solutions for growing concerns

(1) SARE- Managing Cover Crops Profitably

WHITE MUSTARD USES

In Washington State, the wheat/mustard/potato rotation has shown promise for eliminating the soil fumigant metam sodium. Selected varieties of White Mustard suppress potato early dying (*Verticillium dahlia*) and Root-Knot Nematodes (*Meloidogyne spp*). The result is higher tuber yields that are equivalent to chemically fumigated soils while also improving soil quality and water infiltration.

Certain Mustard varieties control Sugar Beet Cyst Nematodes (*Heterodera shachtii*) and are highly effective when grown and incorporated into the soil prior to sugar beet production. Mustards require 8-10 weeks of soil temperatures of 60°F to get satisfactory plant growth and cyst nematode suppression. Frost is a concern as mustard plants winterkill at temperature of 25°F. Regional planting dates should be adjusted based on the above criteria. Wait 4-6 weeks after mulching and incorporating into the soil before planting the next crop.

Mustards are not recommended for use on dairy farms.

PLANTING INSTRUCTIONS

	DRILLED	BROADCAST
SEEDING RATE (MONOCULTURE):	8-14 lbs/acre	20-25 lbs/acre
PLANTING DEPTH:	1/4 - 3/4 inch	
IDEAL SOIL:	Prefers well drained soils within a pH range of 5.5 - 6.8.	

