

This is a section from the

2016

Mid-Atlantic

Commercial Vegetable Production Recommendations

The manual, which is published annually, is NOT for home gardener use.

The full manual, containing recommendations specific to New Jersey, can be found on the Rutgers NJAES website in the Publications section
njaes.rutgers.edu

The label is a legally-binding contract between the user and the manufacturer.

The user must follow all rates and restrictions as per label directions.

The use of any pesticide inconsistent with the label directions is a violation of Federal law.

ASPARAGUS

Varieties¹

Jersey Giant* (RR,FT)	Millennium*
Jersey Knight* (RR,FT)	Purple Passion
Jersey Supreme* (RR,FT)	SNJ-1113* (trial)
	SNJ-1122* (trial)

¹Varieties listed alphabetically

*Indicates hybrid variety

Letters in parentheses indicate disease resistance possessed by varieties. RR = rust resistant; FT = Fusarium tolerant.

Recommended Nutrients Based on Soil Tests

Before using the table below, refer to important notes in the Soil and Nutrient Management chapter in Section B and your soil test report. These notes and soil test reports provide additional suggestions to adjust rate, timing, and placement of nutrients. Your state's soil test report recommendations and/or your farm's nutrient management plan supercede recommendations found below.

	Pounds N per Acre	Soil Phosphorus Level				Soil Potassium Level				Nutrient Timing and Method
		Low	Med	High (Opt.)	Very High	Low	Med	High (Opt.)	Very High	
Asparagus		Pounds P ₂ O ₅ per Acre				Pounds K ₂ O per Acre				
Growing crowns	50	200	100	50	0 ¹	200	100	50	0 ¹	Total nutrient recommended.
	50	200	100	50	0 ¹	200	100	50	0 ¹	Broadcast and disk-in.
New plantings	75-100	200	100	50	0 ¹	200	100	50	0 ¹	Total nutrient recommended.
Crowns and transplants	50	200	100	50	0 ¹	200	100	50	0 ¹	Broadcast and disk-in.
	25-50	0	0	0	0	0	0	0	0	Sidedress 4 weeks after planting.
Cutting beds to maintain	75-100	200	150	100	0 ¹	300	225	150	0 ¹	Total nutrient recommended.
	50	200	150	100	0 ¹	150	100	75	0 ¹	Apply before cutting season.
	25-50	0	0	0	0	150	125	75	0	Sidedress 4 weeks after cutting.

Apply 1.0 to 2.0 pounds of boron (B) per acre every 3 years on most soils. See Table B-9 for more specific boron recommendations.

¹In Virginia, crop replacement values of 50 lbs. P₂O₅ and 75 lbs. K₂O per acre are recommended on soils testing Very High.

Purity of Seed Lots

Male asparagus hybrid varieties are preferred over standard hybrids and open-pollinated populations because male plants are more vigorous and productive. The varieties listed in the table above are all male hybrids. However, some seed lots may contain a significant percentage of female plants. Check with your seed supplier to determine the anticipated proportion of female and/or off-type plants in the lots you procure.

Seed Treatment

Check the tag or contact your seed supplier to determine if seed has been treated. See the Disease Section for more information.

Growing Crowns and Transplants

Crowns can be purchased from suppliers or they can be grown from seed. To grow crowns, sow seed 1½ inches deep at a rate of 6 to 8 pounds per acre (10 to 12 seeds per foot) in rows 24 to 30 inches apart. Plant seed in mid-April in warmer, southern areas to mid-May in cooler areas. Crowns must be grown in an area where asparagus has never been grown.

Grow asparagus transplants in 72-100 cell trays containing artificial growing media formulated for pepper transplants. Grow seedlings for 8-10 weeks in the greenhouse, then harden-off in a protected outdoor area for two weeks before transplanting. **Timely irrigation, cultivation and application of herbicides are essential for**

successful use of seedling transplants. Contact your County Extension Agent for specific herbicide suggestions.

Planting and Spacing

Plant crowns and transplants April 1 to May 20 when soil conditions are favorable. Early plantings produce more vegetative growth and more vigorous crowns than late plantings. Space 1-year-old crowns and transplants 12 inches apart in rows 4½ to 5 feet apart. Make furrows 6 to 8 inches deep, plant crowns 5 to 7 inches deep. Cover crowns with 1 to 2 inches of soil. Cultivate and move soil to seedlings carefully to avoid covering foliage with soil. Gradually fill trenches during the growing season and form a 2-inch ridge over the plants after the fern turns brown in the fall.

Harvest and Postharvest Considerations

Do not harvest asparagus the year of planting. Harvest for two weeks the second year after planting and increase to 6-8 weeks as the planting matures. Stop harvesting by June 15 if fern vigor was good the previous fall. Stop sooner if spear thickness drops. Prolonged cutting increases stress on the plant and can increase root and crown rot. If foliage diseases were severe or fern vigor was low the previous fall, stop harvesting 10 days sooner than normal. Leave soil unridged on young beds for the first 2 to 3 weeks of harvest. On old beds, and in fields where freezing of early emerged spears occurs frequently, begin ridging at start of harvest season. In areas where freeze damage to spears occurs

frequently, mulch the beds with straw after herbicide application to delay spear emergence. Remove spears from field promptly after cutting to maintain freshness and a low fiber content. After harvesting, spears should be washed, cooled, trimmed to a uniform length, graded by diameter and bunched. Spears can be stored for up to three weeks at 36°F and 95 percent relative humidity.

Mother Stalk Harvest System for Season Extension

Like many other crop species, asparagus possesses a feedback system for spear/shoot initiation from the underground crown. If few mature shoots (“fern”) exist, the crown perceives reduced phytohormone levels and releases additional spears/shoots for elongation. When a threshold number of mature shoots is reached, no more spears/shoots will elongate thereafter from the crown. It is possible to use this system for spear harvest season extension by limiting the number of mature shoots, known as the “mother stalk harvesting system” (MSHS).

The MSHS begins by allowing a fixed number of spears to continue to grow into mature shoots, usually in the range of 3 – 4. After these shoots are established, all spears that subsequently emerge from the crown are harvested. Research has shown that spears will appear more-or-less continuously for several months, as long as the mature shoots remain healthy. The dynamics of yield are not consistent, however. Following the expected flush of spears in April – June, the rate of new spear emergence drops off during the warmer summer period, then increases once again in the fall as air and soil temperatures drop into a more favorable range. Yields during the summer period can be extremely low, although spear quality remains acceptable. Spears harvested after the fern canopy is present often appear lighter in color, since chlorophyll deposition is associated with light levels. Summer yields are often insufficient to justify the cost of harvesting, but harvesting must continue since new mature shoots will suppress later spear emergence.

Successful MSHS requires more intensive management of the crop than is usually administered in a conventional harvesting system. Spear yields and quality are promoted by regular irrigation and fertilization, and pest and disease management as needed. Staking of the mature foliage prevents crop damage during violent weather events, and renders it easier to harvest young spears. The hope is that favorable market conditions will help to infringe the costs of additional management needs.

There are many variations on specific steps taken in MSHS. For example, research has shown that a period of conventional harvest at the beginning of the season (first 2 – 3 weeks) followed by the imposition of MSHS has a beneficial impact on cumulative season yield. Although research on the long-term effects of MSHS on crown viability is lacking, it is recommended that a minimum of 2 years of conventional harvest separate a season of MSHS on any given asparagus production block.

At present, it is recommended that MSHS be practiced on a small scale by growers participating in direct marketing.

Brush Removal

Burn brush (dead foliage after frost kills the “fern”) during the winter to destroy fungi that cause diseases, such as rust and purple spot. (Be sure to obtain a permit in areas where

required.) If burning is not done, then mow and disk brush and level ridges in February and March. Avoid damage to spear buds by shallow disking.

Weed Control

Identify the weeds in each field and select recommended herbicides that control those weeds. See Tables E-3 and E-4.

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.

Determine the preharvest interval (PHI) for the crop. See Table E-4 and consult the herbicide label.

Find the herbicides you plan to use in the Herbicide Resistance Action Committee’s (HRAC) **Herbicide Site of Action Table E-8** and follow the recommended good management practices to minimize the risk of herbicide resistance development by weeds in your fields.

Seedbeds, Seeded Fields and Newly Planted Crowns

Preplant or Preemergence

Glyphosate--Apply Glyphomax Plus, Roundup Ultra Max 4SC, or Touchdown prior to crop emergence for control of emerged annual and perennial weeds. Do not apply within a week before the first spears emerge. Rate of application depends upon weed species; see label.

Paraquat--0.6 lb/A. Apply 2.4 pints per acre Gramoxone SL 2.0. Band or broadcast prior to, during, or after planting but before emergence of crop. Add wetting agent as directed on label. Do not apply paraquat within 6 days before harvest.

Postemergence

Clethodim--0.094 to 0.125 lb/A. Apply 9.0 to 16.0 fluid ounces of Select Max 0.97EC with nonionic surfactant to be 0.25% of the spray solution (1.0 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 1 day.

Fluazifop--0.125 to 0.188 lb/A. Apply 0.50 to 0.75 pints per acre Fusilade DX 2E plus oil concentrate to be 1 percent of the spray solution (1 gallon per 100 gallons of spray solution) or a nonionic surfactant to be 0.25 percent of the spray solution (1 quart per 100 gallons of spray solution) to control annual grasses and certain perennial grasses. 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. It will not control yellow nutsedge, wild onion, or any broadleaf weed. Do not tank-mix with 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 365 days and apply no more than 6 pints per acre in one season.

Do not plant corn, sorghum, cereals, or any other grass crop within 60 days of the last application.

Linuron--0.5 to 1.0 lb/A. Apply 1.0 to 2.0 pounds per acre Lorox 50DF when ferns are more than 6 inches tall for residual and postemergence control of many annual broadleaf weeds. Spray emerged weeds when they are less than 4 inches tall. Use the lower rate on coarse-textured (sandy) soils low in organic matter, and the higher rate on fine-textured (silt and clay) soils. A second application can be made 1 to 3 months after the initial application, but observe the following precautions: DO NOT exceed 4.0 pounds of product per acre per year. DO NOT add surfactants, DO NOT tank-mix with other pesticides, and DO NOT use FLOWABLE (liquid) formulation, or crop injury may occur. **LABELED FOR USE IN NEW JERSEY ONLY.**

Sethoxydim--0.2 to 0.5 lb/A. Apply 1.0 to 2.5 pints per acre Poast 1.5EC with oil concentrate to be 1 percent of the spray solution (1.0 gallon per 100 gallons of spray solution) to control certain annual or perennial grass weeds. **The use of oil concentrate may increase the risk of crop injury when hot or humid conditions prevail.** Use the lower rate to control seedling annual grasses with less than four leaves and no tillers. Use the higher rate to control established annual grasses with tillers; grasses under stress from heat or drought; or to control perennial grasses including Bermuda grass, quackgrass, or johnsongrass. 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, or weed control may be reduced. Observe a minimum preharvest interval of 1 day before harvest. Do not exceed 5.0 pints of Poast per acre in one year.

Cutting Bed

Use a combination of grass and broadleaf weed herbicides to obtain control of a wide spectrum of weeds. Identify the weeds in your field and choose herbicides that control those weeds. Split the herbicide application. Spray part of your grass herbicide before harvest and the remainder after harvest, or switch to another grass herbicide after harvest. Rotate the use of metribuzin with Karmex or Sinbar to avoid repeated use of chemically related products. Choose metribuzin or Sinbar when weeds have emerged, unless another effective postemergence herbicide is used.

Before Spear Emergence and/or after Harvest Season

Mesotrione--0.094 to 0.240 lb/A. Apply 3.0 to 7.7 fluid ounces per acre Callisto 4SC prior to spear emergence in the spring, after final harvest, or both, to control many winter and summer annual broadleaf weeds. Till the field or tank-mix with Gramoxone SL 2.0 to eliminate emerged spears when Callisto is applied after harvest, or crop injury may be observed as white or white streaks in the stems and ferns when treated spears grow. Callisto provides excellent control of horseweed (also called mare's tail or stickweed), including glyphosate tolerant strains, and common lambsquarters. Use the lower rate on coarse-textured (sandy) soils low in organic matter, and the higher rate on fine-textured (silt and clay) soils. Callisto does not control annual grasses. Tank-mix Callisto with a residual annual grass herbicide to control annual grasses. Add oil concentrate to be 1 percent of the spray solution (1.0 gallon per 100 gallons of spray solution) or a nonionic surfactant to be 0.25 percent of the spray

solution (1.0 quart per 100 gallons of spray solution) if target weeds are emerged at the time of application. DO NOT apply more than 7.7 fluid ounces of Callisto per acre per year, and DO NOT make more than two Callisto applications per year.

Paraquat--0.6 to 1.0 lb/A. Apply 2.4 to 4.0 pints per acre Gramoxone SL 2.0 or OLF prior to crop emergence or immediately after the last cutting to control emerged annual weeds. Add wetting agent as directed on the label. Emerged spears sprayed after the last harvest will be killed but new growth from the crown will not be affected. Tank-mix with residual herbicides for full season control. DO NOT apply within 6 days of harvest.

Diuron--0.75 to 2.0 lb/A. Apply 1.0 to 2.5 pounds per acre Karmex 80DF before spear emergence or after harvest when the soil is disked and free of weeds. Karmex primarily controls broadleaf weeds. Tank-mix with Devrinol or Solicam to control annual grasses. Use metribuzin after harvest when Karmex is used in early spring before spear emergence.

Linuron--1.0 to 2.0 lb/A. Apply 2.0 to 4.0 pounds per acre Lorox 50DF prior to spear emergence or after harvest for residual and postemergence control of many annual broadleaf weeds. Spray emerged weeds when they are less than 4 inches tall. Use the lower rate on coarse-textured (sandy) soils low in organic matter, and the higher rate on fine-textured (silt and clay) soils. Additional applications can be made immediately after cutting, or as a post-directed spray at the base of the fern, but observe the following precautions: DO NOT exceed 4 pounds of product per acre per year. DO NOT apply within 1 day of harvest. DO NOT add surfactants, DO NOT tank-mix other pesticides, and DO NOT use FLOWABLE (liquid) formulation, or crop injury may occur. **LABELED FOR USE IN NEW JERSEY ONLY.**

S-metolachlor--1.26 to 1.90 lb/A. **A Special Local-Needs Label 24(c) has been approved for the use of Dual Magnum 7.62E to control weeds in asparagus in Delaware and New Jersey. The use of this product is legal ONLY if a waiver of liability has been completed. The waiver of liability can be completed on the Syngenta website, "farmassist.com". Go to the website "farmassist.com" and register (or sign in if previously registered), then under "products" on the toolbar, click on indemnified labels and follow the instructions.** Apply 1.33 to 2.00 pints per acre Dual Magnum 7.62E to control annual grasses, yellow nutsedge, galinsoga, and certain other broadleaf weeds. Use as a surface-applied spray prior to spear emergence. Make only one application during the growing season. DO NOT apply within 16 days of harvest. **Other generic versions of metolachlor and s-metolachlor may be available, and may or may not be labeled for use in the crop. Labeled for use in Delaware and New Jersey ONLY!**

Terbacil--1.2 lb/A. Apply 1.5 pounds per acre Sinbar 80W prior to spear emergence or after harvest. Sinbar controls annual grasses and many broadleaf weeds but does not control pigweed sp. and certain other broadleaf weeds. Tank-mix with Karmex for broader spectrum of weed control. This is not recommended for use at time of planting. **Do not use on soils containing less than 1 percent organic matter.**

Metribuzin--1.0 lb/A. Apply 1.33 pounds per acre metribuzin 75DF (or OLF) before spear emergence or after harvest. Metribuzin primarily controls broadleaf weeds. Tank-mix with Devrinol to control annual grasses. Use Sinbar or Karmex after harvest when metribuzin is used in early spring before spear emergence.

Napropamide--4.0 lb/A. Apply 8.0 quarts per acre Devrinol 2XT per year to established asparagus. Apply before weeds emerge immediately after ridging in the spring. Split the application if ridges are leveled after harvest. Make the second application immediately after leveling the ridge following the harvest season. Incorporation may improve weed control if rainfall does not occur within 24 hours of application. Devrinol controls primarily annual grasses. Combine with metribuzin, or Karmex at the lower labeled rates for better broadleaf weed control.

Norflurazon--2.0 to 4.0 lb/A. Apply 2.5 to 5.0 pounds per acre Solicam 80DF at the end of the cutting season. Spray immediately after the field is cultivated to level the ridges, or use postemergence herbicides to control emerged weeds. Primarily controls grasses and suppresses yellow nutsedge. Use in combination with Karmex or metribuzin to improve the spectrum of weeds controlled. Solicam is a long lasting herbicide in the soil. Do not plant sensitive crops (see label) for 2 years after application.

Sethoxydim--0.2 to 0.5 lb/A. (See the preceding "Sethoxy-dim" paragraph.)

Sulfentrazone--0.14 to 0.375 lb/A. **Trial Use Only! No crop safety data is available in the mid Atlantic states.** Apply 4.5 to 12 fluid ounces per acre Zeus to weed free soil before the crop has emerged to control many annual weeds, including morninglory species, and to suppress or control yellow nutsedge. Use the lower rate on coarse-textured (sandy) soils low in organic matter, and the higher rate on fine-textured (silt and clay) soils and soils high in organic matter. Primarily controls broadleaf weeds. Tank-mix with Devrinol or Solicam to control annual grasses.

Postemergence

Clethodim--0.094 to 0.125 lb/A. Apply 12.0 to 16.0 fluid ounces of Select Max 0.97EC with nonionic surfactant to be 0.25% of the spray solution (1.0 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 1 day.

Clopyralid--0.188-0.25 lb/A. Apply 0.5 to 0.66 pints per acre Spur 3A to control or suppress sensitive annual and perennial broadleaf weeds, including Canada thistle, goldenrod, mugwort, and wild aster species. Spray before, during, or after the cutting season but before ferns develop. Apply when the majority of the weeds' basal leaves have emerged, but before the flower stalk begins to grow. Some

crooking or twisting of treated spears may occur. Discard crooked or twisted spears. DO NOT apply if some crooking of emerged spears is not acceptable. Observe a minimum preharvest interval of 48 hours (2 days). Stinger or OLF carryover may affect subsequent crops. Observe all plantback restrictions listed on the label.

Fluazifop--0.125 to 0.188 lb/A. Apply 0.50 to 0.75 pints per acre Fusilade DX 2E plus oil concentrate to be 1 percent of the spray solution (1.0 gallon per 100 gallons of spray solution) or a nonionic surfactant to be 0.25 percent of the spray solution (1.0 quart per 100 gallons of spray solution) to control annual grasses and certain perennial grasses. 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. It will not control yellow nutsedge, wild onion, or any broadleaf weed. Do not tank-mix with any other pesticide unless labeled, as the risk of crop injury may be increased, or reduced control of grasses may result. Observe the minimum preharvest interval and apply no more than 6.0 pints per acre in one season. Do not plant corn, sorghum, cereals, or any other grass crop within 60 days of the last application. Labeled in Maryland and New Jersey with a 1-day preharvest interval. Labeled in Delaware and Virginia with a 7-month preharvest interval and in Pennsylvania with a 12-month preharvest interval.

Dicamba--0.25 to 0.50 lb/A. **A Special Local-Needs Label 24(c) has been approved for the use of Banvel in New Jersey.** Apply 0.5 to 1.0 pint per acre Banvel 4SC to control many annual broadleaf weeds and to suppress or control many perennial broadleaf weeds. Multiple applications can be made during the growing season, provided the total applied in 1 year does not exceed 1 pint per acre. Some crooking or twisting of emerging spears contacted by the spray may occur. Discard crooked or twisted spears. Observe a minimum preharvest interval of 1 day (24 hours).

Warning: Banvel spray or vapor drift may injure sensitive crops growing adjacent to treated fields. Do not apply to fields adjacent to sensitive horticultural, fruit, or vegetable crops. Do not apply on days when the temperature is expected to exceed 85 degrees Fahrenheit. Spray residue is difficult to completely remove from sprayers used to apply Banvel. Do not apply Banvel with sprayers which will be used to apply pesticides to sensitive crops.

Glyphosate--Apply Glyphomax Plus, Roundup products or Touchdown products, or OLF (Other Labeled Formulations) as a spot treatment using a directed spray or shielded equipment immediately after the last harvest of the season when all spears have been removed or after ferns have developed. DO NOT allow spray to contact emerged spears or ferns, or severe crop injury may result. Rates and optimum application period depend on weed species (see label).

Halosulfuron 0.024 to 0.047 lb/A.--Apply 0.5 to 1.0 dry ounces of Sandea 75DF plus nonionic surfactant to be 0.25 percent of the spray solution (1.0 quart per 100 gallons of spray solution) postemergence, during or after the cutting season, to control yellow nutsedge and certain annual broadleaf weeds. Emerged common lambsquarters will not be controlled. Use the lower rate on coarse-textured (sandy) soils low in organic matter, and the higher rate on fine-textured (silt and clay) soils. Observe a one (1) day

preharvest interval (PHI) when applying Sandea during harvest. Application of Sandea to the ferns after harvest may cause temporary yellowing. Use drop nozzles after harvest to direct the spray under the ferns to avoid risk of crop injury and improve coverage of target weeds. Do NOT apply Sandea to crops treated with a soil applied organophosphate insecticide, or use a foliar applied organophosphate insecticide within 21 days before or 7 days after a Sandea application.

Linuron--0.5 to 1.0 lb/A. Apply 1.0 to 2.0 pounds per acre Lorox 50DF for residual and postemergence control of many annual broadleaf weeds. Spray emerged weeds when they are less than 4 inches tall before the cutting season, immediately after cutting, or as a directed spray toward the base of the fern. Use the lower rate on coarse-textured (sandy) soils low in organic matter, and the higher rate on fine-textured (silt and clay) soils. Additional applications can be made prior to spear emergence or after harvest, but observe the following precautions: DO NOT exceed 4.0 pounds of product per acre per year. DO NOT apply within 1 day of harvest. DO NOT add surfactants, DO NOT tank-mix with other pesticides, and DO NOT use the FLOWABLE (liquid) formulation, or crop injury may occur. LABELED FOR USE IN NEW JERSEY ONLY.

2,4-D--1.0 to 2.0 lb/A. Use 1.0 to 2.0 quarts per acre Formula 40. Apply after a close harvest of asparagus when weeds have considerable foliage. Use no more than two applications spaced 1 month apart. If used after harvest, avoid spraying ferns. Use low pressure; spray on calm days to avoid drift damage to surrounding plants.

Insect Control

THE LABEL IS THE LAW. PLEASE REFER TO THE LABEL FOR UP TO DATE RATES AND RESTRICTIONS.

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

Asparagus Aphid

Watch for tiny (1/16 inch long), bluish green aphids building up on brush. Protection may be important in newly seeded plantings and young cutting beds. Apply one of the following formulations:

malathion--1.5 to 2.0 pts/A Malathion 57EC (or OLF)
 pymetrozine--(apply to ferns after harvest) 2.75 oz/A Fulfill 50WDG

Asparagus Beetles

Apply one of the following insecticides when needed during cutting season and late summer:

carbaryl--1.0 qt/A Sevin XLR Plus(or OLF)
 malathion--1.5 to 2.0 pts/A Malathion 57EC (or OLF)
 methomyl--1.5 to 3.0 fl oz/A Lannate LV
 permethrin--2.0 to 4.0 fl oz/A Perm-Up 3.2EC (or OLF)
 spinetoram (post-harvest protection of ferns only)--4.0 to 8.0 fl oz/A Radiant SC
 spinosad (post-harvest protection of ferns only)--4.0 to 6.0 fl oz/A Entrust SC **OMRI listed**

Prevent large numbers of beetles from overwintering and

laying eggs on spears in spring by spraying ferns in early fall. Daily harvest will minimize exposure to these pests and reduce damage.

Asparagus Fern Caterpillar (Beet Armyworm)

Apply one of the following formulations:
 chlorantraniliprole--3.5 to 5.0 fl oz/A Coragen 1.67SC
 methomyl--1.5 to 3.0 fl oz/A Lannate LV

Cutworms

Apply one of the following formulations:
 carbaryl--1.0 qt/A Sevin XLR Plus (or OLF)
 methomyl--1.5 to 3.0 fl oz/A Lannate LV
 permethrin--2.0 to 4.0 fl oz/A Perm-Up 3.2EC (or OLF)
 spinosad (post-harvest protection of ferns only)--20 to 40 lbs/A Seduce **OMRI listed**

Note. Early spears are the most heavily damaged because they are the first to appear and grow the slowest. Dig up to ½ inch deep around crowns and use bait if you find 1 cutworm larva or 1 severely damaged spear per 20 plants.

Japanese Beetles

Apply to foliage after the cutting season:
 permethrin--4.0 fl oz/A Perm-Up 3.2EC (or OLF)

Thrips

Apply one of the following formulations:
 malathion--1.5 to 2.0 pts/A Malathion 57EC (or OLF)
 methomyl--1.5 to 3.0 fl oz/A Lannate LV

Pesticide	Use Category ¹	Hours to Reentry	Days to Harvest ²
INSECTICIDE			
carbaryl	G	12	1
chlorantraniliprole	G	4	1
malathion	G	12	1
methomyl	R	48	1
permethrin	R	12	1
pymetrozine	G	12	170
spinetoram	G	4	60
spinosad	G	4	60
FUNGICIDE (FRAC code)			
azoxystrobin (Group 11)	G	4	100
chlorothalonil (Group M5)	G	12	0
Folicur (Group 3)	G	12	180
mancozeb (Group M3)	G	24	120
MetaStar (Group 4)	G	48	AP
Rally (Group 3)	G	24	180
Ridomil Gold (Group 4)	G	48	AP
Ultra Flourish (Group 4)	G	48	AP

See Table D-6.
¹G = general, R = restricted
²AP = At planting

Disease Control

Seed Treatment

For New Jersey Only. Dip seed in a solution containing 1 pint of Clorox per gallon of water for 1 to 2 minutes. Provide constant agitation. Use at the rate of 1.0 gallon of the diluted Clorox solution per 2 pounds of seed. Prepare a fresh solution for each batch of seed. Wash seed for 5 minutes in running water and dry thoroughly at room temperature.

Fusarium Root Rot

The pathogen is ubiquitous in soils and may be present in fields where no asparagus has been grown prior. Plant varieties with tolerance to Fusarium root rot such as Jersey Giant, Jersey Knight, or Jersey Supreme. Stress caused by heavy insect feeding damage, herbicide injury, overharvesting, low soil pH and/or low fertility, may predispose crowns to Fusarium infection. For crown production, always plant treated seed and select a site where asparagus has never been grown before.

For production fields, always plant disease-free crowns, transplants, or seed and select well-drained sites. If this is not possible, select fields that have not been in asparagus production for at least 8 years.

Phytophthora Crown and Spear Rot

In fields with poor drainage or extensive low areas, apply 1.0 pt/A Ridomil Gold 4SL, 2.0 pt Ultra Flourish 2E/A, or 2.0 qt/A MetaStar 2E over the bed as follows:

Cutting fields: Apply 30 to 60 days before the first harvest and make a second application prior to first cutting.

New plantings: Apply after planting seedlings or after covering crowns. This treatment will **not** control Fusarium root and crown rot.

Do not apply Ridomil Gold or MetaStar one day prior to harvest or illegal residues may result.

Purple Spot

Burn brush (i.e., dead ferns) after frost or during winter months to destroy the overwintering sources of the fungus (see brush removal). Fungicide applications are not practical during the production season, because new spears emerge daily. Once fern stalks are full size, scout on a weekly basis and apply one of the following and repeat every 2 to 4 weeks until frost:

azoxystrobin--6.2 to 15.5 oz 2.08F/A or OLF

chlorothalonil--2.0 to 4.0 pt 6F/A or OLF

Rotate between fungicides if more than 2 applications are needed.

Asparagus Rust

For long term management of rust, plant resistant varieties such as Jersey Giant, Jersey Knight or Jersey Supreme. Control is especially necessary in 1- or 2-year old beds, even with the use of resistant varieties. Scout fields, particularly non-cutting beds, for disease beginning in late June. Traditionally sprays begin in mid-August. Rotate between the following fungicides at the first sign of disease:

chlorothalonil--2.0 to 4.0 pt 6F/A or OLF

Folicur--4.0 to 6.0 fl. oz 3.6F/A

mancozeb--2.0 lb 75DF/A or OLF

Rally--5.0 oz 40WSP/A plus an adjuvant (see label for specific details)

Use high rates under severe pressure from rust.

Rally and Folicur are FRAC code 3 fungicides and should not be used consecutively. Misuse of FRAC code 3 fungicides could lead to resistance development.

Leaf Blights

Excessive rainfall during the summer months may lead to fungal leaf blights caused by *Alternaria* and *Cercospora* spp. Heavy infections may lead to premature defoliation and poor plant vigor later in the season and the following spring. The most noticeable signs of early leaf blight will be sporadic 'hot spots' of brown, dying ferns. Fields should be scouted on a regular basis, especially during periods of prolonged wet weather. Additional fungicide applications may be necessary beyond those for Purple spot and Rust control. Some of the fungicides used to control Purple Spot and Rust, such as chlorothalonil, Folicur, or mancozeb will be useful for leaf blight control on a 10 to 14 day schedule as long weather conditions are favorable for disease development.

Apply:

chlorothalonil--2.0 to 4.0 pt 6F/A or OLF

Folicur--4.0 to 6.0 fl oz 3.6F/A

mancozeb--2.0 lb 75DF/A or OLF