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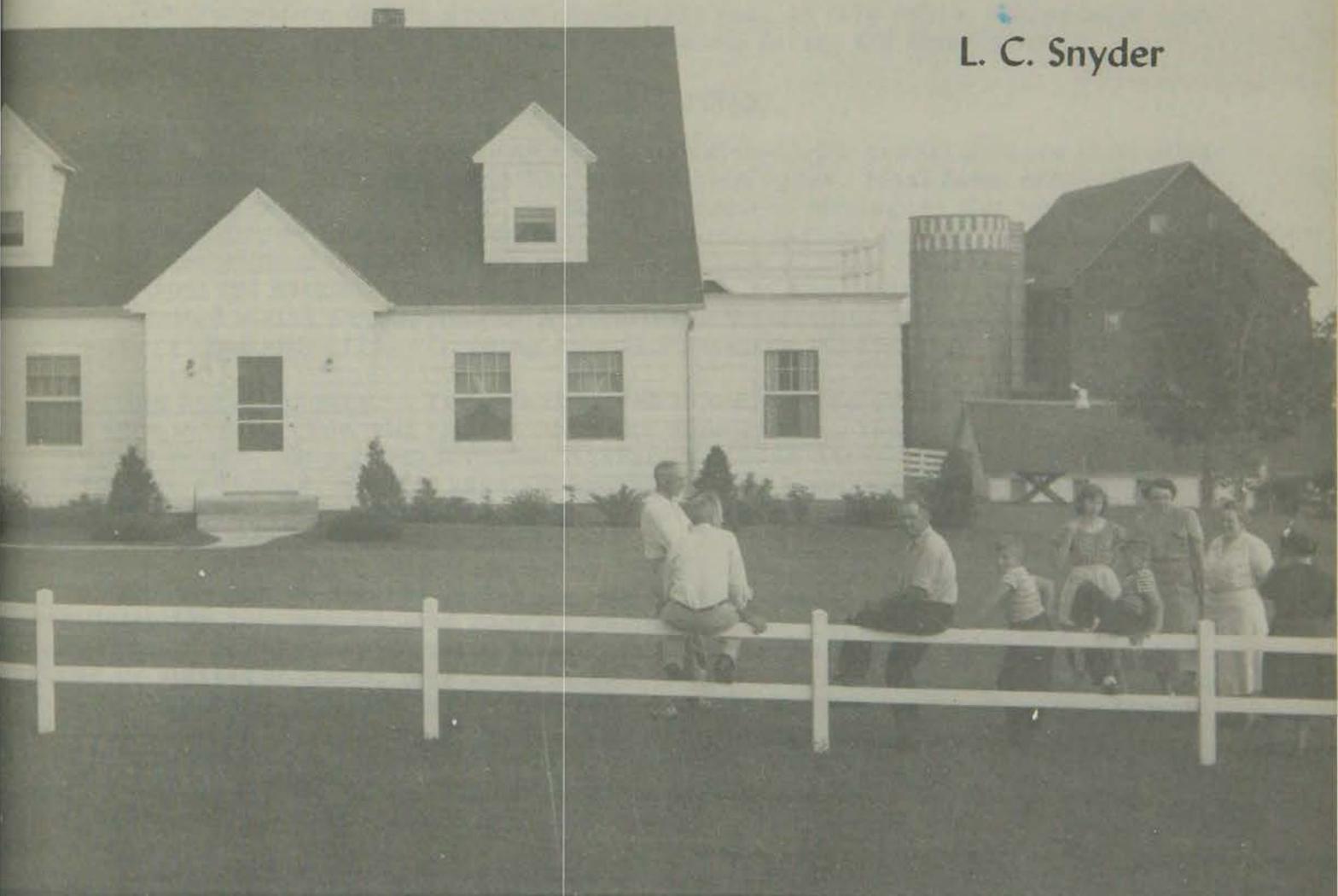
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4-H Home Yard Improvement



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4-H HOME YARD IMPROVEMENT

by

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Everyone enjoys an attractive home and surrounding yard. An open lawn with properly located trees, shrubs and flowers can help you achieve this goal. You can learn how to select, plant, and care for these things by enrolling in the yard improvement project.

This project includes the following units:

1. Annual flowers
2. Perennial flowers
3. Woody plants
4. Planning and planting the home grounds.

The completion of this project should take four or five years. Older boys and girls, starting this project, may take two phases during the same year.

Part I. Annual Flowers

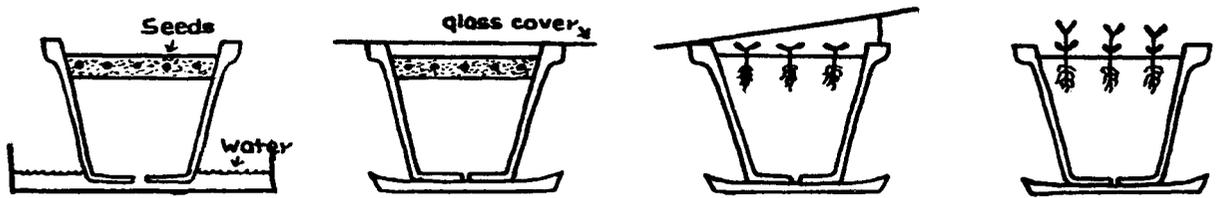
Making a Scrapbook -- A good way to get acquainted with annual flowers is to study seed catalogues. Write for a number of such catalogues. Most farm magazines will list a number of companies that put out an attractive catalogue. Cut out the pictures of as many annual flowers as you can find and mount them in your scrapbook. Write a brief description of each flower under the picture. These descriptions may be taken from the catalogue or write to the Division of Publications, Office of Information, United States Department of Agriculture, Washington 25, D. C., and ask for Farmers' Bulletin 1171, "Growing Annual Flowering Plants."

Starting Seeds Indoors -- You are required to start three or more kinds of annual flowers indoors. You will want to start the slow growing types that take a longer time to bloom. This group includes Ageratum, China aster, Lobelia, Marigolds, Pansies, Petunias, Scarlet sage, Snapdragons and Zinnias for early bloom. See list of annuals and tender bulbs, page 6, for planting dates and for additional annuals that can be started indoors.

Seeds must be started during the winter when soil is hard to get. Certain substitutes for soil may be used such as Vermiculite or Terralite, or sphagnum moss. These can usually be purchased from your local lumber dealer or florist. Seeds can be started in flower pots or in small flats. If a soil mixture is used, use equal parts of garden soil, leaf mold, and sand. Sift the soil through a coarse screen to remove lumps and stones. If Vermiculite or sphagnum moss are used water well with a nutrient solution before planting the seeds. Such a nutrient solution can be prepared by dissolving a teaspoonful of a complete garden fertilizer in a quart of water.

If a flower pot is used, a separate pot should be used for each kind of flower. Fill the flower pot with one of the above mixtures. Firm the soil and scatter the seeds over the surface. Sift a light covering of soil or Vermiculite or shredded sphagnum moss over the seeds. This covering should not be over $\frac{1}{4}$ inch thick; even less would be better for very fine seeds. Put a label in the pot with the name of the flower. Stand the pot in water until the surface of the soil becomes moist. Remove from the water and place on a saucer. Cut a piece of window glass to

cover the pot. The glass cover will provide a moist atmosphere around the seeds during germination. Place the pot in a warm place where the temperature is about 70°F. Light is not necessary for germination. As soon as the first seedlings break through, put the pot in a sunny window and raise the glass to allow ventilation. Remove the glass cover entirely after a few days.



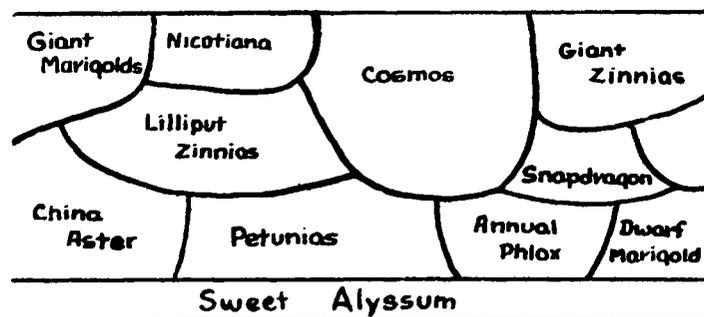
Starting Flower Seeds

As soon as the first true leaves have developed, the seedlings should be transplanted to flats or very small flowerpots. Carefully lift the seedlings so as to not injure the roots. Separate the seedlings and plant at once. A dibble will be useful for opening the holes and planting the seedlings. If seedlings are transplanted into a flat, space the seedlings 2 x 2 inches apart. Grow in a sunny window until the plants can be put outdoors in a cold frame or a protected spot.

Sowing Seeds Out-of-Doors -- Many of the annuals will flower if the seeds are sown out-of-doors in the garden. It will be easiest to plant your flowers in rows out in the garden where they can be cared for along with the vegetables. There may also be an opportunity to grow flowers in front of the shrubs in the foundation planting or along one edge of the lawn. Never plant flowers in beds out in the center of the lawn or around the base of trees.

Prepare a good seedbed before planting the seeds. Work in some organic matter such as composted leaves or well-rotted manure. Plow or spade the flowerbed and work up the soil so the surface is smooth and free of lumps.

Rows in the garden should be at least two feet apart. Make shallow trenches with the end of a hoe handle. Plant the seeds carefully and evenly. Cover with soil and firm the soil over the seeds. If the flowers are to be planted near the house or in the border it will be best to scatter the seeds over the freshly prepared seedbed and cover by sifting some soil over the seeds. Flowers look better if planted in informal clumps in the landscape plan rather than in rows. Always plant the taller growing ones in back and lower ones in front.



A Planned Flower Border of Annuals - 20 x 5 feet.

Transplanting into the Garden -- Flowers that were started indoors should be set out as soon as danger of frost is past. Carefully remove the transplants from the pots or flats so as not to disturb the roots any more than necessary. A sharp tap of the rim of the flowerpot on a board will loosen the ball of dirt so it will slip out of the pot unbroken. An old knife can be used to cut the soil between the plants in a flat so each plant can be removed with a square of dirt attached. Use a trowel in transplanting. Press the soil down firmly around each plant so the roots will be in close contact with the soil. Water the plants using a transplanting solution prepared by dissolving one-half cup of a complete fertilizer in a gallon of water. This will give the plants a quick start and help to overcome the shock of transplanting. Space the plants so they will not be crowded as they grow up.

Gladiolus and dahlia culture -- It is best to grow these flowers in rows in the vegetable garden. The gladiolus corms can be planted from the first of May until the middle of June. Make a shallow trench about four inches deep and six inches wide. Space the corms about six inches apart in a straight row down the center of the trench. Scatter some superphosphate fertilizer along the edges of the trench, using about a pound for a twenty-five foot row. Fill in the trench with soil. Glads should be kept well-cultivated and hoed to control weeds. Dust the plants with a five per cent DDT dust every ten days to control the thrip insect. In cutting flowers leave as many leaves on the plant as possible. Cut when the first florets on a spike have opened. Put spikes in buckets of water and put in the basement. The florets will open in a few days and flower arrangements can be made for the home or for exhibits.

Dahlias are grown from roots. These roots can be started indoors in large flowerpots and later transplanted into the garden, or the roots can be planted directly in the garden. Plant the roots in an upright position with the top of the root about an inch below the soil surface. Do not plant dahlias until all danger of frost is past as dahlias are very tender. Dahlias need to be staked, so drive stakes into the ground near each plant. Tie the plants to these stakes with strips of soft cloth.

Care of the flowers during the summer -- Annual flowers are quite easy to grow. They should be kept free of weeds by frequent cultivation and hoeing. It will be necessary to thin out the plants where seeds were planted directly in the garden. The distance between plants will depend on the mature size of the plant. Sweet alyssum should be thinned so the plants are about six inches apart; zinnias should be about twelve inches; and large plants, like the cosmos, about eighteen inches. If the plants are too close together they will crowd one another. If you have ten plants growing in a space only large enough for one, nine of these plants can be considered as weeds competing for the space needed by the one. Some annuals like a mulch to shade the ground and keep the ground cool. Pansies and sweet peas should be mulched with ground corn cobs, lawn clippings, sawdust, or some other available mulch material that is not unsightly. The mulch should be an inch or two deep.

Keep a record of your flowers -- This record might be set up in a tabular form as follows:

Name	Date Planted	Length of blooming period	Color of bloom	Height of plant	Uses
Zinnia	May 1	Aug. 10-Sept. 30	red, orange, white	18" to 24"	Cut flower

Spring Clean-up -- You will want to help, in every way you can, to keep your yard attractive. Nothing does quite so much to improve the appearance of your yard as a good spring clean-up. All debris such as tin cans, ashes, boards, etc., should be removed from the area visible from your house or yard. Rake the lawn to remove twigs and tree leaves. It is not necessary to rake out the dead grass since it will soon rot down and add to the fertility of the lawn. Do not burn the lawn since this practice burns out valuable organic matter and presents a fire danger to farm buildings.

Lawn Care -- A well-kept lawn is the first step in making your yard attractive. Regular mowing will improve the appearance of your lawn. Mow at least once a week during the growing season. Set the lawn mower so the blade cuts about one and one-half inches above the ground. If you let the grass get too tall you remove too much of the plants' leaf surface at one time.

Fair Exhibits -- You will want to exhibit some of your annual flowers as well as your scrapbook at the county fair. Your flower arrangements should consist of only the best quality blooms. Do not crowd your arrangement. Flowers should be cut on the evening before the flowers are to be taken to the fair. Plunge the cut flowers in a bucket of cold water as soon as cut and let stand overnight. The flowers will hold up much better if you do this. Exhibit only those flowers which hold up well as cut flowers. Bachelor buttons, zinnias, gladiolus, and marigolds are excellent for exhibit purposes. Annual phlox, Nicotiana, spider plant, and dahlias do not hold up well in an exhibit.

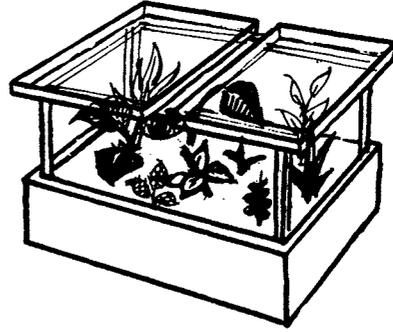
Propagation of House Plants -- Many of our common houseplants can be propagated from stem cuttings. These can be taken in the fall before the plants freeze in the garden. Geranium, coleus, fuchsia, begonias and African violets are easy to propagate. Coarse sand or Vermiculite are good rooting medias. The cuttings can be planted in a large flowerpot or a special propagating case. The cutting should be about four inches long. Remove the lower leaves and make a fresh cut just below where a leaf came out. Use a sharp knife or a razor blade to make the cut. Insert the cutting about an inch deep in the rooting medium. Keep the rooting medium moist.

Some provision should be made to keep the air moist around the cuttings. A wide mouthed jar can be inverted over a few cuttings in a flowerpot. If you are going to make very many cuttings you will want to construct a propagating case. Make a box about four inches deep and about 8 x 10 inches in size. Have window glass cut so it will just fit inside the box and project about 4 inches above the edges. Tape the corners with scotch tape. Cut a glass for the cover that will project one-half inch on all sides. Cut this glass in two so it can be separated in the center to allow ventilation. Tape the edges of the cover.

It will take about four weeks for the cuttings to root. They can then be transplanted into soil in flowerpots. Toward the end of the rooting period ventilation is needed. Prop up the jar, in case of the flowerpot, or separate the glass cover, if a propagating case is used.



Cuttings in flowerpot



Cuttings in Propagating case

Propagation by Means of Cuttings

Demonstrations -- The home beautification project offers some excellent opportunities for demonstrations. First year members might demonstrate the starting of annual flower seeds indoors or the transplanting of these seeds into the garden. The propagation of house plants from cuttings would also make a very good demonstration.

GARDEN FLOWERS—Perennials and Hardy Bulbs

Name	Height	Color*	Use†	May	June	July	Aug.	Sept.	Oct.
Alyssum, Goldentuft	12 in.	Y	M	—	—	—	—	—	—
Aster, Perennial	3-5 ft.	vary	M C	—	—	—	—	—	—
Babysbreath	2-3 ft.	W	M C	—	—	—	—	—	—
Balloon Flower	1-2 ft.	W, B	M C	—	—	—	—	—	—
Bellflower, Carpathian	8-10 in.	B	M E	—	—	—	—	—	—
Bleeding Heart	2-3 ft.	P	M	—	—	—	—	—	—
Chrysanthemums	1-3 ft.	vary	M C	—	—	—	—	—	—
Columbine	2 ft.	vary	M C	—	—	—	—	—	—
Coral Bell	1½-2 ft.	CR	A C	—	—	—	—	—	—
Coreopsis	2 ft.	Y	M C	—	—	—	—	—	—
Dames Rocket	2-3 ft.	Pu	M	—	—	—	—	—	—
Daylily	2-3 ft.	Y-R	A C	—	—	—	—	—	—
Delphinium	3-5 ft.	W, B	A C	—	—	—	—	—	—
Flax, Perennial	1½-2 ft.	B, W	M	—	—	—	—	—	—
Gaillardia	1½-2 ft.	Y-R	M C	—	—	—	—	—	—
Gas Plant	2-3 ft.	W-P	A	—	—	—	—	—	—
Gay Feather	2-4 ft.	Pu	A C	—	—	—	—	—	—
Globe Flower	2-3 ft.	Y	M C	—	—	—	—	—	—
Grass Pinks	6-12 in.	P	M C	—	—	—	—	—	—
Hollyhocks	5-7 ft.	vary	A C	—	—	—	—	—	—
Iris, Bearded	1½-3 ft.	vary	A C	—	—	—	—	—	—
Iris, Dwarf	6-12 in.	vary	M E	—	—	—	—	—	—
Iris, Siberian	1½-2 ft.	vary	A C	—	—	—	—	—	—
Lily, Coral	1½-2 ft.	R	A C	—	—	—	—	—	—
Lily, Elegans	1½-2 ft.	O-R	M C	—	—	—	—	—	—
Lily, Tiger	3-4 ft.	O-R	A C	—	—	—	—	—	—
Lupine	2-4 ft.	vary	M C	—	—	—	—	—	—
Lythrum, Mordens Pink	2-4 ft.	P	A C	—	—	—	—	—	—
Meadow Rue	2-4 ft.	vary	A C	—	—	—	—	—	—
Monkshood	2-4 ft.	B	A C	—	—	—	—	—	—
Oswego Beebalm	2-3 ft.	vary	M	—	—	—	—	—	—
Painted Daisy	1½-2 ft.	W-R	M C	—	—	—	—	—	—
Pentstemon	1½-2 ft.	vary	A C	—	—	—	—	—	—
Peony	2-3 ft.	vary	M C	—	—	—	—	—	—
Phlox, Garden	2-3 ft.	vary	A C	—	—	—	—	—	—
Phlox, Moss	6 in.	R-P	M	—	—	—	—	—	—
Physostegia	2-4 ft.	vary	A C	—	—	—	—	—	—
Plantain Lily (Hosta)	1-2 ft.	W B	M C	—	—	—	—	—	—
Polemonium	1-1½ ft.	B	M	—	—	—	—	—	—
Poppy, Iceland	1-1½ ft.	vary	M	—	—	—	—	—	—
Poppy, Oriental	2-2½ ft.	vary	A	—	—	—	—	—	—
Shasta Daisy	1½-2 ft.	W	M C	—	—	—	—	—	—
Sundrop	1-1½ ft.	Y	M	—	—	—	—	—	—
Sweet William	1½-2 ft.	vary	M C	—	—	—	—	—	—
Tulip	1-2 ft.	vary	M C	—	—	—	—	—	—
Viola	4-10 in.	vary	M C	—	—	—	—	—	—
Virginia Bluebell	½-1 ft.	B	M E	—	—	—	—	—	—
Yarrow, Red	1½-2 ft.	P, R	M	—	—	—	—	—	—

* Y—yellow, W—white, B—blue, P—pink, CR—coral-red, Pu—purple, R—rose, O—orange

† M—mass effect, A—accent, C—cut flowers, E—edging

GARDEN FLOWERS—Annuals and Tender Bulbs

Name	Planting Dates*	Color†	Height (inches)	Uses‡	June	July	Aug.	Sept.	Oct.
Ageratum	Mar. 1 (I)	B	6-24	E	—	—	—	—	—
Babysbreath	May 1-15	W	12-18	M C	—	—	—	—	—
Bachelor Button	Apr. 15-30	B,P,W	36	M C	—	—	—	—	—
Balsam	May 1-15	various	12-18	M P	—	—	—	—	—
Browallia	Mar. 1 (I)	B, W	18-24	M	—	—	—	—	—
Calendula	Apr. 15-30	O,Y	24	M C	—	—	—	—	—
California Poppy	Apr. 15-30	Y	12	M	—	—	—	—	—
Calliopsis	Apr. 15-30	Y	24	M C	—	—	—	—	—
Candytuft	May 1-10	W	12-18	E	—	—	—	—	—
Canna	June 1-10	various	24-48	A F	—	—	—	—	—
Castor Bean	Mar. 1 (I)		36-144	A B	—	—	—	—	—
Celosia, Plumy	May 1-10	Y,C	36-48	M C	—	—	—	—	—
China Aster	Mar. 1 (I)	various	18	M C	—	—	—	—	—
Chinese Forget-me-not	May 1-10	B	12-18	M C	—	—	—	—	—
Clarkia	Mar. 15 (I)	P,W	12-18	M C	—	—	—	—	—
Cockscomb	May 1-10	Y,C	24	M C	—	—	—	—	—
Cosmos	Apr. 15-30	Y,W,C	36-72	M C	—	—	—	—	—
Dahlia	May 20-30	various	18-72	M C	—	—	—	—	—
Flax	Apr. 15-30	C	8-12	M E	—	—	—	—	—
Four O'clock	Apr. 15-30	various	36	M	—	—	—	—	—
Gaillardia	Apr. 15-30	Y-R	18-24	M C	—	—	—	—	—
Gladiolus	Apr. 15- June 1	various	24-36	C	—	—	—	—	—
Hunnemanian	May 1-15	Y	18-24	M C	—	—	—	—	—
Larkspur	Apr. 15-30	various	36-48	A C	—	—	—	—	—
Linaria (Toadflax)	Apr. 15-30	various	18-24	M C	—	—	—	—	—
Lobelia	Feb. 15 (I)	V,B,W	8-12	E	—	—	—	—	—
Marigold, African	Apr. 1 (I)	Y,O	36-48	M C	—	—	—	—	—
Marigold, French	Apr. 1 (I)	Y-R	12-18	E C	—	—	—	—	—
Moss Rose	Apr. 15-30	various	6-8	E	—	—	—	—	—
Nasturtium	May 1-15	Y,O	12-48	E C	—	—	—	—	—
Nicotiana	Mar. 1 (I)	W,C	48-60	A C	—	—	—	—	—
Nierembergia	Feb. 15 (I)	B	6	E	—	—	—	—	—
Pansy	Feb. 15 (I)	various	8-12	E C	—	—	—	—	—
Petunia	Mar. 1 (I)	various	12-15	M C	—	—	—	—	—
Phlox	Mar. 1 (I)	various	12-18	E C	—	—	—	—	—
Pinks	Apr. 15-30	various	12-18	E C	—	—	—	—	—
Salvia (blue)	Mar. 1 (I)	B	12-18	M C	—	—	—	—	—
Scabiosa	Apr. 1 (I)	various	24-36	M C	—	—	—	—	—
Scarlet Sage	Mar. 1 (I)	R	12-36	A	—	—	—	—	—
Shirley Poppy	Apr. 15-30	various	18	M C	—	—	—	—	—
Snapdragon	Mar. 1 (I)	various	12-36	M C	—	—	—	—	—
Stocks	Mar. 1 (I)	various	18	M C	—	—	—	—	—
Sunflower (hybrids)	May 15-20	Y	24-48	A C	—	—	—	—	—
Sweet Alyssum	Mar. 1 (I)	W,V	6	E	—	—	—	—	—
Sweet Pea	Apr. 15-30	various	48-60	B C	—	—	—	—	—
Sweet Sultan	Apr. 15-30	B,P,W	36	M C	—	—	—	—	—
Tigridia	May 15-30	Y-R	12-18	M	—	—	—	—	—
Verbena	Mar. 1 (I)	various	8-12	E	—	—	—	—	—
Zinnia, Large	Mar. 15 (I)	various	36-48	M C	—	—	—	—	—
Zinnia, Lilliput	Mar. 15 (I)	various	18	M C	—	—	—	—	—

* I—inside

† B—blue, P—pink, W—white, O—orange, Y—yellow, C—crimson, R—red, V—violet

‡ E—edging, M—mass effect, C—cut flowers, P—pot plants, A—accent, F—formal beds, B—background

Part II. Perennial Flowers

Spring Flowering Bulbs -- Fall is the time to plant spring flowering bulbs. Among the bulbs that can be planted at this time are: tulips, daffodils, crocus, scillas, and grape hyacinths. Successful bloom in the spring depends on a good root system formed during the late fall or early spring when the ground is not frozen. Most of the bulbs should be planted by mid-October. Tulips can be planted later if necessary. All bulbs like well-drained soil. If the soil is heavy, sand should be placed under the bulbs.

Spring bulbs look best when grown in clumps in the flower border. Since they bloom early, before the leaves are out on the trees, they can be grown successfully in partial shade. Bulbs can also be grown in front of the shrubbery in foundation plantings.

For tulips and daffodils dig a hole about eight inches deep and 18 inches in diameter. Scatter about a half a cup of a complete garden fertilizer in the bottom of the hole and spade it in. Plant the bulbs spacing them about eight inches apart. Six bulbs in each clump will make a nice display. Fill in the soil and water if the soil is dry. If necessary to plant later than October 15, mulch the soil with straw or leaves to keep it from freezing too soon. Smaller bulbs, like the crocus, should be planted about 3 inches deep and 3 or 4 inches apart.

Lily Bulbs -- Garden lilies make very lovely garden flowers. Since most of them are rather tall, they should be planted toward the back of the border. Fall is the time to plant lily bulbs. Plant them in well-drained soil. If the soil is heavy, put a handful of sand under each bulb. Clumps of several bulbs are more effective than single bulbs. Set the bulbs about eight inches deep. Some of the easy-to-grow lilies are the candlestick, the concolor or star lily, the coral lily, and the Henry's lily.

Winter forcing of bulbs -- Most of the spring-flowering bulbs can be forced into bloom during the winter months if started in flowerpots during November. Use large, 6 or 7 inch, flowerpots and a mixture of soil prepared by mixing two parts of garden soil with one part each of sand and leaf mold. The leaf mold can be obtained from the woods. The sand should be a coarse, washed sand.

Put from three to five bulbs in a pot, covering the bulbs with about one-half inch of soil. Water the pots and place them in a cool dark cellar. The temperature should be near the 40° F. mark. If you do not have a cool room in the basement, the bulbs can be started in a cold frame if heavily mulched to keep the soil from freezing. Perhaps there is a place in the barn where the temperature is just slightly above the freezing point. It takes about eight or ten weeks for roots to form before the flowers can be forced. During the rooting period the pots should be checked occasionally and water added as needed.

After about ten weeks bring the pots out of the cool dark room and in a few days green sprouts will appear. In about two weeks flower buds should appear. After removing the pots from the cool room, keep in a well lighted room that is not too warm. Night temperatures should not be much above 60° F. during the blooming period.

Division of peonies -- Fall is the time to divide and transplant peonies. This can be done almost anytime after September 1. Carefully lift the old clumps with a spading fork, being careful not to break too many side roots. Wash away the

soil and with a sharp knife or spade, cut the clump into sections. Each division should have from three to five strong buds.

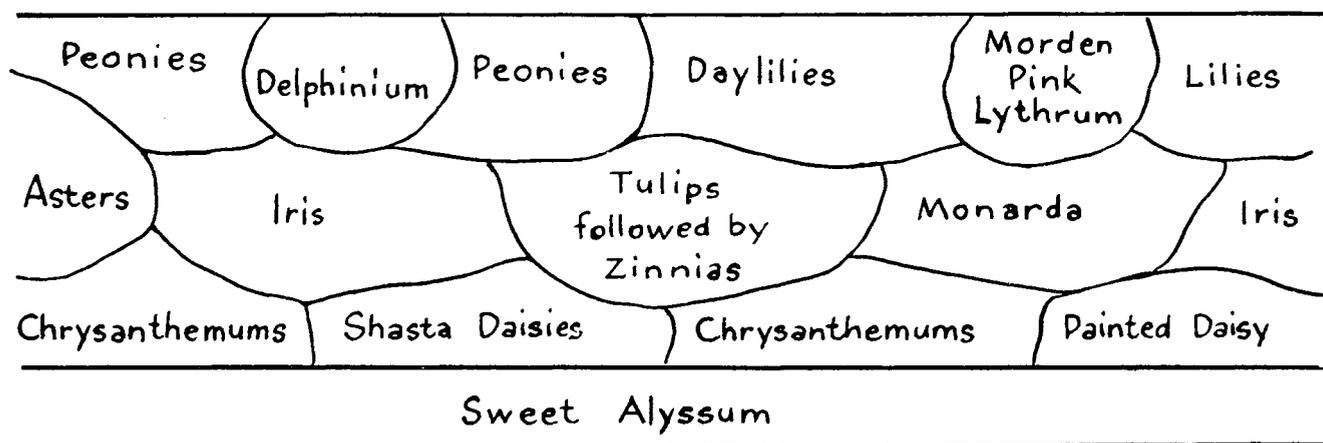
Peonies should be planted in good soil, in full sunlight, and away from tree or shrub roots. Peonies are heavy feeders and will benefit from a heavy application of well rotted manure worked into the soil. Plant so the buds are about two inches below the level of the soil.

There are many new varieties of peonies. You may wish to buy some of these to add to those you already have.

Scrapbook -- Many nursery catalogues contain excellent illustrations of garden perennials. Send for several catalogues and make a scrapbook of as many different kinds of perennials as you can. Write a description of each flower under its picture in your scrapbook. You will learn a lot of new names and much valuable gardening information by doing this. Descriptions can be found in the catalogue or from Farmers' Bulletin 1381 "Herbaceous Perennials". This can be purchased for 20 cents from the Superintendent of Documents, U. S. Department of Agriculture, Washington 25, D. C.

Plan a flower border -- A good winter project is to draw up a plan for a flower border using perennial flowers and some annuals. The list of perennials along with their heights, blooming date, and color of bloom will help you to do this. See page 6. Things to keep in mind are:

1. Plant taller growing sorts toward the back of the border, lower growing types in front.
2. Plant in clumps, using several plants of a kind. These clumps should run lengthwise of the border.
3. Provide a suitable background for the border. This might be an informal shrub planting, a hedge, or a picket fence.
4. Avoid colors which clash. Most flower colors are harmonious except red and purple. White is a peacemaker and can be used between unharmonious colors.
5. Use plants of similar texture next to each other. Never plant a fine textured plant like baby's breath next to a coarse textured plant like the castor bean.
6. Use an edging plant in front such as sweet alyssum.
7. Plan to have something in bloom at all times.



Suggested Border Planting

Soil Preparation -- Success with your flower border will depend on the preparation you give to the soil. Since perennial flowers live for several years, you will need to thoroughly enrich the soil before planting. A good plan to follow is to cover the surface of the soil with a two-inch covering of well-rotted manure plus an application of two or three pounds of a complete garden fertilizer for each 100 square feet of area. Work the fertilizer into the soil by spading at least 8 inches deep. Work the soil with a rake to break up all lumps and leave a smooth seedbed.

Planting the border -- Most of the perennials should be planted in the spring of the year with a few exceptions such as the spring flowering bulbs, peonies and iris. Plants can be purchased from a nursery or obtained from friends. Most perennials can be divided. It is always better to plant a small division than to move an entire clump. Space the plants properly, keeping in mind their mature size. Peonies should be at least two feet apart, chrysanthemums and daylilies about 18 inches apart, and other perennials a similar distance, depending on their mature size.

It is best to transplant perennials soon after a rain unless you can water with a sprinkler. Make the transplanting hole amply large so you do not crowd the roots. Firm the soil around the roots after transplanting. Water thoroughly if the soil is dry.

Summer care -- The flower border needs regular care. Frequent shallow hoeing will keep the weeds under control. Varieties that spread will need to be held in check by removing surplus plants. Seedlings of such plants as perennial phlox should be hoed-out before they take over. To prevent this remove all faded flowers before they mature their seeds. Tall plants like Delphinium should be staked to prevent wind injury. A summer mulch should be used around such plants as hybrid tea roses.

Exhibits -- A bouquet of perennial flowers and the scrapbook are possible exhibits to show at the county fair. Flowers for the exhibit should be cut the day before and plunged in water overnight to harden the flowers so they will hold up during the fair. Show only those varieties that hold up well as cut flowers. Shasta daisies, Gaillardia, Chrysanthemums, Delphinium, Lythrum, daylilies, etc., are good. Perennial phlox is a poor exhibition flower.

Winter Protection -- Certain plants will need winter protection. A mulch of clean straw over the entire border will be helpful. Put this on in the late fall just before it freezes up for the winter. Certain plants like chrysanthemums and hybrid tea roses need special protection. Chrysanthemums can be protected by planting them in a cold frame after they have finished flowering. This should be done about November 1. Water the plants well after transplanting and mulch with dry leaves or a little straw. Cover the coldframe with sash or boards to keep out the snow.

Roses should be protected by mounding up soil around the plants before the ground freezes. About a bushel of soil is needed for each bush. After the ground freezes, put straw or marsh hay over the mounds to a depth of eight or ten inches.

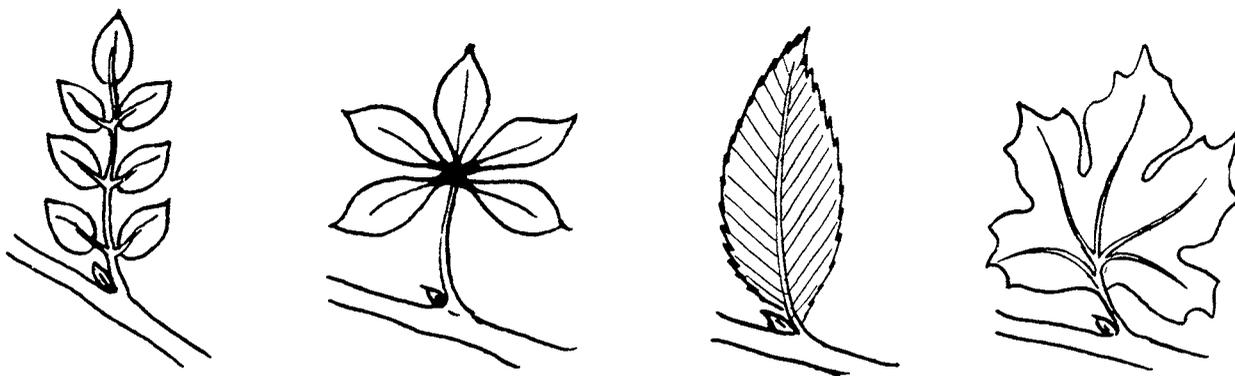
Part III. Woody Plants and Yard Maintenance

Scrapbook of tree and shrub leaves -- A good way to learn to know trees and shrubs is to learn to recognize them by their leaves. Making a scrapbook of

these leaves will help you to get acquainted with these plants. You cannot use these plants intelligently in your yard plantings unless you know something about them.

The identification of trees and shrubs is based on the arrangement of the leaves on the stems, the degree of compounding of the leaves, the arrangement of the veins in the leaf and other characters. Your leaf specimen should be accompanied by a description of the plant and a statement of where this plant can be used in the home planting. Extension bulletin 267 "Woody Plants for Minnesota" will help you with these descriptions.

You will need to understand the meaning of certain terms. A simple leaf is one that has the leaf blade all in one piece. A compound leaf is one that is divided into several leaflets. The veins of the leaf or the arrangement of the leaflets are either pinnate or palmate. In pinnate venation or compounding there is one central vein or axis and the other veins or leaflets come out from this. In palmate venation or compounding several veins or leaflets of about equal size come out from a common point. A few examples should make these terms clear.



Pinnately

Palmately

Pinnate Venation

Palmate Venation

Compound

Simple

The beginner may have difficulty in distinguishing a leaflet of a compound leaf from a simple leaf. The location of the bud makes it easy to determine whether the leaf is simple or not. Every leaf has a bud in its axil. If you cannot find a bud where the leaf blade joins the stem, you have a leaflet of a compound leaf. If you trace back to where the compound leaf attaches to the stem you will find the bud.

Leaf specimens should be pressed in a book or mail order catalogue to flatten them out before mounting them in the scrapbook. Try to select leaves that are typical of the variety and free from insect or disease damage. Leaves can be attached with scotch tape. Cut the tape with a pair of scissors so your scrapbook will look neat. Extension 4-H Bulletin 26 "Forestry in 4-H" will give you more details on pressing and mounting leaves.

Identification of Evergreens -- There are many different kinds of evergreens that will grow in Minnesota. Most of these belong to a comparatively few groups

or genera. You should learn to recognize the pines, spruces, firs, arborvitaes, junipers, etc. The following distinctive characteristics should help you to do this.

Most of the evergreens have needle or scale-like leaves. If the needles are born in clusters of two to five, you have a pine. The white pine has five needles in a cluster; Jack and Norway pines have two. The needles of the Norway pine are long while those of the Jack pine are short. If the needles come out singly from the stem you may have one of several different types. If the needles are sharp, pointed, and square in cross section you have one of the spruces. Another characteristic of the spruces is the jagged leaf bases left when the needles drop. If the needles are flat and blunt you probably have a fir or the yew. The yew has dark green needles and green twigs. The fruit of the yew is a bright red berry. There are two types of fir, the true fir and the Douglas fir. The true firs differ from the Douglas fir in the buds or cones. The buds of the Douglas fir are pointed and the scales of the cones are separated by three-lobed bracts. The true firs have smooth leaf-scars where the needles drop. The junipers and cedars have scale-like or awl-shaped leaves. In the junipers we have the scale or awl-shaped leaves at each joint. The eastern red cedar is one of the junipers. The arborvitae or white cedar has scale-like leaves that are produced on flat twigs. The scale-like leaves are opposite each other. For further information on evergreens see Extension Bulletin 258 "Evergreens for Minnesota".

Pruning -- Pruning is a garden chore that should be done regularly. Different groups of plants require different pruning methods. Some suggestions on pruning are given in Extension bulletins 250 and 258 on "Landscaping the Farmstead" and on "Evergreens". Study the sections on pruning in these bulletins.

The Mugho pine should be pruned in the spring, just as growth is starting. As the buds open they first elongate very rapidly and then the needles spread out. Pruning should be done before the elongation period of growth is completed. At that stage a part of the new growth can be cut with a hedge shears or a knife, or broken off with the fingers. Plants so pruned will thicken up and remain very compact. The amount of growth can be regulated by the extent to which the new growth is cut back.

Evergreens such as the red cedar have a different habit of growth. Instead of completing their growth for the season in the early spring, like the Mugho pine, they grow continuously throughout the growing season. It may be necessary to prune such evergreens several times during the growing season. Just as the growth is starting is a good time to make the first pruning. Cut back a part of the last year's growth. A pair of hedge shears or a knife should be used. If necessary, prune a second time in early fall. Such pruning will keep the evergreen compact and limit the growth to the space available.

All shrubs that bloom early in the spring should be pruned immediately after they have finished flowering. The Van Houtte spirea is an example of a shrub of this type. The pruning method used should be one that keeps the shrub young and retains the natural form of the shrub. To do this cut out a few of the oldest stems clear down to the ground. This will allow a few new stems to come up from the base. The shrub is thus kept young since the old stems that were removed are replaced by young ones. If the shrub should be growing out over the sidewalk or growing too tall, it may be necessary to cut back some of the terminal growth. In cutting back branches always cut back to a side bud or a side branch.

Shrubs that bloom during the summer on new wood should be pruned early in the spring before growth starts. Shrubs belonging to this group include the Hydrangeas, the Froebel and Anthony Waterer spireas, and the hybrid tea roses. Such shrubs are generally cut back rather severely to get vigorous new growth.

In pruning lawn trees, cut off all low-hanging branches. Make all cuts close to the main trunk using a sharp saw. If the branch is large, undercut about a foot from the trunk and then cut off the branch, leaving a stub. This prevents the splitting of the branch with the resulting tearing of the bark. Make a third cut removing the stub close to the trunk. Take a sharp knife to smooth up the edges of the cut. This will hasten the formation of callus tissue. The cut can be painted with orange shellac or a special asphalt paint prepared for this purpose. In addition to removing some of the lower branches, you should cut off any broken or dead branches higher in the tree. In pruning trees try to retain the natural form of the tree.

Weed control -- Broad leaf weeds like dandelion and plantain are easy to control with 2, 4-D spray. Use a preparation recommended for lawns. Apply on a quiet day when the weeds are actively growing. Be careful along the edges of the lawn since this spray may kill shrubs or flowers if the spray gets on the foliage. Do not use the sprayer for insect or disease sprays unless you rinse it out thoroughly using a solution of ammonia.

Crabgrass is a serious lawn weed that can be controlled by sprays. Use one of the mercury sprays containing PMAS or potassium cyanate. Start when the crabgrass is young and make several repeat applications. Following directions of the manufacturer very carefully is important.

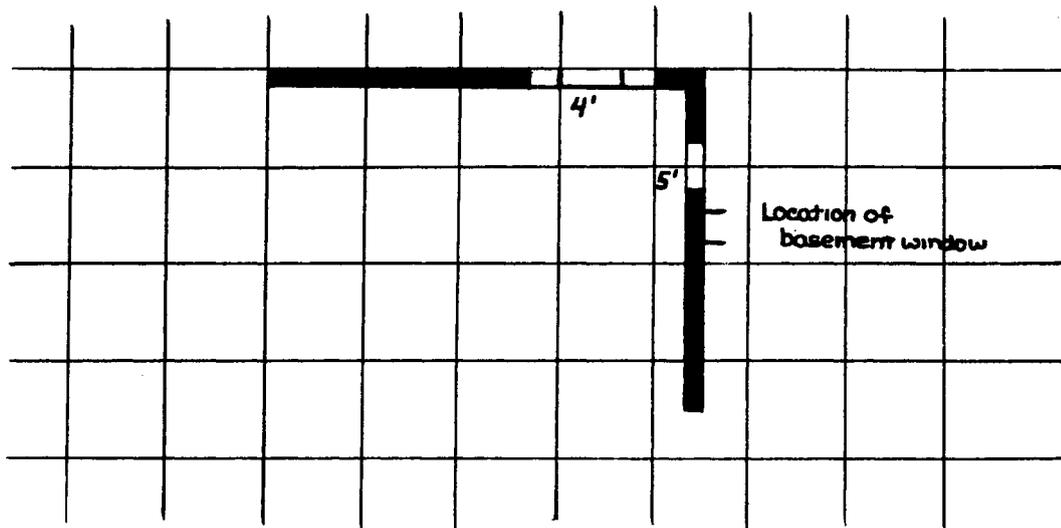
Edging the lawn -- A well-kept lawn involves more than mowing and weed control. The border should be carefully edged and trimmed. If the border is a straight line, stretch a string tightly to mark the edge. With a sharp, square-nosed spade or edging tool cut along the string. For laying-out a curved border you might lay down your garden hose arranged in the desired pattern and follow the curves with your spade or edging tool. Next, remove the sod between the cut you have made and the flower or shrub border. This can be done by cutting about one inch deep with the square-nosed spade. Remove the sod and place on the compost pile. After it has rotted down it can be used to enrich the flower border. If this is done once a year, you can have a neatly edged lawn. It may be necessary to trim the border occasionally with a pair of hand lawn-shears.

Part IV. Mapping and Planting

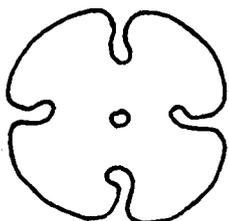
You are now ready to consider a landscape plan for your home and to undertake the job of making changes and permanent planting. You should get a copy of Extension Bulletin 250 "Landscaping the Farmstead", and study it carefully

The landscape plan -- You will need a landscape plan before you can proceed with the actual changes and plantings. You will first need a scale drawing of your place as it now is. Either use a cross-sectioned paper or take a large sheet of paper and mark it off into one-half inch squares. Let each space equal a certain number of feet. The scale that you adopt will be determined by the size of your yard and the size of your paper. Since your ruler is marked off in quarters and sixteenths of an inch it will be well to let each space equal some multiple of 4. Thus, if you have a yard that is 200 feet across and you have a sheet of paper 15 inches wide marked into half-inch squares, you might let your scale be 8 feet to each space or 16 feet to the inch.

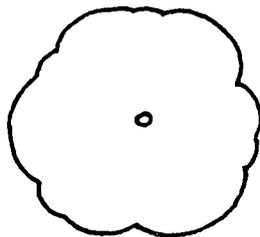
Locate some stationary and well-marked line on your property from which to measure. This may be a fence line, the highway, or the driveway. Outline the outside edges of your yard on the paper. Next, locate the house, measuring from one side and either the front or back. Draw the house to scale and locate all windows. Indicate the height of the bottom of the window from the ground. The location of basement windows should also be indicated. See the scale drawing below.



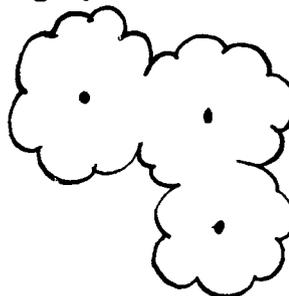
Also locate the driveway, garage, clothesline, sidewalks, and any trees or shrubs or flower borders. Use the following symbols:



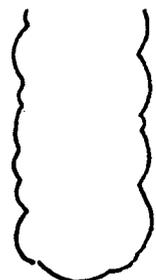
Tree



Shrub



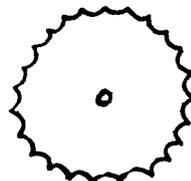
Group of Shrubs



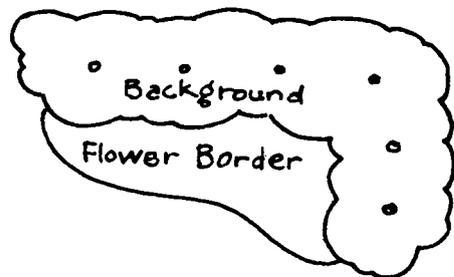
Hedge



Fence

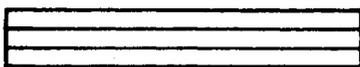


Evergreen



Background

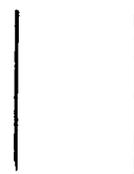
Flower Border



Clothesline



Sidewalk



Drive

Symbols Used in Landscape Drawings

Make all measurements accurately. Use a steel tape measure if you have one. A yardstick can be used for measurements on the house. The location of trees and shrubs can be made by pacing after you have acquired some experience doing this.

After you have made a plan of the yard, as it now exists, you will want to study it carefully and make any changes that you desire in the plan. Perhaps you will want to remove some old broken-down or misplaced trees. Maybe you need a new foundation planting or a shrub border. You may want to plant some new trees or plan a flower border. If many changes are to be made, you will want to draw another plan and show everything you will have after the changes are made. Your plan should be accompanied by a list of plant materials. If numbers are assigned to each plant on the list, it will only be necessary to put the number corresponding to the plant on the list on the plan. You will then have a record of where each plant will go and just what plants and how many of each you will need to order. Use Bulletin 267 and Bulletin 258 "Woody Plants and Evergreens" in making your selections. The selected list of trees, shrubs and vines should also prove helpful.

Evergreens for lawn specimens and screens

- 1e. White Spruce (*Picea glauca*) - medium
- 2e. Black Hills Spruce (*Picea glauca densata*) - medium
- 3e. Colorado Spruce (*Picea pungens* and varieties) - medium
- 4e. Eastern Arborvitae (*Thuja occidentalis*) - medium

Evergreens for foundations and borders

- 5e. Pfitzer's Juniper (*Juniperus chinensis pfitzeriana*) - low
- 6e. Prostrate Juniper (*Juniperus communis depressa*) - low
- 7e. Andorra Creeping Juniper (*Juniperus horizontalis plumosa*) - spreading
- 8e. Savin's Juniper (*Juniperus sabina*) - low
- 9e. Rocky Mountain Juniper (*Juniperus scopulorum* and varieties) - upright
- 10e. Eastern Red Cedar (*Juniperus virginiana* and varieties) - upright
- 11e. Mugho Swiss Mountain Pine (*Pinus mugo mughus*) - low
- 12e. Japanese Yew (*Taxus cuspidata*) - low and upright forms
- 13e. Pyramidal Arborvitae (*Thuja occidentalis pyramidalis*) - upright
- 14e. Siberian Arborvitae (*Thuja occidentalis wareana*) - upright
- 15e. Woodward Globe Arborvitae (*Thuja occidentalis woodwardi*) - low

Deciduous trees for lawn plantings

16. Red Maple (*Acer rubrum*) - large
17. Sugar Maple (*Acer saccharum*) - large
18. Norway Maple (*Acer platanoides*) - large
19. Schwedler Maple (*Acer platanoides schwedleri*) - large
20. Crimson King Maple (*Acer platanoides schwedleri nigra*) - large
21. Ohio Buckeye (*Aesculus glabra*) - medium
22. Paper Birch (*Betula papyrifera*) - medium
23. Cutleaf European Birch (*Betula pendula laciniata*) - medium
24. Common Hackberry (*Celtis occidentalis*) - large
25. Green Ash (*Fraxinus pennsylvanica lanceolata*) - large
26. Thornless Honeylocust (*Gleditsia triacanthos inermis*) - large
27. Moraine Honeylocust (Seedless form of above) - large
28. White-flowered Crabapples (*Malus hybrids*) - Dolgo, Flame - small
29. Rosybloom Crabapples (*Malus hybrids*) - Almey, Hopa, Sundog - small
30. Bolleana Poplar (*Populus alba bolleana*) - medium

31. American Mountain Ash (*Sorbus americana*) - small
32. European Mountain Ash (*Sorbus aucuparia*) - small
33. American Linden or Basswood (*Tilia americana*) - large
34. American Elm (*Ulmus americana* and varieties) - large

Deciduous shrubs for foundation and border plantings

35. Amur Maple (*Acer ginnala*) - large
36. Shadblow Service berry or Juneberry (*Amelanchier canadensis*) - large
37. Japanese Barberry (*Berberis thunbergi*) - small
38. Redleaf Japanese Barberry (*Berberis thunbergi atropurpurea*) - small
39. Pygmy Caragana (*Caragana pygmaea*) - small
40. Bluebeard or Blue Spirea (*Caryopteris clandonensis*) - small
41. Siberian or Redtwig Dogwood (*Cornus alba sibirica*) - medium
42. Creamedge or Variegated Dogwood (*Cornus alba argenteo marginata*) - medium
43. Bailey Dogwood (*Cornus baileyi*) - medium
44. Pagoda Dogwood (*Cornus alternifolia*) - large
45. Gray Dogwood (*Cornus racemosa*) - medium
46. Peking Cotoneaster (*Cotoneaster acutifolia*) - medium
47. Russian Olive (*Elaeagnus angustifolia*) - large
48. Winged Euonymus (*Euonymus alatus*) - large
49. Dwarf Winged Euonymus (*Euonymus alatus compactus*) - small
50. Snowhill Hydrangea (*Hydrangea arborescens grandiflora*) - small
51. Peewee Hydrangea (*Hydrangea paniculata grandiflora*) - medium
52. White Belle Honeysuckle (*Lonicera bella albida*) - large
53. Zabel's Honeysuckle (*Lonicera korolkowi zabelli*) - large
54. Morrow Honeysuckle (*Lonicera morrowi*) - medium
55. Tatarian Honeysuckle (*Lonicera tatarica*) - large
56. Golden Mockorange (*Philadelphus coronarius aureus*) - medium
57. Lemoine Mockorange (*Philadelphus lemoinei*) - small
58. Virginal Mockorange (*Philadelphus virginialis*) - large
59. Minnesota Snowflake Mockorange (*Philadelphus hybrid*) - large
60. Dwarf Ninebark (*Physocarpus opulifolius nanus*) - small
61. Bush Cinque foil (*Potentilla fruticosa*) - small
62. Cistena Sandcherry (*Prunus cistena*) - medium
63. Flowering Plum (*Prunus triloba plena*) - large
64. Cutleaf Staghorn Sumac (*Rhus typhina lanceolata*) - large
65. Alpine Currant (*Ribes alpinum*) - small
66. Clove Currant (*Ribes odoratum*) - medium
67. Harrison's Yellow Rose (*Rosa harrisoni*) - medium
68. Father Hugo's Rose (*Rosa hugonis*) - medium
69. Rugosa Rose (*Rose rugosa* and hybrid varieties - E. J. Grootendorst, Hansa, etc.) - medium
70. Blueleaf Hedge or Dwarf Purpleesier Willow (*Salix purpurea gracilis*)
71. Silver Buffaloberry (*Shepherdia argentea*) - large - small
72. Ural Falsespirea (*Sorbaria sorbifolia*) - medium
73. Garland Spirea (*Spiraea arguta*) - medium
74. Anthony Waterer Spirea (*Spiraea bumalda Anthony Waterer*) - small
75. Froebel Spirea (*Spiraea bumalda froebeli*) - small
76. Van Houtte Spirea (*Spiraea vanhouttei*) - medium
77. Common Snowberry (*Symphoricarpos albus*) - small
78. Chinese Lilac (*Syringa chinensis*) - large
79. French Hybrid Lilacs (*Syringa vulgaris*) - large
80. Arrowwood Viburnum (*Viburnum dentatum*) - large
81. Wayfaring Tree Viburnum (*Viburnum lantana*) - large
82. Nanny berry Viburnum (*Viburnum lentago*) - large
83. American Hibush Cranberry (*Viburnum trilobum*) - large

Woody Vines

84. Jackman Clematis (*Clematis jackmanni* and varieties)
85. Goldflame Honeysuckle (*Lonicera heckrottii*)
86. Boston Ivy or Japanese Creeper (*Parthenocissus tricuspidata*)

Removal of trees -- The removal of a tree will mean a lot of hard work. You will need the help of other members of the family. The simplest way to get rid of the tree is to cut it off near the ground. This, however, leaves a stump which is a nuisance in the yard. A better way is to dig around the base of the tree and cut off the main roots. By fastening a rope or chain high up in the tree and pulling with a tractor, you can often pull the tree over removing the stump and most of the roots. The hole can then be filled in and a lawn started.

Planting new trees -- It is generally best to transplant young trees that have a straight trunk and a few well-developed branches. A tree with a height of 10 to 12 feet and a trunk diameter of 1 to 2 inches is a good size to transplant. Very large trees are difficult to move without special equipment.

Early spring is the best time to transplant trees. When the trees arrive from the nursery, plant them just as soon as you possibly can. Examine the roots, and, if they have dried out in shipping, throw water on them and cover them with wet burlap or the packing material in which they came. If you are moving trees from a nearby woodlot, dig them carefully and keep the roots covered during the moving process. Dig the hole amply large to accommodate the root system. If the soil is poor, replace with good soil. Pack the soil around the roots, filling the hole nearly full. Water to settle the soil and to furnish moisture for new root development. Leave a depression around the tree for holding water. You will need to water the tree frequently during the first season while it is developing a new root system. Plant the tree at the same depth or slightly deeper than it was growing before transplanting.

The top of the tree should be pruned to balance the loss of roots. This can be done by removing some of the lower branches and by thinning out the branches in the top. Long branches should be cut back. If the tree is in an exposed, windy spot you may need to stake it.

Starting a new lawn -- Obtain a copy of Extension folder 165 "The Home Lawn" and study it thoroughly. It will tell you how to start a new lawn and to renovate an old one. It will also tell you how to fertilize your lawn.

Planting the foundation planting -- The soil for the foundation planting should be prepared well in advance of planting. This soil needs the same preparation as your garden. If the soil around the house is poor, remove it and replace it with good soil. If sod has been allowed to grow up to the house it should be worked into the soil. Prepare the soil out for a distance of about 5 feet all around the house where shrubs are to be planted.

In planting the foundation planting follow your landscape plan. A few points to keep in mind are to allow adequate space between the shrubs and between the shrubs and the house. A safe guide is to leave $2\frac{1}{2}$ to 3 feet between the center of the shrub and the house depending on the mature size. Large shrubs should be at least 5 feet apart, medium shrubs 4 feet apart and small shrubs two to three feet apart. Plant the shrubs carefully following the same general plan as described under trees. Prune back the shrubs to balance the reduced root system.

Most shrubs can be pruned back rather severely. This severe pruning causes the shrubs to branch out from the base, thus becoming compact and dense to the ground. Some shrubs, such as the variegated dogwood, should not be pruned back severely.

When evergreens are used in the foundation planting, the planting technique is slightly different. The method for planting these is described in Extension Bulletin 258 on Evergreens. Evergreens, since they are moved with a ball of dirt, do not need to be pruned back at planting time.

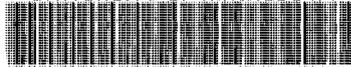
The border planting -- The preparation of the soil and the planting of the shrub border is very similar to the foundation planting. Usually shrubs of larger mature sizes are used in the border so spacing distances should be a little farther apart. Large shrubs like the lilac and the honeysuckle should be at least 6 feet apart.

Driveways and sidewalks -- Driveways and sidewalks should be located where they will handle the traffic most efficiently. In planning the driveway provision should be made for parking cars and for a handy turn-around for guests. Cars should not be allowed to drive right up to the door. A green panel of grass between the driveway and the house foundation planting should be a must. Just how far the driveway should be from the house is a matter of personal choice. A minimum distance should be at least 20 feet. The driveway should be surfaced with gravel and oiled, if possible, to keep the dust down.

Sidewalks should be constructed where foot traffic indicates a need for one. Usually you will want a sidewalk from the house to the drive and garage and probably across the back lawn to the barn. Stepping stones are preferred for an occasional garden path. A concrete sidewalk is best where traffic warrants it, especially where snow is to be shoveled in the winter.

Garden furniture and furnishing -- Help for this project can be had from garden magazines and lumber yards. Only useful furnishings such as trellises, bird-baths, picnic tables, lawn chairs, etc., should be constructed.

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