Asparagus and Rhubarb

Culture

Asparagus is a perennial that should produce for 15-20 years. Site selection should begin at least 1 year prior to planting in order to properly adjust soil pH and to eliminate serious perennial weeds. Select soils that are well drained and deep, such as sandy loams or well-drained loams. It is desirable to plant where asparagus has not been grown before in order to eliminate certain insect pests. However, this practice may not significantly reduce the incidence of fusarium root rot, because new fields are easily contaminated with the disease.

Rhubarb is a hardy perennial in which the petioles or stalks are used for pies, sauces or desserts. Old crowns or rootstocks are divided so that each has a few buds or eyes. Plants from seed take much longer to mature and are variable in growth and vigor.

Harvest 3-4 weeks the second year after planting and increase to 6-8 weeks as the crowns become mature in later years. Maintain healthy leaves on the plantings after the harvest season. Remove seedstalks as soon as they appear, because they remove energy from the crowns.

Varieties

Asparagus

Jersey General
Jersey Giant (56x22-8)
Jersey Knight
Jersey King
Jersey Supreme

Jersey Giant is an all-male hybrid (supermale) that has produced greater yields than standard varieties in 5-7 years of trials. These newer varieties are not resistant to fusarium crown rot, but tolerate the disease because of their enhanced vigor.

The newer varieties are not widely available. Ohio State University Extension offices can provide current information on sources. Growers should begin with trial plantings before committing themselves to large acreages.

Rhubarb

Canada Red (small, red, few seed stalks)
Ruby (small, red stalks)
MacDonald (pink, medium seed stalks)
Valentine (red, few seed stalks)
Victoria (green, many seed stalks)

Lime and Fertilizer

Maintain soil pH at 6.8-7.0. Asparagus does not tolerate acid soils. At planting, deeply incorporate lime to ensure proper pH at crown depth. Maintain a lime program after planting.

For new plantings in soils of average fertility, apply per acre 50 lb N, 250 lb P_2O_5, and 300 lb K_2O. Broadcast and disk in one-half this amount and sidedress the remainder at first cultivation. Apply 300 lb of 0-46-0 per acre in the furrow after furrows are opened. Toss crowns on top of fertilizer, then cover.

For established cutting beds, apply per acre 50 lb N, 100 lb P_2O_5 and 150 lb K_2O (nonhybrids), or 70-80 lb N, 150 lb P_2O_5 and 225 lb K_2O (new hybrids) broadcast before the cutting season. An additional application of N may be needed at end of harvest season if leaching occurred earlier. Apply 50 lb N per acre if needed in subsequent years after harvesting is completed.

Spacing and Seeding

Asparagus

Crowns: Plant only healthy 1-year-old crowns in furrows about 5-6 inches deep. Space crowns 18 inches apart in rows 5 ft apart. Cover crowns with 1-2 inches of soil as fern growth develops. Repeat until the furrow is filled. About 6,000 crowns are needed per acre. Do not drive over or compact the soil over the newly covered furrows.

Transplants: Fields also can be planted with asparagus seedlings that are 8-12 weeks old. Plant spacing is the same as for crowns.

Care must be taken in order to prevent the small young ferns from being smothered by soil, especially after heavy rain. This is done by making two small ditches along both sides of the seedling bed. After rains, the filled-in ditches can be cleaned out with two disk cultivators.

To start transplants, plant sterilized seeds in a sterilized media consisting of one-half sand and one-half peat, or a commercial seed-starting mix. Seed germination will take at least 3 weeks, so the soil must remain uniformly moist during this time. Presoaked and graded seed will speed germination and increase uniformity.

Young seedlings should be fertilized with quarter- or half-strength fertilizer solution for the first few weeks. The nitrogen should be at least 50%-75% in nitrate form, because young seedlings are sensitive to ammonia sources of nitrogen. A water-soluble fertilizer such as 15-15-15 should be selected over a ratio of 20-20-20.

Rhubarb

Rows: 4-5 ft apart.
In-row: crowns 3-4 ft apart.

Care of Young Beds

It is essential to maintain healthy fern growth during the first two growing seasons, especially during late summer and fall. Considerable food is stored in the young crowns during this time.

Weed control the first season can be accomplished by hand-hoeing and cultivation. These cultivations can be easily timed to coincide with weed flushes. Preemergence herbicides can be used during the second year.

Close attention must be paid to the insects and diseases that attack the young ferns. As ferns become large and full, late-season foliage diseases can cause premature death. This generally occurs during periods of very warm, humid weather. Fungicides should be applied to control early foliage decline.

Harvest

Spears may be cut the year after planting. The harvest period should not exceed 3 weeks. The harvest season is increased by 1-2 weeks each year, but should not exceed 6-8 weeks. Length of harvest season is determined by bed vigor and spear diameter. Harvesting should cease when 75% of the spears are less than 3/8 inch in diameter (pencil-sized).

Overcutting of the bed is a major cause of asparagus decline. Ferns in overcut beds do not have time to mature and store sufficient quantities of food in the crowns. Spears generally are cut at or below the soil line at a height of 7-9 inches. Many growers also snap spears at a length of 5-7 inches, giving a spear that is all usable with no trim-off waste.

Once the spears have been bunched or trimmed, they should be placed upright in shallow trays of water in order to maintain sugar content and tenderness.

Fern and Brush Removal

Mow brush in early spring before spear emergence. Disking injures crowns. If practical, complete removal of plant refuse from the field helps control pests such as asparagus leaf miner, whose pupae overwinter in old stalks. Apply approved preemergence herbicides directly over the shredded fern about 2-3 weeks before spear emergence.

Disease Control

Asparagus

Phytophthora Crown and Spear Rot

Apply **Ridomil Gold** EC 1 pt/A in a minimum of 10 gal water over beds. Apply to cutting bed 30-60 days prior to first harvest. See label directions (1 day-PHI).

Rust

Grow rust tolerant asparagus varieties such as the New Jersey hybrids. These include the hybrid cultivars Jersey General, Jersey Giant, Jersey King, Jersey Knight and Jersey Prince. These varieties are also Fusarium-tolerant.

Mancozeb 75DF 2 lb/A formulation (Dithane, Manzate, Penncozeb, Manex) at 10-day intervals until late August (post-harvest application only or to young plantings not for harvest); 180 days-PHI.

Nova 40W 5.0 oz/A (Postharvest) 14-day spray interval; 180 days-PHI.

Bravo Weather Stik 2-4 pts/A (Postharvest) at 14-28 day intervals; 190 days-PHI.

Rhubarb

Downy Mildew

When conditions are favorable for downy mildew development (high moisture, moderate temperature), **Aliette WDG** may be applied as a foliar spray according to label instructions at 3-5 lb/A on 7-21 day intervals (3 days-PHI). Do not tank mix with copper fungicides. Aliette may be alternated with Quadris at 12.3-15.4 fl oz/A.

Seed Rot, Damping-off, Seedling Blight

Seed treatment: Maxim 4FS may be applied to seed at 0.08-0.16 fl oz/100 lb seed.

Preplant: For control of seed rots, damping-off caused by Pythium or Phytophthora, **Ridomil Gold EC** may be applied at 1-2 pt/treated A, preplant incorporated or on the surface. **Ridomil Gold GR** may be applied at 20-40 lb/treated A.

Insect Control

Asparagus

See the table on the next page for overview of insecticides used to control asparagus pests.

• Bait treatment

Carbaryl (1 day-PHI)

For cutworms, armyworms.
Sevin 20B: 5-10 lb/A.
Sevin 5B; Sevin Bait Fine 5B: 15-25 lb/A banded; 30-40 lb/A broadcast.

• Foliar treatment, preharvest

Carbaryl (1 day-PHI)
For asparagus beetles.
Note: The repeated use of carbaryl may cause a buildup of aphids.
Carbaryl 4L; Sevin XLR Plus (4EC); Sevin 4F: 1-2 qt/A.
Sevin 80S: 1.25-2.5 lb/A.
Sevin 50WP: 2-4 lb/A.
Carbaryl 90DF: 1.1-2.25 lb/A.

Chlorpyrifos (1 day-PHI)
For asparagus beetles, cutworms, aphids.
Lorsban 75WG: 1.33 lb/A.
Lorsban 4EC, Warhawk 4EC, Yuma 4E: 2 pt/A. Limit 1 preharvest application per season.

Insecticides for Control of Asparagus Pests (✓ = labeled; - = not labeled)					
	Pre-harvest interval (days)	Cutworms	Asparagus beetles	Aphids	Plant bugs
carbaryl (Sevin)	1	✓	✓	-	-
chlorpyrifos (Lorsban)	1	✓	✓	✓	-
dimethoate	180	-	✓	✓	-
malathion	1	-	✓	✓	-
methomyl (Lannate)	1	✓	✓	-	-
permethrin (Ambush, Pounce)	1	✓	✓	-	✓
spinetoram (Radiant)	60	-	✓	-	-
spinosad (SpinTor)	60	-	✓	-	-

Malathion (1 day-PHI)
For asparagus beetles, aphids.
Malathion 5EC; Malathion 57EC: 1.5-2 pt/A.
Malathion 8EC: 0.5-1 pt/A.
Malathion 8 Aquamul: 1.25 pt/A.

Methomyl (1 day-PHI)
For asparagus beetles, variegated cutworm, white cutworm.
Limit 8 applications/crop.
Lannate 90SP: 0.5-1 lb/A.
Lannate LV (2.4WSL): 1.5-3 pt/A.

Permethrin (1 day-PHI)
For asparagus beetles, cutworms.
Pounce 3.2EC, Arctic 3.2EC, Permethrin 3.2EC: 2-4 fl oz/A. Limit 16 fl oz/A per season.
Ambush 25WP; Pounce 25WP: 3.2-6.4 oz/A. Limit 25 oz/A per season.

• Foliar treatment, postharvest

Carbaryl
For asparagus beetles.
Note: The repeated use of carbaryl may cause a buildup of aphids.
Carbaryl 90DF: 2.25-4.5 lb/A.
Carbaryl 4L; Sevin XLR Plus (4EC); Sevin 4F: 2-4 qt/A.
Sevin 80S: 2.5-5 lb/A.
Sevin 50WP: 4-8 lb/A.

Chlorpyrifos
For asparagus beetle, aphids.
Lorsban 4EC, Warhawk 4EC, Yuma 4E: 2 pt/A. Limit 2 postharvest applications per season.

Dimethoate (180 days-PHI)
For aphids and asparagus beetles.
Dimethoate 400 (4EC): 1 pt/A. Limit 5 pt/A per year.
Dimethoate 2.67EC: 1.5 pt/A. Limit 7.5 pt/A per year.

Permethrin
For asparagus beetles, plant bugs.
Pounce 3.2EC, Arctic 3.2EC, Permethrin 3.2EC: 4 fl oz/A.
Ambush 25WP; Pounce 25WP: 6.4 oz/A.

Spinetoram (60 days-PHI)
For asparagus beetles.
Radiant 1SC: 4-8 fl oz/A. Limit 3 applications per crop.

Spinosad (60 days-PHI)
For asparagus beetle. Use post-harvest only.
SpinTor 2SC: 4-6 oz/A. Limit 18 fl oz/A per crop.
Entrust (80WP): 1.25-2 oz/A.

Rhubarb

Rhubarb is not often attacked by insect pests that can be controlled by insecticides. The only important pest is the rhubarb curculio, which is managed by removing its alternate host, curly dock, from the vicinity of the rhubarb. Due to the recent trend of insecticide registrations by crop group, there is now a long list of insecticides that are registered for use on rhubarb because it is a member of the Leafy Vegetable crop group. The following insecticides are registered but these should be rarely, if ever, needed on rhubarb. For information on rates and pre-harvest intervals, see the listings in the Lettuce chapter.

Acetamiprid (Assail)
Cyromazine (Trigard)
Dinotefuran (Venom)
Emamectin benzoate (Proclaim)
Flonicamid (Beleaf)
Imidacloprid (Admire)
Indoxacarb (Avaunt)
Malathion
Methoxyfenozide (Intrepid)
Permethrin (Pounce)
Pymetrozine (Fulfill)
Spinetoram (Radiant)
Spinosad (SpinTor, Entrust)
Spiromesifen (Oberon)
Tebufenozide (Confirm)
Thiamethoxam (Actara)
Thiodicarb (Larvin)
Zeta-cypermethrin (Mustang)

Weed Control

Asparagus

Direct Seeded or Newly Planted Crowns

Preemergence

Lorox DF: Controls annual broadleaf weeds. While seeding 0.5-1 inch deep (depending on soil type), apply a 1 inch-wide band of activated charcoal at 300 lbs/A on the soil surface directly over the seeded row. Following application of activated charcoal apply Lorox at 2-4 lbs/A.

Postemergence

Lorox DF: Controls annual broadleaf weeds. Apply Lorox at 1-2 lbs/A when asparagus ferns are 6-18 inches and before weeds exceed 3 inches.

SelectMax: For control of annual or perennial grasses, apply 9-16 fl oz/A plus non-ionic surfactant at 0.25% of final volume. Repeat applications can be made at 14-day intervals for maximum allowed use per season of 64 fl oz/A. Pre-harvest interval is 1 day.

On established beds

Gramoxone Extra: Controls annual weeds and top growth of perennial weeds. Apply 2 to 3 pt/A, Gramoxone Extra to emerged weeds just prior to crop emergence or after last harvest. Will kill annual weeds that have emerged at time of application.

Diuron: Products containing diuron control annual broadleaf weeds and grasses. Apply one-half of the recommended rate before harvest and one-half after harvest. The full label rate can also be applied either before or after harvest.
Direx 4L, Drexel Diuron 4L, Riverside Diuron 4L: 1-3 pt/A.
Direx 80DF, Drexel Diuron 80, Riverside Diuron 80DF, Wilbur Ellis Diuron DF, Karmex DF: 1-2 lb/A.

Metribuzin: Products containing metribuzin control annual broadleaf weeds and grasses. Apply metribuzin before harvest and after harvest, but before spears emerge (14 days-PHI).
Lexone DF, Sencor DF, Sencor Solupak: 1.33-2.66 lb/A.
Sencor 4: 2-4 pt/A.

Roundup Ultra (glyphosate—other formulations and brands may be labelled): Apply 1.5-3.0 qt/A, to actively growing weeds at least 7 days before first harvest or immediately after last harvest. Controls all plant growth to which it is applied.

Formula 40 (2,4-D): Controls emerged annual and perennial broadleaf weeds. Apply 3-4 pt/A, amine form either pre-emergence or directed postemergence.

Devrinol 50W: Controls germinating annual grasses and some broadleaf weeds. Apply 8 lb/A before weeds emerge. Can be mixed with Lexone/Sencor or Karmex for better broadleaf control. Incorporate slightly or irrigate to activate.

Fusilade DX: Controls emerged annual and perennial grasses. Apply 0.5-1.5 pt/A. Rate is dependent upon species and stage of growth. Combine with 1% crop oil concentrate (1 gal oil/100 gal spray solution) or use a non-ionic surfactant. Apply to actively growing grasses 2-8 inches tall (1 day-PHI). Multiple applications permitted up to 3 pt/A/season and no more than 1.5 pt/A in any one application.

Poast: Controls emerged annual and perennial grasses. Apply 0.75 pt-2.5 pt/A (1 day-PHI). Do not exceed 5 pt/A/season. Add 1 qt/A nonphytotoxic oil concentrate. Allow 14 days between applications. Rate is dependent on grass species and time of application. See label for precise timing.

Sinbar 80W: Controls annual and perennial weeds. Use 1.5 lb/A on sandy soils and up to 2.5 lb/A on heavier soils. Do not plant other crops within 2 years of last application of Sinbar (5 days-PHI).

Preemergence

Lorox DF: Controls annual broadleaf weeds. Apply Lorox at 2-4 lbs/A.

Solicam DF: Apply 2.5-5.0 lbs/A (depending on soil type) in spring to beds that have been established at least 1 year. Solicam may be tank-mixed with other herbicides (check label). Solicam must be applied prior to weed emergence (14 days-PHI).

Postemergence

Clarity: Apply 0.5-1.0 pt/A in 40-60 gallons of water per treated acre, immediately after harvest to control Canada thistle and annual broadleaf weeds. Use the 1 pint rate for chickweed and field bindweed. Multiple applications per year are permissible provided the total applied does not exceed 1 pt/A (24 hours-PHI).

Lorox DF: Controls annual broadleaf weeds. Apply Lorox at 1-2 lbs/A before weeds exceed 4 inches. Apply before cutting season or immediately after cutting (1 day-PHI).

Sandea: For control of yellow nutsedge (3-5 leaf stage) and some broadleaf weeds, apply a single application of 0.5-1 oz/A to transplanted crowns and established beds during (1 day PHI) or after harvest. Good spray coverage is required. Contact with the fern may cause temporary yellowing. Two applications and a total of 2 oz/A is allowed/12 month period. Always include a nonionic surfactant (minimum 80% active ingredient) at 1-2 quarts/100 g spray mixture. Crop oil concentrate and silicone-based adjuvants are not recommended. For first year transplants, apply no sooner than 6 weeks after fern emergence.

SelectMax: For control of annual or perennial grasses, apply 9-16 fl oz/A plus non-ionic surfactant at 0.25% of final volume. Repeat applications can be made at 14-day intervals for maximum allowed use per season of 64 fl oz/A. Pre-harvest interval is 1 day.

Rhubarb

Select 2E: Apply 6-8 fl oz/A to emerged grasses. Include COC at 1 qt/A (30 days-PHI).

Poast 1.5E: Apply 1.0-1.5 pt/A to actively growing grasses. Include COC at 1 qt/A (15 days-PHI).

Gramoxone Max 3L: Apply 1.5-2.7 pt/A in fall when rhubarb is dormant. Include NIS at 1 pt/A. ***Fall application only***.