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# EC81-1240 Vegetable Gardening in Nebraska

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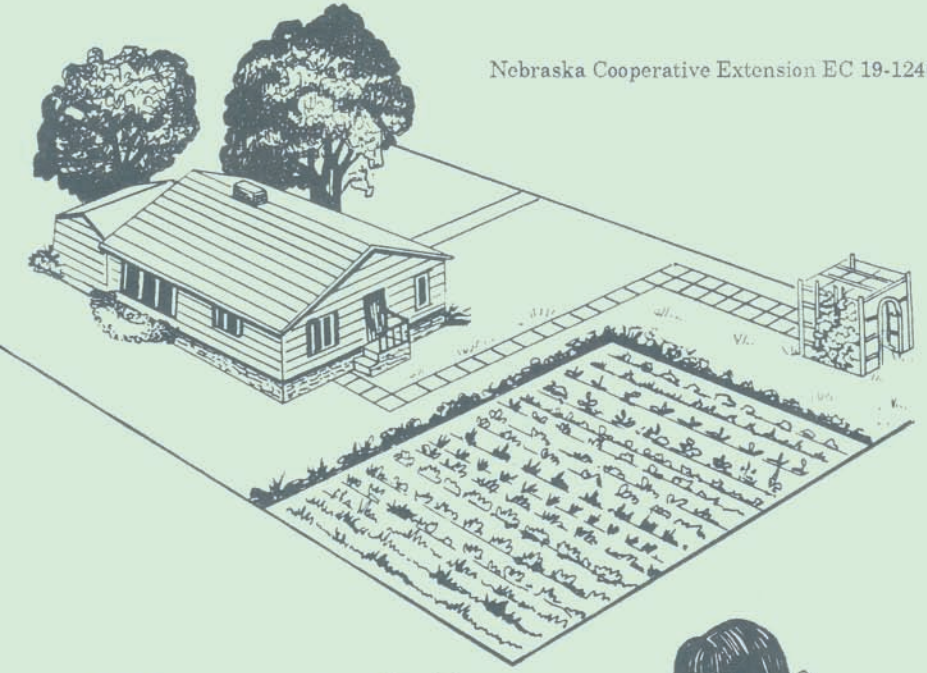

# Vegetable Gardening in Nebraska

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# Vegetable Gardening in Nebraska

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## Growing Vegetables as a Food Savings

Nebraskans are increasing their consumption of fresh vegetables — as appetizers, salads, side dishes, and snacks. Fresh vegetables are an integral part of a healthy, well-balanced diet. Although Nebraska's climate and soil are well-suited for many vegetables, most are supplied from out of the state, even during summer. Growing fresh vegetables can provide higher nutrition and flavor at less expense than buying fresh produce at the grocery store. A garden also can be a source of personal enjoyment and satisfaction.

## Growing Vegetables for Food Quality

Plant breeders are developing new cultivars (varieties) tailored to meet specific needs for cost reduction in large, mechanized vegetable producing operations.

High yield, insect and disease resistance, and suitability for mechanical harvesting and handling are emphasized. Science has developed new techniques enabling vegetables to be harvested immature for partial ripening during shipment or storage. Some characteristics such as thick skin and firm flesh are important to mechanical operations and long-distance shipping. This enables us to have a wide choice of wholesome off-season vegetables but, unfortunately, this supply continues when higher quality, fresh local production is possible. In your home garden, cultivars can be selected for flavor and eating quality rather than their ability to be mechanically harvested or shipped.

Breeders also have developed new hybrid cultivars for the home and local market vegetable grower with characteristics important to home gardeners. When properly grown and harvested, vegetables in the home garden can be higher quality, cost less, and be more convenient.

## Growing Vegetables as a Hobby

Besides supplying needed minerals and vitamins, vegetable gardening is gaining recognition for its contribution to good health and quality of life. It provides recreation for the retired adult, a tangible sense of accomplishment for the office worker, a rewarding diversion for the housewife and an interesting learning situation for children.

Many vegetables are recognized for their ornamental value as well as their use as food. For example, the "tropical-looking" foliage, large yellow blossoms, beautiful colors, and interesting shapes of squash and pumpkin fruit are all attractive. Most squash and pumpkin cultivars require considerable space but new bush types fit well into urban landscapes. The seed is large and germinates quickly, and the growth rate of the fruit is phenomenal. Squash and pumpkins require minimum care and are among the easiest vegetables for beginners or children to grow.

Container-grown dwarf cultivars of tomatoes, peppers or eggplants are interesting, attractive, and good to eat. Colorful strawberry popcorn, variegated flint corn, gourds and okra pods are among vegetables providing fall and winter home decoration.

There are vegetables and a garden size for everyone. This bulletin makes suggestions and provides information to make home vegetable gardening a beneficial, interesting and enjoyable endeavor for all Nebraskans.

# Selecting a Garden Site

## Urban and Rural Gardens

Vegetable garden success largely depends on the location and space available. The rural gardener may have nearly optimum conditions for many different crops. Because of limited space and conditions, the urban gardener may be able to grow only the small leafy vegetables that will tolerate shade.

Limited space need not be a deterrent. With good management, many vegetables may be produced in a small garden space or even in containers with synthetic soil mixes. The following factors should be considered when selecting a garden site.

1. **Sunlight.** Sunlight is essential for growth, proper plant development, and good quality. Full sunlight is most desirable. Fruit and seed bearing vegetables require at least five hours of direct sunlight. Leafy green vegetables will tolerate more shade.

2. **Soil.** A deep, well-drained, loose, fertile soil on a level to gently sloping site is best. Very sandy soils are dry and low in fertility. Heavy clay soils tend to be poorly drained, difficult to prepare, and tend to crust after rain or irrigation. Some soils may be compacted or have had the topsoil altered or removed due to building construction. As later discussed, poor soil conditions may be improved by adding fertilizer and organic matter and through proper management.

3. **Convenience.** A garden should be close enough to the home so it can receive daily attention. It should have access to water needed in transplanting, irrigating, and spraying.

4. **Trees and Shrubs.** When planted too close to the garden, trees and shrubs can shade the vegetable plants. Their roots also compete for nutrients and water. Walnut trees produce a toxin harmful to tomatoes.

5. **Wind Protection.** Wind protection is beneficial, particularly in rural areas. Locate the garden east of buildings, trees, shrubs or other windbreaks if possible. Snow fence, sunflowers, corn and other temporary plant windbreaks can be used to protect garden crops.

## Planning the Garden

After selecting the site, the next important step in developing a successful vegetable garden is making a plan on paper. Beginners' enthusiasm and enticing spring catalog pictures may result in a garden so large or so poorly arranged and planted that it becomes a burden and fails. The size of a garden, the kind and quantity of vegetables desired, their arrangement and time of planting should be considered, changed and drawn before you begin planting. Extension Circular EC89-1242, *Selected Vegetable Varieties for Nebraska*, may be helpful in selecting cultivars.

Garden size depends on the space available, the kind and amount of vegetables desired and the time you wish to spend for planting and proper care. A single hill of certain vine crops will require as much space as 10 tomato plants. The length of row providing enough ears of sweet corn for one person will produce enough radishes, lettuce, onions, beets, carrots or sweet peppers for three or four people.

The average number of feet of row, planting space, square feet and amount of seed to supply fresh vegetables for one person are shown in *Table I*. Seeding depth also is shown. The required garden size for a family may be calculated by multiplying feet of row and square feet per person by number in the family and totaling the

appropriate column. Amounts should be increased if canning or freezing is planned.

It is efficient to group vegetables in the garden according to growing season and growth characteristics. Plant perennials such as asparagus, rhubarb, and berries on one side of the garden where they will not be disturbed or interfere with annual soil preparation. Plant short-season, early-planted vegetables such as radishes, green onions, spinach, lettuce, peas, early cabbage and beans next to perennials. After harvesting, this area may be prepared for later plantings.

Tomatoes, peppers, sweet corn and other warm season crops require a longer time to mature and should be grouped together. If possible, avoid shading other plants with corn by planting it immediately north of lower growing crops. Where space is limited, plant small, quick-growing vegetables (radishes, green onions, etc.) between the rows where tomatoes and vine crops will later spread.

## Plant for Succession Harvest

Don't plant too much at once to avoid wasted space, seed, time and vegetables. This is particularly important where space is limited. Beginners tend to overplant quick-growing crops and those that bear good quality produce over short periods of time. Plant cultivars of different maturities at the same time, the same cultivar at different times, or a combination of both to extend the harvest season. Succession cropping also involves planting a warm-season crop after a quick growing cool-season crop or planting crops harvested in the fall, such as turnips or spinach, after other crops are harvested in late spring or summer.

The seed of early- and late-maturing root crops can be mixed and planted together. *Table II* shows different cultivar maturity dates and crop combinations providing for succession harvest.

Radish seed germinates and matures roots earlier than onions, beets, carrots or parsnips. This can help locate the rows of crops with smaller and finer seedlings. This aids in early cultivation and simplifies proper spacing when radishes are harvested ahead of the growing bulbs and roots of other crops. Vegetables or cultivars of different maturity (or crops of different growth characteristics) may be planted in separate sections of the same row *(Figure 1)*.

**Table I. Guide to space and seed requirements for a family vegetable garden.**

| Vegetable | *Row of feet per person* | *Minimum of square feet per person* | *Seed or plants per 100 feet* | *Spacing* | | *Planting depth (inches)* |
|---|---|---|---|---|---|---|
| | | | | *of row (feet)*[b] | *in row (inches)* | |
| Asparagus | 20 | 60 | 50-75 roots | 3-4 | 18 | 3-6 |
| Beans, lima | 15 | 23 | 1 lb. | 1½-3 | 3 | 1 |
| Beans, green or wax | 15 | 24 | 1 lb. | 1½-3 | 3 | 1 |
| Beans, pole | 15 | 45 | 1 lb. | 3-4 | 48 | 1 |
| Beets | 10 | 15 | 2 oz. | 1½-3 | 3 | ½ |
| Broccoli | 12 | 24 | 1 packet or 8 plant | 2-4 | 18 | ½ |
| Cabbage | 10 | 20 | 1 packet or 5 plant | 2-3½ | 24 | ½ |
| Carrots | 10 | 15 | ½ oz. | 1½-3 | 3 | ¼ |
| Cauliflower | 10 | 20 | 1 packet or 5 plant | 2-4 | 24 | ½ |
| Chard | 10 | 20 | 2 oz. | 2-3 | 3 | ½ |
| Chinese Cabbage | 10 | 15 | ½ oz. | 1½-3 | 10 | ½ |
| Cucumbers | 20 | 60 | 1 packet | 3-6 | 36 | ½ |
| Eggplant | 10 | 20 | 1 packet or 3 plant | 2-4 | 24 | ¼ |
| Kohlrabi | 10 | 20 | ½ oz or 5 plant | 2-4 | 18 | ½ |
| Lettuce, leaf | 6 | 9 | ¾ oz. | 1½-2 | 2 | ¼ |
| Lettuce, head | 6 | 9 | ¾ oz. | 1½-2 | 10 | ¼ |
| Muskmelon | 20 | 100 | 1 packet | 5-8 | 60-84 | ½ |
| Onion seed | 30 | 45 | 1 oz. | 1½-3 | 3 | ¼ |

**Table I. (Continued)**

| Vegetable | *Row of feet per person* | *Minimum of square feet per person* | *Seed or plants per 100 feet* | *Spacing of row (feet)*[b] | *Spacing in row (inches)* | *Planting depth (inches)* |
|---|---|---|---|---|---|---|
| Onions, sets or plants | 15 | 24 | 1 lb. | 1½-3 | 3 | 2-3 |
| Okra | 10 | 20 | ½ oz. | 2-4 | 12 | 1 |
| Parsnips | 10 | 15 | ½ oz. | 1½-3 | 3 | ½ |
| Peas | 10 | 20 | ¾ oz. | 2-3 | 1 | 1 |
| Peppers | 10 | 20 | 1 packet or 3 plants | 2-4 | 18 | ¼ |
| Potatoes | 70 | 175 | 10 lb. | 2½-3½ | 12 | 4 |
| Pumkin | 5 | 30 | 1 oz. | 6-10 | 60 | ½ |
| Radishes | 10 | 10 | 1 oz. | 1-1½ | 1 | ½ |
| Rhubarb | 8 | 24 | 2 roots | 3-7 | 36 | 6-8 |
| Squash, summer | 5 | 15 | 1 packet | 3-4 | 36 | 1 |
| Squash, winter | 10 | 70 | 1 packet | 7-10 | 60 | 1 |
| Spinach | 10 | 10 | 1 oz. | 1-3 | | ½ |
| Sweet corn | 20 | 50 | ¼ lb. | 2½-3½ | 12 | ½ |
| Sweet potatoes | 20 | 60 | 100 plants | 3-4 | 12 | |
| Tomatoes | 10 | 30 | 1 packet or 3 plants | 3-6 | 24 | ¼ |
| Turnips | 10 | 20 | 1 packet | 1-3 | 4 | ½ |
| Watermelon | 10 | 70 | 1 oz. | 6-10 | 60 | ½ |

[a]When seed is a single packet will usually produce enough plants for family needs.

[b]Where space is not limited and machine-powered equipment is used, row spacing may be different.

## Soil

Soil must provide proper amounts of water and nutrients. Shortages or excessive amounts of either will limit or retard plant growth and development, resulting in poor quality, reduced yield, or crop failure. Good physical condition is also important. Soils in good physical condition are free from crusting and clods and are easy to work. They are well aerated and porous enough to absorb water readily, yet retentive enough to hold it.

## Fertilizer

Poor nutrient status can be corrected with fertilizer. It is wise to have soil tested before adding fertilizer. Soil test results and fertilizer recommendations can be obtained for a nominal cost by sending a soil sample, payment and your address to:

Soil Testing Laboratory
138 Keim Hall
University of Nebraska-Lincoln
Lincoln, Nebraska 68583

Your local Extension agent can supply sample boxes, sampling directions, and help you interpret soil test results, if necessary. To prepare a composite sample, gather about one cup of soil from six to eight well-scattered areas of the garden. The sample should be mixed well, air dried at room temperature and placed in a clean, sturdy container for mailing.

Fertilizer may be spread over the garden ahead of plowing or spading or applied in strips and worked into the soil to a depth of about 3-4 inches where rows will be planted. Generally the best time to do this is just prior to planting. Either the spring or fall garden. NebGuide G90-945 *A Gardener's Guide for Soil and Nutrient Management in Growing Vegetables* provides useful information on fertilization rates.

Well-rotted cattle manure applied at a rate of 100 to 400 pounds per 1,000 square feet is a good organic fertilizer and may be used if available. Poultry and sheep manure are higher in nutrients so they should be applied at one-half the above rate.

**Figure 1. Example plan for home garden.**

| *Row No. and width* | |
|---|---|
| 1 — 4' | Rhubarb Aspa |
| 2 — 1½' | Leaf Lettuce Sp |
| 3 — 1' | |
| 4 — 2' | Peas |
| 5 — 2' | Early cabbage |
| 6 — 3' | |
| 7 — 3' | |
| 8 — 2' | Beets Planted with Radishes |
| 9 — 2' | Parsnips |
| 10 — 2' | Snap Beans |
| 11 — 5' | |
| 12 — 4' | Peppers |
| 13 — 3' | |
| 14 — 3' | Early Sweet Corn |
| 15 — 3' | Early Sweet Corn |
| 16 — 4' | Cucumbers |
| 17 — 5' | |
| 18 — 7' | |
| 19 — 7' | Winter Squash |
| 20 — 6' | |

70'

70′

paragus — Horseradish — Berries

Spinach — Radishes Followed by Late Snap Beans

Onion Sets and Seed for Green and Dry Onions

— Followed by Fall Cabbage

Broccoli — Cauliflower

Early Potatoes

Early Potatoes

s — Carrots Planted with Radishes

Swiss Chard — Snap Beans

Lima Beans

Tomatoes

Eggplants — Okra

Sweet Potatoes

Main Season Sweet Corn

Main Season Sweet Corn

Summer Squash

Muskmelon

Watermelon

Pumpkin

Border for Cut Flowers

**Table II. Vegetable cultivar planting date or crop combinations.**

A. Crops with cultivars having a wide range in days to maturity. Seed of different cultivars planted at the same time will provide succession harvest.

| | Maturity range in days | |
|---|---|---|
| | Early cultivar | Late cultivar |
| Radish | 22 | 40 |
| Beets | 50 | 80 |
| Snap beans | 56 | 72 |
| Peas | 60 | 78 |
| Carrot | 60 | 80 |
| Cabbage | 62 | 115 |
| Sweet corn | 64 | 100 |
| Winter squash | 80 | 120 |
| Potato | 90 | 120 |

B. Vegetables remaining in peak quality for only relatively short periods of time. Planting should be four to seven days apart if only one cultivar is used.

| | |
|---|---|
| Radishes | Carrots |
| Lettuce (leaf) | Snap beans |
| Cabbage (early) | Kohlrabi |
| Summer squash | Sweet corn |
| Peas | |

C. Vegetable combinations that may be planted in succession with one crop planted after the other is harvested.

Radishes, leaf lettuce, green onions or spinach followed by snap beans, late cabbage, cucumbers, sweet corn or summer squash.

Peas, snap beans or early potatoes followed by beets, carrots, broccoli, cauliflower, late cabbage, kohlrabi, head lettuce[a], spinach[a], turnips[a].

[a]Planted late summer.

## Organic Matter

Organic matter is important in improving physical condition and maintaining the soil in good tilth. Animal manure, green manure, and compost are all good sources of organic matter. Peat and sphagnum moss are also good but the cost for the quantities needed to be effective may be prohibitive except for very small garden plots. It is best to apply animal manure in the fall or winter or before soil preparations in the early spring.

Green manure refers to cover crops (alfalfa, rye, oats or sudan grass) planted after vegetables are harvested. They are turned under to decompose and add organic matter before planting vegetables. Green manure crops are particularly beneficial on sandy soils. They minimize wind erosion and catch moisture from snow in the winter besides adding organic matter. Alfalfa and other legumes will add nitrogen to the soil, but turning under rye, oats or sudan grass will aid decomposition and prevent nitrogen deficiency in succeeding vegetable crops.

## Compost

Manure, leaves, spoiled hay, wet straw and grass clippings make good compost. A compost pile is made from layers of these materials alternated with soil and fertilizer. Fertilizer hastens decomposition and improves compost fertility. The layer of soil over the waste holds it in place. A slight depression should be made on top to intercept rainfall and water to keep the compost pile moist. The pile should be mixed two to three times each season and watered if necessary to keep from drying out. It will be sufficiently decomposed for use in six to eight months. Nebguide G86-810 *Garden Compost* provides more detailed instructions.

## Soil Preparation in the Home Garden

Garden plowing or spading may be done in spring or fall. Where water or wind erosion is not serious and cover crops are not used, freezing and thawing of fall-plowed land improves the physical condition and destroys harmful soil insects. Such gardens can be worked and planted earlier in the spring. Working wet soil destroys its physical condition. Before plowing the garden, squeeze a handful of soil to see if it is too wet. It should crumble and not be sticky.

Disk and harrow or rake the soil before planting so that the surface is fine and smooth for good germination. This is particularly

important with small-seeded vegetables. Heavy textured soils low in organic matter are an exception. These soils have poor physical conditions and tend to crust badly if worked too fine.

### Potting Mixture for Container-Grown Vegetables

The potting mixture for container-grown vegetables in patio or miniature gardens should be high in organic matter. This allows the soil to absorb and hold large amounts of fertilizer and water for release later. Incorporate enough perlite or vermiculite to facilitate rapid movement of water through the mixture. A special soil mixture may be purchased from garden supply centers or may be prepared at home.

A soil mixture should contain equal parts of (1) soil, (2) organic matter (leaf mold, peat, or well-rotted manure), and (3) sand, perlite, or vermiculite. To each bushel of this mixture add and mix thoroughly 1/4 cup of superphosphate and 1/2 cup of 5-10-5 fertilizer (1/4 cup if 10-20-5 or 10-20-0 is used).

A synthetic soil also can be prepared with equal parts of horticultural vermiculite and shredded peat moss plus limestone and fertilizer. To 1 bushel each of vermiculite and peat add 1 pint of ground limestone, 1/2 cup of superphosphate and 1 cup of 5-10-5 fertilizer. This material should be mixed thoroughly before it is placed in containers. Synthetic soil is free of weed seeds and disease organisms and weighs less than soil mixtures making it more convenient for potted plants. Potted plants should receive one level teaspoon of 5-10-5 fertilizer watered into the mixture when plants have developed two sets of leaves and at three week intervals after that.

## Planting

### Time to Plant

Vegetable species differ in climatic requirement and in response to seasonal changes in climate. Cool-season crops such as onions and cabbage will tolerate temperatures several degrees below freezing while cucumbers, tomatoes and other warm-season crops are injured at 32°F. Eggplant and watermelon do well in hot, dry periods that result in crop failure for spinach, head lettuce or peas.

Each crop must be planted so growth and development correspond closely to the season most favorable for yield and quality. The proper time for planting varies across the state. Extension circular 86-1244, *Vegetable Production in Nebraska,* may be used to determine planting dates in your area.

## Seeding and Transplanting

To keep the garden neat and to simplify later maintenance and harvesting, make rows straight and parallel by using a string between stakes at each end of the garden. Mark rows with the end of a hoe, providing a shallow furrow for small-seeded crops or the edge of a hoe for deeper furrows for large-seeded crops.

Correct spacing and planting depth for different crops are given in *Table I*. Lightly firm the soil covering the seed with the flat of the hoe, the foot, or the hand. Thin plants to the desired spacing before they get too large. Avoid injuring roots of remaining plants by cutting off the excess plants with a hoe or knife, not by pulling them out. Crops such as tomatoes, peppers, eggplants, cabbage, broccoli, and sweet potatoes are usually placed in the garden as transplants.

Transplanted cucumber, cantaloupe, and watermelon started indoors in peat pellets or peat pots three to four weeks before the normal field seeding date will provide earlier harvest. Handle plants carefully and avoid disturbing the soil around the roots. Transplant in late afternoon or evening or on a cloudy day if possible. The hole should be slightly larger and deeper than the container or soil line where the plants grew previously. Use one cup of water for each plant and then finish covering the roots with soil and firm the soil around the roots.

It may be necessary to protect young, tender plants from light frost, cold or wind. Special paper and plastic plant protectors can be purchased from garden centers or may be improvised at home using boxes, glass jars, cans, or shingles. They should not remain on too long and should be opened up for ventilation or removed during the day when weather is warm. During hot weather, protectors may be used to provide shade.

# Care of the Garden

## Irrigation

Timely irrigation is essential for growing vegetables in the western two thirds of Nebraska and is important for successful gardens in the remainder of the state. The amount and frequency of irrigation needed depends on the amount of rainfall received, type of soil, kind and age of crop, and time of year. Sandy soils hold less moisture and require more frequent irrigation than heavier soils.

Shallow-rooted crops such as onions, lettuce, radishes, cabbage, and sweet corn require more frequent irrigation than deeper rooted

crops such as asparagus, tomatoes, watermelon, sweet potatoes, and squash. Beans, beets, carrots, cucumbers, and peppers have moderately deep root systems.

When planting in dry soil, particularly small-seeded vegetables during hot weather, irrigate frequently but lightly for good seed germination. Sweet corn, beans, cucumbers, tomatoes and other fruiting or seed-bearing vegetables have greatest need for water slightly before and during blossoming. Moisture shortage at this time will result in poor yield and fruit quality because of blossom drop, misshaped fruit, or poorly filled ears. Irrigation will be necessary during hot, dry periods in late June, July and August.

When using sprinkler irrigation, measure the depth of water added in the garden. To discourage plant diseases from developing use a sprinkler irrigator before late afternoon so foilage can dry before evening. Reduce water application when puddles begin to form and stop watering when two inches have been applied. When furrows are used, apply water for a sufficient time to thoroughly wet the soil at the distant end of the row. Except in the seedling stage, deep less frequent irrigations are more beneficial than frequent light applications.

## Weed Control

Weeds are often the gardeners worst enemy. Weeds not only compete vegetables for water, nutrients and sunlight, they also harbor insects and disease and are unsightly. Good seed-bed preparation is the first step in preventing weed problems. Weeds are easiest to kill when they are small so destroy seedlings when land is prepared for planting.

Hoeing or cultivating are the preferred methods to control weeds in home gardens that contain a mixture of vegetables. Work the soil shallow so as not to damage crop roots. Pull weeds within the row and near the plant by hand. No single herbicide is yet available for safely controlling weeds in the variety of vegetables and ornamental species planted in home gardens. Because of the possible damage from drift and residual effect of certain chemicals in the soil to later crops, use caution when using herbicides in the home garden.

## Mulches

Mulches conserve water, keep fruit clean, aid in soil temperature control, and help prevent weeds. Tomatoes, asparagus, peppers, beans, potatoes, cucumbers, melons and squash are some crops that

benefit fron such mulch. Organic matters such as straw, hay, and grass clippings work best in the home garden. Paper, plastic and aluminum foil are commercially available and make excellent mulch.

Loose, organic materials may be applied three to four inches deep around the plant and between the rows after the first cultivation. Organic mulches will help improve and maintain the soil physical condition when plowed down.

Paper, plastic or aluminum foil mulches should be applied to the prepared seed-bed before planting or transplanting. Anchor edges of this material by covering with soil in small furrows at each side of this roll. Make furrows before the material is rolled out. Cut small holes at proper distances for transporting or hill dropping seed of melons, beans, corn or cucumbers.

## Insect and Disease Control

The following are important practices helplful in preventing and controlling crop damage from insects and disease.

1. **Plant disease-resistant cultivars.** Disease resistance is being developed in many new vegetable cultivars. Look for comments regarding disease resistances in cultivar descriptions in seed catalogs or on seed packets. Letters following new cultivar numbers or names indicate specific disease resistances. For example SMR asociated with cucumber varieties indicates Scab Mosaic Resistance. The VF in tomato cultivar names indicates resistance to Verticillium and Fusarium fungus diseases.

2. **Use disease-free plants and seed.** Seed or plants from carefully grown and inspected seed-production fields often carry a certification showing apparent freedom from disease. Seed may be treated with hot water or chemicals to eliminate and/or protect young seedlings from insect or disease. Use certified and treated seed whenever it is available.

3. **Control weeds.** Weeds may harbor insects or diseases and be a potential source of infection.

4. **Practice crop rotation.** Rotate crops from one area of the garden to another from year to year. Remove and destroy (do not compost) any plants or roots that are diseased.

5. **Water early in the day.** Do not sprinkler irrigate in late afternoon or evening. Stay away from plants, especially beans, when foilage is wet. Mulching helps prevent soil splashing on the lower leaves of plants.

6. **Do not crowd plants.** Plant at proper distance to allow air circulation.

7. **Follow a timely schedule of spraying or dusting.** Severe damage is best avoided by preventing infestations. Control of many diseases and certain insects is possible only if materials are applied before the pest enters the tissue. Bacterial wilt of cucumbers, melons, and other vine crops can be prevented by controlling the spotted and striped cucumber beetles that carry and transmit the disease.

## Resources

Recommendations for controlling insects and diseases on specific vegetables are found in:

*Insect Management Guide for Garden Vegetables,* Extension Circular 89-1553

*Insect Recommendations for Garden Vegetables,* Extension Circular 89-1552.

*Quick Guide to the Chemical Control of Diseases of Home Garden Vegetables,* Extension Circular 81-1865.

These publications are made available through your local Cooperative Extension agent or from the Department of Agricultural Communications, 108 Ag. Comm Bldg., University of Nebraska, Lincoln, Nebraska 68583.