GROWING ASPARAGUS
In the Home Garden
Asparagus

*Asparagus officinalis*

- Botanically, member of lily family
  - closely related to onions and leeks
- Hardy perennial vegetable
- One of earliest spring vegetables harvested
- Premium vegetable
Asparagus

- cultivated for over 2000 years
- native Eastern Asian and European coastal areas
- early European settlers brought to North America
- grown in home gardens since colonial times
- commercial production in the U.S. since mid-1800’s
Dormancy occurs when:

- soil temperature is below approximately 50° F
- or the water supply is limiting
- The dormant period preserves plant energy use for spear production the following season
edible part of the plant is the shoot (SPEAR) that emerges from the soil.

shoots will develop into tall FERN-like plants.
WHAT HAPPENS

- The spears, if not harvested, develop into ferns 4-6 feet tall
- Carbohydrates and other compounds necessary for plant growth and development are produced in the ferns throughout the growing season
- These substances are translocated to the fleshy roots, where they are stored
- Used to produce spears the following spring.
- In early spring, spears will start to emerge from the soil.
SITE SELECTION

Long term spot

- asparagus plants live 15 to 25+ years
- 6 to 8 hours sunlight
- well-drained soil
- Good air drainage/No low-lying areas
- Avoid areas where onions, leeks & other members of lily family have recently grown

Place to north of other plants

- asparagus produces large tall fronds
- If asparagus bed is a part of a larger vegetable garden, it can shade other plants large bushy fronds
BED PREPARATION

- Prepare the bed the fall before spring planting if possible.
- Enrich the bed with dried manure (in the fall only), compost, leaf mold, or a combination.
- Collect and take soil sample to your local Cooperative Extension Office.
- *Only add fertilizer or lime as recommended by the soil test.*
Fertility

- In the Fall, prepare the bed as early as possible and enrich it with dried manure, compost, leaf mold, or a combination of these materials.

- In the Spring, have your soil tested:
  - Apply fertilizer according to soil test recommendation before planting.
  - Not a heavy nitrogen feeder - fertility needs to be brought up to a high level with the required amounts of potassium and phosphorus.
pH and Disease Resistance

- Asparagus grows best in soils with pH of 6.5 to 7.0
- Does not tolerate extremely acidic soils
- Asparagus will grow at lower pHs
  - *BUT research shows that lower pHs are more conducive to the growth of the fungal pathogen, *Fusarium* - *fusarium crown and root rot survives better in lower pH soils*
Good compost consists primarily of decomposed or partially decomposed plant and animal residues.

May also contain a small amount of soil.

Improves both the physical condition and soil fertility.
Organic matter in compost improves heavy clay soils

Binds soil particles together into “crumbs,” making the soil easier to work

Binding soil particles also helps improve aeration, root penetration and water infiltration and reduces crusting of the soil surface

Compost also increases the activity of soil microorganisms that release nutrients and other growth-promoting materials into the soil
SPRING BED ADDITIVES- LEAF MOLD

- essentially “composted” shade tree leaves
- DOES NOT undergo a heat-generating, bacterially-driven process
- is produced through a cooler, slower fungal-driven process
- can be mixed in during first time tillage for preparing the bed
- used as a surface mulch
SPRING BED ADDITIVES- LEAF MOLD

- Do not till in fresh tree leaves to the soil
- Tree leaves are high in carbon & low in nitrogen compared to other materials  60:1 CARBON TO NITROGEN RATION
  - soil microorganisms will use up the soil nitrogen to break down the leaves
  - leads to nitrogen deficiency in plants
- However, given adequate time and moisture, separate fungal decomposition of leaves results in an excellent material that can be added to the soil
PLANT SELECTION

ALL PRODUCE EDIBLE SPEARS

DIOECIOUS

FEMALE plants
- less spear production (but spears larger)
- Female shorter lived
- Female produce 8 seed in each round, red fruit they produce
- Can produce undesirable weedy seedling asparagus plants

MALE plants
- mostly hybrids
- male flowers produce no seeds
- grow a greater number of smaller, uniform spears
- Male plants tend to live longer and produce more spears
PLANT SELECTION

• All- male hybrids developed for
  • improved productivity
  • uniform spear size
  • disease resistance to rust & Fusarium crown rot

CULTIVARS

• Older cultivars - ‘Martha Washington’ and ‘Mary Washington’ – mix of male and female

• Cultivars also vary in
  • spear color
  • bract color
  • thickness and length of spears
  • earliness
TRANSPLANT SELECTION

- There are several varieties available from garden shops and online.
- BEWARE
  - When choosing pay attention to sex, resistance to asparagus diseases
  - Rutgers University-bred Jersey line
    - SUPREME
    - PRINCE
    - KNIGHT
  - High resistance to rust, and is highly tolerant to fusarium.
  - 2017 class received Jersey Supreme
  - Adaptable to stress Short periods of drought, unseasonable cold
  - Has fared well in a wide range of soil types
THREE METHODS OF PLANTING ASPARAGUS

1 - SEEDING
2 - SEEDLING TRANSPLANTS
3 - CROWNS
THE CROWNS

1-can be planted as one-, two- or three-year crowns (vegetative propagation) in early spring
2-keep crowns cool and dry before planting
3-separate crowns that are tangled and grown together
4-locate buds and roots
5-Remove rotted, shriveled roots
WHAT TO LOOK FOR

YES

NO
BED SPACING

- Plant crowns in rows 18” x 4’ to 5’, or in wide beds of three rows with plants 18 inches apart in all directions.
Crows grow both vertically and horizontally over several years.

Correct planting depth helps plants live a long time.

- Planting too shallowly can cause early spear emergence in the spring, which increases risk of crown freeze damage and winterkill.
TRANSPLANTING CROWNS

- Create a trench 12 to 18 inches wide and 6-8 inches deep.
- Place small soil mound in middle of trench, for trench length.
- Space crowns 9 to 12 inches apart, bud side up on mound top.
- Spread the roots out uniformly, leaving the crown and buds upright, centered position, slightly higher than the roots.
Fill in the trench until the crown is covered with two inches of soil.

Continue to gradually fill the trench as plants grow taller throughout the first summer.

tendency to "rise" as the plants mature, the crowns gradually growing closer to the soil surface.

Keep the bed well watered.

Many gardeners apply an additional 1 to 2 inches of soil from between the rows in later years.
MANAGING PLANTING

- supplemental water increases productivity, extends life of planting
- supplemental water especially important during establishment (first 2 years after planting crowns)
- In mature beds, watering during fern production appropriate
- Stop supplemental watering in fall to facilitate asparagus dormancy
- Ferns (tops) are left standing until after the first of the year whenever possible.
  - Early fern removal can weaken crowns because it results in inadequate food supplies reaching the roots
- Removing and burning fern growth around the first of the year helps eliminate potential disease problems that might otherwise develop during the growing season
Soil moisture important for good root & fern growth

Established beds need plenty of water during the summer

Asparagus plants do not show signs of drought stress, so make sure plants have enough water during the growing season

If the planting does not receive at least one inch of rain weekly, soak the soil at least once a week
CONTROLLING WEEDS

- Weed before spears break through soil in early spring to avoid breaking off spears.
- During growing period, pull weeds rather than using a hoe.
- Remove ferny seedlings of volunteer asparagus plants.
- Add three to four inches of mulch on top of beds.
The most common insect pests on asparagus in Kentucky are the common and spotted asparagus beetles. They damage asparagus by feeding on the spears, resulting in browning and scarring. Their feeding can also cause asparagus shoots to bend over making them look like a shepherd’s crook.
ASPARAGUS BEETLE
DISEASES

- Use **good cultural control practices** to reduce disease problems.
- Common diseases of asparagus include Fusarium crown rot, asparagus rust, and Stemphylium purple spot.
- Asparagus rust causes yellow and rusty orange spots to form on asparagus stems after harvest.
- Purple spot causes sunken purple spots on asparagus spears, and tan spots with a purple border on mature stems.
- Plants suffering from crown rot have poor growth:
  - Leaves and stems yellow and die back
  - Infected crowns are brown and decayed
  - Jersey Giant, Jersey Knight, and other members of the Jersey line tolerate crown rot
WHEN TO HARVEST

- Newer male cultivars - PLANTED 2020
- 1\textsuperscript{ST} spring (2021) a year after planting the crowns, do not harvest any spears. Allow the spears to become ferns and build the strength of the crowns
- 2\textsuperscript{ND} Spring (2022), if plants developed well over the past year begin harvesting lightly FOR 5 to 7 days
- 3\textsuperscript{RD} spring (2023) 10 to 14 days of harvesting
- 4\textsuperscript{th} year and beyond (2024 +) harvest for 8 to 10 weeks
Traditionally – recommended harvested the third year (2023) after planting crowns

- cut spears that are the diameter of a pencil or larger, but for no more than one month (3-4 weeks) the third year
- To cut more smaller spears or to cut spears for more than the recommended will weaken plant

During the fourth year (2024) and beyond, harvest from their first appearance in the spring for approximately 8

- Harvest spears 5 to 8 inches in length by cutting or snapping at the spear base
- Cutting with knife you run of damaging developing spears
HARVEST

- Only harvest spears pencil size in diameter or bigger
- Harvest spears 5 to 8 inches in length by cutting or snapping at the spear base
- Choose bright green stalks with tightly closed tips. The most tender stalks are apple green in color with purple-tinged tips.

CAUTION: Cutting with knife you run of damaging developing spears
AFTER HARVEST

- After harvest allow the spears to grow
- Ferns create energy that is stored in crowns
- Energy made from this year’s ferns produces next year’s spears
- Plants harvested too heavily and/or too soon become weak and spindly and the crowns may never recover
- Approximate yield (per 10 foot row) is 3 to 4 pounds/year
KENTUCKY ASPARAGUS

Nutrition
Good source of Vitamin A, K and C, folate, and phytonutrients - especially glutathione, an important antioxidant

One-half cup of fresh, steamed asparagus has 22 calories, 2 grams of protein, and 4 grams of carbohydrate.
KENTUCKY ASPARAGUS

STORAGE:
✓ Fresh asparagus will keep 1-2 weeks in the refrigerator
✓ Refrigerate upright with cut ends in water or with cut ends wrapped in wet paper towels in a plastic bag
KENTUCKY ASPARAGUS

PREPARATION:
✓ One pound of asparagus will yield 4 one-half cup servings, about 6 spears per serving
✓ Wash asparagus thoroughly in cool, running water
✓ Eat asparagus raw or lightly boil, steam, stir-fry, or grill
✓ Try seasoning it with herbs, butter, or Parmesan cheese
✓ Overcooked asparagus will be mushy
Recipe

ASPARAGUS TOMATO STIR-FRY

- ¾ pound fresh asparagus
- ¼ cup chicken or vegetable broth
- 1 tablespoon lite soy sauce
- ½ teaspoon ground ginger
- 1 clove garlic, minced
- ¼ teaspoon black pepper
- 1 teaspoon cornstarch
- 4 green onions
- 2 Roma tomatoes
- 1 ⅓ cups fresh mushrooms
- 1 tablespoon olive oil

1. Trim asparagus and cut into 1 inch pieces.
2. Combine broth, soy sauce, ginger, garlic, pepper and cornstarch in a small bowl to make sauce.
3. Chop green onions and tomatoes into ½ inch pieces. Slice mushrooms.

4. Pour oil into a wok or large skillet and preheat over medium-high heat.
5. Add asparagus and green onions; stir-fry 4 minutes.
6. Add mushrooms; stir-fry 1 additional minute or until asparagus is tender-crisp.
7. Push vegetables to the outer sides of the wok. Add sauce in center, cook until thick and bubbly. Add tomatoes.
8. Stir well and heat through.

Yield: 4, ¾ cup servings.

Nutritional Analysis: 70 calories, 4 g fat, 0.5 g saturated fat, 0 mg cholesterol, 210 mg sodium, 7 g carbohydrate, 2 g fiber, 3 g sugars, 3 g protein.
Asparagus Ham Quiche

1 pound fresh asparagus, trimmed and cut into ½ inch pieces
1 cup, finely chopped ham
1 small finely chopped onion
2 (8 inch) unbaked pie shells

1 egg white, slightly beaten
2 cups shredded reduced fat cheddar cheese
4 large eggs
1 container (5.3 ounces) plain Greek yogurt
½ cup 1% milk
¼ teaspoon ground nutmeg
¼ teaspoon salt
¼ teaspoon pepper

Preheat oven to 400 F. Place asparagus in a steamer over 1 inch of boiling water and cover. Cook until tender but still firm, about 4-6 minutes. Drain and cool. Place ham and onion in a nonstick skillet and cook over medium heat until lightly browned. Brush pie shells with beaten egg white. Spoon the ham, onion and asparagus into pie shells, dividing evenly between the 2 shells. Sprinkle 1 cup shredded cheese over the mixture in each shell. In a separate bowl, beat together eggs, yogurt, milk, nutmeg, salt and pepper. Pour egg mixture over the top of the cheese, dividing evenly between the 2 shells. Bake uncovered in a preheated oven until firm 25-30 minutes. Allow to cool approximately 20 minutes before cutting.

Yield: 16 slices

Nutritional Analysis: 200 calories, 11 g fat, 4.5 g saturated fat, 65 mg cholesterol, 370 mg sodium, 14 g carbohydrate, 1 g fiber, 3 g sugars, 10 g protein.

Buying Kentucky Proud is easy. Look for the label at your grocery store, farmers’ market, or roadside stand.
Asian Asparagus Salad

1 pound fresh asparagus
1 ½ tablespoons low sodium soy sauce
1 tablespoon olive oil
2 teaspoons sugar or artificial sweetener
2 teaspoons sesame seeds

1. Snap off and discard the root ends of the asparagus.
2. Wash remaining stalks thoroughly.
3. Slice stalks into 1 ½ inch lengths on the diagonal.
4. Blanch asparagus for 1-3 minutes in boiling water, until bright green in color.
5. Cool immediately under cold water and drain.
6. Combine soy sauce, sugar, olive oil, and sesame seeds in a small glass bowl. Mix dressing until sugar is dissolved.
7. In a gallon zip-seal bag, add asparagus and dressing. Turn bag to coat asparagus with dressing and chill in the refrigerator for 15 minutes. Turn bag again and chill for an additional 15 minutes before serving.

Yield: 4, ½ cup servings.

Nutrition Analysis: 70 calories, 4.5 g fat, .5 g sat. fat, 0 mg cholesterol, 250 mg sodium, 7 g carbohydrate, 2 g fiber, 3 g protein.

Buying Kentucky Proud is easy. Look for the label at your grocery store, farmers’ market, or roadside stand.
Remove any rotted roots before planting
Crowns should be raised slightly above the roots
Spacing is important for health and production
Trench should not be filled in completely (level with soil) when you first plant crowns
Fill trench gradually over the course of the growing season to help establish vigorous fern growth
Healthy fern growth is essential to good spear production
For newer male cultivars:

- Allow to go to fern the 1\textsuperscript{st} and begin harvest 2\textsuperscript{nd} spring after planting
  - planted spring 2020
  - 1\textsuperscript{st} spring=2021
  - limited harvest begins 2\textsuperscript{nd} spring=2022

For traditional or unknown varieties (female):

- Allow to go to fern the 1st and 2nd spring after planting;
  i.e. planted spring 2020, 1st spring=2021, 2nd spring=2022, harvest begins 2023
REMEMBER . . .

- Scout early and often for disease and insect problems
- Manage moisture
- Manage weeds
- Remove diseased plant material
A TO Z

Information from Asparagus to Zucchini

Transplant tables

Insects

Diseases
Resources

University of Kentucky, College of Agriculture, Food and Environment, Cooperative Extension Service County by County Listing: http://extension.ca.uky.edu/county

University of Kentucky, College of Agriculture, Food and Environment, Cooperative Extension Service Home Vegetable Gardening in Kentucky, ID-128 Vegetable Crops; http://www2.ca.uky.edu/agcomm/pubs/id/id128/id128.pdf

Kentucky Proud Project/Plate it Up Recipes: County Extension Agents for Family and Consumer Sciences; https://fcs-hes.ca.uky.edu/piukp-recipes

USDA Interactive Plant Hardiness Zone Maps https://planthardiness.ars.usda.gov/PHZMWeb/InteractiveMap.aspx

Sources

- University of Kentucky, College of Agriculture, Food and Environment, Cooperative Extension Service Home Vegetable Gardening in Kentucky, ID-128 Vegetable Crops, page 30; http://www2.ca.uky.edu/agcomm/pubs/id/id128/id128.pdf
- University of Kentucky, College of Agriculture, Food and Environment, Cooperative Extension Service; Center for Crop Diversification Crop Profile: Asparagus; Cheryl Kaiser, Matt Ernst; https://www.uky.edu/ccd/production/crop-resources/vegetables/asparagus
- University of Minnesota Extension; Growing Healthy Vegetables; https://extension.umn.edu/planting-and-growing-guides/growing-healthy-vegetables
- www.fruitsandveggiesmatter.gov
- Michigan State University Extension; Preparation for asparagus planting begins the year before, Norm Myers, https://www.canr.msu.edu/news/preparation_for_asparagus_planting_begins_the_year_before
- University of Missouri Extension; Making and Using Compost; Reviewed by Christopher J. Starbuck, Division of Plant Sciences; https://extension2.missouri.edu/g6