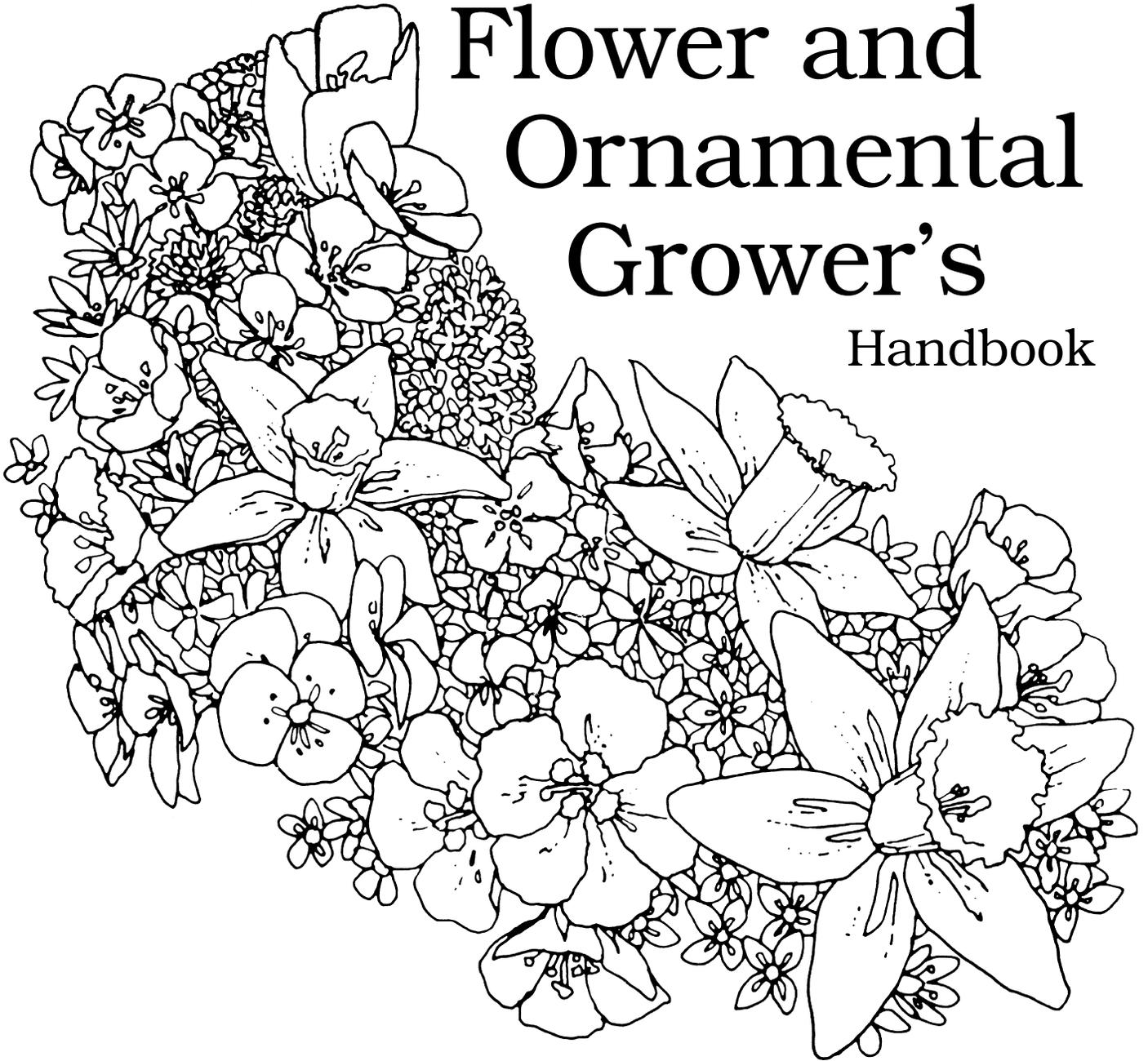




Oregon 4-H

Flower and Ornamental Grower's

Handbook



4-H 231

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Flower and Ornamental Grower's Handbook

People have been growing and enjoying flowers and foliage plants for as long as history has been recorded. Once people's needs were met for a place to live and food to eat, they began to grow and use plants for their beauty, fragrance, and shade, both indoors and out.

Over the years, people have studied flowering and foliage plants, so that today we have vigorous hybrid plants with specific flowers, colors, fragrance, and disease resistance.

Horticulture includes all growing plant materials and their uses. Each of the many thousands of plants has particular growing conditions, and you should know what these are in order to grow them successfully.

This handbook will help you become acquainted with the growing and use of plants in gardens and home yard landscaping. We also will discuss how to make cut flower arrangements that you, your friends, and family can enjoy.

To be able to work with the many kinds of plants, we group them by general characteristics: annual flowers, perennial flowers, vines, shrubs, and trees.

Annuals

Annual flowers live for only one growing season, or from spring until a hard frost kills them. These plants start out as a seed in the spring, grow into a plant that flowers and may set seed, and then die. Most long blooming, summer-flowering plants are annuals. Popular ones are petunias, marigolds, zinnias, calendulas, and snapdragons.

You may grow annual flowers in many areas in your yard, or in small groups along a walk. Many annuals can grow in porch boxes and moveable containers. You also may grow annuals among perennial flowers in plots for cutting, and in front of shrubs or fences. You can cut and use many annuals in flower arrangements.

Perennials

Flowers that return to bloom year after year, such as peonies, chrysanthemums, Shasta daisies, and spring-flowering bulbs, are perennials. The crowns and roots live for many years, but the tops die each winter. Also,

perennial flowers bloom for shorter periods than annuals.

When planning perennial gardens, choose plants with different blooming periods, such as spring, summer, or fall. You may group perennials in flower beds, flower borders along boundaries, or in front of fences, where many varieties are grown.

Spring-flowering bulbs are the earliest blooming material in the spring. These include tulips, hyacinths, daffodils, crocus, and squills. Lilies are a summer-flowering perennial bulb.

Lawns or turf

One of the earth's most common ground covers is grass. We use grass for lawns to stop soil erosion, to provide a foreground for our homes, to have a ground cover easy to play on, and to keep us cool.

To work with lawns, we must know the correct grass varieties to plant, how to control weeds, how to feed or fertilize lawns, and the correct time and height of mowing. You must learn the current planting and maintenance procedures of lawn areas, and how to operate a lawn mower safely.

Woody ornamentals

Vines, ground covers, shrubs, and trees that are used around buildings should have two functions:

- To serve a useful purpose
- To be enjoyable for the family

Every woody plant in a home yard must be chosen and placed so it does not become a problem. Each plant grows to a certain height. As you work with home grounds landscaping, place each plant so it will not overgrow its location in the next 10 years. We use ornamentals as shade trees, flowering trees, screens or barriers, hedges, flowering shrubs, plantings to tie down our home, or windbreaks.

Once woody plants are established in your home yard plantings, you will have to care for them by pruning, watering, and controlling insects. The more you learn about each plant, the easier it is to have a carefree home yard.

Requirements

There are no strict requirements for ornamental gardening work. At the beginning of the 4-H year, talk with your leader about what you wish to learn and what you plan to do. Write down your goals or what you want to accomplish. Many suggestions follow.

The 4-H plan is that you will become involved in new experiences as you work in your project area each year. Repetition is not good 4-H work, nor does it allow you to grow as a person.

As a Junior you will be doing simple demonstrations and learning about your area of interest (annual flowers, perennial flowers, home landscaping, lawns, or flower arranging). When you're an Intermediate, you will learn why you do certain practices. As a Senior, you will be

involved in Junior leadership in your area, teaching what you have learned, participating in community service activities, and exploring careers in this area.

As a 4-H'er you may become involved in exhibiting, horticulture contests, county and state fair activities, participating in Summer Week, and other 4-H functions for older members.

Some objectives of flower and ornamental projects are:

- To help you develop an appreciation of how much we humans need horticultural knowledge in everyday life
- To discover the laws of nature, and the interrelationship of animals and plants
- To learn to use plants to one's advantage
- To know and grow with plants

Annuals and Perennials

Junior (4th, 5th, 6th grades)

Things to learn

1. Factors of outdoor plant growth.
2. All plants grow to a certain mature size.
3. Annual plants grow only one season.
4. Perennial plants grow for many years.
5. What are "dwarf" plants?
6. What are bulbs, tubers, and corms?
7. Gladiolus grow from corms.
8. How do you select good bedding plants?
9. The difference between a stem tuber and a root tuber, and how it affects the way they are divided.

Things to do

1. Draw the life-cycle of an annual plant.
2. Make a picture collection of 10 annual flowers that grow in your neighborhood.
3. Plant five different annuals outdoors from seed or started plants, and take care of them for the entire season.
4. Make a list of all the different uses of annual flowers you see.
5. Make a picture collection of 10 different perennial flowers that grow in your neighborhood.
6. Make a picture collection of five bulbs, tubers, and corms that grow in your area.
7. Look up and list "dwarf" flower varieties from seed catalogs.
8. Cut open a bulb and name the parts in a demonstration.
9. Order two seed catalogs, and write down descriptions of annual, perennial, biennial, bulb, tuber, and corm.
10. Grow annual plants from a "pre-seeded" or "pre-planted" container.
11. Plant 12 gladiolus corms, and keep a record of planting date, first shoot, first bloom, uses, and exhibition record.

Annuals and Perennials

Intermediate (7th, 8th, 9th grades)

Things to learn

1. How do light, fertilizer, and water affect plant growth?
2. Perennial flowers bloom at different times of the growing season.
3. Certain annuals and perennials are chosen for certain locations: shade, dry, or wet.
4. How to propagate certain annuals and perennials by cuttings and divisions.
5. How are fertilizers used with growing plants?
6. What are weeds?
7. What insect and disease problems do specific plants have?

Things to do

1. Grow an annual flower garden of eight different kinds of annuals.
2. Exhibit annual and/or perennial cut flowers.
3. Plant 50 gladiolus corms, and keep a record of care and use.
4. Draw a plan for an annual flower border 20 feet long by 4 feet wide.
5. Draw a plan for a perennial flower border 10 feet long by 5 feet wide.
6. Demonstrate how to divide a large day-lily clump, iris, or Shasta daisy.
7. Visit private and public annual and perennial plantings, and list why certain plants are used.
8. Keep a record of time and length of bloom of various perennials in a specific garden.
9. Demonstrate safe use of garden tools.
10. Collect, press, name, and mount 10 different weeds.
11. Build an outdoor cold frame, and write a report on its use during the 4-H year.

Annuals and Perennials

Senior (10th, 11th, 12th grades)

Things to learn

1. How to grow quality seedlings of annuals and perennials.
2. Design factor of perennial gardens.
3. Some annuals and perennials have many varieties.
4. What are all-American selections?
5. How are gladiolus grown commercially?
6. Low-maintenance methods for annual and perennial gardens.
7. Growth factors vary for different varieties of plants.
8. Nutrient deficiency symptoms in different plants.
9. Insect and disease problems are specific to plant varieties (see entomology and plant pathology).

Things to do

1. Plant a hobby garden of 10 different varieties of 1 annual flower.
2. Plant a hobby garden of eight different varieties of one perennial flower.
3. Design and plant a perennial flower bed 20 feet long by 5 feet wide for all-season bloom (include bulbs and related shrubs).
4. Grow four different perennials from seed.
5. Visit annual flower garden trials.
6. Set up an indoor lighting system to grow seedlings under lights, or in a small greenhouse.
7. Visit commercial bedding-plant growing operations.
8. Make a list of former perennials now grown as annuals.
9. Set up a roadside stand to sell cut flowers.
10. Plant 500 or more glad corms, and keep an expense and sales record.
11. Visit a commercial gladiolus growing operation.
12. Visit horticultural career days at a local college or university.

Enjoying Annual Flowers

Some of the most popular garden flowers are those that live for only 1 year. Many varieties of annuals are colorful and easy to grow, and they can be used in many different areas around your home.

You may plant annuals along driveways, walks, terraces, and fences, or in front of permanent foundation plantings. They add color to your garden if you plant them among perennial flowers and spring-flowering bulbs, or in rock gardens. You can use annual flowers indoors in fresh and dried arrangements, and in cor-sages.

The most common annuals are zinnia, marigold, petunia, and ageratum. Others which are easy to grow are sweet alyssum, cornflower, aster, portulaca, calen-dula, and cosmos.

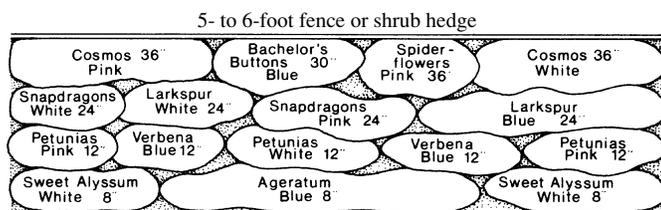
Outdoor gardening

Planning your garden. To choose the kinds of plants you want for your garden, study the color pictures and descriptions in annual flower seed catalogs. Different varieties of annuals can vary greatly in height and color. Low-growing varieties of zinnias, for example, are only 4 to 6 inches tall. Other varieties grow up to 5 feet in height. The flowers vary in size from 1 to 8 inches across.

Make a plan on paper to show where you will plant each variety. Put the tallest plants at the back, the next tallest in front of these, and so on, with the lowest at the front edge. Study the color of each flower you select, and place the plants so the colors will look well together.

If all your annuals are to be in one location, choose an unshaded corner of your lawn or the south side of your home. Most annuals need full sun for the best growth. If you have more than one garden area, try different combinations of plants for height and color, but don't raise too many flowers the first year.

Buying seed. Be sure to buy seed that has been packed recently. Old seed may have lost vitality, will germinate slowly, and may produce poor seedlings. Look for new varieties listed as F₁ hybrids, which are superior to the usual inbred varieties. Keep all seed cool and dry until you're ready to plant.



Plans for a large flower border.

Preparing the soil. Thoroughly prepare your outdoor annual flower area. It's better to grow a small bed of flowers in well-prepared soil than to try to grow many flowers in a large, poorly prepared area.

In the fall, work the areas to be used for your garden. Prepare the planting area by rototilling or spading as deep as you can—to a depth of 8 inches if possible. Remove all trash, large stones, roots, and other trouble-some materials. Spread 1 to 2 inches of organic matter over the area—peat moss, compost, sawdust, cocoa hull, or any such material that is readily available. Mix these materials with the soil by spading or rototilling. During the winter, this organic material will decompose and improve the soil.

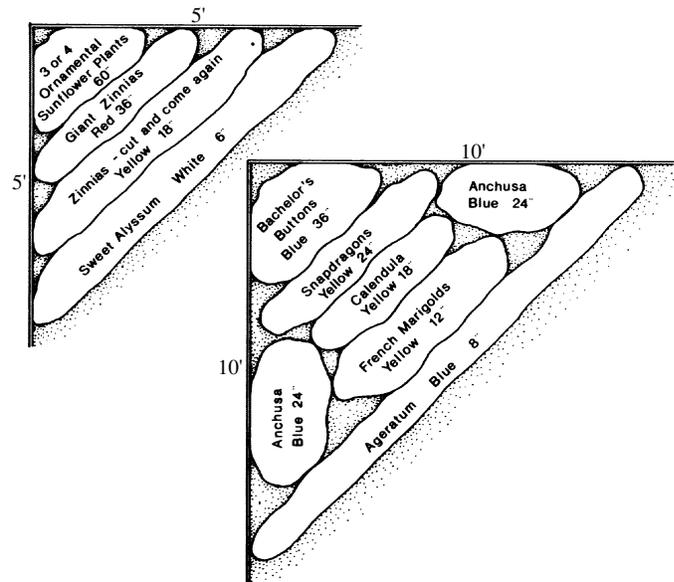
In the spring, wait until the ground has dried enough to work without it sticking to your tools, and then spread plant food or nutrients over the area. Use 2 pounds of 5-10-5 or 5-10-10 fertilizer for each 100 square feet. A pint jar is a handy measure—it holds 1 pound of these fertilizers. Dig or rototill these nutrients into the soil. Rake 2 more pounds of fertilizer into the soil surface for each 100 square feet.

You're now ready to seed or set transplants into your annual flower garden.

Seeding. Annuals that can be seeded outdoors as soon as the soil is workable are baby's breath, bachelor's button (cornflower), gaillardia, globe ama-ranth, annual phlox, poppy, salpiglossis, spider flower, stock, strawflower, sweet alyssum, and sweet pea.

Wait until frost danger is past before seeding other annuals outdoors, or setting out started plants. Record the date of seeding or planting and the variety name on your record sheet.

Some annuals have very tiny seeds—over 20,000 in 1 ounce. If you're growing an annual flower garden for

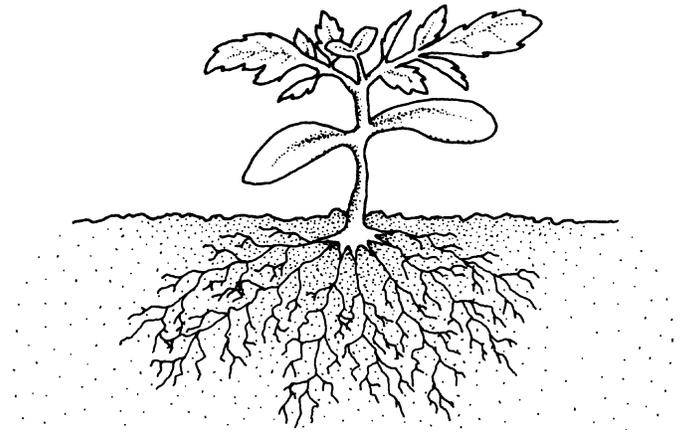


Plans for two sunny corners.

the first time, select large-seeded annuals (e.g., zinnia, marigold), or use started plants.

Make an inch-deep furrow in the soil and fill the furrow with vermiculite. The vermiculite will prevent the soil from caking and keeping out water. Moisten the vermiculite using a fine spray from the garden hose or watering can. Make a small furrow in the vermiculite and place the seeds into this furrow, trying to space them as directed on the packet. Cover the seed with ¼ to ½ inch of vermiculite from the furrow edges.

You need not transplant any of the plants listed below. Sow the seed where the plants are to bloom. Those with asterisks (*) produce good flowers for cutting.



Seedling with one set of true leaves.

Seed outdoors but don't transplant

Common name	Height (inches)	Color	Time to sow
Sweet alyssum	4 to 6	White, violet, pink	When the ground can be worked
California poppy	12	Orange, yellow	When the ground can be worked
*Annual candytuft	12	Crimson, lavender, white	When the ground can be worked
Forget-me-not	18	Blue	When the ground can be worked
*Annual phlox	12	Red, white, lilac	When the ground can be worked
Ornamental sunflower	60	Yellow	After the last spring frost

Thinning and transplanting. All plants need growing room to be healthy and to support large blooms. When your annual plants have developed two true leaves (see drawing), they must be thinned to the recommended spacing in order to receive enough light, water, and nutrients to develop fully. If you plant your seeds in vermiculite-filled furrows, you easily can transplant the extra seedlings.

Spacing and supporting. The correct spacing and supporting of flowers you will learn with experience. Flowers that grow more than 18 inches tall usually should be supported. Chrysanthemums, snapdragons, and gladiolus need staking, particularly if your garden is in a windy area.

Watering. There may not be enough rainfall to keep your plants growing as fast as they can. The best way to water the soil is to use a soaker hose. The water seeps into the soil without waste, and does not wet foliage or compact the soil like a sprinkler does. Don't water with a hand-held nozzle on the garden hose.

Mulching. Mulches are materials used to cover the soil between rows and among plants. Mulches of organic materials keep the soil surface from crusting, prevent weeds from growing, reduce moisture evaporation from the soil, and add organic matter to the soil.

Lawn clippings are a good mulch for annuals. Check with gardeners near you for other possible organic mulches. Sheet plastic and aluminum foil can also be used as mulches, but are not as attractive.

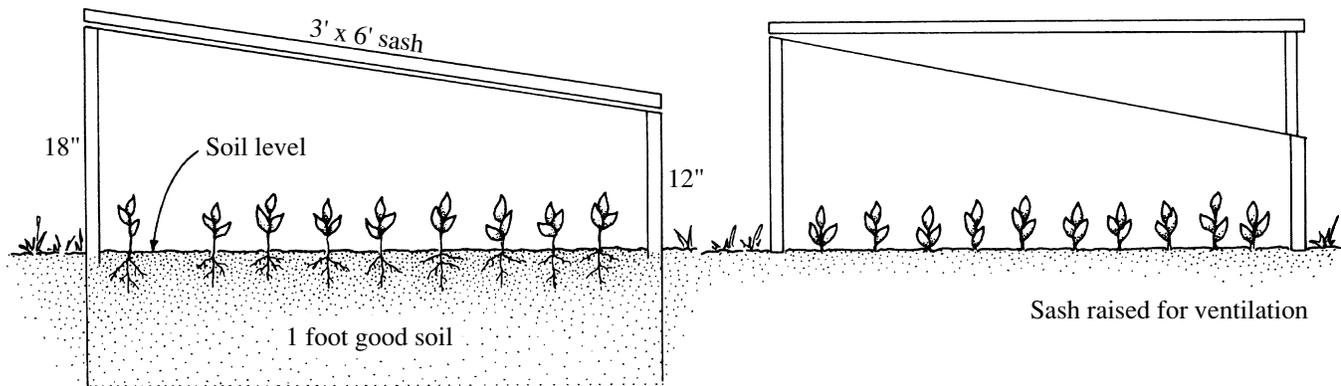
Cultivating. After your plants have been thinned and transplanted, work the soil only enough to break up the crust. Shallow cultivation with a push-type hand cultivator or a sharp hoe is all that is necessary. A hand hoe with a triangular blade is easy to use among plants.

Removing old flowers. Annual flowers will grow more vigorously if you remove mature flowers and forming seed pods. This is most important on ageratum, calendula, cosmos, marigold, rudbeckia, scabiosa, snaps, and zinnia.

Starting plants indoors

Plants you start in your home seldom are as satisfactory as those you purchase from growers. Home-grown plants seldom grow as well or bloom as abundantly as those seeded or planted directly in the garden. Home-started seedlings are frequently attacked by a fungus disease called damping-off; also, favorable light, temperature, and humidity often are not available in the home.

Cold frames.



Try starting some plants from seeds, because the experience will teach you about how plants grow.

Growing media. The material in which you sow the seed is the growing medium. A sterile, prepared soilless mix is best, since it has no weed seed or disease organisms in it. Commercial mixes are one-half organic matter, such as shredded sphagnum peat moss, and one-half vermiculite or perlite. Avoid mixes which are very fine, or of “black dirt.”

Soilless mixes are hard to moisten, and are very dusty in the dry state. Fill a plastic bread wrapper about half full of mix, and pour in up to a quart of water. Gently knead the wrapper. It may take 5 to 10 minutes to wet the mix. Leave it in the wrapper until you’re ready to use it.

Containers for starting plants. Fiberboard, plastic, styrofoam, wooden flats, and clay pots are available for seeding containers. If you use aluminum cans, punch holes in the bottom for drainage. You should clean any container before you use it.

Time of seeding. You’ll need to start most annual flower and vegetable seeds 6 to 8 weeks before they can be placed outdoors. Check with local gardeners to learn what kinds of flower seed they start indoors.

Seeding. Fill your container level with soilless mix. Then shake the full container until the mix is slightly below the top. *Never pack or press down soilless mix!* Sprinkle seeds thinly on the surface. Don’t cover tiny seeds, such as petunias and snapdragons. Larger seeds get just a light covering of the mix.

If you think your seeded container is dry, water it by setting the container in 2 inches of water in the sink, and letting the water soak in. Drain the container after watering for ½ hour. Slip the seeded container into a plastic bag and close tightly.

Set the container in a warm (70 to 75°F) place, out of direct sunlight. Depending on the kind of seed, it will take from 3 to 15 days for the seeds to germinate and show green sprouts. When the sprouts appear, remove

the plastic bag and set the plant in a very bright and sunny window. Seedlings need a large amount of sunlight. You’ll want to water frequently once you place the seedlings in the sunny window.

Cold frames. Early spring is a good time to make a cold frame. You use these frames to plant seeds outdoors several weeks earlier than you normally can.

A cold frame is a tiny greenhouse without heat. It is a lean-to roof made of glass or plastic sloped to take advantage of spring sunshine. You can open and close the roof to control temperature. A cold frame has no bottom and sits on the ground. With just a little help, you can make your own cold frame. The diagrams above will help you construct a cold frame.

You’ll probably put flats or peat pots in your cold frame. Flats are shallow wooden or plastic boxes. You can use shallow boxes as flats or make your own. Don’t forget to make drainage holes in the bottom. Peat pots are tiny flower pots made of peat moss. You can plant seeds in them and then plant the pot in your garden.

Transplanting. Transplant or separate the seedlings when one to two sets of true leaves appear. The first two leaves are cotyledons. The second set of leaves are the “true” leaves, and all the other leaves will look like these. Set transplants at least 2 inches by 2 inches apart, or into separate containers at least 4 inches in diameter.

Hardening off. Transplants must be hardened off before you set them into their final garden location. You can do this by setting the plants outdoors during the day for a week before setting them in the garden. Be sure to move them indoors if a frost is predicted.

Using fluorescent lights. To germinate and grow seedlings under artificial light, use a fixture that holds at least four and up to eight tubes closely spaced. Temperature should run 65 to 70°F, and lights should be on 16 to 18 hours a day. Immediately after sowing the seed, place the seed pan, flat, or other container so the surface of the germinating medium is 6 inches below the tubes. Seedling foliage should be about 4 inches

below the tubes. Check seedlings daily, as germination is very rapid under such a setup.

Insects and diseases

Insects and diseases can cause damage. If watering is done properly and insects are controlled, diseases generally are not much of a problem. Some of the worst diseases are transmitted from one plant to another by a small insect called a leafhopper. Aphids also transmit disease.

Slugs also are a problem in many gardens. Slugs like flowers and can ruin blooms just by crawling over them. You may use slug baits in flower gardens, but don't use baits in vegetable gardens. You might control slugs by placing wet cardboard throughout the garden in the evening. The following morning you'll find that slugs have crawled under them to hide from the sun and heat. You then can uncover and dispose of them.

Perennial Gardening

Many of our favorite flowers are perennials—plants whose roots live in the soil from year to year, though the stems die every winter. Iris, peonies, and delphiniums belong to this group.

Once planted, perennials need little care and bloom year after year. They add color to border plantings, and also provide many cut flowers.

Where to grow perennials

Of the many types of perennials, you usually can find one or more that will grow wherever there is good soil. Certain perennials do well in shade, while others must have sun all day. Most perennials must have a half day of sunlight. Too much wind is hard on any flower, so plant your perennials in rather protected places. Good backgrounds for perennials are a shrub border, a hedge, or a green fence. They look well along a lawn edge, in front of shrubbery, or in a strip between the boundary line and the driveway.

Planning a perennial border

To prevent disappointment and confusion, and to assure a pleasing perennial border, draw a plan of your border. Use a scale of 1 inch for each 2 feet of border, or 1 inch for each 1 foot of garden. If your border is 20 feet long and 5 feet wide, the plan will fit on a piece of paper a little longer than 10 inches by 2½ inches wide, or 20 inches by 5 inches, depending on the scale you use.

A flower border with a slightly curved front edge is more pleasing to the eye than one with a straight edge. Place the plants in groups rather than in straight rows;

plant the taller-growing perennials at the back of the border where they will not shade the shorter ones.

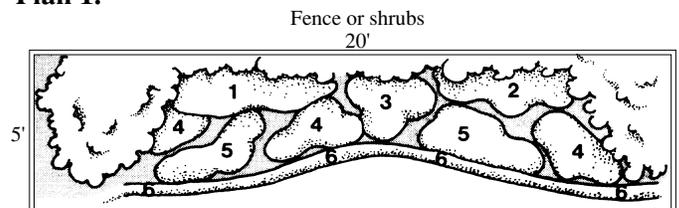
Select varieties that bloom at different times, so you will have flowers in bloom all season. Also, select pleasing color and variety combinations. Write on the plan where you will plant each group of perennials, and the color, the variety, and the plant name.

Because some perennials are best planted in spring, some in summer, and others in fall, don't try to set an entire border at one time.

Until your perennial bed is completely planted, you may want to use some annual flowers. Then, when it's the correct time to plant the perennials, remove the annuals.

Your perennial border plan may look like one of the following plans.

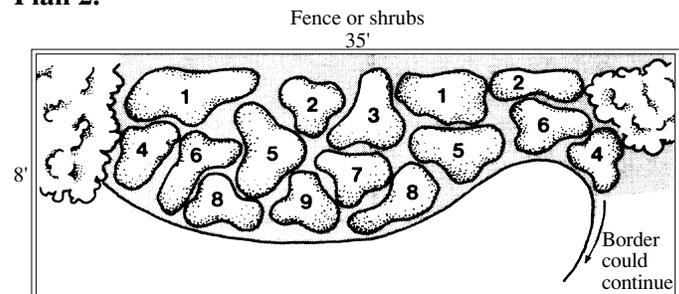
Plan 1.



A perennial border, 20 feet by 5 feet

Key	Name	Color	Number of plants
1	Hollyhock	White	4
2	Delphinium	Blue	6
3	Phlox	Red	5
4	Bleeding heart	Pink	9
5	Blue wild indigo	Blue	10
6	Evergreen candytuft	White	15

Plan 2.



A perennial border, 35 feet by 8 feet

Key	Name	Color	Number of plants
1	Delphinium	Blue	12
2	Japanese anemone	Pink	6
3	Fall asters	White	4
4	Leopard's bane	Yellow	8
5	Peony	White	6
6	Sweet William	Pink	12
7	Iris	Blue	3
8	Moss pink	White	8
9	English primrose	Yellow	6

Starting perennials

From seed. You can grow many perennials cheaply from seed. In early summer, start the seeds in a cold frame, or in an area set aside from the rest of your border. After the seeds germinate, you may need to thin the plants. Then they can be set in the flower border during August and September.

By division. Another way to obtain plants is to divide a clump that has grown for 3 or 4 years. Perhaps a friend or neighbor will give you some divisions. In general, the rule is to divide late-summer bloomers in the spring, and spring bloomers and early-summer perennials in the fall.

Care of perennials

During the growing season, work the soil around the plants about 1 inch deep. Be sure the soil does not bake or become waterlogged, and never work the soil if it's so wet that it sticks to your tools.

Destroy all weeds—the smaller they are, the easier they pull. A 1-inch layer of grass clippings or a 3-inch layer of peat moss spread around the plants and on the bare spots in the border not only keeps down weeds, but helps to hold moisture. This is called mulch. You also can use a 3-inch layer of straw.

To fertilize perennials, either apply well-rotted manure or compost around the plants in the fall, and work it into the ground in the spring, or water a complete commercial fertilizer (5-10-5) into the soil during spring, using from 3 to 5 pounds on 100 square feet of garden area.

During hot summer weather, water the perennials only if you have enough water to let it run among the plants for several hours at a time. Slight watering causes the roots to come to the surface where they are likely to dry. Mulches help to keep moisture in the flower bed.

Tall-growing plants, such as delphiniums, may need single stakes to hold up the flowering spikes. Tie single stalks loosely to prevent the stem of the plant from snapping. To support the shorter growing perennials, you may stick small branches into the ground. You also can use hoops with three legs. Regardless of the supports you use, be sure they are not visible.

List of shade-loving perennials

Perennials that thrive in the shade are bee balm, bellflower, bleeding heart, columbine, day lily, Dutchman's-breeches, English primrose, gas plant, Japanese anemone, monkshood, phlox, plantain lily, Siberian iris, and tufted pansy.

Living bouquets

Many perennials last 1 week after cutting. If you include these perennials in your border, you will have

plenty of cut flowers for display: baby's breath, blanket-flower, coralbells, coreopsis, delphinium, iris, monks-hood, mountain bluet, mums, painted daisy, peony, phlox, and Shasta daisy.

For a dry corner

Some perennials will not grow normally in a soil that dries out quickly. If one end of your perennial bed dries out and the plants wilt, try growing baby's breath, day lilies, golden marguerite, New York aster, or blanket-flower.

Perennials that go together

Certain perennials, because of their foliage and color, seem to belong in a perennial border. For groups that bloom all through the growing season, plant one or more of the combinations from group 1, 2, or 3.

Common name	Height (feet)	Color	Flowering period
Group 1			
Aster "Wonder of Staffa"	2	Blue	June to Nov.
Golden-spurred columbine	3	Yellow	May to Aug.
Tufted pansy	1	Yellow	April to Oct.
Group 2			
Carpathian harebell	1	Blue	July to Nov.
Japanese anemone	3	White	Sept. to Nov.
Leopard's bane	2	Yellow	May to June
Monkshood	4	Blue	Sept. to Nov.
Peony	2	White	June
Group 3			
Balloon flower	3	Blue	July to Sept.
Basket-of-gold	1	Yellow	April to May
Chrysanthemum "King Midas"	2	Yellow	Sept. to Nov.
Gas plant	3	Pink	June

Spring-flowering bulbs

The earliest blooms in a perennial garden are from the spring-flowering bulbs. Bulbs store the plant and flower primordia, as well as the food that the plant uses for a burst of growth in the spring. Snowdrops, snowflakes, and crocus bloom very early in the season, followed by many varieties of daffodils, tulips, and hyacinths.

Tulips, hyacinths, and daffodils are called major bulbs. The small, or minor, bulbs are snowflakes, snowdrops, crocus (actually a corm), scillas, grape hyacinth, and eranthis.

All bulbs are planted in clumps of six or more for a good show. Minor bulbs should have their tops 2 inches

below the soil surface, while major bulbs should have at least 4 inches over their tops. Plant these bulbs in October and November. Minor bulbs are spaced 3 to 4 inches apart; major bulbs are spaced 8 inches apart.

Check each variety you plant for its flowering height and time of bloom. Bulbs that flower 4 to 8 inches tall should be placed in the front of the flower border; those blooming 12 to 24 inches tall should go in the middle of a border. Three-foot-tall varieties should be at the back of the border. You can have tulips in bloom for 2 months by choosing early, mid-season, and late-flowering varieties.

Let all bulb foliage die naturally. The leaves produce food that is stored for next year's blooms.

After a group of bulbs grows in the same place for 3 or more years, you may get more foliage than bloom. You will have to dig up, separate, and re-space the bulbs. Do this after the foliage begins to turn yellow in early summer.

Activities

Presentations and demonstrations

Many of the things you do in preparing your gardening areas, in planting seeds, plants and shrubs, and using flowers in arrangements, you can use as a presentation or demonstration. If you are 10 to 13 years old and this is your first demonstration, keep it 5 to 8 minutes long. Don't try to cover too much information or material. A good demonstration shows how you do something while you tell how it's done. Don't memorize a demonstration; use your own words to explain how you did something in growing plants.

Some ideas are:

- Don't Lose Petunia—How to sow tiny seeds: petunias, snapdragons, or amaranthus
- Get Away from the Crowd—How to transplant seedlings
- Good Old Seed?—How to use a rag doll seed tester
- My Flower Garden Plan—How five different annual flowers are planted in a flower border
- Planning Perennials—How five different perennial flowers are spaced in a flower border
- Landscape for Living—How to draw a very simple landscape plan
- Planting for the Future—How to plant a rose bush, tree, shrub, or ground cover
- Beauty on the Table—How to put together a simple flower arrangement
- How to Condition Flowers for Arranging—How to cut, condition with warm water, and otherwise get cut flower blooms ready for arranging

There are many other gardening practices that you can show and explain as you work in the gardening area. Your 4-H leader will have ideas on charts, flannel boards, strip tease charts, posters, and other demonstration aids.

4-H flower judging and identification

Flower judging and identification helps members learn about and enjoy flowers. Contests usually include judging of flowers and arrangements, and identification of flowers. It also may include identification of weeds and insects common to flower gardens.

Judging. Judging classes usually have four flowers of the same kind or four similar arrangements to be studied carefully, then placed in 1, 2, 3, 4 order. Members' placings will be compared with the official placing. If placed the same, the score will be 100. If placed differently, the score will be based on how closely they agreed with the judge.

Members may be asked to give oral or written reasons on one or more classes. Stand straight, look at the judge, speak clearly, give placings, and tell why you placed each flower or arrangement over the one below it:

"I placed the pansies two, four, three, one. Number two is large, bright and fresh, has a straight stem, and no damaged petals or leaves; four is also large, bright and fresh, but has a crooked stem; three has some insect damage on one leaf and a torn petal; one is wilted, unattractive and has no leaves."

Follow the same pattern for written reasons. Write clearly and spell correctly.

Identification. Specimens will be numbered. Write the name on a card or sheet of paper by the same number. You will receive five points for each correct name and one additional point for spelling it correctly.

You may use seed catalogs with color pictures to learn the flowers. Your club may want to place pictures of flowers on cards with the names on the back, for study and club contests.

When practical, freshly cut flowers will be used; plants, bulbs, corms, rhizomes, leaves, pressed flowers, or pictures may be used when flowers are not available.

The following flowers, weeds, and insects may be included in the identification part of the contest. The Junior list is for beginners. Learn them first, then those on the Intermediate list. A separate horticultural contest that includes vegetables, fruits, ornamental plants, and flowers is suggested for Seniors.

The flower names in parentheses also are acceptable. Junior contests usually will have 20 specimens; Intermediates and Seniors may have 40 or more specimens to identify, and may include items from the Junior and/or Intermediate list. Those growing only in Eastern

Oregon are noted (EO); those growing only in Western Oregon are labeled (WO).

Junior list

Flowers. Ageratum, alyssum, azalea, bells of Ireland, bachelor's button, carnation, chrysanthemum, cockscomb, coleus, cosmos, crocus, daffodil, dahlia, day lily, dusty miller, geranium, gladiola, hollyhock, hyacinth, iris, impatiens, lobelia, marigold, money plant, nasturtium, Oregon grape, pansy, petunia, poppy, red hot poker, rhododendron, rose, salvia, snapdragon, sunflower, sweet pea, sweet William, tulip, violet, zinnia.

Weeds. Thistle, cheatgrass (EO), dandelion, dock, knotweed, lambsquarter, morning glory, chickweed, mustard, pigweed, tansy.

Insects. Aphid, cutworm, earwig, grasshopper, sow bug, ladybird beetle, looper (inchworm or measuring worm), honey bee, bumble bee, 11-spotted cucumber beetle, slug, snail.

Intermediate list

Flowers. Aster, anemone (spring), amaryllis (autumn), begonia (tuberous, fibrous), candytuft, calendula, Canterbury bells, Chinese lantern, crocus (autumn), delphinium, fall aster, forget-me-not (summer), goldenrod, garden lily, lupine, montbretias, morning glory, nicotiana, pinks, phlox, primrose, salpiglossis, statice (everlasting), stock, strawflower, verbena, viola, yarrow (yellow), zinnia.

Weeds. Annual bluegrass (WO), buckhorn, plantain, bull thistle, Canada thistle, curly dock, dog fennel, fiddleneck tarweed (EO), groundsel, mallow, nightshade, Russian thistle (EO), scotch-broom, sheep sorrel, tansy ragwort, Queen Anne's lace, wild lettuce, wild parsnip, wild onion, yarrow.

Insects. Flea beetle, leafhopper, leopard caterpillar, scale, carpenter ant, tomato worms, blister beetle, potato beetle, spittle bug, squash bug, termites, wireworms, millipede, thrips, weevil, centipede, root maggots, spider mites. Identify whether insect is beneficial or harmful.

Senior list

Flowers. Daisy, gloriosa daisy, Shasta daisy, African daisy, anemone (fall), begonia (rex, Christmas), black-eyed Susan, blue globe thistle, clematis, hardy cyclamen, fuchsia, gaillardia, gloxinia, love-in-a-mist, Mexican torch flower, salpiglossis, Veronica, wisteria.

Weeds. Crabgrass, nutgrass, quackgrass, barnyard grass.

Insects. Be able to identify insect damage and life cycle of insects; differentiate between butterfly (moth),

millipede (centipede), ladybird beetle (potato bug), looper (caterpillar).

Community service

There are many activities that 4-H ornamental horticulture members can do to create better living for other people. We may help the community look better because of our horticulture activities, but it's people who actually benefit from what we do.

Members may help senior citizens by providing lawn mowing services and garden maintenance at very reasonable rates.

A group of members or a club may maintain a city or public building planting of annual flowers. Some clubs have organized, planted, and cared for outdoor ornamentals at libraries, post offices, churches, grange halls, and service stations. These may be annual flowers or permanent shrubs. Senior members have worked with city administrators in planting street, play, and roadside rest areas, senior citizens centers, and nursing home areas.

Your club can call, write, or visit local garden clubs to see whether they have projects you may be able to work on. You also may, as a club, provide cut flowers for shut-ins, people in hospitals, and other persons who cannot garden.

Fresh and Dry Flower Arrangements

If you like cut flowers, you can make flower arrangements that are pleasing and attractive to your home.

Don't expect your first attempt to be a masterpiece. First read the following pages and then try some arrangements. After a few trials, you'll think not only in terms of what flowers and foliage (leaves) look good together, but also of what containers you should use, and where you can place the arrangements to best advantage in the room.

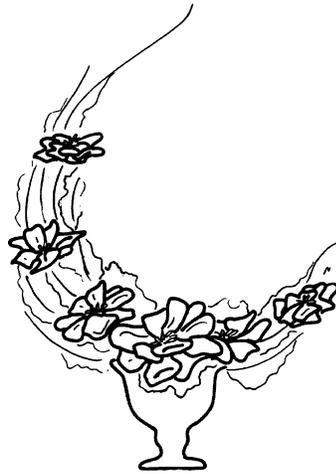
Remember that even one or two blooms with a little foliage makes an arrangement. There is no reason to feel that you have nothing to work with, as you can use wildflowers as well as those from your home garden.

Types of arrangements

Each type of flower arrangement has a name. The three basic types are line, mass, or mass-line arrangements. Each can be formal or informal. If your arrangement is formal, it means that one side is exactly like the other side. Informal arrangements usually are balanced, but are not alike on both sides. Thus, you can have a formal or informal line, mass or mass-line arrangement.



Centerpiece



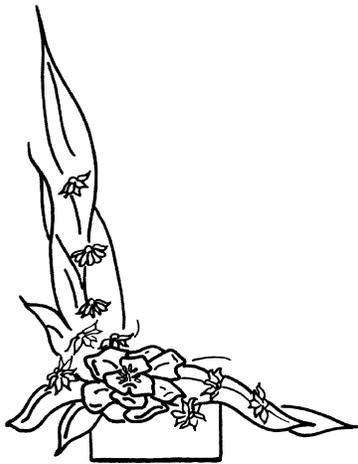
Crescent



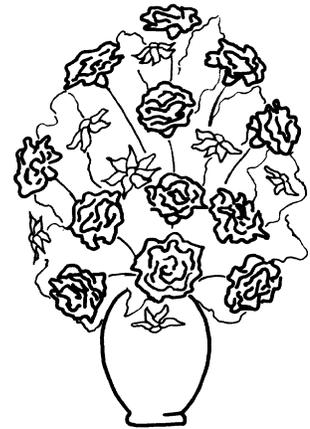
Hogarth Curve



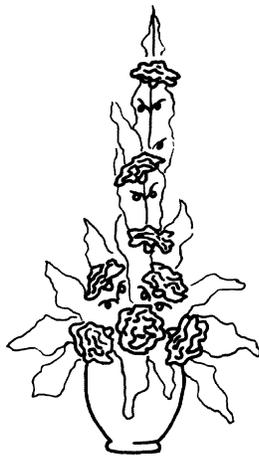
Linear



L-pattern



Oval



Teardrop



Triangle

Suggestions for arranging flowers

1. Flowers of one kind and one color, at different stages of opening, are the easiest to arrange.
2. Have the tallest stem or flower no more than twice as tall as the container is long (if it's a low container), or no more than twice as tall as the container is high (if it's a tall container). This rule applies to the part of the stem that comes above the edge of the container. (After taking this measurement, be sure to add the depth of the container to the length of the flower stem.)
3. Use the smallest buds and the lightest-color flowers at the top of your arrangement and at the outside edges.
4. The darkest or brightest color is used at the focal point or the strongest visual point of attraction. Colors between these points should "blend."
5. Be sure you have a strong focal point.
6. Do not use delicate materials with "heavy" materials. Baby's breath is not a good filler for gladiolus.
7. Avoid "steps" by having all stems of different lengths. Only in formal arrangements are two stems exactly the same length.
8. Always cover the holding device. Many times a few small, well-placed leaves will do this.
9. Do not crowd blooms so they hide each other.
10. Arrange the stems and foliage so all seem to spring from one central point. Never let stems that cross show.
11. Use tall arrangements at eye level or below.
12. Make table centerpieces lower than the chin levels of persons sitting at the table. For a children's party, the centerpiece should be much lower than for an adult's dining table.
13. Always score your finished arrangement.

Assembling a flower arrangement

Choose a container for the setting.

Decide what foliage and flowering materials you have available to use. During the winter you can use fresh flowers from your local florist; gladiolus, roses, and chrysanthemums are available the year round. Make sure the material will have enough height. Consider the colors of flowers and the container, both in relation to each other and in relation to the background.

Choose a usable holder, and pour water into your container.

Select your tallest (1½ to 2 times the container height or width) stem or branch from your hardened materials. Place the tallest material and the outermost material. Remove all the foliage that is under water.

Locate the center of interest and fill in the areas between in such a way that each bloom shows. Finish by adding foliage to give more line or to fill in voids.

Place your arrangement in the chosen setting.

After you have completed the arrangement, look for its faults. Are the container and flowers alike or pleasantly contrasting in color and shape? Are the flowers and the container in scale? Does the arrangement seem to tip or is it stable? Is one color outstanding? It takes practice to find harmonious combinations.

Arranging dry materials

You can use the same principles to make arrangements with dried flowers and foliage for enjoyment during the winter months. Look for winter arrangement possibilities during summer and early fall. Gardens, fields, and country roadsides can supply a wealth of appropriate materials.

Drying flowers

To get a good drying of a wide variety of materials, different treatments should be used.

The simplest treatment involves picking the long stems, putting them in a tall container, and letting them dry in a dark, warm location for best results. The attic is wonderful, if you have one, but a dark closet also will work. To prevent the materials from rotting, there should be some air movement in the location.

Materials that dry naturally on their own stems are celosia or cockscomb, delphinium stalks, hills-of-snow or P.G. hydrangea heads, sumac heads, and stalks of curly dock and milkweed.

Pick materials at their prime. Those past their prime often shed excessively. Remove all foliage at the time of gathering. Put the plants in tall containers to keep their stems straight, and move them immediately to the dark, warm spot you have selected. Remember that a cool basement or shaded storeroom is likely to give poor results because light fades flowers as they dry.

If cutting strawflowers, take only buds; otherwise when the flowers open, the petals will curl over backward. Remove the buds from the center of the plant, and let the sidebuds develop for a later cutting.

Many materials dry very nicely if picked, stripped of leaves, and hung upside down in a dark, warm place. Again, an attic or overhead crawl space with louvers is ideal. Check country roadsides for goldenrod, thistles, teasels, and grass stems that still look quite fresh. Strip off the leaves and put the plants in small bunches held by rubber bands. (The materials aren't likely to fall out of the bunches if you use rubber bands rather than string or wire.) Immediately hang the bunches by their stems, in a dark, warm place.

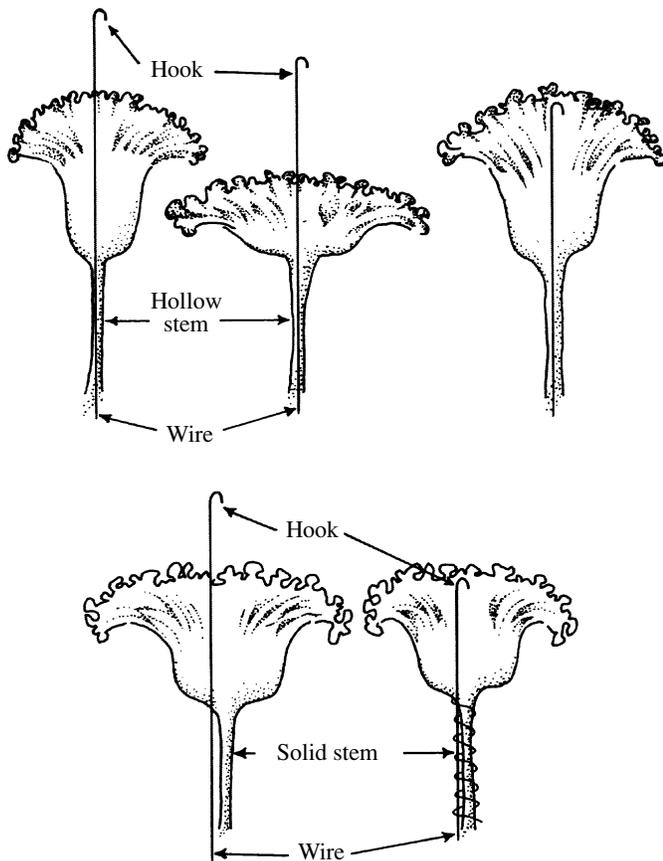
If you're willing to dry flower heads individually, gather flowers at their prime and remove the stems about an inch below the flower head. Then replace the natural stem with a medium-weight florist wire

(number 22 or 24). This works with Shasta daisies, marigolds, zinnias, dahlias, mums, and black-eyed Susans.

Place the wire along the short stem, or through the hollow stems of marigolds and zinnias. Push the wire through the flower head so that 1 inch shows, and make a small hook on the wire's end. Pull the wire hook down into the flower head so that it is firmly imbedded in the petals.

If your wire is alongside the stem, pull the wire around the solid stem three or four times.

An absorbent material, such as borax with cornmeal, borax with sand, or silica gel, will help dry the flowers within a few days. If you use borax with cornmeal or borax with sand, you can leave a 5- to 7-inch wire stem.



For silica gel, however, use only about 2 to 3 inches of wire on the flower head (silica gel works best in an enclosed airtight container, and long wires would get in the way).

Using either method, pick prime flower heads of Shasta daisies, pansies, marigolds, zinnias, Queen Anne's lace, single dahlias, roses, mums, or black-eyed Susans.

Cut off the flower head, leaving 1 to 2 inches of stem. Wire the stem for the materials you're using: short for silica gel, long for a borax mixture. Level $\frac{1}{4}$ to $\frac{1}{2}$ inch of material over the bottom of a shallow box. Set the

flower head, stem and wire up, face down on the mixture. Pour another inch of mixture over and around the flower head. Set the box in a warm place in the sunshine, if possible. Sunshine and dry air will speed drying; 4 to 7 days are sufficient most of the time.

Silica gel works best in closed, masking-tape sealed containers. You must use containers such as covered cookie tins, shoe boxes, and others with lids that can be sealed. Silica gel works quickly, so check daily. Its initial cost is high, but you can dry it in your oven and reuse it many times.

Exhibiting Growing Plants and Cut Flowers

Your accomplishments as a gardener and plant grower show in your exhibits at school, club, county, or state fair. By showing your own and noting other exhibits, you gain ideas and information. You actually grow by involvement.

Getting ready to exhibit—winter

During the winter, prepare for an exhibit by looking through last year's fair book to see how much exhibiting you may do.

When selecting seeds and started annual plants for your garden, choose those that will last as cut flowers. Those which may have exhibiting classes are aster, bachelor's button, calendula, cosmos, dahlia, gladiolus, larkspur, marigold (French, African, hybrid), nasturtium, petunia, phlox (annual), rose (hybrid tea, floribunda), snapdragon, sweet pea, and zinnia (baby, under 2 inches; medium, 2 to 4 inches; giant, over 4 inches).

Early in the year, find out from your county Extension office when your county fair is scheduled. Oregon fair dates range from July to October. The dates of the fair will determine if you can seed annuals outdoors, or if you will need to use started plants. Some annuals come into bloom about 2 months from the time of seeding. Others take nearly 3 months.

For each variety you decide to plant, buy seeds that produce flowers of one color, rather than a mixture. A large number of plants with the same color blooms will give you a wider selection for a blue ribbon exhibit. Buy from a well-known mail order house or reputable seed business. Many gardening failures are caused by poor seed, not the mistakes of the grower.

Winter also is the time to draw a garden plan. Then you will know the space requirements for your exhibition materials.

If your family doesn't own a garden duster or sprayer, plan to buy one. Ask your county Extension agent to help you select the right size for your garden and home grounds.

Keep a record of annual flower variety names. Many shows require the correct name as part of the entry.

Getting ready to exhibit—spring

Always have exhibiting in mind when seeding or planting annual flowers. Be sure your gardening area has the light and nutrients needed to grow good, healthy plants. Follow recommended procedures for preparing soil, seeding, thinning, watering, mulching, and cultivating.

Getting ready to exhibit—summer

Keep close watch on the annuals you plan to exhibit as fair time draws near. Spray or dust lightly so blossoms and leaves will not have residues on them. You may wish to build cages of cheesecloth over your prime flowers to reduce damage from rain, insects, and hail. If you haven't used a mulch material, cover the soil around the plants at least a week before the fair opens. This is most important with low-growing annuals, which easily are splattered by heavy rains. Stake tall-growing plants, especially gladiolus spikes, since a crooked stem isn't considered a good specimen. If your garden area may be wind-whipped, put up a windbreak of scrap lumber or old snowfence to protect blooms opening the week of the fair.

Obtain a premium list of your fair as far in advance as possible. Read the instructions to be sure you understand them. Obtain entry tags for this year's fair. Use the correct entry card for each show or fair you enter, and print all the information on the card so everyone can read it. Most fairs ask that entry cards be filled out in pencil, as ink runs if water is spilled on it. Fill out entry cards completely—it takes time to track down an omitted address or an illegible last name.

Getting ready for a fair

Before cutting:

1. Plan to "condition" all flowers to be exhibited, no matter if they're cut specimens, flower arrangements, or corsages.
2. Know when entries are due at the fair, and plan to cut your flowers the day before.
3. Know the number of blooms or stems required in each class. Gladiolus usually are exhibited as one spike per class, with at least 14 to 18 inches of stem below the lowest floret. The lower three or four florets should be open. Dahlias usually call for three blooms. Shows vary, requiring three or five stems per entry.
4. Know the stem length called for. Glads—18 inches below florets if possible. Annuals growing as cut flowers—8 inches for tall-growing zinnias, snapdragons, calendulas, cosmos, bachelor's button, or

gloriosa daisies. Low-growing annuals—2½ inches for phlox, alyssum, low-growing petunias, and French marigolds.

Type. Materials exhibited must be like the ideal, e.g., a tapered flower spike for tall-growing snapdragons; a full-sized round flower for asters, zinnias, and marigolds; and a long, tapered spike for gladiolus.

Uniformity. All specimens in a class must be as similar as possible in age, color, size, stem length, number of petals, and openness.

Prime condition. Round-type flowers should be fully open, but the petals shouldn't be faded or brown at the tips. Spike types should have at least three or four florets open. Points are lost for each floret removed from mature spikes.

Freedom from damage. No broken or bruised petals, leaves, or stems should be displayed. There should be no insect or disease damage on blooms, leaves, or stems; no soil or dirt, nor any pesticide residue evident on any portion of the exhibited material.

Cutting your flowers

Cut blooms the day before the fair opens. Use a kitchen knife to cut, and collect twice as many flowers as the entry requires. Take a bucket of water with you so blooms go into water immediately upon being cut.

The following steps are suggested for getting blooms ready for exhibit:

1. Cut the flowers in early morning or evening.
2. Cut the flower stems with a sharp knife; make a slanting cut.
3. Split woody stems to allow for better water absorption.
4. Remove foliage from the bottom 2 to 3 inches of a long stem. Do not strip off all foliage.
5. After bringing your flowers indoors, put them in very warm water (110°F) immediately, covering from 5 to 6 inches of the stems. Keep the flower petals dry. Don't crowd too many flowers into one bucket or container, because petals bruise easily.
6. Let the flowers stand in water overnight in a cool room, such as the basement or garage.
7. If flowers wilt, place stems in a container of hot water and cut off ends of stems under water. Be sure the blooms are to the side, not over the warm water (110°F).
8. Remove extra buds, faded blooms, and wilted petals.
9. Clear dust and spray from leaves with cleansing tissue. Petals may be gently wiped.
10. Sear the cut stems of flowers that have milky sap in a match or candle flame for 1 to 15 seconds. Dahlias and summer poinsettias last longer if you sear the cut stem end immediately after cutting.

Setting up your exhibit

Fill out your entry cards before you start for the fair. If you're carrying your exhibits in containers, set the containers close to each other, or pack wadded paper around them so they don't fall over. Put extra blooms in each entry. Wrap tissue paper around blooms to prevent tangling. If you provide containers you want returned, tape or print your name on the bottom of the container.

If you're sending your flowers a long distance, you may have to ship them without water. Be sure these flowers are hardened or conditioned. If you have only a few blooms, you may be able to get florist picks, which keep water on the cut stem end. You also can place the cut stem in a small block of water-soaked oasis or snowpack, and put a small plastic bag over the water-holding material. Wet vermiculite or snowpack in a plastic bag also keeps flowers fresh.

You may have to pack flowers flat in boxes so the boxes can be stacked. Lay the flowers with the blooms beside each other. *Never enclose flower heads in plastic bags, as they mold very quickly.* Wrap the stems in wet tissues or rags, and put a small plastic bag around these materials so they don't dry out rapidly.

Put entry cards in each box for the flowers in that box. A piece of masking tape will hold stems in place in case they are handled a bit roughly. Cut small holes in the box—no larger than 1/2 inch—so air can get in to the blooms.

When sending entries a long way, it's your responsibility to make sure they can stand the trip. Always send extra specimen blooms.

Flower show classes

Study the 4-H Flower Show Classes on page 18 so you will know what to exhibit and the number of entries you are allowed. Be sure you know the names of your flowers by kind and variety.

General

Freshness. A flower should be at its most attractive stage of good, clear color with no fading of outer petals and no curling of petal edges (e.g., gladiolus as it ages). Remove faded florets from sprays (e.g., phlox, mums).

Size. If freshness is equal, choose those with greatest size, more depth, more petals, more nearly circular form.

Stem and foliage. Stem strong and long enough to balance size of flower. Must have attached leaves. Leaves crisp, bright green with no damage from insects or disease. Remove only the lower leaves which would be under water when exhibited.

Uniformity. If class calls for three or five blooms or sprays, choose those of the same color and near the same size and with stems of nearly the same length.

Specific merits and faults

Asters—Should have circular outline, good stiff stem with no crook behind flower head. Should have yellow centers partly covered by curled petals. Sunshine and princess types do show centers. Stem should be in balance to the size of the bloom.

Chrysanthemums—Choose a spray with good balance and with many open, well-spaced flowers. Remove faded ones. Decorative mums should have one stem with one dominant flower. Stem should be in balance to the size of the bloom.

Dahlias—Center should be fully developed with no hard, green button. Balls and pompons types should have outer petals turning back nearly to stem, completing a spherical shape. Stems should be in balance to the size of the bloom.

Gladiolus—A well-balanced spike should have 15 to 25 buds and blossoms with 5 to 6 open florets. Miniatures will have fewer florets open at one time. Choose specimens with straight spikes, and no browning of green sheath which covers each bud. (This may be thrips damage.) Foliage on the stem should start just below the first bloom. Stems should be in balance to the size of the bloom.

Lilies—At level 2, the flower should be open and buds should show color, and it should have clean, disease-free foliage with flowers unstained by pollen. Stem should be in balance to the size of the bloom.

Marigolds—Choose one shaped most nearly like a perfect ball. In large-flowered varieties, watch for irregular outlines; depressed, green centers; and slight lopsidedness. Stems should be in balance to the size of the bloom.

Potted plants—Should be of good size, with an attractive shape, and clean, healthy foliage. Flowering plants should have lots of blooms.

Roses—Sprays of floribundas will usually appear less crowded if lower, central blossoms are removed. Any faded blossoms should be removed. There should be at least a leaf per stem.

Roses—Hybrid tea roses should be grown disbudded. Pick bloom so it will be one-third to one-half open when put on exhibit. It will continue to open during the hardening period unless in a very cool place. An exhibition-type rose has a high-centered bud. Many garden roses are not this type. Stems should be in balance to the size of the bloom.

Snapdragons—Choose tall, straight spikes with many well-spaced florets toward the top. Leaves should be free of rust, and stems should be in balance to the size of the bloom.

Zinnias—Flower must have good depth; choose a fully-opened flower, but check back petals for fading, a fault known as scorching. Foliage and stem should be in balance to the size of the bloom.

Show classes—cut flowers

Members may show more than one entry in a class, but only one in a sub-class, i.e., they may enter three dahlias providing they are in different subclasses—3a, 3b, and 3d. Juniors may make one to three entries, intermediates may make two to four entries, and seniors may make three to five entries.

Cut flowers

Classes and sub-classes:

1. Asters
 - 1a. One variety, 3 blooms
 - 1b. Mixed varieties, 5 blooms
2. Chrysanthemums
 - 2a. One spray (Cushion type), with many flowers
 - 2b. Decorative—1 stem with one dominant flower
3. Dahlias
 - 3a. Extra large, over 8 inches, 1 bloom (grown disbudded)
 - 3b. Large, 6 to 8 inches, 1 bloom
 - 3c. Medium, 4 to 6 inches, 1 bloom
 - 3d. Miniature and Balls, 2 to 4 inches, 3 blooms
 - 3e. Pompons, under 2 inches, 3 blooms
4. Gladiolus—1 spike
 - 4a. Large, stem in balance with the bloom
 - 4b. Miniature, stem in balance with the bloom
5. Lilies—1 stalk
6. Marigolds
 - 6a. Tall double African, 1 bloom
 - 6b. Carnation flowered, 1 bloom, stem and foliage
 - 6c. Chrysanthemum flowered, 1 bloom, stem and foliage
 - 6d. French, dwarf double, 3 sprays
 - 6e. French, dwarf single, 3 sprays
 - 6f. Red and gold hybrids, 3 sprays
7. Roses: Floribundas, grandifloras, polyanthus, and other roses grown in clusters—1 spray

7a. Red	7d. White
7b. Pink to rose	7e. Blends and others
7c. Yellow	
8. Roses: Hybrid teas and grandifloras grown disbudded—1 bloom

8a. Red	8d. White
8b. Pink to rose	8e. Blends and others
8c. Yellow to orange	
9. Snapdragons—3 spikes

10. Zinnias—3 blooms
 - 10a. Giant-flowered, over 4 inches
 - 10b. Medium-flowered, 2 to 4 inches
(e.g., “Cut and Come Again,” “Peppermint Stick,” “Quilled”)
 - 10c. Small-flowered, under 2 inches
(e.g., “Lilliput,” “Baby” or “Pompon,” “Tiny Cupid,” “Persian Carpet”)
11. Other cut flowers—1 to 3 blooms, stems, or sprays

Basis for scoring cut flowers

Color	20
Size, according to variety	20
Form, substance	25
Foliage and stem	15
Condition (freedom from damage).....	15
Trueness to variety	5
Possible score	100

Bouquets, arrangements, dried materials

Junior

20. Bouquet of dried flowers—materials dried by member and placed in a suitable container.
21. Bouquet of fresh flowers—flowers grown by member and placed in a suitable container.

Intermediate

22. Plaque with dried material—materials collected and dried by member and designed on a plaque.
23. Arrangement of fresh flowers—flowers grown by member and arranged in any choice of design.

Senior

24. Arrangement with dried material—material collected and dried by member and arranged in any choice of design.
25. Arrangement of fresh flowers—flowers grown by member and arranged in any choice of design.
26. Arrangement to a selected theme—design an arrangement to a predetermined theme; fresh, dry, or a combination of materials may be used.
27. Miniature arrangement—container and material to be no more than 8 inches wide and 8 inches high. Dry or fresh material may be used.

Basis for scoring arrangements, bouquets, and plaques

Color combination	25
Design	25
Distinction and originality	20
Suitability	10
Condition	10
Relation to container	10
Possible score	100

Appendices

Table 1.—*Listing of perennial flowers.*

Spring-blooming perennials		
Bloom before June 1; from 1 to 3 feet tall		
Common name	Color	Remarks
Basket-of-gold	Yellow	Greyish foliage, very early blooming
Bleeding heart	Pink	Also do well in light soil, partial shade
Columbine	Various	Do well in light soil
German iris	Various	Divided in July and August; roots (rhizomes) set just below soil surface
Tufted pansy	Purple, yellow	Self-seed, bloom all season
Summer-flowering perennials		
Bloom from June to August; less than 1 foot tall		
Common name	Color	Remarks
Carpathian harebell	Blue, white	Rock garden; propagated by seed and fall division
Geum	Orange, red, yellow	Ordinary garden soil; propagated by seed and division
Pinks	Pink & white	Ordinary garden soil; propagated by seed or division in the fall
Bloom from June to August; from 1 to 3 feet tall		
Common name	Color	Remarks
Astilbe	Pink, white	Moist soil; propagated by division or seed
Baby's breath	White	Propagated by seed and division
Balloonflower	Blue, white	Handsome plants; full sun; divide in spring, can sow seeds
Coralbells	Bright red or pink	Ordinary garden soil; propagated by division
Coreopsis	Yellow	Propagated by division, blooms till fall
Day lily	Yellow, red, orange	Different varieties bloom at various times of growing season; good foliage clumps, withstand some shade
Delphinium	Blue, white	May bloom first year from seed
False dragonhead	Pink, white	Easily grown; divide large clumps
Gas plant	White, purple	Strong smelling
Golden marguerite	Yellow	Bloom till frost
Great bellflower	Blue, white	Propagated by division, seeds sown in summer; ordinary soil
Japanese iris	Purple, white, yellow	Do best in moist place, do well in ordinary soil
Lily	Various	Best in light soil, partial shade, protection from winds. Bulbs usually fall-planted; many grow more than 3 feet tall
Lupine	Various	Thrive even in poor soil; propagated by division or grown from seed
Mountain bluet	Blue, white	Propagated by division, seeds sown in summer
Oriental poppy	Orange, pink, white	Long tap root; transplant in August
Painted daisy	Various	Propagated by division, seeds sown in summer
Peony	White, red, pink	Thrive in any soil, heavy feeders, apply top dressing in fall, work in spring. Divide in September.
Perennial flax	Blue, white	Ordinary soil and care
Perennial gaillardia (blanket flower)	Orange	Full sunlight
Phlox	White, pink, lavender, red	Divide in fall; set 3 feet apart.
Plantain lily	White, blue	Does well in shade; large clumps of foliage
Shasta daisy	White	Propagated by division, seeds sown in summer
Showy stonecrop	Pink	Grown in poor soil
Siberian iris	Blue, white	Very showy
Sneezewort	White	Propagated by division

(continued on next page)

Table 1.—*Listing of perennial flowers, continued.*

<i>(Summer-flowering perennials, continued)</i>		
Bloom from June to August; more than 3 feet tall		
Common name	Color	Remarks
Bee balm	Red, white, lavender	Divide in spring; easily grown; coarse plants
Delphinium	Blue, white	Very tall; need staking; propagated by seed or division
Hollyhock	Various	Actually a biennial; self-seeding
Italian bugloss	Blue	Easily grown; seeds sown in spring
Monkshood	Blue	Rich soil; partial shade; need staking
Mullein	Rose	Does well in dry soil
Fall-flowering perennials		
From 3 to 6 feet tall		
Common name	Color	Remarks
Azure monkshood	Blue, white	Rich soil, partial shade; contain poison in roots
Japanese anemone	Pink, white	Need protection from wind; rich soil, partial shade; seeds sown in late fall
Mums	Various	Be sure to obtain proved hardy types
New England aster	Pink, blue	One of the best fall bloomers
New York aster	Blue	One of the best fall bloomers
Showy coneflower	Orange	Thrive in any soil or situation

Explanatory Notes for Table 2

Height. A range of height indicates that there are different strains. For example, *zinnia elegans* includes cupid zinnias that are dwarf types, and giant- and dahlia-flowered types that grow to 3 feet.

Color. Only basic colors are listed. For instance, “red” often indicates a range from pink to rose, crimson, or scarlet. The following key is used in the table:

B—Blue	Pn—Pink
Brn—Brown	Pr—Purple
C—Crimson	R—Red
G—Green	V—Violet
L—Lavender	W—White
O—Orange	Y—Yellow

Hardy annuals. The asterisk (*) indicates the so-called hardy annuals, which often self-sow from one year to another. They also tolerate light frost. Seeds of hardy annuals can be sown in the garden in the fall, or in the spring as soon as the ground can be worked.

Uses. Annuals can be used many different ways.

Only very appropriate ways are suggested:

- Bed—useful in mass as bedding plants
- Cut—long-lasting as cut flowers
- Cont—container; includes porch and window boxes
- Dried—useful after being dried
- Edge—useful in front edge of garden
- Fol—grown for foliage effect
- Fruit—has interesting fruit display
- Nov—novelty in flower or fruit
- RG—useful in rock gardens
- Screen—dense vines

Seeds per ounce. This lets the beginning gardener know that some annuals have very tiny seeds. These require extreme care in seeding and growing.

Seeds per packet. There is no consistency in how many seeds you get in a packet. The number varies with each variety and each company.

Table 2.—Listing of annual flowers.

Botanical name	Common name	Height (inches)	Color	Blooming season	Situation	Uses	Approximate days to germination	Seeds /oz	Possible seeds/packet
<i>Ageratum houstonianum</i>	Ageratum	4–12	B Pn V W	Long	Avg., dry	Bed, cont	14	214,000	1,000 ^a
<i>Alternanthera ficoidea</i>	Telanthera	9			Avg.	Fol, edge			
<i>Athaea rosea</i>	Hollyhock	24	R Pn Y L W	Late	Sun	Nov	10	3,000	60
(annual form)									
<i>Amaranthus</i> sp.	Amaranthus	36–48			Sun	Foliage	24	45,000	600
* <i>Antirrhinum majus</i>	Snapdragon	6–36	L R V W	Long	Avg.	Cut	14	220,000	2,500 ^b
<i>Arctotis</i> sp.	African daisy	12–24	R Pn Y W	Long	Sun, dry	Bed, cut	10		50
<i>Begonia semperflorens</i>	Fibrous begonia	6–12	R Pn W	Long	Shade	Bed, cont	18	950,000	200
<i>Briza maxima</i>	Quaking grass	12–18	Brn	Short	Sun	Fruit, dried			50
<i>Browallia</i> sp.	Browallia	12–15	B V W	Long	Shade	Cont	35	70,000	225
* <i>Calendula officinalis</i>	Calendula	6–24	O Y	Long	Avg.	Cut	14	4,000	200
<i>Callistephus chinensis</i>	China aster	6–24	B Pr R W	Short, late	Avg.	Cut	10	12,000	200
<i>Capsicum</i> sp.	Ornamental pepper	12–18	O Y R		Shade	Fruit	14	10,500	100
<i>Catharanthus roseus</i>	Periwinkle	10–18	Pn R W	Long	Avg., shade	Bed, cont	14	22,000	200
(<i>Vinca rosea</i>)									
<i>Celosia argentea</i>	Cockscomb	6–24	R Y	Long	Dry	Dried	6–10	30,000	400
<i>v. cristata</i>									
<i>Celosia argentea</i>	Plume cockscomb	8–36	R Y	Mid-late	Dry	Cut, dried	6–10	30,000	400
<i>v. plumosa</i>									
* <i>Centaurea cyanus</i>	Bachelor's button	12–24	B R W	Short	Avg.	Cut	15	7,000	350
<i>Centaurea</i> sp.	Dusty miller	6–24			Avg.	Foliage	18–25	7,000	200
<i>Chrysanthemum morifolium</i>	Garden mum	14–24	R Pn Y W	Late	Avg.	Bed, cut	8	65,000	85
<i>Chrysanthemum parthenium</i>	Matricaria	10–24	W Y	Long	Avg.	Bed, edge, cut	15	145,000	250
<i>Cleome spinosa</i>	Spider flower	48	Pn Pr W	Long	Dry		15	12,500	400
<i>Coleus blumei</i>	Coleus	18–36			Shade	Fol, cont, bed	14	115,000	125
<i>Convolvulus tricolor</i>	Dwarf bush morning glory	12	B Pn W	Long	Avg.	RG, edge	10	1,400	40
* <i>Coreopsis tinctoria</i>	Calliopsis	6–30	R Y	Short	Dry	Cut	14	100,000	1,000
<i>Cosmos bipinnatus</i>	Cosmos	36–48	C P W	Long	Dry	Cut	10–14	5,500	100
<i>Cosmos sulfureus</i>	Yellow cosmos	18–36	Y O R	Long	Dry	Cut	14	3,000	50
<i>Cuphea ignea</i>	Cigar flower	12	R	Long	Avg.	Nov, cont			50
* <i>Cuphea llavea</i>	Firecracker flower	12	R Pr	Long	Avg.		20	7,000	200
<i>Cynoglossum amabile</i>	Chinese forget-me-not	24	B	Short, late	Avg., dry		10	5,300	
<i>Dahlia pinnata</i>	Dahlia	12–36	Various	Mid-late	Sun	Cut, bed	10	3,000	50
* <i>Delphinium ajacis</i>	Larkspur	36	B Pn V W	Short	Part, shade	Cut	18	10,000	240
* <i>Dianthus chinensis</i>	China pink	4–12	Pn R W	Long	Avg.	Cut	10	28,000	100
<i>Digitalis purpurea</i>	Foxglove	30	Pr L Pn Y W	Short	Shade	Cut	7–14	180,000	1,000
(annual form)									
<i>Dimorphotheca</i> sp.	Cape marigold	10	O Y W	Short	Dry	RG	18	10,000	100
<i>Emilia</i> sp.	Paint brush	24	R Y	Long	Sun, dry	Cut	8		100
* <i>Eschscholzia californica</i>	California poppy	15	O R Y W	Medium	Dry	RG	10	14,000	400

^aPossible seeds per packet for hybrids: 300

^bPossible seeds per packet for hybrids: 350

(continued on next page)

Table 2.—Listing of annual flowers (continued).

Botanical name	Common name	Height (inches)	Color	Blooming season	Situation	Uses	Approximate days to germination	Seeds /oz	Possible seeds/packet
<i>Euphorbia marginata</i>	Snow on the mountain	24	W	Short, late	Avg.	Foliage	10	7,000	180
* <i>Gaillardia pultchella</i>	Basket flower	12–24	R Y	Long	Dry	Cut	18	15,000	450
<i>Gazania</i> sp.	Gazania	8–15	R Pn O Y W	Long	Sun, dry	Bed, fol, cont	8	12,000	350
<i>Godetia</i> sp.	Satinflower	12–24	R Pn W	Long	Sun	Bed, cut	15	42,000	630
<i>Gomphocarpus fruticosus</i>	Gomphocarpus	36	W	Mid–late	Avg.	Fruit	15	5,800	50
<i>Gomphrena globosa</i>	Globe amaranth	6–18	B Pr W	Mid–late	Dry	Cut, dried	15	25,000	150
* <i>Gypsophila elegans</i>	Annual baby's breath	18	W Pn	Short	Dry	Cut, RG	14	varies	1,500
<i>Helianthus annuus</i>	Sunflower	15–96	Y O	Short, late	Dry	Dried	14	45,000	125
<i>Helichrysum bracteatum</i>	Strawflower	12–30	O R W Y Pr	Short, late	Dry	Fragrant	21	55,000	500
<i>Heliotropium arborescens</i>	Heliotrope	24	Pr W	Long	Avg.	Cut, dried	14–20	9,000	600
<i>Heliotropium (Acrolinium) roseum</i>	Everlasting	15	Pn W	Short, late	Dry				60
<i>Hunemannia fumariaefolia</i>	Santa Barbara poppy	15	Y	Short, late	Avg.	Cut	14	8,550	50
<i>Hypoestes sanguinolenta</i>	Polka dot plant	12–15		Short	Shade	Foliage	10		275
* <i>Iberis umbellata</i>	Annual candytuft	12	Pr R W	Short	Dry, shade	Cut	14	10,000	80
<i>Impatiens balsamina</i>	Garden balsam	8–24	R Pn W	Short	Shade		12	3,500	80
<i>Impatiens holsill/sultana</i>	Sultana; impatiens	6–24	R Pn W O	Long	Shade	Bed	15	60,000	75
<i>Kochia scoparia</i>	Summer cypress	24–36		Long	Sun, dry	Foliage	10	45,000	800
<i>Lantana</i> sp.	Lantana	12–36	L O R Y	Long	Sun	Cont	45	1,300	50
<i>Lathyrus</i> sp.	Sweet pea	8–30	L R W	Short	Shade	Cut, fragrant	10–14	390	30
<i>Lavatera trimestris</i>	Lavatera	36	Pn W	Long	Avg.		14–35	5,500	280
<i>Limonium</i> sp.	Statice	24–30	L Pn W Y	Late	Dry	Cut, dried	20	350	20
<i>Lobelia erinus</i>	Annual lobelia	6–12	B Pr R	Long	Shade	RG, cont, edge	10–15	750,000	3,000
* <i>Lobularia maritima</i>	Sweet alyssum	6	V W	Long	Shade	Fragrant	5	70,000	1,200
<i>Machaeranthera</i> sp.	Tahoka daisy	18	L	Long	Sun	Cut, bed	30		50
<i>Martynia</i> sp.	Unicorn plant	18	B Y W	Long	Avg.	Fruit	20		25
<i>Matthiola incana</i>	Stocks	12–24	B L R W Y	Short	Avg.	Cut	8	19,000	250
<i>Mirabilis</i> sp.	Four o'clocks	24	Multicolor R Y W	Long	Avg.	Bed	5	300	40
<i>Molucella laevis</i>	Bells of Ireland	24	G	Medium	Avg.	Cut	30	4,200	100
<i>Nemesia</i> sp.	Nemesia	18	O R Y W	Long	Shade	Bed	8	90,000	650
<i>Nemophila insignis</i>	Baby blue eyes	6	B	Long	Shade	Bed, edge, RG	10	11,000	300
<i>Nicandra</i> sp.	Shoo fly plant	36	B	Long	Avg.	Fruit	15		50
* <i>Nicotiana glauca</i>	Flowering tobacco	15–36	W	Long	Shade	Fragrant	10	200,000	3,000
<i>Nicotiana sanderae</i>	Red tobacco	15–36	R	Long	Shade		10	175,000	600
<i>Nierembergia hippomanica</i>	Cup flower	9	B L	Long	Avg., dry	RG, cont	18	175,000	600
<i>Nigella arvensis</i>	Love-in-a-mist	15	B Pn R	Short	Avg.	Cut, fruit	14	12,000	300
<i>Ocimum basilicum</i>	Basil	15		Short	Avg.	Foliage	10	16,000	250
* <i>Papaver nudicaule</i>	Iceland poppy	12–24	O Pn W Y	Short	Dry, sun		12	448,000	3,000
* <i>Papaver rhoeas</i>	Shirley poppy	24	O R W Y	Short	Dry, sun		12	72,500	3,000
<i>Pelargonium hortorum</i>	Geranium	18	R Pn W	Long	Sun	Cont, bed	20	6,000	150 ^c
<i>Pennisetum setaceum</i>	Fountain grass	48		Long	Sun	Background fruit, dry foliage	30	14,000	50

^c Possible seeds per packet for hybrids: 10

(continued on next page)

Table 2.—Listing of annual flowers (continued).

Botanical name	Common name	Height (inches)	Color	Blooming season	Situation	Uses	Approximate days to germination	Seeds /oz	Possible seeds/packet
<i>Perilla frutescens</i>	Crinkled coleus	36			Sun		15	2,000	
<i>Petunia hybrida</i>	Petunia	10–18	B Pr R W	Long	Avg.	Cont, bed	10	262,000	600 ^d
<i>Phlox drummondii</i>	Annual phlox	8	Pr R W Y	Long	Shade	Cut	12	18,000	225
<i>Polygonum capitatum</i>	Magic carpet	4	Pn		Avg.	RG	30	31,000	500
<i>Portulaca grandiflora</i>	Portulaca	6	O R W Y	Long	Dry, sun	RG	14	300,000	4,000
<i>Reseda odorata</i>	Mignonette	15	Y	Long	Avg.	Cut, fragrant	12	30,000	1,200
* <i>Rudbeckia bicolor</i>	Coneflower	30	Y O Brn	Long	Dry		18	85,000	100
<i>Rudbeckia</i> "Gloriosa Daisy"	Gloriosa daisy	24–36	Y O Brn	Long	Avg.		20	80,000	100
<i>Salpiglossis sinuata</i>	Painted tongue	24	Pr R Y	Short	Avg.	Cut	14	125,000	1,000
<i>Salvia farinacea</i>	Sage	36	B Pr W	Long	Shade	Dried	18	24,000	200
<i>Salvia patens</i>	Gentian sage	30	B	Long	Shade				
<i>Salvia splendens</i>	Scarlet sage	10–24	R W Pr	Long	Avg.	Bed	14	7,500	100
<i>Santolina</i> sp.	Santolina	12	Y	Long	Dry, sun	Edge, fol	15	51,000	1,500
<i>Sanvitalia procumbens</i>	Creeping zinnia	6–12	Y	Long	Dry	RG	10	50,250	700
<i>Scabiosa atropurpurea</i>	Pincushion flower	24–36	Pr Pn W	Long	Avg.	Cut	18	4,500	80
<i>Schizanthus</i> sp.	Poor man's orchid	12–18	Pr L V Pn W	Short	Shade	Cut	15	50,000	
<i>Tagetes erecta</i>	African marigold	12–30	O Y	Mid-late	Dry	Cut, cont, bed	8	11,000	100
<i>Tagetes patula</i>	French marigold	8–24	O R Y	Long	Dry	Cut, cont, bed	8	10,000	150
<i>Tagetes tenuifolia</i>	Scotch marigold	12	Y Brn	Long	Dry	Cut	8	9,000	100
<i>v. pumila</i>									
<i>Talinum paniculatum</i>	Jewels of Opar	18–24	Pn	Long	Dry	Cut	15		
<i>Tithonia</i> sp.	Mexican sunflower	6–48	O	Mid-late	Dry		25	4,000	45
<i>Torenia fournieri</i>	Wishbone flower	12–18	Pr W	Long	Shade	RG, cont	14	375,000	2,000
<i>Trachymene (didiscus) caerulea</i>	Blue lace flower	24	B W	Short	Avg.	Cut	13	10,300	
<i>Tropaeolum majus</i>	Nasturtium	12	O R Y	Long	Dry	RG, cont	13	250	60
<i>Verbena hybrida</i>	Verbena	6–12	B Pr R W	Long	Shade	RG, cont	14	12,500	140
<i>Viola tricolor</i>	Pansy	12	Various		Shade	Cut	14	22,000	300 ^d
<i>v. Hortensis</i>									
<i>Xanthisma</i> sp.	Star of Texas	18	Y	Long	Sun		25		150
<i>Zinnia angustifolia</i>	Mexican zinnia	18–24	Various	Long	Dry	Cut, bed	7–14	3,000	100 ^d
<i>Zinnia elegans</i>	Zinnia	4–36	Various	Long	Dry	Cut, bed	7–14	3,000	150 ^d
<i>Zinnia linearis</i>		15–20	O	Long	Dry	Cut, bed	10	4,000	
Vines									
<i>Calonyction aculeatum</i>	Moonflower vine		W	Short	Avg.	Screen	50–60	120	
<i>Cobaea scandens</i>	Cathedral bells		Pr	Medium	Avg.	Screen	21	400	25
<i>Dolichos lablab</i>	Hyacinth bean		Pr W	Medium	Avg.	Screen	10	115	
<i>Ipomoea</i> sp.	Morning glory		B Pr R	Long	Shade	Screen	21	700	40
<i>Lathyrus odoratus</i>	Sweet pea		L R W	Short	Shade	Cut, fragrant	10–14	390	30
<i>Phaseolus coccineus</i>	Scarlet runner bean		R	Long	Avg.	Fruit			25
<i>Tropaeolum majus</i>	Nasturtium (vining)		O R Y	Long	Dry		13	250	60
<i>Vinca major</i>					Avg.	Fol, cont		22,000	

^dPossible seeds per packet for hybrids: 50

Monthly gardening calendar

October	Dig, dry, and store gladiolus corms at 35 to 50°F Clean up garden for winter Prepare bird feeders	April	Divide and plant dahlia clumps Sow tender flower seeds outdoors later in the month Harden off transplants and set plants in garden for summer Mulch new perennial plantings for drought and weed control
November	Mulch any materials needing winter protection Cut back rose canes to 2½ feet Put manure on garden plots	May	Check for aphids; use spray or dust for control Plant gladiolus corms Divide and replant primroses Prune spring-flowering shrubs Cut off lilac seed heads
December	Check gladiolus corms for thrips damage; treat if damage is found Draw landscape plan, take photos, study yard for needed useful plantings	June	Remove forming seed clusters on rhododendrons Use weed killers on lawns Water gardens and lawns as needed Exhibit roses in a local rose show
January	Turn compost pile Check for all-American selections of flowers and vegetables Request seed catalogs Take and send in soil samples Study yard for needed plantings of shrubs and trees; finish plan	July	Use annual flowers in arrangement Cultivate if not using mulches Water every week Dig, divide, and replant crowded spring-flowering bulbs Watch for and control insects Study flower show list Study live flowers in contest
February	Draw plans of annual and new perennial flower gardens Plan for demonstrations Build cold frame Order seeds from reliable companies Assemble scrapbook for studying contest materials Plant several new, needed shrubs and trees	August	Check all rules for exhibiting flowers at fairs Plant perennial flower seed in seedbed or indoors Protect flower blooms you're readying for exhibits
March	Present demonstrations Plant new perennial plants Apply fertilizer if necessary, as indicated by soil test Turn over gardening areas, add compost Plant sweet peas, calendulas, and annual phlox seed outdoors Start tender annual flowers from seed, indoors, early in the month Transplant seedlings started earlier in the month Plant newly selected shrubs and trees as per landscape plan	September	Fill out record sheet Plan for next year's horticulture experiences Dig, divide, and replant peonies Plant bulbs for spring bloom Start new compost pile Stake tall-growing chrysanthemums

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