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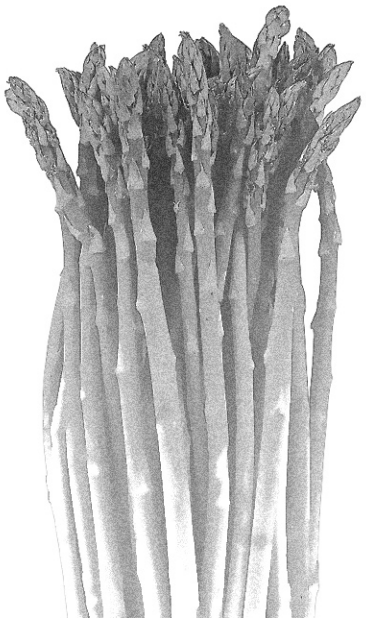

Commercial Asparagus Production

*Terry Jones, Tim Woods, and John Strang**

Asparagus (*Asparagus officinalis*) is a high-value, early-producing perennial vegetable crop. Originally, it was native to the sea coasts of Europe and eastern Asia.

Fresh asparagus is available year round due to imports from Mexico, Chile, Peru, Colombia, and other South or Central American countries. The United States is a net importer of asparagus with Mexico accounting for about one-half of the total imports.

In 2002, the United States had 66,000 acres grown primarily in a few major production areas in California, Washington, and Michigan. Considerable acreage is also planted in Canada and Mexico.

The United States has experienced a slight decline in production (0.8%) from 2.35 million cwt in 1992 to 1.87 million cwt in 2002. The downward trend in U.S. acreage during the past may be reversing itself due to the new disease-tolerant, high-yielding hybrids becoming available. The average annual per capita consumption is about 1 lb (fresh, canned, and frozen). Based on this figure, Kentuckians consume 3.3 million lb annually, equal to 1,000 acres. Kentucky may not be able to grow all the asparagus it consumes because of our short growing season, but we have great potential for increased production for retail sales. At present, Kentucky has about 80 acres in production.

Kentucky's market window for asparagus is during late May through June. Asparagus is grown primarily for the fresh market, especially near large population centers. It is also good for freezing and canning.

Low in calories and sodium, it has significant amounts of vitamins A and C, riboflavin, niacin, and thiamin and the minerals iron, phosphorus, and potassium. According to the National Cancer Institute, asparagus is very high in glutathione, one of the body's best cancer fighters. Asparagus also contains rutin, which strengthens blood vessels.

Before planting asparagus, growers need to make sure that there is a local market. They should first determine what the population within 25 miles of the farm is and then find out how many acres of asparagus are currently being produced within this area. It is estimated that it takes 10,000 people to successfully market every acre of asparagus produced.

The cost of establishing a new asparagus field may be as high as $3,074/acre, including one year of soil buildup. The major costs are crowns and fertilizer. Once established, asparagus is one of the least expensive vegetable crops to maintain.

Cultivars

Asparagus plants are dioecious; that is, they have separate male and female plants. The female plants are somewhat less productive and shorter-lived than males. The seeds from female plants can cause a volunteer "weed" problem in established asparagus fields.

The new super male hybrids have resistance to many asparagus diseases and yield three to four times as much as the standard varieties. They have no volunteer problem. During a harvest season, usually three to four spear emergence flushes occur.

The following cultivars are recommended for Kentucky conditions:

- **Jersey Gem** is a high-yielding, all-male hybrid with large spear size and slightly more purple color than the other hybrids. It has high rust and Cercospera resistance.
- **Jersey Giant**, a Rutgers University release, is an extremely vigorous, high-yielding, all-male hybrid with excellent disease resistance. Spears are an attractive green with purple bracts and large size.

** The authors wish to thank Matt Ernst, former Extension Associate in the Department of Agricultural Economics, for the "Cost and Returns" information.*

- **Jersey King** has high yield potential and good spear size. A Rutgers University release, it is adapted to temperate and warm climates. It is a very productive all-male hybrid that produces large spears.
- **Jersey Knight**, also a Rutgers University all-male hybrid release, has very vigorous growth and produces large green spears with purple bracts. It has resistance to rust, is tolerant to fusarium crown and root rot, and consequently does well on fusarium-infested soils.
- **Jersey Supreme** is a high-yielding male hybrid with wide climate adaptation. It has good rust resistance and is suited to processing and the fresh market.
- **Purple Passion** is a new cultivar that produces attractive purple spears. It has a high sugar level and a unique taste. Once cooked, it turns green.

Field Selection and Soils

Site Selection

- Choose a site where asparagus has never been grown.
- Choose light to medium well-drained loamy soils. Because the root system may develop 10 ft. deep, soils should be deep and without a hardpan. Subsoiling, before plowing deeply, is recommended. Sandy soils are suitable if supplemental water is available, but sand makes the spears harder to clean after harvest.
- The water table should not be within 4 ft. of the surface since asparagus will survive short periods of flooding but not prolonged, waterlogged soils.
- The field should be relatively level because too much soil erosion can occur on slopes, especially during the first two years when little plant residue is present. Rainwater can run down furrows and wash out small plants or cover them with too much soil.
- The site should have good air drainage to avoid frost damage to early spears.

Soils and Fertility

- Adjust the soil pH to 6.6 using dolomitic lime. Asparagus tolerates salty soil conditions but not extreme acidity (pH below 6). Because an asparagus planting may last 15 to 20 years, be extra careful in adjusting the fertility level before planting.
- In addition to N, P, and K levels, the soil test should check Ca, Mg, and Boron levels. If soil test results are not available, disk in 200 lb each of P_20_5 and K_20 in the form of 5-20-20 before planting. Remember you cannot plow or till in lime or more phosphorus after the crowns are set.
- Follow an annual maintenance fertilizer program early each spring beginning the second year. A 2,000 lb crop of asparagus spears removes 13 lb N, 4 lb P_20_5, and 9 lb K_20. Soils high in P and K may only need an application of complete fertilizer every other year, but apply N every year. Make the first application (50-75 lb N) in the spring before the spears emerge and the second one (50-75 lb N) after the last harvest but before fern development. The amount of nitrogen applied can be reduced by 4 lb/acre for every ton of manure applied.
- Encourage maximum fern growth for the first few years so the plants develop extensive storage root systems. Conduct a new soil test on each field every four to five years. For more information, see Cooperative Extension Publication, ID-36, *Vegetable Production Guide for Commercial Growers*.

Planting

Getting Ready

Using one-year-old, certified disease-free crowns from a reputable source is the standard method for starting an asparagus field. A one-year-old crown is the root system from a one-year-old plant grown from seed. To reduce initial expenses on larger plantings, some growers prefer to grow their own crowns in plant beds for one year before setting.

No matter where you get the crowns, check a few before planting. After cutting through the crown, check its tissue for any brown discoloration. If you see discoloration, do not use any of the plants, but contact your county Extension agent to diagnose possible Fusarium crown rot.

The soil temperature for planting crowns should be about 50°F so they can start growing immediately. Cold, wet soils make crowns more susceptible to Fusarium crown rot.

You need 9,000 to 11,000 crowns to plant an acre.

Techniques for Planting

- Open the planting furrow with a lister plow or a middle buster so that soil is thrown up on both sides of the trench. A "W"-shaped furrow for young transplants (plugs) helps protect them from drowning, washing out, or smothering if heavy rain follows planting. If possible, run the rows north and south to promote early drying of the ferns and to help reduce foliage diseases like Cercospora.

- Incorporate 50 lb phosphorus ($P_2 0_5$) 2 to 3 in. below the bottom of the furrow before transplanting. This fertilizer is in addition to what the soil test recommends. Separate crowns by size. Plant the same sizes together because a small crown does not compete well when planted between two larger crowns.
- Plant the one-year-old crowns, with the buds up, 12 to 14 in. apart in furrows about 6 in. below soil level. A 3 to 4 in. planting depth may be necessary in heavy soils. Shallow planting may result in more spears, but their average diameter is small compared to deeper plantings. Never plant crowns into subsoil.
- Cover the crowns with 1½ to 2 in. of soil when you set them. Make rows 4 to 5 ft. apart. During the first summer, gradually fill in the furrows until they are level with the field. Fern growth should fill the spaces between rows after one growing season.

Yield

The average yield for non-hybrid asparagus is 1300 lb/acre; a good yield is 2000 lb. The actual yield in any asparagus field depends on how much food the root systems stores as a result of the previous year's fern growth. Bud size on the crown and final spear size are strongly correlated. Because of apical dominance, only one spear develops at a time. The spear size decreases as the harvest season progresses.

Alternative Methods: Greenhouse Transplant Production

Seedling transplants are gaining popularity. Using greenhouse-grown transplants eliminates the year required for growing crowns in a field plant bed. The 10- to 12-week-old seedlings are produced in greenhouses and then transplanted to their permanent field site using a mechanical transplanter. The survival rate for "hardened off" seedlings is usually good.

Transplants may suffer from drought during the first year unless irrigation is available.

Use a starter solution (10-52-17) or similar analysis fertilizer. Early May is a good time for transplanting. Cultivation later in the season is necessary to fill in the furrows as the ferns grow and to control weeds.

To grow plug transplants, plant a single seed ½ in. deep/cell. Separating asparagus transplants is extremely difficult so avoid multiple-seeded cells. Excellent plants have been obtained using tray cells, 1.5 in. x 1.5 in. x 2 in. (196 tray). Put the trays on screens so the roots will air prune.

Maintain greenhouse temperatures at 75°-85°F during germination. After seedling emergence, reduce day temperatures to 70°-75°F and night temperatures to 60°-65°F. High temperatures and high nitrogen levels result in too much top growth and not enough root growth. Each pound of asparagus seed will produce about 10,000 plants.

After a heavy rainstorm, the planting furrow can close and bury (smother) small seedlings. Remember a "W"-shaped planting furrow is recommended where the plugs are still set at the recommended 6 in. depth.

Asparagus Crowns or Transplants Needed for 1 Acre

Between Plants (in.)	Spacing Between Rows (ft.)		
	4.5 ft.	5 ft.	6 ft.
10 in.	11,616	10,454	8,712
12 in.	9,680	8,712	7,260
14 in.	8,297	7,467	6,262
16 in.	7,260	6,534	5,445
18 in.	6,453	5,808	4,840

Growing Crowns in Plant Beds

Growing your own asparagus crowns in a plant bed may be an economic advantage especially if you have large acreages. Select a planting site with good drainage where asparagus has never been grown before. A sandy soil will allow easier digging of the crowns.

Before Seeding

- Disk in 10-20-20 at the rate of 1,000 lb/acre.
- Treat all asparagus seed with a 20% solution of sodium hypochlorite for 1 to 2 hours, then rinse and dry to remove surface contamination by Fusarium.
- Get the right amount of seed. One lb of seed produces enough crowns for 1 acre of adult plants; 5 lb of seed will seed a 1 acre crown bed.
- Soak the seed in warm water (90°F) for 3 to 4 days to hasten germination. Otherwise, asparagus seed is slow to germinate and requires 2 to 3 weeks.

- After soaking, spread the seed out to surface dry. Do not delay planting after the seed is dry enough to plant.

At Seeding Time

- Do seeding after the last chance of a hard freeze to prevent killing of young plants. Seeds germinate best when the soil is 60° to 80°F.
- Use sized seed. Sow them 2 in. apart in rows 24 to 30 in. apart. Closer spacing will make the crowns harder to dig and separate. Sow seeds 1 to 1½ in. deep into moist soil. If the seed is not precision planted, plants may get tangled and be difficult to separate on digging.
- When the young plants are 6 to 8 in. high, sidedress them with 50 to 75 lb N/acre to promote rapid growth.

Harvesting Crowns

- Harvest one-year-old crowns as early as possible the following spring before buds begin to sprout. Mow or chop old plant tops so as not to interfere with the digging. You can harvest with a potato digger.
- Store crowns in loose piles or in bulk bins. Hand separating 1,000 crowns takes about 1 hour.
- After digging, keep them cool (30-45°F) and dry, but do not desiccate or freeze them. Crowns can become overheated if stored in a large pile or container with poor ventilation.
- Crowns can be stored for up to 2 months. However, the older the crowns when dug, the greater the injury and the more likely that Fusarium crown rot will develop. Therefore, two-year-old crowns are not recommended.

Transplant only large vigorous crowns. Smaller crowns do all right if planted together but do not compete well between larger crowns. To plant these crowns, follow the directions already given for planting asparagus crowns.

Controlling Pests

Weed Control

Avoid fields with perennial weed problems (bindweed, johnsongrass, milkweed, thistle, nutsedge). Whenever possible, kill perennial weeds with Roundup the year before establishment.

In general, two types of tillage systems can control asparagus weeds:

1. No till—Dead ferns are chopped in the spring (two to three weeks before harvest) as close to the ground as possible. Spring fertilizer is then applied, followed by the spring herbicide treatment. Immediately after the harvest, another herbicide application is made before fern growth. Every third or fourth year, the field is leveled with a drag.

2. Minimum tillage—The asparagus field is worked lightly every spring using a rotovator or rolling field cultivator. The spring fertilizer may be tilled in at that time. Never drive through the field with tractor wheels on top of the asparagus row. Discs are not recommended as a tillage tool because they can open up wounds on the crowns to Fusarium infection. After tillage, apply a spring pre-emergence herbicide(s). After harvest, some growers like to chop (bush hog) the field close to the ground before re-applying herbicides to control weeds in the ferns.

Soil tillage tends to break up and spread perennial weeds. Thus, manage weedy fields under the no-till system. Volunteer asparagus plants can also become a serious weed pest. Once established, they are very difficult to control. With no-till, asparagus seeds are less apt to germinate and become a problem. Of course, selecting one of the new all-male hybrids eliminates this weed problem.

No matter what tillage system is used, rotating herbicides each year is wise to avoid weed problems associated with the use of a single herbicide. If possible, allow the ferns (tops) to stand over winter before chopping. Because much of the food manufactured in the tops moves to the roots in late fall, early fern removal will weaken the crowns. Asparagus ferns also help hold any snow, which prevents deep freezing and sudden changes in soil temperature. Refer to Cooperative Extension publication, ID-36, *Vegetable Production Guide for Commercial Growers*, for current weed controls.

Disease Control

See ID-36, *Vegetable Production Guide for Commercial Growers,* for disease controls.

Crown Rot

Crown rot—*Fusarium oxysporium* is the major cause of asparagus decline. The fungus is carried on asparagus seed and crowns and lives in the soil for many years. Infected crowns have a reddish brown discoloration in the vascular tissues of the rhizome, shoots, and storage roots. The storage roots of infected crowns become hollow and rotten. The fungus causes a plugging of the plant's water-conducting system. Ferns of infected plants turn yellow during the summer, then brown as the plant slowly dies back. Infected plants produce fewer and smaller spears. Fusarium symptoms are enhanced by nutrient stress, drought, and insect damage.

Fusarium Root Rot

Fusarium root rot usually attacks and kills only weakened plants, while those produced under ideal conditions are seldom infected. Proper nitrogen application, timely irrigation, high P and K levels, and good weed and insect control help reduce plant stress and thus reduce Fusarium infection.

The best control of Fusarium is buying and planting disease-free crowns into clean ground.

Asparagus Rust

This fungus attacks fern growth and causes it to turn yellow, thus reducing the amount of photosynthesis and food translocated to the crown. Disease symptoms first appear as small orange patches on spears and on the fern branches. The disease develops best under warm, humid conditions. Spores are produced on the stem lesions, and the wind blows them to adjoining plants. In the summer, the spots on the stems and fern growth are orange, and the overwintering spores are black. Several stages of the rust fungus development all occur on asparagus plants including the aecial, pycnidial, uredial, and the telia spore stages.

The aecial and pycnidial lesions may appear simultaneously during spring and early summer. Aecial lesions first appear as oval, light green patches on asparagus stalks. The patches become slightly raised and light orange. They may appear as soon as growth begins in the spring.

The pycnidial lesions are more difficult to distinguish. They are generally from ¼ to ½ in. long, light brown to gray, and bordered by a dark ring. They contain small black bodies (pycnia).

The uredial stage consists of reddish brown spores that erupt from the epidermal cells of the stem tissue. This stage becomes very noticeable and is the stage that most damages the plant.

Cercospora (Needle Blight)

Cercospora (needle blight) caused by *Cercospora asparagi* is a very destructive disease in the south-central and south-eastern United States. It has become a serious problem in the all-male hybrid cultivars. The dense lush foliage of the male hybrids creates a humid environment, and in wet years defoliation and fern death may occur. A severe infection will result in yield reduction the following year by weakening the crowns.

Plants exhibiting Cercospora, a foliage disease.

Burning the foliage delays the disease, and foliar fungicides applied at three-week intervals after harvest will prevent yield loss the next year.

Insect Control

Refer to ID-36, *Vegetable Production Guide for Commercial Growers,* for insect controls.

Common Asparagus Beetle

Common asparagus beetle (*Criocersis asparagi*) adults overwinter under debris and move into asparagus fields when spears first emerge. Adult beetles feed on the spear tips and glue rows of black eggs to them. The beetle eggs hatch in about seven days, and fleshy, dark gray larvae move onto the asparagus foliage to feed. The larvae stage lasts about two to three weeks. Then they drop to the ground, burrow into the soil, and pupate.

12-Spotted Asparagus Beetle

The 12-spotted asparagus beetle (*Criocersis duodecimpunctata*) may also infest asparagus. Its life cycle is similar to the common asparagus beetle's except that the larvae feed on the developing berries.

Beetle feeding on the spears causes the distorted "shepherd's crook" sometimes seen in emerging spears. The presence of beetle eggs renders asparagus spears unacceptable for market. Complete harvesting of spears and several applications of insecticide may be necessary to control the beetles since they emerge from overwintering sites over an extended period.

Asparagus Aphid

The asparagus aphid (*Bracycolus asparagi*) is a minute, blue-green sucking insect that usually feeds on asparagus ferns. In feeding, the aphid injects the plant with a toxin, which is translocated down the stem into the dormant buds causing them to break dormancy and elongate into new shoots. A dwarfed bushy (witch's broom) plant with a silver-blue color is the result of aphid feeding. When the infestation is severe, all the crown's buds may break dormancy, leaving none for next year and thus terminating the plant's life. Aphid outbreaks are favored by extended periods of cool weather. The asparagus aphid lays its eggs in late summer or early fall. The eggs overwinter on ferns and fall to the ground in the spring. Unharvested asparagus that ferns out early is highly susceptible to early aphid infestation.

Japanese Beetles

Japanese beetles sometimes strip the foliage from infested plants.

Tarnish Plant Bugs

Tarnish plant bugs can also damage or kill young asparagus spears by injecting a toxin into the spear causing it to turn brown and stop growing.

Cutworms

Cutworms can cut off asparagus spears below ground and may even cause damage by feeding on the spear tips above ground. Damaged spears must be harvested and culled to maintain production.

Irrigation

You can increase your asparagus planting's productivity and longevity if you provide supplemental water, By improving overall planting vigor, you decrease the risk of Fusarium. Supplemental water is especially important to relieve drought stress, particularly during the first two years after crown or transplant setting. In established fields, dry weather during the cutting season or late in the fern season is not a major problem. However, dry conditions during development of the fern are undesirable and result in reduced yields the following year.

In first-year plantings, shallow root systems need about 1 in. of water per week. If a tensiometer is used to schedule water, place it 6 in. deeper than the bottom of the planting furrow. Irrigate new plantings any time the tensiometer gauge reads 50 centibars.

In mature beds during the harvest season, water requirements are low because harvesting spears prevents water loss through transpiration. A dry harvest season, however, delays fern emergence. Water requirements rapidly increase as fern development begins. Often we get less rain at that time of year. July and August are probably most critical for irrigation because the ferns are so large. A good water supply at that time permits maximum food production and storage in the roots.

Apply enough water to wet the soil 2 ft. deep. Then, withhold irrigation in the fall to help asparagus enter its dormant period. "No-till" asparagus is a good candidate for trickle irrigation, especially as young plants.

Harvesting

Studies show that harvesting one year after planting does not reduce future yields and does give growers some income one year early. As a general rule, you can harvest for two weeks the first year, four the second, and six to eight weeks after that. However, once the number of small diameter spears (smaller than 1 in.) noticeably increases, stop harvesting. About two-thirds of the total asparagus harvest occurs during the first half of the harvest season.

Harvesting is sometimes erratic because spears grow very rapidly (up to 1 in./hour) in warm weather and slowly in cool weather. In warm weather, 80°F or above, you need to harvest every other day. Also, during warm weather, buds begin to open when the spears are shorter, so you must harvest spears when they are shorter than usual (closed bud tips are considered high quality).

Harvest asparagus in the early morning when spears are cooler and snap more easily. Injuries to growing spears, even if slight, cause them to grow in the direction of the injury.

Picking 1 acre of asparagus takes about two hours of labor at each harvest. Harvesting costs are about 15-25¢/1b.

Asparagus fields should be cut or snapped clean between harvests. Any ferns allowed to develop will delay the emergence of new spears.

In-field harvest should occur when spears are 8 to 10 in. long. Picking into lightweight plastic buckets is ideal because they are easy to keep clean.

If you plan a u-pick operation, arrange picking by appointment. You may expect to conduct cleanup harvests behind most u-pickers. Kentucky's market window for asparagus is during the last week of May through the month of June. Prices at this time average about $27.00/carton. A carton is twelve 2 to 2¼ lb bunches piled in a pyramid.

Post-Harvest Handling

Wash asparagus before grading and packing.

Grading—U.S. #1 asparagus is clean, firm, tender, well trimmed, fairly straight, and nearly free of mechanical, insect, and disease damage. The spears are at least green and, unless specified, are ½ in. or larger in diameter an inch from the butt end.

USDA Classification of Asparagus Spear Diameter

Classification	Size*
very small	less than 5/16"
small	5/6" less than 8/16"
medium	8/16" less than 11/16"
large	11/16" less than 14/16"
very large	14/16" and up

** measured 1" from the butt end.*

Handling

- Do not set cut asparagus spears in water because the tips open and bacterial soft rot sets in.
- Never leave freshly cut asparagus in the sun, or the tips open and the spears will wilt.
- Cool asparagus that has been cut, or its quality quickly declines. If the storage temperature is above 36°F, fibers develop in the spears causing a tough, stringy texture, and bud tips begin to open. Freshly harvested spears that are to be held 24 hours or longer or are to be shipped should be chilled down by running ice water over them to lower the asparagus temperature to about 40°F. Once hydrocooled, asparagus can be stored at 36°F, 95% RH for up to three weeks.

- Pack asparagus in perforated film bags. Nonperforated bags damage spears due to high carbon dioxide and ethylene levels and low oxygen levels.
- Avoid prolonged storage at 32°F. A storage temperature of 32°F for 10 days may result in chilling injury.

Table 1. Estimated establishment costs for 1 acre of asparagus.

Operations	Cost/Acre	Your Farm
Soil Buildup		
(Includes soil testing, liming, fertilizing, plowing, discing, and planting of Sudex for a cover crop the year before planting)	$280	_____
Planting Year Costs (1st year)		
Soil preparation, (plowing, furrowing)	32	_____
Fertilizer	54	_____
Crowns: 6,000 @ $150 per 1,000	900	_____
Planting labor: 25 hrs @ $8/hr	200	_____
Variable equipment costs	35	_____
Interest	57	_____
Additional planting costs	15	_____
Cultivating (3 times) plus sidedressing	15	_____
Herbicide spray	25	_____
Insecticide and fungicide sprays	75	_____
Chopping down ferns	10	_____
Total cost first year	**$1,418**	_____
Growing Year Costs (2nd year)		
Herbicide	70	_____
Fertilizer	30	_____
Insecticide and fungicides	120	_____
Harvesting cost: 20 hrs @ $8/hr	160	_____
Marketing cost 10% of gross	84	_____
Variable equipment costs	20	
Total cost second year	**$484**	_____
Growing Year Costs (3rd year)		
Herbicide	70	_____
Fertilizer	40	_____
Insecticides and fungicides	130	_____
Harvesting cost: 50 hrs hired @ $8/hr	400	_____
Marketing cost 10% of gross	252	_____
Total cost third year	**$892**	_____
Total direct costs to get 1 acre into production and harvested	**$3,074**	_____

The above budget assumes yields of 1,800 lb and does not include indirect costs for management, land use, and equipment investment.

Table 2. Potential returns.

Year Two—Harvest 600 lb of spears @$1.40/lb	$840	_____
Year Three—Harvest 1,800 lb of spears at $1.40/lb	+$2,520	_____
Total income at end of year three	$3,360	_____
Direct costs to this point	-3,074	_____
Potential income from 1 acre at end of 3 years	$286	_____
Potential annual income after year three	$1,709	_____

Asparagus Crown or Seed Sources

Addresses are listed below the table. The list does not include all available asparagus root and seed sources and is not intended to recommend one source over another.

Some Asparagus Crown & Seed Sources*

Variety	Crowns	Seed	Company
Jersey Knight	X		Daisy Farms
	X		Gurney's Seed & Nursery Co.
	X		Henry Fields Seed & Nursery
		X	Holmes Seed Co.
	X		Indiana Berry & Plant Co.
	X	X	Jersey Asparagus Farms Inc.
	X		Johnny's Selected Seeds
	X		Krohne Plant Farms Inc.
	X		Nourse Farms
	X	X	Park Seeds
Jersey Giant	X		Daisy Farms
	X		Indiana Berry & Plant Co.
	X	X	Jersey Asparagus Farms Inc.
	X		Krohne Plant Farms Inc.
	X		Park Seeds
	X		W. Atlee Burpee
Jersey Gem	X	X	Jersey Asparagus Farms Inc.
Purple Passion	X		Daisy Farms
	X		Gurney's Seed & Nursery Co.
	X		Indiana Berry & Plant Co.
	X	X	Jersey Asparagus Farms Inc.
	X		Johnny's Selected Seeds
	X		Krohne Plant Farms Inc.
	X		Nourse Farms
	X		Park Seeds
Jersey Supreme	X		Daisy Farms
	X		Henry Fields Seed & Nursery
	X	X	Jersey Asparagus Farms Inc.
Jersey King	X		Gurney's Seed & Nursery Co.
	X	X	Jersey Asparagus Farms, Inc.
	X		Johnny's Selected Seeds
	X		Nourse Farms

* The listing of these seed and crown sources does not guarantee or warranty their product by the University of Kentucky Cooperative Extension Service, nor does it imply approval of them to the exclusion of other possible seed, seedling, and/or crown sources.

W. Atlee Burpee & Co., 300 Park Ave., Warminster, PA 18974, (800) 888-1447, www.burpee.com
Daisy Farms, 91098 60th Street, Decatur, MI 40945, (616) 782-6321
Gurney's Seed and Nursery Co., P.O. Box 4178, Greendale, IN 47025, (513) 354-1491, www.Gurneys.com
Henry Fields Seed and Nursery Company, P.O. Box 397, Aurora, IN 47001-0397, (513) 354-1494, www.HenryFields.com
Holmes Seed Company, 2125 46th Street N. W., Canton, Ohio 44709, (330) 492-0123, seed orders (800) 435-6077
Indiana Berry and Plant Co., 5218 West 500 South, Huntingburg, IN 47542, (800) 295-2226, www.inberry.com
Jersey Asparagus Farms Inc., 105 Porchtown Rd., Pittsgrove, NJ 08318, (856) 358-2548, www.jerseyasparagus.com
Johnny's Selected Seeds, 955 Benton Avenue, Winslow, ME 04901, (877) 564-6697, www.Johnnyseeds.com
Krohne Plant Farms, Inc., 65295 CR 342, Hartford, MI 49057, (269) 424-5423, www.krohneplantfarms.com
Nourse Farms, 41 River Rd., South Deerfield, MA 01373, (413) 665-2658, www.noursefarms.com
Park Seed Company, 1 Parkton Ave, Greenwood, SC 29647, (800) 213-0076, www.parkseed.com

About the Authors

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