

# Radishes, Turnips and Rutabagas (Swede Turnips)

## Culture

Good-quality radishes can be produced on either mineral or muck soils. Most of Ohio's radishes are produced on muck soils.

Radishes mature fast, reaching harvestable size in 20-30 days. They have been known to mature in as few as 15 days.

Preferred planting dates are early spring, August or September. Seed germinates in 3-4 days with soil temperatures of 65-85°F and good soil moisture. Suitable crops can be obtained from mid-summer plantings.

Harvesting is by machine or hand. Hand-harvested radishes are bunched with the tops left on. Machine harvested radishes are packaged in cellophane with the tops removed. Radishes must be harvested on time or the roots become pithy.

Rutabagas, or Swede turnips, are the large, yellowfleshed roots commonly referred to as "table" turnips. The yellow-fleshed types are preferred over whitefleshed types. Plants have longer necks and the leaves more bloom as compared with regular turnips. Best quality is obtained when planted for a fall crop from mid-June to mid-July, so that they mature in cool weather, possibly even with a few light frosts.

After harvest, the roots are topped, washed and waxed for the market. They can be stored for several weeks at 32-33°F and a relative humidity of 95%.

Turnips are a biennial fresh-market root crop, maturing 50-70 days after planting. Turnip leaves, eaten as greens, usually are hairy and light- to medium-green in color (see "Greens," page 152). Turnip roots generally have little or no neck and a distinct tap root. Best quality is achieved when the plants mature in cool weather.

## Varieties

Radishes	Rutabaga	Turnips
Red Silk (spring and fall)	American Purple Top	Purple Top White Globe
Tinto (summer)	Macomber (white)	Just Right
Cabernet (summer)	Laurentian	
Fancy Red (summer)		

## Lime and Fertilizer

### Radishes

Maintain soil pH between 5.2-5.6 on muck soils and 6.0-6.8 on mineral soils.

Broadcast and disk in prior to planting per acre 40-50 lb N, 40-50 lb P<sub>2</sub>O<sub>5</sub> and 40-50 lb K<sub>2</sub>O.

Some soils may require an application of boron with the fertilizer.

### Rutabagas and Turnips

Maintain soil pH at 6.0-6.8.

For average-fertility soils, apply per acre 40-75 lb N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O according to soil test. Also, apply 1 lb of actual boron per acre. Sidedress 30-60 lb of N/A 4-6 weeks after seeding.

## Seeding and Spacing

### Radishes

Rows: 9-10 inches between rows.

In-row: 12-15 plants/ft of row.

Seeding rate: 12-18 lb of seed/A.

## Rutabagas

Rows: 30 inches between rows.

In-row: seed to 4-8 inches within rows 1/2 inch deep.

Seeding rate: 1.5-2 lb of seed/A.

## Turnips

Rows: 14-18 inches between rows.

In-row: seed 2-3 inches within rows 1/2 inch deep.

Seeding rate: 1-2 lb of seed/A.

## Harvest and Storage

Avoid bruising, and trim the tops in the field. Injured roots do not store well. Wash and dry rutabagas as soon as possible before waxing or shipping. Rutabagas can be stored 2-4 months at 32-33°F and a relative humidity of 90%-95%.

Turnips are bunched or topped at the time of harvest. Storage conditions for rutabagas apply to turnips. The all-white types generally do not store as long as the purple-top types.

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## Disease Control

### Damping off

Buy fungicide-treated seed. For Pythium damping off, apply **Ridomil Gold EC** at 1-2 pt/A at planting.

### Downy Mildew

Space rows to allow for good aeration and drying. Avoid overhead irrigation late in the day.

### Club Root

Use resistant cultivars. Avoid excess water the first week following planting. Adjust soil pH to 7.2-7.6 with hydrated lime.

### Powdery Mildew

Apply Quadris at 9.2-15.4 fl oz/A (0 days-PHI) or Cabrio 8-12 oz/A (0 days-PHI). Do not make more than one application before alternating with another fungicide with a different mode of action.

Apply sulfur as needed to turnips and rutabagas only (see label directions).

### White Rust (radish)

Apply **Ridomil Gold EC** at 1-2 pt/A pre- or at-planting or a foliar application of **Ridomil Gold/Copper** at 2 lb/A (7 days-PHI).

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## Insect Control

See the table on the next page for overview of insecticides used to control radish, turnip, and rutabaga pests.

### • Preplant broadcast treatment

**Diazinon** (for radish only)

For cutworms, wireworms.

Diazinon AG500 (4EC): 2-4 qt/A.

Diazinon AG600: 51-102 fl oz/A.

Diazinon 50WP: 4-8 lb/A.

## • At-planting treatment

### Chlorpyrifos (for radish, rutabaga, turnip)

For root maggots.

Lorsban 75WG: 0.67-2.15 oz per 1,000 ft of row.

Lorsban 15G: 3.3 oz per 1,000 ft of row, in seed furrow, for radishes; 4.6-9.2 oz per 1,000 ft of row in T-band with shallow incorporation for turnips and rutabagas.

Lorsban 4EC, Warhawk 4EC, Yuma 4E: use the following rates per 1,000 ft of row: 1 fl oz for radish; 1.6-2.75 fl oz for turnip; 1.6-3.3 fl oz for rutabaga. Apply as in-furrow drench on radishes, or as spray band over row for other crops. Use at least 40 gal of water/A.

### Imidacloprid (21 days-PHI)

For aphids, flea beetles.

Admire 2F, Alias 2F: 0.7-1.7 fl oz per 1,000 ft, or 10-24 fl oz/A.

Admire Pro (4.6F): 4.4-10.5 fl oz/A.

### Thiamethoxam

For aphids, flea beetles, leafhoppers, whiteflies.

Platinum 2SC: 5-6.5 fl oz/A for radish; 5-12 fl oz/A for turnip, rutabaga. Do not use more than 6.5 fl oz/A per season for radish, or more than 12 fl oz/A per season for turnip, rutabaga.

<b>Insecticides for Control of Radish, Turnip, and Rutabaga Pests</b> (✓ = labeled; - = not labeled)						
	<b>Pre-harvest interval (days)</b>	<b>Root maggot</b>	<b>Flea beetles</b>	<b>Aphids</b>	<b>Cutworms</b>	<b>Caterpillars<sup>1</sup></b>
B.t. (DiPel, Javelin, etc.)	0	-	-	-	-	✓
carbaryl (Sevin)	7	-	✓	-	✓	✓
chlorpyrifos (Lorsban)	-	✓	✓	✓	-	✓
cyfluthrin (Baythroid)	0	-	✓	-	✓	-
deltamethrin (Decis)	3	-	✓	-	✓	✓
diazinon	14	(✓)	✓	✓	✓	-
dimethoate	14	-	-	✓	-	-
esfenvalerate (Asana)	7	-	✓	-	-	✓
imidacloprid (Admire, Provado)	7, 21	-	✓	✓	-	-
malathion	3, 7	-	-	✓	-	✓
methoxyfenozide (Intrepid)	14	-	-	-	-	✓
spinetoram (Radiant)	3	-	✓	-	-	✓
spinosad (SpinTor)	3	-	✓	-	-	✓
tebufenozide (Confirm)	7	-	-	-	✓	✓
thiamethoxam (Actara)	7	-	✓	✓	-	-
zeta-cypermethrin (Mustang)	1	✓	✓	-	✓	✓

<sup>1</sup> Caterpillars = imported cabbageworm, diamondback moth, cabbage looper.

## • Postemergence bait treatment

### Carbaryl (3 days-PHI, radish, rutabaga, turnip)

For cutworms.

Sevin 5% Bait: 20-40 lb/A, or 7.3-14.7 oz per 1,000 sq ft.

Prozap Sevin 10% Bait Granules: 10-20 lb/A.

### Metaldehyde

For slugs.

Deadline MP (4B): 20-40 lb/A.

Prozap Snail and Slug AG (3.5B): 24-40 lb/A.

Metaldehyde 7.5G: 20 lb/A.

## • Postemergence foliar treatment

### *Bacillus thuringiensis* (B.t.) (0 days-PHI)

For imported cabbageworm, cabbage looper, diamondback moth.

Agree WG (3.8% a.i.): 0.5-2 lb/A.

Biobit HP WP (6.4% a.i.): 0.5-2 lb/A.

CryMax WDG (15% a.i.): 0.5-1.5 lb/A.

DiPel DF (10.3% a.i.): 0.25-1 lb/A.

Javelin WG (6.4% a.i.): 0.25-1 lb/A.

XenTari WDG: 0.25-1 lb/A.

### **Carbaryl** (7 days-PHI, radish, rutabaga)

For flea beetles, imported cabbageworm, cutworms.

Carbaryl 90DF: 0.6-1.1 lb/A for beetles; 1.1-2.2 lb/A for worms.

Carbaryl 4L; Sevin XLR Plus (4EC); Sevin 4F: 0.5-1 qt/A for flea beetles; 1-2 qt/A for cabbageworm, cutworms.

Sevin 80S: 0.62-1.25 lb/A for flea beetles; 1.25-2.5 lb/A for cabbageworm.

Carbaryl 50 WP; Sevin 50WP: 1-2 lb/A for flea beetles; 2-4 lb/A for cabbageworm.

### **Cyfluthrin** (0 days-PHI, radishes only)

For flea beetles, cutworms.

Baythroid 2EC: 1.6-2.8 fl oz/A. Limit 5 applications per year.

### **Deltamethrin** (3 days-PHI)

Decis 1.5EC, Delta Gold 1.5EC: 1.0-2.4 fl oz/A for cutworms, loopers. 1.5-2.4 fl oz/A for flea beetles, armyworms. Limit 12 fl oz/A per season. Allow 3 days between applications.

### **Diazinon** (14 days-PHI, radish only)

For flea beetles, aphids.

Diazinon AG600: 6.5-12.75 fl oz/A.

Diazinon AG500 (4EC): 0.5-1 pt/A.

Diazinon 50WP: 0.5-1 lb/A.

### **Dimethoate** (14 days-PHI, turnips only)

For aphids.

Dimethoate 400 (4EC), Dimate 4EC: 0.5 pt/A.

Dimethoate 267EC (2.67EC): 0.75 pt/A.

### **Esfenvalerate** (7 days-PHI, radish only)

For flea beetles, armyworms.

Asana XL 0.66EC, Adjourn 0.66EC: 5.8-9.6 fl oz/A.

### **Imidacloprid** (7 days-PHI)

For aphids, flea beetles.

Provado 1.6F, Pasada 1.6F: 3.5 fl oz/A.

### **Malathion** (7 days-PHI, radish; 3 days-PHI, turnip and rutabaga)

For aphids, imported cabbageworm, cabbage looper.

Malathion 5EC, 57EC: 1-2 pt/A.

Malathion 8EC; Malathion 8 Aquamul: 1-2 pt/A.

### **Methoxyfenozide** (14 days-PHI)

For caterpillars: cabbageworms, loopers, armyworms.

Intrepid 2F: 6-16 fl oz/A. Limit 64 fl oz/A per season.

### **Spinetoram** (3 days-PHI)

For caterpillars, suppression of flea beetles.

Radiant 1SC: 6-8 fl oz/A. Limit 3 applications per year.

### **Spinosad** (3 days-PHI)

For armyworms, loopers, flea beetles, leafminers, thrips.

SpinTor 2SC: 3-6 fl oz/A. Limit 4 applications or 21 fl oz/A per year.

Entrust 80WP: 1-2 oz/A. Limit 3 applications or 6 oz/A per crop.

**Tebufenozide** (7 days-PHI, turnips only)

For imported cabbageworm, cabbage looper.

Confirm 2F: 6-8 oz/A for small plants; 8-16 oz/A for larger plants and heavy infestation. Limit 56 fl oz/A per year.

**Thiamethoxam** (7 days-PHI)

For aphids, flea beetles, leafhoppers, whiteflies.

Actara 25WDG: 1.5-4 oz/A. Limit 4 oz/A per season for radish or 8 oz/A per season for turnip, rutabaga.

**Zeta-cypermethrin** (1 day-PHI, rutabaga, turnip)

For cabbage maggot, flea beetles, cutworms, caterpillars.

Mustang Max 0.8EC: 1.28-4 fl oz/A.

Mustang 1.5EW: 1.4-4.3 fl oz/A.

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## Weed Control

### Radish

#### Preemergence

**Dacthal 75W:** Applied preemergence to weeds. Controls germinating annual broadleaf weeds and grasses. Apply 10.6-13.4 lb/A Dacthal W 75 at seeding or up to the 3 leaf stage of the crop. Irrigation or rain soon after applying Dacthal improves weed control. For mineral soils only.

**Trifluralin:** Controls emerging annual grasses and some broadleaf weeds. Must be incorporated.

**Albaugh Trifluralin 4EC:** 1.0-1.5 pt/A.

**Trilin 10G, Wilbur-Ellis Trifluralin 10G:** 5-10 lb/A.

### Turnips

See "Weed Control" in "Greens," pages 157-158.

### Radish and Turnip

**Dual Magnum:** Controls germinating annual grasses and broadleaf weeds. Apply 0.33 to 0.67 pt/A Dual Magnum after seeding, followed by irrigation (at least 0.5 inches) if rainfall is not expected. Do not use on soils with less than 1.5% organic matter and weed control may be reduced on muck soils. Users must be in possession of the correct supplemental label and must indemnify Syngenta Crop Protection. To obtain a copy of the label, visit the FarmAssist web site ([www.farmassist.com](http://www.farmassist.com)). You must register and complete an indemnification agreement to download the label.

**Select Max:** Controls annual and perennial grasses. Apply 9-12 fl oz/A for annual grasses and 12-16 fl oz/A for perennials. Include 0.25% non-ionic-surfactant (14 days-PHI).