

SNAP BEAN, DRY BEAN AND LIMA BEAN

SNAP BEAN VARIETIES	Use	Pod Color	Seed Color	Comments
Bush Snap Bean Varieties-Green Pod				
Benchmark	market	med.-dark green	white	excellent quality
Bronco	market	dark green	white	excellent quality, mechanical harvest
Daytona	market	med. green	white	
Envy	processing			
Evergreen	processing			
Flo	processing			
Hialeah	market	green	white	excellent quality
Hystyle	market, processing	dark green	white	mechanical harvest
Labrador	market, processing	dark green	white	
Opus	market	med.-light green	white	rust tolerant
Rushmore	market	med. green	brown	early
Strike	market	med.-light green	white	mechanical harvest
Tema	market	med.-dark green	brown	
Venture	market, processing	dark green	white	early
Yellow Pod				
Eureka	market	yellow	white	
Gold Mine	market	yellow	white	susceptible to brown spot
Gold Rush	market, processing	yellow	white	susceptible to brown spot
Kinghorn Wax	market	yellow	white	excellent quality
Klondyke	market	yellow	white	mechanical harvest
Nugget	market, processing	yellow	white	

LIMA BEAN VARIETIES	Use	Seed Color	Comments
Henderson Bush	market & home	white	Bush, very early, small seed, high yield
Fordhook 242	market & home	white	Bush, midseason, med. size, variable yield
Bridgeton	processing	greenish	Bush, late, medium size
King of the Garden	home garden	greenish-white	Pole, midseason to late, large seed

SPACING AND SEEDING

Row 18 to 36 in. apart. Larger inter-row spacing helps to limit white mold development.
5 to 7 seeds per foot of row. Seed 70 to 100 lb. per acre.

IRRIGATION

If soil is dry at planting time, irrigate to ensure uniform seed germination. Snap beans must be irrigated in dry seasons, especially during blooming and pod development. They need 1 to 1.5 in. of water every 4-5 days.

FERTILIZING

Lime: To maintain a soil pH of 6.0 to 6.8.

Preplant: N, for soils with more than 3% organic matter and following soybeans, alfalfa, or a grass-legume hay crop, no N is needed. For soils with less than 3% organic matter and the above rotation, apply 30 lb. N per acre. For snap beans

FERTILIZING (CONT.)

following corn, rye, oats, wheat, or a vegetable crop, apply 40 to 60 lb. N per acre. P₂O₅, 0 to 75 lb. per acre; K₂O, 0 to 100 lb. per acre. Adjust according to soil type, previous management, and soil test results for your state.

A band placement (2 in. to the side and 2 in. below the seed) of a starter fertilizer (12-48-0, lb. of N, P₂O₅, and K₂O) at seeding has proven beneficial. No K is included in the starter fertilizer because potassium chloride (KCl) can reduce snap bean germination through salt injury. Beans are sensitive to Zn deficiency and if the soil Zn test is below 0.7 ppm, broadcast and incorporate prior to planting 5 lb. Zn per acre. Or include 1 lb. Zn per acre in the fertilizer band at planting.

Sidedress N: None needed.

DISEASES CONTROLLED

TREATMENT

COMMENTS

Dry beans: rust, anthracnose

Follow 2-3 year rotation schedules.

Rust resistant varieties are available.

Several chlorothalonil formulations are labeled such as Agronil 720, Bravo 500, Bravo Ultrex, Bravo weather stik, Echo 720 and Equus DF. Rates vary per formulation.

Begin applications during early bloom or when disease threatens. 14 day PHI.

OR

Anthracnose only: Topsin 70W.

Use 1.5 to 2 lb. per acre if applied once at 50% to 70% full bloom. Apply twice if first application is at 10% to 30% full bloom and second application is 4 to 7 days later (peak bloom). 14 day PHI.

OR

Headline at 5.5 to 8 oz. per acre.

Begin applications at the beginning of flowering or the onset of disease. Do not make more than 2 applications of headline or other stobilurin fungicide per year. 30 day PHI.

Apply Manex at 1.2 to 1.6 qt. per acre, Maneb 75DF or Maneb 80WP 1.5 to 2.0 lb. per acre.

Spray on a 7 day interval. 30 day PHI.

Snap beans: rust

Follow 2-3 year rotation schedules.

Rust resistant varieties are available.

Several chlorothalonil formulations labeled such as Agronil 720, Bravo 500, Bravo Ultrex, Bravo Weather Stik, Echo 720 and Equus DF. Rates vary per formulation.

7 day PHI.

OR

Nova 40W at 4 to 5 oz. per acre.

30 day plant back restriction. 0 PHI.

DISEASE CONTROL (CONT.)

SNAP BEAN, DRY BEAN AND LIMA BEAN

DISEASES CONTROLLED	TREATMENT**	COMMENTS
Snap beans: rust (cont.)	Plant only western-grown, certified seed.	
Bacterial blights Brown spot Halo blight Common blight	Follow 2-3 year crop rotation schedules. Field applications of fixed copper fungicides. Application rates vary widely with product and formulation.	Repeat at 7-10 day intervals. Copper sprays will slow the spread of bacterial blights in the field. Do not use copper on fresh market lima bean.
White mold and Gray mold	Avoid wet fields with a history of white mold. Nova 40W at 4 to 5 oz. per acre. Topsin M WSB at 1.5 to 2 lb. per acre depending on application method. OR Rovral 75WG at 1.5 to 2 lb. per acre for dry formulations or 1.5 to 2 pt. per acre for flowable formulations. OR Gray mold only: Several chlorothalonil formulations are labeled such as Agronil 270, Bravo 500, Bravo Ultrex, Bravo weather stik, Echo 720 and Equus DF. Rates vary per formulation.	Begin applications when disease is observed. 0 PHI. Apply once at 50% to 70% full bloom, or apply twice, the first at 10% to 30% full bloom and a second application at peak bloom. Observe restrictions on feeding of forage. 14 day PHI for dry or snap beans. 28 day PHI for lima beans. Apply at first bloom, when 10% of the plants have one open bloom, and again at peak bloom. Observe restrictions on feeding of forage. Do not treat after full bloom. 0 day PHI. Apply at weekly intervals as needed. 7 day PHI.
Seedling diseases and root rots	Plant only western-grown certified seed in warm well-drained seed beds. Treat seed with Apron 25XL-LS plus captan or thiram. Apply Ridomil Gold EC at 0.5 to 1 pt. per acre at planting, or Ridomil PC 11G at 0.75 lb. per 1000 ft. of row at planting.	Fungicides containing mefanoxam (Ridomil Gold) may help control early season seedling diseases caused by Pythium. Ridomil PC GR or PCNB may be used to help control Rhizoctonia. Applications may be made preplant incorporated, or as a soil surface spray after planting.

SNAP BEAN, DRY BEAN, AND LIMA BEAN

DISEASE CONTROL (CONT.)

DISEASES CONTROLLED	TREATMENT**	COMMENTS
Soybean Cyst Nematode (SCN)	Rotate at least 2-3 years with corn, small grains, alfalfa, or other non-host crop.	Do not include soybeans in the rotation.
Mosaic Virus Diseases	Plant varieties with resistance to common mosaic, NY15 strain of common mosaic, and bean yellow mosaic.	Bush Blue Lake 274, Provider, Tendercrop, Cherokee, Goldcup.

HERBICIDE	TREATMENT	COMMENTS
PREEMERGENCE		
Dacthal 75WP	8 lb. on light soils (less than 1.5% organic matter), 14 lb. on darker soils in at least 50 gal. water per acre.	Apply immediately after planting. 50-mesh or larger screens. Not effective on muck soils and other high organic soils.
Dual Magnum, II Magnum	1 to 2 pt. per acre. Use low rate on coarse soils.	Not on muck soils. Apply and incorporate before seeding or apply after seeding but before emergence. Can be tank mixed preplant with Eptam or Treflan.
Trifluralin (4 lb./gal.)	1 pt. per acre on light-colored soils (less than 2% organic matter), 1.5 pt. on darker colored soils.	Apply before planting, and incorporate immediately by double discing or with other equipment for thorough mixing 3 to 4 in. deep. Not effective on muck soil and other high organic soils.
Eptam 7E or 10G	3.5 pt. per acre of 7E, or 30 lb. per acre of 10G.	Apply before planting, and incorporate immediately into soil by double discing or with other equipment to give thorough mixing 3 to 4 in. deep. May also be applied as directed spray at last cultivation. Not on lima beans. Check label for sensitive dry bean varieties.
Prowl 3.3E, Pendimax 3.3E	1.2 to 3.6 pt. per acre.	Apply preplant, and incorporate 1 to 2 in. deep. Not effective on peat or muck soils.
Lasso 4E, Micro-Tech	2.5 to 3 qt. per acre.	Not for snap beans. For lima beans in all states and for dry beans (red kidney types only) in WI, IL, and for Lasso only, IN. Apply before planting and incorporate into the surface 1 to 2 inches. RUP.

* For specific weeds controlled by each herbicide, check table on page 29.

** Rates given are for overall coverage. For band treatment, reduce amounts according to the portion of acre treated.

WEED CONTROL (CONT.)

SNAP BEAN, DRY BEAN, AND LIMA BEAN

HERBICIDE	TREATMENT	COMMENT
<u>PREEMERGENCE (cont.)</u>		
Sonalan	1.5 to 4.5 pt. per acre.	Dry beans only. Incorporate 2 to 3 inches deep within 2 days of application and before planting. Use higher rates to suppress eastern black nightshade. Not on peat or muck soils.
Pursuit Plus	30 fl. oz. per acre.	Not for snap beans. Use only in IL, IA, and MN south of highway #210. Apply and incorporate within 1 week before planting. Apply before June 30. See label for specific bean types. 30 days PHI for lima beans, 60 day PHI for dry beans.
Pursuit 2L, Pursuit DG	3 fl. oz. 2L or 1.08 oz. DG per acre.	Not for snap beans. Apply and incorporate within 1 week of planting or apply to soil surface within 3 days after planting. In MN north of highway #210, use 2 fl. oz. 2L or 0.72 oz. DG on approved bean types only. See label for details. 30 day PHI lima beans, 60 day PHI other dry beans.
Frontier 6.0, Outlook 6.0	1.25 to 2 pt. Frontier or 10 to 21 fl. oz. Outlook per acre. Use lower rate on coarse soils low in organic matter.	Dry beans only. Apply before planting and incorporate, or after planting before 3 leaf stage. 70 day PHI.
Command 3ME	0.4 to 0.67 pt. per acre.	Succulent beans only. Apply before seeding or after seeding before crop emerges. 45 day PHI.
<u>POSTEMERGENCE</u>		
Reflex 2L	0.75 pt. per acre. Add 0.5 to 1 pt. nonionic surfactant or 1 to 2 pt. COC per 25 gal. spray solution.	Dry beans only. Only in special counties in Minnesota. Apply before bloom. 3 day PHI.
Basagran 4L	1.5 to 2 pt.	Do not apply until first trifoliolate leaf is fully expanded. Do not exceed 2 qt. per acre per year. 30 day PHI.
Poast 1.5E	1 to 1.5 pt. plus 1 qt. COC per acre.	Apply to actively growing grass. Do not exceed 4.0 pt. per acre per season. 15 day PHI for succulent beans. 30 day PHI for dry beans.
* For specific weeds controlled by each herbicide, check table on page 29.		
** Rates given are for overall coverage. For band treatment, reduce amounts according to the portion of acre treated.		

HERBICIDE	TREATMENT	COMMENTS
<u>POSTEMERGENCE (cont.)</u>		
Select 2E	6 to 8 oz. per acre plus 4 qts. COC per 100 gallons spray solution.	Dry beans only. Apply to actively growing grass. Do not exceed 1 qt. per acre per year. 30 day PHI.
Assure II 0.88E	6 to 10 fl. oz. plus 1 qt. COC per acre.	Apply to actively growing grass. 30 day PHI for dry beans, 15 day PHI for snap beans.
Pursuit 2L, Pursuit DG	3 fl. oz. 2L or 1.08 oz. DG per acre and 4 to 8 oz. nonionic surfactant per 25 gal. spray solution.	Not for snap beans, lima beans, chickpeas or lentils. Apply after at least one trifoliolate is fully expanded. If N fertilizer is added, also add Basagran to minimize crop injury. Use of trifluralin preplant may increase risk of injury. in MN north of highway #210, use 2 fl. oz. 2L or 0.72 oz. DG. See label for details. 60 day PHI.
Raptor 1L	4 fl. oz. per acre plus 1 to 2 qt. COC or 8 to 16 oz. nonionic surfactant per 25 gal. spray solution.	Not for snap beans or chickpeas. Apply after at least one trifoliolate is fully expanded. Can add urea ammonium nitrate or ammonium sulfate. If N fertilizer is added or COC is used. add 6 to 16 oz. Basagran per acre to minimize crop injury. 60 day PHI.

NON-SELECTIVE HERBICIDES

paraquat	1.6 to 3.2 pt. per acre of 2.5L or 1.3 to 2.7 pt. per acre of 3L, plus 1 qt. COC or 4 to 8 fl. oz. nonionic surfactant per 25 gal. spray solution.	Apply to emerged weeds before or after seeding but before crop emergence.
glyphosate	0.75 to 1.1 lb. acid equivalent (ae) per acre, equivalent to: 32 to 48 fl. oz. of 3 lb. ae/gal.; 26 to 40 fl. oz. of 3.7 lb. ae/gal.; 24 to 36 fl. oz. of 4 lb. ae/gal.; 1.2 to 1.8 lb. of 64.9% ae WSG.	Some formulations permit spot spray applications - check label. Apply to emerged weeds before crop emerges or after harvest in fall. These rates are for annual weeds at application volumes of 10 to 40 gal. per acre. See label for rates at lower application volumes, for perennial weeds, and suggested adjuvants.

* For specific weeds controlled by each herbicide, check table on page 29.

** Rates given are for overall coverage. For band treatment, reduce amounts according to the portion of acre treated.

INSECTS CONTROLLED	TREATMENT	COMMENTS
Seed corn maggot	Plant seed that has been treated with a product containing diazinon or a lindane-diazinon combination.	Flies are attracted to rotting organic material and freshly plowed soil. Plow winter cover crop under early in the spring and thoroughly cover. Handle seeds carefully to prevent cracking.
	Thimet 20G at 4.5 to 7 oz. per 1000 linear feet of any row spacing (minimum 30-in. spacing).	Apply granules in a band over the row at planting time. Do not place granules in direct contact with the seed. Do not feed bean foliage. 60 day PHI.
Mexican bean beetle, leafhoppers, bean leaf beetle, aphids	Di-Syston 15G at 6 to 12 oz. per 1000 feet row (for any row spacing) or 6.7 to 13.3 lb. per acre (30-inch row spacing).	Place granules on sides of seed furrow at planting. Do not apply directly on the seed or more than once per season. Do not use treated vines for feed. 60 day PHI.
	OR	
Potato Leafhopper Thresholds	Orthene/Address 75S at 0.67 to 1.33 lb. per acre. Should control corn borer at high rate.	Do not use treated vines as feed. 14 day PHI for snap and dry beans, 0 days for lima beans.
Seedling - 0.5/sweep or 2 per row foot 3rd trifoliolate - 1/sweep or Budstage - 5 per row foot	OR	
	Capture 2 EC at 1.6 to 6.4 fl. oz. per acre.	Succulent beans only. Do not exceed 12.8 fl. oz. per acre per season. 3 day PHI.
	OR	
	Mustang 1.5EW at 3.0 to 4.3 fl. oz. per acre.	Do not exceed 25.6 fl. oz. per acre per season. 1 day PHI for succulent beans; 21 day PHI for dry beans.
	OR	
Bean Leaf Beetle Threshold	Asana XL at 5.8 to 9.6 fl. oz. per acre.	Do not exceed 0.2 lb. a.i. per acre per season. Do not feed or graze livestock on treated vines. 21 day PHI for dry beans, 3 day PHI for snap beans or lima beans.
1 beetle per foot of row	OR	
	Sevin XLR Plus at 1 qt. per acre. Use 1.5 qt. per acre for Mexican bean beetle.	Not for aphids. 3 day PHI for fresh beans, 21 day PHI for dry beans.
	OR	
	Lannate LV at 0.75 to 3 pt. per acre.	Do not feed hay to livestock for 7 days. Not for bean leaf beetle. 1 day PHI for succulent beans at 0.75 to 1.5 pts., 3 day PHI at high rate, 14 day PHI for dry beans.
Mexican Bean Beetle Threshold	OR	
0.5 beetles/plant		

INSECTS CONTROLLED	TREATMENT	COMMENTS	
Mexican bean beetle, leafhoppers, bean leaf beetle, aphids (cont.)	Thiodan 50WP at 1 lb. or 3EC at 0.67 to 1.33 qt. per acre.	Apply before leaves curl. Do not exceed 3 applications per season. Do not feed treated threshings to livestock or allow to graze in treated fields. Not for lima beans. 3 day PHI.	
	OR		
	Metasystox 2RS at 2 pt. per acre.		
	OR		
	Dimethoate at 0.75 to 1.5 pt. per acre.		Do not feed treated vines to livestock. Aphids and leafhoppers only. 0 day PHI.
European corn borer	Provado 1.6F at 3.5 fl. oz. per acre.	Aphids and leafhoppers only. Not for dry bean. Do not exceed 10.5 fl. oz. per acre per season. 7 day PHI.	
	OR		
	M-Pede at 1 to 2% by volume.		Aphids only. Must contact aphids to be effective. 0 day PHI.
	Orthene/Address 75S at 1.3 lb. per acre.		Beginning at bloom, repeat treatment at 7-day intervals as long as moth flight above threshold continues or until beans are ready to be harvested. 14 day PHI, 0 day PHI for lima bean.
	OR		
Capture 2EC at 2.1 to 6.4 fl. oz. per acre.	Succulent beans only. Do not exceed 12.8 fl. oz. per acre per season. 3 day PHI.		
OR			
PennCap-M at 2 to 4 pt. per acre.	Dry bean only. 15 day PHI.		
	OR	3 day PHI, 14 day PHI for dry bean.	
	Lannate LV at 3 pt. or 90SP at 1 lb. per acre.		
	OR		
	SpinTor 25C at 4 to 6 fl. oz. per acre.		3 day PHI. Do not exceed 29 fl. oz. per acre per season or 12 fl. oz. per acre for dry beans.
	OR		
Mustang 1.5EW at 3.0 to 4.3 fl. oz. per acre.	Do not exceed 25.6 fl. oz. per acre per season. 1 day PHI for succulent beans; 21 day PHI for dry beans.		

INSECT CONTROL (CONT.)

SNAP BEAN, DRY BEAN AND LIMA BEAN

INSECTS CONTROLLED	TREATMENT	COMMENTS
Corn earworm	Capture 2EC at 2.1 to 6.4 fl. oz. per acre.	Succulent beans only. Do not exceed 12.8 fl. oz. per acre per season. 3 day PHI.
	OR	
	Asana XL at 5.8 to 9.6 fl. oz. per acre.	Do not exceed 38.4 fl. oz. per acre per season. Do not feed vines to livestock. 3 day PHI.
	OR	
	Sevin XLR Plus at 1.5 pt. per acre.	3 day PHI for fresh beans, 21 day PHI for dry beans.
	OR	
Lannate LV at 3 pt. or 90SP at 1 lb. per acre.	3 day PHI, 14 day PHI for dry bean.	
OR		
SpinTor 25C at 4 to 6 fl. oz. per acre.	3 day PHI. Do not exceed 29 fl. oz. per acre per season or 12 fl. oz. per acre for dry beans.	
OR		
Mustang 1.5EW at 3.0 to 4.3 fl. oz. per acre.	Do not exceed 25.6 fl. oz. per acre per season. 1 day PHI for succulent beans; 21 day PHI for dry beans.	
Mites	Capture 2EC at 5.8 to 6.4 fl. oz. per acre.	Do not exceed 12.8 fl. oz. per acre per season. 3 day PHI.
	Kelthane MF at 0.75 to 1 pt. per acre.	
	OR	Apply at first sign of mites. Repeat as necessary. Do not feed treated vines to meat or dairy animals. 7 day PHI.
	Dimethoate at 0.75 to 1.5 pt. per acre.	
OR	Do not feed to livestock. Do not apply during bloom. 0 day PHI.	
Lannate LV at 3 pt. or 90SP at 1 lb. per acre.		3 day PHI, 14 day PHI for dry bean.