

BEANS: SNAP AND LIMA/BEETS

copper, fixed (Champ DP, KocideDF)--2.0 lb 58DF/A or OLF, or
 Ridomil Gold Copper--2.0 lb 65WP/A, or
 Phostrol--2.0-4.0 pts 6.69L/A, or
 Headline--6.0-9.0 fl oz 2.1 EC/A

If lima bean downy mildew is observed in the field apply either Ridomil Gold Copper or Phostrol.

Phostrol also has a 24 (c) registration in DE. Other states should check with their pesticide authority or chemical supplier for updates.

Lima Bean Pod Blight (Phytophthora capsici)

Rotate away from other susceptible crops such as peppers, cucurbits or tomatoes. Avoid heavy irrigation and irrigating at night. In fields with a history of Phytophthora blight on peppers and cucurbits, applications of a fixed copper fungicide every 7-10 days may be beneficial for control.

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White Mold (Sclerotinia) and Gray Mold (Botrytis)

Preplant: For white mold only, the following biological fungicide has been tested in some states; however, limited information is available on its effectiveness in the Mid-Atlantic region. Apply 3 to 4 months prior to the onset of disease to allow the active agent to reduce levels of sclerotia inoculum in the soil. Following application, incorporate to a depth of 1 to 2 inches but **do not plow** before seeding beans to avoid untreated sclerotia in lower soil layers from infesting the upper soil layer.

Contans--2.0-4.0 lb 5.3WG/A

Post seeding: Close spacing of snap beans may increase the potential for white mold in Pennsylvania. Fungicide sprays are needed *only* when the soil has been wet for 6 to 10 days before bloom. For snap beans, a fungicide should be applied at 10-20% bloom. A second spray should be made 7-10 days after the first spray, if the soil remains wet and blossoms are still present. Check labels for details on fungicide timing. For lima beans, later fungicide applications have been beneficial if favorable environmental conditions persist. Use one of the following:

Endura--8.0-11.0 oz 70W/A, or
 Endura--5.0 oz/A plus thiophanate-methyl (0.7-1.05 lb/A 70WP/A active ingredient) (snap beans only), or
 iprodione--1.5-2.0 pts 4F/A or OLF, or
 thiophanate-methyl--1.5-2.0 lb 70WP/A or OLF, or
 thiophanate-methyl--11.2 oz 70WP/A or OLF plus chlorothalonil--1.5 pts 6F/A (snap bean only), or
 Switch--11.0-14.0 oz/A 62.5WG, or
 Switch--6.0-11.0 oz/A 62.5WG plus thiophanate-methyl (0.7-1.05 lb/A active ingredient)

BEETS

Beets are frost tolerant and produce the best commercial quality when grown during cool temperatures (50° to 65°F

[10° to 18.3°C]). Lighter color and wider zoning occur during rapid growth in warm temperatures. Beets will form seedstalks if exposed to 2 or 3 weeks of temperatures below 50°F (10°C) after several true leaves have formed. Beets have a high boron requirement. See Plant Nutrient Recommendations below and Table B-10.

Varieties

Varieties ¹	
Market	
Crosby (greens and roots)	
Early Wonder*	
Scarlet Supreme*	
Red Cloud*	These varieties are recommended for DE, MD, NJ, PA, VA, WV
Chariot*	
Red Ace*	
Excalibur*	
Ruby Queen	
Rosett*	
Centurion*	
Chioggia	
Pacemaker III	

¹ Varieties listed by maturity, earliest first.
 * Indicates hybrid variety

Recommended Nutrients Based on Soil Tests

Before using the table below, refer to important notes in Plant Nutrient Recommendations in Section B, Soil And Nutrient Information. These notes provide additional suggestions to adjust rate, timing and placement of nutrients depending on soil type cation exchange capacity and existing fertility levels.

Beets	Nitrogen (N) Pounds per Acre	Soil Phosphorus Level			Soil Potassium Level		
		Low Pounds per Acre	Med P ₂ O ₅ per Acre	Opt. per Acre	Low Pounds per Acre	Med P ₂ O ₅ per Acre	Opt. per Acre
	75-100 ¹	150 ¹	100 ¹	50 ¹	150 ¹	100 ¹	50 ¹
	50 ²	150 ²	100 ²	50 ²	150 ²	100 ²	50 ²
	25-50 ³	0	0	0	0	0	0

¹ Total amount nutrient recommended

² Broadcast and disk-in

³ Sidedress 4-6 weeks after planting

Apply 1 1/2-3 pounds of boron (B) per acre in mixed fertilizer. See Table B-10 for more specific boron recommendations.

Seed Treatment

Use seed treated with thiram 75WP (3 oz/100 pounds; 1 level teaspoon/lb) or Apron XL LS (0.32 to 0.64 fl.oz/100 pounds) plus Maxim 4FS (0.08-0.16 fl oz/100 pounds).

Seeding and Spacing

The crop is seeded from early April to late July. Optimum germination temperatures range between 50° to 85°F (10° to 29.4°C). Sow seed 1/2 inch deep at the rate of 15 to 18 seeds per foot of row. Space rows 15 to 20 inches apart; thin plants to 3 inches apart.

Weed Control

Identify the weeds in each field and select recommended herbicides that control those weeds. See Tables E-2 and E-3.

Match preplant incorporated and preemergence herbicide rates to soil type and percent organic matter in each field.

Apply postemergence herbicides when crop and weeds are within the recommended size and/or leaf stage.

Preplant Incorporated

Cycloate--2.5-3 lb/A. Apply 1.67 to 2 quarts Ro-Neet 6E. Incorporate into 3 to 4 inches of soil immediately after application. Plant anytime after treatment.

Postemergence

Clethodim--0.094-0.125 lb/A. Apply 12 to 16 fluid ounces of Select Max 0.97EC with nonionic surfactant to be 0.25% of the spray solution (1 quart per 100 gallons of spray solution) postemergence to control many annual and certain perennial grasses, including annual bluegrass. Select will not consistently control goosegrass. Control may be reduced if grasses are large or if hot, dry weather or drought conditions occur. For best results, treat annual grasses when they are actively growing and before tillers are present. Repeated applications may be needed to control certain perennial grasses. Yellow nutsedge, wild onion, or broadleaf weeds will not be controlled. Do not tank-mix with or apply within 2 to 3 days of any other pesticide unless labeled, as the risk of crop injury may be increased, or reduced control of grasses may result. Observe a minimum preharvest interval of 30 days.

Clopyralid--0.047-0.188 lb/A. Apply 2 to 8 fluid ounces of Stinger 3A per acre in a single application to control certain annual and perennial broadleaf weeds. Stinger controls weeds in the Composite and Legume plant families. Common annuals controlled include galinsoga, ragweed species, common cocklebur, groundsel, pineappleweed, clover, and vetch. Perennials controlled include Canada thistle, goldenrod species, aster species, and mugwort (wild chrysanthemum). Stinger is very effective on small seedling annual and emerging perennial weeds less than 2 to 4 inches tall, but is less effective and takes longer to work when weeds are larger. Use 2 to 4 fluid ounces to control annual weeds less than 2 inches tall. Increase the rate to 4 to 8 fluid ounces to control larger annual weeds. Apply the maximum rate of 8 fluid ounces to suppress or control perennial weeds. Spray additives are not needed or required by the label, and are not recommended. Observe a minimum preharvest interval (PHI) of 30 days. Stinger is a postemergence herbicide with residual soil activity. Observe follow-crop restrictions, or injury may occur from herbicide carryover.

Phenmedipham--0.5-0.67 lb/A. Apply 3 to 4 pints per acre.

Spin-Aid--1.3EC. For use in Maryland only. See label for application restrictions, mixing instructions, and weather restriction to prevent crop injury or herbicide failure.

Sethoxydim--0.2-0.5 lb/A. Apply 1 to 2.5 pints per acre Poast 1.5EC with oil concentrate to be 1 percent of the spray solution (1 gallon per 100 gallons of spray solution) postemergence to control annual grasses and certain perennial grasses. **The use of oil concentrate may increase the risk of crop injury when hot or humid conditions prevail.** To reduce the risk of crop injury, omit

additives or switch to nonionic surfactant when grasses are small and soil moisture is adequate. Control may be reduced if grasses are large or if hot, dry weather or drought conditions occur. For best results, treat annual grasses when they are actively growing and before tillers are present. Repeated applications may be needed to control certain perennial grasses. Yellow nutsedge, wild onion, and broadleaf weeds will not be controlled. Do not tank-mix with or apply within 2 to 3 days of any other pesticide unless labeled, as the risk of crop injury may be increased, or reduced control of grasses may result. Observe a minimum preharvest interval of 60 days and apply no more than 5 pints per acre in one season.

Postharvest

Paraquat--0.6 lb/A. **A Special Local-Needs 24(c) label has been approved for the use of Gramoxone Inteon 2SC for postharvest desiccation of the crop in Delaware, New Jersey and Virginia.** Apply 2.4 pints per acre Gramoxone Inteon 2SC as a broadcast spray after the last harvest. Add nonionic surfactant according to the labeled instructions. See the label for additional information and warnings.

Insect Control

NOTE: Copies of specific insecticide product labels can be downloaded by visiting the websites www.CDMS.org or www.Greenbook.org. Also, specific labels can be obtained via web search engines.

Flea Beetles

beta-cyfluthrin (Baythroid XL)
carbaryl (Sevin 80S or OLF)
cyfluthrin (Renounce 20WP, Tombstone, or OLF)
imidacloprid (soil - Admire 2F, Admire PRO; foliar - Nuprid 1.6F, Provado 1.6F or OLF)

Aphids, Leafminers (LM)

imidacloprid (soil-Admire 2F, Admire PRO; foliar-Nuprid 1.6F, Provado 1.6F or OLF)
spinetoram (Radiant 2SC)
spinosad (Entrust 80W, SpinTor 2SC or OLF) **(LM only)**

Beet Armyworm

methoxyfenozide (Intrepid 2F)
spinetoram (Radiant 2SC)
spinosad (Entrust 80W, SpinTor 2SC or OLF)

Garden Webworms

Bacillus thuringiensis (Biobit, Dipel, Dipel 2E, Javelin, XenTari or OLF)

Disease Control

Damping-Off (caused by Pythium or Phytophthora).

Apply the following preplant incorporated or as a soil-surface spray after planting

mefenoxam--(Ridomil Gold 1.0-2.0 pt 4EC/A or 2.0-4.0 pt Ultra Flourish 2E/A), or
metalaxyl (MetaStar)--4.0 to 8.0 pts/treated A (see label for specific details)

Leaf Spot

Allow 2 or 3 years between beet plantings. Plow under beet refuse at end of season. Scout on a regular basis.

Apply one of the following when disease threatens and repeat every 7 to 10 days.

Rotate one of the following FRAC code 11 fungicides:

- Quadris--9.0–15.5 fl oz 2.08SC/A, or
- Cabrio--8.0-12.0 oz 20EG/A, or
- Headline—9.0-12.0 fl oz 2.09EC/A

With:

fixed copper at labeled rates

Do not make more than two sequential applications of Cabrio or Quadris before alternating with a copper fungicide.

Pocket Rot (Rhizoctonia)

Quadris--0.40–0.80 fl oz 2.08SC/1000 row ft

Black Spot

Can be caused by boron deficiency. Apply boron at planting according to soil test results.

Harvesting

Market beets are hand-harvested when 1-3/4 to 2 inches in diameter.

Pesticide	Use Category ¹	Hours to Reentry ²	Days to Harvest
INSECTICIDE			
<i>Bacillus thuringiensis</i>	G	4	0
beta-cyfluthrin	R	12	0
carbaryl	G	12	7
cyfluthrin	R	12	0
imidacloprid (soil/foliar)	G	12	21/7
methoxyfenozide	G	4	14
spinetoram	G	4	7
spinosad	G	4	3
FUNGICIDE (FRAC code)			
Cabrio (Group 11)	G	12	0
copper, fixed (Group M1)	G	12,24,48	0
MetaStar (Group 4)	G	48	14
Quadris (Group 11)	G	4	0
Ridomil Gold (Group 4)	G	48	0
Ultra Flourish (Group 4)	G	48	0

See Table 3.

¹ G = general, R = restricted

² Chemicals with multiple designations are based on product and/or formulation differences. CONSULT LABEL.