

Flower Gardening

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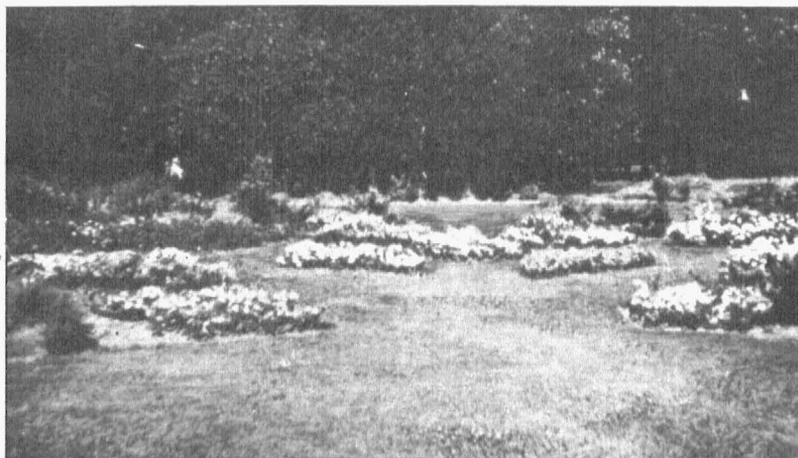


Figure 1.—Beds of petunias in the formal floriculture trial garden of the University of Missouri College of Agriculture.

Flowers should have a place in and around every home at all times, especially when they may be grown in your own yard. The growing of flowers in a garden differs widely from that of vegetables and fruit as to purpose, satisfaction, and achievement. The purpose of vegetables and fruit is food—flowers have aesthetic value. The satisfaction of vegetables and fruits is their palatability—flowers rest the mind and lend enjoyment through the senses of smell or sight, or both. The achievement desired in vegetable and fruit growing is a highly nutritive product which necessitates careful attention to plant food elements in the soil. With flowers, you are sure to have success, although sometimes variable, on any soil and on any location providing you choose the kinds of flower best suited for such situations.

Soils for Flowers

A thorough spading of the soil is sufficient preparation for many flowers, while addition of various fertilizers and humus is more necessary for others. Top soil which will support grass and other plant growth will grow flowers, but if subsoil from a basement excavation is scattered over the area of the flower bed it should be removed and good topsoil substituted. If flowers do not grow properly, the gardener first considers lack of plant food as the cause of failure. Failure may be more often due to improper drainage, poor soil aeration, improper watering, varieties not suitable to the location, root competition from nearby trees and shrubs, disease or insect injury to the roots, or planting at a time not suitable for best growth.

If fertilizing materials such as rotted manure and leaf mold are available they may be used with benefit. Rotted manure to be most effective should be supplemented with superphosphate or bone meal. Leaf mold or other compost may be supplemented with superphosphate and muriate or sulfate of potash as a substitute for manure. For best results all fertilizers should be applied to the bed and turned into and mixed with the soil as it is spaded in preparation for planting. See Table 1.

TABLE 1.—FERTILIZER APPLICATIONS

Kind	Mixed with the soil			As a Top Dressing For Growing Plants
	100 sq. ft. of bed surface	100 lineal ft. of row	1 bushel of soil	
Rotted Manure	2-inch deep layer	2-inch deep layer	$\frac{1}{4}$ bushel	1-inch deep layer
Leafmold	2-inch deep layer	2-inch deep layer	$\frac{1}{4}$ bushel	1-inch deep layer
Bone Meal	5 to 8 lbs.	4 to 6 lbs.	$\frac{3}{4}$ lb.	2 lbs. per 100 sq. ft.
Superphosphate	5 to 8 lbs.	4 to 6 lbs.	$\frac{3}{4}$ lb.	2 lbs. per 100 sq. ft.
Muriate of Sulfate of Potash	1 to 2 lbs.	1 to 2 lbs.	2 ozs.	$\frac{1}{2}$ lb. per 100 sq. ft.
Ammonium Sulfate	1 lb.	1 lb.	1 oz.	$\frac{3}{4}$ to 1 lb. per 100 sq. ft.
Nitrate of Soda	1 lb.	1 lb.	1 oz.	$\frac{3}{4}$ to 1 lb. per 100 sq. ft.
Ammonium Nitrate	$\frac{1}{2}$ lb.	$\frac{1}{2}$ lb.	$\frac{1}{2}$ oz.	$\frac{1}{2}$ lb. per 100 sq. ft.

Root competition from surrounding trees and shrubs should be discouraged by frequently inserting a sharp-shooter spade to its full depth along the edge of the flower bed adjoining such competitors. If this precaution is not taken, ample plant food should be applied to nourish both shrubs or trees and flowers.

Seed Sowing

Some flower seeds are not inexpensive, therefore it is wise to make conditions right for perfect germination of all the seed

purchased. Buy what can be used, allowing for about 60% germination as a maximum. Seeds should be given a mellow seed bed, ample moisture and not too deep a covering. Covering outdoors should not exceed four times the shortest diameter of the seed. Added protection in the form of burlap or cloth shade, or lath lattice may be necessary for some perennials and biennials started in May to August for the following year's bloom. Most annuals are sown directly where they are to bloom, either broadcast in the flower border, or in rows in the vegetable garden. When seed is sown broadcast, fine soil should be sifted over the seed as a light covering. Seed sown in rows is lightly covered by raking fine soil onto it. All seed planting should be followed by light tamping to bring the moist soil in close contact with the seed.

Seed of perennials is sown in a cold frame in May or August where the seedlings may be protected until they are large enough to be transplanted. Many of the more common perennials are more easily propagated by division of old plants, or cuttings taken early in the spring shortly after growth starts.

Selection of Kinds and Varieties.—There is a kind and variety of flower for every purpose and every location. Therefore in selecting flowers for your garden consult your garden first to find out what conditions prevail. Is it shady, semi-shady, or will the flowers have full sunlight? Is the soil rich or poor, moist or dry? Should the flowers be tall, medium, or dwarf? Would red, pink, yellow, blue, purple, or white colors be best? And is the planting to be permanent or temporary?

The accompanying Table 2 lists and gives the growing conditions most favorable for several kinds of flowers that are sure to be successful in Missouri. Such a list cannot, for obvious reasons, include all varieties available. Standard varieties are to be recommended in preference to the so-called "new varieties" or "novelties."

Ten Best Flowers For the Garden.—For the beginner who wants to deal with a minimum number of kinds that will give the maximum benefits and satisfaction, the following list is presented for any Missouri locality:

Iris—several thousand species and varieties.

Peony—many varieties and types.

Daylily—*Hemerocallis* or Lemon Lily.

Hollyhock—can't be killed even in an ash heap.

Petunia—colorful all summer. (Continued on page 7)

TABLE 2.—FLOWERS FOR A MISSOURI GARDEN

Kind of Flower	Season of Bloom	Color Range*	Type of Plant	Culture†	Height	Use	Remarks
Ageratum	All summer	B,R,W	Tender Annual	III March	8"	Edging	Tall variety for cut flowers.
Babysbreath (Gypsophila)	June, July	P,W	Perennial	II May or Aug.	18"-24"	Border	Good cut flower.
Balsam (Impatiens)	All summer	R,O,P,W	Half-Hardy Annual	I May	12"-18"	Border	Tolerate poor soil.
Blanketflower (Gaillardia)	All summer	Y,R,YR	Perennial	IV Spring	18"	Border	Cut flower. Well drained.
Bugloss (Anchusa)	May, June	B	Perennial	II May	24"-30"	Border	Like a giant forget-me-not.
Butterflyweed (Asclepias)	June, July	Y,O	Perennial	II May	15"-18"	Border	Dry sunny location. Well drained.
Calliopsis (Coreopsis)	All summer	Y,R	Hardy Annual	II April I May	18"	Cut flower	Tolerate poor soil.
Camomile (Anthemis)	June	Y	Perennial	IV Spring II May	24"	Border	Prefers dry sandy soil
Cardinal Climber (Ipomoea)	All summer	R	Annual Vine	I May	15'	Vine	Fern-like foliage.
Castor Bean (Ricinus)	Aug., Sept.	R, Br	Half-Hardy Annual	I May III March in pots	4'-8'	Screen; Shrub substitute; tropical effects.	
Chinese Forget-me-not (Cynoglossum)	June, Sept.	B	Hardy Annual	I April	15"	Border	Cut flower. Endure shade.
Chrysanthemum Garden	Fall	V,P,W,Br,Y	Perennial	IV Spring	24"-30"	Border Cut flower	Select early, hardy, varieties.
Columbine (Aquilegia)	May, June	W,R,B,V,Y	Perennial	II May	12"-30"	Border	Endures partial shade.
Coreopsis	June	Y	Perennial	IV Spring II May	30"	Border	Cut-flower. well drained situation. Sandy soil.
Cosmos	July, Sept.	R,P,W,O	Hardy Annual	I May	24"-60"	Border	Background; cut flower.

Day Lily (Hemerocallis)	May, July	Y,O	Perennial	IV Spring	36"	Border	Poor soil.
Feverfew (Matricaria)	June	W,Y	Perennial	IV Spring II May	24"	Border	Cut flower.
Gladiolus	See Remarks	R,Y,W,V	Tender Bulbous	V April to July	18"-36"	Cut flower	Successive bi-weekly plantings, April to July.
Hardy Aster (Aster)	June-Fall	V,P,W	Perennial	IV Spring II May	12"-36"	Border	Cut flowers. Well-drained location.
Hollyhock (Althea)	June, July	R,P,Y,W	Biennial	I April	4'-8'	Border	Background.
Iris	May, June	R,V,B,Y,W	Perennial	IV July	8"-48"	Border	Well-drained location.
Kansas Gayfeather (Liatris)	July	V,W	Perennial	II May	36"-60"	Border	Background Well-drained location.
Larkspur (Delphinium)	May, June	V,B,P,R,W	Hardy Annual	I Nov. or March	24"-36"	Border	Cut flowers
Lily, Regal	June, July	W	Hardy Bulb	V Aug. or Sept.	48"	Border	Plant 8" deep.
Lily, Tiger	July, Aug.	O	Hardy Bulb	V Sept	36"	Border	Plant 6"-8" deep.
Lily-of-the-valley (Convallaria)	May	W	Perennial	IV Fall	8"-12"	Edging	Shady location.
Marigold (Tagetes)	All summer	Y,R,O	Half-Hardy Annual	I May	12"-36"	Edging or Border	Dwarf French for edging. Tall African for cut flower.
Mist Flower (Eupatorium)	Sept.	B,W	Perennial	IV Spring	24"	Border	Cut flower.
Morning Glory (Convolvulus)	All summer	R,P,W,B	Hardy Annual Vine	I May	10' up	Vine	Tolerate poor and dry soil.
Moss Pink (Phlox)	April	P,R,V,W	Perennial	II May IV Spring	4"	Edging	Rock gardens.

*Color Range—Symbols refer to the following: R=red, including magenta; P=pink; Y=yellow; O=orange; B=blue; V=violet and purple; W=white; Br=bronze.

†Culture refers to the following practices at the time of year designated in the Culture column: I=sow seed in the row, bed, or border where the plants are to mature. Thin out so as to produce well-branched plants; II=sow seed in outdoor seed bed or cold frame to be transplanted; III=sow indoors for extra early start; IV=propagate by division, cuttings, or other vegetative means; V=plant bulbs.

TABLE 2 (CONTINUED).—FLOWERS FOR A MISSOURI GARDEN

Kind of Flower	Season of Bloom	Color Range*	Type of Plant	Culture†	Height	Use	Remarks
Narcissus	April, May	Y,W, Bicolor	Hardy Bulb	V Oct. Nov.	12"-18"	Border Naturalizing	Includes daffodil, jonquil, and poets narcissus.
Ox-eye Daisy (Chrysanthemum)	May, June	W	Perennial	IV Spring	24"	Border	Cut flowers.
Painted Daisy (Fyrethrum)	May, June	R,P,W	Perennial	II May	24"-30"	Border	Cut flowers.
Peony (Paeonia)	May	R,P,W,Y	Perennial	IV Aug. or Sept.	30"-36"	Border or Accent	Cut flowers.
Petunia	All summer	W,P,R,V,Y	Hardy Annual	I, II, or III Spring	12"-18"	Border or Edging	Porch boxes, bedding. Tolerate poor soil.
Poppy, Oriental (Papaver)	May, June	R,P,W	Perennial	I May or Oct. IV July	24"-36"	Border Accent	Foliage dies down after flowers.
Portulaca	All summer	R,Y,O	Hardy Annual	I April	4"-6"	Border Edging	Hot, dry, sunny lo- cation.
Sweet Pea (Lathyrus)	June, July	R,W,B,P,V and O	Hardy Annual	I Nov. or Feb.	6'-8'	Vine	Cut flowers. Fragrant.
Sweet Pea (Lathyrus)	June, July	P,W	Perennial	IV Spring II May	6'-8'	Vine	
Tulip (Tulipa)	April, May	R,W,V,O,Y and Br	Hardy Bulb	V Nov.	12"-36"	Border	Early Single, Dar- win, Breeder, Cottage in order of successive bloom.
Woolflower (Celosia)	Late summer	R,Y	Tender Annual	I April	12"-48"	Border or edging	Some good cut flow- ers.
Yucca	June	W	Perennial	IV Spring I May	4'-6'		Use as accent. Dry sandy soil.
Zinnia	June-Fall	R,Y,W,V P, and O	Half-Hardy Annual	I April	12"-36"	Border and Cut flower	Pumila, Lilliput, and Dahlia, Flowered types best. Tolerate dry soil.

*Color Range—Symbols refer to the following: R=red, including magenta; P=pink; Y=yellow; O=orange; B=blue; V=violet and purple; W=white; Br=bronze.

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Ten Best Flowers For the Garden. (Continued)

Gladiolus—excellent for cut flowers.

Zinnia—many types, sizes, and varieties.

Marigold—choose the odorless varieties or strains.

Cosmos—an old favorite.

Chrysanthemum—choose the earlier-flowering hardy types to close the flowering season before frost.

Where to Plant.—Flowers have a place in every portion of the home grounds, providing they are wisely selected and properly located. Flowers in the front yard should be around the borders only, never as a bed in the middle of the yard. The plants chosen for these locations may be semi-formal in appearance and preferably of long-season blooming habits, used to supplement or accent the shrub and foundation plantings. Most of the flowers should be located in the out-door living room where they may be enjoyed as they grow naturally. The simplest arrangement, and most satisfactory, is a flower border using tall varieties for background, short ones for edging, and medium heights predominant between. A flower garden may be a one-color garden, an annual garden, a perennial border, a rock garden, a water garden, an old-fashioned



Figure 2.—The outdoor living room provides ideal accommodations for entertainment.

garden, a fragrant garden, or other combinations of the gardener's choice.

Another place to plant flowers is in the vegetable garden. Here should be planted the taller varieties to be used for cut flowers. Flowers planted in the vegetable garden will produce finer blooms and with less care than in the flower garden. Certain of the fast growing annuals or vines may be used to screen objectionable sights or serve as boundaries to the property as a whole or its several divisions.

Care of the Flower Garden

Planting.—Early planting of flowers in Missouri is very important. Seed of the hardy and half-hardy annuals may be sown out of doors as soon as the soil may be tilled in late winter or early spring. Transplanting of pansies, English daisies, etc., from the coldframe is best accomplished at this season of the year also.

Seed of the tender annuals is planted after the frost free date, when the soil is warm and mellow and conducive to rapid germination and growth. Seed is sown usually rather thickly and consequently the plants are quite close together. Better plants and flowers will be produced if all intermediate seedlings are removed so as to space the established plants 6 to 18 inches apart, depending upon the ultimate maximum growth (see Table 2). Many plants thus removed may be replanted in another area if so desired. A transplanted plant should be watered thoroughly and considered as sick for several days until it is established. In other words, constant attention is necessary. Water when necessary and shade during the hottest part of the day if required. A depression in the soil immediately surrounding the plant assists greatly in keeping the water where it will do the most good.

Cultivation.—Early cultivation should be practiced to eliminate the small weeds before they have a chance to compete with the flowers. Tools should be chosen which will save labor and energy, as the job should be completed in time for the gardener to rest and enjoy the "fruits of his labors." The tools which will do the most complete and thorough job of cultivating are the garden hoe, scuffle hoe, and four-tined weeder. All of these have long handles and thus eliminate excessive "back bending." Cultivation should be just deep enough to cut off the weeds and yet not injure the roots of the flowers. Attention to cultivation as soon as the soil is tillable after a rain or heavy watering will leave

the soil in good condition to absorb the next moisture falling upon it.

Care of Tools.—Much time and energy can be saved through care of the garden tools. Rusting can be prevented easily if the gardener will add a scrubbing brush, an old paint brush and a can of old crankcase oil to his list of necessary garden equipment. These should have their place along with the other garden tools in a protected place convenient to the garden. After the day's work with each tool (especially those which are bright like the hoe, weeder, scuffle hoe, spading fork, shovel, trowel etc.) brush off the excess soil with the scrubbing brush and apply a thin film of the crankcase oil with the paint brush. Even if a tool has become rusty, it will again become bright if cleaned and oiled each time it is used, but it should never have been allowed to get into this condition.

Another good precaution is to paint the handles of all tools white or yellow so that they can be easily seen at dusk and returned to their proper storage space. A tool left in the garden over night will rust and require additional work to polish it again.

Watering.—Thorough, infrequent, heavy waterings in which enough water is applied to thoroughly saturate the soil to a depth of six or eight inches should be the general practice. If a lawn sprinkler is used, place a deep can under the shower of the sprinkler to catch the water and thus determine how much water



Figure 3.—A colorful massed border of woolflower, petunias, and blue salvia.

is falling on the area being watered. When the can is filled 2 to 3 inches deep, sufficient water has been applied, providing there has been no run-off of the water from the surface.

A device which insures watering to the proper depth, but requires more of the gardener's time, is the subsurface irrigator. This is simply a pipe which may be attached to the end of the garden hose to insert in the soil and thus direct the water to the roots. The water is allowed to flow at each insertion until it rises to the surface. This method of watering is best adapted to spot watering of trees, shrubs, and flower beds, but not to watering the general lawn surface or other large area.

Feeding.—The fertilizer most needed by growing plants is nitrogen. Nitrogen in the form of nitrate of soda, ammonium sulfate, or ammonium nitrate should be broadcast on the soil surface around the plants with care not to allow the dry salt to fall on the foliage. (See Table 1 for quantities to apply.) After it is scattered it should be cultivated into the soil and watered immediately. This feeding may be repeated at three week intervals from June to August with rewarded success.

Summer Mulching.—A one- or two-inch layer of rotted grass clippings, leaf mold, rotten manure, or peat moss applied to the surface of the flower bed in June prevents excessive evaporation of moisture from the soil surface, adds organic matter, and reduces soil temperature to a minimum more conducive to good plant development.

Cutting Flowers and Pruning.—The cutting of flowers in the flower border or foundation planting should be limited to a pruning operation. The flowers only are removed to prevent their going to seed and thus encourage more flowers to develop. Here consideration is given to leaving the best part of the plant for producing additional flowers for mass effect in the garden.

The flowers in the vegetable garden were placed there to be cut for cut flowers. No attention need be paid to how the remaining plant will look only as it affects flowers that may be wanted later for cutting. Flowers should be cut early in the morning or late afternoon and placed in cool water for a few hours before arranging in bowls or vases. One should cut low enough to give a stem of fair length, but also exercise care to cut above a shoot bud (in the axil of every leaf) to insure more flowers later.

Flowers out-of-doors around the home should always be supplemented with one or two vases or bowls of cut flowers indoors. A living room is more enjoyable, food is more palatable, and the

house work is less drudgery if only a few flowers are present.

Insect and Disease Control.—Complete control of garden pests can be insured only by close adherence to the old adage “an ounce of prevention is worth a pound of cure.” Spray or dust early in the spring as soon as growth starts and maintain a regular schedule of applications every two weeks thereafter throughout the summer. Preparations for the control of pests purchased from a reliable company should give good control if properly applied. Proper application implies careful attention to dilutions and directions, timely application, good apparatus for spreading the material, and thorough coverage of insects present and of both upper and lower surfaces of leaves.

Insecticides and fungicides are equally effective in either dust or spray form if the correct materials are properly applied. A good dusting material for both insects and disease may be inexpensively prepared at home as follows: Mix thoroughly 9 parts dusting sulfur (not flowers of sulfur), 1 part arsenate of lead, and 1 part snuff or 10 per cent nicotine dust, and apply with a dusting gun.

If a sprayer is available a poisoned Bordeaux is most economical and effective. Dissolve 5 ounces ($\frac{1}{2}$ cupful) of fresh hydrated lime in $1\frac{1}{2}$ gallons of water; dissolve 3 ounces ($\frac{1}{3}$ cupful) powdered copper sulfate (bluestone) in $1\frac{1}{2}$ gallons of water, pour the two solutions together (makes 3 gallons) and add 1 ounce (5 tsp.) arsenate of lead and 3 tsp. Black Leaf 40 to the solution. This is ready for application. The foliage will become slightly discolored from the use of the spray, but it will still be healthy.

Saving Seed.—Conservation of seed is necessary when there is likely to be a scarcity. Saving of seed can have two meanings—saving excess seed purchased, and saving seed produced in the garden. Excess seed should be placed in a small bottle or vial—the more nearly the seed fills the container the better—and left in a cool place. If there is space in the refrigerator where the temperature is 45° to 55° F. the seed will keep best. Saving seed from the garden is not always satisfactory since colors rarely come true a second year. A pink zinnia and yellow marigold cannot cross and produce a “zinniagold,” but a pink zinnia crossed with a yellow zinnia will often produce colors other than the original pink the next year. For these and other typed varieties it is best to purchase fresh seed from the seed specialist each year.

Flowers like the regal lily, coral bells, and others which are true species will reproduce true to kind from their own seed.

Winter Care.—Winter care of the bed where annuals were grown consists simply of spading the area in the fall for the following spring. Late fall spading exposes many diseases and over-wintering insects to freezing. This is recommended as an aid to control of insects and diseases—not a panacea for all garden ills.

The care of the perennial border is a little more exacting. All refuse should be removed after a killing frost and the soil surface covered with a mulch to prevent heaving of the plants by freezing. A good mulch should not compress so tightly as to exclude air from the soil. Fresh leaves are the very worst kind of winter mulch. Rotted leaves are better, but straw, marsh hay, or ever-green boughs are best. Fresh manure should be used rather sparingly. The mulching material should be placed evenly over the soil surface except where there are plants such as Madonna lilies, foxgloves, etc., which retain green leaves throughout the winter. Plants of this type should have the mulch carefully distributed around the plant and under the leaves.

About the time crocus and snowdrops appear in the spring the mulch should be removed. At this time a light application of rotted manure and bone meal may be distributed over the bed surface and stirred into the top three or four inches of soil.

The Rose Garden

The popularity of the rose is universal. Therefore, a place should be found for one to one hundred or more bushes in every yard regardless of what other flowers may be grown. The care for one bush is the same as for five, ten, or one hundred except on a lesser scale.

Requirements.—Roses are not too particular as to soil. It may be sandy, loamy, or clayey if fertilizing elements are present in reasonable quantities. Of greater importance than soil are sunshine for at least one-half to three-fourths of the day, and freedom from root competition in the soil from nearby trees and shrubs. Also, the soil should be amply drained in winter or during period of excessive rainfall. An available supply of water during drought periods assures greater success.

Culture.—Two-year-old dormant rose bushes should be planted in late winter when the soil is not frozen. Even if the soil is wet, it can be puddled around the roots without the damage that a similar method might produce later in the season. Dormant

plants thus planted should be pruned, leaving only 6 or 8 inches of the strongest canes. To prevent unnecessary drying of these exposed canes, the surrounding soil should be mounded around the plant leaving about one inch exposed, or cover the entire cluster of canes with straw until growth starts. Removal of the protection when the buds begin to leaf is followed shortly by an application of complete fertilizer at the rate of two pounds per 100 square feet of bed area, or $\frac{1}{2}$ teacupful per plant. This fertilizer treatment should be repeated twice more, the second time at the height of the flowering season, and the third about August first.

Pest control is the biggest single operation in rose culture. Regular, frequent dusting or spraying is the only means of producing plants free from insect and disease damage. The materials as noted on page 10 will give control if applied as directed. If the sulfur dust is used, a word of precaution must be inserted for its use on roses. Never use it when summer temperature reaches 90° or more. At this time, substitute the bordeaux mixture as spray, or a copper-fungicide dust.

Watering during periods of drought should be accomplished by directing the water onto the soil rather than using a sprinkler that will wet the foliage. Lay the hose onto the rose bed and turn a gentle stream onto the soil for several hours at one time. This will thoroughly saturate the soil to the roots two feet or more down in the soil.

Pruning of roses should be considered as of two seasons—dormant and growing. The dormant pruning consists of removal in the early spring of branches which were winter-killed only. Weak and congested branches may also be removed, but severe cutting-back is not now recommended. The growing or summer pruning is an operation necessitated by the removal of flowers. Wherever a leaf, stem, or flower is removed, the operation is pruning, and pruning is a "dwarfing process". Therefore, the lesser removal of plant parts when cutting flowers, the greater will be the total growth, and usually healthier. Flowers for bouquets must be cut with stems long enough to be used to best advantage, but not cut excessively long. If the rose bushes are for show in the garden, only the open flowers with their short stem should be removed as the petals begin to fall.

Kinds and Varieties.—The list of rose varieties is legion. Any abridged list is deficient in some of the better sorts, so the reader is referred to the "American Rose Annual" for reports of the

newer varieties, or to neighboring gardeners who have had experience with roses.

In general, the Hybrid Perpetual class of roses are more hardy and resistant to disease than the Hybrid Teas, although not as refined in appearance. American Beauty is an example of the Hybrid Perpetual class, while Columbia is representative of the Hybrid Teas. Many less-known species and hybrids of these species with H. P. and H. T. varieties are also quite desirable. The Hybrid Rugosa and Hybrid Damascena varieties are quite free from common rose diseases.

For continuous bloom throughout the season, no class is better than the Polyantha or Baby Rambler. These are disease and insect susceptible, but are exceedingly floriferous.

There is always a trellis, fence, or wall on which a climbing rose should be trained. The main point of difference in their culture from that of the bush roses is occasioned by the fact that the flowers are borne biennially. In other words, the canes must be renewed each year to have the best flowers the next year. To do this, most of the older canes producing flowers are removed immediately after the flowering season by pruning close to the soil or above a vigorous vegetative shoot near the soil.

Planning the Flower Garden

Flower gardens may be more or less formal, or strictly informal depending solely upon the owner's desires. In a formal garden the formality is achieved by the geometric design of the flower beds, or the straight or curved rows of flower kinds in the flower border, or the mass arrangement of the kinds in definite patterns. Also it is necessary to have plantings balanced or duplicated on both sides of an imaginary center of the formal garden area. Architectural features, although not necessary, are sometimes helpful in achieving the desired formal effect.

The informal garden is designed as an irregular border containing irregular masses or drifts of the various kinds of flowers surrounding an open panel of lawn and backed-up by a shrub border or fence boundary.

If properly located the flower garden will be adjacent to the living room of the house, the sun porch, or outdoor terrace where the picture of the garden will add directly to the beauty of living in the home. If the garden area is large enough for several units, that nearest the house should be more formal in design to compliment the architectural form of the house, whereas those at greater distances can tend toward less formality.

A garden longer than wide (approximately one and one-half times the width) is of most pleasing shape, although a square, or long narrow area can be made equally interesting. The long dimension laid parallel to the most direct view from the house affords the best location for the most prominent feature of the garden at the middle of the opposite end from the house. This major feature may be a specimen planting of evergreens with an attractive foreground of flowers, a lily pool, a pergola, or an outdoor fireplace. Midway of the border on each side of the garden should be located other attractive features of lesser interest. The border plantings between these points of interest are then planted with flowers in support of them to unite the garden into a complete design.



Figure 4.—Color in late fall is particularly attractive from hardy chrysanthemums. These were volunteer seedlings from named varieties in another location the previous year.

The simplest garden to design and maintain is a one-plant garden, as for example: a rose garden; an iris garden; a zinnia garden; a petunia garden; etc. Equipment, garden practices, control measures, etc., can be standardized for efficient use of time and thus allow more time for enjoyment.

The next simplest to design is the one-color garden, wherein numerous kinds of plants with white, blue, pink, yellow, or other color are used for the one-color effect. To overcome any possi-

bility of monotony or dullness, a few plants with complementary or contrasting colors are appropriately introduced at strategic points to give life and interest.

The flower garden using many kinds and colors is the most complicated, yet most interesting because of the continual changing picture from one season to another. Attention to proper location according to height is most important so that naturally small plants are not hidden behind taller ones. Attention to color is desirable but not essential, for very few pastel colors of flowers actually clash. These can be easily neutralized in effect by introducing a plant with white flowers or gray-green foliage to separate the offenders.

Of paramount consideration in designing the flower garden should be emphasis on efficiency in care and maintenance. To a certain extent this includes size, too, but oftentimes a larger area can be maintained with fewer man-hours than the smaller because of power or more efficient equipment. Whatever the situation, the flower garden ought to be a place to enjoy leisure as well as recreational exercise, consequently some time should be surplus in which to relax and enjoy the "fruits of your labors".

Additional References

United States Department of Agriculture publications which follow are available from the Superintendent of Documents, Washington, D. C.:

Farmers' Bulletins:

- 750 Roses for the Home. 5 cents.
- 1087 Beautifying the Farmstead. 10 cents.
- 1171 Growing Annual Flowering Plants. 5 cents.
- 1306 Insect Enemies of Chrysanthemums. 5 cents.
- 1311 Chrysanthemums for the Home. 5 cents.
- 1370 Dahlias for the Home. 5 cents.
- 1381 Herbaceous Perennials. 10 cents.
- 1406 Garden Irises. 5 cents.
- 1827 Culture and Diseases of the Delphinium. 5 cents.
- 1860 Gladiolus Diseases and Insects. 5 cents.

Leaflet 90 Rockeries. 5 cents.

Department Circular 76 Directions for Collecting Flowering Plants and Ferns. 5 cents.