



Broccoli

Dr. Joe Masabni
 Department of Horticulture
 Texas AgriLife Extension Service

Varieties

Bonanza, Early Dividend, Green Comet, Green Magic, Packman, Premium Crop, Southern Comet

Soil Preferences

Fertile, well-drained, medium-textured soils; will do relatively well on heavy soils, but poorly on sands.

Optimum Growing Conditions

Cool days (70-80°F) with cool to cold nights (40-50°F). Will tolerate wide temperature fluctuations. Mid 20's is the normal freeze threshold.

Establishment Methods

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| Planting Method | Direct seeded or transplanted |
| Optimum Time | Spring - soil seed zone temperature >40°F, 60-90 days prior to maximum air temperature exceeding 90°F Fall - soil seed zone temperature |
| Seeding rate | 0.5 - 1.5 lbs/acre |
| Approx seed/oz | 9,000 |
| Seeding depth | 0.25" |
| Seedling spacing | Fresh market - 1-2 rows on 24-40" raised beds with 6-9" in-row spacing Processing - 9-15" in-row spacing |

Fertility/Fertilization

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

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| Generalized rate: 120 - 70 - 80 lb/acre* | |
| N** | <ul style="list-style-type: none"> • 75-100 lbs pre-plant • 25-50 lbs/acre side-dressed at thinning or transplanting • 25 lbs approximately 2 weeks prior to harvest |
| P | 60-80 lbs banded approximately 2" below seed at planting |
| K | approximately 80-100 lbs if needed; normally only required in East Texas |

* Use high phosphate starter solution with transplant establishment (5 lbs of 5-20-10 etc./100 gal water). ** Ammonium nitrate is very stable and least likely to evaporate. Urea and ammonium sulfate evaporate if not incorporated.

Water/Irrigation

High water demand (20 - 25"). Critical demand period is during establishment of direct seeded stand and during heading. Drought stress can cause buttoning.

Pest Management

Broccoli Diseases and Common Name of Fungicidal Controls

| DISEASE | FUNGICIDE* | OMRI LISTED FUNGICIDE** |
|---------------------------|---|--|
| Alternaria | | Clove, Rosemary and Thyme Oil, Copper Hydroxide, Neem Oil, <i>Streptomyces lydicus</i> |
| Black Rot | acibenzolar-s-methyl, copper sulfate, PCNB | <i>Bacillus subtilis</i> , Clove, Rosemary and Thyme Oil, Copper Hydroxide, Cuprous Oxide |
| Bacterial soft rot | | <i>Bacillus subtilis</i> |
| Downy mildew | Acibenzolar-S-Methyl, Chlorothalonil, Copper Sulfate, Dimethomorph, Fenamidone, Fluopicolide, Fosetyl-Al, Hydrogen Dioxide, Mandipropamid, Maneb, Mefoxam, Potassium Phosphite, Azoxystrobin, Pyraclostrobin, Sodium Tetraborohydrate Decahydrate | <i>Bacillus subtilis</i> , Extract of <i>Reynoutria sachalinensis</i> , <i>Bacillus pumilus</i> , Neem Oil, <i>Streptomyces lydicus</i> , Potassium Bicarbonate, Copper Hydroxide, Cuprous Oxide, Hydrogen Peroxide, Clove, Rosemary and Thyme Oil |
| Nematode | 1,3-Dichloropropene, Chloropicrin, | Azadirachtin |

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| | Metam-Potassium, Metam-Sodium, Sesame Oil | |
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Broccoli Insect Pests and Common Name of Insecticidal Controls

| INSECT | INSECTICIDE* | OMRI LISTED INSECTICIDE** |
|-----------------|---|---|
| Aphid | Acetamiprid, Bifenthrin, Cypermethrin, Diazinon, Dimethoate, Dinotefuran, Gamma-Cyhalothrin, Imidacloprid, Lambdacyhalothrin, Malathion, Naled, Oxydemeton-Methyl, Petroleum Oil, Potassium Salts of Fatty Acids, Sodium Tetraborohydrate Decahydrate, Spirotetramat, Thiamethoxam, Zeta-Cypermethrin | Azadirachtin, Garlic Juice Extracts, Neem Oil, Pyrethrins |
| Armyworm | Beta-Cyfluthrin, Bifenthrin, Carbaryl, Chlorpyrifos, Cypermethrin, Endosulfan, Lambdacyhalothrin, Permethrin, Zeta-Cypermethrin | Azadirachtin, <i>Bacillus thuringiensis</i> , Spinosad |
| Cutworm | Beta-Cyfluthrin, Bifenthrin, Carbaryl, Chlorpyrifos, Cryolite, Cypermethrin, Diazinon, Endosulfan, Esfenvalerate, Flubendiamide, Gamma-Cyhalothrin, Lambdacyhalothrin, Methoxyfenozide, Zeta-Cypermethrin | Azadirachtin, <i>Bacillus thuringiensis</i> |
| Looper | Bifenthrin, Cypermethrin, Methomyl, Naled, Petroleum Oil | Azadirachtin, <i>Bacillus thuringiensis</i> , Garlic Juice Extracts, Pyrethrins |
| Thrips | Acetamiprid, Beta-Cyfluthrin, Bifenthrin, Dinotefuran, Gamma-Cyhalothrin, Imidacloprid, Lambdacyhalothrin, Novaluron, Permethrin, Petroleum Oil, Potassium Salts of Fatty Acids, Spinetoram, Thiamethoxam | Azadirachtin, Neem Oil, Peppermint and Rosemary Oil, Pyrethrins, Spinosad |
| Whitefly | Beta-Cyfluthrin, Bifenthrin, Cyfluthrin, Cypermethrin, Dinotefuran, Endosulfan, Gamma-Cyhalothrin, Imidacloprid, Lambdacyhalothrin, Petroleum Oil, Potassium Salts of Fatty Acids, Sodium Tetraborohydrate Decahydrate, Spiromesifen, Spirotetramat, Thiamethoxam, Zeta-Cypermethrin | Azadirachtin, Garlic Juice Extracts, Pyrethrins |

Weeds and Common Name of Herbicidal Controls

| WEED | HERBICIDE* | OMRI LISTED HERBICIDE** |
|------------------------------|--|---|
| Preplant incorporated | Clomazone, DCPA, Napropamide, Bensulide, Trifluralin | Corn Gluten Meal |
| Preemergence | DCPA, Napropamide | |
| Postemergence | Carfentrazone, Oxyfluorfen, Paraquat, Sethoxydim, Glyphosate, Pelargonic Acid, Clethodim | 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

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| Days after planting | Direct Seeded - 65-100 Transplanted - 50-70 |
| Optimum Stage | While flower buds are green and tightly closed Fresh Market - 4-6" flower Processing - 1" stem diameter + flower >6" |
| Normal method | Hand harvested |
| Containers | Bulk wagons or bushel baskets |
| Grades | Fresh Market - 3-4" heads cut with stalks 6-7" long and less than 1" in diameter, tied into 1.5-lb bunches Processing - stalks 7-8" in length with heads >6" |
| Packaging/Handling | Normally in half-carton cardboard boxes, packed 14 bunches (20-23 lbs/box) and top iced |
| Anticipated yield/acre | Fresh market - 350-400 boxes Processing - 5-6 tons |

Storage/Transit Conditions

32°F at 95-100% RH (31°F freezing point). 10-14 day maximum shelf-life

Comments/Production Keys

- Stress (low moisture, unfavorable temperatures and low fertility) during early growth will stunt plants, greatly reducing yield and quality
- Warm temperatures and increasing day length will cause early flowering of the heads
- Water beading on heads can cause discoloration and decay
- This crop may have an adverse allelopathic effect on following vegetable crop (plant stunting, reduced yield or possible seedling death under certain environmental conditions)
- High nitrogen requirements