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GLADIOLUS CULTURE

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of the
DEPARTMENT OF HORTICULTURE

MICHIGAN STATE COLLEGE
COOPERATIVE EXTENSION SERVICE
EAST LANSING

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Gladiolus Culture

Gladioli can be used to good advantage in irregular groups among annuals or perennials in the informal border, or used alone in the gladiolus garden. Generally, they do best in full sunlight, and well away from large trees and shrubs. If planted in the shrubbery border, they must be provided with enough water and fertilizer to replenish the supply used by the shrubs.

How the Plant Grows

The flowering stem of the gladiolus grows from a corm, often erroneously called a bulb. New shoots develop from buds on the corm. As the leaves elongate, these shoots enlarge at the base just above the mother corm, forming the new corm or corms. As these develop, the planted one gradually dries up until at digging time it is hard and dry, but usually found clinging to the new corms.

When the new corms are an inch or more in diameter, tiny cormels (sometimes called "bulblets") appear between the old and the new corms. When dug, these vary from 1/16 to 3/16 inch in diameter and are covered with a hard shell. They will develop into new corms if planted the following season.

Propagation

Gladioli can be reproduced or increased, either by growing the new corms developed each season or by saving and planting the cormels.

The size attained by cormels in their first year varies considerably with the variety, the soil and climatic conditions. Cormels of some varieties, under ideal conditions, may produce new corms an inch or more in diameter. Some germinate readily, others germinate very poorly. Soaking cormels in water for 3 to 5 days or keeping the bags in which they have been stored wet, just prior to planting, until growth has started, hastens the growth of some varieties.

During that period, they should be kept at a temperature of 70°-75° F.

Under good growing conditions, corms ¼ to ½ inch in diameter should grow to 1¼ inches in diameter or larger in one season.

New varieties are easily produced from seed, and often the home gardener as well as the professional hybridizer will find this an interesting phase of gladiolus culture.

Planting Stock

Corms of desired varieties should be purchased from reputable growers. If extra large blooms are desired, select large healthy corms over 1¼ inches in diameter. Medium corms (¾ to 1¼ inches) produce satisfactory blooms for general cutting purposes. Small corms will develop large corms for the following season and will produce small flower spikes. Cormels seldom bloom, but will develop corms which will produce small spikes the following season.

If the corms are shipped by parcel post or express, open all sacks upon arrival and place them in a cool, dry, well ventilated place safe from freezing until planting time.

Soils

Gladioli can be grown successfully on most any soil that is well drained. A sandy loam is best. Soils that are poorly drained favor the spread and increase of disease.

Whenever possible, plant on new soil each year to aid in the control of disease and insect pests. If this is not possible on a commercial scale, a four-year rotation should be adopted, with rye, corn, clover or soybeans and gladioli.

In the home garden where the corms cannot always be planted on new soil, every precaution should be taken to control diseases and insects by sprays, dips or fumigants.

Fertilizers

MANURE—A heavy application of well rotted manure, plowed under in the fall, is very beneficial. The soil can then be disked or harrowed in early spring and will be in good condition for early planting.

COMMERCIAL FERTILIZERS—The kind and amount used will depend on the fertility of the soil, its previous treatment and the size of the corms planted. Large corms usually carry enough reserve food materials to produce satisfactory bloom without the use of fertilizers.

For general use a 4-16-4 fertilizer is satisfactory. Apply at the rate of 2-3 pounds per 100 square feet in the garden or 500-1000 pounds per acre in the field. On soils where heavy applications of manure have been made, 500 pounds per acre is sufficient. Heavier applications up to 1000 pounds or more are made on soils that have not been previously fertilized. For muck or other soils low in potash a 3-9-27 mixture (500 pounds per acre) is suggested.

The fertilizer may be broadcast before plowing or spading or after plowing and then disked or raked in. Best results are obtained if the fertilizer is placed along the sides of the rows and 1 or 2 inches below the planting depth when the corms are planted. Apply at the rate of 1½-2 pounds per 100 feet of row. An additional side dressing of either a complete fertilizer or ammonium nitrate when the leaves are 6-8 inches high is desirable. Do not apply more than 1/3 pound of ammonium nitrate per 100 feet of row. Keep fertilizer from coming in direct contact with the corms or roots or with the plants above ground.

Treating Before Planting

The following materials are suggested as pre-planting dips to help protect the corms against certain diseases which attack them.

1. CORROSIVE SUBLIMATE—Controls scab. Use at the rate of 1 ounce to 7½ gallons of water. (Use in wooden or crockery containers.) Soak the corms for

2 hours. Use 15 to 20 gallons of the solution to 1 bushel of corms. Add 1/3 ounce of corrosive sublimate to the solution for the second lot and an additional 1/3 ounce for the third lot, then discard and start with a fresh solution.

2. CALOMEL; YELLOW OXIDE OF MERCURY—These control sclerotinia dry rot and scab. Use 1 pound of either to 5 gallons of water. A wetting agent such as Dreft or Triton 1956-B will make it easier to wet the material. Add the wetting agent to a small amount of water, then add the powder to make a smooth paste before adding the full volume of water.

3. NEW IMPROVED CERESAN—Controls Fusarium rots. Use at the rate of 1 ounce to 3 gallons of water. A wetting agent will help to wet this material. Add a tablespoonful of Dreft or some similar compound to a quart of water and stir well, then wet the Ceresan with a small amount of this liquid to form a smooth paste before adding the rest of the water. Soak the corms in this solution for not more than 15 minutes and plant immediately or injury may result. Injury may also result if the soil in which they are to be planted is extremely dry.

How and When to Plant

The planting season for gladioli in Michigan begins as soon as the frost is out of the ground and continues until July. A series of plantings 1 or 2 weeks apart may be made, starting about May 1 and continuing through June if a succession of bloom is desired. The number of days from planting to bloom varies from 60 to 120 days, depending on the variety. Very early blooms may be obtained by planting the corms in 3-inch pots and starting them in hotbeds, later transplanting them to the garden or field.

Cormels are slow in starting and should be planted as early as the ground can be properly prepared in the spring. They are sown very thickly and covered 2-3 inches deep in rows crosswise of especially prepared beds or in rows in the field. When weeds are

troublesome the cormels may be covered with 4-5 inches of soil at planting time, then after weeds have started the upper 2-3 inches of soil is raked off along with weeds that have germinated. Spraying just before the shoots emerge with a contact spray such as Dow Contact Herbicide or Sinox General Contact Spray will kill weeds that are up without injuring the gladioli.

The sodium salt of 2,4-D may be used prior to the emergence of the gladiolus shoot. It should not be used after the shoots have appeared above ground. The rate of application depends upon the soil. On sandy to heavy loams use at the rate of 2-5 pounds per acre. Some injury may result from applications as low as 2 pounds per acre on extremely light sand when used just prior to emergence. On the other hand, applications of 5 pounds per acre have been made without injury on soils having a high content of organic matter. Dissolve the amount of the material needed in sufficient water to provide uniform coverage over the area to be treated and apply with a sprayer. It is best to make the applications at least a week before the shoots start to appear above ground. This may be 1-2 weeks after planting depending upon the date and season.

The larger corms are planted 4-6 inches deep in single rows, 2-3 feet apart and spaced with centers 3-6 inches apart, depending on the size of the corms. Medium corms may be spaced 2-4 inches apart and small corms 1-2 inches apart and 2-4 inches deep. On muck and light sandy soils the corms are planted about 2 inches deeper than on heavy soils to insure an upright growth. Large corms should be set right side up, otherwise the shoots may come up outside the row and may be broken by cultivation.

In small plantings or in the home garden, the rows may be spaced 12 to 18 inches apart, with a wider space every fourth row to facilitate cutting and cultivation. The first corms may be set 12 inches or more apart, then later corms of the same variety planted between them to provide a succession of bloom in the same spot.

Summer Care

Cultivation—Cultivate shallow, and often enough to control weeds and to maintain a light mulch. Stir the soil after each rain to break any crust that may form. Avoid deep cultivation, especially near the plants. Two inches is enough.

If the growth is very tall, it may be necessary to stake or support the stems. This usually is not necessary if the corms are planted deeply. The soil may be hilled up along the row to keep the stems erect.

Watering—Definitely beneficial during most Michigan summers. When watering, apply enough to wet the soil to the depth of the corms. Do not water again until the soil has dried out.

Spraying and Dusting—Dust with 5 percent DDT when the plants are 6 inches high and once each week thereafter until the flower spikes appear. Apply dust in the morning while the leaves are wet with dew. Wettable DDT sprays may be used instead of dust. Follow manufacturers directions. The 50 percent wettable powder is best used at the rate of 3 pounds in 100 gallons of water.

Dig and burn diseased plants as soon as noticed and remove soil immediately surrounding the corm.

Cutting the Blooms

Cut the flower spikes early in the morning or late in the evening and when the first 1 to 3 florets are open, then place immediately in water up to the first floret, and if possible keep them in a cool, dark room several hours before arranging them in vases or bowls. Cut the stem diagonally, leaving at least four leaves on the plant to mature the corm.

Digging and Storing the Corms

The corms are ready to dig about 4 to 6 weeks after blooming or about the time of the first killing frost. If possible, wait until the leaves begin to turn yellow.

Late plantings will usually have to be dug before the leaves have turned completely yellow. Cut the stem off close to the corm. Leave them outside to dry for a day or two, if there is no danger of frost. Otherwise, the corms should be taken to a well ventilated, frost-proof building for 2 to 4 weeks to cure. If a temperature of 75°-80° F. can be maintained for the first 2 weeks to dry them rapidly, the corms will be less susceptible to storage diseases.

When sufficiently dry, clean by removing the old dried mother corm from the new ones and any old roots that may be attached to them. After cleaning, dust with 5 percent DDT for protection against thrips. Place in shallow trays or boxes 4 inches deep and store in a well ventilated room where they will not freeze and preferably where the temperature does not range above 50° F. In the home, any cellar in which apples or potatoes will keep is usually satisfactory. Do not store in bushel baskets or in closed cans. Where small quantities of different varieties are stored, paper sacks or onion sacks are suitable for the purpose.

If more specific information regarding gladiolus culture is desired, write to the Horticultural Department, Cooperative Extension Service, Michigan State College, East Lansing, Michigan.

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