

Asparagus

Varieties

Hybrid varieties have improved vigor, disease tolerance, and higher yields, and are grown from seeds or crowns. All-male hybrids have higher yields and do not produce seed. Absence of seed production is desirable because seeds develop into volunteer asparagus seedlings that are a weed problem. Order hybrids well in advance.

All-male hybrids (listed in order of performance): Jersey General, Jersey Giant (56X22-8), Millenium, Jersey Knight, Jersey King, Jersey Supreme.

Other hybrids: Atlas, Purple Passion (specialty markets only).

Non-hybrids: Viking KB3, Mary Washington.

Planting and Spacing

Crowns: Use only 1-year old crowns. Transplant April 15 to May 15. Use 4- to 5-foot rows with crowns 12 to 16 inches apart. Set the crowns in 8-inch furrows in light soils and 5- to 6-inch furrows in heavy soils. Cover with 2 to 3 inches of soil. Select deep, well-drained sandy loam soils. Hybrids should be planted slightly deeper. Start cultivating when spears begin to emerge, and continue periodically until furrows are level at end of first season.

Seedling transplant: 10- to 14-week old seedling transplants can be mechanically transplanted. Apply 4 ounces of transplant solution (10-52-17 or 9-45-15) to each transplant. Transplant in either the spring or fall.

Harvesting

Harvest only 2 or 3 times in spring 1 year after transplanting. Thereafter, harvest for about 2 months in the spring. Harvest asparagus early in the morning for best quality. Allow the ferns to grow vigorously after this period to accumulate food reserves for the next season. As much care should be put into maintaining a healthy fern as into harvest.

Fertilizing

Lime: To maintain a soil pH of 6.7 to 7.0. If possible, apply lime the year before planting.

Preplant: N: 70 pounds per acre. P₂O₅: 25 to 200 pounds per acre. K₂O: 0 to 250 pounds per acre. Adjust according to soil type, previous management, and soil test results for your state. Broadcast the fertilizer, and plow it under

when preparing the land for the planting furrows. Before planting new crowns, apply 100 pounds per acre of 8-32-0, or similar high phosphate starter fertilizer, in the bottom of the trench. Cover with 1 inch of soil before setting crowns.

Yearly: Each year after harvest, apply 50 pounds N per acre by broadcasting and incorporate by lightly tilling. No P₂O₅ or K₂O is necessary if adequate fertilization was achieved prior to planting.

Pesticide Use in Greenhouses

Before using any pesticide, always read the product label for mention of greenhouse restrictions. See Selected Information About Recommended Fungicides (page 79), Selected Information About Recommended Herbicides (page 69), and Selected Information About Recommended Insecticides (page 54).

Disease Control

Fusarium Crown and Root Rot

Avoid fields with a history of crown and root rot. The disease is promoted by acidic (low pH) and poorly drained soil. Use tolerant, vigorous varieties if available. Establish production fields with blemish-free crowns produced in virgin soil or fumigated soil.

Recommended Products

RR Cannonball® as a crown soak at 0.5 oz. per 100 gals. of water. *Michigan only — applicators must have a 24(c) label. 365-day PHI.*

Rust

Reduce crop residues that may harbor the pathogen by removing or mowing senescent and dried ferns in the fall/winter. Scout for the early appearing bright orange aecial pustules in the spring, especially on new or young plantings that are not harvested the full season. Remove volunteer plants on field edges and ditchbanks. Plant crop rows with ample spacing and in the direction of the prevailing winds to increase air movement and minimize periods of prolonged leaf wetness.

Recommended Products

Bravo®, Echo®, Equus®, and Initiate® are labeled for use at various rates. 190-day PHI.

Mancozeb products (including Dithane®, Koverall®, Manzate®, and Penncozeb®) are labeled at various rates. See product labels. 180-day PHI.

Monsoon®, or **Onset 3.6L**®, or **Orius 3.6F**®, or **Tebuzol 3.6F**®, or **Toledo 3.6F**® at 4-6 fl. oz. per acre. 180-day PHI.

Unicorn DF® at 2-3.75 lbs. per acre. 180-day PHI.

Phytophthora Crown and Spear Rot

Avoid excessive irrigation. Establish production fields from blemish free crowns obtained from virgin soil or fumigated soil.

Recommended Products

RR **Ridomil Gold SL**® at 1 pt. per acre. 1-day PHI.

RR **Ultra Flourish**® at 2 pts. per acre. 1-day PHI.

Purple Spot

Reduce crop residues by removing or mowing senescent and dried ferns in the fall/winter. TOM-CAST can help asparagus farmers schedule their fungicide applications for control of purple spot. See Disease Forecasting Systems (page 84) for more details. NOTE: Products labeled for rust may be helpful for purple spot control.

Recommended Products

Bravo®, **Echo**®, **Equus**®, and **Initiate**® are labeled for use at various rates. 190-day PHI.

RR **Flint**® at 3-4 oz. per acre. 180-day PHI.

RR **Quadris Flowable**® at 6-15.5 fl. oz. per acre. 100-day PHI.

Weed Control

Before establishing an asparagus planting, reduce perennial weeds in the area to be planted. Good weed control in the planting year is especially important. Herbicide options are limited in the planting year, so cultivation and hand hoeing may be needed to achieve good control.

A typical weed control program in asparagus includes a preemergence herbicide with a long residual applied before asparagus emerges. If needed, a preemergence herbicide may be applied again after harvest is finished. Postemergence herbicides are also available — some may be applied before asparagus emerges, others may be applied during or after the harvest season, and some require directed or shielded spray applications to avoid spraying asparagus.

It is important use herbicides with different modes of action from year to year to avoid buildup of weed

species not controlled by a particular mode of action. When herbicides are not used, weed control methods include cultivation, hand-weeding, flaming, mowing, and mulching. It is important to avoid damaging crowns when cultivating.

For specific weeds controlled by each herbicide, check Relative Effectiveness of Herbicides for Vegetable Crops (page 68).

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

Preemergence Broadleaves and Grasses

Recommended Products

Chateau WDG® at 6 oz. per acre. Apply to dormant asparagus at least 2 weeks before spears emerge. Crop injury may result if asparagus is not dormant. May be tank-mixed with paraquat to control emerged weeds. Or, apply after final harvest for the season before fern emerges. Do not exceed 6 oz. per acre per growing season.

Command 3ME® at 2.6 pts. per acre. Apply prior to spear emergence or apply after a clean harvest. Cover exposed plants with soil before applying. Do not exceed 2.6 pts. per acre per year or one application per year. 14-day PHI.

Diuron products at 0.8-3 lbs. a.i. per acre. Use 80DF formulations at 1-4 lbs. per acre, or 4L formulations at 1.6-3 qts. per acre. Do not apply to young plants during first year. Use lower rates on light-colored soils with less than 2% organic matter. Apply after tillage or chopping fern in the spring and again after harvest, if necessary. 6-8 weeks residual activity. Do not exceed 6 lbs. per acre per year.

Dual Magnum 7.62E® at 1.33-2.0 pts. per acre. *Michigan only — applicators must have a 24(c) label.* Apply before asparagus and weeds emerge in spring or after the harvest season. Needs moisture for activation. Do not exceed 1 application per crop. 16-day PHI.

Products containing **metribuzin** at the following rates:

4F formulations: 0.5-2 qts. per acre

75DF formulations: 0.6-2.6 lbs. per acre.

Do not apply to young plants during first year. Apply after tillage or chopping fern in the spring and again after harvest, if necessary. Use lower rates for split applications. Use low rate if combined with diuron. Has 6-8 weeks residual activity. Do not exceed 2 qts. or 2.6 lbs. per acre per year. Two sprays necessary for seasonlong sandbur control. 14-day PHI.

RR This is a reduced-risk pesticide. See page 37 for details.

Prowl H2O® at 2.4-8.2 pts. per acre. Apply at least 14 days before first harvest and prior to spear emergence. If spears are present, remove before application. On sandy soil use no more than 2.4 pts. per acre. 14-day PHI.

Sinbar 80W® at 0.62-1.5 lbs. per acre. *Established crowns or directed seeded plants only.* Do not use on sandy soil or on soil with less than 1% organic matter. Apply in spring after cutting fern and prior to spear emergence. For seeded crops apply activated charcoal at 300 lbs. per acre in a 1-inch band over the row before Sinbar® application. May be applied after a clean cutting. Do not plant other crops within 2 years of application. 8-12 weeks residual activity. 5-day PHI.

Solicam DF® at 2.5-5 lbs. per acre. Do not apply within 12 months of planting. Apply preemergence to soil free of weeds and debris. 14-day PHI.

Spartan 4F® at 4.5-12 fl. oz. per acre. *Michigan only — applicators also must have a 24(c) label.* Apply in spring before crop emerges. Use low rate on light soil. Do not use on soils with less than 1% organic matter. Do not exceed 1 application and 12 fl. oz. per acre per year. 14-day PHI.

Trifluralin products at 1-1.5 lbs. a.i. per acre. Use 4EC formulations at 1-1.5 qts. per acre. *Established plantings only.* Apply and incorporate 1-2 inches early in the spring when spears are at least 4 inches below soil surface. Use higher rates on heavier soils. 4-6 weeks residual activity.

Preemergence Broadleaves

Recommended Products

RR **Callisto 4L**® at 6-7.7 fl. oz. per acre. Apply in spring before spears emerge after mowing, disking, or tilling; after final harvest; or both. Do not exceed 2 applications per year, or 7.7 fl. oz. per acre per year.

Lorox 50DF® at 2-4 lbs. per acre. Do not use on sand, loamy sand, or soils with less than 1% organic matter. Maximum 4 lbs. or 3 applications per acre per year. 1-day PHI.

Postemergence Broadleaves and Grasses

Recommended Products

Glyphosate products at 0.75-3.75 lbs. acid equivalent (ae) per acre. Use formulations that contain 3 lbs. ae/gal. (equivalent to 4 lbs. isopropylamine salt/gal.) at 1-5 qts. per acre; or formulations that contain 4.5 lbs. ae/gal. (equivalent to 5 lbs. potassium salt/gal.) at 0.66-3.3 qts. per acre. Apply to emerged weeds at least 7 days before spears emerge or immediately after the last harvest. Use low rate for annuals and higher rates for perennials. See label for suggested application volume and adjuvants. If spears are allowed to regrow, delay application until ferns have developed. Delayed treatments must be applied as a directed or shielded spray. Direct contact of the spray with asparagus fern may result in serious crop injury.

Gramoxone SL 2.0® at 2.5-4 pts. per acre. Include 1 qt. of COC, or 4-8 fl. oz. of NIS per 25 gallons of spray solution. Apply before crop emergence or after last harvest before fern regrows. *RUP.* 6-day PHI.

Postemergence Broadleaves

Recommended Products

Aim EC® at 0.5-1.92 gals. per acre. Include 0.5 pt. NIS or 0.25-0.5 gas. COC per 25 gals. of spray solution. Broadcast after spear harvest. Emerged asparagus will be injured. Do not exceed 3.8 fl. oz. per acre per season. Wait at least 20 days between applications. 5-day PHI.

RR **Callisto 4L**® at 3 fl. oz. per acre. Apply in spring before spears emerge after mowing, disking, or tilling; after final harvest; or both. For postharvest applications use drop nozzles or other equipment that will minimize contact with crop. Adding COC or NIS (alone, or with UAN or AMS) will improve emerged weed control and increase crop injury risk in postharvest applications. Do not exceed 2 applications per year, or 7.7 fl. oz. per acre per year.

2,4-D amine products that contain 3.7 lbs. a.i. per gal. at 3-4 pts. per acre. Apply before, during, or after the harvest season. During harvest season apply immediately after cutting. Discard deformed spears. Use drop nozzles for treatments after harvest to avoid spraying the fern.

Clarity 4L® at 0.5-1 pt. per acre. Apply at 40-60 gals. per acre immediately after cutting. Discard crooked spears at harvest. Clarity® can injure nearby broadleaf crops and garden plants. Maximum 1 pt. per acre per year. 24-hour PHI.

Lorox 50DF® at 1-3 lbs. per acre and up to 3 applications for established beds. Apply before cutting season or immediately after cutting. For newly planted crowns apply 1-2 lbs. per acre, up to 2 applications when ferns are 6-18 inches tall. Do not use on sand, loamy sand, or soils with less than 1% organic matter. 1-day PHI.

Savage WSG® at 1.5-2 lbs. per acre. Apply before, during, or after the harvest season. During harvest season apply immediately after cutting. Discard deformed spears. Use drop nozzles for treatments after harvest to avoid spraying the fern.

Sandea 75W® at 0.5-1.5 oz. per acre. Apply before, during, or after harvest. Drop nozzles and using COC or NIS are recommended for applications after harvest. For first year transplants do not apply sooner than 6 weeks after fern emergence. Do not exceed 2 applications per crop cycle, or 2 oz. per acre per 12-month period. Has residual soil activity. Effective on nutsedge. 1-day PHI.

Spur 3L® at 8-10.7 fl. oz. per acre. Apply before or during harvest. May cause some crooking of spears. Controls Canada thistle, maretail, mayweed, nightshade, plantain, smartweeds. Do not exceed 10.7 fl. oz. per acre per year. Avoid application 2 years in succession. 2-day PHI.

Postemergence Grasses

Recommended Products

Clethodim products at 0.068-0.125 lb. a.i. per acre. Use formulations with 0.97 lb. a.i. per gallon at 9-16 fl. oz. per acre. Use formulations with 2 lb. a.i. per gallon at 6-8 fl. oz. per acre. Use 1 qt. COC per 25 gallons of spray solution (1% v/v). Spray on actively growing grass. Wait at least 14 days between applications. 1-day PHI.

Fusilade DX 2E® at 8-12 fl. oz. per acre. Include 1-2 pts. of COC or 0.5-1 pt. of NIS per 25 gallons of spray solution. Spray on actively growing grass. Rates may be doubled if asparagus will not be harvested for 12 months. Wait at least 14 days between applications. Do not exceed 48 fl. oz. per acre per season on bearing asparagus. 1-day PHI.

Poast 1.5E® at 1-1.5 pts. per acre, plus 1 qt. COC per acre. Spray on actively growing grass. Use high rate on quackgrass. Do not exceed 5 pts. per acre per season. 1-day PHI.



Harvest asparagus spears in the morning for best quality.

Herbicides for Asparagus¹

Product (REI/PHI)	Common Name	Timing and Application Location Relative to Crop					OK on Young Plantings?	Timing Relative to Weeds				Comments		
		Before spears emerge in spring	After final harvest	During harvest period	Postemergence to ferns after harvest	Directed or shielded spray to ferns after harvest		Premergence	Postemergence	Annual grasses	Small-seeded broadleaves		Broadleaves	
Aim EC® (12h/5d)	carfentrazone	X	X	X				X				X		
Callisto 4L® (12h/-)	mesotrione	X	X			X			X			X		
Chateau® (12h/-)	flumioxazin	X					No	X		X		X		Apply at least 2 weeks before spears emerge.
Clarity 4L® (24h/1d)	dicamba			X				X				X		Not good on pigweeds
Command 3ME® (12h/14d)	clomazone	X		X						X		X		
Diuron®, others (12h/-)	diuron	X	X				No	X		X		X		
Dual Magnum®	metolachlor	X	X				yes	X		X		X		Michigan only; must possess a 24(c) label
Fusilade DX 2E® (12h/1d)	fluzifop	X	X	X		X	Yes		X		X			
Gramoxone® (12h to 24h/6d)	paraquat	X	X				yes	X		X		X		
Lorox 50DF® (12h/1d)	linuron	X	X			X	Yes	X		X		X		
Poast® (12h/1d)	sethoxydim	X	X	X		X	Yes	X		X				
Prowl H2O® (12h/14d)	pendimethalin	X						X		X		X		
Roundup®, others (12h/-)	glyphosate	X	X				yes		X	X		X		Apply at least 7 days before spears emerge.
Sandea® (12h/1d)	halosulfuron	X	X	X			Yes	X		X		X		Has activity against nutsedge.
Savage WSG®, others (48/h)	2,4-D amine	X	X	X		X			X			X		
Select Max®, others (12h/1d)	clethodim	X	X	X		X	Yes		X		X			
Sencor 4F® or 75DF (12h/14d)	metribuzin	X	X				No	X		X		X		
Sinbar® (12h/5d)	terbacil	X					No	X		X		X		Do not plant other crops for 2 years.
Sollicam DF® (12h/14d)	norflurazon	X					No	X		X		X		
Spartan®	sulfentrazone	X					Yes	X		X		X		Michigan only; must possess a 24(c) label
Spur®	clopyralid	X	X	X			Yes		X			X		Avoid application 2 years in succession
Treflan®, others (12h/-)	trifluralin	X					No	X		X		X		Incorporate.

¹For effectiveness against specific weeds, see Relative Effectiveness of Herbicides for Vegetable Crops (page 68), and read label. This table does not include all label information. Be sure to read and follow all instructions and precautions on the herbicide label. Herbicides can cause serious crop injury and yield loss if not used properly.

Insect Control

Armyworm

Recommended Products

Coragen® at 3.5-5 fl. oz. per acre. Do not exceed 4 applications per season. Do not exceed 15.4 fl. oz. per season. Minimum interval between treatments is 3 days. 1-day PHI.

Lannate LV® at 1.5-3 pts. per acre. Do not exceed 8 applications per season. Use high rate for white cutworm. 1-day PHI. *RUP.*

Lorsban 4E® at 2 pts. per acre, or **Lorsban 75WG**® at 1.33 lbs. per acre. Do not make more than 1 preharvest application. Do not make more than more than two postharvest applications during the fern stage. 1-day PHI. *RUP.*

Asparagus Aphids

Treat when less than 5 percent of ferns have aphids present.

Recommended Products

RR **Assail 30SG**® at 2.5-5.3 oz. per acre. Do not exceed 2 applications per season. Do not exceed 10.7 oz. per acre per season. Do not apply more than once every 10 days. 1-day PHI.

Fulfill® at 2.75 oz. per acre. Apply to fern only after harvest has been completed. Allow a minimum of 30 days between applications. Do not exceed 16.5 oz. per acre per season. 170-day PHI.

Lorsban 4E® at 2 pts. per acre, or **Lorsban 75WG**® at 1.33 lbs. per acre. Do not make more than 1 preharvest application. Do not make more than more than two postharvest applications during the fern stage. 1-day PHI. *RUP.*

Asparagus Beetles and Cutworms

Treat when insects reach the economic thresholds described below.

Harvest

Asparagus Beetle

5-10% plants infested or
2% of spears with eggs

Cutworms

5% of crowns infested

Fern

Asparagus Beetle

10% defoliation or
50% of plants with larvae

Fall

Cutworms

1 larva per 20 plants

Recommended Products

For control on spears during harvest, to prevent egg laying and feeding injury:

RR **Assail 30SG**® at 2.5-5.3 oz. per acre. Do not exceed 2 applications per season. Do not exceed 10.7 oz. per acre per season. Do not apply more than once every 10 days. 1-day PHI.

Lannate LV® at 1.5-3 pts. per acre. Do not exceed 8 applications per crop. Use high rate for white cutworm. 1-day PHI. *RUP.*

Lorsban 4E® at 2 pts. per acre, or **Lorsban 75WG**® at 1.33 lbs. per acre. Do not make more than 1 preharvest application. Broadcast with ground equipment. 1-day PHI. *RUP.*

Perm-Up® (3.2EC) at 2-4 lbs. per acre. Do not exceed 0.4 lb. a.i. per season. 1-day PHI. *RUP.*

Sevin XLR PLUS® (4F) at 1 qt. per acre, or **Sevin 5B**® at 20 lbs. per acre. Do not treat more than once every 3 days. Bait for cutworms only. 1-day PHI.

For control on seedlings and fern growth after harvest is over (use lower rates for seedlings):

Dimethoate 400® or **Dimethoate 4E**® at 1 pt. per acre. *Asparagus beetles only.* Apply after harvest. Do not exceed 1 lb. a.i. per acre per season. 180-day PHI.

Entrust® at 4-6 fl. oz. per acre. *Asparagus beetles only.* Do not exceed 18 fl. oz. per acre per season. 60-day PHI.

RR **Radiant SC**® (1SC) at 4-8 fl. oz. per acre. *Asparagus beetles only.* Do not exceed 24 fl. oz. per acre per season. 60-day PHI.

Sevin XLR PLUS® (4F) at 2-4 qts. per acre. Do not treat more than once every 3 days. Do not exceed 5 applications per year to spears and ferns combined.

Tarnished Plant Bugs and Japanese Beetle (Adult Stage)

Recommended Products

RR **Assail 30SG**® at 5.3 oz. per acre. Apply to fern after harvest. Do not exceed 2 applications per season. Do not exceed 10.7 oz. per acre per season. Do not apply more than once every 10 days. 1-day PHI.

Perm-Up® (3.2EC) at 4 lbs. per acre. Apply only postharvest to the fern. Do not exceed 40 lbs. per season. 1-day PHI. *RUP.*

RR This is a reduced-risk pesticide. See page 37 for details.

 May be acceptable for use in certified organic production. Check with your certifier before use.