GROWING ASPARAGUS

In the Home Garden

University of Kentucky
College of Agriculture, Food and Environment
Cooperative Extension Service

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#TeamKY

Asparagus

Asparagus officinalis

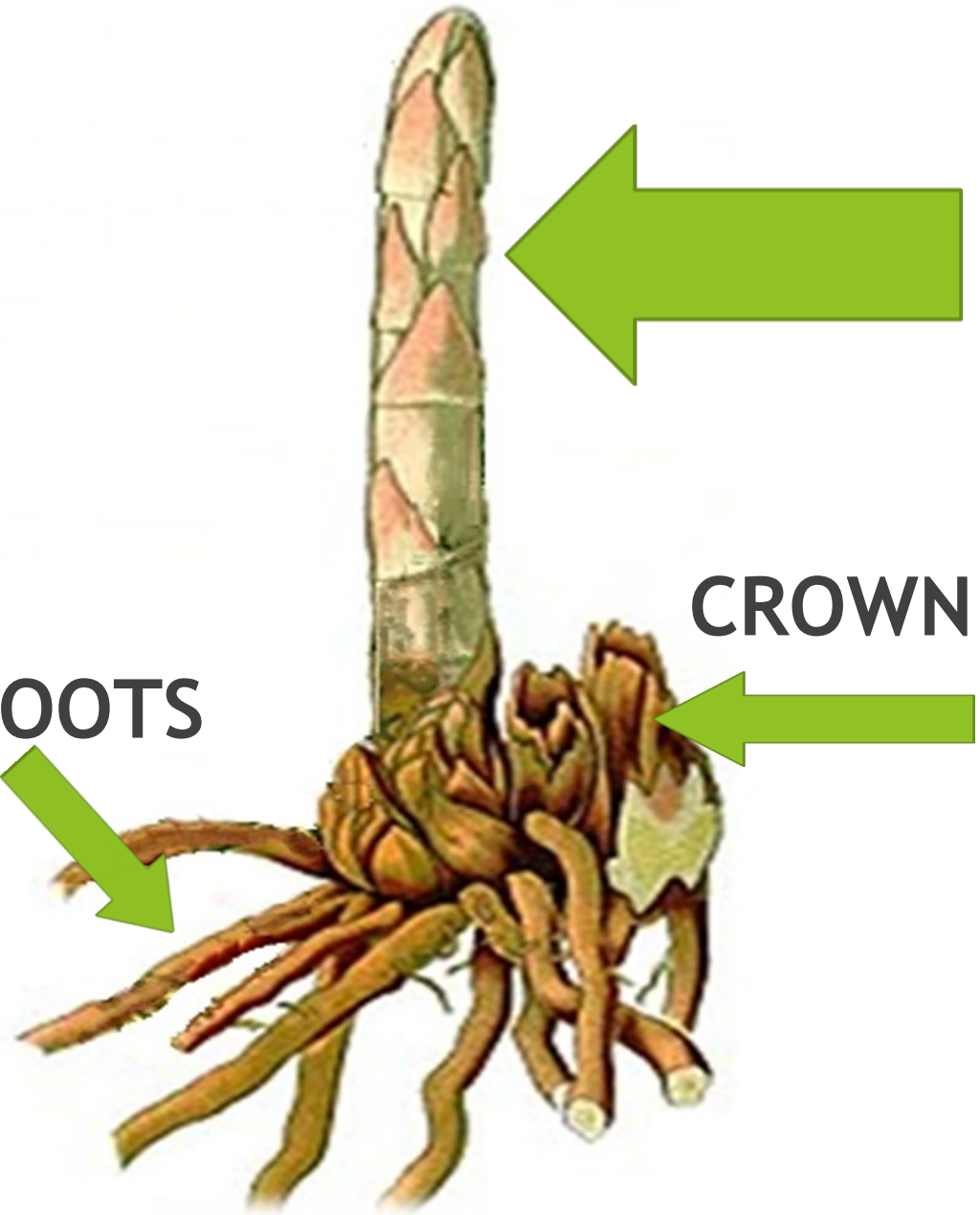
- Botanically, member of lily family
  - closely related to onions and leeks
- Hardy perennial vegetable
- one of earliest spring vegetables harvested
- premium vegetable

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

- 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

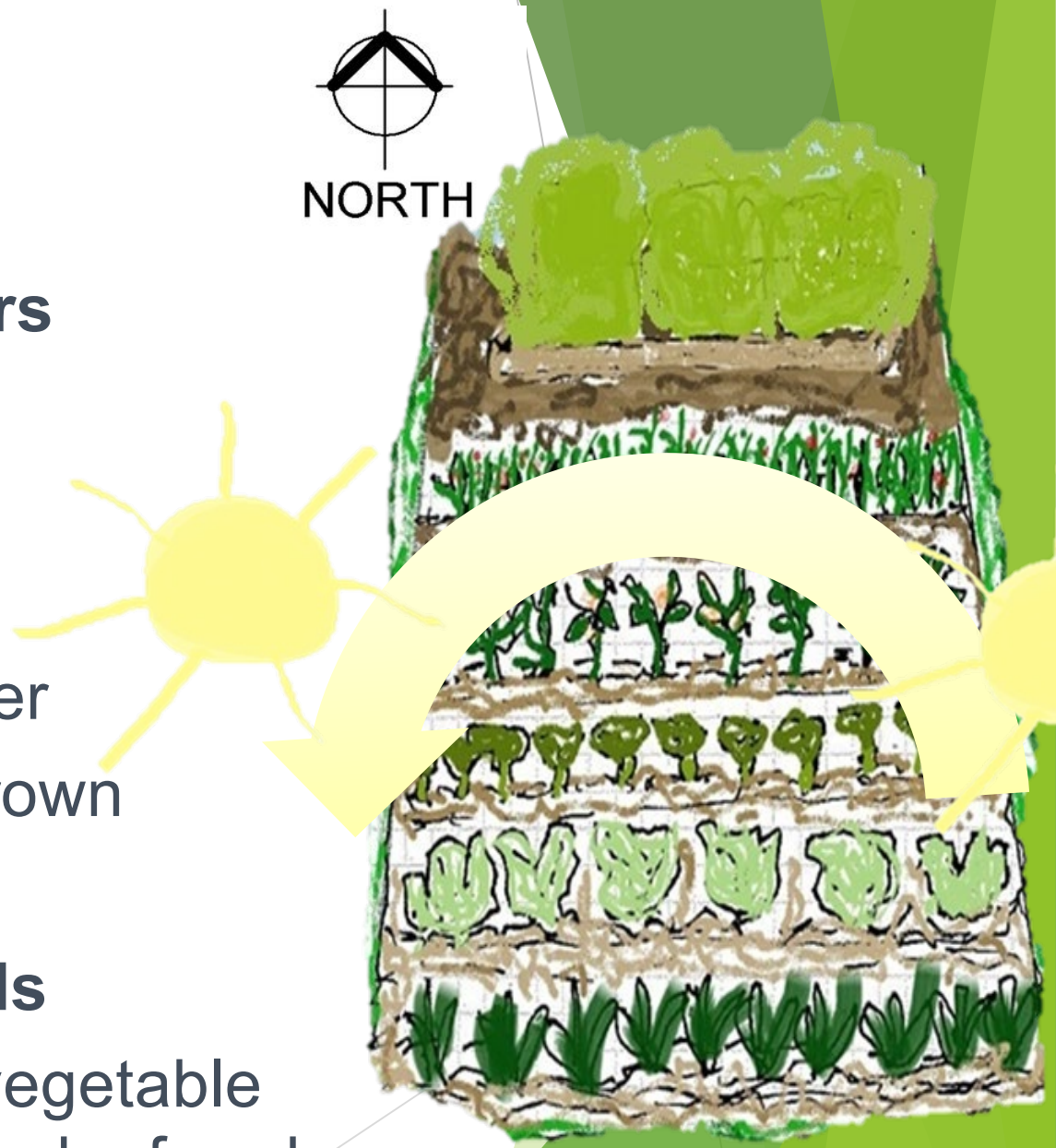
asparagus plants live 15 to 25+ years

- 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***

UGA EXTNESION, University of Georgia

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

SPRING BED ADDITIVES- COMPOST - soil additive

- 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

SPRING BED ADDITIVES- COMPOST

- 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

CULTIVARS

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

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

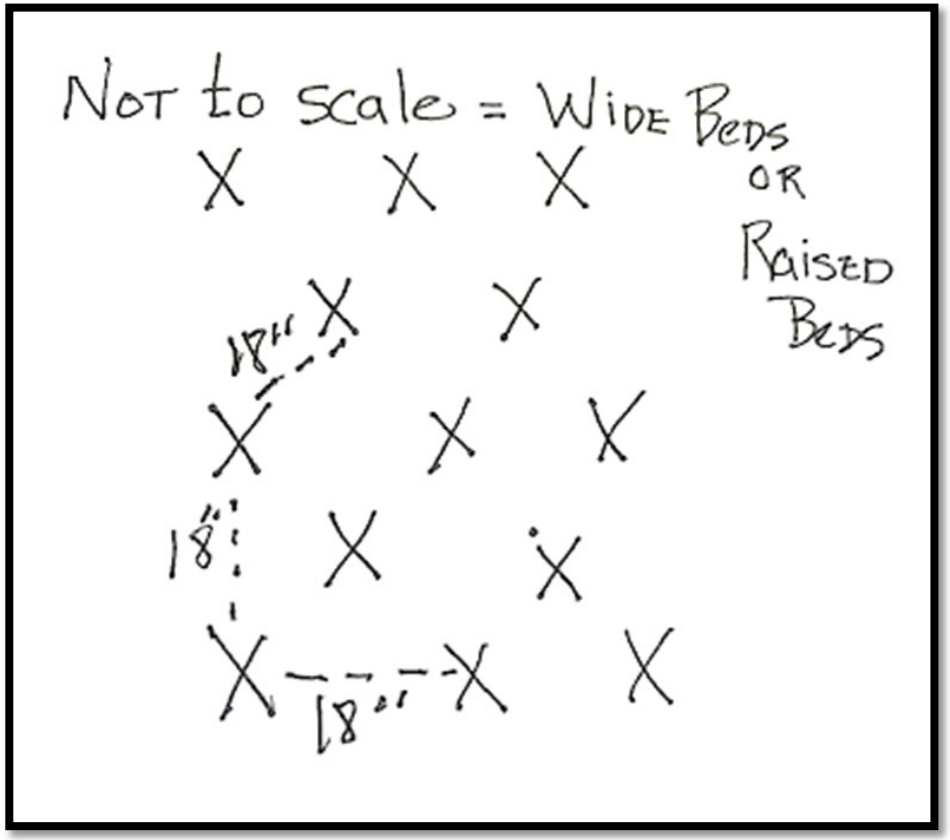
WHAT TO LOOK FOR

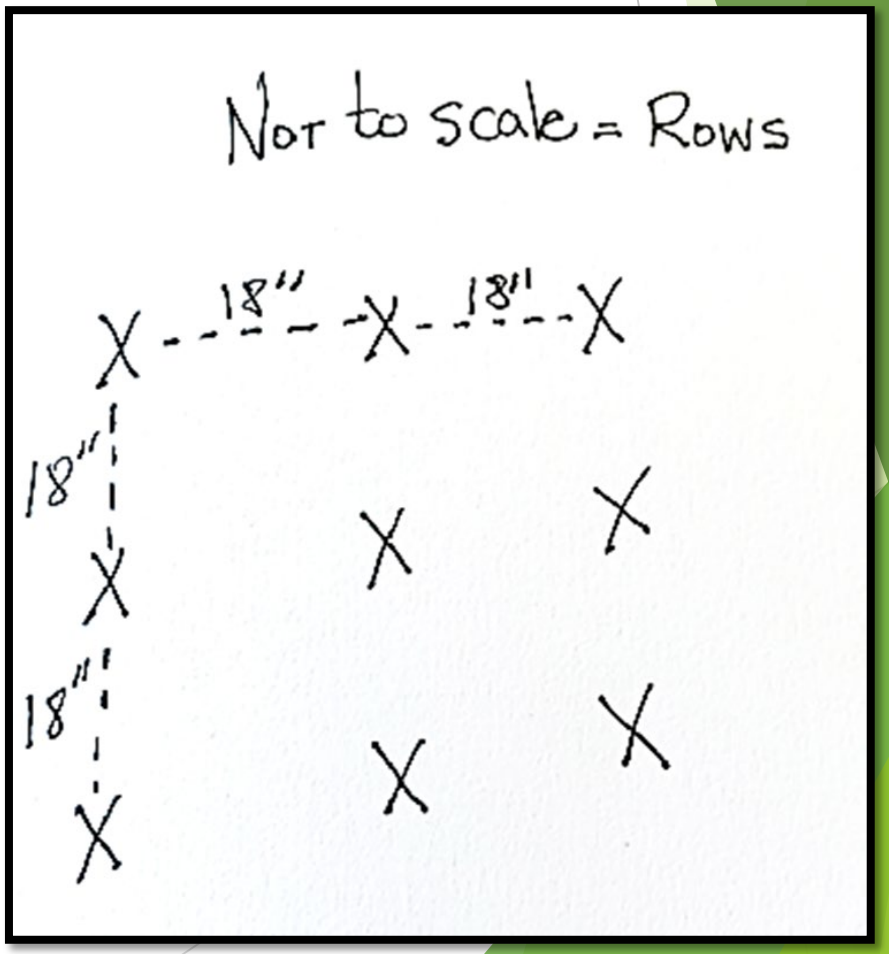
YES

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.





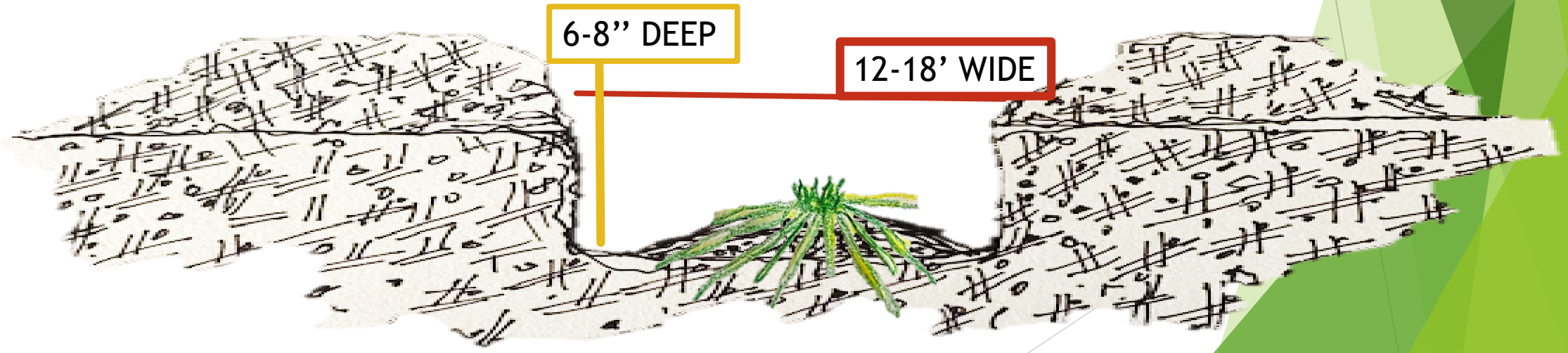
STARTING CROWNS

PLANTING DEPTH IS EXTREMELY IMPORTANT

- Crowns 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



TRANSPLANTING CROWNS

- 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

WATERING

- 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

INSECTS

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
- 1ST 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
- 2ND Spring (2022), if plants developed well over the past year begin harvesting lightly ***FOR 5 to 7 days***
- 3RD spring (2023)10 to 14 days of harvesting
- 4th year and beyond (2024 +) harvest for 8 to 10 weeks

WHEN TO HARVEST

- 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 years 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 a 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

COOPERATIVE EXTENSION SERVICE
UNIVERSITY OF KENTUCKY COLLEGE OF AGRICULTURE, FOOD AND ENVIRONMENT, LEXINGTON, KY 40546

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College of Agriculture, Food and Environment

Plate it up! Kentucky Proud

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
- **1½ 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
⅓ 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.

Plate it up! Kentucky Proud

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

1½ tablespoons low sodium soy sauce

2 teaspoons sugar or artificial sweetener

1 tablespoon olive oil

2 teaspoons sesame seeds

1. **Snap** off and discard the root ends of the asparagus.
2. **Wash** remaining stalks thoroughly.
3. **Slice** stalks into 1½ 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.

Kentucky Proud

REMEMBER . . .

- 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

REMEMBER . . .

For newer male cultivars:

- ✓ Allow to go to fern the 1st and begin harvest 2nd spring after planting
  - ✓ planted spring 2020
  - ✓ 1st spring=2021
  - ✓ limited harvest begins 2nd 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

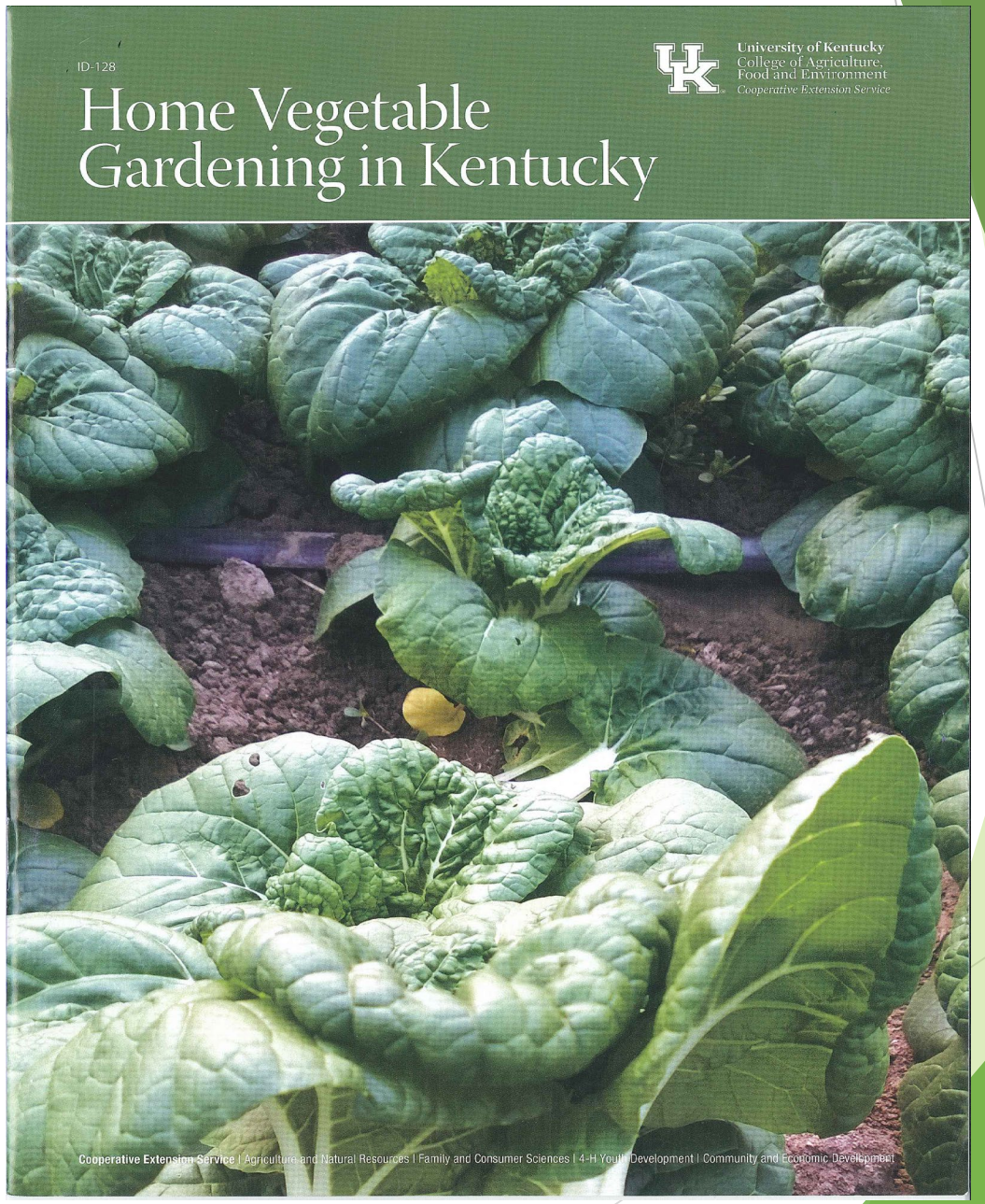
A TO Z

Information from Asparagus to Zucchini

Transplant tables

Insects

Diseases



Resources & Sources

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

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- University of Maryland Extension https://extension.umd.edu/hgic/topics/asparagus-beetles-vegetablesAsparagus; Beetles – Vegetables: Photos: J. Linduska and L. Gilbert
- 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
- Cornell University Cooperative Extension, Asparagus Information Bulletin 202; R.F. Sandsted, D.A. Wilcox, T.A. Zitter, and A.A. Muka
- 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