Tomatoes
The Most Popular Of All Home Garden Vegetables
Larry Sagers
USU Horticulture Specialist
Thanksgiving Point
These vegetables originated in Central and South America.
• Early American colonists thought tomatoes poisonous and did not use them until the 1800s
They Soon Became Very Popular
• Tomatoes are an almost daily part of the American family diet as fresh or cooked dishes
Tomatoes are low in calories and a good source of vitamin C.
Annual vs Perennial
Climatic Requirements
Establishing the Plants
• Due to their long growing season and temperature requirements, tomatoes are set out as transplants in Utah.

TOMATO PLANTS

100 FOR 40¢

MRS. E.M. WHITING
• Our last spring frost date is about May 10 and tomatoes may be planted after that date
A good transplant is as wide as it is high with a stem the size of a pencil. It is slightly purple at the base with dark green, thick foliage.
• They should have 4 to 6 true leaves and no blossoms or fruit with a good root system.
• Plants in cell packs experience little or no transplant shock
• Tomato plants develop roots along the stem and so plant overgrown transplants with the first set of leaves near the soil surface
If transplants are in peat pots, remove the rim of the pot or be sure the rim is below the soil surface, so that the soil ball will not dry out.
Tomatoes are warm-season plants so plant them after danger of frost
• **Temperature is an important factor in tomato production**
• Blossoms drop in early spring when daytime temperatures are warm, but night temperatures fall below 55 degrees F
Daytime temperatures above 90 degrees F and nights are above 76 degrees F also cause blossom drop.
Soil Requirements
Tomatoes grow on many soil types, but prefer deep, loamy soil with organic matter and nutrients.
• Tomatoes grow over a wide range of soil pH
Tomatoes need fertilizer, especially phosphorus.
Excess nitrogen grows extremely vigorous vines but little fruit
• Place a small handful of 16-16-8 slightly deeper and to the side of the tomato when you transplant it
• Use a soluble, high phosphorus starter fertilizer, at planting time
There are more tomato cultivars available to the home gardener than any other garden vegetable.
• Talk to local gardeners to find cultivars for your area or trying one or two new cultivars each year
• When choosing cultivars, keep in mind the different types and ripening times
Tomatoes are usually categorized as early, mid-season or late.
Another consideration is whether the is has a determinate or indeterminate growth habit.
• **Determinate (D) tomato plants** grow to a certain height and then stop
• They flower and set all the fruit at once
This is an advantage if the tomatoes are grown for canning
• Indeterminate tomato plants grow, flower, and set fruit over the entire growing season.
Another characteristic to look for when choosing tomato cultivars is disease resistance.
Many cultivar names are followed by one or more letters indicating resistance to Verticillium wilt (V), Fusarium wilt (F), Tobacco Mosaic Virus (T) or nematodes (N).
• Disease resistance is an important consideration, especially if your tomatoes previously had diseases.
Recommended Cultivars

• One often-overlooked aspect of accelerating the gardening season is to select the best varieties for our area.
Early:

- Moreton Hybrid (V)
- Jet Star (VF)
- Pik-Red (VF)(D)
- Early Girl (VF) (D)
- Fantastic
- Early Goliath
Mid-season:

- Heinz 1350 (VF)(D)
- Better Boy (VFN)
- Burpee (VF)
- Roma (VF)(D)(paste type)
- Floramerica (VF)
- Celebrity (VFN)(D)
- Hamson (D)
Late:

- Supersonic B (VF)
- Supersteak (VFN)(D),
- Beefmaster (VFN)
Yellow and Orange:

- Jubilee
- Sunray (F)
- Lemon Boy (VFN)
• Large vine with small fruit
• Not suited to cage or container culture
  – Small Red Cherry
  – Large Red Cherry
  – Red Pear
  – Yellow Pear
  – Sweet 100
  – Sun Gold
  – Sun Sugar
  – Sweet Million
- Dwarf vine with medium fruit:
  - Patio
  - Pixie
• Dwarf vine with small fruit:
  – Tiny Tim
  – Presto
  – Baxter's Bush
  Cherry
• Staked tomatoes require little space, yet produce prolifically
• **Plant tomatoes without stakes 3 feet apart in rows 5 feet apart**
• Set staked plants 2 feet apart in rows 3 to 4 feet apart and caged plants 30 to 36 inches apart
• Place stakes and cages at planting time to avoid disturbing the roots
• The most frequent cause of poor fruit set and rough tomatoes, particularly on the fruit cluster, is low night temperatures
Tomato plants do better when they are trained upright
Once the tomato plants are established, apply mulch to conserve moisture and suppress weed growth.
• Mulch unstaked plants with clean straw, black plastic or other suitable material to keep the fruit off the ground and prevent rotting
Tomato: In general, row covers are not recommended. Losing early crops from high temperatures is the problem. Early fruit are frequently small or absent.
Baskets as Covers
Where space is limited or soil conditions poor, tomato plants can be grown in containers using a disease-free planting mix.
• Select a five gallon container with good drainage. Pay special attention to water and fertilizer needs of container-grown tomatoes.
- Keep the moisture supply even if the soil is too dry or too wet, blossom-end rot develops
• If too much water is applied at one time, ripening fruit may split
• Prune staked plants to a single stem and tie them loosely to the stake
• Prune tomatoes by removing "suckers" that grow in the leaf axils
• Staked and pruned tomatoes produce fewer but larger fruit than caged or unsupported plants
• Let unsupported and caged tomatoes branch normally
Plastic mulches enhance maturity and, by warming the soil, also allow earlier planting. Black plastic raises the soil temperature 2 or 3 degrees.
• While the black plastic gets very warm, the heat does not transmit well into the soil. Clear plastic traps the heat and warms the soil.
Black Plastic
• Clear plastic can raise soil temperature by 10 degrees F. This allows earlier planting and crops mature 2-3 weeks earlier.
Infrared Transmitting Plastic
• I have had some of my best success from using Wall O’ Waters with clear plastic mulch
• Organic mulches cool the soil and are not used to allow earlier planting
• Plant protection devices keep the plants and soils warmer and protect the plants and soils from the wind.
Sunshine and warm weather are all it takes to inspire you to get out and get planting.
There's no crystal ball to predict upcoming weather, so consider using season-extending gardening techniques to get a jump on things.
• When planting the garden, the weather isn't the only limiting factor
Soil temperatures are often more restrictive than air temperatures. Plants may tolerate cool air temperatures, but all seeds require certain soil temperatures before they can germinate.
• Warming the soil is one way to accelerate the gardening season
The only practical method to warm soil is to utilize the natural warmth of the sun.
• Soil that is well drained and doesn't retain large amounts of water warms faster than wet soil

• Improving drainage allows the soil to be worked earlier and allows it to warm faster
Raised beds are an excellent way to counteract cool, wet soil in the early spring.
• Wall o' waters allow the earliest planting
• Advocates of Wall o' Waters have had plants growing in them for several weeks
• These ingenious devices hold almost 25 pounds of water
• The water warms during the day and releases heat at night. If temperatures get extremely cold, the water freezes and releases heat.
• This protects and warms the plants inside and greatly accelerates both planting times and maturity.
• Hot caps give some protection from the wind and cold temperatures
• This protection is very limited and also offers minimal soil warming.
• Planting can be accelerated only a week or two with hot caps, milk jugs or similar devices.
• The use of protective coverings to produce a miniature greenhouse effect is certainly not a new idea.
Tomatoes are red, yellow, orange, white and pink
• Fruits are globe, flat globe, cylindrical, cherry, plum or pear-shaped and weigh from less than 1 ounce to more than 2 pounds
• This forces the root system to produce new roots that grow into the garden soil
Apply a pint or more of water after transplanting to settle the soil around the roots
• If tomatoes are transplanted into an open area, protect plants from the wind while they get established.
• Drive a board into the ground on the windward side to protect the plant for one to two weeks
• If there is a possibility of frost, protect the plants hot caps or over-the-row covers are best because they are translucent
Boxes or baskets must be positioned each night and removed each morning.
• Properly hardened tomato plants can endure night temperatures down to freezing without injury
• The soil along the south side of a building receives reflected radiation that helps warm it sooner in the spring, so this is a good location for tomatoes.
To check for pollen, tap a mature blossom during the middle of the day and watch for the yellow dust. If it is not present, fruit set is poor.
However, sufficient pollen is not be produced at night temperatures below 50 degrees F. When lower temperatures prevail, fruit will set poorly or not at all.
• To discourage cutworms, place a collar around each plant, such as a tin can with the top and bottom removed
• Raise night temperatures during flowering by covering the plants at night, or spraying the blossoms with a blossom-setting hormone
• The most common method is to stake each plant with a stake large enough to support the weight of the plant and fruit against wind
• Drive the stake 6 inches to the north of the plant so the roots are not damaged. Tie the plant to the stake with strips of cloth. Trellises and wire cages also can support tomatoes.
• If black plastic film is not used, a straw or sawdust mulch applied later in the season will help hold down weeds, conserve moisture and maintain an even soil temperature.
• Organic mulches insulate the soil so do not apply them until midsummer when the soil is warm
• Prune indeterminate tomatoes trained up a string by removing axillary suckers as they form
• Wrap the new stem growth around the string. Do not prune determinate or bush varieties.
• Keeping the fruit off the ground reduces rotting and slug damage and problems that destroy fruit in contact with the soil.
In addition to organism-induced diseases, tomatoes also may suffer from physiological and nutritional disorders.
• Blossom end rot is caused by water stress within the fruit. It generally occurs on the early fruit and is aggravated by internal calcium deficiency, high transpiration rates, and a fluctuating water table.
Leaf roll also causes concern. For many varieties, this is natural under Utah conditions, especially late in the season. In itself, leaf roll is not harmful.
• Assuming the transplants are all sturdy and well hardened, the variety then becomes a matter of preference
For early fruit, transplant as soon as the danger of frost is past
• Harden off plants before transplanting, when they are coming directly out of the greenhouse
• Move them outdoors where they will receive a few hours of direct sunlight each day and some wind
• To help harden their tissue, allow them to wilt before watering. After a week of this treatment, they should be tough enough to stand the full sun and unimpeded wind of the Garden.
Transplant in late afternoon or on cloudy days until afternoon to minimize transplant shock
• If the plant is root-bound gently tear the root ball apart
The End

Thanks for Coming and Happy Growing