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EC1273 Revised 1955 Chrysanthemum Culture in Nebraska

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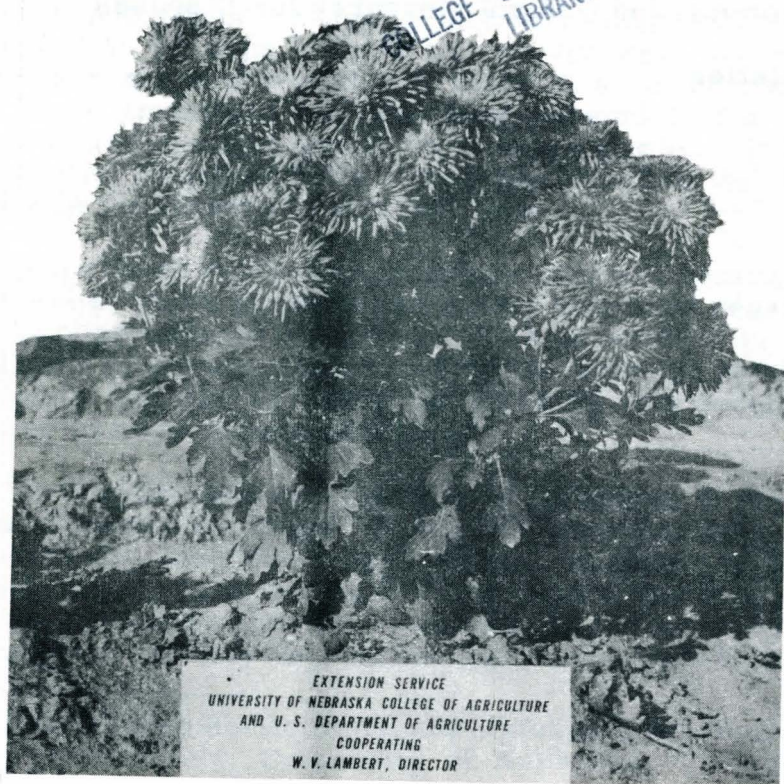
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Chrysanthemum Culture

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Contents

Types of Hardy Chrysanthemums	3
Environmental Requirements	4
Soil Preparation and Fertilization	5
Planting Material and Propagation.	6
Garden Care	13
Recommended Control Measures for Insect Pests .	15
Recommended Control Measures for Diseases . .	16
Varieties	19

Chrysanthemum Culture in Nebraska

by Glenn Viehmeyer and
Wayne C. Whitney 1/

The chrysanthemum came to the Great Plains section of the United States with, or soon after, the first settlers, and has been grown in the gardens of the region since that time.

Coming from the lower altitudes and generally milder climate of the East, most of these earlier chrysanthemum varieties proved poorly adapted to the more rigorous climate of the West. The flower, as grown in grandmother's garden, was something of a disappointment, and rarely bloomed without protection from early fall frost. During the past 25 years, however, varieties adapted to the more severe climate of the Great Plains States have been developed.

The work of producing varieties adapted to the climatic conditions of the area is only beginning, and much remains to be done. Even so, enough new, suitable varieties are now available to make this flower one of the more important fall-blooming perennials for the region, and one that should be in every garden. It has few faults, requires little care, and reaches its full glory as the flowers of summer fade.

Since these modern chrysanthemums are comparatively new, many growers are poorly informed regarding proper cultural practice. This is evident in the methods of growing practiced in the average garden; methods that fall far short of allowing this excellent flower to show to best advantage.

In chrysanthemums the time of flowering is determined mainly by length of day or "photoperiod". In general they are "short day" plants, incapable of producing flower buds during the long days of summer. As the days become shorter, toward fall, the photoperiod of a given variety is reached and it proceeds to form

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buds for later bloom. Thus, a variety requiring a very short day to produce flowers is often caught by early fall freezes and bloom is lost.

A few varieties, however, are little affected by length of day and will form flower buds during the long summer days. Among these varieties are found those most suitable for Great Plains gardens.

Blooming date may be affected by time of planting. This is true of all types of planting material, but is more pronounced where divisions of established clumps are used in the open. The effect is less evident where potted plants are used.

For early bloom, clumps should be divided and re-set as soon as active growth starts in the spring, but before much elongation of the new shoot occurs. The stage of shoot growth, not the calendar date, should determine transplanting time. Bloom may be delayed as much as 90 or more days if the new shoots are allowed to become overgrown before dividing and transplanting the clump.

Abnormally early bloom frequently occurs on plants growing in protected sites. In such sites plants may reach blooming size before days become long enough to inhibit flower bud formation. Conversely, the same variety planted in cold sites or in shaded sites may start so slowly that bloom is much delayed.

Overstimulation of vegetative growth has been known to delay bloom. At the North Platte Experiment Station 40 pounds of nitrogen per acre applied to plants in the early stages of budding resulted in aborted buds and greatly increased vegetative growth. As a result of the treatment, plants became abnormally large and bloom was delayed three or four weeks.

Moving certain varieties from one set of environmental conditions to another may affect time of blooming. A number of selections that regularly bloom in late July and early August at Cheyenne, Wyoming, were

brought to North Platte, Nebraska for trial. In the North Platte trials these selections failed to bloom before mid-October during the 1948 and 1949 seasons. Apparently a move of 200 miles eastward, a drop in elevation of 3,500 feet and a slightly higher mean temperature resulted in delaying bloom for over 90 days.

These results indicate that the value of a variety in a given area can be determined only by actual trial. Although most chrysanthemum varieties appear adapted over rather wide areas, certain kinds may prove very sensitive to minor environmental changes.

TYPES OF HARDY CHRYSANTHEMUMS *

In a discussion of an ornamental plant that shows the diversity of flower and form found in the chrysanthemum, it becomes desirable that some sort of classification be attempted. Since it is impractical to classify all the many types of bloom in a publication of this sort, hardy chrysanthemums will be classified by growth habit only. They will be listed as Cushion, Border, and Cut-Flower varieties, each of which is described below.

It is recognized that this classification is an arbitrary one and that much information of possible value to the grower is omitted. It is felt, however, that it will serve here, and that it will, to some extent, assist the amateur in planning his planting.

It is not possible to set a hard and fast rule in classifying chrysanthemum varieties. Under favorable circumstances a cut flower variety may show up well in the border while many of the border types are excellent for cutting.

* The reader is referred to "Hardy Chrysanthemums" by Alex Cumming, Doubleday, Doran & Co. Inc., Garden City, N. Y. 1945 for more detailed information about chrysanthemum types and history, and "Chrysanthemum: Improvement" by G. Viehmeyer, Nebraska Agricultural Experiment Station Bulletin 428, 1955.

Cushion Chrysanthemums: The old variety "Pink Cushion" is representative of this type. The term as used here, refers to a type of plant that is low-growing and symmetrical in form. Cushion 'mums make a low mound of many short branches that terminate in clusters of rather small flowers. Stems should be strong so that the plant does not break apart in storms. The general effect is one of compactness, with no irregularities in placement of flowers, development of branches or plant conformation. Cushion varieties are desirable where low formal plants are needed, i.e., in mass border plantings and as foundation plantings.

Border Chrysanthemums: Into this classification go those other varieties that are attractive in both flower and plant but lack the formal shape of the cushion 'mums. These might be further classified as low, medium and tall border 'mums, but this is not necessary since nurseries furnish this information in describing the varieties.

Cut-Flower Chrysanthemums: Certain varieties have flowers that are excellent for cutting, but have plants that are coarse and straggling or that have other defects that make them poor subjects for the border. Such kinds are classed as cut flower varieties and are best grown in the cut flower garden.

ENVIRONMENTAL REQUIREMENTS

Soil: Chrysanthemums are not particular as to soil type and will do well on any soil that will produce good vegetables. They will grow on the poorer soils but ample plant food is necessary if they are to reach perfection.

Drainage: Perfect drainage is absolutely necessary to both dormant and growing chrysanthemum plants. They will not tolerate "wet feet" and are doomed to failure if planted on a poorly drained site. In the heavier soils drain tile may be laid to provide drainage, and sand, coal ashes or similar soil conditioners added to provide an escape for excess water.

In selecting a site for the chrysanthemum planting the grower should make sure of both surface and sub-surface drainage throughout the year. Depressions that might collect water should be leveled and heavy soils lightened and loosened to provide subsurface drainage. The use of tile or the addition of sand, coal ashes or some other soil conditioner will provide an escape for excess water.

Light: Chrysanthemums love the sun. Plant vigor and flower quality is lowered as the amount of light is reduced. They reach their greatest perfection where they receive full sun all day, though they do quite well when shaded in the morning or evening. Plants shaded for the greater part of the day will be weak and flowers will be small and of low quality.

Spacing: Chrysanthemums are strong growers and must have room. Overcrowding the planting is one of the commonest mistakes the grower makes. They should be spaced 18 to 24 inches apart and an equal distance from other plants if they are to develop properly. Close spacing results in leggy plants and poor bloom. Varieties differ in the amount of room required for full development; tall, narrow kinds require less room than widely branching ones, but in any case, the plant will repay adequate spacing in more and better flowers.

SOIL PREPARATION AND FERTILIZATION

Soil Preparation: A little extra time spent in soil preparation pays dividends. Soil may well be worked to a depth of 12 inches, to provide favorable conditions for plant growth. Fertilizers and soil conditioners may be worked into the soil as the bed is prepared.

Fertilizers: Such organic fertilizers as leaf mold, barnyard manures, compost, etc., are preferable to more concentrated fertilizers. They are, in fact, all that is needed in most cases. This type of fertilizer improves soil structure, increases the rate of water infiltration to lower soil strata, and increases the water-holding capacity of the soil; things which the more concentrated, inorganic fertilizer cannot do.

Raw, fresh animal manures and/or excessive amount of dry vegetable matter should not be applied to the soil immediately before planting time. If they must be used they should be worked into the soil the season before planting, so that they will have time to break down and release plant food.

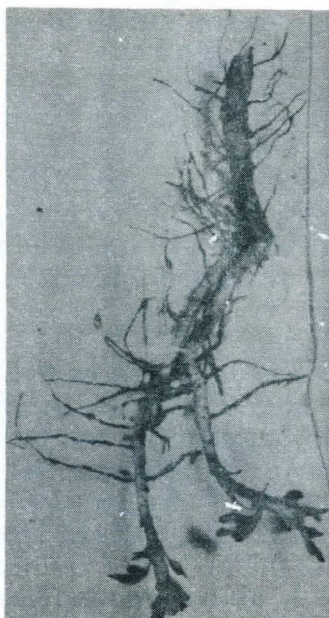
Such material added to the soil immediately before planting may actually reduce soil fertility for a period and delay or stunt the crop. Plant food may be used by bacteria and other organisms that break down manure and plant residues, leaving little available for the growing crop. This effect may be overcome to some extent by the use of quickly available fertilizers to take the place of elements so tied up. It is, however, better to avoid situations of this kind by applying such coarse organic materials a year in advance of planting time.

When a particular soil is deficient in some element needed for good plant growth, the use of commercial fertilizers is indicated. Such materials should never replace organic fertilizers but should be used to supplement them. Nitrogen is the element most likely to be deficient, a good many soils respond to phosphorous, while few Nebraska soils are deficient in potassium.

In the Platte River valleys and on any soil high in salts, chlorosis caused by a lack of available iron often occurs. The symptom is a yellowing of the foliage, stunting, or, in severe cases, even death of the plant. In most cases, this condition can be corrected by working iron sulphate into the soil at from 1 to 5 pounds per square rod. Spraying the growing plant with a one-half per cent solution of iron sulphate is also effective. Solutions containing more than 1/2 per cent of iron sulphate should not be applied to chrysanthemum foliage because severe burning may result.

PLANTING MATERIALS AND PROPAGATION

Several types of planting material may be used to establish the chrysanthemum planting. These may be purchased from commercial sources or may be pro-



Freshly made divisions of old clumps, ready for potting.

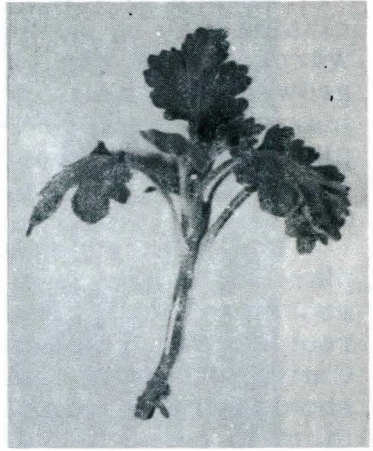
duced by the grower. Materials commonly used are field clumps, divisions, potted plants, cuttings and seed. Each of these is discussed below.

Field-Grown Clumps: The field-grown clump is not desirable planting material if used intact. The chrysanthemum increases by means of rhizomes sent out from the mother plant during late summer and fall. By the following spring the original plant is either dead or so weakened as to have little value. Each rhizome is, for all practical purposes, a separate plant. To plant a clump intact would mean that from five to fifty plants were planted in an area of approximately a square foot. It seems obvious that this is not good culture, so, if field-grown clumps are secured, divide them and use the divisions for planting.

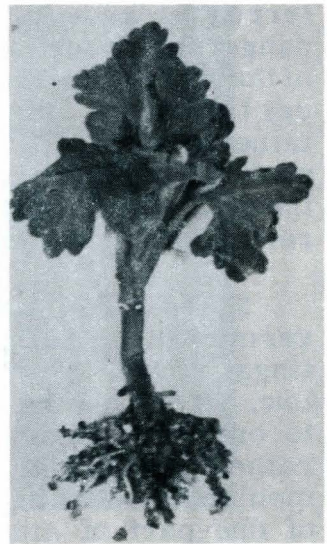
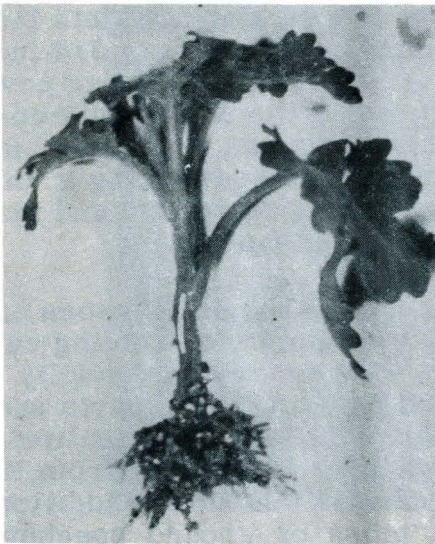
Divisions: Divisions of healthy clumps are satisfactory either for planting directly in the field or for producing potted plants. It should be recognized, however, that the danger of disease is much greater than if cuttings are used, and for this reason cuttings are preferable if one has propagation facilities.

Potted Plants: Potted plants are the nearest "fool-proof" of all types of planting material. They may be secured from commercial sources, or the grower may produce them himself in coldframes, hotbeds or even a sunny window. They may be established in plant bands, or in 2-inch pots. Either rooted cuttings or divisions may be handled in this manner.

Cuttings: Propagation by means of cuttings is used when large numbers of plants are needed, or when stock is limited. Where large scale propagation is carried on, the clumps are commonly lifted in the fall and carried in a greenhouse at temperatures high enough to force the shoots and buds about the base of the plant into growth. As these shoots reach a height of 3 or 4 inches they are clipped off about 1/2 inch above ground and used as cuttings. New shoots will start from the stubs and a second crop of cuttings will be produced in a few weeks.



Unrooted cuttings.



Rooted cuttings ready to pot.