



Beets

Dr. Joe Masabni
 Department of Horticulture
 Texas AgriLife Extension Service

Varieties

Avenger, Bulls Blood, Chioggia, Crosby Green Top, Detroit Dark Red, Early Wonder Tall Top, Forono, Golden Detroit, Green Top Bunching, Merlin, Pacemaker II, Red Ace, Ruby Queen

Soil Preferences

Well drained sandy or silt loams with pH 6.5 - 8.0. Liming required at pH < 5.8. Will tolerate heavy soils.

Optimum Growing Conditions

Cool conditions: night temperature 45-55°F, and day 60-75°F. Beets are fairly cold tolerant, but will not tolerate hot conditions.

Establishment Methods

| | |
|-------------------------|---|
| Direct seeded | Spring - when soil seed zone temperature >45°F Fall - when soil seed zone temp <95°F |
| Seeding rate | 8-10 lbs/acre or 6 lbs precision planted |
| Approx seed/oz | 1600 |
| Seeding depth | 1/2 - 3/4" |
| Seedling spacing | 2" in-row in 1-2 lines on 38-40" wide raised bed |

Fertility/Fertilization

Rates presented as actual lbs/acre N₂, P₂O₅, and K₂O (base actual rates applied on soil test results).

| | |
|--|--|
| Generalized rate: 80 - 80 - 90 lb/acre | |
| N* | 60-120; Half of amount pre-plant; top or side dressed 3-4 weeks after planting |
| P | 70-80; banded 1-2" below seed at planting |
| K | 80-100; applied with the nitrogen pre-plant (normally only required in East Texas) |
| B | Boron deficiency can cause root cankers; if needed foliar apply 1.5 to 3 lbs/acre |

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

Water/Irrigation

10 - 15" uniformly applied; critical stage is during stand establishment and early growth. Beets cannot tolerate water-logged or over-irrigated soils.

Pest Management

Beet Diseases and Common Name of Fungicidal Controls

| DISEASE | FUNGICIDE* | OMRI LISTED FUNGICIDE** |
|-----------------------------|--|---|
| Downy mildew | <i>Bacillus pumilus</i> , Copper Sulfate, Cuprous Oxide, Potassium Phosphite | <i>Bacillus subtilis</i> , Extract of <i>Reynoutria sachalinensis</i> , Neem Oil, <i>Streptomyces lydicus</i> |
| Leaf Spot | | Neem Oil |
| Seedling damping off | Metaxyl, Mefenoxam | <i>Gliocladium virens</i> GI-21 |
| Nematode | 1,3-Dichloropropene, Aldicarb, Chloropicrin, Metam-Potassium, Metam-Sodium, Sesame Oil | Azadirachtin |

Beet Insect Pests and Common Name of Insecticidal Controls

| INSECT | INSECTICIDE* | OMRI LISTED INSECTICIDE** |
|-------------------------------|---|---|
| Aphids | Diazinon, Malathion, petroleum oil, Potassium salts of fatty acids, Soybean Oil | Azadirachtin, Neem oil, Pyrethrins |
| Beet Armyworms | Deltamethrin, Carbaryl | Azadirachtin, <i>Bacillus thuringiensis</i> , Garlic Juice Extracts, Pyrethrins, Spinosad |
| Flea Beetle/Leafhopper | Beta-Cyfluthrin, Carbaryl, Cyfluthrin, Deltamethrin, Malathion | Azadirachtin, Kaolin, Pyrethrins |
| Webworm | | Azadirachtin |

Weeds and Common Name of Herbicidal Controls

| WEED | HERBICIDE* | OMRI LISTED HERBICIDE** |
|------------------------------|---|---|
| Preplant Incorporated | Soil Fumigants: K-Pam, Metam | Corn Gluten Meal |
| Preemergence | | |
| Postemergence | Sethoxydim, Glyphosate, Clethodim, Pyraflufen, Phenmedipham | D-Limonene, Clove Oil, Cinnamon and Clove Oil |

* 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

| | |
|----------------------------|--|
| Days after planting | 50-70 |
| Normal method | Processing - machine (2" root diameter) Fresh Market - bunched, normally hand harvested |
| Containers | Processed - bulk bins |
| Grades | U.S. #1 & #2 based on uniformity and blemishes |
| Packaging/Handling | 45 lb wire-bound crate or 18 bunch (3 roots/bunch) carton; 1-3 |

| | |
|-------------------------------|---|
| | months storage at 32°F and 90-95% RH |
| Anticipated yield/acre | Processing 10-12 tons Fresh Market 130-150 cwt. |

Transit Conditions

32°F and 90-95% RH (do not allow temperature to rise above 45°F)

Comments/Production Keys

- Frequent light irrigations, cannot tolerate wet feet.
- Cool growing conditions followed by high temperatures can cause bolting.
- Test soil for boron; deficiency can cause root canker, black pitting, heart-rot and/or dry rot.
- Do not band boron; if soil applied broadcast 3 - 5 lbs/A pre-plant incorporate (only if need indicated by soil test).
- Drought conditions can aggravate boron deficiency problem.
- High temperature following a cool growing period can cause loss of root color.
- Zoning, alternating light and dark rings in roots, is enhanced by high temperature.
- Stand establishment often difficult due to weak seedling vigor of plants. Good seed bed a must. Avoid practices which enhance soil crusting.