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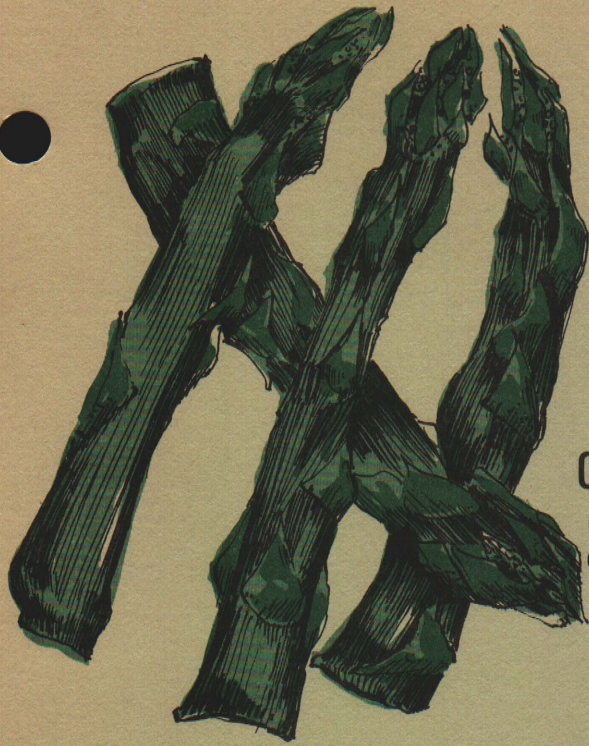
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Clark Nicklow and John Downes, Department of Horticulture  
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## Commercial Production of ASPARAGUS in MICHIGAN

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COOPERATIVE EXTENSION SERVICE • MICHIGAN STATE UNIVERSITY

BY CLARK NICKLOW AND JOHN DOWNES  
*Department of Horticulture*

ASPARAGUS IS ONE OF THE EARLIEST of spring vegetables, and it was worth about \$2.8 million in Michigan in 1966. Michigan ranks fourth among the asparagus producing states, and second in its seasonal group.

Asparagus acreage in Michigan increased from 4,200 acres in 1945 to 11,000 acres in 1955. Since 1955, acreage has been maintained at a fairly constant level. Asparagus is grown in all of the lower peninsula, 80 percent of the state's production being from Berrien, Van Buren, and Oceana Counties. Spring frosts, which are more frequent in the northern part of the state, reduce yields considerably. Michigan

harvests asparagus from late April or early May to mid or late June.

Asparagus is a perennial crop and may remain productive for 20 years or more. For many plantings, however, spear size begins to decrease after 12 to 15 years. Growers who wish to remain in the asparagus business may need to start new plantings about every 5 years. Plowout and replace only those plantings in which spear size and yield are declining to unprofitable levels. A planting should produce 3,000 pounds or more of snapped asparagus during its most productive period. The average yield of snapped asparagus in 1962 was 1,500 pounds per acre.

### ASPARAGUS PRODUCTION — U.S.A.

States	Seasonal group	Acres harvested		Yield per acre		Value	
		x1,000 Ave. '58-62	'66	Cwt. Ave. '58-62	'66	Million dollars Ave. '58-62	'66
California	Early Spring	72.0	51.9	27	33	23.5	30.4
New Jersey	Late Spring	30.6	25.7	24	23	8.7	10.3
Washington	Mid Spring	15.7	16.5	27	30	4.7	7.8
Michigan	Late Spring	10.9	11.9	15	14	2.1	2.8
Illinois	Late Spring	9.9	10.0	16	16	1.7	2.1
U.S. Total		153.7	130.7	24	26	44.2	58.5

\*Source U.S.D.A. AMS Vegetables — 1966 (Preliminary)



Asparagus yield is dependent on the amount of materials that have been stored in the root system as a result of the previous season's fern growth. The longer the fern is able to carry on photosynthesis, the greater the amount of nutrients stored in the root system. Harvesting asparagus for too long a period reduces the time available for fern growth, and spears may become less vigorous and more spindling each year.

### GROW RUST-RESISTANT VARIETIES

No available asparagus variety is immune to rust. However, Mary Washington, Martha Washington, and some related strains are resistant or are tolerant of it. Trials in Michigan have not shown any great difference in yield between these varieties. Asparagus seed appears to be scarce. Any of the following varieties are suggested:

- Mary Washington 500,
- Mary Washington 500W,
- Mary Washington,
- Roberts Super Strain,
- Waltham Washington,
- California 309,
- California 711.

New Jersey Asparagus Council has begun a program of mass selection in an attempt to develop superior asparagus seed. Seed from this program is now available to Michigan growers. Michigan processors have supported a similar program in western and southwestern Michigan. Seed should be available within a year or two from this program as well.

Recently, California growers have been planting California 66 and California 72, selections out of California 711 and closely resembling it. Both have shown more tolerance to Fusarium wilt, a disease that

has been of real concern in recent years, especially in some areas of Michigan during 1966. This seed is now available to Michigan growers also. California 66 has been reported to be slightly earlier than California 72, but not enough yield data has yet been reported to verify this. The Vineland Station in Canada tested these two lines for tolerance to Fusarium wilt and they proved to be more resistant than commercial lines now available.

### GROWING YOUR OWN ASPARAGUS CROWNS

For small plantings, it is perhaps best to buy 1-year-old crowns from a reliable grower or nurseryman. It may be to the grower's advantage to grow his own crowns if a large acreage is to be planted.

#### Site

Do not plant your nursery near or on land following an established asparagus bed. Fusarium wilt may build up in older plantings, and young seedlings may serve as a source of rust infection.

#### Soil

Use a light, friable soil on which a cultivated, or green manure crop was grown the previous year. Light, sandy loam soils well supplied with organic matter and muck soils are most satisfactory for growing crowns, for crowns may be dug with a minimum of injury. Seed germination is likely to be better if the soil is worked until it is free from clods.

#### Fertilizer

A desirable pH for asparagus is the range of 6.0 to 6.8. The nutrient requirements vary with the type of soil and previous fertilizer practice. The soil should be tested. The quantities of  $P_2O_5$  and  $K_2O$  recommended per acre are given in Table 1.

Table 1. — Fertilization for growing your own crowns. Pounds of  $P_2O_5$  and  $K_2O$  recommended per acre for different soil types in relation to the phosphorus and potassium soil test results.

Phosphorous soil test Pounds per acre	Pounds $P_2O_5$ per acre recommended*		Potassium soil test Pounds per acre	Pounds $K_2O$ per acre recommended*	
	Sandy soils	Muck soils		Sandy soils	Muck soils
0-19	150	200	Less than 60	150	350
20-39	100	150	60-99	100	275
40-69	75	100	100-149	75	200
70-99	50	75	150-199	50	150
100+	25	50	200-249	25	100
			250+	0	75

\*Multiply pounds  $P_2O_5$  by 0.44 to obtain pounds of P and multiply pounds  $K_2O$  by 0.83 to obtain pounds K.



Apply 20 to 30 pounds of nitrogen per acre with the phosphorus and potassium recommended in Table 1. All of this fertilizer should be worked into the soil before seeding. See Extension Bulletin E-550 for more details.

#### Time and Rate of Seeding

Sow the seed about corn-planting time (mid May in Michigan) in rows 1½ to 2 feet apart, depending upon the type of tillage implements used. Seed 3 to 5 pounds per acre at a depth of 3 inches on light muck and 1 to 1½ inches on sandy loam. The aim is to plant no deeper than necessary to provide adequate moisture for germination. This rate of seeding should drop 10 to 12 seeds per foot. Asparagus seed is slow to germinate; it often requires 4 to 6 weeks for the plants to appear above the ground.

#### Weed Control

To control weeds in a seedling asparagus nursery, apply **linuron** or **diuron** at 1 pound of active ingredient per acre after seeding. Weed control will be more effective if irrigation is used on dry soils. Linuron or diuron may be applied in a band over the row in order to reduce cost of chemical weed control. Double the rate on muck soils. Weeds should be controlled, as they draw heavily on needed soil moisture. If cultivation is required, it should be shallow, especially late in the season, to prevent injury to the developing roots. **Caution:** Do not use these herbicides on very sandy soils.

#### Sidedressing

Sidedress 30 to 50 pounds of nitrogen per acre when the plants are about 4 inches high. This is especially important if periods of high rainfall occur after seeding.

#### Handling Crowns

Crowns in Michigan should be dug in the spring, just prior to setting in the field but before growth of the buds has begun. Crowns should be planted as soon after they are dug as possible. Old tops should be cut and removed so as not to interfere with digging the crowns. A potato digger or a common moldboard plow can be used to lift the plants from the nursery row. Avoid injury to the roots.

When it is necessary to keep the crowns for a period before setting them in the field, they should be stored in a moderately dry, protected place at a temperature near 40 degrees F. Crowns can become over-heated if they are stored in a large mass. Extreme drying of the crowns should be avoided. Severe injury, or even complete loss, can occur if the crowns

are allowed to freeze. Grade the crowns critically, planting the large, uniform crowns with well-formed buds separately from the smaller crowns. Small crowns may be the result of competition in the nursery rather than genetic inferiority. Take care to completely separate the smaller ones which may mat together. Discard very small or injured crowns and those having many small buds as they tend to produce a high percentage of small spears. Uniformity of your bed is improved by planting crowns of uniform size.

### ESTABLISHING AN ASPARAGUS BED

#### Eliminate Quackgrass

Eliminate the quackgrass prior to planting by using chemicals with a fallowing or clean cultivation system.

Apply dalapon at 15 to 20 pounds (active) per acre in spring or fall, or amitrole-T at 2 to 4 pounds (active) per acre in fall when the grass is about 6 to 12 inches high. Plow after 1 week and work the soil as usual to prepare the site for planting. Do not seed any crop or set any crowns for at least 1 month after plowing down the dalapon-sprayed grass. Fall treatment is particularly effective for areas to be planted to asparagus the following spring.

#### Soils and Site

Deep, fertile loam or sandy loam soils with good water and air drainage are best, but good production is also possible on loamy sands and mucks. In asparagus production it is important to develop an extensive storage root system; therefore, good soil drainage is essential.

Very light sandy soils having a highly porous subsoil should be avoided. The moisture-holding capacity of such soils is too low for profitable asparagus production. Heavy or compacted soils can result in low yields and a large proportion of misshapen spears. Asparagus planting is fairly permanent, justifying any management practice that builds up the soil before the crowns are set.

#### Building Up the Soil

Since it is difficult to improve soil structure after the crowns are planted, soil improving practices must be started at least a year before planting. Determine the pH of the soil to a depth of 12 inches. If the pH is below 6.5, apply dolomitic limestone as recommended by your County Agricultural Agent at least 1 year before planting. Half the lime should be plowed under to correct the pH to plow depth and below. By having the soil well supplied when the crop is planted, calcium reserves should be adequate for continued production.



Table 2. — Fertilization of new asparagus beds. Pounds of  $P_2O_5$  and  $K_2O$  recommended for different soil types in relation to the phosphorous and potassium soil test results.

Phosphorous soil test Pounds per acre	Pounds $P_2O_5$ per acre recommended* Sandy and loam soils	Potassium soil test Pounds per acre	Pounds $K_2O$ per acre recommended*	
			Sandy soils	Loam and clay-loam soils
0-19	150	Less than 60	200	150
20-39	100	60-99	150	100
40-69	75	100-149	100	75
70-99	50	150-199	75	50
100+	25	200-249	50	25
		250+	25	0

\*Multiply pounds  $P_2O_5$  by 0.44 to obtain pounds of P and multiply pounds  $K_2O$  by 0.83 to obtain pounds K.

If manure is not available, grow green-manure crops at least a year before planting the permanent bed. A good program is to plow clover or alfalfa under by May 15 and to seed 5 to 6 pecks of buckwheat between June 1 and June 15, using about 300 pounds of 5-20-20 fertilizer. Disc this under in September with 300 pounds of 12-12-12 fertilizer, and plant oats or rye for a fall cover crop. Another plan is to follow a rye winter cover crop with Sudan grass, followed in turn by winter rye cover, all with heavy fertilization.

When manure is available, it is not necessary to take the land out of production for a year. Apply about 10 tons of manure per acre before planting rye or oats in the fall.

#### Fertilizing the Year of Setting Crowns (the first year)

Have the soil tested in late fall or early spring, taking the soil samples to a depth of 12 inches. The amount of fertilizer to be plowed under in the spring before setting the crowns should be determined by the soil type and the results of the soil tests. The quantities of  $P_2O_5$  and  $K_2O$  recommended per acre are given in Table 2.

Apply 30 to 40 pounds (60 to 70 pounds if plowing under a cover crop) of nitrogen per acre with the phosphorous and potassium recommended above. Plow this total N-P-K fertilizer under early in the spring. Plowing the fertilizer under puts it at the best depth for asparagus crowns. It is recommended that, in addition to the amount of fertilizer recommended above, 150 pounds per acre of 20 percent phosphate fertilizer be applied down the furrow before setting the crowns.

If manure has not been used or a legume plowed down, sidedress with 30 pounds of nitrogen at the first cultivation:

#### Setting the Crowns

Plant 1-year-old crowns in early spring, before mid-May or before crowns in the nursery start growth. Some growers plant too early and frosts destroy the first growing point. Sort crowns as indicated under "Handling Crowns." Set the crowns with the roots spread at the base, and the buds up, in a wide-bottomed furrow 6 to 8 inches below the surface on light soils and 5 to 6 inches deep on heavier soils. The trenches should be opened with a middlebuster plow just ahead of planting to provide a loose, moist plant bed. A furrow opener equipped with a fertilizer hopper and a conducting tube to place the phosphate in the bottom of the furrows is ideal, but a small spreader following the opening will suffice. Space the rows 4 to 5 feet apart. Space the plants 8 to 12 inches apart in the 5-foot rows and 12 to 16 inches apart in the 4-foot rows. This requires around 8,700 to 13,000 crowns per acre, depending on spacing in and between rows. The distance between rows may be determined by the harvesting and spraying equipment being used.

A planting cart can reduce the labor of planting, aid in the spacing of the crowns, and reduce damage to crown buds by walking planters. The tires of the cart — running ahead in the furrow — crush clods and firm the soil, providing a suitable surface for planting crowns. Walking planters should move backwards to avoid stepping on the crowns.

Cover the crowns with 1 to 2 inches of soil. Work more soil into the furrow as growth progresses or as is needed to cover emerging weeds until the furrow is filled, usually by the middle of July.

#### Chemical Weed Control

Since there is no herbicide recommended for the first year of setting the crowns, weeds should be kept



under control by cultivation. In succeeding years, either monuron or simazine applied according to one of the following schedules is recommended.

	Following spring discing Pounds per acre (actual)	Following discing at end of cutting season Pounds per acre (actual)
A. Monuron	1-1½	1-1½
Simazine	1-2	1-2
B. Monuron	2-3	...
Simazine	2-4	...
C. Monuron	...	2-3
Simazine	...	2-4

Use the lower rate of monuron and simazine on light or sandy soils and the higher rates on heavier soils. The soils should be moist at the time of application so that the chemical can become active immediately. If possible, apply 1 inch of water before applying the herbicide, and do not disturb the soil after applying the herbicide.

Disc the soil in the spring and leave the field as smooth as practical. Then apply the herbicide (if desired) immediately after discing and do not disturb the soil after the application. Repeat the operation of discing and applying herbicide (if desired) after the cutting season. This procedure should control annual weeds, both through the cutting season and until the fern growth is large enough to shade out the weeds. Crabgrass control may be poor with these herbicides. Eventually, as a result of an accumulation of herbicide in the soil and reduction of annual weeds, the post-harvest season discing may be eliminated.

#### Quackgrass Control on Established Plantings

Quackgrass may be sprayed with dalapon at any time during the harvest season. Best control is obtained when the quackgrass is growing vigorously, by 10 to 15 pounds of dalapon per acre, preferably immediately after harvesting. If discing can follow a week after spraying the grass, the kill may be improved. Do not spray the fern with dalapon. Two or three applications and several seasons may be required to attain eradication of quack grass.

#### Perennial Broadleaved Weeds

A special 2, 4-D (Sodium Salt Form only) applied at the rate of 2 pounds per acre, is suggested during or after the cutting season when perennial weeds are growing rapidly. Spray applied during the cutting season should be applied immediately after harvesting. When spraying after the harvest season, use drop nozzles to avoid spraying fern. Avoid drift of this chemical onto adjoining crops. Do not use 2,4-D in sprayers used for insecticides or fungicides.

#### Caution on Discing Established Asparagus

Do not allow the disc to go deeper than needed for controlling weeds. Use a disc arrester on a wheel-mounted disc to prevent the disc from going too deep, especially in sandy soils. Cutting crowns and roots with discs generally produces spindly spears, provides entry for disease organisms, and may kill the crowns.

### FERTILIZATION OF ESTABLISHED PLANTINGS

For the first three years after planting crowns, the objective is to develop maximum fern growth in order to build an extensive storage root system. Any practice that interferes with this objective can have a detrimental effect on yield and may shorten the potential life of the asparagus planting.

#### Fertilizing — Second and Third Year

Before spring discing, broadcast 500 to 1,000 pounds of 5-10-10 (or 25-50N, 50-100 P<sub>2</sub>O<sub>5</sub>, and 50-100 K<sub>2</sub>O) per acre and follow with 30 pounds of N after the soil warms up. Omit nitrogen if manure is applied.

#### Fertilizing — After the Third Year

Alternate applications of nitrogen at the rate of 40 to 60 pounds one year, with 100 to 200 pounds of muriate of potash plus 40 to 60 pounds of nitrogen the next year.

#### Soil Test Recommended

Take a soil test to a depth of 12 inches every 5 years and adjust the amount of fertilizer applied according to the soil test. Use the recommendations given in Table 3 as a guideline for the amount of phosphorus and potassium to apply in relation to the soil test results. If an established planting has been heavily fertilized for several years, apply manure or nitrogen only at 40 to 60 pounds per acre each year until soil tests indicate a need for phosphorous and potassium.

#### For Trial — Field Seeding Asparagus

California and New Jersey are experimenting with direct field seeding of asparagus. It is suggested that trial plantings be limited to an acre or less.

Seed as indicated in the section on "Growing Your Own Crowns", except that rows should be 4 to 5 feet apart. This would require 1 to 2 pounds of seed per acre, but adjust seeding rate to drop 6 to 8 seeds per foot of row. Some research work is now started on field seeding in Michigan. Watch this development.



Table 3. — Fertilization of established beds. Pounds of  $P_2O_5$  and  $K_2O$  recommended for different soil types in relation to the phosphorous and potassium soil test.

Phosphorous Soil test Pounds per acre	Pounds $P_2O_5$ per acre recommended* Sandy soils, loam, clay loam and clay soils	Potassium soil test Pounds per acre	Pounds $K_2O$ per acre recommended*	
			Sandy soils	Loam, clay loam and clay soils
0-19	100	Less than 60	150	100
20-39	75	60-99	100	75
40-69	50	100-149	75	50
70+	25	150-199	50	25
		200+	25	0

\*Multiply pounds  $P_2O_5$  by 0.44 to obtain pounds of P and multiply pounds  $K_2O$  by 0.83 to obtain pounds K.

Use only sandy loam or loamy sand soils for this purpose and follow fertilizer suggestions given in appropriate sections in this bulletin.

### HARVESTING ASPARAGUS

The first 2 years of a new asparagus bed are needed to develop the root system; therefore, do not harvest until the third year and then harvest for only 3 to 4 weeks. The harvest season is limited to 6 to 8 weeks in later years to allow time for satisfactory fern growth. Anytime that spears become less than three-eighths of an inch in diameter, harvesting should be discontinued. Very rarely, then, would harvest extend into July.

Snap or cut asparagus spears when they are 6 to 12 inches above the ground. Always harvest spears before the tips start to open or fern out.

#### Snapping Vs. Cutting

Ninety percent of the asparagus in Michigan is grown for processing and most of it is harvested by the snapping method; that is, it is broken or snapped off by hand just above the ground. The snapping method is faster and less expensive than cutting and saves money for both grower and processor. Most Michigan processors prefer snapped asparagus.

For fresh market, spears are frequently harvested by cutting just below the surface of the ground with a long-handled asparagus knife.

#### Frequency of Harvest

The frequency of harvest will depend primarily on temperature. It may be necessary to harvest daily when the weather is warm. Occasionally, in very warm weather, growers harvest twice a day. During cool periods, it may not be necessary to harvest more than once or twice a week. Make sure that the field

is cut or snapped clean with each harvest. Any ferns that are allowed to grow will harbor diseases and insects. This growth will also delay the emergence of new spears.

#### Harvesting Aid

If you grow more than 2 to 3 acres and are growing for a processor, it may pay to use a machine to carry the workers snapping the asparagus. These machines may be self-propelled, tractor drawn, or attached to a tractor's hydraulic lift. Although the machines increase the efficiency of the pickers, one man will be needed to drive the tractor.

#### Mechanical Harvesters

Two asparagus harvesters have recently been developed and should be tested and watched carefully by growers and processors. The Hart-Carter machine was developed using the cutting principle (cut spears at soil surface) and the machine developed by Lloyd Gilbert and manufactured by Harvey Machine Inc. uses the snapping principle. Both have advantages and disadvantages; therefore, observe them operating before choosing your machine. The mention of manufacturer's names is for your information and should not suggest endorsement.

#### Move the asparagus immediately

Fresh harvested asparagus loses quality rapidly. Collect the spears as soon as possible, protect them from the sun, and move them to cold storage, the processor, or a market as soon as possible. If storage is required, store under high humidity at temperatures of below 50 degrees F. to near freezing.

#### Processing and Fresh Market Grades

Recommended processing standards have been proclaimed by the Michigan Canners and Freezers Association and the Michigan Frozen Food Packers Asso-



ciation. The grade is determined by the amount of overlength spears and the percentage of defects. No. 1 field snapped asparagus consists of spears which are fresh, and well formed, and free from decay, spreading tips, broken tips, broken spears, doubles, beetles, beetle eggs, other insects, insect residues, or damage caused by beetles or other insect, hail, freezing, dirt, disease, or mechanical damage.

Not more than 2 percent by weight shall consist of spears showing beetle eggs, insects, or objectionable insect residues.

Each asparagus spear shall be not less than  $\frac{1}{4}$  inch in diameter, measured 2 inches below the point of the tip, and each spear shall not exceed  $7\frac{1}{2}$  inches in length. Inasmuch as the quality of processed asparagus is seriously affected by asparagus that is more than  $7\frac{1}{2}$  inches long, the deduction for the percent of overlength shall be doubled.

The present U.S. Department of Agriculture specifications classify fresh market asparagus on diameter of spears as follows: Very small, less than  $\frac{5}{16}$  of an inch; small, between  $\frac{5}{16}$  and  $\frac{8}{16}$  of an inch; medium, between  $\frac{8}{16}$  and  $\frac{11}{16}$  inch; large, between  $\frac{11}{16}$  and  $\frac{14}{16}$  inch; and very large, above  $\frac{14}{16}$  inch.

Market standards permit trimmed bunches to vary in length from 7 to  $10\frac{1}{2}$  inches. All spears that are very slender or crooked or that have open heads or broken tips should be discarded. Wash asparagus thoroughly. Bunch only large, straight, unbroken spears with tight heads. Package and grade your asparagus according to local market demands. In general, the requirements are to trim and tie bunches of one-half to one pound, which are 7 to 9 inches long. Tie these with tape, raffia, or rubber bands.

Asparagus may be wrapped for the fresh market in plastic film so the tips show. This reduces water loss and improves market acceptability.

### CONTROL OF INSECTS AND DISEASES

For materials to use for insect and disease control consult the most recent edition of Extension Bulletin 312, "Chemical Control of Insects and Diseases on Commercial Vegetables".

The asparagus beetle can cause widespread damage to the crop. It overwinters in the adult or beetle stage in rubbish or other debris around the field. Adults emerge early in the spring and damage asparagus spears by feeding and depositing eggs on the above-ground parts of the shoots. Eggs are laid on seedlings during the cutting season and on mature plants later in the season. After hatching from the

eggs, the small, dark colored larvae and the adults feed upon the foliage, and in heavy infestations the two forms defoliate large areas in a short time. The beetles and the larvae of the asparagus beetle are controlled at any stage in the growth of the crop by applying the materials recommended in Extension Bulletin 312.

Cutworms frequently cut off asparagus shoots underground, and also cause damage feeding on the tips of the shoots as they appear above the ground. Shoots damaged by the feeding develop into crooked spears. Use control materials recommended in Extension Bulletin 312.

Asparagus rust appears in practically all sections where asparagus is grown. The presence of the disease is closely related to growing conditions. Rust spores are dependent on moisture for germination, and the disease is much more destructive in areas of high humidity and heavy rainfall than in low moisture areas. The disease is commonly first observed as numerous small, reddish-yellow spots on the main stem near the ground, and on the very slender branches of the stalks which grow up after the cutting season. The red spots are pustules that contain spores that reproduce the fungus. The spores are rapidly scattered by the wind; if sufficient moisture is present, they may infect all the plants in the field. Asparagus rust causes the tiny needlelike branches of the stems to fall, and affected plants present a naked appearance. When the attack is severe, the entire field may ultimately become brown and appear dead. As a result, the succeeding crop suffers a reduction in the size and number of spears produced.

The most effective way to control asparagus rust is to plant varieties known to be resistant. The most rust-resistant variety is Mary Washington or Martha Washington. Many of the current asparagus varieties are selections made from these Washington strains, and some have a degree of rust resistance. Because rust has been reported on even the rust-resistant varieties, growers should take measures to protect all plantings by eliminating sources of rust infection. The two main sources of infection are wild asparagus plants growing in the vicinity of cultivated beds, and seedlings that are allowed to grow up in the field before the cutting season is over. Destroy wild asparagus within the area and prevent the top growth of shoots in the field until after the cutting season. Locate new beds as far as possible from old beds. Removal of the tops from mature beds in the fall is not considered important as a rust-control measure.

Spears affected by *Fusarium wilt* are sometimes wilted and stunted, and may show a brown discolora-



tion on their surface. These spears are usually unfit for market, and yields are considerably reduced by this wilt. Losses in individual plantings occasionally are severe. The only control measures to date are to avoid further plantings on infected soil and take care in producing healthy planting stock. New plantings should be kept as far as possible from infested old beds. California 66 and California 72 are reported to have a fair degree of Fusarium wilt resistance.

#### CAUTION TO THE ASPARAGUS INDUSTRY

If asparagus is procured on a no-grade basis, high quality standards should be maintained. Growers as well as processors have a stake in the reputation of the Michigan asparagus industry. Strict adherence to standards for the final pack of asparagus is essential if Michigan is to remain competitive with other areas. The quality of Michigan's asparagus has been excellent; let us maintain it.