Collards/Kale

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Varieties
Collards: Blue Max, Champion, Flash, Georgia Southern, Vates

Kale: Dwarf Blue Curled Scotch, Dwarf Blue Curled Vates, Green Curled, Nero di Toscano, Rebor, Red Russian

Soil Preferences
Deep, well drained, fertile, fine to medium textured soils with pH 6.0 - 7.5; will tolerate heavy soils with good drainage.

Optimum Growing Conditions
Monthly average temperature 60-65°F, will not tolerate monthly mean temperatures much above 70°F.

Establishment Methods

Planting Method	Direct seeded
Optimum Time	Spring - seed zone temperature >50°F Fall - seed zone temperature <100°F
Seeding rate	0.5-1.5 lbs/acre
Approx seed/oz	9,000
Seeding depth	0.25"
Seedling spacing	1-2" in-row on 38-40" raised beds

Fertility/Fertilization
Rates presented as actual lbs/acre N_2, P_2O_5, and K_2O (base actual rates applied on soil test results).

Generalized rate: 80 - 90 - 90 lb/acre	
N*	60-100; 1/2 applied pre-plant with the remainder at thinning
P	80-100; banded 2" below seed at planting
K	80-100; applied with first nitrogen application, normally only required in East Texas

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

Water/Irrigation
12 - 14" uniformly available throughout growing season.

Pest Management

Collards/Kale Diseases and Common Name of Fungicidal Controls

DISEASE	FUNGICIDE*	OMRI LISTED FUNGICIDE**
Alternaria		*Streptomyces Lydicus*, Copper Hydroxide, Neem Oil,
Black rot	Acibenzolar-S-Methyl, Copper Sulfate	*Bacillus subtilis*, Copper Hydroxide, Cuprous Oxide
Downy mildew	Acibenzolar-S-Methyl, Copper Sulfate, Dimethomorph, Fenamidone, Fosetyl-Al, Mandpropamid, Mefenoxam, Potassium Phosphite, Pyraclostrobin	*Bacillus pumilus*, *Bacillus subtilis*, Copper Hydroxide, Cuprous Oxide, Extract of *Reynoutria sachalinensis*, Hydrogen Dioxide, Neem Oil, Potassium Bicarbonate, *Streptomyces lydicus*
Nematode	1,3-Dichloropropene, Chloropicrin, Metam-Potassium, Metam-Sodium, Sesame Oil	Azadirachtin

Collards/Kale Insect Pests and Common Name of Insecticidal Controls

INSECT	INSECTICIDE*	OMRI LISTED INSECTICIDE**
Aphid		Azadirachtin, Pyrethrins
Armyworm		Azadirachtin, *Bacillus thuringiensis*
Beetle		Azadirachtin, Pyrethrins
Looper		Azadirachtin, *Bacillus thuringiensis*, Pyrethrins
Mite		Azadirachtin

Weeds and Common Name of Herbicidal Controls

WEED	HERBICIDE*	OMRI LISTED HERBICIDE**
Preplant incorporated	DCPA, Bensulide (except turnip greens), Trifluralin	Corn Gluten Meal
Preemergence	DCPA	
Postemergence	Carfentrazone, Sethoxydim, Glyphosate, Pelargonic Acid, Clethodim, Clopyralid	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	Collards - 70-80 Kale - 60-90
Normal method	Hand or machine harvested
Containers	Fresh market - baskets Processing - bulk wagon
Grades	U.S. No. 1 - similar type, free from defects
Packaging/Handling	Bushel baskets, crates, cartons containing 24 1 lb packs/bunches Cartons/wire-bound crates containing 30-35 lbs
Anticipated yield/acre	5-6 tons or 300-400 cartons

Transit Conditions

32°F at 95% RH (generally top iced in transit); shelf-life 10-14 days (3 weeks if packed in poly lined cartons with crushed ice).

Comments/Production Keys

- Collards and kale are both more cold and heat tolerant than other cole crops. Kale is the more tolerant of the two.
- Rapid cooling after harvest is a must for the prevention of wilting and maintenance of quality
- Collards are considered mature when a large rosette of leaves has developed in the crown of the plant
- When harvesting collards for fresh sales, the whole plant is normally cut with 4 wrapper leaves to protect the tender leaves
- Kale normally is packed in three ways:
    - Whole plant
    - 2-bunched leaves
    - Stripped

  Stripped kale is usually prepacked for fresh market sales. With all methods, remove all yellow or damaged leaves.