

# THE HOME VEGETABLE GARDEN



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BERMUDA

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## Culture of Specific Vegetables

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## THE HOME VEGETABLE GARDEN

"The Home Vegetable Garden" is intended to replace "Hints on Growing Vegetables" last published in 1957 and long out of print. This Bulletin is written principally for the home gardener, as the title suggests. The format is simple and straightforward, the assumption being that the reader will welcome step by step guidance in the preparation and care of his garden.

Vegetable farming in Bermuda is feeling the full effects of land and labour shortages, resulting in scarcities, and high prices for produce. Overseas supplies are equally as costly and may well be uncertain in the future. It is, therefore, in the general interest to encourage the production of vegetables in home gardens. Hopefully, this publication will do this.

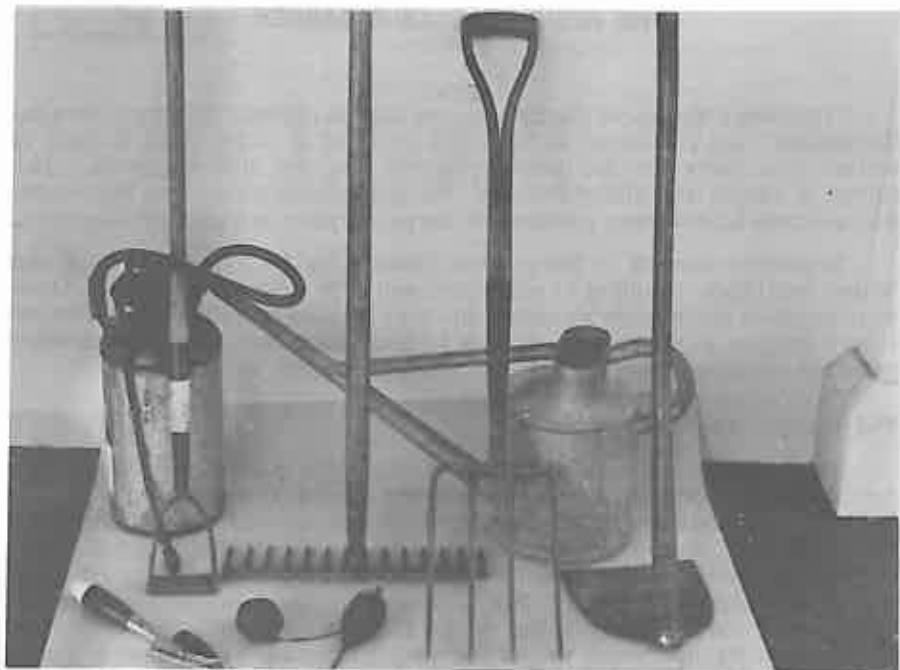
### The Garden Site

The location and size of the home vegetable garden will be dictated by the size and type of lot on which it is to be sited. There is usually a small area on most lots that is suitable for a garden, or that can be converted into a garden. It is important that the site should receive the direct rays of the sun all day long and not be shaded by buildings or trees. It must have a soil depth of at least 1 foot — 2 or more feet being more desirable. It must be free from tree roots, particularly those of the casuarina tree. Interference by tree roots may be largely overcome by digging a trench  $1\frac{1}{2}$  to 2 feet deep between the trees and the garden, cutting all tree roots crossing the trench, and placing a piece of roofing tin along one wall of the trench before refilling.

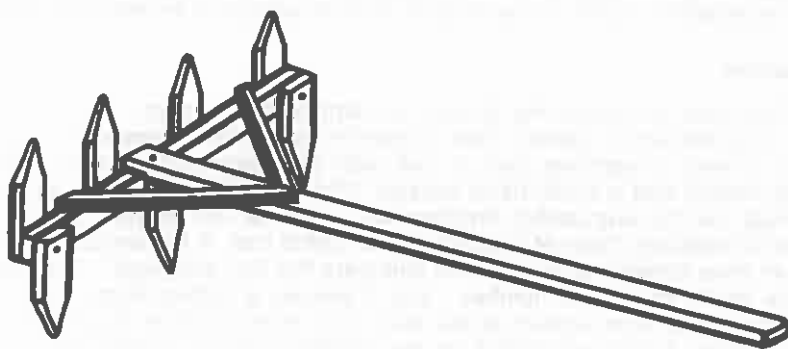
Protection from the prevailing winds is another consideration to be kept in mind when selecting a garden site. Wind damage may be reduced by situating the vegetable garden in the most sheltered part of the home lot or by constructing a protective wooden fence. Such a fence may also be beneficial in excluding dogs, cats and poultry, all of which can cause considerable damage if permitted to run freely through the garden. If wind is not a problem, a wire fence of some form is advisable to exclude animals.

### Equipment

The tools for gardening should be kept to a minimum. The essential tools required are a garden fork, a garden rake (as opposed to a grass rake), a hoe, a watering can, a line with two pegs for marking rows, a garden trowel and a small hand sprayer (Fig. 1). A wheelbarrow, while not essential, can be very useful. Another tool which can be an asset and reduce the back-breaking chore of weeding is the Dutch hoe. A homemade row marker can save considerable time and eliminate the line and pegs. The marker can be made of 1" x 2" lumber. Cut 7 pieces, 6 inches long, then make 2 wedge cuts to form a point at one end. Cut another piece of lumber 3 feet long to form a bar and nail 4 of the pointed pieces in one direction 12 inches apart. Nail the remaining 3 pieces in the reverse direction, 18 inches apart. Attach a 6-foot handle to the centre of the bar and brace this with 2 smaller pieces from each end of the bar (Fig. 2).



**Fig. 1. Essential equipment for home garden: Dutch hoe, garden rake, garden fork, hoe, watering can, hand sprayer, garden trowel and marking line.**



**Fig. 2. Hoemade row marker.**

## Preparation of a New Site

Remove all shrubs and trees from the site. Stake out the area to be used for the vegetable garden. Using the hoe, remove all remaining vegetation by hoeing the surface of the ground, leaving the soil essentially undisturbed. Use the garden rake to remove the vegetation from the site. Fork the entire site to the full depth of the garden fork, breaking up large clods of soil and exposing and removing all roots. The site is now ready for fertilizing. Some growers prefer the hoe to the fork in working with soil. However, the fork is recommended since a greater depth of soil can be turned with this tool and roots of weeds, particularly nutgrass are not buried to become a problem later on.

## Composts, Manures and Peat

Bermuda's soils are deficient in organic matter, an essential ingredient in producing healthy vegetables. Organic matter helps to prevent the soil from compacting, aids in drainage and improves the water and nutrient holding capacity of the soil. Organic matter may be added to the soil in the form of manure, compost or peat moss.

Manure, in addition to supplying organic matter, supplies many of the essential elements necessary for plant growth. Most animal manures are becoming increasingly difficult to obtain. The exception is poultry manure, which is available in bags from most poultry farms. The use of excess manure can cause burning of certain plants and should be avoided. Poultry manure is higher in nutrient value than other animal manures, therefore the quantity used should be less than recommended for cow or horse manure. For a new plot, well-decomposed cow or horse manure should be used at the rate of 2 lbs. per square foot, and poultry manure at  $\frac{1}{2}$  lb. per square foot. Manure should be forked into the soil and left for at least 2 weeks before seed sowing. In succeeding years, half of the above rates are ample. Applications of manure are best made in late summer or early autumn in readiness for the winter growing season. Midway through the growing season, additional light applications of manure may be spread on the soil and forked in before sowing a successive crop.

Compost is a good source of organic matter. A compost pile may be started in an area approximately 6 feet square, convenient to the garden. A stone wall, or corrugated tin sheeting may be used to keep the area tidy. A 6 to 8-inch deep layer of leaves, weeds or any vegetable material from the kitchen (other than diseased parts of vegetables) should be spread on the ground. Over this, place a thin layer of soil, 1 or 2 inches thick, followed by a similar layer of manure. If manure is not available, two or three handfuls of commercial fertilizer may be used as a substitute. It is advisable to soak the compost then start with another layer of leaves, etc., gradually building the pile up to 3 feet over the months. Having done this, the pile should be turned over once or twice adding water during dry periods. The compost is ready to use after four to six months. Compost should be applied to cover the soil as a 2 or 3-inch layer, then forked under.

Peat moss is also a good source of organic matter and is relatively simple to use. There is no nutrient value in peat, however, thus supplements

of commercial fertilizer are required to encourage good growth. It should only be necessary to use peat once a year, in the autumn. The recommended rate for peat moss is similar to compost — cover the soil with a 2-inch layer and then fork it in. No time limit is required between forking peat moss and sowing.

In large gardens that are accessible to a mechanical rototiller, a leguminous crop such as cowpeas may be planted during the summer months and then turned under in August to add organic matter to the soil. In the smaller garden, where only hand forking is carried out, it is a very difficult task to properly incorporate fresh, bulky vegetable matter.

## Fertilizers

The list of chemical fertilizers available in Bermuda is relatively short and consist basically of 10-5-10-3, ammonium sulphate, sodium nitrate, or "soda" as it is more commonly called, castor pomace and various liquid fertilizers.

The 10-5-10-3 fertilizer has been formulated for Bermuda conditions and the numbers denote 10 parts nitrogen, 5 parts phosphorus, 10 parts potassium and 3 parts magnesium per hundred parts of balanced fertilizer. It is available in granular and non-granular forms. The granulated form is preferred for ease of handling. When applying this fertilizer, avoid letting it fall on plants; failure to do this will result in burning of foliage. Further, fertilizer should not be applied at more than the recommended rates as this will also cause burning.

Perhaps, before giving the rates of fertilizer to use, a few definitions would be useful. Fertilizer may be applied in two ways. It may be broadcast, that is distributed evenly over the soil surface and, where possible, mixed with the soil; or banded, that is placed in a narrow strip or strips alongside of plants or seeds, on or below the soil surface. The basic fertilizer application refers to the initial amount of fertilizer which is usually applied before, during or shortly after planting, and which supplies the major nutrient requirements of the crop. Supplemental fertilizer applications refer to additional fertilizer over and above the basic application, and may be applied any time during the growing season.

The recommended basic application rate for 10-5-10-3 fertilizer is  $\frac{1}{4}$  ounce per square foot, or approximately  $1\frac{1}{2}$  pounds per 100 square feet. This application should be broadcast. A supplemental application should be applied midway through the growing season of crops. This should be banded at the rate of  $\frac{1}{2}$  pound per 30 feet of row. It is often more convenient to measure the fertilizer than to weigh it; pounds of 10-5-10-3, may be converted roughly to pints or cups by allowing 1 pint, or 2 kitchen measuring cups to 1 pound.

Castor pomace is primarily a source of organic nitrogen. It is best used to supplement the balanced fertilizer and should not be relied upon as the only fertilizer for vegetables. It has an advantage in that it does not normally injure plants should it come in direct contact with them. Pomace is an expensive source of nitrogen. The rate at which it should be used is  $1\frac{1}{2}$  pounds per 25 feet of row.

Ammonium sulphate is a fertilizer which contains a high percentage of readily-available nitrogen. It should be used with considerable care as it may cause injury to plants. It may impair the keeping quality of certain vegetables, therefore it should not be used too late in the season. It is used primarily for forcing and should be applied at the rate of  $\frac{1}{4}$  pound per 25 feet of row.

Sodium nitrate is also a fertilizer with a high percentage of readily-available nitrogen. Because this chemical fertilizer adds to the alkalinity of our soil, its use is not recommended.

Ashes from the incinerator or the fire-place should not be added directly to the garden. Ashes add to the alkalinity of the soil; if they are to be used they should be incorporated in the compost heap.

### **Planning the Garden**

The beginner gardener is advised to plant only a limited number of vegetables, preferable those which are easy to grow, such as beans, broccoli, cabbage, cauliflower, carrots, radishes, tomatoes and turnips. As a grower's experience increases, he may choose to try a greater variety of vegetables. A common fault of many gardeners is to overplant — that is to fill the garden as quickly as possible with more vegetables than are really required. This is not a good practice. If space permits, a section of the garden should be left unplanted for the first part of the season to provide for successive plantings, and thus ensure a continuous supply of fresh vegetables.

It is a wise procedure to obtain a small notebook and keep records of dates of planting, supplemental fertilizing, spraying and yields. Such records will help the grower to plan for the future.

There is no single best plan for planting a garden because this will vary with individual preference for vegetables as well as with the space available. However, certain points should be kept in mind when setting out the garden. Group the crops according to height, to prevent shading. If the garden is on a hillside, run the rows across the slope not up and down it. This helps to hold moisture and reduces erosion. Group together the small growing, quick-maturing crops. Perennial vegetables, such as eggplant, should be planted to one side of the garden and crop rotation should be practiced wherever possible.

A production guide, suggesting amounts to plant and maturity times will be found in Table 5.

### **Seed**

Fresh seeds of proven varieties are essential for success with vegetable growing. It pays to purchase seed from a reputable seedsman rather than to depend on home grown supplies. Under local conditions, seeds rapidly lose their ability to germinate, and the grower is advised to store seeds in an air-tight jar in the refrigerator. Seeds kept in this manner will remain viable for several months, but should be discarded after 12 months.

The quantity of seed required for recommended plantings of various vegetables may be found in Table 5 at the back of this Bulletin.

## Sowing

Most vegetables are started in a seed-bed and transplanted at a later date. The seed-bed should be in a warm, protected area, usually to one side of the garden. It is not advisable to add manure or commercial fertilizer to the seed-bed prior to planting. The addition of peat moss or compost is recommended. The seed-bed should be forked twice, breaking up any large clumps of soil, removing all stones, roots and weeds. To ensure success with seed sowing, it is advisable to sterilize the seed-bed. This may be accomplished by drenching the soil with formaldehyde. A solution is made using one pint of 40 per cent formaldehyde in 6 gallons of water. The diluted mixture is then used at the rate of  $\frac{1}{2}$  gallon per square foot of soil. After treatment, the soil is covered for 24 hours, using damp bags, canvas, polyethylene sheeting or tar paper to confine the fumes and allow them to act on harmful organisms. Formaldehyde fumes are very toxic to living plants. Ten to fourteen days must elapse before it is safe to plant in treated soils.

Some growers prefer to start their seeds in seed flats. A seed flat is a shallow box, 2 to 4 inches high, of a convenient size that has plenty of drainage holes in the bottom to allow water to pass freely out of the rooting medium. The box may be made of wood, or plastic seed flats may be purchased from your garden supply shop. In the bottom of the flat a layer of fallen leaves, grass clippings or other coarse material should be placed so that soil will not wash through the drainage holes. The soil mixture should consist of 1 part peat or compost to 2 parts soil. The soil mixture may be pasteurized by placing it in the oven at 160°F. for one hour. If pasteurization is not feasible, then the soil may be treated with formaldehyde. Add  $7\frac{1}{2}$  tablespoons of formaldehyde to 1 quart of water and sprinkle the mixture over a wheelbarrow load of soil and thoroughly mix. Allow the treated soil to stand for a day before sowing seed, or to air until no odour is detected. (Substances such as spagnum moss and vermiculite may replace the soil mixture in seed flats. They have the advantage of not requiring any treatment, but have the disadvantage of requiring liquid fertilizer.) Once the soil has aired, place in the flat within half an inch of the top, firm with a block of wood and flood with water. After the water has drained, sift the seeds onto the surface. Some growers prefer to broadcast the seeds, others plant them in rows. Cover the seeds lightly by sifting more of the rooting mixture over them. The final operation is to cover the flat with a pane of glass or a moist newspaper. As soon as the seeds germinate, remove the pane or newspaper, otherwise the seedlings will become leggy and misshapen. Place the flats on boxes or benches that are protected from ants, toads and household pets, and are in a shaded area. After germination, the flats must be placed where the seedlings will get an abundance of light.

A new approach to starting seeds involves the Jiffy-7 pots. These are purchased as flat, peat discs, but with the addition of water they expand to form a sterile rooting medium which may be plunged directly in the soil when the plants growing in them are big enough for transplanting. This procedure avoids disturbance of the root system of the seedling. Jiffy-7's should not be exposed to heavy rain, as the rain drops have a tendency to wash the seeds away, nor should the pots be allowed to dry out.

Seeds sown directly in the seed-bed are usually planted in rows 9 inches apart. Do not sow an entire packet of seeds at one time because



more seedlings will be produced than are required. Sow seeds thinly, to avoid thinning later, and approximately half an inch deep. After sowing, water the bed with a watering can. The bed may be covered with wet sacks or polyethylene sheeting to retain soil moisture until the seeds germinate. If the seed-bed is not covered, water every day and continue after the seeds have germinated.

Certain seeds, notably beans, beets, carrots, corn, melons, parsnips, peas, radish, spinach and white turnip do not transplant well and should be sown in the garden in the positions in which they are to grow. Using a line or homemade marker, make straight rows at the distance required and plant the seed at the recommended depth for the crop.

Certain crops, such as melons, are planted in hills. A hill is a cluster of plants not a mound of soil.

Consult Table 4 for times of planting and recommended spacings.

### **Thinning**

Remove surplus plants before they can compete with those that are to remain. The total yield is likely to be much greater if thinning is done early. Thin when the soil is wet.

### **Transplanting**

Transplanting refers to the shifting of the seedling from the seed-bed or flat to the location where it is to grow to maturity. When seedlings have about four true leaves or are approximately 6 to 8 inches tall, they are ready to transplant. Plants left longer than this period tend to become woody at the base and do not establish well in their new locations. Such seedlings should be discarded. Transplanting should be carried out in the late afternoon preferably into a moist soil. An hour before beginning to move plants, water the seed-bed or flat thoroughly. The seedlings should be raised gently, using the hand trowel as a lever. Do not pull the seedlings out. Gently tease the plants apart leaving as much soil and as many roots as possible on each seedling. Transplant into the new location as quickly as possible. If, by chance, it is not possible to transplant immediately, ensure that the roots are kept moist and not allowed to dry out. The seedlings should be set slightly deeper than they were in the seed-bed or flat. Using the hands, firm the soil around each plant then add a  $\frac{1}{4}$  to 1 pint of water or transplanting solution to each plant. A transplanting solution can be made by mixing 2 tablespoons of 10-5-10-3 fertilizer to a gallon of water. Using a measuring device to apply the mixture is much more satisfactory than using the watering can.

### **Cultivation**

The main purpose of cultivation is to check weed growth as weeds can compete with vegetable plants for light, water and nutrients. Weeds also harbour diseases and pests which spread to crop plants. Cultivation should be shallow to avoid injuring the vegetable plant roots that lie near the surface. The Dutch hoe should be used for this purpose.

There is no advantage in cultivation if weeds are under control and the soil is loose and friable. Avoid entering the garden after heavy rains;

body weight, together with the wetness of the soil tends to make the soil compact and hard. During very cool periods in the winter, a light cultivation will aid the sun's rays in warming the soil and thus encourage better growth.

Certain crops, such as potatoes, require moulding. This practice involves pulling the soil around each plant with the hoe. Mould the row on both sides so that a series of ridges is formed.

### **Watering or Irrigating**

During the winter months, rain is usually adequate to keep the garden moist. But often, during the early spring through summer and early fall, our rainfall is inadequate for good growth. During this period, the soil should receive at least 1 inch of rain every 7 to 10 days. If the rainfall is below this amount, the grower may supplement the rainfall by applying fresh water from the tank, or well water. If well water is to be used, it is recommended that samples be taken to the Department of Agriculture and Fisheries at least once a month to have a test made on the salt content. Water may be applied with a watering can but this is long and tedious as the soil should be soaked to a depth of 8 inches. There are various types of sprinklers on the market which, when attached to a garden hose, will supply the necessary water, with the minimum of effort. To water the soil to a depth of 8 inches takes approximately  $\frac{3}{4}$  gallon per square foot or about 65 gallons for 100 square feet. To determine the amount of water being applied by the sprinkler, place 3 or 4 straight-sided cans at various points on the soil surface being sprinkled. One inch of water in the cans equals one inch of rain. If the period it takes to collect one inch of water in the can is timed, then the grower will know on future occasions how long the sprinkler should be left on to supply the proper amount of water.

Irrigating with less than 1 inch of water every 7 to 10 days is not recommended as it tends to promote root growth near the surface. These roots will dry out quickly and are of little use to the plant when surface soil becomes dry.

Watering is best done in the evening or early morning, preferably on days with little wind. Watering in the middle of a sunny day may result in leaf scorching.

### **Mulches**

Organic mulches consisting of leaves, straw, grass clippings or sawdust may prove beneficial. Mulches reduce water loss, retard weed growth and reduce root damage caused by cultivation. Peat moss is not recommended as a mulch because of its lightness when dry and the ease with which it blows away, as well as its high water absorbancy, leading to the retention of all water in light showers and not permitting any to penetrate through to the root zone. Casuarina needles are not recommended as mulch. Mulches are most beneficial to late spring and summer crops. During the winter months they prevent the sun's rays from reaching the soil and thus keep the soil cool when every effort should be made to keep it warm for better growth. Mulches should be applied just after cultivation when the soil is moist, and when plants to be mulched are at least 3 to 4 inches tall. Mulches should cover the soil to a depth of 2 inches.

If the mulch is incorporated into the soil at the conclusion of the season, a temporary shortage of nitrogen may occur as a result of the breakdown of the mulch in the soil. Vegetables planted following the incorporation of mulch will tend to be yellow. To avoid a nitrogen shortage, add ammonium sulphate at the rate of 1 pound per 10 square feet of soil and turn in with the mulch.

Mulching with black polyethylene sheeting or plastic has proved popular with some growers. It is more of an advantage to use this mulch in the winter months because during the day the dark plastic absorbs the sun's heat and warms the soil. As in the case of organic mulches, the soil should be well supplied with water before laying the plastic. The black polyethylene is usually applied before planting. Small furrows, 3 to 4 inches deep, are made slightly less than the width of the plastic. Anchor the plastic at one end and unroll along the area to be covered, without stretching, and then tuck the sides in the furrows and cover with soil. When the plastic has been securely anchored on all sides, punch holes in the plastic with a hand trowel at the points where the transplants are to go, and insert the plants. In the case of large-seeded crops such as cucumbers, corn or beans, make the holes where the seeds are to be placed. Small mounds of soil should be scattered over the plastic to prevent loosening by the wind.

### **Plastic Greenhouses**

A plastic greenhouse is relatively simple and inexpensive to make and has the advantages of providing a warm environment in which plants may grow in winter, and protection from wind damage. The disadvantages of a greenhouse are that the house often becomes too hot in summer unless shading is provided, and water must be applied artificially throughout the year. Plastic greenhouses can be constructed in various shapes and sizes to provide for the home gardener's needs. It is essential to have the plastic secured to the frame and to allow for rain runoff.

### **Saran Houses**

Saran is a fine-mesh plastic, varying in colour and mesh size. It is often used in providing semi-shade for house plants or plants normally found in shady environments. It may be used to advantage for vegetable culture during the summer months to reduce the light intensity, and to restrict water loss from the soil and plants. Saran should not be used in the winter months. During this period vegetable plants need all the direct sunshine that is available.

## **CULTURE OF SPECIFIC VEGETABLES**

### **Artichoke, Globe**

*Cynara scolymus*

A native of the Mediterranean, this plant is grown primarily as a delicacy in Bermuda. The edible portion of the plant is the immature flower bud. Sow seeds in October or November in the seed-bed and transplant into deep soil, 3 feet apart in the row and allowing 4 feet between rows. During the growing season, suckers will be produced around the base of the plant. Only five or six of the largest suckers should be allowed to grow. Pull off and discard the smaller, weaker ones. Suckers may be used for propagation. From August to November, when the sucker leaves are 12 to 15 inches

long, they should be detached from the main root, preserving as many of the small roots as possible attached to each sucker. These suckers are then planted directly in the garden where they are to grow. Buds are ready for picking from late April until June. When the terminal bud is harvested other buds from below are picked in succession. The globe artichoke may continue fruiting for 2 to 3 years. Four plants are sufficient for the average family.

### **Beans, Broad or Fava**

*Vicia faba*

The bean of history, the broad bean, is grown for its edible seeds, and occasionally the young leaves are used as greens. This type of bean prefers cool weather and deep soil. Seeds are sown directly in the garden from November to February in double rows, planting the seed 3 inches deep and 9 inches apart, the rows being 9 inches apart. Allow 30 inches between each pair of rows. Mould the soil around the plants when they are a few inches high. As soon as a good crop sets, pinch out the tops of the plants to obtain well-filled pods. Twenty-five feet of row is recommended at one planting. A popular variety is Long Pod.

### **Beans, Bush, Dwarf, French Kidney, Snap or String**

*Phaseolus vulgaris*  
*var. humulis*

This is the most commonly grown bean in home gardens. It is easy to grow and matures in 6 to 9 weeks. Seeds may be sown year round, 2 to 3 inches deep, 3 inches apart, with 24 inches between rows. Mould when plants are 8 inches tall. Beans are very susceptible to fertilizer burn, therefore fertilize very lightly. Bush beans are harvested before the seeds reach full size. Additional pickings are made every 5 to 10 days. Wax beans are a variety of bush beans and should be treated in the same manner. Twenty-five row-feet are recommended at one planting. Recommended varieties: Green, flat: Plentiful, Bountiful; Green, round: Tendergreen, Bush Blue Lake; Wax: Cherokee Wax, Kinghorn Wax.

### **Beans, Pole**

*Phaseolus vulgaris*

The pole bean is a variation of the bush or snap bean, the difference being that the plant grows taller and requires support. Pole beans should be planted August to June and to one side of the garden where they will not shade smaller vegetables. The method used for support can vary from the garden fence to specially erected supports. Two methods are recommended for growing: the first is to use 8-foot lengths of 1" x 2" batons, pushing them in the ground 1 foot in double rows, allowing 18 inches between rows and 18 inches between batons. Drive a short stake into the ground at the ends of each row; secure strong twine to one end stake and proceed to hitch the twine around each pair of supports approximately 12 inches from the top and then secure the line to the stake at the far end. The twine is kept taut so that the whole framework remains rigid. Seeds are planted at the base of each baton and thinned to two plants. The second method is to use posts which are firmed in the ground. Two supporting wires are tightly strung, one along the top and the other 12 inches from the bottom of the posts. Twine is then strung vertically every 18 inches between the wires, allowing two plants for each piece of twine. Harvest when bean pods

reach full length, but are young and tender. A snap bean ready for harvest should break easily with a snap, as the name implies. Recommended varieties:— Kentucky Wonder, Kentucky Wonder Wax.

### Beans, Runner or Scarlet Runner

*Phaseolus coccineus*

The runner bean is the most popular bean on the English market. They crop substantially heavier than string beans and are vigorous plants attaining a length of 8 to 10 feet if allowed unrestricted growth. The runner bean prefers cooler temperatures than the string bean and is planted during October and November. The supports used for runner beans are the same as recommended for pole beans. There is available a dwarf form of runner bean which is treated in the same manner as the string bean. Harvesting of runner beans can continue over a period of several weeks. Recommended varieties:— Kelvedor Marvel, Kelvedor Wonder.

### Beet

*Beta vulgaris*

The beet is a native of Egypt and has been in cultivation for centuries. It is easy to grow and does well in Bermuda. Seeds may be sown from October to April in rows 15 inches apart and thinned to 3 inches. Plants removed in thinning may be transplanted into other rows. Beets can be harvested when they reach 1½ inches in diameter. At this stage the tops may be cooked as greens. Roots can be of good quality up to 3 inches, but if allowed to grow larger become hard and woody. Apart from the red varieties available, there are now 'white' varieties. Fifteen feet of row per planting is recommended. Recommended variety:— Detroit Dark Red.

### Broccoli

*Brassica oleracea var. italica*

A very popular vegetable that is easy to grow. Sow seeds in seed-bed from August through to April and transplant into rows 2 feet apart and space the plants 2 feet apart in the rows. Mould when plants are 1 foot tall. The head, the edible part of broccoli, a cluster of green buds, should be cut before the buds open. After the first picking, axillary buds will form allowing for harvesting over a period of several weeks. Allow 10 plants for the average family. Recommended varieties:— Green Sprouting, Green Cornet.

### Brussels Sprouts

*Brassica oleracea var. gemmifera*

This vegetable belongs to the mustard group as does broccoli, cabbage, etc., and is native to Britain and Europe. It prefers cool temperatures. The edible portions are the sprouts which grow in the axils of the leaves. These small heads, from 1 to 2 inches in diameter, are harvested when they attain a good size and before they change colour. Pick the lowest sprouts first, before the lower leaves turn yellow. In picking, break off the leaves below the sprout and remove sprouts by breaking them away from the stalk. As the lower leaves and sprouts are removed, the plant continues to grow upward producing new sprouts. Sow seeds in the seed-bed from late August to January and transplant in rows 2 feet apart, and 2 feet apart in the rows. Ten plants will provide sufficient sprouts per planting. Recommended varieties:— Jade Cross, Long Island Improved.

## **Cabbage**

*Brassica oleracea var. capitata*

A very popular and easy-to-grow vegetable. Sow seeds in the seed-bed from August to April and transplant in rows 2 feet apart and allow 18 inches between plants in the row. Cabbage can be harvested as soon as it attains a head of sufficient size and firmness. Heads readily split when they become over-mature. Six plants are sufficient for each planting. Recommended varieties:— Golden Acre, Copenhagen Market.

## **Cabbage, Chinese, Pe-Tai**

*Brassica pekinensis*

As the name suggests, this vegetable is of Chinese origin. It can be used in salads in place of lettuce, or cooked as cabbage. Sow seed in the seed-bed from October to February and transplant in rows 18 inches apart, allowing 12 inches between plants. Chinese cabbage is harvested when the heads are fully developed. Cut the heads from the roots and discard the outer leaves. Twelve plants are sufficient for each planting. Recommended varieties:— Michihli.

## **Cantaloupe**

*Cucumis melo var. cantalupensis*

A garden favourite for the summer months. The garden should be liberally manured and well prepared before planting. Sow seeds from March to April in hills 5 feet apart, and thin to three plants per hill. Cantaloupes are ready for harvesting when the stem attached to the fruit breaks off easily with a slight touch of the thumb. Three hills are sufficient per planting. Recommended varieties: Burpee Hybrid, Delicious 51.

## **Carrot**

*Daucus carota var. sativa*

A popular root crop of European origin. Carrots will not transplant and must be sown directly in the garden. Sow seeds  $\frac{1}{2}$  inch deep in rows 18 inches apart, from late July through to April. When seedlings are 1 to  $1\frac{1}{2}$  inches tall, thin to 2 inches in the row. Carrots can be harvested as soon as they are of sufficient size. Late sowings may be held in the garden and picked during the summer. Twenty feet of row is sufficient for each sowing. Recommended varieties:— Nantes Half Long, Danvers Half Long, Royal Chanteney.

## **Cassava**

*Manihot esculenta*

The root of the cassava plant produces the basic ingredients for the Bermudian Christmas dinner, cassava pie. This plant grows too large for most home gardens. It is propagated by cuttings. Make cuttings of mature wood, 15 to 18 inches long; insert 6 to 8 inches in a well-prepared soil 3 feet apart in rows that are 6 feet apart, from January through to March. In late August prune plants to avoid winter wind damage. Roots will have been produced by December of the first year but a better crop will be obtained if allowed to grow until the second December. If allowed to grow a third year roots become woody and unusable. Three plants should provide sufficient cassava for a single family.

## **Cauliflower**

*Brassica oleracea var. botrytis*

A popular member of the cabbage group. Sow seeds in the seed-bed from September to April and transplant in rows 2 feet apart, allowing 18 inches between plants in the row. Cauliflower should be harvested when heads are full but before the buds start to break. Nine plants are recommended for the average family. Popular varieties:— Improved Super Snowball, Early Snowball.

## **Celery**

*Apium graveolens var. dulce*

Celery is a difficult vegetable for the home gardener to grow. This plant needs a well manured soil and more moisture than the average garden vegetable requires. The best results have been obtained on marsh lands. Seeds are slow to germinate and should be sown in the seed-bed from September to February, and transplanted in rows 1 foot apart, allowing 6 to 8 inches spacing in the row. Celery responds to 2 or 3 side dressings of fertilizer throughout the growing period. Six plants are sufficient for the average family per planting. Popular varieties:— Golden Self Blanching, Giant Pascal.

## **Chives**

*Allium schoenoprasum*

Chives are perennial and should therefore be planted to one side of the garden. Chives may be propagated from either clumps of bulbs, or seeds. Sow seeds in October in the seed-bed or the garden where they are to grow. Clumps of bulbs may be moved throughout the winter months. When chives have been left in the same place for several years the plants become thick; occasional division and resetting is desirable.

## **Christophine or Chayote**

*Sechium edule*

The christophine plant is a vigorous, perennial vine capable of growing in the same location for many years, and should therefore be planted to one side of the garden where it will not interfere with other garden operations of shade low-growing vegetables. The plant requires a sturdy trellis on which to grow. The seed of the christophine will often sprout before the fruit is picked. For propagation purposes, use the fruit in its entirety, partially burying the christophine in the ground, ensuring the bud is just covered, leaving the top section exposed.

## **Collard**

*Brassica oleracea var. acephala*

Collard, though a member of the cabbage group does not form a true head, but is used much like cabbage. Collard will withstand warm weather and is therefore a useful plant for early summer. Sow seed in the seed-bed during March and April, or sow directly in the garden allowing 18 inches between rows, transplant or thin to allow 6 inches between plants in the row. Collard may be harvested at any stage of growth. Allow 25 feet of row per planting. Popular varieties:— Georgia, Vates.

## Corn, Sweet

*Zea mays var. rugosa*

Sweet corn is one of the most prized of summer vegetables. It is essentially a warm season crop, sown from February to April and harvested in spring and early summer. Some degree of success has been obtained with plantings in August and early September, harvesting in late December, but the success depends largely on the amount of autumn wind. Corn needs well-manured soil for good growth. During the early stages of growth, corn requires ample supplies of nitrogen. An application of fertilizer should be given at the time of planting just to the side of the seed row and a supplementary application four to six weeks after planting. Seed should be sown in rows 3 feet apart, and to ensure good pollination plant at least 3 rows. Plant seeds 1 inch deep, 12 inches apart in the rows. It is preferable to plant 2 or 3 seeds together and thin to a single stalk. When plants are about 1 foot high, mould to reduce wind injury.

To conserve space in the garden, sow a row of bush beans between each row of corn. Beans develop and mature quicker than corn, thus neither impairs the other's growth.

Corn is ready to harvest when the husk is tight and the silks are somewhat dried, which is about 3 weeks after the first silk appears. The kernels should be fully developed, and, if punctured, show a milky liquid. The ears are harvested by a downward twisting motion. Corn loses its quality rapidly after harvest and therefore should be cooled as rapidly as possible. Most stalks produce 2 good ears, and sometimes a sucker will produce an edible ear. Allow 30 feet of row per sowing. Popular varieties include Golden Cross Bantam, Seneca Chief and Silver Queen (white kernels).

## Cress, Water

*Nasturtium officinale*

The leaves of water cress are used in salads and for garnishing. The plant is essentially aquatic, that is it grows in water, but good results can be obtained by growing cress in cool, moist soil. This can be accomplished by growing the plants in an old bathtub, wash tub or any other container that will retain moisture. Soil is placed in the container and the seeds are then broadcast over the soil surface and lightly raked in. The soil is then cautiously watered and kept moist. Cress may also be propagated by stem cuttings or small tufts. Cress should be sheltered from sun and wind and kept moist at all times. Cress may be planted from October through February. The leaves and stems may be harvested as soon as they are large enough to pick.

## Cucumber

*Cucumis sativus*

Cucumbers are useful for salads and pickling. They are a warm-season crop and seeds may be planted from February to June, and September and October, in hills 5 feet apart. Sow seeds one inch deep, 7 to 8 per hill. When the seedlings are 2 to 3 inches high, all but 3 should be removed. In removing, use small scissors to cut off the extra seedlings. Pulling them will disturb the root systems of the remaining plants. Cucumbers have a very shallow root system, thus avoid deep cultivation around the plants. Two kinds of flowers are produced on the plant, the male flowers which produce the pollen, and the female which produce the cucumbers. The



two types can be distinguished because the female flower is on the outer end of a little cucumber. Usually, male flowers appear in great abundance in advance of the female flowers. This often leads to the erroneous belief that the cucumbers are failing to set fruit. Later, the female flowers are produced and the fruit is formed. There is a tendency for male flowers to be produced in cool weather. It is necessary for pollen to be transferred from the male flowers to the female flowers for fruit to set. This transfer is normally carried out by bees. Without proper pollination fruit set is poor or fruit is deformed. Cucumbers should be harvested while the fruit are young and green, and the seeds are soft. A yellowish colour indicates that the seeds are mature and the fruit are beyond the eating stage. Overmature or deformed fruit should be removed from the vines to keep the plants producing flowers. Two hills of cucumbers are sufficient per planting. Popular varieties:— Marketer, Straight Eight and White Spine.

### **Eggplant**

### *Solanum melongena*

Eggplant originates from tropical South America. It has an extended growing season and therefore should be planted towards the edge of the garden. Sow seeds in the seed-bed in March or April and again in September and October and transplant 3 feet apart. Three plants will meet the needs of the average family. The fruit of the eggplant may be harvested at any time after they have reached sufficient size, but must be used while they are still glossy on the outside. Since the fruit stems are heavy and tough, the fruits should be harvested by cutting the stems with a sharp knife to avoid breaking the branches. Popular varieties include Black Beauty and Florida Market.

### **Endive**

### *Cichorium endivia*

Endive is used in salads much like lettuce, or for garnishing. The outer leaves tend towards bitterness but the young inner leaves are sweeter. Endive is more tolerant to heat than lettuce and therefore may be planted later in the season. Sow seeds in the seed-bed from September to April and transplant 10 inches apart, or sow directly in the garden and thin seedlings to the desired distance. Blanching of the leaves may reduce the bitterness and make them more tender. To blanch leaves while on the plant, gather into a bunch and tie near the top and hold in this manner for 2 or 3 weeks. Check the plants regularly following rains to see that rot does not become established. After the inner leaves are blanched, they should be harvested immediately. Popular varieties include Green Curled Ruffec and Florida Deep Heart. Five feet of row of endives is sufficient per planting.

### **Garlic**

### *Allium sativum*

Garlic is used for seasoning. Plant divisions of the bulb, called cloves, in a trench 2 inches deep in September and October. Space the cloves 4 inches apart. Allow the plants to grow until early summer by which time the tops will have fallen over. Pull up the plants and allow them to remain in the sun for a few days, after which the bulbs are gathered and stored in a dry place. Three to four feet of garlic should be enough for a year's supply and provide sufficient cloves for planting the following season.

## Kale

*Brassica oleracea var. acephala*

Kale may be described as a non-heading cabbage. It is easy to grow and may be planted from August through to April. Sow in the seed-bed and transplant in rows 18 inches wide, and space the plant 15 inches in the row. Kale may be harvested by cutting the entire plant or by cutting the outer leaves when young, allowing the centre leaves to continue to grow. Fifteen feet of row is recommended per planting. Popular varieties include Vates Blue Curled and Dwarf Blue Scotch.

## Kohlrabi

*Brassica caulorapa*

Kohlrabi is another member of the cabbage family. It forms a swollen, fleshy stem at its base which may be used much as a turnip, though milder in flavour than the turnip. Kohlrabi may be planted in the seed-bed from August to April and transplanted 6 inches apart in rows 12 inches apart. Kohlrabi should be harvested when the stem is 2 to 2½ inches across. If left too long, they become tough. Plant 6 feet or row per planting. Standard varieties are Purple Vienna and White Vienna.

## Leek

*Allium porrum*

The leek is a member of the onion family, but instead of producing a bulb, the stem forms a thick fleshy cylinder, that is mild in flavour. Leeks persist through the summer. Seeds may be sown in the seed-bed from August to March. When the seedlings are 8 inches tall transplant into rows 12 inches apart, spacing the plants 4 inches apart in the row. To develop a long stem, set the young plants 4 inches deep. As the plants grow, gradually draw the soil toward the plants, finally banking or moulding with three or four inches of soil above the normal level. This will force an elongation of the stem, making it long, fine and white. Leeks are ready to use any time after the stem is at least 6 to 8 inches long and 1 inch in diameter. Fifteen row-feet of leeks should be ample. A standard variety is Large American Flag.

## Lettuce

*Lactuca sativa*

Lettuce, without a doubt, is the most important salad crop. There are generally considered to be four types of lettuce, butterhead, crisphead, loosehead, and the romaine or cos type. The butterhead type, sometimes called cabbage, develops well-folded heads and resembles a small cabbage in appearance. The heart is tightly folded and blanches to a buttery yellow. Popular varieties are Buttercrunch, Big Boston and Bibb. The crisphead lettuce forms well-folded crisp, brittle-textured heads which are large and whitish in the inside. Popular varieties:— Great Lakes 659, Imperial No. 44, Iceberg. Loosehead lettuce does not form a head, but instead produces a thick bunch of leaves. This type of lettuce withstands warmer weather than the other varieties. Popular varieties:— Salad Bowl, Black Seeded Simpson, Grand Rapids. Cos, or romaine lettuce, is distinctive from other lettuce, the heads being upright and lightly folded. Popular varieties:— David Island Cos, Dark Green Cos.

Lettuce prefers cool weather and should be sown in the seed-bed from October to March and transplanted 12 inches apart (or 8 inches apart for

smaller varieties) in rows 12 inches apart. Head-forming lettuce is ready for harvest when the head becomes firm. Looseleaf lettuce are harvested whenever they are big enough to use. Bolting, the premature development of a seed stalk on young plants, is likely to occur when the weather becomes too warm. The selection of heat-resistant varieties minimizes the effect of bolting. Fifteen feet of row planted to lettuce is sufficient for each sowing.

**Muskmelon** — see Cantaloupe

### **Mustard Greens**

*Brassica juncea*

Mustard greens are easy to grow, but do not appeal to all. Young leaves may be used in salads, older leaves may be cooked. Sow seeds in the seed-bed from August to March and transplant 12 inches apart in the rows, spacing the rows 18 inches apart. Ten feet of row per planting is recommended. Popular varieties: Florida Broad Leaf and Tendergreen.

### **Okra**

*Hibiscus esculentus*

A native of Africa, okra is mostly used in soups but it may be used in stews and salads. It is a warm-weather plant and seeds may be sown from March to May in rows 3 feet apart. In the row, sow 2 to 3 seeds in hills 18 inches apart. When the plants are well established, thin to 1 plant per hill. The pods should be picked when young and tender. Old fruit are unfit for use and should be picked to extend the fruiting period. Ten feet of row should be sown per planting. Popular varieties are Dwarf Green Long Pod and Clemsons Spineless.

### **Onion**

*Allium cepa*

The onion is a most useful vegetable of very ancient origin. It may be planted in shallow soils that are unsuitable for other vegetables. Seeds are sown in the seed-bed during October and November and transplanted into the garden when the plants are 6 to 8 inches tall. Set plants 4 inches apart in the row, spacing the rows 12 inches apart. When onions are fully mature, pull the bulbs from the soil and spread them on the surface for a day or two in the sun to continue the drying and curing process. After curing, tie the onions together in bunches and hang in a cool dry place. The varieties Yellow Bermuda, Granex, and White Granex are very large, very mild and flat in shape. These varieties have a short storage life. The varieties Texas Early Grano and Texas Early Grano No. 502 are top-shaped and suitable for longer storage. Thirty feet of row should be planted to onions for the average family.

Spring onions, or scallions, are young onions pulled before the bulbs begin to form. They are also called bunching onions and are grown for their long, slender whitish stalks which are used in salads. Seeds are sown directly in the garden from September through to January and left unthinned until they are pulled. Popular varieties are Evergreen Long White Bunching and White Sweet Spanish.

Small onions of any variety may be used for pickling, but there are varieties especially developed to produce small onions suitable for pickling.

Sow seeds in October and November. Thinning, except when the seedlings are very thick, is unnecessary. The onions are harvested when the tops begin to shrivel, cleaned, and pickled as soon as possible. Varieties suitable for pickling are Paris Silverskin and Queen.

### **Parsley**

### *Petroselinum crispum*

A useful herb that should be included in every garden. Seeds may be sown in the seed-bed from September to November and transplanted 6 inches apart, or sown directly in the garden and thinned to 6 inches between plants. Two feet of row will supply ample parsley for the entire season. In deep soil, it is possible to keep the plants growing throughout the summer. When harvesting, pick the outer leaves allowing the newer leaves to develop. Popular varieties include Extra Curled Dwarf and Paramount.

### **Parsnip**

### *Pastinaca sativa*

Parsnip lacks the popularity of most other root crops because of its distinctive taste and the long period required for the crop to reach maturity. Seeds are sown directly in the garden where they are to grow during September and October and again during March and April. Thin seedlings to 3 inches. Allow 10 feet of row per planting. Popular varieties are All American and Hollow Crown.

### **Peas**

### *Pisum sativum*

Certainly a very popular vegetable, but not always successful in Bermuda. Peas are essentially a cool-weather crop and seeds may be sown from November to early March in well-manured soil. Low growing varieties are recommended to avoid wind damage; however, the lower types will not produce as heavily as the taller varieties. Because peas grow on a vine, some form of trellis work is required. A simple type of trellis can be erected by stretching 30-inch wire of  $\frac{1}{2}$  to 1 inch mesh between two stakes. Additional supporting stakes should be used at 10-foot intervals. Sow the seeds along each side of the wire, thus forming a double row. The seeds are placed 1 inch in the soil,  $1\frac{1}{2}$  inches apart. Peas are harvested when the pods are well filled and the peas are still tender and sweet. Sow 25 feet of row at each planting. Recommended varieties are Wando, Little Marvel and Alderman.

### **Pepper**

### *Capsicum frutescens*

Peppers prefer the warm months, making little growth in winter. Peppers may be classed into two groups, sweet and hot. The sweet fleshed peppers are used for slicing, salads, and stuffing. All are green initially, turning to red or yellow when fully ripe. Sweet peppers should be harvested after reaching full size but still green. Varieties of sweet pepper include California Wonder, World Beater and Ruby King. The hot peppers include the cherry, cayenne and tobasco types. They are used for sauces, flavouring and pickling and are represented by the varieties: cherry — Red Cherry, Yellow Cherry; cayenne — Long Red Cayenne; tobasco — Red Chili and Orange-Red Cluster.

Peppers are sown in the seed-bed in March and April and in late August through to October and transplanted 18 inches apart. Six plants should supply the family's needs over a long period.

## Potatoes

*Solanum tuberosum*

Potatoes form the basis of the main meals in many households, and because they are relatively inexpensive if purchased in the market, compared to other vegetables, it is questionable whether the home gardener should attempt to grow them. Certainly growers with very small gardens should save the space for other more costly vegetables.

There are two varieties grown locally, Red Pontiac and Kennebec. Red Pontiac, as the name suggests produces a reddish-brown skinned tuber and is by far the most popular variety. Kennebec has a light brown skin and is often referred to as a "white" potato in contrast to Red Pontiac which is referred to as a "red" potato. Seed potatoes are brought into Bermuda from the Maritime Provinces of Canada each year during the autumn and early winter months. These potatoes are "certified" as being vigorous and disease free and have been examined by Canadian inspectors during the growing season in order to earn this certification. Occasionally, local growers will plant Idaho potatoes imported as table stock. Such potatoes have not been examined in the same manner and growers may encounter problems not likely to occur with certified seed potatoes. Interest has been expressed in certain varieties grown in Great Britain and Europe but the Agriculture (Control of Plant Disease and Pest) Regulations prohibit the importation of potatoes from these countries because of the risk of diseases.

Potatoes may be planted from September to March. It is customary to use small, locally grown potatoes from the previous season for the earliest fall plantings since the seed potatoes from Canada do not normally arrive until late September or October. Canadian potatoes, at this stage, are freshly dug and have not gone through a period of sufficient dormancy to produce consistent sprouting when planted. These potatoes should be treated, prior to planting, with a growth stimulant. The stimulant recommended is gibberellic acid, a relatively harmless chemical available at the Department of Agriculture and Fisheries. The procedure for treating potatoes is as follows:— Cut the potatoes, then prepare the dip by adding 1 ounce of gibberellic acid solution to 10 U.S. gallons of water. Dip the potatoes for 2 minutes then plant or allow to dry overnight then plant. The effect of the dip is lost if planting is delayed more than two days and consequently sprouting of the potatoes will be irregular.

Small potatoes, from  $1\frac{1}{2}$  to 2 inches in diameter may be planted whole, but larger ones are cut into pieces of approximately  $1\frac{1}{2}$  to 2 ounces with one or more eyes on each piece. Place the potatoes or pieces in a trench 6 inches deep and 9 inches apart in the row. Space the rows 24 inches apart. Potato sprouts will be observed after 2 weeks. After 5 weeks, apply supplementary fertilizer then mould the soil around the plants. Sow 50 feet of row per planting, which should require 5 pounds of seed potatoes. Store potatoes in a dark, cool place that can be kept free of insects.

## Pumpkin

*Cucurbita pepo*

The so-called pumpkins of Bermuda are technically a type of squash, but for generations have been called pumpkins. The seeds of these pumpkins originated from the Azores. Growers have selected seed over the years

from superior fruit, and this method is still recommended. The true pumpkin is grown in other countries as a field crop, becoming golden orange when ripe, and is used in pies and as a feed for livestock.

The local pumpkin may be planted from February through to May. The seeds are sown in hills 10 feet apart and thinned to 2 seeds per hill. During May, slips taken from the more vigorous vines may be used to propagate the plant.

### **Radish**

*Raphanus sativus*

Radishes are the easiest to grow and the quickest to mature of all garden vegetables. Sow seeds directly in the garden from August to May. Sow 5 feet of row per planting. There are various types of radish; the red, both long and globular; the white, both long and globular; and the more pungent, longer-season black type. The most popular radishes are the globular, red types as represented by the varieties Cherry Belle and Scarlet Globe which reach edible size in 22 to 40 days.

### **Rutabaga**

*Brassica napobrassica*

Rutabaga is sometimes called Swede, or Swedish turnip. It is useful as a mashed vegetable and in soups and stews. Sow in the seed-bed from August to April and transplant 6 inches apart in rows 18 inches apart. Allow 10 feet of row space for planting. A popular variety is American Purple Top.

### **Spinach**

*Spinacia oleracea*

Spinach has been grown for centuries. It grows best in cool weather. The seeds are sown directly in the garden, 1 to 2 inches deep, in October and November in rows 12 inches apart and thinned to 3 inches apart in the rows. Germination may be poor during warm weather. This can be overcome by placing the seed between two moist pieces of paper towel in the refrigerator for a week before planting. Spinach may be harvested from the time the plant has 6 to 8 leaves until the seed stem develops. Sow 30 feet of spinach per planting. Popular varieties are Bloomsdale Long Standing and Chesapeake.

### **Spinach, New Zealand**

*Tetragonia expansa*

New Zealand spinach is heat resistant and will often persist into the hot summer. To assist germination, soak seeds for 1 to 2 hours in water at 120°F. before planting. Seeds may be sown from October to April in rows 24 inches apart and thinned to 12 inches apart. Make successive harvests of the tips, taking care not to remove too large a portion of the plants at one time.

### **Squash**

*Cucurbita maxima, C. pepo*

The types of squash are numerous, taking various forms and colours. The types are grouped into summer squashes and winter squashes. The summer squashes are those that are eaten in the immature stage and are usually ready for picking 6 to 8 weeks after planting. Generally, a summer

squash is too old for good eating when the thumb nail does not readily pierce the skin without pressure. Summer squash may be further divided into bush or running varieties. The bush varieties are more suitable for the small garden, requiring less space. Varieties of summer squash include Hybrid Zucchini, White Bush Scallop, Early Proflic, Straightneck, Cocozelle Bush (Italian Marrow) and Yellow Summer Crookneck. The winter squashes are eaten after the rind is hard and the fruit is mature. These squash take 12 to 14 weeks to mature and may be stored like pumpkin. Varieties of winter squash include Acorn, Butternut, Buttercup, Golden Delicious and Hubbard.

Squash are sown in hills, the bush varieties 4 feet apart and the running varieties 8 feet apart, from April to June. Sow 6 to 8 seeds per hill and thin to 3 plants per hill. Two hills of summer squash and 4 hills of winter squash are sufficient for the average family.

### **Strawberry**

### *Fragaria chiloensis*

Though the strawberry is used as a fruit it is often found growing in the vegetable garden and therefore is included here. The strawberry plant grows best on soils that have a very high organic matter content and receive an abundant supply of moisture. Two varieties that are commonly planted in Bermuda are Florida Ninety and Missionary. These varieties are imported by seed merchants each year, usually during the latter part of November. These plants will start producing fruit in late February. If provisions are made to either water or shade the plants through the intense heat of the summer, they may persist and produce a second crop the following winter. Such plants will put out runners which may be used for propagation. These may be planted in October.

Plant strawberries in beds, five plants wide. Space plants 10 inches apart. The plant crown should be set level with the ground surface. The soil should cover all the roots, but not the top of the crown and the roots should extend vertically into the soil. Using a trowel, make a vertical hole to a depth of 6 inches, insert the plant roots into the opening and firm the soil against the roots, then water thoroughly. Ten days after plants are set, side dress with 10-5-10-3 fertilizer at the rate of 1 pound to every 50 feet of row, taking care not to allow the fertilizer to come in contact with the plant. For good results, strawberries should receive at least 1 inch of water a week either from rain or irrigation. One hundred plants should supply the needs of an average family.

### **Sweet Potatoes**

### *Ipomoea batata*

Sweet potatoes are generally not considered worthwhile for the small garden, but if land is available a few rows are useful. Sweet potatoes do better on soils that have not received any appreciable amounts of manure or fertilizer. Sweet potatoes are propagated from sprouts and cuttings, or slips, and not from seed. To obtain sprouts, prepare a small bed, during February and March, and place medium-sized sweet potatoes half an inch apart along the bottom. Cover with one or two inches of light soil, and water. Eight potatoes will supply sample sprouts, 5 to 6

inches tall, to transplant in May. The plants are not all ready at once, and only those that have formed good roots should be removed, the others being left until later. In removing the plants, the seed potato is held down with one hand, while the plants are removed with the thumb and finger of the other hand. After removing the plants that are ready, water the bed to settle the soil where it has become disturbed.

Cuttings 12 to 15 inches long may be taken from established plantings from June through to August and planted directly in the garden. When planting out, do so directly after a heavy rain. Small potatoes may be planted in the garden from March to May. The soil to receive the sweet potatoes should be prepared in advance. Mould the soil along the row to form a ridge 12 inches high. The distance between the ridges should be 24 inches. Just prior to planting, knock the peaks off the ridges to form a narrow flat area along the ridge. The plants are then inserted in the ridges at 12-inch spacing. Some growers prefer to grow sweet potatoes on level ground, but this method makes it more difficult to harvest the potatoes. Sweet potatoes should be ready to harvest after 140 to 150 days. Dig around a few plants; if most of the potatoes are 2 to 4 inches in diameter, they are ready to harvest. Twenty feet of row should supply approximately 20 pounds of potatoes.

### Swiss Chard

*Beta vulgaris*

A useful vegetable for providing greens. Sow seeds in the seed-bed from September to April and transplant in rows 18 inches apart and space the plants 12 inches apart in the row. Harvesting can begin any time after the plants develop 4 or 5 leaves. The outer, full-grown leaves are cut 1 to 2 inches from the ground leaving the young inner leaves to develop. Several cuttings can be made from the same plant. Ten feet of row is sufficient for each planting. Popular varieties are Fordhook Giant and Rhubarb chard.

### Tomato

*Lycopersicon esculentum*

Tomatoes are the most popular crop grown in the vegetable garden. They will grow in a variety of soils but do best in well manured, deep soil. Tomatoes may be planted the year around. Seeds are sown in the seed-bed for transplanting into the garden. It is preferable to arrange the plants in groups of 4 for ease of staking. Stakes may be of any suitable material of at least 6 feet in length. If wooden stakes are desired, allspice sticks an inch in diameter are best. If metal is preferred, reinforcing rods of at least 1/2-inch diameter are satisfactory. Set plants in two rows, allowing 2 feet between rows and 2 feet between plants in the row. Approximately 10 days after setting out plants, apply a supplementary application of fertilizer. When the plants are 1 foot tall, mould the soil about the plants and insert the stakes. One end of the stake should be pushed into the soil near the base of the plant and at a slight angle so that when 4 stakes have been inserted near each group of 4 plants, the tops of the stakes come together. The 4 tops are then tied together. Using heavy string, loosely tie the stem, just above the ground level, to the stake. As the plant grows, make additional ties to the stake, and also pinch out any new side branches.



Frequently, grower's experience poor fruit set. This may be attributed to a number of factors. Heavy applications of nitrogen, very cold weather, unusually hot weather, low soil moisture, and excessive shading may cause poor fruit set. Tomatoes are harvested when the fruit starts to turn red and are held at room temperature until fully ripe. To retard ripening, place tomatoes in the refrigerator. There is a wide selection of varieties from which to choose. Standard varieties that have proven useful locally are Bonny Best, Break O'Day, Valiant, Indian River, Tropic and Manapal as well as many hybrid varieties. Twelve plants are sufficient to set out at one time.

### Turnip

*Brassica rapa*

Turnips are similar to rutabaga in both appearance and use. Turnips have hairy leaves while rutabaga have smooth leaves. The roots of turnip are smaller and mature earlier than those of rutabaga. Turnips are sown directly in the garden and not transplanted. Sow seeds from September to April in rows 18 inches apart and thin plants to 4 inches. Turnips are harvested as soon as they reach an edible size. Sow 10 feet of row for each planting. Popular varieties are Purple Top, White Globe and Just Right.

**Vegetable Marrow** — see Squash

### Watermelon

Watermelon is a popular summer fruit. Seeds are planted in hills, 8 feet apart from March to April. Sow 8 to 10 seeds per hill and thin to 3 plants after the first true leaves have appeared. Melons are harvested when they have reached full size and the colour of the melon at that point of contact with the ground is creamy yellow. When tapped, a ripe melon should have a muffled sound, if unripe a metallic ring is heard. Plant 2 hills for the average family. Popular varieties are Florida Giant, Sugar Baby, Congo and Klondike Striped-Blue Ribbon.

## PEST AND DISEASE CONTROL

Vegetables are subjected to a number of pests and diseases which the grower should learn to recognize and treat. Brief descriptions of a few of the more serious pests and diseases are given here and suggestions for control will be found in Table 6.

### Cutworms

These pests are caterpillars which live in the soil and attack young plants at soil level during the night. They chew through plants at the base and cause them to topple over and die (Fig. 3). This pest can usually be found by digging in the soil within a few inches of the affected plant. Unfortunately, by this time the damage is done. Steps should have been taken to avoid the damage. Two procedures are effective in combating this pest. The first is to make a solution of 1 tablespoon of Dipterex s.p.95 to 1 gallon of water and apply as a drench with the watering can. This procedure is limited to small areas. The second procedure involves the use of a bait. The bait is mixed as follows:—

Bran	1 pound
Dipterex s.p.95	1 tablespoon
Sugar	4 tablespoons

Mix the ingredients thoroughly then add sufficient water so that the bait is moist but crumbly. This quantity of bait is sufficient to treat 400 square feet. Apply the bait thinly in the later afternoon and repeat at weekly intervals.

### **Slugs and Snails**

Two commercial products, Mesuroi and Snarol, are effective against slugs and snails. They should be used according to the manufacturer's directions.

### **Leaf Miners**

These are small insect larva which feed between leaf surfaces and are most evident by the white trails left as they move through the leaf. They are effectively controlled by Diazinon 50% wettable powder at the rate of 1 tablespoon per gallon of water. Do not use this pesticide within ten days of harvest.

### **Leaf Chewing Insects**

Various caterpillars cause damage to plants by chewing, including fireworms, hornworms, corn earworms, and cabbage loopers. Dipterox at the rate of 1½ tablespoons or Diazinon 50% wettable powder at the rate of 1 tablespoon per gallon of water may be used for effective control of these pests, but must not be used within 10 days of harvest. Sevin 80% s.p. at the rate of 2 tablespoons per gallon of water may be used until harvest.

### **Aphids, Leafhoppers, Plant bugs**

These insects may all be classed as piercing and sucking insects. Aphids are very small insects of various colours including green and black, and are usually found on the most tender parts of the plant. Leafhoppers are small insects, light green to brown in colour and rapidly move from one plant to another. Their feeding causes a burning effect on foliage. Plant bugs, including the common orange and black harlequin bug, found on members of the cabbage family, are larger than leafhoppers and are shield-shaped. To control these sucking insects, use a spray containing 2 teaspoons of malathion 57% e.c. per gallon of water and make every effort to spray on the undersides of leaves. Sevin 80% s.p. at 2 tablespoons per gallon gives excellent control of harlequin bugs.

### **Thrips**

Thrips are small, narrow insects which rasp the foliage of plants leaving silver, bronze or purple blotches from feeding injury. Diazinon 50% w.p. at 1 tablespoon per gallon of water gives effective control of thrips.

### **Mites**

Mites are microscopic creatures, related more closely to spiders than to insects, that feed primarily on the undersides of leaves. As a result of their feeding, yellow spots may be produced and plants may be stunted and discoloured. To control these pests, a malathion spray is effective but Kelthane 18% e.c. at the rate of 1 teaspoon per gallon of water, is preferred.

## **Damping-off**

Damping-off is the rapid rotting of seeds or seedlings before they emerge from the ground, or the rapid rotting of the base of seedlings causing them to fall over. Damping-off is most common in the seed-bed or seed flat. Over watering and the application of nitrogenous fertilizer increase the incidence of damping-off. The disease may be avoided by treating seeds or by treating the soil. Small quantities of seed may be treated by placing a pinch of seed protectant, such as Semasan, Arasan or Captan, in the seed packet and shaking vigorously to cover all seeds. Small lots of soil can be sterilized by placing them in the kitchen oven. Heat the soil for one hour at 160° F. To treat larger amounts of soil or parts of the garden, use commercial formaldehyde. Use 1 pint of formaldehyde to 6 gallons of water. The diluted mixture is then used at the rate of 2 quarts per square foot. Having treated the soil, cover with wet sacks, tarpaulin or polyethylene for 24 hours. A period of 10 days must elapse before planting.

## **Powdery Mildew**

Powdery mildew is recognized by the powdery white covering over aerial portions of the plant. Distortion and death of the plant follows. On most plants, powdery mildew can be controlled with weekly applications of sulphur dust or by using wettable sulphur as a spray. On plants such as cucumbers, melons, and squash, sulphur may cause a burning. The fungicide Karathane, is recommended to control mildew on these plants.

## **Rust**

Rust is first noticed as yellowish spots on the upper surface of leaves. On the undersides will be found pustules of yellowish brown spores. Dithane M-45 gives some control but sulphur as used for powdery mildew is more effective.

## **Leaf Spots**

Spots appear as discoloured, circular or angular lesions on the foliage, fruit and stems. Spots are sometimes characterized by target-like zonations of various colours. Spots caused by bacterial organisms cannot be effectively controlled by chemicals, but those that are caused by fungal organisms are controlled by regular applications of Dithane M-45.

## **Blight**

Blight is the sudden death and browning of foliage. Blights produced by fungi may be controlled with weekly applications of Dithane M-45.

## **Lettuce Drop and Sclerotinia Rot**

These two diseases are caused by the same organism. On lettuce, the disease is characterized by a soft rot at the base of the leaves. With carrots, a rot becomes established on the crown. A white, cottony growth can usually be found in which large black, seed-like sclerotia are imbedded. This disease is difficult to control. Pull out and burn infected plants. Carrots planted too thickly should be thinned. The formaldehyde treatment suggested for damping-off will rid the soil of this organism.

## **Virus Diseases**

Viruses usually do not kill plants outright but produce a slow degeneration. Virus diseases, depending on the virus, appear as yellows, e.g. carrots show a marked yellowing of the young central leaves, while the outer older leaves are usually reddish or purple; mosaic, a pattering of light and dark coloration on leaves, e.g. tomatoes exhibit a mottling with raised dark green areas and some distortion of young leaves; distortion, abnormal growth pattern, e.g. tomatoes exhibit a "shoestring" effect, the leaves fail to develop normally and become thin and stringy; and rolling and curling of leaves, e.g. potatoes exhibit a leaf curl. Virus, once in the plant cannot be checked. Virus-infected plants should be pulled out and burnt. To prevent virus from spreading, control aphids and leafhoppers as these insects often serve as vectors of viruses; keep the garden area free of weeds and keep garden tools clean. Persons who smoke should thoroughly wash their hands before pinching or tying tomatoes to avoid spread of tobacco mosaic virus.

## **Rootknot Nematodes**

The rootknot nematode affects most vegetables found in the garden. Plants infested with this nematode are unthrifty and production is reduced. The nematode attacks the roots causing galls and abnormal root development. Plants infested with rootknot often wilt on bright days when ample soil moisture is present. Measures to control the rootknot nematode are best employed in late summer when the garden is fallow. There are four products suitable for nematode control, Nemagon, Fumazone, Dowfume and D-D. Using a hoe, make furrows in the garden 6 to 8 inches deep, with 12 inches between furrows. A quart jar with two nail holes in the lid can be used to pour the chemical into the furrow. The holes should be on opposite sides, one to pour from, the other to equalize the pressure in the jar. To treat a 100 foot of furrow, use 2½ tablespoons of either Nemagon or Fumazone in 1 quart of water; 4½ tablespoons of Dowfume in 1 quart kerosine, or 16 tablespoons of D-D in 1 quart of kerosine. Slowly pour the mixture in the furrows and then immediately cover (Fig. 4). Sprinkling the soil surface lightly with water assists in sealing the surface and improves the effectiveness of the chemical.

## **Sowbugs and Millipedes**

These small animals feed on manure and other organic materials in the soil. They are not ordinarily plant pests but they may occasionally feed upon seedlings or tender roots. Malathion, Dipterox or Diazinon will control them.

## **Proper use of Pesticides**

Many of the chemicals mentioned in this bulletin are poisonous and may be harmful if improperly used. The user should carefully follow the precautions on the labels of the containers.

The measures expressed in the preceding pages refer to level teaspoons or tablespoons, not heaping spoons.

Pesticides are formulated in several different ways. The following abbreviations are used to indicate these formulations: w.p.=wetable powder



**Fig. 3. Cutworm and typical injury.**



**Fig. 4. Treating soil for nematode control.**

— a dry formulation which readily mixes and remains suspended in water; s.p. = soluble powder — a dry formulation which dissolves in water; dust — a dry formulation to be used as sold and which must not be mixed with water; e.c. = emulsifiable concentrate — a liquid formulation which is miscible with water.

The use of trade names in this publication is solely for the purpose of providing specific information. It is not a guarantee or warranty of the products named and does not signify that they are approved to the exclusion of others of suitable composition.

## VEGETABLE STORAGE

It often happens that more produce is grown than is needed for immediate use. The question of storage should then be considered. Storing vegetables increases the value of the garden. Vegetable storage can be divided into three categories: air temperature (cellar or basement), refrigeration or freezing. Select only healthy vegetables for storage.

### Air Temperature Storage

If using air temperature storage, select a dark room and screen it from rats and mice, and in the case of potatoes it must be screened from insects, particularly the tuber moth. The room should be well ventilated to prevent excessive dampness which causes decay. In the table below are vegetables that may be stored at air temperature and the approximate length of storage period.

Table 1. Air Temperature Storage

Vegetable	Storage Period
Onions and Garlic	3 - 4 months
Potatoes	3 - 4 months
Pumpkin and Winter Squash	4 months
Rutabaga	2 months
Sweet Potatoes	2 months

### Refrigeration

The refrigerator is useful for storing vegetables for short periods. Most refrigerators have a temperature setting of 40 to 45°F. The lower the temperature the longer the storage period possible. The use of sealed containers e.g. plastic-ware, for keeping vegetables in the refrigerator will increase storage life. In the table below are vegetables that may be stored in the refrigerator and the approximate length of the storage period.

**Table 2. Refrigerated Storage**

<b>Vegetable</b>	<b>Storage Period</b>	<b>Vegetable</b>	<b>Storage Period</b>
Artichoke	2 weeks	Kohlrabi	2 weeks
Beans	10 days	Leeks	3 weeks
Beets, topped	3 weeks	Lettuce	2 weeks
Broccoli	5 days	Mustard Greens	10 days
Brussels Sprouts	3 weeks	Okra	2 weeks
Cabbage	6 to 7 weeks	Parsley	5 days
Cantaloupe	10 days	Parsnip	3 weeks
Carrots, topped	3 weeks	Peas	1 week
Cauliflower	10 days	Pepper	1 week
Celery	3 weeks	Radish	2 weeks
Collard	5 days	Spinach	10 days
Corn	5 days	Squash, summer	2 weeks
Cucumber	10 days	Strawberry	5 days
Eggplant	10 days	Swiss Chard	10 days
Endive	10 days	Tomato — green	4 weeks
Kale	2 weeks	Turnips	2 weeks
		Watermelon	2 weeks

**Freezing**

Frozen vegetables may be stored up to one year. To prepare vegetables for freezing, clean and cut as for eating or cooking. Have on hand freezer bags, freezer wrappings or plastic containers in which to place the vegetables. All vegetables must be blanched before freezing. For blanching, use a large pot, with lid, that will hold at least a gallon of water and up to two gallons for very leafy vegetables. Bring the water to a boil. Place the vegetable in a colander or cheese cloth bag and immerse in the boiling water. Place the lid on the pot and immediately start counting the blanching time. Follow exactly the blanching times given below, then remove the vegetable and place under running cold water. As soon as the vegetable is cool, drain all water and pack in freezer bags, label and place in freezer. Do not allow to stand at room temperature.

**Table 3. Freezer Storage**

<b>Vegetable</b>	<b>Blanching Time</b>	<b>Cooking Time before Serving</b>
Beans, cut	3 minutes	5-7 minutes
Beets	cook until tender	reheat
Broccoli	4 minutes	3-5 minutes
Brussels Sprouts	4 minutes	4-6 minutes
Carrots, cut	3 minutes	4-6 minutes
Cassava, grated	none, pack dry	prepare and bake
Cauliflower	3 minutes	4-6 minutes
Collard	2 minutes	3-4 minutes
Corn, on cob	9 minutes	3-5 minutes
Eggplant, sliced	4 minutes	
Kale	2 minutes	3-4 minutes
Kohlrabi, diced	1 minute	
Mustard Greens	3 minutes	3-4 minutes

**Table 3. Freezer Storage (Cont'd.)**

<b>Vegetable</b>	<b>Blanching Time</b>	<b>Cooking Time before Serving</b>
Peas	2 minutes	3-5 minutes
Pepper	none, pack dry	stuff and bake
Pumpkin, diced	cook until tender	reheat
Rutabaga, diced	1 minute	
Spinach	2 minutes	3-4 minutes
Squash, summer, sliced	3½ minutes	
Squash, winter, sliced	cook until tender	reheat
Swiss Chard	2 minutes	3-4 minutes
Turnip, sliced	1 minute	

**Table 4. Planting Guide**

<b>Vegetable</b>	<b>Time to Plant</b>	<b>Transplant</b>	<b>Distance</b>	
			<b>Between Rows</b>	<b>In Rows</b>
Artichoke	October to November	Yes	4 feet	3 feet
Beans, broad	November to February	No	18 inches	9 ins.
Beans, bush	All year	No	24 inches	3 ins.
Beans, pole	August to June	No	18 inches	18 ins.
Beans, runner	October to November	No	18 inches	18 ins.
Beet	October to April	No	15 inches	3 ins.
Broccoli	August to April	Yes	24 inches	24 ins.
Brussels Sprouts	August to January	Yes	24 inches	24 ins.
Cabbage	August to April	Yes	24 inches	18 ins.
Cabbage Chinese	October to February	Yes	18 inches	12 ins.
Cantaloupe	March to April	No	5 feet	5 feet
Carrot	July to April	No	18 inches	2 ins.
Cassava	January to March	No	6 feet	3 feet
Cauliflower	September to April	Yes	24 inches	18 ins.
Celery	September to February	Yes	12 inches	8 ins.
Chives	October to December	Yes	12 inches	4 ins.
Christophine	January to April	No	6 feet	6 feet
Collard	March to April	Yes	18 inches	6 ins.
Corn	February to April	No	3 feet	12 ins.
Cress	October to February	No	—	—
Cucumber	February to June	No	5 feet	5 feet
Eggplant	September to October			
	March to April	Yes	3 feet	3 feet
Endive	September to April	Yes	18 inches	10 ins.
Garlic	September to October	No	12 inches	4 ins.
Kale	August to April	Yes	18 inches	15 ins.
Kohlrabi	August to April	Yes	12 inches	6 ins.
Leek	August to March	Yes	12 inches	4 ins.
Lettuce	October to March	Yes	12 inches	12 ins.



**Table 4. Planting Guide (Cont'd.)**

Vegetable	Time to Plant	Transplant	Distance	
			Between Rows	In Rows
Mustard Greens	August to March	Yes	18 inches	12 ins.
Okra	March to May	No	3 feet	18 ins.
Onion	October to November	Yes	12 inches	4 ins.
Parsley	September to November	Yes	18 inches	6 ins.
Parsnip	September to October	No	4 inches	3 ins.
Pea	November to March	No	2 feet	1½ ins.
Pepper	March to April			
	August to October	Yes	2 feet	18 ins.
Potato	September to March	No	2 feet	9 ins.
Pumpkin	February to May	No	10 feet	10 feet
Radish	August to May	No	12 inches	1 in.
Rutabaga	August to April	Yes	18 inches	6 ins.
Spinach	October to November	No	12 inches	3 ins.
Spinach, N.Z.	October to April	No	2 feet	12 ins.
Squash	April to June	No	4-8 feet	4-8 feet
Strawberry	October to December	No	10 inches	10 ins.
Sweet Potato	February to May	Either	2 feet	12 ins.
Swiss Chard	September to April	Yes	18 inches	12 ins.
Tomato	All Year	Yes	2 feet	2 feet
Turnip	September to April	No	18 inches	4 ins.
Watermelon	March to April	No	8 feet	8 feet

**Table 5. Production Guide**

**Amount to Plant, Production, Germination and Time to Harvest**

Vegetable	Length of row per planting for average family	Estimated Production	Amount of Seed	Days to Germinate	Weeks to Maturity
Artichoke	12 ft. ( 4 plants)	32 buds	¼ pkt.	7 - 21	26 - 35
Beans:					
broad	25 ft.	20 lbs.	2 ozs.	4 - 14	17 - 24
bush	25 ft.	11 lbs.	1 oz.	5 - 8	6 - 9
pole	25 ft.	16 lbs.	1 oz.	5 - 8	8 - 11
runner	25 ft.	16 lbs.	2 ozs.	5 - 9	8 - 12
Beet	15 ft.	15 lbs.	½ pkt.	3 - 14	7 - 12
Broccoli	20 ft. (10 plants)	8 lbs.	½ pkt.	3 - 10	10 - 21
Brussels					
Sprouts	20 ft. (10 plants)	4 lbs.	¼ pkt.	3 - 10	12 - 21
Cabbage	8 ft. ( 6 plants)	6 heads	½ pkt.	3 - 10	9 - 17
Chinese	12 ft. (12 plants)	12 heads	¼ pkt.	3 - 7	9 - 11
Cantaloupe	15 ft. ( 3 hills)	12 fruits	½ pkt.	4 - 10	13 - 15

Table 5. Production Guide (Cont'd.)

Vegetable	Length of row per planting for average family	Estimated Production	Amount of Seed	Days to Germinate	Weeks to Maturity
Carrots	20 ft.	20 lbs.	$\frac{1}{2}$ pkt.	6-21	10-15
Cassava	9 ft. ( 3 plants)	8 lbs.	3 cuttings	—	2 years
Cauliflower	14 ft. ( 9 plants)	9 heads	$\frac{1}{4}$ pkt.	3-10	12-14
Celery	4 ft. ( 6 plants)	6 stalks	$\frac{1}{4}$ pkt.	10-21	17-22
Chives	5 ft. (15 plants)	15 bunch.	$\frac{1}{4}$ pkt.	6-14	11-15
Christophine	12 ft. ( 2 plants)	12 fruit	2 fruit	—	12-16
Collard	10 ft. (12 plants)	8 lbs.	$\frac{1}{2}$ pkt.	3-10	10-14
Corn	30 ft.	50 ears	1 oz.	4- 7	10-14
Cress	4 square feet	4 bunch.	$\frac{1}{2}$ pkt.	4-14	7-10
Cucumber	10 ft. ( 2 hills)	6 lbs.	$\frac{1}{2}$ pkt.	3- 7	10-14
Eggplant	9 ft. ( 3 plants)	15 fruit	$\frac{1}{2}$ pkt.	7-14	10-14
Endive	5 ft. ( 6 plants)	6 heads	$\frac{1}{4}$ pkt.	5-14	12-14
Garlic	4 ft.	12 bulbs	12 cloves	—	22-29
Kale	13 ft. (10 plants)	10 heads	$\frac{1}{4}$ pkt.	3-10	9-14
Kohlrabi	6 ft. (12 plants)	12 stems	$\frac{1}{4}$ pkt.	3-10	6- 9
Leek	15 ft. (45 plants)	45 stems	$\frac{1}{2}$ pkt.	6-14	14-21
Lettuce	15 ft. (15 plants)	15 heads	$\frac{1}{4}$ pkt.	7	9-12
Mustard Greens	10 ft. (10 plants)	5 lbs.	$\frac{1}{4}$ pkt.	3- 7	6- 9
Okra	10 ft.	10 lbs.	$\frac{2}{3}$ pkt.	4-14	7- 9
Onion	30 ft. (120 plants)	25 lbs.	1 pkt.	6-10	21-29
Parsley	2 ft. ( 4 plants)	6 bunch.	$\frac{1}{8}$ pkt.	11-28	12-14
Parsnip	10 ft.	10 lbs.	$\frac{1}{2}$ pkt.	6-28	13-21
Pea	25 ft.	7 lbs.	$\frac{1}{4}$ lb.	5- 8	10-14
Pepper	10 ft. ( 6 plants)	6 lbs.	$\frac{1}{4}$ pkt.	6-14	14-19
Potato	50 ft.	50 lbs.	5 lbs.	10-18	12-17
Pumpkin	20 ft. ( 2 hills)	20 lbs.	$\frac{1}{2}$ oz.	4- 7	15-17
Radish	5 ft.	3 lbs.	$\frac{1}{8}$ pkt.	4- 6	3- 6
Rutabaga	10 ft. (20 plants)	10 lbs.	$\frac{1}{4}$ pkt.	3-14	14-17
Spinach	30 ft.	15 lbs.	$\frac{1}{2}$ oz.	7-21	9-10
Spinach N.Z.	30 ft.	10 lbs.	1 pkt.	5-28	10-12
Squash:					
summer	8 ft. ( 2 hills)	12 fruit	$\frac{1}{2}$ pkt.	4- 7	7-11
winter	32 ft. ( 4 hills)	10 fruit	1 pkt.	4- 7	12-14
Strawberry	15 ft. of bed	20 qts.	100 plants	—	10-12
Sweet Pots.	20 ft.	20 lbs.	8 potatoes	—	17-21
Swiss Chard	10 ft. (10 plants)	9 lbs.	$\frac{1}{8}$ pkt.	3-14	9-13
Tomato	24 ft. (12 plants)	50 lbs.	$\frac{1}{8}$ pkt.	5-14	13-17
Turnip	10 ft.	10 lbs.	$\frac{1}{4}$ pkt.	3- 7	7-11
Watermelon	16 ft. ( 2 hills)	4 melons	$\frac{1}{2}$ pkt.	4-14	12-14

**Table 6. Plant Protection Guide**

Vegetable	Disease or Pest	Pesticide	Rate/Gal.	Mn. Days to Harvest
Artichoke, Globe	Aphids	Malathion 57% e.c.	2 tsps.	5
	Leaf Miners	Diazinon 50% w.p.	1 tps.	10
Beans: Bush, Dwarf, French, Kidney Snap or String	Powdery Mildew	Sulphur, Dust	—	—
		Sulphur, Wettable	5 tbsps.	none
	Rust	As for powdery mildew	—	—
	Leaf Miners	Diazinon 50% w.p.	1 tbsp.	10
Beans, Pole Runner	See Beans, Bush			
	See Beans, Bush			
Beet	Cercospora Leaf Spot	Dithane M-45	1½ tbsps.	none
		Zineb	2 tbsps.	none
	Caterpillars	Dipterex 95% s.p.	1½ tbsps.	10
		Diazinon 50% w.p.	1 tbsp.	10
		Sevin 80% s.p.	2 tbsps.	3
Broccoli	Black Rot	No chemical control		
	Aphids	Malathion 57% e.c.	2 tsps.	7
	Cabbage worms & other caterpillars	Dipterex 95% s.p.	1½ tbsps.	10
		Diazinon 50% w.p.	1 tbsp.	10
	Harlequin bug	Malathion 57% e.c.	2 tsps.	7
	Leaf Miners	Diazinon 50% w.p.	1 tbsp.	10
Brussels Sprouts	See Broccoli			
Cabbage	See Broccoli			
Cabbage, Chinese	See Broccoli			
Cantaloupe	Powdery Mildew	Karathane	1 tsp.	7
	Aphids	Malathion 57% w.p.	2 tsps.	7
	Leaf Miners	Diazinon 50% w.p.	1 tbsp.	10
Carrots	Sclerotinia Rot	No chemical control; thin plants		
	Aphids	Malathion 57% e.c.	2 tsps.	5
Cauliflower	See Broccoli			
Collard	See Broccoli			
Corn	Corn earworm and other caterpillars	Sevin 80% s.p.	2 tbsps.	none
		Aphids and leafhoppers	Malathion 57% e.c.	2 tsps.
Cucumber	See Cantaloup			
Eggplant	Aphids	Malathion 57% e.c.	2 tsps.	5
	Leafroller, flea beetles and caterpillars	Sevin 80% s.p.	2 tbsps.	none
	Thrips	Malathion 57% e.c.	2 tsps.	5
	Spider mites	As for Thrips		

**Table 6. Plant Protection Guide (Cont'd.)**

Vegetable	Disease or Pest	Pesticide	Rate/Gal.	Min. Days to Harvest
Kale	See Broccoli			
Kohlrabi	See Broccoli			
Leek	Onion Thrip	Diazinon 50% w.p.	1 tbsp.	10
		Malathion 57% e.c.	2 tsps.	3
Lettuce	Drop	Sterilize soil or rotate plantings		
	Aster Yellow	Burn plants — control leafhoppers		
	Caterpillars	Sevin 80% s.p.	2 tbsps.	7
Muskmelon	See Canataloupe			
Mustard Greens	See Broccoli			
Onion	Thrips	Diazinon 57% w.p.	1 tbsp.	10
Pepper	See Potato			
Potato	Late Blight	Dithane M-45	1½ tbsps.	none
	Early Blight	as for late blight		
	Leafhopper	Malathion 57% e.c.	1 tsp.	none
	Aphids	as for leafhopper		
Pumpkin	Leaf Miners, Fireworms and other caterpillars	Diazinon 50% w.p.	1 tbsp.	14
	Powdery Mildew	Karathane	1 tsp.	7
Pumpkin	Aphids and Squash bugs	Malathion 57% e.c.	2 tsps.	3
	Melonworm and other caterpillars	Dipterex 95% s.p.	1 tbsp.	10
Radish	See Broccoli			
Rutabaga	See Broccoli			
Squash	See Pumpkin			
Strawberry	Leaf Spot Mites	Dithane M-45	1½ tbsps.	7
		Malathion 57% e.c.	2 tsps.	3
		Diazinon 50% w.p.	1 tbsp.	10
		Kelthane 18% e.c.	1 tsp.	2
Sweet Pots.	Caterpillars	Diazinon 50% w.p.	1 tbsp.	10
		Dipterex 95% s.p.	1½ tbsps.	10
	Flea beetle	Malathion 57% e.c.	2 tsps.	5
Swiss Chard	See Beet			
Tomato	See Potato			
Turnip	See Broccoli			