



Asparagus

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Fertilization

Production: 1,300 pounds per acre average yield; good yield is 2,000 pounds per acre; exceptional yield is 4,000 pounds per acre.

Use: 94% of the asparagus produced in Michigan is processed; 6% is sold on fresh markets.

Recommended Varieties: Mary Washington, Mary Washington 500W, Viking, Waltham Washington.

Climatic Requirements

Asparagus is a temperate, perennial crop that grows well in all parts of Michigan. However, spring frosts occurring after spears have emerged will destroy the spears and delay subsequent spear development. Therefore, for best production, avoid planting asparagus in areas that are especially susceptible to frosts, such as low-lying swamps. Areas along the Great Lakes are especially well suited to asparagus production because of the modifying effects of the lakes on the environment.

Soil Requirements

Asparagus grows well on many types of soil. Well drained sands and sandy loams with good moisture-holding capacity are ideal. Asparagus grows well on muck, but there is an increased danger of spring frost in muck swamps. Good drainage is a primary requirement. Adjust the pH to as near 6.8 as possible since asparagus does not tolerate acid soil well. It does tolerate alkaline soils and high salt levels fairly well. Do not plant asparagus on steep slopes. Heavy rains will erode top soil and expose crowns. The problem is especially serious during the year when crowns are planted and the furrows are left partially open.

Crown nursery: Soil that is to be used for crown production should have available at least 200 pounds actual P and 300 pounds actual K per acre. If a soil test is not available, plow down in the spring before seeding: 1,000 pounds 8-32-16 per acre (80 pounds N, 320 pounds P_2O_5 , and 160 pounds K_2O). When asparagus plants are 6 to 8 inches high, sidedress with 30 pounds N per acre. Use a low acid fertilizer, such as calcium nitrate, if available.

New asparagus fields: Fields in which asparagus is to be planted should be prepared a year in advance. Test soils before planting to determine levels of P, K, and pH. Apply lime to bring the pH up to 6.8 and plant a cover crop. If manure is available, apply 15 tons per acre before planting the cover crop. Perennial weeds must be eradicated before planting asparagus. Do not replant asparagus in old asparagus fields to avoid disease and other toxicity problems.

At least 150 pounds of actual P and 300 pounds actual K should be available in the soil before planting. Apply enough P_2O_5 and K_2O to bring levels up to these amounts. The fertilizer should be broadcast over the cover crop in the spring and plowed down. If soil tests are not available, plow down 1,000 pounds 8-32-16 plus 300 pounds 0-0-60 per acre (80 pounds N, 320 pounds P_2O_5 , and 340 pounds K_2O). Apply 70 pounds P_2O_5 in the bottom of the furrow below crowns at time of planting. No additional P is needed for the life of the crop. Sidedress with 30 pounds N per acre the first year, when the fern is 6 to 8 inches tall. In succeeding years, apply 50 pounds N per acre after completion of harvest.

Broadcast 60 pounds K_2O per acre the year after planting and alternate years thereafter when harvest is completed.

Spacing and Planting

Crown nursery: Establish a crown nursery on land that has never had asparagus on it before, to avoid *Fusarium* rot. Asparagus seeds are planted about May 15 in rows 1.5 to 2 feet apart with 6 to 8 seeds per foot of row, 1 to 1.5 inches deep. One to two pounds of seed will produce enough good crowns for one acre. One acre in the nursery will require 5 to 7 pounds of seed, and will produce enough large crowns for 5 to 6 acres. Dig crowns as early as possible in the spring, while they are dormant. Avoid prolonged storage as it will weaken the crowns.

Field: Plant large 1-year old, disease-free crowns in rows 4 to 5 feet apart. Crowns should be about 1 foot apart in the row. This will require about 10,000 crowns per acre. Place the crowns at the bottom of a furrow 8 to 10 inches deep and cover with 1 to 2 inches of soil. As the fern grows, cultivate the rows to cover the weeds and fill in the furrows. Be careful not to cover the fern. Plant crowns in the spring while they are dormant.

Harvest

The majority of Michigan asparagus is snapped by hand (includes use of "picking aids") and only a small amount is harvested by machine. Do not harvest asparagus the year the crowns are set, or the following year. The asparagus can be picked for 2 or 3 weeks the third year. In the fourth and succeeding years, the asparagus can be picked for 6 weeks. Snap asparagus at ground level when the spears are 7 to 10 inches high, before the tips begin to open.

Postharvest

Allow the fern to grow until killed by frost. The longer the fern stays green, the more carbo-

hydrate that will be moved to the roots, and the greater production will be in following years. Fern should be left standing over winter to collect snow and help protect crowns from frost. It can be mowed or cultivated in the spring before spears begin to emerge. It is very important to maintain a cultivation depth of 2 inches or less so that crowns and emerging spears are not injured. Under no-tillage systems, it is preferable to mow the fern 8 to 12 inches above ground in the fall, after it has been killed by frost.

Pests

For vigorous growth and good production, it is essential to control all types of pests in asparagus. Weeds, especially grasses, give strong competition for water and nutrients. Perennials such as quackgrass, Canada thistle, milkweed, and perennial smartweed are especially troublesome. Insects can cause substantial reductions in yield, and must be controlled. Cutworms appear early in the spring and feed on the tips of emerging spears. The common and spotted asparagus beetles appear in the spring and will quickly defoliate the crops if not controlled. Beetle eggs on the spears lower asparagus quality at the processors. The alfalfa plant bug is a serious pest in late summer and fall.

Rust is the most common foliar disease of asparagus. *Fusarium* root and crown rots cause reduced stands and yields, and kill many plants. To avoid *Fusarium* rot, plant non-infected crowns in land that has not had asparagus previously.

Since pesticide registrations and regulations are constantly changing, see the latest editions of MSU Extension Bulletins 433, "Weed Control Guide for Vegetable Crops" and 312 "Control of Insects, Diseases and Nematodes on Commercial Vegetables" for current pest control recommendations.