

AGRICULTURAL PRODUCTS

IDENTIFICATION

STUDY GUIDE



# OVERVIEW

20 Texas agricultural products are selected and exhibited at separate stations. Contestants select the correct identification of each product from four possible answers. Each station also has one multiple choice question pertaining to the product on display. Questions are general to the industry that produced the product, (i.e. Texas' national ranking, economic impact to Texas, general nutritional content, region of production) and specific to the individual product that is on display (i.e. cooking method, use, growing season, specific nutrition of the cut or variety). Contestants are given 40 seconds at each station to answer both questions. Products can range from garlic to a rib-eye steak.

In this manual, you will find example products from the contest, the contest set up, rules, and photos so you can begin to train your very own Agricultural Identification Team.

## NOTE:

The Pick Texas resources formerly hosted by Texas Department of Agriculture has been replaced with the GOTexan website.

Some resources on this page can be utilized as well as the Texas Produce Association website.





# Agriculture Product Identification Contest

Superintendent – Dr. Chris Boleman – College Station, TX  
Assistant Superintendent – Amy Dromgoole – College Station, TX

Wednesday, March 19

4-H/FFA Team Registration	8:30 a.m.	Reliant Center – Rooms TBD
Public School Team Registration	8:30 a.m.	Reliant Center – Rooms TBD
4-H/FFA Contest Start	9 a.m.	Reliant Center – Rooms TBD
Public School Contest Start	9 a.m.	Reliant Center – Rooms TBD
Awards Presentation:	following contest	Reliant Center – Rooms TBD

This show is subject to the Houston Livestock Show General Rules and Regulations and to the Special Rules of this section. Where Special Rules conflict with other rules, Special Rules prevail.

## Special Rules for Agricultural Product Identification Contest

### 1. Eligibility:

- This event is an invitational contest, open only to the first 100 teams to successfully submit an entry form.
- Students must be between the ages of 8 and 18 on or before August 31, 2013 and enrolled in, and attending a public or private junior high or high school in Texas. Enrolled college and university students are not eligible to participate.
- This event is open to contestants who are members of 4-H or FFA who meet all Houston Livestock Show and Rodeo Junior Show Rules and Requirements or any student that is enrolled in and attending a public or private junior high or high school in Texas.
- There shall be two divisions:
  - 4-H and FFA – 4-H team members must be from the same county. FFA team members must be from the same Chapter.
  - Public School – Team members must be from the same school
- Each team shall consist of a minimum of three (3) and a maximum of four (4) contestants, with the three (3) highest scores being used to compute team scores.
- Each AST, CEA, or school official may enter as many as three (3) teams per chapter, club or school.
- Each team and its division must be designated and certified by an AST, CEA, or school official at the time of entry.
- Contestants must be passing all subjects for the semester or grading period immediately preceding the contest as certified by the school official, Agriculture Science Teacher (AST) or County Extension Agent (CEA) on the entry form.



- Entry:** An entry fee of \$10, made payable to HLS&R, will be charged per team. Entries must be submitted prior to midnight, **December 1, 2013**. Indemnities and W-9's must be mailed to the Houston Livestock Show and Rodeo, Livestock Office, P.O. Box 20070, Houston, TX 77225-0070. Entry forms and accompanying forms can be downloaded at [www.rodeohouston.com](http://www.rodeohouston.com). Forms with missing information will be considered incomplete entries and will not be accepted.

### 3. Conduct of Contestants:

- There will be no talking between contestants during the contest. Violating this rule may cause the contestants and their teams to be disqualified and ineligible to receive awards.
- Only contestants and contest officials will be permitted in the contest area during competition.
- Contestants must have their contestant number clearly visible on their clothing.
- Contestants cannot smoke or use any tobacco products in contest facilities.
- Contestants must advance from one exhibit to the next when instructed to do so.
- Contestants must evaluate each exhibit in sequence and will not be allowed to return to any exhibit after advancing.
- Contestants should not in any way willfully obstruct the work of another contestant.
- If an ineligible contestant is permitted to judge, the team and individual members of that team will be ineligible for prizes and future entry into this contest may be denied to the school, County 4-H, or FFA Chapter.
- No electronic communication devices will be allowed in contest area.

- Contest Format:** Twenty (20) Texas agricultural products selected from the [Texas Agriculture Product List](#) will be exhibited at separate stations. Contestants will select the correct identification of each product from four possible answers and bubble their answer in on a scantron sheet. Each station will also have one multiple choice question pertaining to the product on display. Questions may be: a) general to the industry that produced the product (i.e. Texas' national ranking, economic impact to Texas, general nutritional content, region of production); or b) specific to the individual product that is on display (i.e. cooking method, use, growing season, specific nutrition of the cut or variety). Contestants will be allowed 30 seconds at each station before they are asked to advance to the next station.

## Special Rules for Agricultural Product Identification Contest

5. **Scoring:** Contestants will receive five (5) points for each product that is correctly identified and five (5) points for each question that is correctly answered. Points will only be awarded on the follow up questions (pertaining to the product displayed) if the product is correctly identified.

**Total Points Possible**

**Individual**.....**200 points**  
**Team (high three scores counted)**.....**600 points**

6. **Ties:** Seven (7) stations will be selected as tie breakers in advance of the contest. Teams with the highest cumulative scores at these five stations will win any ties. If ties still remain, winners will be determined by the toss of a coin.
7. **References:** The following websites are recommended references. Teams will also benefit from their own web searches and by visiting supermarkets to view products listed on the [Texas Agriculture Product List](#).

Texas Produce Association (<http://www.texasproduceassociation.com/index.asp>)  
 TAMU Extension Texas Horticulture & Crops (<http://aggie-horticulture.tamu.edu/extension/Texascrops/index.html>)  
 USDA Cuts of Beef (<http://consumer.certifiedangusbeef.com/cuts/Default.aspx>)  
 Pork Cuts (<http://www.texaspork.org/Consumer.html>)  
 Texas Agriculture Products <http://www.beagsmart.org>

8. **Awards:**



<b>4-H/FFA Teams</b>	<b>Award</b>
First Place	\$400 school supply gift card, Team Trophy, Banner; Buckles
Second Place	\$300 school supply gift card, Team Trophy, Banner; Plaques
Third Place	Team Trophy and banner; Plaques for each team member
Fourth Place	Team trophy and banner
Fifth Place	Team trophy and banner

<b>Public School Teams</b>	<b>Award</b>
First Place	\$400 school supply gift card, Team Trophy, Banner; Buckles
Second Place	\$300 school supply gift card, Team Trophy, Banner; Plaques
Third Place	Team Trophy and banner; Plaques for each team member
Fourth Place	Team trophy and banner
Fifth Place	Team trophy and banner

Note: These are the comprehensive rules for the Houston Livestock Show and Rodeo in 2014. Please be aware prizes and slight differences will occur at other contests throughout the state.

Almond	Lime
Aloe Vera	Loquat
Apple	Mandarin
Apricot	Mango
Artichoke	Mayhaw
Asparagus	Muscadine
Avocado	Napa
Banana	Okra
Bean	Olive
Beet	Onion (Dry)
Black-Eyed Peas	Onion (Green)
Blackberry	Orange
Blueberry	Papaya
Bok Choy	Peach
Broccoli	Pear
Brussels Sprout	Peas
Cabbage	Pecan
Cantaloupe	Pepper (Bell)
Carrot & Maroon Carrot	Pepper (Chile)
Cauliflower	Persimmon
Celery	Pineapple
Cherry	Plum
Cilantro	Pomegranate
Coconut	Potato
Collard Greens	Pumpkin
Cucumber	Radish
Dill	Rosemary
Eggplant	Serrano
Fig	Snap Peas
Ginger	Spinach
Grapefruit	Squash (Summer)
Green Bean	Squash (Winter)
Guava	Strawberry
Honeydew	Sweet Corn
Jalapeno	Sweet Potato
Jicama	Tangerine
Jujube	Tomatillo
Kohlrabi	Tomato
Leeks	Turnip
Lemon	Walnut
Lettuce	Watermelon

Note: All Pork and Beef products will be/can be utilized in this contest.

Resources for these products can be found here:

- <http://www.certifiedangusbeef.com/cuts/Default.aspx>
- <http://www.texaspork.org/consumer.html>

# HOW DO I STUDY?

**Step 1: Review the resources on:** [http://texas4-h.tamu.edu/agriculture\\_products](http://texas4-h.tamu.edu/agriculture_products)

**Step 2: Pick a resource/product**

**Step 3: Review sample questions and quiz each other/students/teachers (See examples below)**

*Tip: Make Flash Cards/Bullet Point lists of 20 products each practice based on the resources and learn the various aspects of each product. Below is an example of a few resources and how to study each.*

## Almond

**Source:** Aggie Horticulture Website > Fruit And Nut Resources > Plums and Stone Fruit Page > Product > Almond:

- Almond fruit looks similar to peaches
- The pit is eaten as a nut.
- The tree looks similar also and is grown essentially the same as peaches
- plant only on well drained soils, and maintain a weed free area around the tree
- Almonds generally do not produce well in Texas because they bloom too early in the spring and cold weather injures the developing flowers.
- Most varieties are susceptible to brown rot and bacterial leaf spot.
- No variety is highly recommended because they generally fail to set crops.
- 'All-In-One' is the most common variety being tried today.

Source: Aggie Horticulture

### Possible question:

#### **Part 1:**

**What is this product?**

01. Prunus
02. Apple
03. Almond
04. Aloe Vera

**Answer: 03. Almond**

#### **Part 2:**

**When growing this product, what other fruit's methods are applied?**

- A. Apple
- B. Peach
- C. Artichoke
- D. None of the above

**Answer: B. Peach (see bullet point 3 above)**

# Avocado

Source: Texas Produce Association > Produce Availability > Avocado

- Season: Year Round
- Handle ripe avocados with care to avoid bruising. Do not dump avocados into displays. Check ripeness daily, displaying or using ripest fruit first.
- Unripe: All varieties should be free of bruises and hard or soft spots.
- Ripe: Ripe avocados should yield to gentle pressure and should be free of bruises and hard or soft spots. Pulp color and texture should be consistent with variety and free of any dark spots or streaks.
- Grayish-brown discoloration of skin or pulp; dark streaks through flesh: These are indications of chill injury. To prevent chill injury, do not store ripe avocados below 32 degrees F/0 degrees C and unripe avocados below 45 degrees F/7 degrees C. NOTE: Exposure to ethylene gas may increase symptoms of chill damage

Avocados may exhibit uneven ripening if they are stored at temperatures that are either too low or too high. Improperly stacked avocado boxes may also cause uneven ripening. To prevent uneven ripening, maintain proper storage temperatures for unripe fruit. Ordering preconditioned avocados will also help prevent uneven ripening. Stack avocado boxes on 40" x 48" pallets in an alternating four-block pattern to insure proper air circulation and temperature control.

Source: Texas Produce Association

## Possible question:

### **Part 1:**

**What is this product?**

01. Plum
02. Artichoke
03. Papaya
04. Avocado

**Answer: 04. Avocado**

### **Part 2:**

**When is this product in season?**

- A. Year Round
- B. December - January
- C. January - March
- D. June - August

**Answer: A. Year Round (see bullet one above)**



# Aloe Vera:

- A perennial succulent grown from vegetative parts (“pups”) lasting four to seven years producing juice for cosmetic, juice and pulp uses, or for healing wounds.
- Three to five basal leaves are hand harvested every six to eight weeks.
- New apical leaves continue to emerge. The fleshy, pulpy leaves are crushed, pressed to extrude juice or aloe gel, placed in barrels, and hauled to buying points; later juice is concentrated, pasteurized, and/or freeze-dried.
- Aloe is used in beverages, cosmetics, herbal products, and other uses in a rapidly growing market.
- Production ranges from small plantings of individual families (as a cottage industry) to commercial fields of 200 acres or more in the U.S. Aloe is also imported from Mexico and Central America.
- Insect pests include mealybug.
- Weeds include annual and perennial weeds.
- Diseases include Phytophthora and Pythium root rot, Erwinia soft rot, and some slime molds.
- Season: Year Round

**Source:** [Aggie Horticulture](#) > [Vegetable Resources](#) > [Guides](#) > [The Crops of Texas](#) > [Misc. Food Crops](#)

# Apple:

- Apple trees prefer deep, well drained soil with a pH between 6.5 and 7.0.
- In north central Texas and the Hill Country, alkaline soils are prone to having apple production limited from Cotton Root Rot (Phymatotrichopsis omnivora).
- Other soil borne pathogens such as Collar Rot (Phytophthora cactorum) can also be problematic, but site selection, fungicides and rootstock selection can help overcome this disease.
- Because temperatures during fruit ripening are quite warm in Texas, poor fruit color on red varieties can be a problem for commercial producers in the wholesale market, but has no effect on in-hand eating quality for homeowner and local sales.
- The major factor that limits selection of apple varieties is chilling requirement.
- Although there have been numerous attempts to grow apples commercially in several parts of Texas, today, most successful production is centered in the Davis Mountains and the High Plains region near Lubbock.
- Ample winter chilling and a relatively dry growing season allow for a greater number of varieties to be grown with less fungal and bacterial disease pressure.

**Source:** [Aggie Horticulture](#) > [Fruit and Nut Resources](#) > [Apples](#)

# Apricot:

- The apricot, *Prunus armeniaca*, is closely related to plum botanically and culturally, and is thought to have originated in Armenia.
- Apricots are small trees with a spreading canopy.
- It is not uncommon to find trees that are 25 to 30 feet in height and width.
- The fruit is similar to a small peach, ranging from yellow to orange and often tinged red on the side most exposed to the sun.
- Its skin is smooth but can be covered with very short hairs.
- Apricots are self-fruitful; they do not require a pollinator.
- Apricots range in color from yellow to orange.
- Unfortunately, fruiting is inconsistent on all varieties.
- Frost damage can cause crop loss, but fruit often fails to set regardless of temperature.
- Fruit buds can lose cold hardiness if there are wide temperature swings in late winter.
- Do not expect annual crops.
- Apricots are generally grafted on peach rootstocks.

**Source:** [Aggie Horticulture](#) > [Fruit and Nut Resources](#) > [Stone Fruit](#)

# Artichoke

- Plants can reach 3 feet in height and width, and the flower, if allowed to bloom, can be 7 inches in diameter.
- Do not expose artichokes to temperatures below 25 degrees F in the winter.
- A hot, dry climate causes artichoke buds to open quickly and destroys the tenderness of the edible parts. In the summer, irrigation will help keep temperatures down in the crop canopy to prevent bud opening.
- Powdery mildew, Verticillium wilt, and botrytis rot are common during rainy weather. Curly dwarf virus and bacterial crown rot are other artichoke diseases.
- Artichoke is a perennial plant so once the harvest is done in June, cut the plant back to the soil level. This will put the plant crown into a dormant stage during the summer.

**Source:** [Aggie Horticulture](#) > [Easy Gardening Series](#) > [Artichokes](#)

# Asparagus

- Highly desirable, early-spring vegetable best suited to the cooler areas of North and West Texas. It can also be grown in areas such as Dallas and Houston.
- It produces poorly in areas with mild winters and extremely long, hot summers. With proper care and in a suitable climate, an asparagus crown can last 15 to 25 years.
- Asparagus is a good source of Vitamin A and C and minerals, and it tastes better when homegrown than when shipped into Texas from other areas.
- Grown for its stems or spears, asparagus yields 8 to 10 pounds or more per 100 square feet of bed if tended well.
- Martha Washington, UC 157, Jersey Giant, and Mary Washington are all varieties of asparagus.
- Asparagus plants need frequent, deep watering. Water the beds thoroughly, and allow the top 1 inch of soil to dry before watering again.
- Do not harvest during the first 2 years after planting.
- White asparagus is grown by covering an asparagus row with black plastic supported by wire hoops.

**Source:** [Aggie Horticulture](#) > [Easy Gardening Series](#) > [Asparagus](#)

- Asparagus should be fresh and firm with compact tips.
- Spears should be straight and round, and should snap easily when bent.
- Contrary to popular belief, diameter of spears is not an indicator of quality. Spears with larger diameters are just as tender and flavorful as slender spears.
- Avoid asparagus with wilted appearance or spreading tips.
- Asparagus is a member of the lily family. Commercial forms are actually the shoots of the immature plant.

The two most common types are:

- Green – Predominant type for fresh availability. Green stalks with some white at base. Green tips with some purple tinge.
- White – Almost perfectly smooth and rounded at the tip, with no bract development visible. Spears are thicker, more tender, and have a subtler flavor than green asparagus.
- Grades: U.S. No. 1, U.S. No. 2
- Storage Tips: To promote better shelf life, stand asparagus, butt-end down, in 1-inch water. Store away from ethylene producing fruits and ripening rooms.

**Source:** [Texas Produce Association](#) > [Product Availability](#) > [Asparagus](#)

# Banana

- Banana is a tropical herbaceous plant consisting of an underground corm and a trunk comprised of concentric layers of leaf sheaths.
- Bananas grow best in warm conditions. Temperatures in the high 20s can kill the plant to the ground.
- Orinoco or Horse bananas have a coarse-looking fruit about 6 inches long by 2 inches in diameter that is primarily used in cooking. Dwarf Cavendish is a short, compact variety that produces fruit typical of those in the supermarket. Other types of bananas are Lady Finger, Apple, Cavendish, and Ice Cream.
- Both dessert and cooking bananas may be fried or baked, but the cooking bananas are generally more starchy until nearly spoiled ripe, and their fresh flavor is not so good.
- Leaf tattering by wind is the most common problem in bananas.

**Source: Aggie Horticulture > Fruit and Nut Resources > Banana**

# Bean

- Visit <http://aggie-horticulture.tamu.edu/vegetable/guides/the-crops-of-texas/beans-and-vegetables-legumes/> for all information regarding Texas Produced Beans and Legumes

# Beet

- Season: October-April
- Choose small to medium-size beets with firm, smooth skins and purple-red color. Tops should be clean, fresh, and tender. Avoid beets that are shriveled, soft, or have rough or flabby skins.
- Troubleshooting: Sprouting, decay, wilting, rough woody texture
- Beets may begin to wilt in low humidity. Sprouting and decaying occurs if they are stored in high temperatures. Rough and woody textures can be an indication of older age. Choose smaller beets so they will be more tender.
- Common varieties are Detroit, Ruby, Crosby, and Early Wonder.

**Source: Texas Produce Association > Product Availability > Beet**

- Beets grow well in cool temperatures of spring and fall. They do poorly in hot weather.
- They do not require much room to grow so they work well in home gardens.
- Beets grow well in partial shade and they grow best in deep, well drained soils.
- Beets do best in sandy soil in the spring and heavier soil in the fall because sandy soil warms faster than heavier clay soil.
- Beets are sensitive to soils deficient in Boron.
- Varieties of beets consist of Detroit Dark Red, Pacemaker, Red Ace, Red Cloud, and Warrior.
- Water plants weekly if it does not rain.
- Beets can be grown all winter in many South Texas areas. Farther North they should be planted as soon as the soil can be worked in spring.
- Flea beetles, webworms, aphids, and beet armyworms are insects that effect beets.
- Diseases are most severe in very cloudy, damp weather.

**Source: Aggie Horticulture > Easy Gardening Series > Beet**

# Black-Eyed Peas

- Season: September-March
- Look for clean, unbroken skins with a fresh smell and no slime.
- Buff-colored, kidney-shaped, bean with a black spot at the inner curve.
- Black-eyed peas will keep refrigerated for about two weeks. Pre-soaked beans may last longer in consistent temperatures.

**Source: Texas Produce Association > Product Availability > Black- Eyed Peas**

# Blackberry

- Blackberries tolerate the high summer temperatures unlike raspberries and other brambles.
- They bear nice fruit in spring, summer and fall.
- Machine harvesting blackberries is possible but not practiced in Texas.
- Blackberries are biennial plants having two types of canes. Current-season canes are called “primocanes” and one year-old canes are called “floricanes”.
- Blackberries are a warm southern climate crop.
- The varieties that are recommended to grow in Texas fall into three categories: Thorny, Thornless, and Primocane Bearing. Thorny varieties are the most productive in Texas.
- Varieties of Thorny blackberries consist of Brazos, Rosborough, Womack, Brison, Kiowa, Shawnee, Choctaw, and Chickasaw.
- Thornless varieties are Arapaho, Navaho, Ouachita, Apache, and Natchez.
- Primocane-Bearing varieties consist of Prime-Jim and Prime-Jan, and Prime-Ark 45.
- Double blossom (AKA “rosette, or “witches broom”) is the most serious fungal disease in east and southeast Texas. Anthracnose is a fungal disease that produces small purplish spots on the new shoots, and leaves in the spring and elliptical lesions on the emerging primocanes.
- Orange rust fungus produces masses of orange colored spots on the leaves in the spring.
- Crown gall is a bacterial disease that causes swelling on the base of the canes.
- Nematodes may infest roots and cause a loss of vigor and productivity.
- Strawberry weevil is a small, reddish brown, weevil which lays eggs at the base of the flower buds where the larva girdles the stem.
- Red-neck cane borer burrows longitudinally in the cane, causing plants to lose vigor and die.
- Spider mites may feed on leaves during the summer, giving them a dull grey look.
- Stink bugs and leaf-footed plant bugs attack maturing berries causing dried brownish drupelets. Thrips may live in the berries between the drupelets, making them unmarketable.
- White grubs may feed on the roots, lowering plant vigor.

**Source: Aggie Horticulture > Fruit and Nut Resources > Blackberries**

# Blueberry

- Rabbiteye blueberries are the best blueberries for Texas. They are grown in East Texas, where humid woodlands are typical of native rabbiteye blueberry habitat.
- A single rabbiteye blueberry plant can produce 15 pounds of berries per year, and the berries are easily marketed.
- Rabbiteyes bloom in the spring.
- Varieties of rabbiteyes are as follows: Prince, Woodard, Brightwell, Climax, Alapaha, Austin, Premier, Vernon, Powderblue, Tifblue, and Ochlockonee.
- Rabbiteye blueberries are calcifuges: plants that do not tolerate alkaline soil or water. They will not thrive unless the soil pH is in range of 4.0 to 5.5.
- Appropriate mulches for rabbiteyes include peat moss, pine straw, pine bark, leaves, and grass clippings.
- In most Texas locations, the harvest season extends from May through July, depending on the varieties grown.
- Rabbiteyes ripen unevenly within a fruiting cluster, pick individual berries over a period of 4 to 6 weeks.
- The main fruit-attacking insect is the blue-berry maggot.
- Diseases caused by fungi include mummy berry, botrytis blight, and anthracnose or ripe rot.
- Birds are also a problem in blueberry orchards.

**Source: Aggie Horticulture > Fruit and Nut Resources > Blueberries**

# Bok Choy

- Season: December-April
- Good quality bok choy should exhibit clean, crisp stalks and fresh-looking leaves. Avoid wilted or significantly discolored product.
- Troubleshooting: Wilting and yellowing. Wilting is caused by being stored in an area with low humidity. Humidity level should be 90-98%. Yellowing is the result of bok choy being exposed to ethylene.
- Bulb-like base with thick white stalks and large, dark green leaves.

**Source: Texas Produce Association > Product Availability > Bok Choy**

# Broccoli

- Cool season crops
- Easy home garden crop because it can be produced quickly and harvested several times.
- The varieties of broccoli are Arcadia, Bonanza, Green Comet, Green Magic, Packman, Premium Crop, and Southern Comet.
- Few diseases effect broccoli, but there are practices that will keep disease pressure down. Rotate crops every year and do not plant the same crops of the same family in the same place for more than once every 3 to 4 years.
- Aphids, Harlequin bugs, cabbage loopers, and imported cabbage worms are insects that effect broccoli crops.
- Broccoli must be harvested as soon as it is ready. Delayed harvest will result in tough, poor quality produce.

*Source: Aggie Horticulture*

- Season: year round
- Broccoli should have light green stalks, of consistent thickness. Bud clusters should be compact and dark green with some purple tinge.
- Avoid broccoli with open, flowering, discolored, or water-soaked bud clusters and tough, woody stems.
- Troubleshooting: yellow bud clusters, loss of buds, discolored leaves, buds dropping off, softening of texture.
- Broccoli is sensitive to ethylene. Exposure to this gas can cause bud clusters to turn yellow or drop off. Holding broccoli for long periods of time may cause discoloration, loss of buds or general softening of the product.

**Source: Aggie Horticulture > Easy Gardening Series > Cole Crops**

# Brussels Sprout

- Cool season crop
- Varieties of brussels sprouts include Diablo, Jade Cross, Royal Marvel, and Tasty Nugget.
- Brussels sprouts are the most cold tolerant of the cole crops.
- Few diseases effect brussels sprouts, but there are practices that will keep disease pressure down. Rotate crops every year and do not plant the same crops of the same family in the same place for more than once every 3 to 4 years.
- Aphids, Harlequin bugs, cabbage loopers, and imported cabbage worms are insects that effect brussels sprout crops.
- Good source of protein, minerals, and vitamins when properly prepared.
- Brussels sprouts can be served raw in salads or cooked.

**Source: Aggie Horticulture > Easy Gardening Series > Cole Crops**

# Cabbage

- Harvest when the head becomes firm.
- Good source of protein, minerals and vitamins.
- Cabbage is served cooked, raw in cole slaw, or processed in sauerkraut.
- Cool season crop
- Cabbage grows best in full sunlight when being grown in sandy loam soils with lots of organic matter.
- There are several varieties of cabbage. They consist of Early Jersey Wakefield, Golden Acre, Green Boy, Market Prize, Rio Verde, Ruby Ball, and Savoy King.
- Cabbage can be grown in spring and fall, but fall planting is more successful.
- Cabbage can easily spread two feet if fertilized when growing.
- Aphids, Harlequin bugs, cabbage loopers, and imported cabbage worms are insects that effect cabbage crops.

**Source: Aggie Horticulture > Easy Gardening Series > Cabbage**

- Season: October-June
- Good quality cabbage should be well formed, fairly even colored and heavy for its size. Avoid discolored or wilted cabbage.
- Troubleshooting: yellowing, loss of leaves, wilting, bruising, loose leaves.
- Yellowing and loss of leaves can be caused by ethylene exposure. Keep cabbage away from ethylene producing fruits. Wilting may be caused by low humidity. Keep humidity 90-98%. Bruising and loose leaves may be the effect of rough handling.

**Source: Texas Produce Association > Product Availability > Cabbage**

# Cantaloupe

- Season: April- August
- A good quality cantaloupe should be well shaped with good netting or webbing over creamy-colored rind. Tip end should be smooth and slightly depressed. A ripe cantaloupe will have a distinctive aroma and the blossom end should yield to gentle pressure. Avoid shriveled or bruised fruit or cantaloupe with punctured or cracked rinds.
- Several varieties are available for commercial production. General characteristics include a thick, creamy rind with yellow netting. Peach-colored flesh is aromatic and juicy with a sweet flavor
- If cantaloupes are going to be used in 1 or 2 days, they may be held at room temperature (68-72 degrees F/20-21 degrees C). Otherwise, they should be properly refrigerated.

**Source: Texas Produce Association > Product Availability > Cantaloupe**

# Carrot & Maroon Carrot

- Season: year round
- Good quality carrots should be well shaped with firm, smooth exteriors. Color should be vibrant orange to orange-red. Avoid flabby, soft, or wilted carrots or product that shows any mildew, decay, growth cracks, or splits.
- Troubleshooting: bitter flavor, wilting, decay, sprouting, cracks, flabby or discolored skin, yellow tips, soft spots.
- Bitter flavor may be caused by exposure to ethylene gas. Wilting is the result of being stored in low humidity. Carrots will decay and sprout if stored in high temperatures. Cracks and flabby or discolored skin could be the result of freezer damage. Yellow tips and soft spots are signs of old age and will result in poor flavored product.
- **Source: Texas Produce Association > Product Availability > Carrots & Maroon Carrots**  
Carrots are an excellent source of Vitamin A.
- They can be served raw, cooked, by themselves or in salads and other meals.
- One foot of row will produce about one pound of carrots.
- The varieties of carrots that do best in Texas are Big Shot, Candy Stix, Caropak, Cheyenne, Danvers 126, Nantes, Navajo, Sugar Snax, and Vita-Sweet.
- In South Texas carrots should be planted any time from July through February. For a Fall crop in other areas plant in August.
- Carrots grow best in cool temperatures of early spring and late fall. High temperatures cause poorly colored, low-quality carrots.
- Cutworms and Wireworms are worms that will effect carrot crops.
- If leaf spots appear on the plants, dust them with an approved fungicide. Remove from the garden any carrot plant that becomes yellow or stunted.

**Source: Aggie Horticulture > Easy Gardening Series > Carrots**

# Cauliflower

- Cool season crop
- Difficult to grow
- Cauliflower grows best in full sunlight in sandy loam soils.
- Aphids, Harlequin bugs, cabbage loopers, and imported cabbage worms are insects that effect cauliflower crops.
- Varieties of cauliflower are Alverda(Green), Brocuverde(Caul9Broc Hybrid), Imperial, Majestic, Snow Crown, Snowball Y Improved, Violet Queen(Violet).
- Cauliflower can be served raw in salads or cooked. Steamed or mashed cauliflower is a good warm dish for cold days.
- Cauliflower must be harvested as soon as it's ready.

**Source: Aggie Horticulture > Easy Gardening Series > Cole Crops**

# Celery

- Season: January-April
- Good quality celery should have straight stalks with rigid ribs. Ribs should snap crisply when bent. Inside surface of ribs should be clean and smooth. Leaves should be fresh, well colored, and show no signs of wilting.
- Troubleshooting: wilting and yellowing.
- Wilting may be caused by high temperatures and low humidity. Store celery at 2-36 degrees F with a humidity level of 90-98%. Additionally, adequate air circulation is needed to maintain good quality celery. Yellowing can be caused by ethylene exposure.

**Source: Texas Produce Association > Product Availability > Celery**

# Cherry

- Sweet cherries have performed poorly in Texas, because most commercial varieties require extensive chilling and are susceptible to brown rot.
- Developing fruit is also very prone to bird damage.
- To protect the ripening fruit from birds, some have built plastic pipe frameworks around the trees and covered them with netting.
- New, low-chill sweet cherries are appearing in the market place, though few have been tested thoroughly in Texas.
- Recently, trees planted in some Texas locations have produced crops in 2 years. However, these varieties' low-chill requirements will likely cause them to break dormancy very early and expose the flower crop to frost injury.
- Cherries grow upright to over 40 feet tall. However, they can be kept shorter by grafting them onto a dwarfing rootstock.
- Though largely untested in Texas, 'Colt' is a dwarfing rootstock that can produce shorter trees. 'Lovell' or 'Halford' peach rootstocks with a plum interstem can be used as a cherry rootstock in Texas.

**Source: Aggie Horticulture > Fruit and Nut Resources > Stone Fruit**

# Cilantro

- Cilantro is in the same family as parsley and is originally from Greece.
- Cilantro is a cool season crop.
- In Texas, the best time to plant cilantro is in February for an April harvest and again in September for a November harvest.
- Cilantro prefers a light, well-drained, moderately fertile loam or sandy soil.
- Beet armyworms, cabbage loopers, and green peach aphids are some insects that will harm cilantro crops.
- Seedling germination is the most crucial time for watering crops. After seeds are established they do not need much water.
- Bacterial leaf spot is the main disease in cilantro crops.

**Source: Aggie Horticulture > Easy Gardening Series > Cilantro**



# Coconut

- Season: Year Round
- Choose coconuts that are heavy for their size and “slosh” when shaken. Avoid coconuts with cracks or that appear wet around the eyes. Coconuts may be treated with a wax coating or film-wrapped to help prevent moisture loss.
- Mold: Coconuts may become moldy if they are exposed to warm, humid conditions. For best quality, store coconuts at 32-36 degrees F/0-2 degrees C.
- Weight loss; milk inside dries up: These are indications of moisture loss. To prevent moisture loss, keep coconuts cold and maintain a high humidity level. Film-wrapping coconuts may also help prevent moisture loss.
- Cracked shells: Exposing coconuts to extreme temperature fluctuations may cause shells to crack. To prevent cracking, do not store coconuts below 26 degrees F/-3 degrees C. Rough handling may also cause cracking of shells. Handle coconuts with care; do not drop shipping containers on the floor.
- Round fruit with a hard, thick brown shell covered with hair-like fibers. White meat inside is slightly sweet with a moist and slightly crunchy texture. A milk-like liquid is contained in the cavity inside. White meat and liquid are edible.
- Coconuts imported from Puerto Rico are designated Puerto Rico No. 1 and Puerto Rico No. 2.

**Source: Texas Produce Association > Product Availability > Coconut**

# Collard Greens

- Very nutritious vegetable
- They are low in calories, high in protein, vitamins, and minerals.
- Collards tolerate more heat and cold than most other vegetables grown in Texas. They grow best in cool weather and need as much sunlight as possible.
- Collard varieties suitable for growing in Texas include Blue Max, Champion, Flash, Georgia LS, Georgia Southern, Top Bunch, and Vates.
- Collards are subject to some diseases. If the plants have spots on the leaves, you may need to use a fungicide.
- Aphids, cabbage loopers, and harlequin bugs like to eat collard green crops.
- Plants should be watered well each week if it does not rain.
- To prevent loss of nutrients, do not cook collards in too much water.

**Source: Aggie Horticulture > Easy Gardening Series > Collard Greens**

# Cucumber

- Season: October-August
- Good quality cucumbers should be firm, well shaped, and have an even dark green color and uniform size. Cucumbers may be treated with an edible wax to prevent moisture loss and enhance appearance. Avoid cucumbers that are shriveled, yellow in color, or have soft spots.
- Troubleshooting: pitting, water-soaked spots, decay, yellowing, softening, shriveling, soft sunken ends, and loose seed cavity.
- Pitting, water-soaked spots, and decay can be caused by chill injury. Do not store cucumbers below 45 degrees. Yellowing and softening can be caused by ethylene exposure. Shriveling can be the result of cucumbers being stored in low humidity. Soft, sunken ends and loose seed cavities are indications of an over mature product.

**Source: Texas Produce Association > Product Availability > Cucumber**

- Cucumbers are grown for eating fresh or preserving as pickles. They mature quickly and are best suited to larger gardens.
- Cucumbers are usually sliced or pickled.
- Varieties grown in Texas for pickling are Carolina, Fancypak, Multipik, and National Pickling.
- Slicing varieties include Poinsett, Straight 8, Sweet Slice, and Sweet Success.
- Cucumbers require warm temperatures and can not survive a frost.
- Soak the plants well with water weakly if it does not rain.
- Insects that can be a threat to cucumber crops are banded cucumbers, spotted cucumbers, and squash bugs.
- Harvest cucumbers when they reach the desired size and are green in color. Do not wait until they turn yellow. Yellow cucumbers are over mature and will have a strong flavor.

**Source: Aggie Horticulture > Easy Gardening Series > Cucumber**

# Dill

- Dill(*Anethum graveolens*) is a perennial herb that typically reaches 2 to 4 feet tall at maturity.
- Its leaves are used fresh or dried as an herb in dips, soups, salads, and other dishes. The seeds are used as a spice for pickling and for adding flavor to stews and roasts.
- Dill is native to southern Russia, western Africa, and the Mediterranean. It is part of the Umbelliferae family, which also includes cumin and parsley.
- The varieties best for Texas are Bouquet, Dukat, Fernleaf, Long Island, and Superdukat.
- Dill can easily be grown in containers, both indoors and outdoors.
- Dill grown outside matures about 90 days after seeding. They contain the most flavor if picked before flowering begins. Clip them close to the stem in the early morning or late evening.

**Source: Aggie Horticulture > Easy Gardening Series > Dill**

# Eggplant

- Eggplant originated in India and is a member of the nightshade family, which includes potato and tomato.
- At one time the Spanish called it the “apple of love” and considered it an aphrodisiac. Other Europeans called it the “mad apple” and thought it caused insanity.
- Eggplant is known to be very nutritious. It is a great source of fiber and has a fair amount of iron, potassium, and protein.
- Many different varieties of eggplant exist including the small, round, green ‘Kermit’ eggplants; the skinny, long, Japanese pickling eggplant; and the traditional large ‘Black Bell’ eggplant.
- Suggested varieties for Texas include Black Bell, Black Magic, Epic, Classic, Florida High Bush, Florida Market and Night Shadow.
- Oriental-type varieties that do well in Texas include ‘Ichibon’ and ‘Tycoon.’
- Eggplants need consistent water, at least one inch per week. It is better to give on thorough soaking than several frequent, short waterings, because frequent watering promotes shallow roots.
- Cutworms, eggplant flea beetles, serpentine leafminers, and spider mites are insects that can effect eggplant crops.
- Several diseases can damage eggplants at various stages including seed rot, damping off, anthracnose, late blight, alternaria leaf spot, and verticillium wilt. Three conditions must be present for a disease to take hold: the presence of the disease pathogen, a susceptible host, and a favorable environment.
- Eggplant can be cooked many ways. It can be baked, stewed, sauteed, fried or stuffed. It can be cooked whole or in pieces. It can be cubed and used in curries and stews.
- Baba ghanoush is a dip made from mashed or pureed eggplant with tahini, garlic, lemon juice, and a few other spices. There is also the very popular eggplant Parmesan.
- Eggplants should be harvested before the skin becomes dull and the seeds become hard.

## **Source: Aggie Horticulture > Easy Gardening Series > Eggplant**

- Season: year round.
- Look for firm eggplants that are light for their size. Skin should be even-colored and free of blemishes. Avoid eggplants with soft spots or those that are flabby or shriveled.
- Eggplants are very sensitive to bruising. Handle with care.
- Troubleshooting: yellowish-brown skin discoloration, increased decay, browning of pulp and seeds, accelerated decay, shriveled or flabby skin, skin or pulp decay.
- Yellowish-brown skin discoloration and increased decay can be a result of chill injury. Eggplant is sensitive to ethylene which may cause browning of pulp and seeds and accelerated decay. Eggplants will shrivel if stored in low humidity. Skin and pulp decay may be the result of bruising due to rough handling.

## **Source: Texas Produce Association > Product Availability > Eggplant**

# Fig

- It is believed that figs are native to western Asia and were spread throughout the Mediterranean by man. Figs were brought to California from Spain in the mid eighteenth century and they were then spread to warmer growing regions east of the Rocky Mountains.
- There are four distinct horticultural types of figs, but climatic factors preclude the cultivation of all but the common fig in Texas and other states along the Gulf Coast. “Fruit” of common figs are parthenocarpic and are actually fleshy stem tissue with no seeds.
- Texas has been largely unsuccessful, but small dooryard plantings can certainly meet all of a family’s needs and provide some limited income from local sales.
- Standard varieties of figs include Alma, Celeste, and Texas Everbearing.
- Varieties for trial planting include Lemon, Bournabat, LSU Purple, and Blue Giant.
- Fig Rust is the greatest disease threat to fig production in Texas and disease severity is worse in areas or seasons with high rainfall. Infected leaves exhibit browning on the leaf surface with orange fruiting structures on the lower part of the leaf. Sanitation, raking and destroying infected leaves is an important part of disease control.
- Root-knot nematodes are microscopic, soil inhabiting worms which attack the plant’s root system.
- Fig mosaic virus is thought to be a disease caused by a complex of viruses that invade fig trees.
- Figs are in fact a sub-tropical crop, but can withstand varying degrees of sub-freezing temperatures.

**Source: Aggie Horticulture > Fruit and Nut Resources > Figs**

# Ginger

- Description - Ginger is a reed-like herb that is grown for its pungent, spicy underground stems or rhizomes. The edible portion is the rhizome which is rough and knotty in appearance.
- Culture - Ginger is propagated by planting pieces of the underground stem or rhizome in the early spring. Ginger thrives best in the tropics and in the warmer regions of the temperate zone. The plants thrive in a loose, loamy soil that is high in organic matter. After planting, water sparingly until the plants are well developed. In late summer the plants will show signs of maturing such as yellowing of the foliage and slowness in growth. Harvest by digging up the entire root.
- Availability - Fresh ginger can usually be found the year round in most of the larger supermarkets and grocery stores, although most common during late summer and through the winter months. Most of the fresh ginger is from Hawaii although it is grown to a limited degree in Florida. It can be successfully grown in gardens in East Texas, especially along the coast.
- Selection - Ginger roots should be free of bruises and a light brown to cream in color. Ginger roots can be harvested at any stage of maturity therefore size of the root is not important.
- Storage - Fresh ginger should be stored in a sealed plastic bag in the refrigerator where it will keep several weeks. It can also be frozen for long term storage.
- Nutrition Information - Ginger root is low in calories, 3 ounces contain 49 calories and is sodium free.
- Preparation - Fresh ginger roots can be shredded, finely minced, sliced or grated. The most tender portion of the root is directly beneath the skin. The center has a much more powerful flavor and is more fibrous. The fibers run vertically down the root, so when shredding fresh ginger it should be sliced in the same direction as the fibers. It is not necessary to peel the root unless personal preference or a specific recipe require peeling. To substitute fresh ginger for the ground spice, use about 1 tablespoon grated fresh root for 1/8 teaspoon ground ginger.

**Aggie Horticulture > Archives (found only by searching “ginger”)**

# Grapefruit

- Season: October - May
- 1 medium grapefruit = 10-12 sections
- 1 medium grapefruit = 2/3 cup juice
- 1 medium grapefruit = 3-4 tablespoons grated peel
- Look for grapefruit with smooth, blemish-free skins. It should be heavy for its size and well shaped. Grapefruit may exhibit some re-greening of the skin; this does not adversely affect internal fruit quality.
- Pitting or browning of skin; watery breakdown of flesh: These are indications of chill injury. To prevent chill injury, do not store grapefruit below 50 degrees F.
- Skin deterioration; flesh decay: Exposure to ethylene may accelerate skin deterioration and increase grapefruit's susceptibility to decay. For best quality, keep grapefruit away from ethylene-producing fruits and ripening rooms.
- Mold: Grapefruit may show signs of mold if exposed to certain fungi and then stored at warm temperatures and high humidity. To prevent mold from spreading, remove affected fruit and handle grapefruit with care to avoid injury. Maintain short-term storage temperature of 50-60 degrees and a humidity level of 85-90%.
- Grades: Texas Choice, Texas Fancy, U.S. No. 1, U.S. No. 2

**Source: Texas Produce Association > Product Availability > Cucumber**

# Green Bean

- Green beans are a popular, warm-season, vegetable crop for home gardens. They grow well in most Texas soils. Like most vegetables, green beans grow best in well-drained soil and with plenty of sunlight.
- Several bean varieties are recommended for planting in Texas. The varieties of snap beans include Greencrop, Kentucky Wonder, Tendercrop, Tendergreen, and Topcrop. Pinto bean varieties include Dwarf Horticultural, Luna, and UI-114. Three types of Lima beans include Florida Butter, Henderson Bush and Jackson Wonder.
- Water the plants about once a week in dry weather. Do not let the soil dry out while the beans are blooming or the blooms will drop and yields will be decreased.
- Aphids and spider mites are two insects that effect bean crops.
- Diseases may be a problem during cool, wet weather. If spots appear on leaves or bean pods, treat the plant with an approved fungicide.
- Fresh green beans add color and variety to meals. Green beans are a fair source of vitamins A and C if they are cooked for a short period in a very small amount of boiling water. Cook them just until they are tender.

**Source: Aggie Horticulture > Easy Gardening Series > Green Bean**

# Guava

- Guava is native to the American tropics but has become naturalized in practically all tropical and subtropical climates of the world. While it has little commercial potential, a small planting is being tried in Cameron County it can be successfully grown, with adequate cold protection, in other areas of South Texas.
- Guava should grow nearly everywhere in Texas that oranges or grapefruit thrive.
- Most of the locally grown guavas are unnamed seedlings, although there are superior varieties being grown in Florida. Supreme, Blitch, Patillo, and Ruby are some of the popular varieties.
- The skin is usually pale yellow at maturity and may range from thin to thick. Flavor may be sweet to highly acidic, with a very distinctive aroma which ranges from strong to penetrating to mild and pleasant.
- Guava is an outstanding source of Vitamin C, which probably exceeds that of orange juice.
- The sweeter selections are more commonly eaten fresh, while the stronger flavored selections are more commonly used in jam, jelly, paste and other products.

**Source: Aggie Horticulture > Fruit and Nut Resources > Guava**

# Honeydew Melon

- Choose honeydew melons that are heavy for their size and well shaped. A creamy yellow rind, light green, juicy flesh, and a slightly soft blossom end characterize ripe honeydew melons. Honeydews are picked while they are still firm which is characterized by a whiter rind color with slight green tinge and a hard blossom end. (However, all honeydew melons should have a soluble solids content of 10% before they are harvested to ensure good flavor.) Holding at room temperature may soften firm melons.
- Pitted rind; reddish-tan discoloration of flesh; failure to ripen: These are indications of chill injury. To prevent chill injury, do not store honeydews below 45 degrees F/7 degrees C.
- Decay; flesh softening; off flavor: This may be an indication of age or product that was held for an extended period of time. These symptoms may not appear until after honeydew is taken out of storage and held at room temperature. For best quality, inspect honeydews carefully and use ripe product shortly after receiving.
- Bruising: Honeydew melons may bruise if handled roughly. Handle melons with care; do not drop shipping containers on the floor.
- Honeydew melons are characterized by a large, round shape and smooth, creamy yellow rind. Flesh is light green, juicy, and sweet. Orange-fleshed honeydew is also available; flavor is similar to cantaloupe
- Riper honeydew melons may be stored at 45-50 degrees F/7-10 degrees C. Exposing firm honeydew melons to ethylene gas can help promote softening and color change from green to creamy yellow.
- Grades: U.S. No. 1, U.S. Commercial, U.S. No. 2

**Source: Texas Produce Association > Product Availability > Honeydew**

# Jalapeno

- Jalapeño peppers are very rich in Vitamin A, Vitamin C, and potassium.
- They are moderately rich in folate (folic acid) and dietary fiber. For most individuals, there is a limit to the amount of this vegetable which they can eat due to its caustic (burning of the mouth) nature; therefore, this vegetable is mainly used as a condiment (as in salsa or picanté sauce) and is usually used in small amounts.
- The ideal time to start planting jalapeño peppers is March to April in the spring and late July to August in the fall.
- Harvest would then take place during June in the spring and October until the first frost in the fall/winter season
- Choose firm, smooth peppers that have good color and shape and do not have soft spots or wrinkled skin.
- Also look for a deep, glossy sheen, comparable heavy weight, and firm walls or sides.
- Avoid peppers with very thin walls (indicated by lightweight and flimsy sides), peppers that are wilted or flabby with cuts or punctures through the walls, and peppers with soft watery spots on the sides (evidence of decay).

<http://aggie-horticulture.tamu.edu/food-technology/nutrition/jalapeno-peppers/>

# Jicama

- Season: Year Round
- Receiving and Inspecting: choose jicama with firm texture and smooth, unblemished skin. Avoid shriveled or moldy jicama.
- Storing and Handling: Temperature/humidity recommendations for short-term storage of seven days or less:
  - 60-65 degrees F/16-18 degrees C
- Troubleshooting: Decay; internal brown discoloration: These are indications of chill injury. To prevent chill injury, do not store jicama below 55 degrees F/13 degrees C.
- Sprouting: Jicama may begin to sprout if exposed to high temperatures. For best quality, maintain storage temperature of 60-65 degrees F/16-18 degrees C.
- Mold: Jicama may show signs of mold if it becomes moist during storage. To prevent molding, keep product dry and maintain a humidity level of 85-95%.
- Variety/Type Descriptions: Resembles a turnip in appearance with round, slightly squat shape, light brown skin, and ivory flesh. Flavor is subtle and sweet; texture is crunchy and juicy.
- Jicama must be peeled before using. May be served raw or cooked. Jicama may be used as a substitute for water chestnuts.

## **Source: Texas Produce Association > Product Availability > Jicama**

- Description - Jicama, a legume, is grown for the large tuberous roots which can be eaten raw or cooked and are used as a source of starch. The jicama plant is a vine which grows to a length of 20 feet or more. The roots are light brown in color, and may weigh up to 50 pounds. Most of those on the market will weigh between three to five pounds.
- Culture - Jicamas are actually perennials and produce their large roots after several years of growth. They are commonly found in frost free regions. In Texas, seed can be planted in the early spring and small tubers harvested before the first killing frost of the winter.
- Availability - Jicamas are offered in Texas supermarkets but are more popular in South Texas. Most of those on the market are imported from Mexico and South America.
- Selection - Jicamas are suitable for consumption at any stage of growth (size). Look for well formed tubers that appear fresh and are free of cracks and bruises.
- Storage - Jicamas, like most other root crops, will store for relatively long periods of time in the refrigerator. However, conversion of starch to sugar will result if stored for excessive periods and should be avoided.
- Nutrition Information - A 3-1/2 ounce serving of jicama provides 39 calories and about 25% of the RDA for vitamin C.
- Preparation - Remove the peel including the fibrous flesh directly under the skin. Cut or slice and serve raw or use as a substitute for water chestnuts. Saute or stir fry -- it stays crisp when cooked. A one pound jicama yields about three cups chopped or three cups shredded flesh.
- Microwave Instructions - Peel and cut one pound into "cubes or julienne strips. Place in 2-quart covered casserole with 1/4 cup water; microwave on high for 8-9 minutes. Stir once. Serve with honey, butter, salt and pepper, sweet and sour sauce, sour cream or yogurt dressing.

<http://aggie-horticulture.tamu.edu/archives/parsons/vegetables/jicama.html>

# Jujube

- Jujubes are one of the easiest to grow of the fruit crops, with few pests or problems ever reported. Jujube (*Ziziphus jujube*) was introduced into Texas in approximately 1875.
- The tree can grow to a height of 30-50 ft if soil and climatic conditions permit.
- The leaves are dark green and attractive with a shiny waxlike appearance above and a layer of fuzz on the lower side.
- The tree loses its leaves in the winter to make an ornate specimen with upright trunks, short angled shoots, and rough bark.
- Fruit from seedlings can be quite small, while improved varieties can be as large as 2 inches long and 1 1/2 inches in diameter.
- The fruit usually ripens in July and August.
- As it matures on the tree, it will gradually turn from a light green to a dark brown and become wrinkled.
- A single seed is inside the fruit and the dark brown appearance and this seed gives rise to the common name, Chinese Date.
- The texture and flavor more closely resemble that of an apple than a date.
- Climate for jujubes should be hot and dry.

**Aggie Horticulture > Fruit & Nut Resources > Fact Sheets > Jujube**

# Kohlrabi

- Kohlrabi is a member of the cabbage family grown for its swollen, turnip-shaped portion of the stem which rests on the ground. The edible portion can be white, purple or green with a creamy white interior. They are eaten raw in salads or can be cooked like a turnip.
- Description - The kohlrabi is a member of the cabbage (crucifer or mustard) family. The part we eat is the enlarged stem from which the leaves develop. The enlarged stem is best harvested as soon as it grows to a diameter of two to three inches. Kohlrabi may be white, green or purple in color. Leaves of young plants may be used like spinach, or mustard greens.
- Culture - Kohlrabi is grown as a cool season vegetable and should be planted in very early spring or in early fall. Seeds are planted about 1/4 inch deep in rows about two feet apart and thinned to four inches apart in the row. Ample soil moisture and a high soil fertility are necessary for rapid growth of high quality kohlrabi. Kohlrabi will be ready to harvest in 30 to 40 days from the date seed is sown.
- Availability - Fresh kohlrabi can be found the year round in Texas although it is most commonly available during fall and early winter. Commercial production is concentrated in the south Texas area but small plantings can be found statewide. Locally available kohlrabi can be found during March through May and again in the months of October through December.
- Selection - Look for kohlrabi bulbs that appear fresh and that are less than three inches in diameter. Leaf stems should be succulent and tender. Large kohlrabi can be woody and tough.
- Storage - With the leaf stems removed, kohlrabi can be stored in the refrigerator for several weeks. Storage life can be extended if kohlrabies are placed in sealed plastic bags.
- Nutrition Information - Kohlrabi is a good source of vitamin C and potassium. It is low in both sodium and calories. One cup diced and cooked kohlrabi contains only 40 calories and 140% of the RDA for vitamin C.
- Preparation - Small kohlrabi bulbs which are young and tender generally do not require peeling. Medium to larger sizes should be peeled to remove the protective outer skin. The crisp flesh can be served raw in salads, as a relish, or as a crunchy accompaniment to dips. The bulb can be sliced, cut into quarters, cubes or julienne strips and steamed until crisp -- tender. Kohlrabi bulbs can be hollowed out and stuffed with a vegetable or meat filling.

**<http://aggie-horticulture.tamu.edu/archives/parsons/vegetables/kohlrabi.html>**



- Season: October- April
- Choose kohlrabi with smooth bulbs that are free of cracks or visible fibers. Attached leaves should be fresh, firm, and green. Small to medium bulbs are best.
- Kohlrabi may shrivel or develop a tough texture if stored in an area with low humidity. For best quality, keep kohlrabi cold and maintain a humidity level of 90-98%.
- Kohlrabi is susceptible to freeze damage if stored at 30 degrees F/-1 degree C or below. For best quality, maintain storage temperature of 32-36 degrees F/0-2 degrees C.
- Light green or purple, globe-shaped root with green stems and flat leaves attached. Bulb flavor is somewhat sweet and similar to a turnip. Bulb may be used cooked or uncooked. Leaves must be cooked. Flavor of leaves is similar to collard greens or kale.

**Source: Texas Produce Association > Product Availability > Kohlrabi**

## Leeks

- Season: December – May
- Receiving and Inspecting: Good quality leeks should have clean, blemish-free white bases with fresh green tops. Avoid leeks with bruised, ragged, or dry-looking tops and bulbed bases.
- Leeks may wilt if they are stored in an area with low humidity. For best quality, maintain a humidity level of 90-98%.
- Member of the green onion and shallot family. Characterized by a long thick stem and large, drooping tops that range in color from green to blue-green. Some specific varieties are shorter and thicker with more erect green tops. Leeks exhibit a mild onion-like flavor.

**Source: Texas Produce Association > Product Availability > Leeks**

## Lemon

- 6 medium lemons = 1 cup juice
- 1 medium lemon = 3 tablespoons juice
- 1 medium lemon = 3 tablespoons grated peel
- Skin deterioration; flesh decay: Exposure to ethylene may accelerate skin deterioration and increase lemon's susceptibility to decay. For best quality, keep lemons away from ethylene producing fruits and ripening rooms.
- Pitting of skin; interior discoloration; loss of juice: These are indications of chill injury. To prevent chill injury, do not store lemons below 45 degrees F/7 degrees C.
- Decay or mold; shortened shelf life: Storing lemons at high temperatures may promote product decay and shorten shelf life. For best quality, maintain short-term storage temperatures of 45-50 degrees F/7-10 degrees C. Decay may also result from cuts or scratches caused by rough handling. Handle lemons with care; do not drop shipping containers on the floor. To prevent mold from spreading, remove affected product immediately.
- Primary varieties are Eureka and Lisbon. Both have smooth, firm skins, juicy flesh, and few seeds. Other noted varieties include Bearss, Avon, Harney and Villafranco.
- Meyer – October- May – Much sweeter than ordinary lemons. They have an attractive appearance, with yellowish-orange rind, which is smooth, soft, and thin. The pulp is usually a dark yellow color, very juicy and tender.
- Grades: U.S. No. 1, U.S. Export No. 1, U.S. Combination, U.S. No. 2

**Source: Texas Produce Association > Product Availability > Lemon**

# Lettuce

- Soil Preferences: Deep, well drained, black sandy loams with a pH 6 - 7.6; can tolerate a wide range of soils from fairly sandy (spring planting) to heavy clays (fall planting). Will not tolerate acid soils.
- Optimum Growing Conditions: Cool-season, mean temperatures between 55-60°F, cool nights especially critical for head quality. Temperature above 80°F retards heading and induces seed stalk initiation, tends to cause loose heads and bitterness.
- Extremely perishable vegetable. Rapid pre-cooling a must.
- Discontinue or reduce irrigation at the onset of maturity with crisp head types
- High temperatures tend to cause loose heads and bitterness
- Raised bed culture is ideal for lettuce, as it: reduces incidence of soil compaction during stand establishment o reduces disease and enables better soil moisture management
- Cannot tolerate low pH soils(below 6 may need liming)
- Shallow planting of the small seed causes problems with stand establishment, especially with early fall planted crop
- Will tolerate considerable frost during its early stages of development; severe frost when nearly mature increases the incidence of slime development
- Shallow rooted crop, very poor competitor for nutrients
- Shallow root system dictates uniform moisture levels throughout growth for
- Optimum yield and quality

<http://aggie-horticulture.tamu.edu/vegetable/files/2011/10/lettuce.pdf>

# Lime

- Season: Year Round
- Equivalents: 1 medium lime = 2 tablespoons juice; 1 medium lime = 2 teaspoons grated peel
- Receiving and Inspecting: Limes should be heavy for their size and firm with smooth, shiny skins. Persian/Tahiti limes are bright green in color; Key/Mexican limes are more yellow-green. Avoid limes that are light in weight, shriveled, spongy, or significantly discolored.
- Storing and Handling: Temperature/humidity recommendations for short-term storage of seven days or less: 45-50 degrees F/7-10 degrees C; 85-95% relative humidity
- Handling Tips: Handle limes with care to avoid bruising and internal decay.
- Pitting or discoloration of skin: This is an indication of chill injury. To prevent chill injury, do not store limes below 45 degrees F/7 degrees C.
- Skin deterioration; decay: Limes are sensitive to ethylene; exposure to the gas may cause skin deterioration and increase the fruit's susceptibility to decay. To prevent damage from ethylene, keep limes away from ethylene-producing fruits and ripening rooms.
- Shriveling; loss of juice:
- Low humidity may cause limes to lose moisture. For best quality, maintain humidity level of 85-95%.
- Pebbly brown or black skin: This is an indication of bruising or decay caused by rough handling. Always handle limes with care; do not drop shipping containers on the floor.
- Grades: U.S. No. 1, U.S. Combination, U.S. No. 2; NOTE: Not all limes are graded. Ungraded limes are called "unclassified." Differences between grades are based primarily on external appearance.
- Variety/Type Descriptions: Key/Mexican – Thin-skinned fruit with yellow-green color and sweet-tart flavor; Persian/Tahiti – Thin, smooth, and shiny skin; brilliant green color and sweet-tart flavor.

**Source: Texas Produce Association > Product Availability > Lime**

# Loquat

- Loquat (Japanese plum or Japanese medlar) is probably one of the more familiar of all tropical fruit plants in Texas, although few people outside of south Texas have only rarely grown the fruit. The plant is extremely cold hardy and is commonly grown as an ornamental from north Texas to the Valley.
- Loquat has few natural pests. The most serious problem is that of fire blight, the same disease which affects pear and pyracantha. While antibiotic treatment for fire blight is effective, probably the simplest course of action is to prune out the affected branches and destroy them.
- Tipburn of the leaves frequently appears during a hot, dry summer as a consequence of soil and water salinity. Tipburn is not particularly deleterious to the tree and there is nothing you can do about it anyway.
- Loquat fruit in the Valley can be an alternate host for Mexican fruit fly, but the sterile fly program pretty well keeps Mexfly in check.
- Native to China, the loquat tree is an evergreen with large, stiff leaves. Growing alone in the open, the tree is very symmetrical, with a compact, dense crown, and can attain a height of 25 feet and a spread of 15 to 20 feet. The leaves are glossy, dark green above and whitish to rusty tomentose beneath. These characteristics of the tree have made the loquat an excellent specimen or accent in the home landscape.

**Source: Aggie Horticulture > Fruit and Nut Resources > Loquat**

# Mandarin

- Mandarins include a diverse group of citrus fruits that are characterized by bright peel and pulp color, excellent flavor, easy-to-peel rind and segments that separate easily.
- Because all tangerines are mandarins but not all mandarins are tangerines, mandarins are commonly separated into four groups: Mediterranean, king, satsuma and common tangerines. Of these, satsumas and tangerines are of most interest in Texas.
- Most mandarin trees are more erect than other kinds of citrus trees and many exhibit a drooping habit because of rather long, willowy branches.
- The wood is somewhat more brittle than other citrus and limb breakage is common under heavy fruit loads unless some sort of support is provided.
- Most varieties of mandarins are self-pollinated and self-fruitful, but some of the hybrids are self-incompatible and will produce few fruit without the presence of suitable pollenizer varieties nearby.
- Mandarins tend to alternate bearing, with a heavy crop in one year followed by a lighter crop in the next season.

**Source: Aggie Horticulture > Fruit and Nut Resources > Mandarins**

# Mango

- Season: Year Round
- Receiving and Inspecting: Choose mangos that are well shaped and free of bruises or blemishes. Unripe mangos should be fairly firm with green skin. Ripe mangos should give to gentle pressure; skin color should range from greenish-yellow to yellow with red blush, depending on the specific variety. Avoid shriveled or discolored mangos or those with soft spots.
- Storing and Handling: Temperature/humidity recommendations for short-term storage of seven days or less:
- Handling Tips: Handle mangos with care to avoid bruising or damaging the fruit; do not drop shipping containers on the floor.
- Accelerated softening or ripening of fruit: Mangos are sensitive to ethylene; exposure to the gas may cause premature softening or ripening of the fruit. To prevent premature softening or ripening, keep unripe mangoes away from ethylene-producing fruits or ripening rooms.
- Pitting or gray discoloration of skin; uneven ripening: These are indications of chill injury. Chill injury may also result in poor flavor. To prevent chill injury, do not store mangos below 50 degrees F/10 degrees C.
- Variety/Type Descriptions: Primary varieties include Tommy Atkins and Keitt. Other varieties include Ataulfo, Hayden, Kent, and Van Dyke. Round to oval fruit; similar to pear in size. Juicy yellow-orange flesh surrounds a flat seed. Thin skin turns from green to yellow-green or yellow with red blush as the fruit ripens. Ripe mangos yield to gentle pressure and emit a fruity aroma.
- Ripening: Hayden: turns yellow, with an orange or red blush when ripe. Tommy Atkins: turns red or yellow when ripe. Kent: turns yellow or remains green when ripe, with a few hints of color. Keitt: stays green when ripe, and may have a slight yellow blush. Ataulfo: remains yellow when ripe.
- Grades: No U.S. grades given.

**Source: Texas Produce Association > Product Availability > Mango**

# Mayhaw

- Mayhaws (*Crataegus aestivalis*, *C. rufula*, or *C. opaca*) are very common south of the 1,000 hour chill line.
- They grow under hardwood timber in the wet floodplain soils along creeks and rivers.
- These small trees are of the Hawthorne family.
- The fruit is small and apple-like and ripens during the late April and early May in East Texas.
- They have beautiful white blossoms in the Spring and are desirable as ornamentals as well as for wildlife cover and forage.
- Mayhaw fruit can be made into jams and jellies.

**Aggie Horticulture > Fruit & Nut Resources > Mayhaw**

# Muscadine

- Muscadine grapes (*Vitis rotundifolia*) are native to East Texas. They thrive in slightly acid soils and have good disease resistance which makes them particularly suited to the humid climates of East Texas. There are less than 50 acres of commercial vineyards, but muscadines are very popular in gardens, on arbors, and as screens and borders.
- The highly flavorful fruits of muscadines are particularly popular for jams, jellies, and juices and are also excellent as fresh fruit, though the skin is tough. There is also some interest in muscadines for home and commercial winemaking.
- Most varieties ripen from mid-August through September in East Texas.
- Varieties include: Regale, Summit, Higgins, Doreen, Cowart, Carlos, and Fry
- Muscadines are best suited to the fertile, loamy soils of East Texas that are acid with a soil pH of 6.0. Problems with chlorosis are usually encountered in soils that have a pH 7.0 or above.

**Aggie Horticulture > Fruit & Nut Resources > Muscadine**

# Mustard (and Turnip) Greens

- Mustards are members of the cabbage family, are cool-season crops. They must be grown in the cool temperatures of early spring and late fall.
- Mustard is grown only for the leaves.
- Mustard varieties can be broadleaved or curled. Broadleaved mustard has a wide, flat leaf. Curled leaf mustard produces narrow, wrinkled leaves like those of spinach.
- Greens can be stored several days in closed plastic bags in the refrigerator.
- Mustard greens are good until the weather gets hot. Too much heat causes them to be tough and strong flavored.

**Source:** [Aggie Horticulture >Vegetable Resources > Easy Gardening Guides > Mustard and Turnip Greens](#)

# Napa

- Season: December - April
- Receiving and Inspecting: Good quality napa should exhibit well-shaped heads with fresh-looking leaves, be fairly even-colored, and heavy for its size. Avoid wilted or discolored product.
- Storing and Handling: Temperature/humidity recommendations for short-term storage of seven days or less: 32-36 degrees F/0-2 degrees C, 90-98% relative humidity
- Troubleshooting: Water-soaked or soft spots: These are indications of freeze damage. To prevent freeze damage, do not store napa below 31 degrees F/-0.5 degrees C.
- Wilting: Napa is susceptible to moisture loss if stored in an area with low humidity. For best quality, keep napa cold and maintain a humidity level of 90-98%. Keep napa away from strong drafts.
- Yellowing; separation of leaves:
- Napa is sensitive to ethylene and may be damaged by the gas. To maintain good quality, keep napa away from ethylene producing fruits and ripening rooms.
- Variety/Type Descriptions: Also called Chinese cabbage. Oblong head with tightly packed, pale green to white crinkled leaves. Napa's mild flavor is similar to a cross between cabbage, iceberg lettuce, and celery. Texture is tender-crisp. Napa may be used cooked or uncooked.
- Grades: No U.S. grades given.

**Source:** [Texas Produce Association > Product Availability > Napa](#)

# Okra

- Okra is a warm-season vegetable that grows well in most Texas soils. A fair source of vitamin A, it can be eaten in many ways, including boiled, fried, and cooked in soups, gumbos, and casseroles.
- The best okra varieties to grow in Texas are Annie Oakley (Compact), Blondy (Compact), Cajun Delight, Clemson Spineless, Emerald, Green Best, Lee, Louisiana Green, Prelude (Compact), Long Pod Dwarf (Compact), Stewart's Zeebest (Heirloom), Burgundy, and Velvet.
- For good yields, okra must grow in full sunlight in fertile, well-drained soil.
- Diseases on okra are most severe in cloudy, damp weather. Check the plants daily and treat them with an approved fungicide if diseases appear. Neem oil, sulfur, and other fungicides are available for use. Always follow label directions.

**Source:** [Aggie Horticulture >Vegetable Resources > Easy Gardening Guides > Okra](#)

- Season: December - May
- Receiving and Inspecting: Good quality okra pods should be clean, fresh looking, tender, and well shaped. Avoid misshapen or decayed pods.
- Variety/Type Descriptions: Slightly curved, carrot-shaped pod with shallow ridges and fuzzy, green exterior. Pods range in size from 2-7 inches.
- Common Packaging: Bushel baskets, crates, cartons, and hampers of various weights
- Grades: U.S. No. 1; NOTE: Not all okra is graded. Ungraded okra is called "unclassified."

**Source:** [Texas Produce Association > Product Availability > Okra](#)

# Olive

- The olive is native to the Mediterranean region, tropical and central Asia and various parts of Africa. The olive has a history almost as long as that of Western civilization, its development being one of civilized man's first accomplishments.
- Climate is the most important limiting factor in the distribution of the olive in Texas and elsewhere. Temperature controls growth, reproduction, and survival of the olive. Growth begins after mean temperatures warm to 70 degrees F in the spring and continues until temperatures drop below this point in the fall.
- Olive trees must experience vernalization to produce fruit; however, it will freeze from extreme cold.
- The high cost of olive oil in the grocery stores and the great health benefits associated with eating olive oil has led many to believe that producing "Extra Virgin Texas Olive Oil" is financially lucrative. However, the costs to produce olive oil are high and the competition fierce. It takes anywhere from 75 to 125 pounds of olives to produce one gallon of oil depending on the cultivar. To make matters worse "extra virgin" is a term that is loosely defined. Typically in the U.S., if the oil is solely made from olives, it can be labeled as extra virgin. Such oil is pressed from the fruit without using heat; hence the oil is not "altered".

<http://aggie-horticulture.tamu.edu/fruit-nut/files/2010/10/olives.pdf>

# Onion (Dry)

- Season: Year Round
- Receiving and Inspecting: Good quality dry onions should be firm and hard with short, tight necks and dry papery skins. Slightly loose outer skin is common and should not affect quality. Avoid onions that show mold, decay, or blemishes.
- Troubleshooting: Water-soaked spots: This is an indication of freeze damage. To prevent freezing injury, do not store dry onions below 30 degrees F/-1 degree C.
- Green spots: Dry onions may develop green spots if they are exposed to sunlight. For best quality, keep onions in a dark area out of sunlight.
- Bruising: Rough handling may cause bruising, especially with spring/summer onions. To prevent bruising, keep handling to a minimum; do not drop shipping containers on the floor.
- Storing Tips: For extended storage, hold dry onions at 32-36 degrees F/0-2 degrees C. Maintain good air ventilation during storage; keep onions out of direct sunlight. Store dry onions away from foods that absorb odors.
- Grades: U.S. No. 1 & U.S. Combination
- Sizes: Colossal, Jumbo, Medium, Pre-pack, Small

**Source: Texas Produce Association > Product Availability > Onion (dry)**

# Onion (Green)

- Season: October - April
- Receiving and Inspecting: Look for green onions that are crisp with fresh, tender green tops and slightly bulbed white ends. Avoid onions with discolored, decaying, or wilted tops.
- Troubleshooting: Yellow or decayed tops:
- Storing green onions at high temperatures may cause tops to decay or turn yellow. Exposure to ethylene gas may also cause yellowing and decay. For best quality, maintain storage temperature of 32-36 degrees F/0-2 degrees C; do not store green onions near ethylene producing fruits or ripening rooms.
- General deterioration: Green onions are very perishable; do not store for long periods of time.
- Grades: U.S. No. 1 & U.S. No. 2
- Storing Tips: Keep green onions separated from foods that absorb odors. Green onions are very perishable; do not store for long periods of time. Keep green onions separated from ethylene-producing fruits and ripening rooms.
- Variety/Type Descriptions: Green onions are harvested while bulbs are small and white and tops are green. They are generally not sold by variety.

**Source: Texas Produce Association > Product Availability > Onion (green)**

# Orange

- Season: October - May
- Equivalent: 2-4 medium oranges = 1 cup juice; 2 medium oranges = 1 cup bite-size pieces; 1 medium orange = 10-12 segments; 4 teaspoons grated peel; Cara Cara orange: 3 oranges = approximately 2 cups or 16 oz.
- Receiving and Inspecting: All varieties should be firm, heavy for size, and have fine-textured skin. Skin color of a ripe orange ranges from orange to greenish-orange. Many oranges go through a regreening process on the tree in which the skin color begins to turn from orange back to green again. Regreening is a natural occurrence and does not affect the flavor quality of the orange.
- Storing and Handling: Temperature/humidity recommendations for short-term storage of seven days or less: 45-50 degrees F/7-10 degrees C 85-95% relative humidity
- Variety/Type Descriptions: Early Types – October – March – Thin-skinned with juicy, sweet flavor and some seeds Navel – November – January – Juicy, sweet flavor; contains very few seeds. Easy to peel. Good for eating out of hand. Valencia – February – May – Thin-skinned with juicy, sweet flavor and some seeds. Good for juicing and eating out of hand.
- Grades: Texas Choice, U.S. Combination, U.S. No. 1, U.S. No. 2
- Storing Tips: Store oranges in a well-ventilated area; keep cartons off the floor to prevent boxes from becoming damp. Keep oranges separated from foods that absorb odors such as eggs, apples, cheese, or butter.

**Source: Texas Produce Association > Product Availability > Orange**

# Papaya

- Season November - June
- Equivalent: 1 medium papaya = approximately 2 cups diced; 1 medium papaya = approximately 1\_ to 1\_ cups puree
- Receiving and Inspecting: Good quality papayas should be firm with unblemished skins, regardless of degree of ripeness. (Most papayas are shipped while still green to prevent damage from rough handling.) Avoid papayas with large dark spots on peel, or those that are soft, moldy, or leaking at the stem end.
- Storing and Handling: Temperature/humidity recommendations for short-term storage of seven days or less; 60-65 degrees F/16-18 degrees C, 85-95% relative humidity
- Handling Tips: A papaya is ripe and ready to eat when it yields to gentle palm pressure and the peel is approximately yellow to yellow-orange in color. Handle papayas with care to avoid damage.
- Troubleshooting
- Pitting of skin; decay; failure to ripen; off flavor:
- These are indications of chill injury. To prevent chill injury, do not store papayas below 45 degrees F/7 degrees C.
- Dark spots on skin:
- Dark spots may be the result of damaged fruit due to rough handling. For best quality, handle papayas with care; do not drop shipping containers on the floor.
- Skin discoloration; hard flesh areas:
- This damage may be caused by excessive heat treatments (in temperature and/or duration) or a delay in cooling following heat treatments that are required for quarantine (insect control). For best quality, always inspect papayas carefully upon arrival.
- Variety/Type Descriptions: All are pear-shaped with a smooth greenish-yellow skin that turns yellow-orange as the fruit ripens. Papaya flesh is juicy with a sweet, melon-peach flavor. Small black seeds fill the center cavity. Flesh color ranges from deeper orange for the Some imported varieties exhibit red flesh color.
- Grades: No U.S. grades given. All papayas shipped from Hawaii to the U.S. mainland are given a Hawaii No. 1 grade.

**Source: Texas Produce Association > Product Availability > Papayas**

# Peach

- Peaches are the leading deciduous fruit crop grown in Texas, and it is estimated that there are more than one million trees planted state-wide, only half of which are planted in commercial orchards of one acre or larger. The demand for high quality locally produced peaches remains good, and the future appears bright for the industry. The potential for growing fresh peaches is enhanced by the proximity of major growing areas to metropolitan centers, enabling growers to market high-quality, tree-ripened fruit at premium prices.

# Pear

- There are a number of types of pears grown around the world, all derived from various species from the genus *Pyrus*.
- The European pear, *Pyrus communis*, is characterized by melting flesh fruit with an aromatic quality and a noticeable sugar/acid balance. Common varieties of European pears include 'Bartlett', 'Bosc' and 'Anjou', but
- the successful growth of these varieties is limited by the bacterial disease known as fire blight in all but arid far-west Texas. Many of these varieties also have chilling requirements in excess of 1000 hours, more than is received in all but the Davis Mountains and the High Plains.
- Fire Blight is the most common disease a pear can get. The main line of defense against fire blight is choosing the correct varieties for a given location.

**Aggie Horticulture > Fruit & Nut Resources > Pear**

# Pecan

- Pecan trees grow in many settings, including woodlands, parks, urban greenbelts, courthouse lawns, and thousands of home landscapes. The pecan is the state tree of Texas and has an important place in the state's history.
- Native and improved pecan trees are grown commercially on about 70,000 acres in Texas. The improved varieties were originally called papershell pecans because of their thinner shells.
- The trees are large and long-lived; they bear larger crops than do the natives; and they can be resistant to some insects and diseases.
- The climate in all areas of Texas is suitable for pecans. However, crops can be damaged by early fall freezes and late spring frosts. In the Panhandle and other northern Texas areas, growers should plant early-harvest varieties to avoid fall freeze injury to maturing nuts.

**Aggie Horticulture > Fruit & Nut Resources > Pecan (Improved)**

# Pepper (Bell)

- Peppers are a warm-season crop that will grow in most Texas areas. Red and green peppers are good sources
- of vitamin C, some vitamin A, and small amounts of several minerals. Red peppers have more vitamin A than do green peppers.
- Peppers are good raw or cooked. Eat them as a snack, use them to decorate food, or add them to salads and casseroles. You can also stuff peppers with seasoned bread crumbs or meat and bake them.
- Peppers grow in all types of soils but do best in heavier, well-drained soils. Plant them in areas that receive at least 6 hours of sunlight each day.
- Several weeks before planting, work the soil 8 to 10 inches deep and rake it several times to break up the large clods. Work the soil only when it is dry enough not to stick to garden tools.
- Because diseases can be a problem on peppers, watch the plants closely. In mild weather, diseases start easily. Leaf spots are caused by fungi and bacteria and can be treated with neem oil, sulfur, or other fungicides. Again, always follow label directions.

**Source: Aggie Horticulture > Vegetable Resources > Easy Gardening Guides > Peppers**



# Pepper (Chile)

- Season: Year Round
- Receiving and Inspecting: Generally speaking, chili peppers should be smooth, shiny, well colored, and firm. Avoid peppers that appear shriveled or decayed. Dry lines or striations across the skin indicate a hotter pepper. These lines are not an indication of poor quality
- Variety/Type Descriptions: Many varieties of chili peppers are available for commercial use.
- Grades: No U.S. grades given.
- Storing Tips: Keep chili peppers away from ethylene producing fruits, ripening rooms, and strong drafts.

**Source: Texas Produce Association > Product Availability > Peppers (Chile)**

# Persimmon

- Persimmons are small, easy to grow trees which are adapted to most of Texas. The tree, leaves, and fruit are free from serious insect and disease problems which make it an excellent dooryard specimen and choice for Earth-Kind® orchards. It requires no sprays and is a favorite health fruit for those who know the crop as a delicacy of the Orient. However, in Texas they remain virtually unknown as a recreational fruit. Mature trees can reach a height of 40 feet while some remain shrubs less than 10 feet. They produce prolific crops of very attractive fruit during the fall season when fewer fruit crops are ripe. The fruit is very delicious when properly ripened and is high in Vitamin A.
- Persimmons likewise do not suffer from many problems with insect pests. In some summers, persimmon trees may suffer defoliation due to caterpillars. Additionally, cases of mealybugs, thrips, mites, ants and fruitflies have been reported.
- Persimmon fruit will ripen just as well off the tree as on the tree. Persimmons will store on the tree for a considerable period of time into the winter, making the tree and its decorative fruit very attractive in the landscape. The sweet, jelly-like flesh is usually eaten fresh, although, it can be dried.
- Persimmons actually contain more Vitamin C than citrus, as well as an abundance of other nutrients.

**Aggie Horticulture > Fruit & Nut Resources > Persimmon**

# Pineapple

- Pineapple is probably native to Brazil but was present throughout the American tropics when Columbus encountered the fruit on the island of Guadeloupe in 1493 on his second voyage. Called “anana” by the natives who grew it, “Pina de Indes” by Spanish explorers and King Pine by European elite who could afford it, the pineapple is today one of the best-known of all tropical fruits.
- At the turn of the last century, Florida was the leading producer of pineapples until the industry was decimated by a presumed disease, which later was found to be mealybugs, at which time Hawaii became the leading producer.
- Unlike many fruit plants, pineapple is very well adapted to container culture--and the fresh pineapples in the local supermarket have everything you need to get started.
- Pineapple grows best under uniformly warm temperatures year-round. While plants might survive 28 degrees, significant leaf damage would severely weaken the plant. Because of the likelihood of winter cold, pineapple would not be recommended for outdoor planting in Texas except in the Lower Rio Grande Valley.
- Pineapple can be “forced” to flower in order to produce fruit sooner than it would under natural conditions. If the plant is large and vigorous, the fruit produced will be about as large as if it had flowered normally; otherwise, fruit size and quality will be reduced by forcing.
- Growing pineapples in containers subjects them to about the same problems that afflict other container-grown plants. For example, too little light results in poor growth, poor color, legginess and a failure to flower without repeated forcing. Overwatering is also typical, causing root damage that results in poor growth, yellowing and dying of leaves, and poor to no fruiting. Typical houseplant insect pests may be encountered, the most serious being mealybug.

**Aggie Horticulture > Fruit & Nut Resources > Pineapple**

# Plum

- Plums are closely related members of the rose family, plums and apricots typically require similar management.
- Both fruits have performed much better in Texas than nectarines, almonds, sweet cherries, and Prunus hybrids because they are less susceptible to disease, varmints, and crop loss due to premature blooming.
- The plum tree has white flowers and sets fruit on buds from previous season's growth. Usually the fruit has a dusty white coating or wax bloom that is easily rubbed off (Fig. 2).
- Plums can be sweet to tart; the skin is typically quite tart.
- The two main species used in the United States are the European plum, *Prunus domestica*, and the Japanese plum, *Prunus salicina*.
- The European plum includes varieties such as 'Stanley', which is grown for fresh fruit and often dried for use as prunes. These varieties have produced poorly in Texas because they require cold climates and are susceptible to fungal diseases such as brown rot.
- Other Varieties: Methley, Santa Rosa, Bruce, Morris & Ozark Premiere

**Aggie Horticulture > Fruit & Nut Resources > Plum and Other Stone Fruits**

# Pomegranate

- Interest in growing pomegranates has increased in recent years because their pulp and juice contain high levels of antioxidants, which are thought to improve health. The shrub also has orange-red flowers and colorful fruit that make it an attractive ornamental.
- Like crape myrtles, the pomegranate is a member of the Lythraceae family, which includes about 620 species.
- Although the plant can be trained as a small tree, it is more commonly grown as a bushy shrub.
- Pomegranates have many seeds that are surrounded by crimson, pink, purplish, or white covers called arils. The arils are the edible parts of the fruit. They are sweet, juicy, and variable in acidity; some varieties can be quite tart.
- Pomegranates grow well in areas with hot, dry summers.
- Pomegranates can grow in almost any soil that has good internal drainage. They grow very well on the moderately alkaline soils of South Texas and northern Mexico, as well as the slightly acidic soils in East Texas.

**Aggie Horticulture > Fruit & Nut Resources > Pomegranate**

# Potato

- Potatoes are one of America's most popular vegetables—the average American eats about 125 pounds of potatoes and potato products each year.
- The edible part of the plant is an underground stem called a tuber (not a root). Irish potatoes contain 2 percent protein and 18 percent starch. They are an inexpensive source of carbohydrates and, when prepared properly, provide good amounts of vitamins and minerals.
- Irish potatoes are a cool-season crop; they grow best in early spring and late fall when the days are warm and the nights are cool. However, the tops of the plant cannot withstand frost.
- The most common types of Irish potatoes are red or white. Most red varieties store longer than do white varieties; on the other hand, most white varieties have better cooking qualities than red varieties.
- Many gardeners plant some of each in the spring. The whites are used first and the reds stored for later use.
- Several varieties grow well in Texas: Red flesh: Dark Red Norland, Norland, Red LaSoda, and Viking; White flesh: Atlantic, Gemchip, Kennebec, and Superior; Yellow flesh: Yukon Gold; Russet: Century Russet, Norgold M, and Russet Norkatah
- For best production, potatoes need full sun. They do best in a loose, well-drained, slightly acid soil. Poorly drained soils often cause poor stands and low yields. Heavy soils can cause the tubers to be small and rough.

**Source: Aggie Horticulture > Vegetable Resources > Easy Gardening Guides > Irish Potato**

- Season: March - June
- Receiving and Inspecting: All potato varieties should be uniformly sized, fairly clean, firm, and smooth. Avoid potatoes with wrinkled skins, soft dark spots, cut surfaces, or green appearance.
- Storing and Handling: Temperature/humidity recommendations for short-term storage of seven days or less: 45-50 degrees F/7-10 degrees C; 85-95% relative humidity
- Variety/Type Descriptions: Russet – Most widely used variety. Oblong shape with netted brown skin and white flesh. Good choice for baking, roasting, mashing, and frying; White – Oval shape with thin, light tan skin and firm, waxy texture. Good choice for boiling, salads, stews, soups, and roasting; Round Red – Round shape with smooth, light red skin, creamy white flesh, and firm, waxy texture. Good choice for potato salads, roasting, boiling, and frying.
- Grades: U.S. Extra No. 1, U.S. No. 1, U.S. Commercial, U.S. No. 2
- NOTE: Not all potatoes are graded. Ungraded potatoes are called “unclassified.” Differences between grades are based primarily on external appearance.
- Storing Tips: Store potatoes in a dark, well-ventilated area. Keep away from ethylene producing fruits and ripening rooms.

**Source: Texas Produce Association > Product Availability > Potato**

## Pumpkin

- Season: October – December
- Receiving and Inspecting: Choose clean, well-shaped pumpkins with no cracks in the rind. Avoid pumpkins with soft spots or decay.
- Storing and Handling: Temperature/humidity recommendations for short-term storage of seven days or less: 60-65 degrees F/16-18 degrees C; 85-95% relative humidity
- Troubleshooting: Decay: Pumpkins are susceptible to chill injury and will decay if stored at low temperatures. Often the decay will not be apparent until after pumpkins are removed from storage. To prevent chill injury, do not store pumpkins below 50 degrees F/10 degrees C. High humidity may also promote decay. For short-term storage of 7 days or less, store pumpkins at 60-65 degrees F/16-18 degrees C with a humidity level of 85-95%. For longer storage, reduce humidity level to 65-70%.
- Weight loss; pulp deterioration: Storing pumpkins in an area with very low humidity may cause weight loss or pulp deterioration. For best quality, keep humidity level at 65-70% for long-term storage and 85-95% for short-term storage.
- Flesh softening: Pumpkins are sensitive to ethylene; exposure to the gas may cause softening of the flesh. For best quality, keep pumpkins away from ethylene producing fruits and ripening rooms.
- Variety/Type Descriptions: Depending on variety, pumpkins range in shape and size from tiny and squat to large and round. Weights range from less than 1 lb. to 25 lbs. each. Although most pumpkins are used for decorative purposes, the pulp may be cooked like hard-shell squash and used for pies.
- Grades: U.S. No. 1 & U.S. No. 2 - Differences between grades are based primarily on external appearance.

**Source: Texas Produce Association > Product Availability > Pumpkin**

# Radish

- Season: November - April
- Receiving and Inspecting: Good quality radishes should be bright in color with firm, well-formed roots and crisp, white flesh. Attached tops should be green and fresh. Avoid radishes that appear dry, wilted, spongy, rough-skinned, or with external damage.
- Storing and Handling: Temperature/humidity recommendations for short-term storage of seven days or less: 32-36 degrees F/0-2 degrees C; 90-98% relative humidity
- Troubleshooting: Top or root growth; softening: Storing radishes at high temperatures may promote top or root growth and softening. For best quality, store radishes at 32-36 degrees F/0-2 degrees C with a humidity level of 90-98%.
- Pithy or spongy texture: This is an indication of age. Always inspect radishes carefully upon arrival to ensure good quality product. Do not hold radishes for long periods of time.
- Yellowing tops: Exposure to ethylene may promote yellowing of green tops. To prevent yellowing, keep bunched radishes away from ethylene-producing fruits and ripening rooms.
- Variety/Type Descriptions: Red Globe – November – April – Most predominant type sold commercially. Round shape, bright red color with crisp white flesh.
- Black – December - March– These radishes resemble turnips in shape and texture of flesh. The flavor is pungent, slightly turnip like. Black skin covers crisp white flesh. Also called winter radish.
- Daikon – December - April – See individual commodity.
- White – Round shape, white color with crisp white flesh.
- Grades: U.S. No. 1 & U.S. Commercial

**Source: Texas Produce Association > Product Availability > Radish**

- Radishes are often the first vegetable harvested from a spring garden. They are a cool-season crop and do not do well in the hot summer months. Radishes are grown for the root, which usually is eaten raw, alone, or in salads. The leaves can also be eaten, especially when they are young and tender. Radishes are colorful and good for you. For this vegetable, a row 10 feet long is adequate for a family of four.
- Radishes can grow in partial shade, require very little room, and mature quickly. They are well suited to small gardens, flower beds, and containers.
- To prepare the soil, remove rocks, trash, and large sticks from the planting area. Small pieces of plant material such as grass and leaves can be mixed into the soil to make it richer.
- Radishes can be of the red or the white variety. Some recommended red varieties are Cherry Belle, Crunchy Red, Fuego, Early Scarlet Globe, Red Baron, and Red Devil. Two recommended white varieties are Icicle and Round White.
- Because radishes mature so quickly, diseases usually are not a problem. Check the plants daily and treat them with an approved fungicide if diseases appear.

**Source: Aggie Horticulture >Vegetable Resources > Easy Gardening Guides > Radish**

# Rosemary

- Rosemary is relatively easy to grow, making it a good choice for any home herb garden. Its pungent flavor and pinelike scent make rosemary a popular ingredient in foods. The upright varieties are best for both fresh and dried use.
- Rosemary can be grown as an annual (completes its life cycle in 1 year) or a perennial (completes its life cycle in 3 or more years). In herb gardens, it is often planted along with thyme, oregano, sage, and lavender. When planting, choose a variety that is suitable to the climate, soil, and desired use.
- Varieties: Arp, Blue Boy, Creeping, Dancing Waters, Golden Rain, Pine Scented, Pink, Spice Islands, Upright, White
- Rosemary can be grown in pots or in an herb garden (Fig. 1). Most varieties grow best in well-drained, loamy, slightly acidic soil. The preferred soil pH is between 6.0 and 7.0.
- Rosemary seldom needs fertilizer. But if growth is slow or the plant appears stunted or pale yellow, apply fertilizer once in early spring before new growth appears.
- Like most herbs, rosemary is fairly drought resistant and, if healthy enough, can tolerate a light freeze. It is most successful when grown from cuttings or transplants. Although seed is readily available and usually inexpensive, its germination rate is usually only about 15 percent.
- Too much water can cause root rot. Sometimes it can be difficult to determine when a rosemary plant needs water because its needles do not wilt as broad leaves do.
- Rosemary is fairly resistant to pests. If spider mites, mealy bugs, or scales do appear, any organic or inorganic insecticide may be used.
- Rosemary plants can be harvested several times in a season, but they should be allowed to replace their growth between harvests. Some varieties are valued for their small flowers, which are harvested for use in salads.
- The clippings can be used fresh or dried for later use. Fresh cuttings will retain their best flavor for 2 to 7 days in the refrigerator. To store rosemary for longer periods, hang it in bundles to dry.

**Source:** Aggie Horticulture >Vegetable Resources > Easy Gardening Guides > Rosemary

# Snap Peas

- The sugar snap pea is a member of the bean family.
- Sugar snap peas are like snow peas in that we eat the entire pod. A difference is that the pods of snow peas are flat and those of sugar snap peas are round.
- Unlike beans, peas do not open when they are ripe or have a membrane in the pod.
- Most cultivars are climbing vines and need a trellis for support (Fig. 1). In seed catalogs, they are described as tall climbers.
- In the spring, plant sugar snap peas as soon as you can prepare the soil. Sugar snap peas are a cool-season vegetable and can tolerate light frosts even when the plants are small.
- Sugar snap peas are nitrogen-fixing plants: They take nitrogen from the air and change it into a form that they can use for food. To increase the crop, add a nitrogen-fixing inoculant, which contains the bacteria that inoculates the plant roots and helps it convert nitrogen into plant food.
- Do not let the soil dry out but do not overwater. You may need to irrigate once a week if no rain has fallen.
- The pods can be stored in a plastic bag in the refrigerator for up to 2 weeks. Unlike fresh green peas, these pods deteriorate only slightly in quality when stored.

**Source:** Aggie Horticulture >Vegetable Resources > Easy Gardening Guides > Sugar Snap Pea

# Spinach

- Greens (spinach among others) include all leafy green vegetables. They are often called potherbs and are grown mostly for their tender leaves.
- Green vegetables include spinach, New Zealand spinach, Swiss chard, dandelion, and kale.
- Most greens are cool-season crops and must be grown in the early spring or fall in Texas.
- Some greens, especially kale, will withstand temperatures below freezing and can be grown all winter in many areas.
- Greens grow best in a well-drained soil with lots of organic matter. They prefer full sunlight but will tolerate partial shade.
- Spinach has a deep taproot so the soil must be worked at least 8 to 10 inches deep. Dig the soil in the early spring when it is dry enough not to stick to garden tools. Break up large clods and remove trash and weeds. Work the soil into planting beds about 4 inches high. This is especially important in heavy soils.
- Add compost or other organic matter before digging the soil.
- Varieties: Bloomsdale, Melody, Space & Tye
- Spinach often shows some disease damage on the leaves in cool, damp weather. Do not plant spinach in the same place in your garden more than once every 2 or 3 years.
- Spinach and other greens contain lots of Vitamin A and minerals when cooked properly.

**Source: Aggie Horticulture >Vegetable Resources > Easy Gardening Guides > Spinach**

- Season: October – March
- Receiving and Inspecting: Good quality spinach should have clean, fresh, and fairly crisp leaves with good green coloring. Avoid wilted spinach or spinach with long stems.
- Storing and Handling: Temperature/humidity recommendations for short-term
- storage of seven days or less: 32-36 degrees F/0-2 degrees C; 90-98% relative humidity
- Troubleshooting Rapid deterioration: Spinach is very perishable and will quickly deteriorate if exposed to high temperatures. For best quality, store at 32-36 degrees F/0-2 degrees C.
- Wilting: Spinach may begin to wilt if stored in an area with low humidity. For best quality, keep spinach cold and maintain a humidity level of 90-98% during storage.
- Yellowing: Exposure to ethylene may accelerate loss of green color of spinach leaves. To prevent yellowing, keep spinach away from ethylene producing fruits and ripening rooms.
- Variety/Type Descriptions: Savoy (Curly Leaf) – Preferred type for fresh applications. Characterized by dark green, crinkled leaves. Flat Leaf – Dark green, slightly crinkled leaves. Used primarily for processing.
- Grades: Spinach leaves: U.S. Extra No. 1, U.S. No. 1, U.S. Commercial; Bunches Spinach: U.S. No. 1, U.S. No. 2
- NOTE: Differences between grades are based primarily on external appearance.
- Storing Tips: Store fresh spinach away from ethylene producing fruits and ripening rooms.

**Source: Texas Produce Association > Product Availability > Spinach**

# Squash (Summer)

- Season: June - October
- Receiving and Inspecting: Summer squash should be firm with shiny, tender rinds. Shape and rind color should be consistent with type. Avoid squash that shows signs of injury, pitting, or dull rind. Generally speaking, smaller sizes are more tender and flavorful.
- Storing and Handling: Temperature/humidity recommendations for short-term storage of seven days or less: 45-50 degrees F/7-10 degrees C; 85-95% relative humidity
- Variety/Type Descriptions:
  - Crookneck – Cylindrical shape with bulb end, creamy yellow rind, white flesh, and seeds. May be used raw or cooked.
  - Straightneck – Cylindrical shape, creamy yellow rind, white flesh, and seeds. Completely edible either raw or cooked.
  - Zucchini – Cylindrical shape, dark green shiny rind with some light speckling, white flesh, and seeds. Completely edible either raw or cooked.
- Grades: U.S. No. 1 & U.S. No. 2
- NOTE: Not all summer squash is graded. Ungraded summer squash is called “unclassified.” Differences between grades are based primarily on external appearance
- Storing Tips: Keep summer squash away from ethylene-producing fruits and ripening rooms.
- Sizes: Small, Medium, Large

**Source: Texas Produce Association > Product Availability > Squash (summer)**

# Squash (Winter)

- Season: September – December
- Receiving and Inspecting: Look for squash that is heavy for its size, has a hard rind, and intact skin with no bruises, cuts, or dents. (Spaghetti squash rind is semi-hard.) All rind colors should have a dull appearance and be consistent with the specific squash type. Avoid winter squash that is light in weight or has a shiny, tender rind.
- Storing and Handling: Temperature/humidity recommendations for short-term storage of seven days or less: 60-65 degrees F/16-18 degrees C; 85-95% relative humidity
- Variety/Type Descriptions: Winter squash types are generally larger than summer types. They have hard, inedible rinds. The flesh only is edible and must be cooked. Major types include:
  - Acorn – Acorn-shaped with deep furrows. Green to yellow-gold hard rind, and yellow flesh with slightly sweet flavor and somewhat dry consistency.
    - Butternut – Large squash with an elongated, bell shape. Hard, tan-colored rind and yellow-orange flesh.
    - Hubbard – Large round squash with tapered ends. Hard rind color may vary from orange to golden to green to blue gray.
    - Spaghetti – Large, oblong-shaped squash with yellow, semi-hard rind. Stringy yellow flesh separates into spaghetti-like strands after it is cooked.
    - Turban – Vivid orange rind striped with cream, green, or white, and a turban shape distinguish these squashes. Turban squashes are 2-15” in diameter; rind is bumpy, flavor bland. Often used for decoration or soup tureen.
- Common Packaging: 35- to 50-lb. bushel containers, cartons, and crates 20-lb. and 25-lb. bulk boxes
- Grades: U.S. No. 1 & U.S. No. 2
- Differences between grades are based primarily on external appearance.

**Source: Texas Produce Association > Product Availability > Squash (winter)**

# Strawberry

- Strawberries are a very popular small fruit for home gardeners. On the High Plains of Texas and in surrounding regions, strawberries can be difficult to grow, often leaving home gardeners feeling very frustrated. However, with proper growing techniques, transplant timing, and tender loving care, high yielding and quality strawberries can be achieved.
- Strawberries prefer a sunny location with good quality soil that is protected from high winds.
- Strawberries grow best on well-drained soils. Adequate drainage can be improved by planting strawberries on beds raised 6 to 12 inches. Strawberries also prefer soils with a pH range of 6.5 – 7.0.
- However, soils on the Texas High Plains generally have soil pH from 7.5 – 8.3. Iron deficiency may cause leaf yellowing, and thus iron chelates may be sprayed to improve growth. Soil tests should be considered prior planting, and every few years to evaluate the soil.
- Strawberries perform best when given uniform irrigation. Low humidity and windy conditions found on the Texas High Plains throughout late winter and spring can quickly deplete soil moisture resulting in poor growth and development.
- Major pests of strawberries include birds, mice, spider mites, slugs and snails, and white grubs.

**Source:** [Aggie Horticulture >Vegetable Resources > Easy Gardening Guides > Strawberries](#)

# Sweet Corn

- Sweet corn is a member of the grass family. In smaller gardens, it should be planted in square blocks instead of long rows to improve cross-pollination between corn stalks. Like most vegetables, corn will grow best in areas with plenty of sunlight.
- Corn is one of the plants grown in the traditional Native American vegetable technique call the Three Sisters. The other two plants in the Three Sisters are beans and squash, and each had its role in this companion planting tradition. Corn served as a support for the vining beans. Squash served as a ground cover, preventing weeds from growing. Beans provided natural fertilizer for all.
- Corn can tolerate many soil types but prefers well-drained soils with a pH between 5.5 and 7.0. In sandy soils or soils with a low pH, corn may suffer from magnesium deficiency.
- Remove weeds, rocks and trash, and work the top 8 to 10 inches of soil before planting. Work the soil only when it is dry enough not to stick to garden tools.
- Water sweet corn as needed to keep it from wilting. Do not let corn suffer from lack of water when the kernels are forming.
- If a few of your corn plants are stunted, they may have a viral disease and should be removed to keep the virus from spreading.
- Store corn in the husk. Place it uncovered in the refrigerator for 1 or 2 days. Corn stored for more than 2 days loses its sweetness.

**Source:** [Aggie Horticulture >Vegetable Resources > Easy Gardening Guides > Sweet Corn](#)



# Sweet Potato

- Sweet potatoes are an excellent source of beta-carotene, which is easily converted by the body into vitamin A, especially the varieties with orange flesh. A member of the morning glory or Convolvulaceae family, the plant also produces colorful flowers as well as trailing vines often used as groundcovers.
- The sweet potato is a perennial plant (one that lives for more than 2 years) originating in the tropical Americas. When grown in the United States, it is treated as a warm-season annual (a plant that completes its life cycle in 1 year).
- Texas is the fifth largest producer of sweet potatoes in the United States. Production is concentrated mostly in Van Zandt County in East Texas.
- Hot days and warm nights are ideal for sweet potato production, which is why Texas is a large sweet potato producer.
- Sweet potatoes require full sun and a warm climate. They must be planted in a well-drained, fine sandy loam soil with a slightly acidic pH 5 to 7.5. This allows the sweet potato to grow easily but not remain in a moist environment that encourages rot and disease.
- Sweet potatoes are attacked by leaf spots, nematodes, beetles, cutworms, and weevils.
- Sweet potatoes need 10 to 20 inches of water per season. Because rain falls sporadically throughout the season, you will need to water them, especially at first during the slip establishment period.

**Source:** [Aggie Horticulture >Vegetable Resources > Easy Gardening Guides > Sweet Potato](#)

# Tangerine

- Season: May – July
- Equivalents: 5 medium Pixie mandarins = approximately 2 cups or 16 oz.
- Receiving and Inspecting: Look for fruit with peel color and texture that is characteristic of the particular variety. A good quality mandarin should also be heavy for its size. Avoid fruit with soft spots, water-soaked spots, or mold.
- Storing and Handling: Temperature/humidity recommendations for short-term
- storage of seven days or less: 45-50 degrees F/7-10 degrees C 85-95% relative humidity; Pixie mandarin: 45-48 degrees F/7-8 degrees C
- Handling Tips: handle fruit with care to prevent bruising. Do not drop containers on floor or dump fruit.
- Troubleshooting: Soft, spongy texture; increased decay: These are indications of chill injury and old fruit. To prevent chill injury, do not store fruit below 38 degrees F/3 degrees C.
- Decay; loss of flavor: This is an indication of age. For best quality, inspect fruit carefully upon arrival; do not hold for extended periods of time.
- Bruising: Tangerines are susceptible to bruising if handled roughly. To prevent bruising, keep handling to a minimum; do not drop containers on floor or dump fruit.
- Deterioration of flesh: Deterioration may occur if fruit is stored at high temperature. For best quality, store at 45-50 degrees F/7-10 degrees C.
- Accelerated deterioration of peel; increased incidence of decay: These are indications of damage caused by exposure to ethylene. For best quality, keep fruit away from ethylene producing fruits and ripening rooms.
- Grades: Fancy & Choice; Differences between grades are based primarily on external appearance.

**Source:** [Texas Produce Association > Product Availability >Tangerine](#)

# Tomatillo

- The tomatillo or husk tomato looks much like a tomato.
- The fruit is generally green but can be orange, yellow, red, or even purple. It is enclosed in a papery wrapping called a calyx. The condition of the calyx is commonly used as an indicator of freshness in fresh markets.
- Tomatillos are not grown extensively in Texas. Seed companies carry a wide selection of varieties, including 'Cape Gooseberry', 'Golden Nugget', 'Mayan Husk Tomato', 'Mexican Husk', and 'Rendidora', which is an improved cultivar.
- Tomatillos prefer well-drained, sandy loam soils with a pH between 5.5 and 7.3.
- They do not do well in wet conditions.
- The plants begin bearing fruit 65 to 85 days after seeding or transplanting and continue for 1 to 2 months or until the first frost.
- After the 2-week drying period, the cartons can be stacked and stored at 55 to 60°F and 85 to 90 percent humidity for up to 3 weeks.
- Tomatillos are used primarily for fresh consumption. They are often used in soups and sauces, most notably in green sauces for Mexican and Guatemalan dishes. Some tomatillos are preserved as jam or canned whole for later use (Fig. 2).

**Source:** [Aggie Horticulture >Vegetable Resources > Easy Gardening Guides > Tomatillos](#)

- Season: Year Round
- Receiving and Inspecting: Good quality tomatillos should be firm and dry with clean, close-fitting husks.
- Avoid soft tomatillos or those that exhibit black discoloration or mold.
- Storing and Handling: Temperature/humidity recommendations for short-term storage of seven days or less: 45-50 degrees F/7-10 degrees C; 85-95% relative humidity
- Handling Tips: Handle tomatillos with care to minimize bruising.
- Troubleshooting: Pitting; discoloration; increased decay:
- These are all indications of chill injury. To prevent chill injury, do not store tomatillos below 45 degrees F/7 degrees C.
- Variety/Type Descriptions: Small round fruit covered with a parchment-like green husk. Fruit resembles a green Cherry tomato. Green flesh contains tiny seeds; solid texture. Tomatillo flavor is lemony and slightly acidic. Husks must be removed before using. Tomatillos may be used cooked (stews, casseroles) or uncooked (chopped into salads, guacamole, cold soups, and sandwiches).
- Grades: No U.S. grades given.

**Source:** [Texas Produce Association > Product Availability >Tomatillo](#)

# Tomato

- Season: Year Round
- Receiving and Inspecting: Good quality tomatoes should have bright, shiny skins (regardless of degree of ripeness) and firm flesh. Avoid tomatoes that are soft or mushy, lacking in color, or have blemishes or growth cracks. Inspect tomatoes immediately upon arrival to ensure that the degree of ripeness, size, and quantity is consistent with order specifications.
- Storing and Handling: Temperature/humidity recommendations for short-term storage of seven days or less:
- Ripe and mature green: 60-65 degrees: F/16-18 degrees C; 85-95% relative humidity
- Handling Tips: Tomatoes are delicate and can bruise easily which may promote spoiling. Handle tomatoes with care; do not drop containers on the floor or dump tomatoes. Store and display tomatoes stem-end up to help preserve quality.
- Troubleshooting: Decay; softening; loss of flavor; failure of mature greens to ripen properly:
- These are indications of chill injury. To prevent chill injury, do not store tomatoes below 50 degrees F/10 degrees C. Moisture accumulation on or in containers during storage may also promote product decay. Store containers off the floor to keep them from getting damp. Maintain moderate air circulation and inspect tomatoes daily during storage.
- Bruising: Tomatoes bruise easily and may eventually spoil. To prevent bruising and possible spoilage, handle tomatoes with care; do not drop shipping containers on the floor.
- Uneven color development: Exposing tomatoes to temperatures above 86 degrees F/30 degrees C for longer than a few hours will result in uneven color development of mature green or breaker tomatoes.

**Source: Texas Produce Association > Product Availability > Tomatoes**

- Tomatoes are the most popular garden vegetable crop in Texas. They are a good source of vitamin A and fair source of vitamin C. Fresh tomatoes are popular in salads, on sandwiches and sliced. They can be cooked and used in many ways.
- Tomatoes grow well in most Texas areas if planted in soil that drains well. They need at least 6 hours of sunlight each day.
- For best quality, pick tomatoes at full color. If you pick them when they are pink, let them ripen at room temperature. They may be stored in the refrigerator after they reach full color.
- Varieties: Small fruit- Presto, Saladette, Red Cherry, Small Fry; Large fruit- Big Set, Bonus, Homestead, Terrific, Bingo, Carnival, Spring Giant, Walter

**Source: Aggie Horticulture >Vegetable Resources > Easy Gardening Guides > Tomatoes**

# Turnip

- Season: October - April
- Receiving and Inspecting: Choose turnips that are clean, well shaped, heavy for their size, and fairly smooth. Avoid product that shows signs of shriveling, flabbiness, or growth cracks. Bunched turnips should exhibit fresh tops with no signs of decay, discoloration, or wilting.
- Storing and Handling: Temperature/humidity recommendations for short-term storage of seven days or less: 32-36 degrees F/0-2 degrees C; 90-98% relative humidity
- Troubleshooting: Shriveling; loss of color:
- Turnips may shrivel and lose color if stored in an area with low humidity. For best quality, maintain storage conditions of 32-36 degrees F/0-2 degrees C and a humidity level of 90-98%.
- Decay: Turnips may show signs of decay if they are stored in a warm area. Rough handling may also bruise the vegetable, which may promote decay. For best quality, keep product cold and handle with care. Do not drop shipping containers on the floor.
- Water-soaked spots; light brown discoloration of flesh:
- These are signs of severe freeze damage. For best quality, do not store turnips below 30 degrees F/-1 degree C.
- Variety/Type Descriptions: Round to top-shaped root vegetable with creamy white to pinkish-red skin and white flesh. Turnips are available as bunched, short-trimmed, or topped. Turnips may be used cooked in stews or uncooked (sliced or cubed and added to salads).
- Grades: U.S. No. 1 & U.S. No. 2
- Storing Tips: Keep turnips away from ethylene producing fruits and ripening rooms. Maintain adequate air circulation during storage.

**Source: Texas Produce Association > Product Availability > Turnips**

# Walnut

- Walnut Blight: The varieties grown in California do not produce well in Texas because of a bacterial disease called "Walnut Blight." The trees look vigorous and are strong, but the flowers fail to set fruit or the fruit fails to ripen properly due to the bacterium which overwinters on infected buds and to a lesser extent, in twig cankers. During the spring, the pathogen is spread by rain and wind. During heavy spring rains, severe damage can occur because the nuts are most susceptible at this time. The bacteria can infect catkins and can contaminate pollen, both of which can spread blight infection to the flowers. Kocide 101 spray at a rate of 2 pounds per 100 gallons of water will be needed with the conditions of prolonged high humidity. Tree damage can occur from excessive use of copper sprays such as Kocide 101 or the old Bordeaux mix and caution is recommended when spraying. Always follow fungicide label instructions.
- Rootstocks: Advances have been made in Texas walnut culture by Dr. Loy Shreve. He demonstrated that the native Texas Black Walnut, *Juglans microcarpa*, is a far superior rootstock for walnuts growing in high pH soils of Texas than the Eastern Black Walnut, *Juglans nigra*, or the California Black Walnut, *Juglans hindsii*. Growth of 10 feet or more the first year has been obtained with the Texas Black Walnut rootstock. Other rootstocks made little or no growth.

**Aggie Horticulture > Fruit & Nut Resources > Walnut**

# Watermelon

- Season: Year Round
- Receiving and Inspecting: A good quality watermelon should exhibit shape and rind color that is characteristic of its variety. All varieties should be firm and symmetrical. Watermelons should be ripe upon arrival. They do not ripen after harvesting. Ripe indicators include a dull rind, dried stem, and yellowish underside where the melon touched the ground. A ripe watermelon will also produce a distinct hollow sound when thumped. A shiny rind and a white, pale green, or light yellow underside indicates immaturity.
- Handling Tips: Handle watermelon with care to prevent external or internal bruising.
- Troubleshooting: Pitting of rind; off flavor; loss of color: These are indications of chill injury. To prevent chill injury, do not store watermelon below 41 degrees F/5 degrees C.
- Mealy or soft flesh: Watermelon is extremely sensitive to ethylene gas; exposure will promote softening of flesh. For best quality, keep watermelon separated from ethylene producing fruits. Do not store near ripening rooms.
- Variety/Type Descriptions
- Many types of watermelon are grown throughout the United States.
- Common Packaging: 35- to 85-lb. cartons holding various counts
- Bulk bins
- Grades: U.S. Fancy, U.S. No. 1, U.S. No. 2
- Storing Tips: Keep watermelon away from ethylene producing fruits and ripening rooms.

**Source: Texas Produce Association > Product Availability > Watermelons**





# Station #1



01. Pecan
02. Kiwi
03. Pistachio
04. Persimmon

What region of Texas is this product grown?

- A. West Texas
- B. Rio Grande Valley
- C. Central Texas
- D. East Texas



# Station #2



01. Cauliflower
02. Broccoli
03. Celery
04. Lettuce

What time of year does this product flourish?

- A. late Spring
- B. early Winter
- C. late Fall & Winter
- D. Late Winter

# Station #3

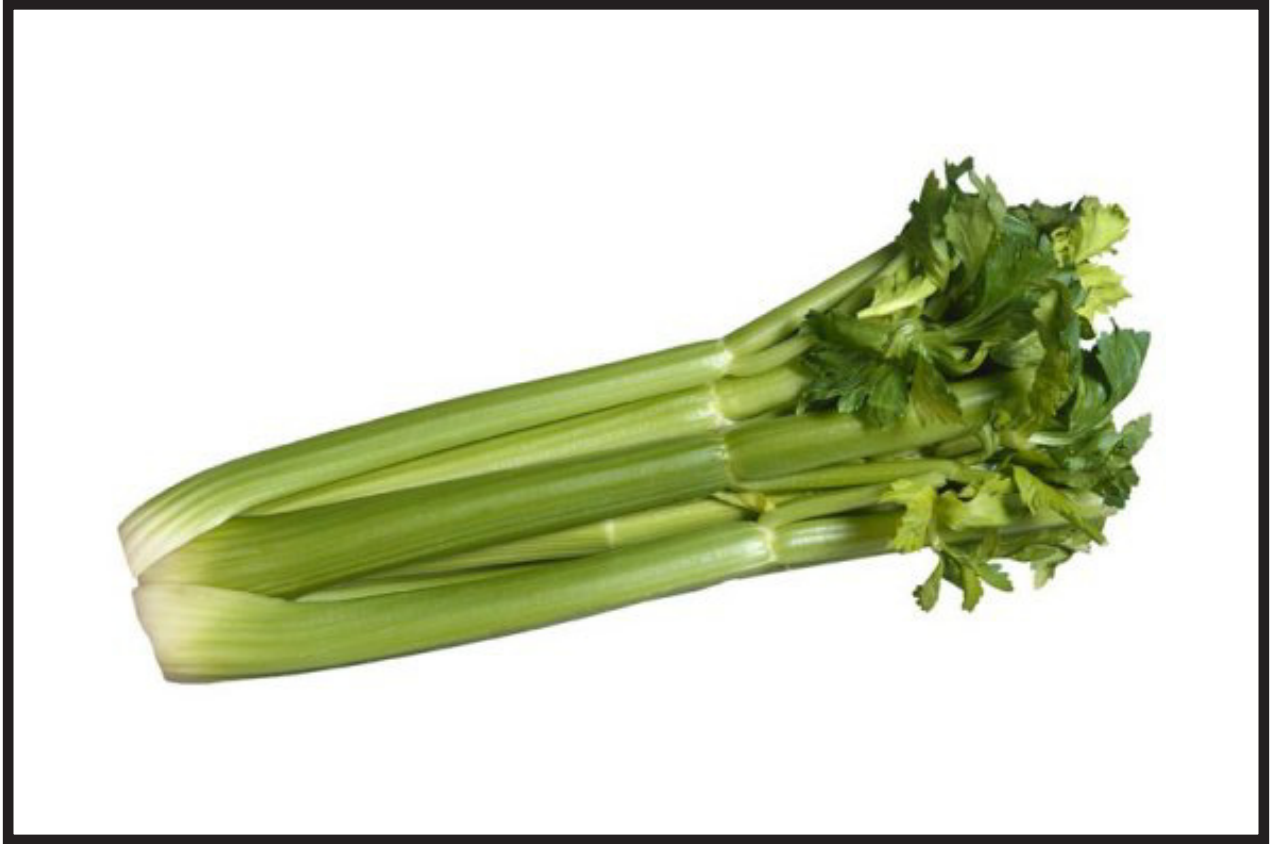


01. Broccoli
02. Cauliflower
03. Cabbage
04. Lettuce

Where should this raw product be stored?

- A. at room temperature
- B. tightly wrapped
- C. frozen
- D. refrigerated

# Station #4

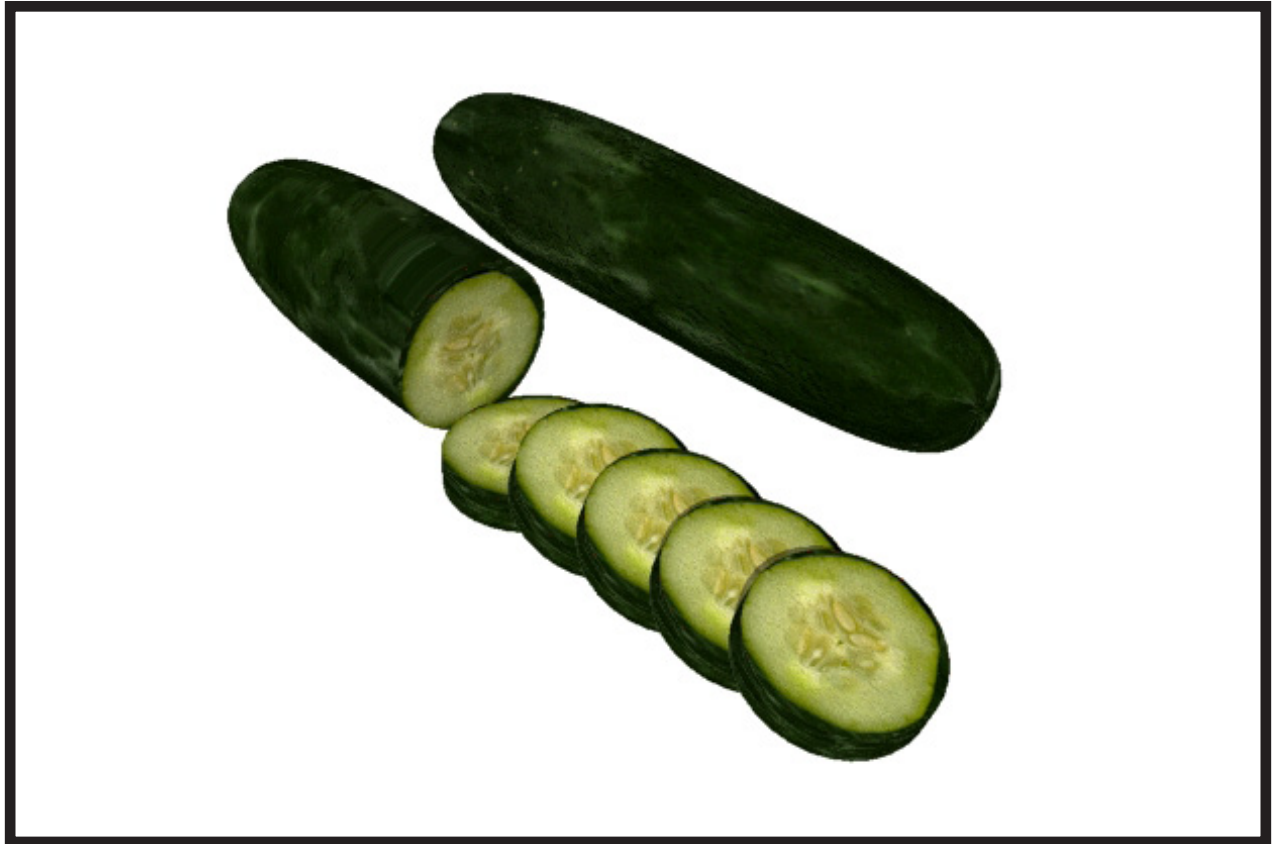


01. Cabbage
02. Celery
03. Green bean
04. Cucumbers

How many pounds of this product does Texas produce each year?

- A. 42 billion
- B. 30 billion
- C. 1 million
- D. 26 million

# Station #5

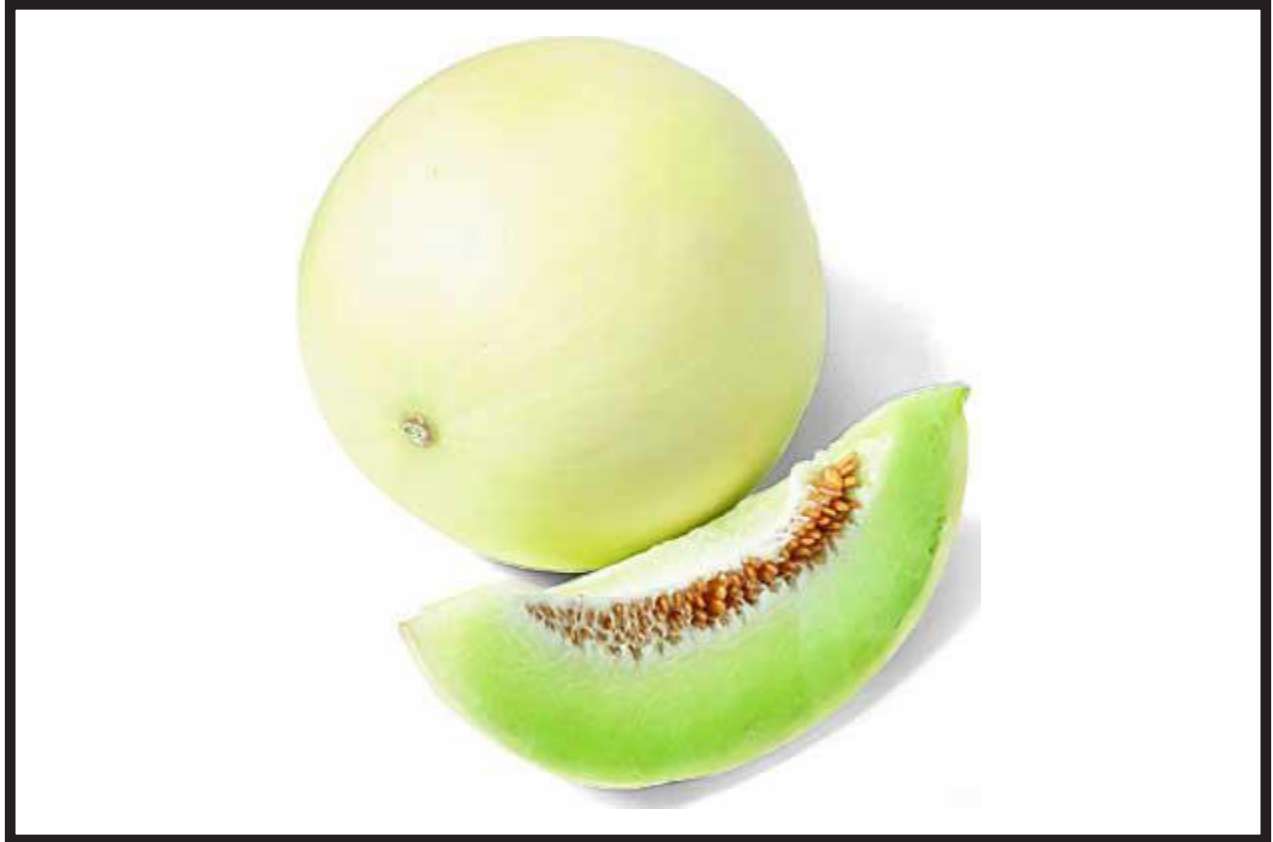


01. Cucumber
02. Celery
03. Pickle
04. Broccoli

How long will this product stay fresh when refrigerated?

- A. Up to 2 days
- B. Up to 3 days
- C. Up to 2 weeks
- D. Up to 7 days

# Station #6



01. Watermelon
02. Honeydew Melon
03. Cantaloupe
04. Kiwi

What color does this product turn as it ripens?

- A. Green
- B. Cream
- C. Red
- D. Yellow

# Station #7

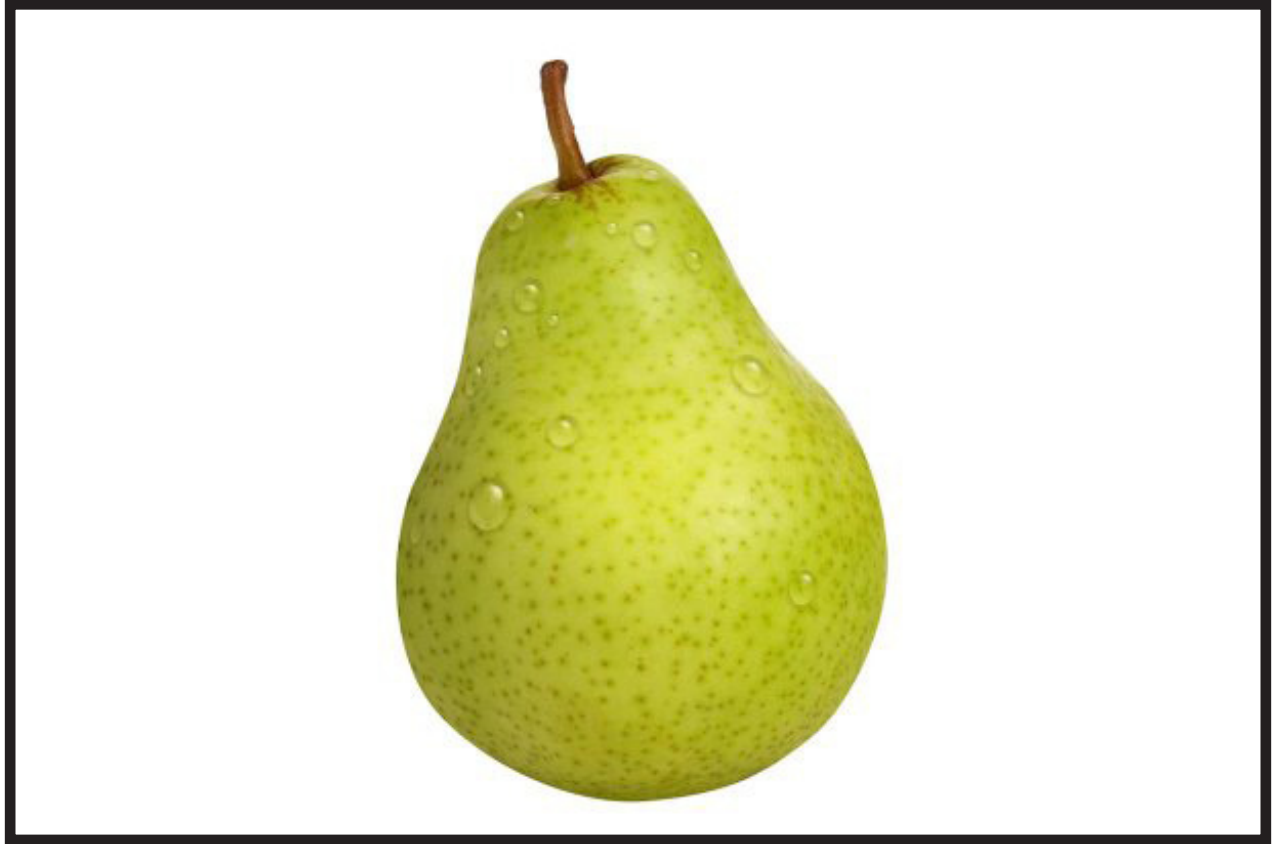


01. Jujube
02. Orange
03. Tangerine
04. Nectarine

What is a nickname for this product?

- A. Hairless orange
- B. Fuzzless peach
- C. Fuzzleless orange
- D. Hairless orange

# Station #8



01. Pear
02. Tomato
03. Apple
04. Starfruit

What time of the year is this product in season?

- A. January through March
- B. March through May
- C. May through August
- D. August through December

# Station #9



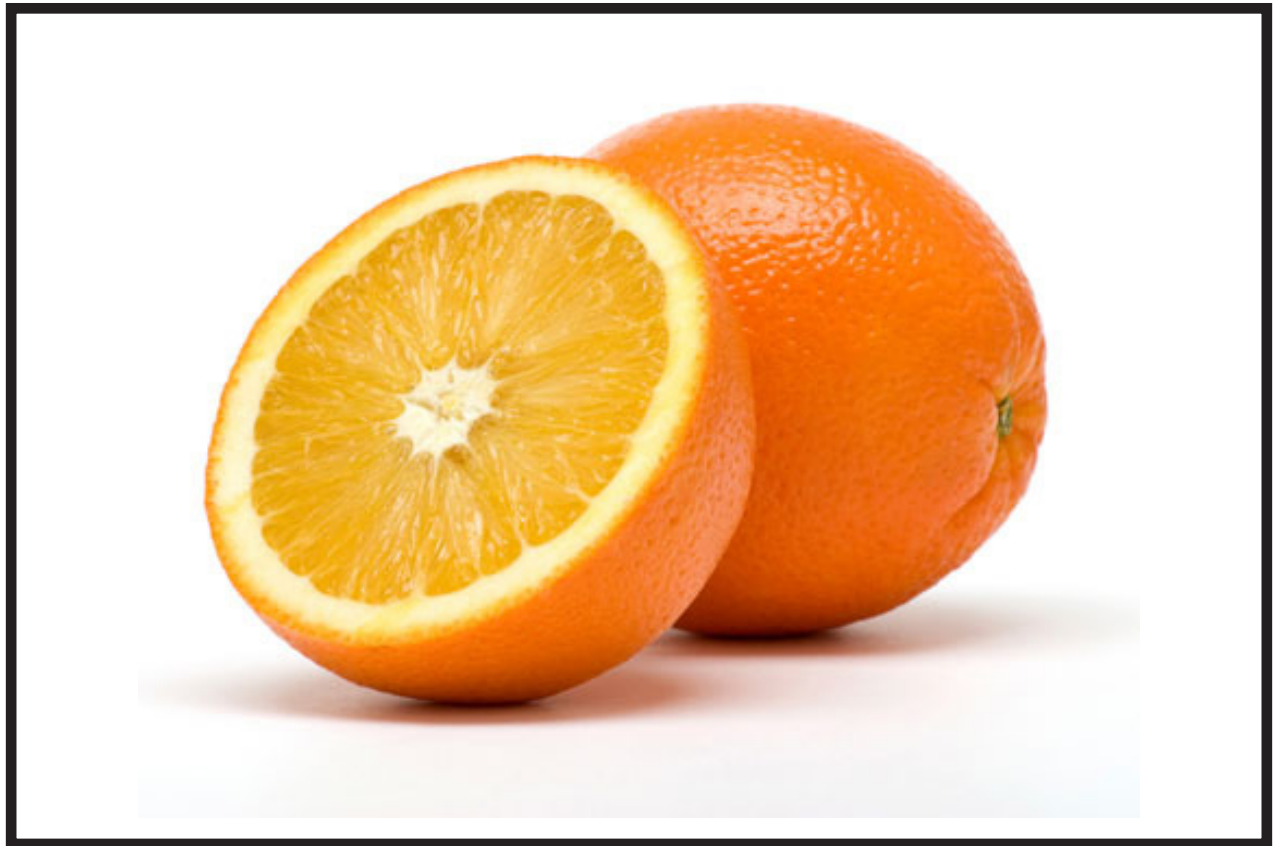
01. Mushroom
02. Squash
03. Garlic
04. Ginger

What nutrient can be found in this product?

- A. Vitamin C
- B. Calcium
- C. B vitamin
- D. Zinc



# Station #10

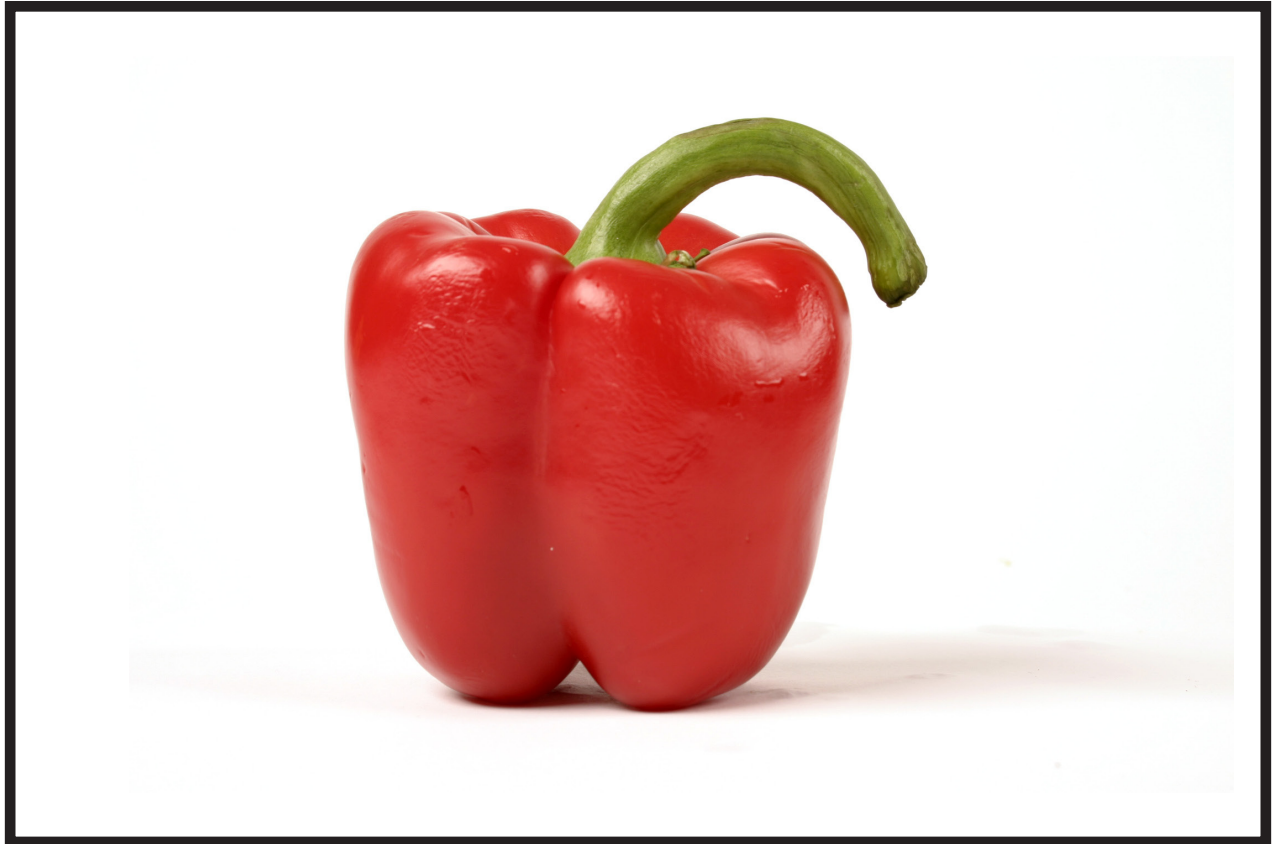


01. Tangerine
02. Starfruit
03. Orange
04. Nectarine

What are the scars sometimes found on this product that are caused by the Gulf of Mexico breezes?

- A. bruises
- B. tropical beauty marks
- C. creases
- D. runts

# Station #11



01. Squash
02. Pepper
03. Okra
04. Tomatillo

What is not a nutrient found in this product?

- A. Potassium
- B. Vitamin A
- C. Vitamin C
- D. Zinc

# Station #12

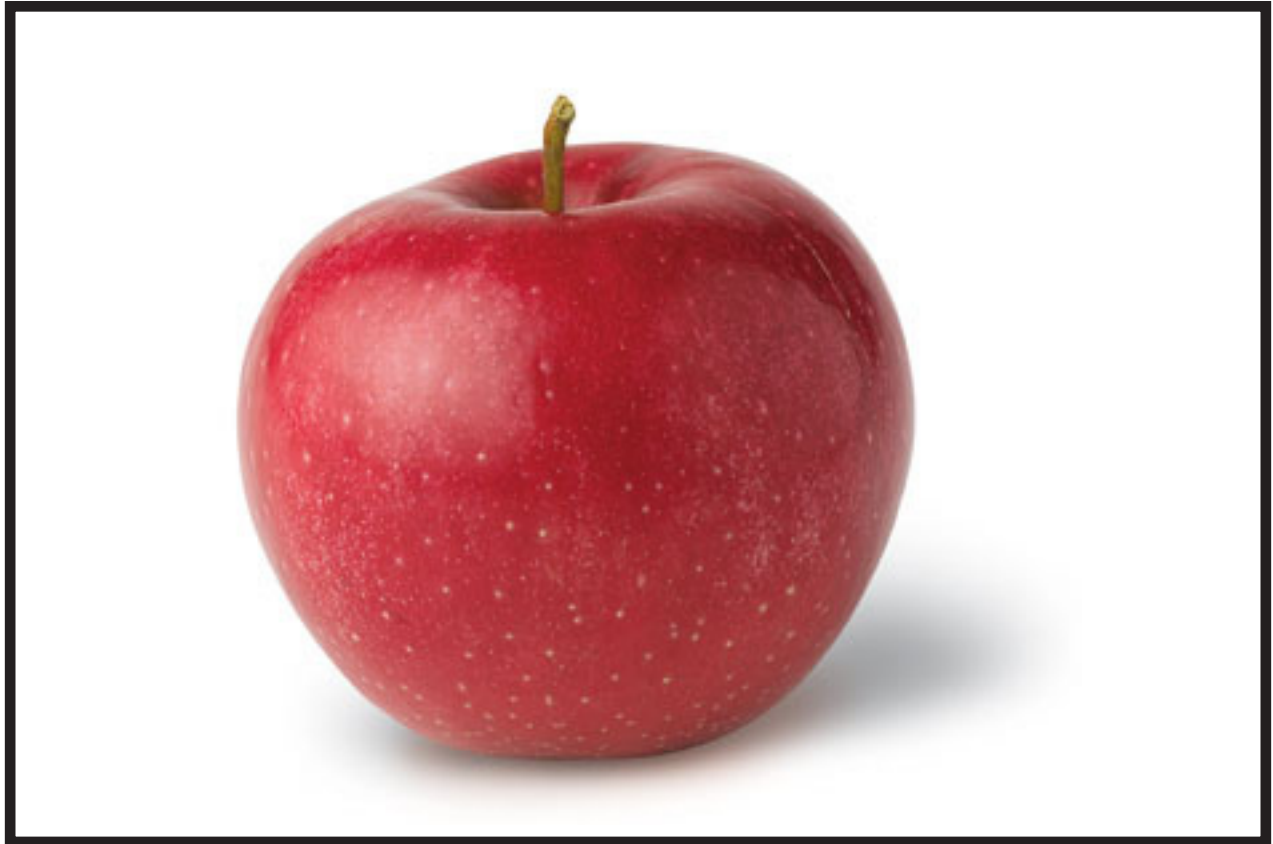


01. Squash
02. Gourd
03. Pumpkin
04. Garlic

What nutrient can be found in this product?

- A. Vitamin K
- B. Vitamin A
- C. Vitamin Z
- D. Iron

# Station #13

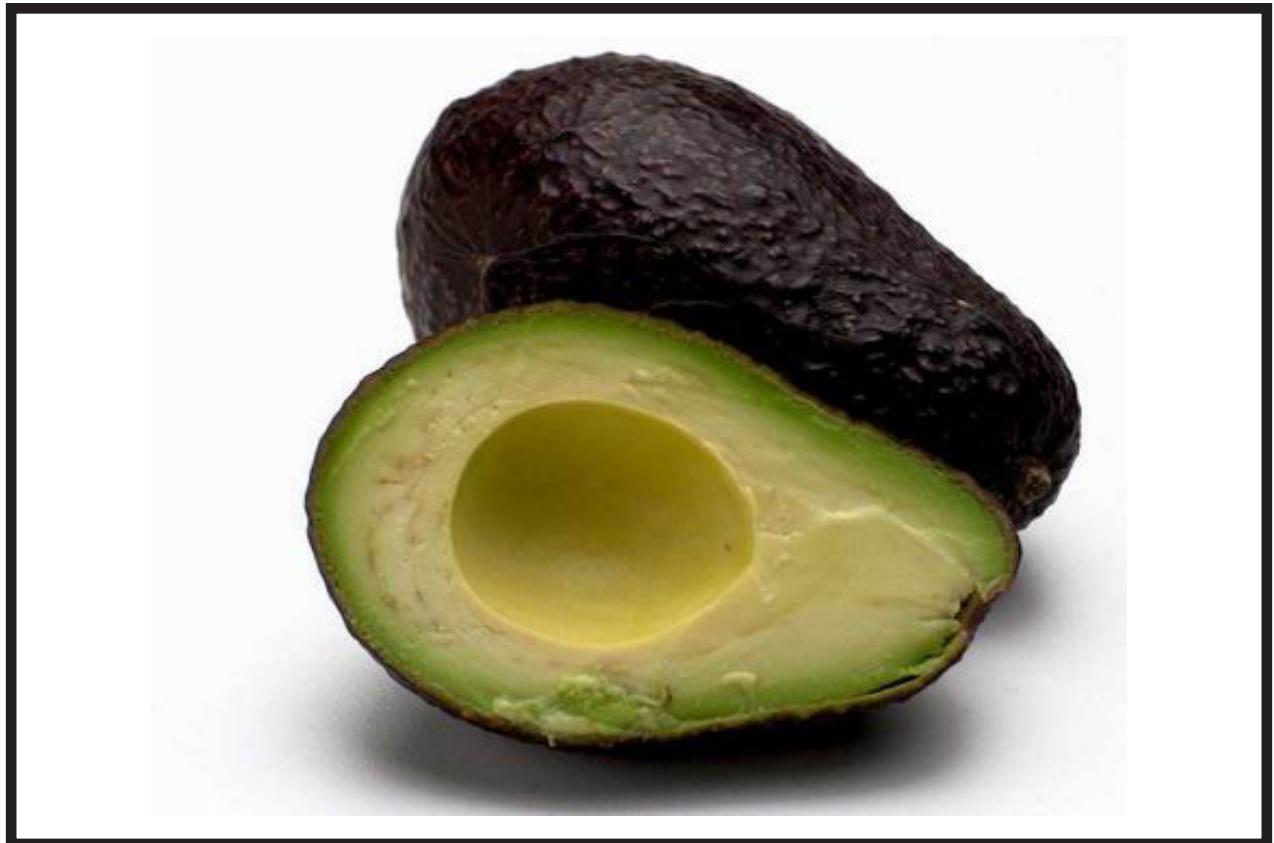


01. Apple
02. Orange
03. Lemon
04. Lime

Which of the following is an example of a good pairing of two of this products' trees for pollination?

- A. Gala & Adina
- B. Starkrimson Red Delicious & Jersey Mac
- C. Dorsett Golden & Anna
- D. Mollies Delicious & Braeburn

# Station #14



01. Squash
02. Avocado
03. Gourd
04. Cabbage

What is the most common problem(s) of this Texas product?

- A. Tip burn
- B. Marginal necrosis
- C. Root rot
- D. Tip burn and marginal necrosis

# Station #15

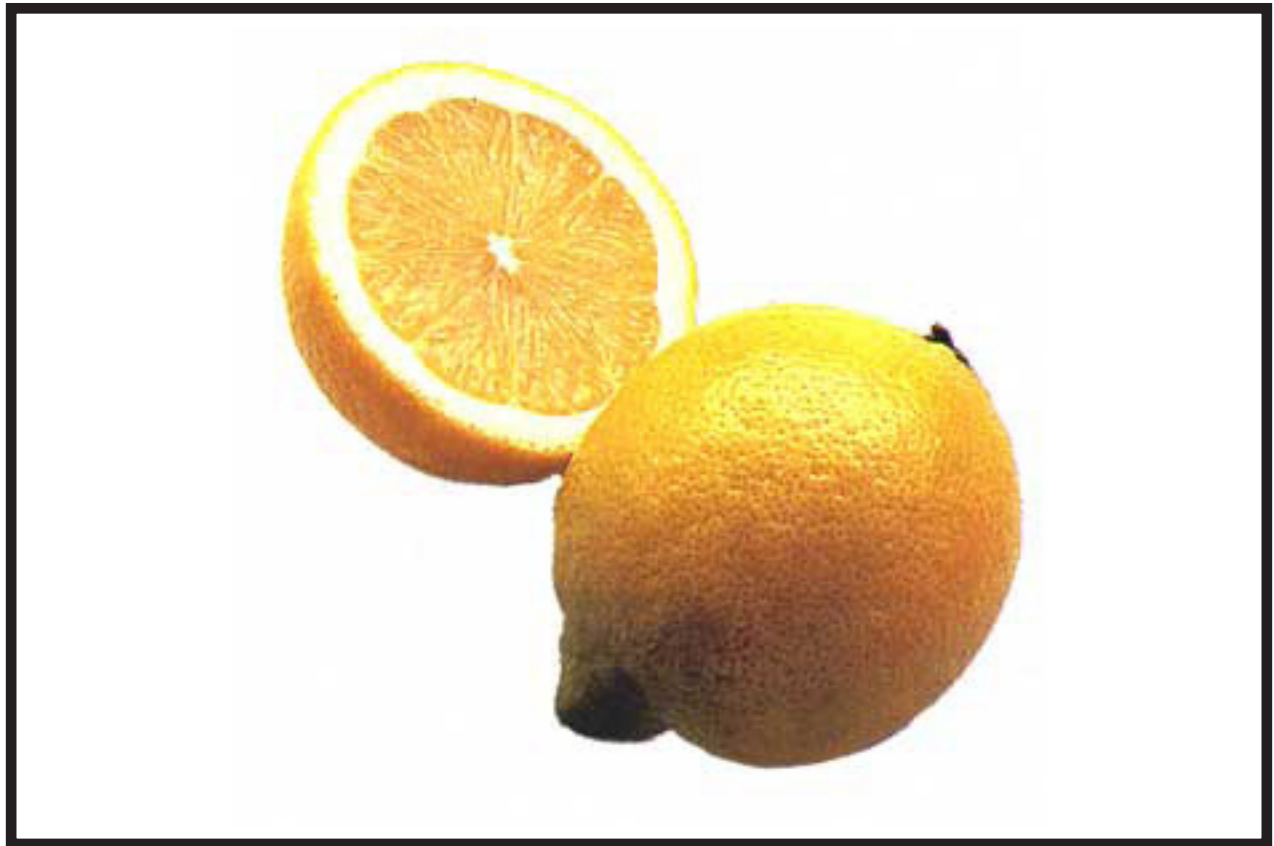


01. Fig Grape
02. Grape
03. Fig
04. Persimmon

What part of this product is edible?

- A. Stem tissue
- B. Skin
- C. Pit
- D. Root

# Station #16



01. Apple
02. Lemon
03. Tangerine
04. Guava

What of the following is not a variety of this product found in the Texas Rio Grande Valley?

- A. True
- B. Pasadena
- C. Meyer
- D. Ponderosa

# Station #17



01. Garlic
02. Shallot
03. Scallion
04. Onion

Where is this product mainly produced in Texas?

- A. East Texas
- B. West Texas
- C. North Texas
- D. Rio Grande Valley



# Station #18



01. Pineapple
02. Tangelo
03. Grapefruit
04. Guava

This product is believed to be native to what country?

- A. Guatemala
- B. Cuba
- C. Brazil
- D. Columbia

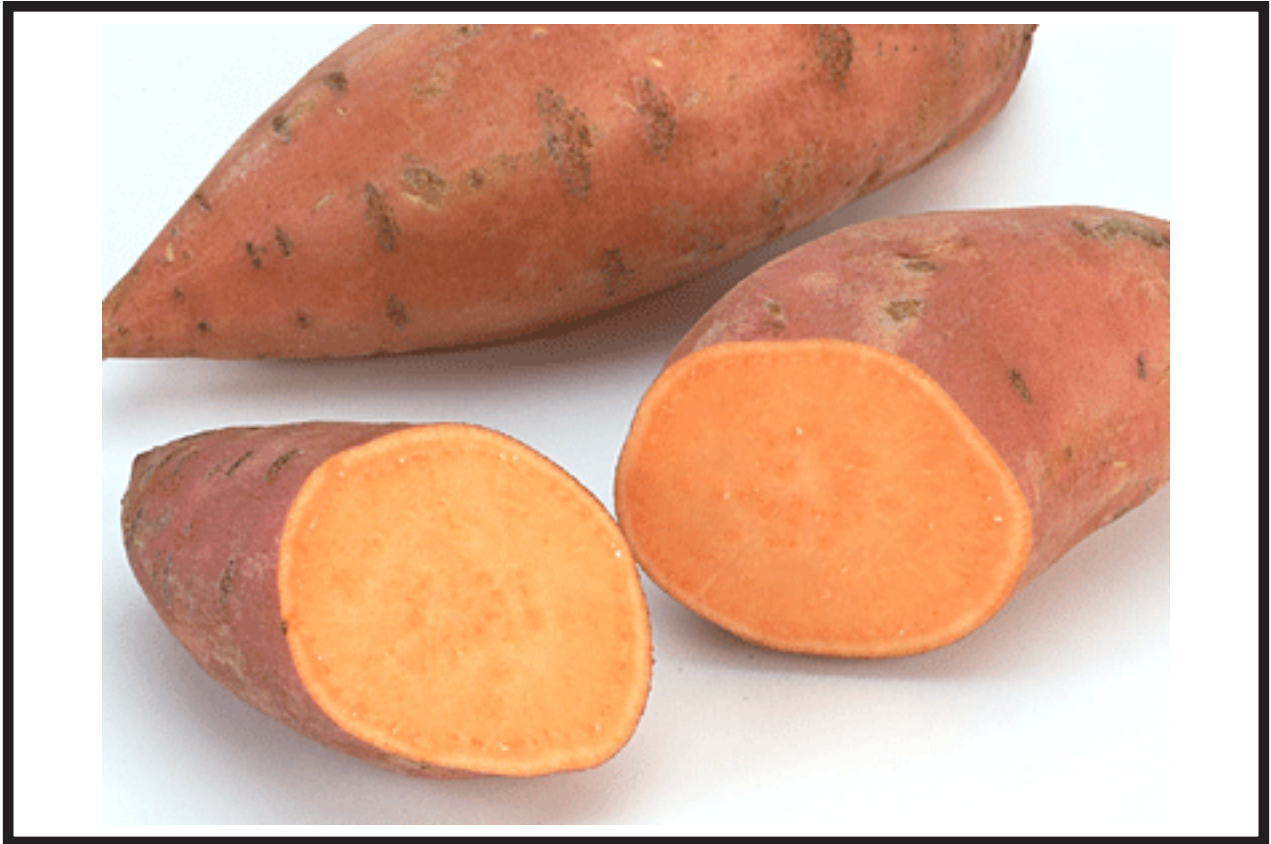


01. Tomatoes
02. Tomatillos
03. Mayhaws
04. Jujubes

What tree family is this product produced from?

- A. Hawthorne family
- B. Kumquat family
- C. Oak Family
- D. Cork Family

# Station #20



01. Potato
02. Sweet potato
03. Parsnips
04. New Potato

Where does Texas rank in terms of production of this product?

- A. 2nd
- B. 3rd
- C. 4th
- D. 5th

Mock Agricultural Product Identification Contest  
ANSWER KEY

## Station 1

What is this product?

01. Pecan
02. Kiwi
03. Pistachio
04. Persimmon

Answer: 03. Pistachio

What region of Texas is this product grown?

- A. West Texas
- B. Rio Grande Valley
- C. Central Texas
- D. East Texas

Answer: A. West Texas

<http://aggie-horticulture.tamu.edu/extension/Texas crops/index.html>

## Station 2

What is this product?

01. Cauliflower
02. Broccoli
03. Peach pit
04. Lettuce

Answer: 02. Broccoli

What time of year does this product flourish?

- A. late Spring
- B. early Winter
- C. late Fall & Winter
- D. Late Winter

Answer: C. late Fall & Winter

<http://www.picktexas.com/index.htm>

## Station 3

What is this product?

01. Broccoli
02. Cauliflower
03. Cabbage
04. Lettuce

Answer: 02. Cauliflower

Where should this raw product be stored?

- A. at room temperature
- B. tightly wrapped
- C. frozen
- D. refrigerated

Answer: B. tightly wrapped

<http://www.picktexas.com/index.htm>

## Station 4

What is this product?

01. Cabbage
02. Celery
03. Green bean
04. Cucumbers

Answer: 02. Celery

How many pounds of this product does Texas produce each year?

- A. 42 billion
- B. 30 billion
- C. 1 million
- D. 26 million

Answer: D. 26 million

<http://www.picktexas.com/index.htm>

## Station 5

What is this product?

01. Cucumber
02. Celery
03. Pickle
04. Broccoli

Answer: 01. Cucumber

How long will this product stay fresh when refrigerated?

- A. Up to 2 days
- B. Up to 3 days
- C. Up to 2 weeks
- D. Up to 7 days

Answer: D. Up to 7 days

<http://www.picktexas.com/index.htm>

## Station 6

What is this product?

01. Watermelon
02. Honeydew Melon
03. Cantaloupe
04. Kiwi

Answer: 02. Honeydew Melon

What color does this product turn as it ripens?

- A. Green
- B. Cream
- C. Red
- D. Yellow

Answer: D. Yellow

<http://www.picktexas.com/index.htm>

## Station 7

What is this product?

01. Juju Bean
02. Orange
03. Tangerine
04. Nectarine

Answer: 04. Nectarine

What is a nickname for this product?

- A. Hairless orange
- B. Fuzzless peach
- C. Fuzeless orange
- D. Hairless orange

Answer: B. Fuzzless peach

<http://www.picktexas.com/index.htm>

## Station 8

What is this product?

01. Pear
02. Tomato
03. Apple
04. Starfruit

Answer: 01. Pear

What time of the year is this product in season?

- A. January through March
- B. March through May
- C. May through August
- D. August through December

Answer: C. May through August

<http://www.picktexas.com/index.htm>

## Station 9

What is this product?

01. Mushroom
02. Squash
03. Garlic
04. Ginger

Answer: 01. Mushroom

What nutrient can be found in this product?

- A. Vitamin C
- B. Calcium
- C. B vitamin
- D. Zinc

Answer: C. B vitamin

<http://www.picktexas.com/index.htm>

## Station 10

What is this product?

01. Tangerine
02. Starfruit
03. Orange
04. Nectarine

Answer: 03. Orange

What are the scars sometimes found on this product that are caused by the Gulf of Mexico breezes?

- A. bruises
- B. tropical beauty marks
- C. creases
- D. runts

Answer: B. tropical beauty marks

<http://www.picktexas.com/index.htm>



## Station 11

What is this product?

01. Squash
02. Pepper
03. Okra
04. Tomatillo

Answer: 02. Pepper

What is not a nutrient found in this product?

- A. Potassium
- B. Vitamin A
- C. Vitamin C
- D. Zinc

Answer: D. Zinc

<http://www.picktexas.com/index.htm>

## Station 12

What is this product?

01. Squash
02. Gourd
03. Pumpkin
04. Garlic

Answer: 03. Pumpkin

What nutrient can be found in this product?

- A. Vitamin K
- B. Vitamin A
- C. Vitamin Z
- D. Iron

Answer: B. Vitamin A

[http://aggie-horticulture.tamu.edu/lawn\\_garden/landscape.html](http://aggie-horticulture.tamu.edu/lawn_garden/landscape.html)

## Station 13

What is this product?

- 01. Apple
- 02. Orange
- 03. Lemon
- 04. Lime

Answer: 01. Apple

Which of the following is an example of a good pairing of two of this products' trees for pollination?

- A. A. Gala & Adina
- B. B. Starkrimson Red Delicious & Jersey Mac
- C. C. Dorsett Golden & Anna
- D. D. Mollies Delicious & Braeburn

Answer: C. Dorsett Golden & Anna

[http://aggie-horticulture.tamu.edu/lawn\\_garden/](http://aggie-horticulture.tamu.edu/lawn_garden/)

## Station 14

What is this product?

- 01. Squash
- 02. Avocado
- 03. Gourd
- 04. Cabbage

Answer: 02. Avocado

What is the most common problem(s) of this Texas product?

- A. Tip burn
- B. Marginal necrosis
- C. Root rot
- D. Tip burn and marginal necrosis

Answer: D. Tip burn and marginal necrosis

[http://aggie-horticulture.tamu.edu/lawn\\_garden/](http://aggie-horticulture.tamu.edu/lawn_garden/)

## Station 15

What is this product?

01. Fig Grape
02. Grape
03. Fig
04. Persimmon

Answer: 03. Fig

What part of this product is edible?

- A. Stem tissue
- B. Skin
- C. Pit
- D. Root

Answer: A. Stem tissue

[http://aggie-horticulture.tamu.edu/lawn\\_garden/](http://aggie-horticulture.tamu.edu/lawn_garden/)

## Station 16

What is this product?

01. Apple
02. Lemon
03. Tangerine
04. Guava

Answer: 02. Lemon

What of the following is not a variety of this product found in the Texas Rio Grande Valley?

- A. True
- B. Pasadena
- C. Meyer
- D. Ponderosa

Answer: B. Pasadena

[http://aggie-horticulture.tamu.edu/lawn\\_garden/](http://aggie-horticulture.tamu.edu/lawn_garden/)

## Station 17

What is this product?

01. Garlic
02. Shallot
03. Scallion
04. Onion

Answer: 01. Garlic

Where is this product mainly produced in Texas?

- A. East Texas
- B. West Texas
- C. North Texas
- D. Rio Grande Valley

Answer: A. East Texas

<http://aggie-horticulture.tamu.edu/extension/Texascrops/index.html>

## Station 18

What is this product?

01. Pineapple
02. Tangelo
03. Grapefruit
04. Guava

Answer: 01. Pineapple

This product is believed to be native to what country?

- A. Guatemala
- B. Cuba
- C. Brazil
- D. Columbia

Answer: C. Brazil

[http://aggie-horticulture.tamu.edu/lawn\\_garden/](http://aggie-horticulture.tamu.edu/lawn_garden/)

## Station 19

What is this product?

01. Tomatoes
02. Tomatillos
03. Mayhaws
04. Jujubes

Answer: 03. Mayhaws

What tree family is this product produced from?

- A. Hawthorne family
- B. Kumquat family
- C. Oak Family
- D. Cork Family

Answer: A. Hawthorne Family

[http://aggie-horticulture.tamu.edu/lawn\\_garden/](http://aggie-horticulture.tamu.edu/lawn_garden/)

## Station 20

What is this product?

01. Potato
02. Sweet potato
03. Parsnips
04. New Potato

Answer: 02. Sweet potato

Where does Texas rank in terms of production of this product?

- A. 2nd
- B. 3rd
- C. 4th
- D. 5th

Answer: D. 5th

<http://aggie-horticulture.tamu.edu/extension/Texascrops/index.html>