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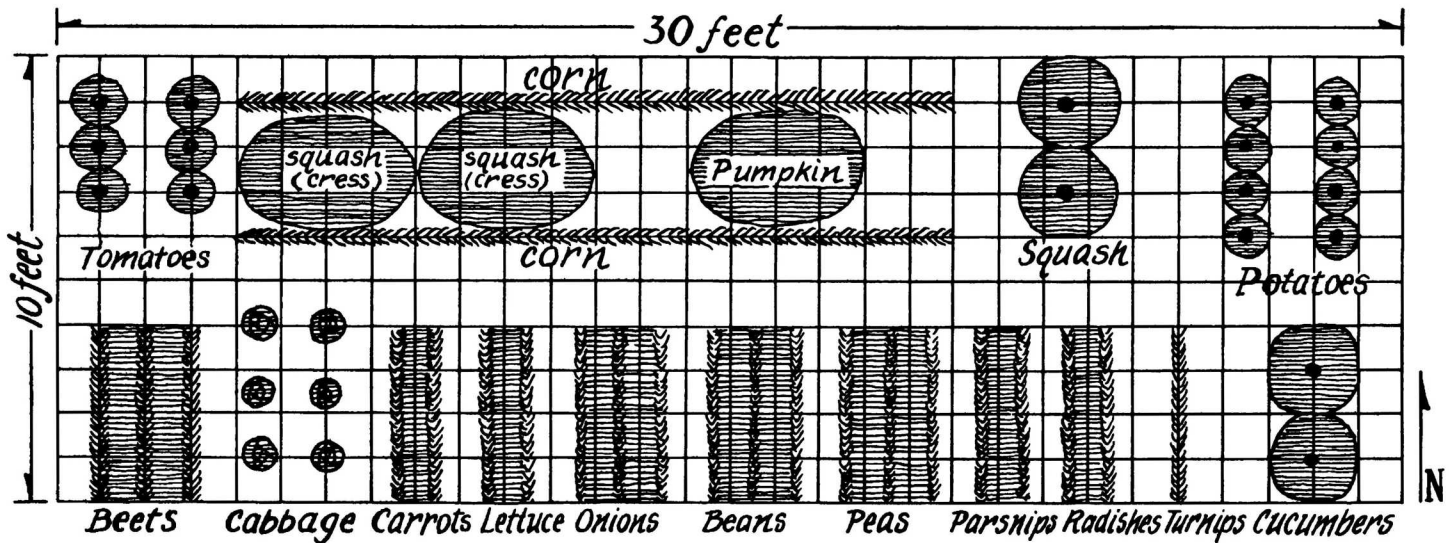
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The Heirloom Vegetable Garden

CROP	VARIETY/CULTIVAR	PLANTING	CROP	VARIETY/CULTIVAR	PLANTING
Bean	Dwarf Horticultural	4-foot row	Parsnip	Hollow Crown	2 4-foot rows
	Jacobs Cattle	4-foot row		Pea	Alaska
	Scarlet Runner (trellis)	4-foot row	Alderman (trellis)		4-foot row
Beet	Early Blood Turnip	4-foot row	Potato	Dwarf Sugar	4-foot row
	Egyptian	4-foot row		Green Mountain	2 hills
	Long Season	4-foot row		Irish Cobbler	2 hills
Cabbage	Drumhead Savoy	2 plants		Lady Finger	2 hills
	Early Jersey Wakefield	2 plants	Russet Burbank	2 hills	
	Late Flat Dutch	2 plants	Pumpkin	Connecticut Field	1 hill
Carrot	Early Horn	4-foot row		Radish	Black Spanish
	Long Orange	4-foot row	China Rose		2-foot row
Corn	Black Mexican	2 8-foot rows	French Breakfast		2-foot row
	Stowell's Evergreen	2 8-foot rows	Long Scarlet		2-foot row
Cress	Curled or Peppergrass	2 4-foot rows	Squash	Boston Marrow	1 hill
Cucumber	Long Green	2 hills		Green Hubbard	1 hill
	Lettuce	Green Boston		4-foot row	Warted Crookneck
Paris White Cos		4-foot row		White Bush Scallop	1 hill
Onion	Red Wethersfield	4-foot row	Tomato	Ponderosa	2 plants
	Southport Yellow Globe	4-foot row		Red Pear	2 plants
	White Portugal	4-foot row		Yellow Plum	2 plants
				Turnip	Purple Top Strap Leaf



Suggested Garden Layout: Beets, cabbages, carrots, cress, lettuce, radishes, and turnips can be planted for spring and fall harvesting. Plant pumpkins and winter squash between the rows of corn and plant the cress in a circle (about 18 inches in diameter) around the hills of winter squash. Make sure that each corn variety is planted in a block of two rows.

Planting Your Vegetables

Moon Planting

Planting by the moon dates back to Biblical times and before. Since early times, some people have believed that the moon was a living creature. Each month it was thought to be slowly “eaten up” only to magically reappear whole again. This was the only way people could explain the different phases of the moon as it waned (got smaller) from full size to a small crescent. Then the cycle reversed, and the moon waxed (got bigger) into full size again.

Today we know the moon is not made of green cheese—our astronauts are certain of that. We know that the phases happen because the moon moves around the earth. It takes 29½ days to make a revolution around the earth. This makes a natural time unit for people. The word month comes from moon. Monday, the first day of our week, comes from Moon-day.

Moonlight is reflected sunlight. Since the moon is a round body, half of it is lit up by the sun’s rays; while the other half of it is in darkness. When the moon is in a position that we can see the entire lighted half, we say it is in the full-moon phase. When the lighted half of the moon faces away from us, we say the moon is in the new-moon phase. In between these phases are the crescent or quarter moon and the gibbous moon or last quarter phases.

People who live along the ocean know all about tides. Those who live inland are unaware of tides. However, our inland lakes and streams do have small tides. Lake Superior has a tide of about two inches. The moon’s gravity pulls at the water in the ocean and seas. Then the water piles up; in most places it piles up several feet. This piling up is called a high tide. The pull of the moon’s gravity on the waters of the earth is the main cause of the tides. The high tides come about every 12½ hours in the oceans all over the earth.

Some people believe that as the moon controls the tides it also controls the water table. As the tides get higher, the water table in the earth rises. Therefore, at the

full moon, the ground would be expanded with moisture. They believe that if you plant something which grows above ground on the increase of the moon, there will be more moisture in the soil and the plant will grow better.

Phases of the Moon

During the **waxing moon** (first quarter), the horns or ends point left. This means it is approaching the full moon.

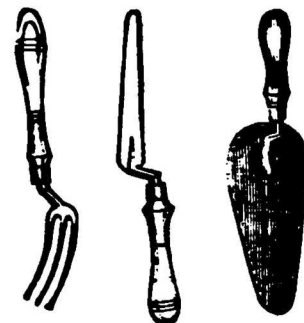
During the **waning moon** (third quarter), the horns point right. This means it is approaching the new moon.

A **harvest moon** is the first full moon after the autumnal equinox; it occurs on or about September 21. For several nights in a row the moon rises at almost the same hour. This large orange moon seems to appear larger than the moon of other seasons. It rises about the time the sun sets. This extra light gives farmers more light to work by when harvesting their crops.

A **hunter’s moon** is the full moon following the harvest moon. It’s not quite as bright as the harvest moon, but it gives extra light to hunt by.

A **blue moon** occurs once in a great while when two full moons take place in the same calendar month. Hence the phrase “once in a blue moon” means once in a great while.

You may want to experiment with some activities of moon planting. Some people believe in planting by the moon. Others say it’s bunk. Try it yourself.



18th century garden tools



Early Indian garden tools





Old Farmer's Almanac

You will need a copy of the *Old Farmer's Almanac* for planting dates. You can purchase these inexpensive guides at a bookstore. Sometimes hardware stores will give them away. Check the almanac for the phases of the moon and determine your planting dates.

Make a list of the plants you will plant in the new or light of the moon and in the dark of the moon. Set dates for planting and be sure to consider frost free dates and warm- and cold-weather crops.

Planting Vegetables

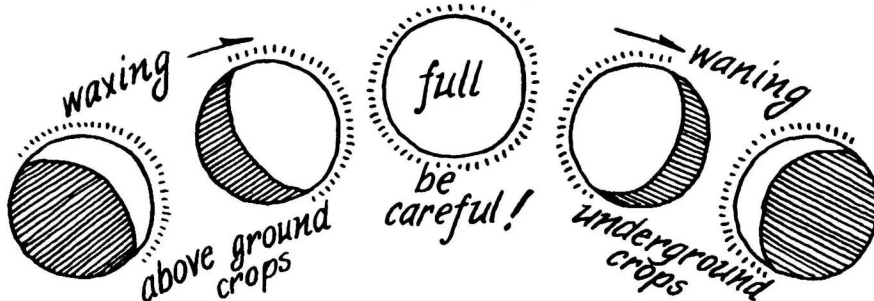
Plant the following vegetables by the dark of the moon (underground crops):

Beets	Potatoes
Carrots	Radishes
Onions	Turnips
Parsnips	

Plant these vegetables by the light of the moon (above ground crops):

Beans	Peas
Cabbage	Pumpkins
Sweet corn	Squash
Cucumber	Tomatoes
Lettuce	

Some farmers believe that plants which grow above ground (like peas, beans, cucumbers, or melons) should always be planted in the morning so that they will grow upward with the rising sun. Plants which grow underground (like potatoes, onions, and radishes) should be planted in the afternoon so they will grow downward with the sinking sun.



Activities

1. Keep a daily diary with dates for a full month. Make 29 circles. Draw the shape of the moon in each circle. Plant lettuce and radishes once a week during all four quarters of the moon. Keep a record to see if there is any difference in their growth. Keep track of rainfall and temperatures also.

2. Interview people who still plant by the moon. Ask why they do this. When do they plant specific crops? Try planting at the same time they do.

Companion Planting

Companion plants are those plants that influence each other for better or for worse when planted together.

For centuries gardeners have noticed that certain vegetables seemed to do better growing near one plant, while not doing well growing near another. There is a lot of folklore surrounding companion planting. Only a small amount of scientific research has been done to test these folk beliefs.

There are two general types of companion planting. **The first is growing crops together for shade or support.** The North American Indians planted corn, beans, and squash together. These vegetables were known as "the three sisters." The corn provided support for the beans, the beans supplied nitrogen to the others, and the shade of the squash vines prevented the growth of weeds and evaporation of moisture from the soil's surface. By putting all three crops together, the size of the garden was decreased by two-thirds and watering was easier. You can try planting an Indian garden by referring to the information on page 29.

Another example of this type of companion planting is planting several different crops in the same row. These different crops are harvested at different times. You might try cress, lettuce, and cabbage. The

cross would be used first, then the lettuce, and finally the cabbage. As each crop is thinned out by being used, the remaining crop or crops will have more room to grow. You also save space in your garden this way. You might try radishes, lettuce, and cabbage, or radishes and carrots. Since radishes come up quickly, they also help show you where the row is. Lettuce and tomatoes are good companions. The lettuce grows quickly and will not shade the slower growing tomatoes. The lettuce will be used up by the time the tomatoes need more room.

The second type of companion planting is a chemical one. Some plants release chemicals that may help or hinder other plants. Some plants may release chemicals that may deter insects or other pests. For example, scientists have now shown that marigolds have a root exudate (juice) that will repel and kill some species of nematodes. Nematodes are tiny worm-like creatures that will attack plant roots. Scientists also know that black walnut tree roots secrete a chemical that stunts the growth of tomatoes and many other plants.

Gardeners have long known that pyrethrum powder, an extract from certain chrysanthemums, is a safe insect repellent. According to historical records, pyrethrum may have been used by the Chinese almost 2,000 years ago. Scientists know that the mint extract of the plant called pennyroyal may repel ants.

Researchers are working to see if some of these plant secretions can be used on a large scale to prevent weed growth for certain crops. This science is called allelopathy.

Some companion plants like beans and peas (legumes) have nitrogen-fixing bacteria nodules on their roots. When plowed down or turned under they provide nitrogen to the soil which reduces the need for fertilizer.

Sometimes a few plants of a favored species are grown in or around a main crop to attract harmful insects and divert them away from the crop you are trying to grow. This type of companion planting is

called trap cropping. Nasturtiums planted with squash are said to attract squash bugs and keep them away from squash plants. They may not repel the bugs; the squash bugs simply like the nasturtiums better. Thus, they are trapped or stopped by the nasturtiums.

Companion planting is the cause of many disagreements between gardeners and scientists. So little research has been done that it is difficult to separate the "fact from the fiction." The following chart lists plants that have been reported to be good companion plants.

Good Companions

Vegetable	Companions
All crops	French and African marigolds
Beans	Beets, cabbage, carrots, cucumbers, potatoes, radishes
Beets	Beans, onions
Cabbage	Beans, cucumbers, potatoes, onions
Carrots	Beans, onions, lettuce, peas
Corn	Beans, cucumbers, peas, potatoes, pumpkins, squash
Cucumbers	Beans, cabbage, tomatoes
Lettuce	Carrots, onions, radishes
Onions	Beets, carrots, lettuce
Peas	Carrots, corn, potatoes, radishes, turnips
Potatoes	Beans, cabbage, corn, peas,
Pumpkins	Corn, beans
Radishes	Lettuce, peas, squash, beans
Squash	Corn, radishes, beans
Tomatoes	Carrots, cucumbers, lettuce
Turnips	Peas

On the fourteenth day of July, sow your turnips, wet or dry.



Companion planting with corn and beans

Not-so-good Companions

Vegetable Not-so-good companions

Beans	Onions
Beets	Pole beans
Cabbages	Tomatoes
Carrots	Dill
Corn	Tomatoes
Cucumbers	Potatoes
Jerusalem artichokes	All other plants
Onions	Peas, beans
Potatoes	Squash
Sunflowers	All other plants
Tomatoes	Corn, cabbage



Activities

1. You might want to test the following folklore companions in your garden by using control groups:

- Chives and garlic are said to keep away insects.
- Nasturtiums will keep squash bugs away, some folks say.
- Mint repels ants.
- Sage repels the cabbage worm butterfly.

2. Keeping in mind the garden seeds you are going to plant, read through the companion plant list. Now make a diagram of your garden using some of these companion planting ideas. Keep a careful diary as to what and where and when you planted. Also plant a control plot so you can check your experiment. Keep accurate records. You may wish to take before and after photos or photos of the plants at different stages. This would be a good experiment to write up for a report or for the Young America Garden Contest or other contest.

3. Interview some people to see what they mean by companion planting and what they use as companion plants. Try at least one of their methods in your garden. You can also record the information on short-item cards and send to the 4-H FOLKPATTERNS office. (Refer to 4-H 1506, *FOLKPATTERNS 4-H Leader's Guide*, for more information.) Try to see how many different combinations are used in your area.



Protecting Your Plants

After crops are planted they need to be cultivated and protected. The gardener or farmer helps nature in some ways and hinders it in others. When there is not enough rain, watering the garden to promote seed germination is one way to help. This may include soaking seeds overnight before planting, prewatering the seedbeds, watering after planting, and making irrigation ditches. The watering can be done with pails, sprinkling cans, hoses, and other containers. The time of day to water is often determined by traditions; most recommend early morning or evening, since the mid-day sun bakes some wet soils and results in a cement-like consistency.

You can aid nature by providing supports for plants. This can involve growing beans on corn or tying plants to poles, stakes, trellises, and fences.

There are other cultivating aids. People often plant more than they need, then thin the plants. Some people keep bees to make sure their crops will be pollinated. They also enrich the soil by fertilizing with animal, mineral, and compost products. They rotate crops from year to year, and they also hoe around plants to loosen the soil.

There are many protective measures you can take to help plants grow. Some methods discourage natural pests such as insects, birds, rabbits, deer, livestock, and weeds. Some people make scarecrows from old clothing hung on posts and stuffed

with straw. When placed in gardens, these frighten away birds and deer. Some people use noisemakers such as clackers, ratchets, tin pans, chimes, and windmill thumpers. Putting nets and threads around trees will repel birds. Plants may be covered with wire baskets or plastic milk or bleach jugs (with bottoms removed) to keep out rabbits or protect from the frost. Hoeing and chemicals are used to remove or prevent weeds.

Fences as well as hedges were more commonly used in the past to keep wandering livestock and deer out of gardens. Today it is more common for the livestock to be fenced in, rather than the garden. Fences were made of brick, stone, stump, rail, picket, post, and wire. Sometimes these were electric fences. Communities often have one special kind of fencing, usually made from materials that are readily available in the area.

Scarecrows

Scarecrows are truly American folk art. North American Indians were using scarecrows before the settlers arrived. Scarecrows have changed little over the years. Many writers have written about scarecrows, but the most famous is the one in *The Wizard of Oz* who was looking for a brain.

Scarecrows are ephemeral creatures—that is, they don't last more than one season. They are like jack-o-lanterns and pumpkin people. They're here for only a short while.

The farmers in early America used them to scare away birds. By using moving pieces of brightly colored clothing, farmers hoped the birds would stay away. If the scarecrow looked like a farmer, it was because it was wearing the farmer's clothes. Most of the scarecrows in the early days were male, but today many female scarecrows can be seen in the countryside.

Activities

1. To make a scarecrow, you need two sticks or broomhandles. Lash these together in the shape of a cross. Now dress this frame with old clothes. You are more likely to keep birds away if you add something that will flap in the breeze. Many people use pieces of aluminum foil, old pie pans, scarves, tin cans, or even bells. You can stuff the clothes with straw, dry grass, or leaves. For the head use an empty milk or bleach bottle, a stuffed plastic bag, a flower pot, a Halloween mask, or a pie pan. An old mop makes great hair. The scarecrow also needs a hat—any old one will do.

Attach the upright pole firmly in the ground. Now watch and enjoy. Maybe your scarecrow will be so frightful that, as in the old farmer's folktale, the birds will bring back all the seeds they had taken the year before! Be sure to take a picture of your scarecrow. You could also take photos of other scarecrows in your area.

2. What kind of fences do you find in your area? You might like to keep a drawn or photographic record of the different types you discover.

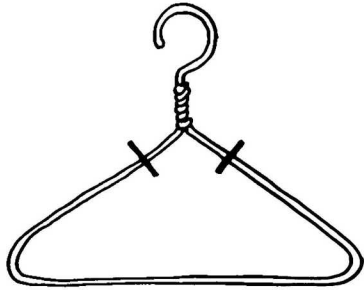
3. Interview people and have them describe how they protect their plants. Do they make any "home remedies"?



Old-fashioned scarecrow



A "worm" fence

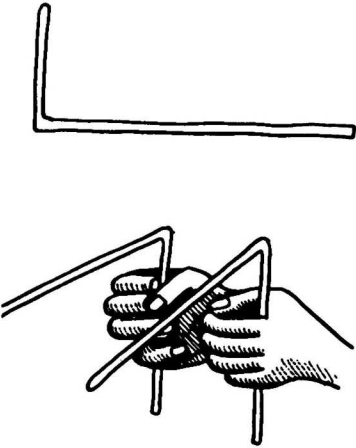


What are they? You might want to try these in your own garden. Use a control group for experimenting. Here are some folk protection methods you might try:

- Soapsuds will keep off aphids, scale, and mealy bugs.
- Sour milk will keep away worms.
- A tea made of hot pepper, onions, or garlic will keep away worms, insects, and birds.
- Mothballs will keep away rabbits.
- Hair clippings will keep away deer.

Dowsing

A dowser is one who locates water below ground by walking back and forth over an area with a Y-shaped dowsing instrument until the instrument moves all by itself. Europeans have practiced dowsing for centuries. The early colonists brought the secret of dowsing to America. They dowsed with witch hazel sticks, which may have originated the term “water-witching.”



A coat hanger dowsing instrument



Dowsing with a witch hazel twig

Many scientists scoff at dowsing. However, Albert Einstein believed in dowsing. He said someday it would prove to be some sort of electromagnetism. Today no one really knows how it works.

Often a farm family would not select a building site until they were sure there was a source of water. They consulted a dowser to find the best site to dig a well. Today dowsing is used to locate underground pipes, water, and sewer systems.

Using a twig is quite difficult, and it is said only 1 in 10 people have dowsing powers. However, almost everyone has success in finding underground water pipe systems using coat hangers.

Activities

- 1.** Make your own dowsing instrument from two coat hangers. Make two cuts just below the hook. Bend one arm at a right angle and the other one at a straight angle. Hold one rod in each hand. Hold the short ends loosely in your fist. When the coat hanger rods start moving either toward you *or* away from, you are over water.
- 2.** Interview someone in your community who dowses for water—perhaps a farmer or a well digger. Ask if you can watch them work. Record your experiences. Find out how they learned to dowse.
- 3.** Using your metal coat hanger rods, try placing a quarter in *each* hand and hold the rods so the metal touches the coins. You now have a metal detector!
- 4.** Try using a forked twig. The rods should have a diameter of a pencil and be about 18 inches long. Trim off all the smaller twigs. Grasp the branch with your palms open. Swing it upward until the end is slightly higher than the forks at your side. When the rods start moving, you are over water. Are you the 1 in 10?