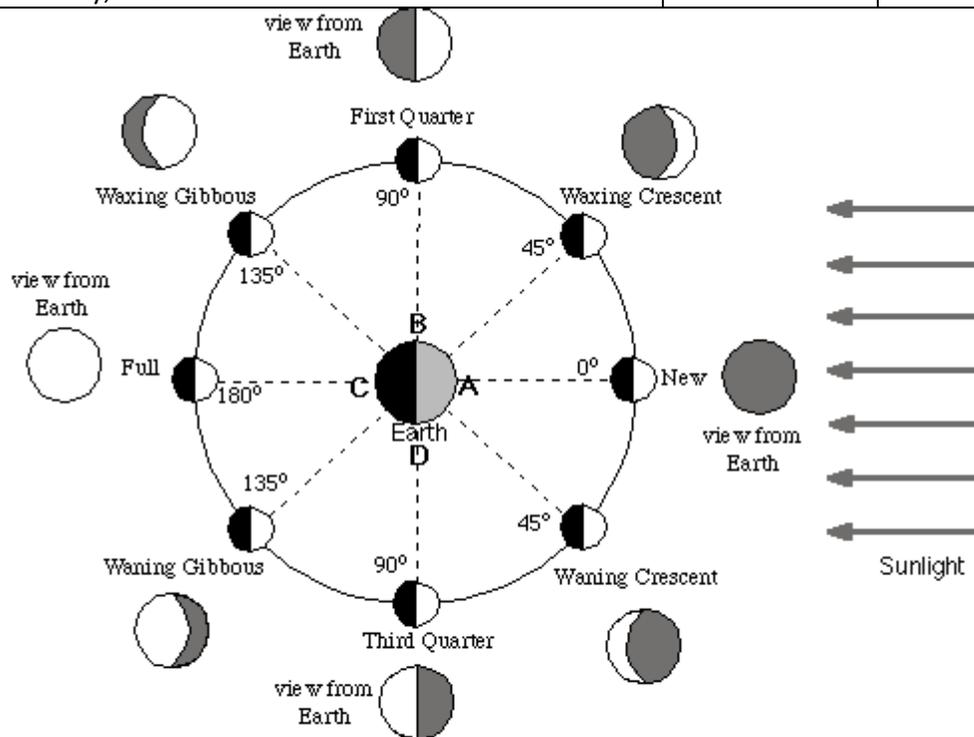
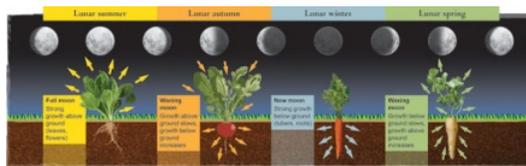


The Influence of the Moon

PLANT	ELEMENT	ZODIAC SIGN
Root: potatoes, radishes, turnips, parsnips, onions, etc.	Earth	Taurus, Virgo, Capricorn
Seed: apple, grapes, pears, fruits, nuts, etc.	Fire	Aries, Leo, Sagittarius
Flowers	Air	Gemini, Libra, Aquarius
Leaf: lettuce, cress, endive, alfalfa, Chinese celery, comfrey, etc.	Water	Cancer, Scorpio, Pisces



The Sun-Moon angle is the angle defined by Sun->Earth->Moon with Earth (where *square*) as the angle vertex. As the Sun-Moon angle increases we see more of the sunlit part of the Moon. Note that if this drawing were to scale, then the Moon would be half this size and its orbit would be about 22 **times** larger in diameter and the Sun would be about 389 **times** farther away than the Moon!



[GROWING GREENS INDOORS - USED MOON PHASE PLANTING](#)

The moon's orbit around our planet affects the rising and falling tides, air currents on the earth's surface, and the occurrence of thunderstorms. The gravitational pull of both the sun and the moon affects us, but we feel the effects of the moon more acutely. While the moon has a much smaller mass, it is 390 times closer to us than the sun.



Tides manifest the gravitational pull of the moon as it circles the earth. If you think of the water on the earth as a thin skin on the surface mass of the planet, it is easy to understand how the gravitational effects of the moon's orbit can pull the water mass gently from side to side. The tide cycle follows the same time cycle as the rising moon, occurring faithfully every twenty-four hours and fifty minutes. Tides rise in lakes and rivers as rhythmically as in oceans.

The correlation of moon and tide may not seem to have anything to do with planting or gardening, but consider the fact that the water content of the earth responds to the same tide cycle as the massive bodies of water that cover our planet. Any gardener knows the importance of the soil's water content to a germinating seed. It makes sense to consider, when planting your garden, the pull of the moon and the moon's position in order to give seeds the best chance to germinate, grow and develop....

Rainfall, like the water content of the earth, is affected by the cycles of the moon as surely as the tides, which reach their highest point every 14.6 days or twice a month. Rainfall cycles mirror the two-week tide cycle in response to the position of the moon. The highest rainfall occurs just after the full and new moons. Once a month, when the moon is at perigee (nearest the earth), tides are pulled 30% higher than at apogee, the point at which the moon is farthest from the earth....

Not only does the gravitational pull of the moon affect the tides and rainfall, but it affects the air currents on the surface of the earth as well. Plants are extremely sensitive to any tiny energy fluctuation....

Lunar winds on the earth's surface, moving at 1/20 of a mile per hour, are too minute to be felt on the human skin, but they come, as do tides, twice daily. In the morning they flow east, in the evening to the west, influencing the growth of plants as surely as sunshine and rainfall.

The moon also affects the surface of the earth itself. A Columbia University study, conducted in 1970 across the continental United States, measured earth tides and found that land surface changes an average of twelve inches each day.

Tides, lunar winds, earth tides and rainfall, together with the subtle effects of the moon on the shifting of the earth's crust and the moon's effects on the patterns of thunderstorms and their corresponding effect on ionization in the air, convince us that the effects of the moon on our planet are constantly coming into play, influencing the growing things of the earth. These factors considered, gardening in accordance with the phases of the moon seems not so odd after all.

Why the Moon Phase System Works

The time at which a seed is sown is the beginning of its life cycle. Final plant yield, as every gardener knows, is crucially affected by the conditions encountered by the seed....

The person most responsible for formal experimentation in this area is Maria Thun, whose research on her farm in Darmstadt, Germany, has been financially supported by a group of biodynamic farmers.

In 1952, Thun developed a method of sowing a fixed number of crop rows over a sidereal month. The term sidereal refers to the position of the moon in relationship to the stars or constellations in the sky behind it. In other words, Maria Thun sowed according to varying phases of the lunar cycle. Once the crop came to maturity, it was weighed and studied, and the results were recorded. Thun's findings were accumulated over a ten-year period from 1952 to 1962. The crop Thun chose to study initially was potatoes; subsequently she studied not only other root crops but also leaf crops, fruit-bearers and flowers.

Thun's results were surprising. She discovered that if potatoes were planted when the moon was in the constellations of Taurus, Capricorn or Virgo (traditionally termed "root days"), the crop was more prolific than if she planted when the moon was positioned in other constellations of the zodiac belt. After some thought, she concluded that potatoes did better if planted while the moon was clearly positioned in earth signs than at any other time. Potato crops planted when the moon was positioned in the constellations Cancer, Scorpio or Pisces--the water signs of the zodiac--did poorly.

The results of Thun's studies fascinated another experimenter in Germany. Graf repeated her method from 1973 to 1975, this time using many different types of soils, and planting radishes as well as potatoes. Graf discovered that sowing on root days affected positively the growth and production of crops, and got best result when using chemically untreated, organic soils.

In 1976, Kollerstrom and Muntz, Sussex market gardeners, repeated the experiments of Graf and Thun and gained a 45% increase in yield for crops sown on root days. Conducted over a period of two months,

their study did not show that the phase of the moon, waxing or waning, made as much difference as the moon's placement in the sky at the time of sowing.

The effect of the phases of the moon on seed germination and growth was first studied by L. Kolisko in 1930. Using wheat, Kolisko found that seeds germinated faster and more prolifically when sown at the full moon. The new moon gave him the most unsuccessful results. Later experiments on cress confirmed Kolisko's findings. Recent studies at Northwestern University, conducted by Professor F. Brown, have shown that, even under equal temperatures, seedlings absorb more water at the full moon than at the new moon. The findings lend credibility to adages that recommend harvesting at full moon. It seems plants have less water content at the new moon phase. Professor Brown went so far as to test plants in a darkened laboratory where they would have no direct access to effects of sun or moon. The plants still responded to the moon phases.

Other experiments have been conducted at Wichita State University and at Tulane University. All have achieved the same results. Experimentation indicates that seeds sown just before or around the full moon have a higher rate and speed of germination than those sown at the new moon because seeds are able to absorb more water at the full moon....

The moon moves on a tilted elliptical orbit around the earth, waxing and waning as it reflects the light of the sun from various angles. It is backdropped, as are the other planets of our solar system, by the belt of constellations....

Once every twenty-seven days the moon is at the farthest point, from the earth, that its orbit reaches. Its orbit around the earth is tilted, and so two times each month the moon sinks five degrees above or below the angle at which the earth is orbiting the sun. These bimonthly points are called the nodes of the moon.... Eclipses occur when a new or full moon passes through one of the nodes, at which time it is possible for the earth to come between the moon and the sun. The moon is invisible to the naked eye, because there is no sunlight to illuminate it.

The moon has the greatest effect on earth's rainfall when it is close to a node. Node position is said to affect drought and atmospheric tide patterns. In her studies of plant growth, Maria Thun found that planting at the lunar nodes affected plant growth and germination negatively. Although there is little evidence on the effects of eclipses, most gardeners choose not to sow during the eclipse.

The position of Saturn in relationship to the moon has traditionally been considered when planting crops intended to last more than one season. Perennials need to be hardy and long-lasting. A sympathetic Saturn encourages these factors in new plants.

Just as the moon aligns itself with the sun twice a month, it aligns itself with Saturn. When Saturn and the moon are within 9 degrees of each other, relative to earth, they are in the position described as conjunction. When they are 180 degrees apart, they are in opposition. There are three more aspects to be considered: sextile or 60 degrees, square or 90 degrees, and trine or 120 degrees.

Conjunction, square and opposition are considered unsympathetic positions for a moon and Saturn placement. But sextile and trine are harmonious. Plant perennials when Saturn and the moon are sextile or trine and try to avoid planting for long term growing when the moon and Saturn are square, in opposition or in conjunction. The lunar calendar indicates the aspects of Saturn and the moon.

The Waxing and Waning Moon

The lunar month is divided into two basic moon activities: waxing and waning. The beginning of each process is designated by the new and full moon. A full moon occurs when the moon is 180 degrees opposite the sun, in position to receive sunlight over the maximum volume of its surface. A new moon occurs when the sun and moon are so closely aligned that it is impossible for the moon to give off any reflected sunlight. Waxing occurs in the period between the new and the full moon. Waning describes lunar activity between the full and the new moon. When the moon is waxing, it is said to be in its first and second quarters. The waning of the moon brings the phases through the third and fourth quarters of the cycle.

The waxing moon phase is a good time to encourage plant growth and proliferation. The waning moon phase is a useful time to control plant growth and keep down garden pests....

We have already seen evidence asserting growth and liquid absorption peaks at the full moon, and drastically declines during the new moon....

We know from fluctuations in the electrical field of plants, made visible through Kirlian photography, as well as through experience, that plants grow and absorb water at an irregular rate. Rapid growth rate is often followed by a period of rest. Fruit bearing is followed by a period of dormancy. Although we do not know the full effects of the waxing and waning moon on plant growth, we do know that synchronizing phases of plant growth with the phases of the moon produces healthier plants and more abundant yield.

Traditionally, gardeners have been advised to sow seeds at the full moon, perhaps because our ancestors discovered that seeds germinated more rapidly then. Many people today sow at the new moon in order to ensure germination before the growth spurt given the plant by the full moon.

The waning moon phase is associated with harvesting. Over centuries, farmers found that apples, cabbages, potatoes and onions store better if harvested at the waning moon, when water content is decreased. Fruits or vegetables meant to be eaten immediately are at their best when gathered at the waxing moon. And tomatoes have been found to ripen most satisfactorily when harvested at the full moon, when water content is highest.

Although general principles hold, it is best to be specific when organizing gardening activities according to waxing and waning moon phases.

The Waxing Moon

1. Sow large areas during the waxing moon. Use this time to sow lawns, to put down sod and to plant wheat and grains.
2. Sow crops like leafy vegetables and flowers, which produce yield above ground and do not rely on extensive root development.
3. Plant flowers grown for beauty or fragrance in the first quarter of the waxing moon.
4. Plant cane, such as raspberries, blackberries and gooseberries, in the second quarter of the waxing moon.
5. Always plant roses in the first or second quarter of the waxing moon.
6. During a period of drought, sow seeds when the moon is waxing, as close to the full moon as possible.

7. Perform any grafting chores. When grafting fruit or flower trees, consider the influence of Saturn in relationship to the moon. A well-aspected Saturn will aid hardy plant growth and insure that the graft lasts successfully for many seasons. Cut grafts in late January, before the sap flows, in the first or second quarter of the waxing moon.
8. Transplant and repot houseplants during the waxing moon so the plant can capitalize on the full moon growth.
9. In the first or second quarter of the waxing moon, take cuttings from plants you wish to propagate. Once the cuttings are rooted, pot in the first or second quarter of the waxing moon.
10. Water plants during the waxing moon. If plants need a food boost, it is a good idea to water down the fertilizer and add it to the soil as close to the full moon as possible, particularly if the plants require phosphorus.
11. Pick fruits and vegetables intended for immediate consumption. Salads are best when made with ingredients picked during a waxing moon. Because the water content of the ingredients is higher, salads are crunchier, juicier and free from woody, unpleasant textures.
12. Harvest grapes to be used in winemaking as close to the full moon as possible. The grapes will retain more juice and bouquet.
13. Gather herbs that are to be used for their essential oils. Oil content is more concentrated at this time.
14. Water your compost heap.

The Waning Moon

1. Sow crops that produce their yield below ground. This includes root vegetables such as beets, carrots, parsnips, potatoes, onions and turnips.
2. Always plant trees and saplings in the third quarter, waning moon, as well as plants that remain in the soil for more than one growing season. Successful fruit trees are generally those planted during the waning phase of the moon. This position of the moon encourages development of root growth and tree bark instead of forcing the plant to proliferate above ground before it has a strong grounding. Saplings with firmly established roots are less in danger of damage and deterioration due to loss of branches or top growth during the winter.
3. Plant strawberries or their runners in the third quarter of the moon. Most strawberries thin out and die because ground heaving during winter breaks their roots. Planting during the waning moon ensures that root growth is strong and well-developed, even before the plant begins to fruit.
4. Divide your perennials in the third or fourth quarter of the waning moon.
5. If your crops require potassium, fertilize at the waning moon. Potassium absorption is at its peak at the new moon.
6. Start your compost heap during the waning moon. This phase aids in decomposition of plant matter.
7. Spread and turn compost and organic fertilizer.
8. Mulch in the third quarter. When mulching fruit trees or roses, leave a small space around the trunk or base of the plant.
9. Always spray fruit trees in the fourth quarter of the waning moon.
10. Kill weeds and thin out plants.
11. In the late summer, mow your lawn in the waning moon to retard growth, if you live in an area with heavy summer rainfall.
12. Prune and cut back plants.
13. Harvest crops requiring long-term storage like apples, cabbage and potatoes.
14. Harvest flowers and seeds that will be stored until the next year.

15. Use the waning moon to help cut spring grass. This phase discourages growth and keeps your lawn under control.
16. The waning moon is a good time to dig herb roots or harvest leaves and bark intended to be used in medicinal teas. Herbs will retain maximum potency at this time and dry more easily.
17. Perform all drying activities. Dry herbs, flowers and fruit....

Remember, the waxing moon is the time to encourage rapid new growth. If you want to retard or control growth, or encourage hardy rooting, perform the necessary activities during the waning moon.

Flower, Leaf, Root and Seed Days

Westerners have traditionally seen living things as composed of four elements: earth, air, fire and water. These elements ruled parts of the human body, types of human personality, plants, and the constellations of the zodiac.

In the zodiac, each of the four elements rules three signs. Aries, Leo and Sagittarius are said to be fire signs; Taurus, Virgo and Capricorn are ruled by earth; Gemini, Libra and Aquarius by air; and Cancer, Scorpio and Pisces by water. The water signs of the zodiac are said to be fertile, fruitful and fecund. The moon's passing through any of these signs is a propitious time for sowing seed. The fire signs are considered the most infertile time, as they are dry and barren.

Maria Thun examined ancient and medieval theories of planting by the zodiac and began to work with them in experimental conditions....She concluded that each plant is composed of four essential parts: leaf, root, flower and fruit or seed. Each plant is cultivated to yield one of the four qualities. Tomatoes, for instance, are a fruit or seed crop; nasturtiums are a flower crop.

Each of the four essential plant parts is ruled by an essential element. According to Maria Thun's model, leaves are ruled by water, roots by earth, flowers by ai

Tips for Planting by the Moon

Planting with the phases and positions of the moon is a good way to enhance the gardening process. But use common sense. If the lunar calendar says to plant kohlrabi on a day when flash floods are expected, it is probably better to wait until the next elemental cycle. Plant as close to the middle of the recommended cycle as is feasible. Even with difficult intervening weather or soil conditions, you will be able to plant according to the calendar about 80% of the time.

Remember that planting by the phase and position of the moon is most effective when organic gardening procedures are used. Plants can respond best to the natural rhythms that surround them when they are sown in nonchemically treated soil. Use compost and organic fertilizers. For pesky insect problems, we include a bug spray recipe that will help to make your plants happy and insect-free. It is easy to make and easy to use, and it improves with age because it gets more potent the longer it stands.

Inspect Spray

1 pint spring water

1 teaspoon Tabasco

2 large crushed garlic cloves

Combine ingredients in a container with a spray nozzle. For a serious bug problem add 1/2 teaspoon cayenne pepper. Spray your plants with this mixture during the waning moon in Gemini, Leo or Virgo...

The following chart summarizes the main principles of lunar gardening.

Above Ground Crops	The best time for sowing, transplanting, planting seedlings or repotting is when the moon is in Cancer. Scorpio is good and Pisces is advantageous.
Below Ground Crops	Crops that yield below ground are sown in Capricorn for good results and Taurus for best results.
Flowering Plants	Sow seeds during the waxing moon in Libra.
Watering	Water when the moon is waxing in Cancer, Pisces or Scorpio.
Working Soil	For best results, work soil in Leo. Gemini will give good results, particularly for weeding. Virgo is effective.
Harvesting	Harvest in Aquarius. For long-term storage, harvest in Sagittarius or Aries, at the new moon. If the harvest is to be next year's seed, try for the same moon sign as the one under which the seeds were sown.
Pruning	Follow Pliny's advice and remember that water intake is decreased at the new moon. Pliny writes, "All cutting, gathering and trimming is done with less injury to the trees and plants when the moon is waning than when it is waxing."
Drought	During growing seasons plagued by drought, sow your seeds as close to the full moon as possible, in order to ensure optimum germination.
Annual Crops	Follow the four-element sowing pattern, planting as close to the center of the relevant sign as you can. If you miss your day, don't worry. The moon will pass through another sign with the same element in another nine days.
Perennial Crops	Take into consideration the position of Saturn in relationship the moon. A good Saturn placement will help your plants last many years.
Eclipses and Nodes	Never sow during these times.