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## **GROWING ASPARAGUS FOR THE CANNING FACTORY**

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The consumption of both fresh and canned asparagus has significantly increased during the past few years. This increase is probably due, in part at least, to the nutrition experimental work which has demonstrated the food value of green asparagus. At certain seasons of the year, it is almost impossible to get fresh green asparagus that has not been in transit for several days. For this reason, the public is buying canned green asparagus which has been put in the can within a few hours after cutting. According to figures given out by the U. S. Department of Commerce, the per capita consumption of canned asparagus has increased from 0.48 pounds in 1922 to 0.90 pounds in 1927. The per capita consumption of fresh asparagus has increased only from 0.40 pounds in 1922 to 0.70 pounds in 1927.

The purpose of this bulletin is not to encourage further planting of asparagus but to improve the quality and increase the percentage that will grade U. S. No. 1 large, spears three-quarters of an inch and up when measured not more than eight inches from the tip. Asparagus is bought by the canners on a graded basis and mediocre and poor quality "grass" will not be accepted. The average acre yield in Michigan from 1918 to 1930 was 1680 pounds, and the price paid by the canner during 1931 was from three to six cents a pound for trimmed, graded marketable asparagus. A rather high percentage of the total yield of many asparagus plantations was not marketable "grass." In order to make asparagus growing profitable at these low prices, it is essential that those practices which will lead to the production of the highest percentage of high grade fancy grass be followed.

### **Soils and Soil Types**

Asparagus demands a deep, friable, and well drained soil. When grown as a market garden crop the sandy types are preferred because they produce an early crop, and these types can also be used for the canning crop. The heavier loam types are likely to be more profitable



provided they contain sufficient organic matter. The plantation is more or less permanent and care should be taken to select the proper soil and location. Asparagus roots will not tolerate submergence in water for any considerable length of time; therefore the soil should be well drained to a depth of at least three to four feet. Heavy clay soils and very light sandy soils with a gravel subsoil should be avoided.

Asparagus soils should not be acid, but neutral in reaction. This crop is highly tolerant of sodium salts but these salts are not necessary for successful growth. All soils which are to be planted to asparagus should be tested by the County Agricultural Agent or by the Soils Department at Michigan State College and their "liming" recommendations should be followed.

### **Propagation**

The small plantation is usually started by planting strong No. 1 one-year old crowns or roots. For the small grower, it is cheaper to buy crowns from a reliable seedsman or from a special grower than to grow them himself. When buying crowns, order more than is actually needed so that proper size crowns can be selected. No. 1 crowns should be large and should contain a large number of fleshy roots and good buds. Experimental work in Pennsylvania has shown that the yield from small crowns is much below that of the large No. 1 crowns. The "spears" are produced from the underground stems and the necessary food for this production is stored up in the fleshy roots. It can readily be seen then that root pruning at planting time would cause the loss of part of the food supply. The larger the crown, provided that the roots are not hopelessly entangled, the greater the potential food supply and hence greater growth during the first and subsequent years. Two-year old crowns are likely to be a mass of entangled roots and, if so, should not be used for planting.

### **Planting**

Asparagus crowns, which are grown for "green grass," are usually planted in rows four to five feet apart and from 18 to 30 inches apart in the row. The closer spacings will give slightly higher yields the first few years of cutting but the wider spacings will give larger average returns over the life of the plantation. Five-foot rows will allow sufficient room for cultivation and for discing in of the tops. The number of crowns needed per acre for the different planting distances are as follows: 5 feet by 18 inches = 5808, 5 feet by 24 inches = 4356, 5 feet by 30 inches = 3485 crowns. The depth of planting depends upon the type of soil. The crowns are usually planted eight inches deep in sandy soils, six inches in sandy loams, and about four to five inches in heavy loams and silts.

The furrows should be plowed out in the early spring and the crowns placed in the bottom of the furrow with the roots well spread out. The soil should be worked well in around the roots and then the furrow partly filled so as to cover the crowns about two inches deep. Do not completely fill the furrow as the roots will be smothered. The filling should be done gradually during the growing season by the subsequent cultivations.



### Varieties

The Mary Washington variety is recommended for commercial plantings in Michigan. This variety is highly resistant to asparagus rust. Though Mary Washington is not as highly resistant to rust as some of the other Washington strains, it is a much better commercial variety. Mary Washington produces "spears" which are larger and which are more uniform in size, shape, and color, than the other Washington strains. Palmetto is very productive but it is not as resistant to rust as Mary Washington.

### Manures and Fertilizers

Asparagus is a heavy feeder, and successful long-lived plantations depend largely on the fertilizer management methods followed. Since the plantation is more or less permanent, organic matter should be supplied before planting. The light soils should be given an application of 10 to 15 tons and the heavier soils 8 to 10 tons of manure the fall preceding planting. This application will supply organic matter, improve the texture and water holding capacity of the soil, and will add some plant nutrients. No additional fertilizers should be required until the third season. The tops, however, should be disced under each winter rather than burned off. A light application of manure could be worked in with the tops the second winter.

After the short cutting period during the third season, an application of 200 to 300 pounds of nitrate of soda or sulphate of ammonia should be applied as a side dressing. This is done in order to get a heavy top growth. The above ground part of the plant manufactures and stores up plant food in the fleshy roots for the next season's cutting.

In the late winter or early spring of the fourth season, and in subsequent years, an application of 400 to 600 pounds of a 4-12-8 fertilizer on light soils or 4-16-4 on heavier soils should be applied and disced in with the tops before growth starts. The nitrogen in the complete fertilizer should preferably be in the form of nitrate of soda. Side dressings of 200 to 300 pounds of sulphate of ammonia on the lighter soils and of 100 to 250 pounds on the heavier soils should be applied after the cutting period each year in addition to the spring applications.

### Cultivation

Thorough cultivation in the asparagus plantation is essential for weed control. It is during the first few years that the greatest amount of cultivation can and should be practiced. It is during this time that thorough cultivation in both directions can be practiced without injury to the crowns. Weeds can readily be kept under control during later years if special attention is given to their control and eradication during the earlier life of the plantation.

As soon as the ground can be worked in the spring, the tops should be disced under. The manure or commercial fertilizer should then be applied and the entire plantation disced and harrowed thoroughly in both directions.

Weeds should be kept under control after the cutting season in order to allow the tops to make their maximum growth. Weeds rob the soil of moisture and nutrients needed by the crop.



### Harvesting

During the first two years, no shoots should be cut. During the third season, the cutting period should extend not over two or three weeks, whereas, during the later years the cutting season will extend over six to eight weeks. Green asparagus is cut when the "spears" are six to eight inches above ground. A special knife is pushed down vertically beside the shoot and the knife is given a twist. Harvesting should be done carefully so as not to injure the crown or buds on the rhizomes.

The freshly cut "grass" should be placed in lug boxes and immediately hauled to the canning factory.

### Diseases and Insects

#### Asparagus Rust:

This is the only asparagus disease of any consequence in the State. It can be largely avoided by planting the resistant Mary Washington variety.

#### Beetles:

The common asparagus beetle is the most serious pest of asparagus, but occasionally the 12-spotted beetle is also found. The Entomology Department at Michigan State College advocates the following control measures: Leave some young shoots in parts of several rows during the spring for a trap crop. The beetles will lay their eggs upon these shoots and they should be cut and burned, before they are a week old, in order to destroy the eggs. When the cutting season is over, the whole plantation should be sprayed or dusted with an arsenical poison. Late in the fall all rubbish on and about the plantation and along the fence rows should be burned to kill the hibernating beetles. Fresh hydrated lime applied along the rows in early spring will kill the young larvae. For complete descriptions and control methods, write for Michigan Special Bulletin 183.