

Asparagus

Cultivars

Contact Manitoba Agriculture and Food's Vegetable Specialist for variety recommendation.

Field Selection and Preparation

Asparagus is a long-term vegetable crop that should produce viable yields for 15 or more years. Therefore, thorough planning is essential for success.

Field selection and preparation are important for long-term production. Plant only into well-drained sandy or sandy loam soil free of perennial weeds and grasses. Soil testing is highly recommended to determine fertility levels and pH before transplanting. Ideal soil pH should range between 6.0 and 6.8. If possible, seed a green-manure crop the year before transplanting to increase soil organic matter. Livestock manure can also be used.

Avoid planting asparagus into fields that have previously grown asparagus. Asparagus yields decline over time due to two important *Fusarium* diseases that are commonly found in asparagus soils.

Fusarium oxysporum is found in all soils, all the time, so its presence cannot be avoided. However, the concentration or level of this disease will increase in soils where asparagus plants become infected. Once an asparagus field has been taken out of production, it usually takes about five years for the disease level to decrease to its "normal" or base concentration.

Fusarium moniliforme is a soil-borne fungus that can infect both asparagus and corn. Avoid planting asparagus in fields where corn has been grown in the previous three years.

Growing Seedlings (Nursery Stock)

Soak seeding seed in approximately 32°C water for 3-4 days. Dry and sow immediately in fertile, well-prepared soil. Date of seeding is about mid-May or once the ground is prepared and warm enough for seedlings. One kilogram of good seed should provide enough crowns to plant 1 ha (0.89

lb/ac). To allow for selection of strong plants, plan to grow more plants than is needed.

Row spacing: 18 – 24 inch (45 – 60 cm)

In-Row spacing: 3 – 4 inches (8 – 10 cm)

Depth: 1 – 1.5 inch (2.5 – 4 cm)

Rate: Approx. 10 lb of seed/ac

Transplanting and Spacing

In the early spring following seeding, dig the year-old plants and select those which have at least 10 roots, or greater than 0.70 ounce in weight.

Choose fertile land that is well drained. For transplanting, open a furrow 6 to 8 inch (15 to 20 cm) deep. Space plants 12 to 18 inch (30 to 45 cm) apart in row 4 to 5 ft (120 to 150 cm) apart.

Spread the roots and cover with soil, level with the surrounding soil surface and firm with packing wheels.

Fertilizer

Refer to Tables 1 through 9 for this crop. For general recommendations in the absence of a soil test, refer to Table 10 in the fertility section.

Irrigation

In new plantings and when required in well established plantings, apply 1 inch (2.5 cm) water every 10 days during harvest if an equal amount of rain is not received. To develop healthy, vigorous roots for the following year's crop, apply 2 inches (5 cm) water after harvest and 1 inch (2.5 cm) water toward the end of the growing season.

Disposal of Fern

Clip asparagus fern in the fall, leaving 6-7.8 inches (15 – 20 cm) of stubble to catch drifting snow for better crown protection. The stubble can be cut up with a rotary or flail-type mower in early spring.

The fern contributes organic matter to the soil and helps to prevent early-season wind erosion. Avoid unnecessary tillage and use zero tillage practices

where possible. Excessive and deep tillage can injure crowns, which can increase Fusarium infection and reduce yields.

Fall-seeded cover crops help maintain soil organic matter, while preventing both water and wind erosion. Broadcast 1.5 bu/ac of rye in late August to mid-September. Apply a burn-down herbicide in the spring.

Pest Management

Diseases

Rust

All commercial cultivars are susceptible to rust. However, some varieties do have moderate levels of rust resistance. Disease control is achieved only with thorough spray coverage on a regular preventative schedule. This spray must protect new foliage as it grows, before rust spores can land on the foliage and germinate.

Start spraying new, non-harvested plantings as soon as growth is about 12 inches high (30 cm). For harvested plantings, begin spraying as soon as fern growth commences after harvest is complete.

A

7 to 10 day schedule is essential until at least late August to protect the fern growth. A high-boy sprayer with drop arms and three nozzles/row is needed for full spray coverage. Spray with one of the recommended fungicides. Rotate between chemical groups to prevent the development of resistance.

Crown Rots

Avoid replanting on land that previously grew asparagus. Otherwise, fumigate the soil before planting. Consult the manufacturer's directions. Follow all safety precautions.

Use only healthy, vigorous one-year-old crowns for transplanting. Vigorously growing asparagus plants are less susceptible to crown rots. Care should be taken to avoid stressful growing conditions caused by overpicking, pest pressure, weed competition, soil compaction and low fertility.

Insects

Asparagus Beetle

Asparagus beetles cause most damage in Manitoba in early spring to developing spears. Larvae feed inside berries and can affect seed production. Later season populations less damaging. Populations fluctuate from year to year. Since there are several generations of these beetles, they are a constant threat throughout the season. If monitoring indicates a need, spray with one of the registered pesticides.

Cutworms

Both climbing cutworms and common cutworms (eg. Redback) can affect asparagus. In Manitoba, common cutworms tend to be a problem in the spring, climbing cutworms later in the season. Control measures are best applied in the evening to be most effective.

Most cutworms hide in the soil during the day and emerge to feed at night. Chemical controls are most effective if applied to moist soil in the early evening. Apply one of the registered pesticides at the first sign of cutworm feeding.

Physiological Disorders

Hollow Stem

This problem tends to be more prevalent in young spears during periods of warm, wet weather resulting in very rapid spear growth. Seasons with moderate temperatures and even growth will result in a low incidence of hollow stems. Although this problem does not affect the eating quality of the spear, some may find its appearance objectionable.

Weeds

Competition from weeds can reduce yield and also make harvesting more difficult. For recommended herbicides refer to the *Guide to Vegetable Crop Protection 2003*.

Harvest and Storage

Healthy asparagus plantings can be harvested for about 10 - 14 days at the beginning of the third season after field setting. For example, if the field is

set in the spring of 2002, the first limited harvest would be in the spring of 2004. The harvest season is increased by one to two weeks per year.

The length of the harvest season is determined by plant vigour and spear size. Stop harvesting when 75% of the spears are smaller than 3/8 inch (1 cm) in diameter. As a general rule, do not extend the harvest period beyond six weeks. If weeds, insects, disease or adverse weather conditions reduced plant vigour in the previous season, reduce the harvest duration.

The spears should be cut 1/2 inch (12 mm) below the soil with a sharp knife when they are 5 to 8 inches (12 to 20 cm) long.

An average harvest should be in the range of about 89 lb/ac per picking. With an average of 30 harvest days/season (for fully mature plantings), economic yields should be about 2,670 lb/ac.

Freshly harvested asparagus are very perishable and lose quality rapidly. Collect harvested spears as soon as possible, protect them from the sun, and move them to cold storage or market as quickly as possible. If short term storage is necessary, store under high humidity (95 - 100%) at 0° to 2°C.

In Manitoba, a well tended asparagus bed can remain productive in excess of 20 years.