



# Swiss Chard

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## Varieties

Bright Lights, Bright Yellow, Fordhook Giant, Lucullus, Rhubarb Chard, Rhubarb Red, Ruby

## Soil Preferences

Well-drained, clay loam; will tolerate wide range of loamy soils with pH range of 6.5 - 7.5.

## Optimum Growing Conditions

Cool dry conditions; 60-75°F days, 40-45°F nights.

## Establishment Methods

<b>Planting Method</b>	Direct seeded or transplanted
<b>Optimum Time</b>	Soil temperature < 100°F in seed zone and/or day time air temperature < 95°F
<b>Seeding rate</b>	6-8 lbs/acre (high seeding rate when planting in high temperature soils)
<b>Approx seed/oz</b>	1,600
<b>Seeding depth</b>	0.25 - 0.5"
<b>Seedling spacing</b>	Double plant rows on 38-40" raised beds with 4-6" in-row spacing Direct seeded - 6-8 seed/row foot and thin to 6-12" apart Transplant - 6-12" apart and 24-36" between plant rows

### Fertility/Fertilization

Rates presented as actual lbs/acre N<sub>2</sub>, P<sub>2</sub>O<sub>5</sub>, and K<sub>2</sub>O (base actual rates applied on soil test results).

Generalized rate: 120 - 75- 80 lb/acre	
<b>N*</b>	100-150 lbs 75-100 lbs preplant 20-30 lbs after each cutting (use tissue analysis to determine supplemental N rates)
<b>P</b>	75-100 lbs banded 2" below seed at planting
<b>K</b>	70-100 lbs (not normally needed in most spinach production areas of Texas)

\* Ammonium nitrate is very stable and least likely to evaporate. Urea and ammonium sulfate evaporate if not incorporated.

### Water/Irrigation

Low to moderate demand (10-15"). If soil moisture low, irrigate after each cutting. Overhead sprinkler irrigation not advisable as it increases the incidence of foliar diseases.

### Pest Management

#### Swiss Chard Diseases and Common Name of Fungicidal Controls

DISEASE	FUNGICIDE*	OMRI LISTED FUNGICIDE**
<b>Damping off (Pythium)</b>	Thiram, Fludioxonil	
<b>Downy Mildew</b>	Azoxystrobin, Fenamidone, Fluopicolide, Fosetyl-Al, Mandpropamid, Potassium Phosphite, Pyraclostrobin	<i>Bacillus pumilus</i> , <i>Bacillus Subtilis</i> , Extract of <i>Reynoutria sachalinensis</i> , Hydrogen Dioxide, Neem Oil, <i>Streptomyces lydicus</i>
<b>Leaf spots</b>		Neem Oil
<b>Powdery mildew</b>	Azoxystrobin, Potassium Phosphite, Potassium Salts of Fatty Acids, Pyraclostrobin, Triflumizole	<i>Bacillus pumilus</i> , <i>Bacillus subtilis</i> , Extract of <i>Reynoutria sachalinensis</i> , Hydrogen Dioxide, Neem Oil, Potassium Bicarbonate, <i>Streptomyces lydicus</i> , Sulfur

### Swiss Chard Insect Pests and Common Name of Insecticidal Controls

INSECT	INSECTICIDE*	OMRI LISTED INSECTICIDE**
<b>Aphid</b>	Acetamiprid, Bifenthrin, Dimethoate, Imidacloprid, Naled, Permethrin, Potassium Salts of Fatty Acids, Spirotetramat, Thiamethoxam, Zeta-Cypermethrin	Azadirachtin, Neem Oil, Peppermint and Rosemary Oil, Pyrethrins
<b>Armyworms</b>	Bifenthrin, Carbaryl, Flubendiamide, Naled, Spinetoram, Thiodicarb, Zeta-Cypermethrin	Azadirachtin, <i>Bacillus thuringiensis</i> , Pyrethrins, Spinosad
<b>Flea Beetle</b>	Beta-Cyfluthrin, Bifenthrin, Carbaryl, Cyfluthrin, Dinotefuran, Thiamethoxam, Zeta-Cypermethrin	Azadirachtin, Kaolin, Pyrethrins,
<b>Leafminer</b>	Cyromazine, Dimethoate, Dinotefuran, Naled, Permethrin, Thiamethoxam	Azadirachtin, Pyrethrins, Spinosad
<b>Webworm</b>	Malathion	Pyrethrins

### Weeds and Common Name of Herbicidal Controls

WEED	HERBICIDE*	OMRI LISTED HERBICIDE**
<b>Preplant incorporated</b>	Metam-Potassium, Metam-Sodium	Corn Gluten Meal
<b>Preemergence</b>	Oxyfluorfen, Pelargonic Acid	
<b>Postemergence</b>	Carfentrazone-Ethyl, Clethodim, Glyphosate, Pyraflufen Ethyl, Sethoxydim	Cinnamon and Clove Oil, Clove Oil, D-Limonene

\* The above is a partial listing of controls intended as examples. Some labels may have been revoked since the publication of this guide. Refer to product labels for specifics and use accordingly. Ensure that products with one of the listed active ingredients are registered for the crop it is to be used on. Failure to do the above may result in crop injury, death and/or citation for law violation. Humans, animals and the environment may also be adversely affected by misuse.

\*\* As stated in §205.206 of the National Organic Standards, pest management decisions should follow a hierarchical approach, which should be defined in a farm's organic systems plan. Please ensure that you have followed the appropriate steps and any product to be used in certified organic production systems has been approved by your certifying agent.

### Harvest

<b>Days after planting</b>	50-60 days
<b>Normal method</b>	Hand
<b>Containers</b>	None specified
<b>Packaging/Handling</b>	None specified
<b>Anticipated yield/acre</b>	150 hundred weight per acre

### Transit Conditions

32°F at 95-100% RH; shelf-life 10-14 days.

### Comments/Production Keys

- Raised beds suggested, cannot tolerate water logged soil
- High soil temperatures (95°F + in seed zone) can cause heat induced dormancy and subsequent stand reduction
- High air temperature (80°F +) tends to reduce leaf body, thickness, soluble solids and color
- Excessive plant populations can cause poor leaf/stem ratio (critical for processing quality) and early bolting
- Delayed insecticide applications for aphid control avoids killing beneficial insects (no aphid control obtainable with insecticides)
- If Gibberellic acid (ProGibb) is used as a harvest aid, cease use by February 1 (later use enhances bolting rate)
- Bolting induced by long days (14+ hrs) following cold temperatures
- Immediate crop destruction upon crop termination and 3-5 year rotation essential to reduce white rust/blue mold inoculum levels