

# Endive and Escarole

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## Culture

Endive is a cool-season crop. It grows best on soils that retain moisture and are high in organic matter and nutrients. Light soils are suitable for early crops, whereas heavier soils are preferred for later crops.

Start early transplants in the greenhouse. Set out hardened plants as soon as possible. Plants can be hardened by watering only enough to prevent wilting and by gradually reducing the temperature, starting about 14 days before transplanting. However, be watchful for bolting, which can be triggered by plant stress. Plants can be set by hand or by machine and are ready for harvest after about 6 weeks.

Fields can be direct-seeded as soon as the soil can be prepared. Endive and escarole bolt in response to low temperatures; transplants should be grown at temperatures about 65°F. Irrigation water should be heated to 65-70°F, and seeds should be germinated and grown in an artificial mix. Long days also trigger bolting of endive and escarole, as do any environmental stresses placed upon them. Examples of stresses are flooding and hot, dry weather.

## Varieties

### Endive

Salad King  
Frisan

### Escarole

Elisa  
Twinkle

## Lime and Fertilizer

### Muck Soils

Maintain soil pH between 5.5-6.0. Consider liming on muck soils when the pH falls below 5.5. Apply all fertilizer in a broadcast application and disk in prior to planting.

### Mineral Soils

Maintain a soil pH of 6.0-7.0.

For average-fertility soils, apply per acre 120-150 lb N, 120-180 lb P<sub>2</sub>O<sub>5</sub> and 120-180 lb K<sub>2</sub>O.

Apply 50% before planting and apply the remainder as bands at planting, 2 inches to the side and 2 inches below the seed. Sidedress with 30 lb N/A, 3 to 4 weeks after thinning or transplanting.

## Spacing and Seeding

### Seeds

Rows: 12-16 inches.

In-row: 10 inches between plants.

### Transplants

Rows: 16 inches.

In-row: 6-8 inches between plants.

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# Disease Control

## Damping off

Buy commercial fungicide-treated seed, if available. If not, dust or pellet seed with **Thiram** according to label instructions.

If Pythium damping off is a problem, apply **Ridomil Gold EC** 1-2 pt/A (endive only). If Rhizoctonia or Fusarium has been a problem, **Maxim 4 FS** may be applied to endive seed at 0.08-0.16 fl oz/100 lb of seed.

## Downy mildew

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

If disease threatens, apply one of the following. See labels for directions and precautions.

**Basic Copper 53** 1-3 lb/A (1 day-PHI).

**Aliette WDG** 2.0-5.0 lb/A (3 days-PHI).

**Aliette/Maneb 2+2** 4.0 lb/A (10 days-PHI). Do not exceed 6 applications/season (endive only).

**Maneb 75 DF** or **80 WP**, 1.5-2.0 lb/A (10 days-PHI) (endive only).

**Manex** 1.2-1.6 qt/A (10 days-PHI) (endive only).

**Nu-Cop 3L** 0.67-1.33 pt/A (0 days-PHI).

**Nu-Cop 50 DF** 1-2 lb/A (0 days-PHI).

**Quadris** 12.3-15.4 fl oz/A or **Amistar** 2-5 oz/A, endive only (0 days-PHI). Do not make more than one application before alternating with a fungicide with a different mode of action.

## Botrytis gray mold

**Botran** (75W) 2.66 lb/100 gal water (14 days-PHI).

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# Insect Control

See "Insect Control" under "Lettuce," pages 166-171.

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# Weed Control

See "Weed Control" under "Lettuce," page 171.