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Gladiolus and Dahlias



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GLADIOLUS AND DAHLIAS



THE GLADIOLUS

The Gladiolus is *the* flower of its season. A long period of bloom, unexcelled lasting qualities, a wide range of color, and comparative ease of culture make it a welcome addition to any garden. It has a place in the back yard garden for show or cutting purposes. It is the dominant flower of the summer flower shows. It is the pride of the Gladiolus enthusiast. Its better and newer varieties command attention.

The Gladiolus belongs to the Iris family and is closely related to other popular flowers, such as Crocus, Freesia, Ixia, Montbretia, etc. Many species of Gladiolus occur in the Mediterranean region and South Africa. The development was started in Europe about 300 years ago and the first important hybrid, Gladiolus colvillii—a cross between *G. tristis* and *G. cordinalis*—was introduced in 1823. Later, Louis Van Houtte of France developed the best known parent of them all—*G. gandavensis* (1841), a cross between *G. psittacinus* and *G. cardinalis*—from which about two thousand varieties were developed.

The next step in advance occurred when *G. gandavensis* and *purpureo-auratus* were crossed with the resulting *G. lemoinei*, the offspring of which were large flowered and blotched. Gladiolus childsii, introduced in 1874, was the forerunner of the grandiflorus group. The last species of note to be introduced was *G. primulinus*, a native of Africa. In addition, new strains and types have been introduced in recent years; such as *G. prinsianus* (*G. colvillii* x *primulinus*), ruffled, lacinated, lily, amaryllis, butterfly, orchid, etc.

The gladiolus flower is a spike bearing six to thirty florets, depending upon the variety. The length and gracefulness of the spike also varies greatly. The base of the plant is a corm (often called erroneously a bulb) or a short thickened stem composed of a number of lateral buds and one central bud. Food for the plant is stored in the corm.

DEVELOPMENT OF THE PLANT

When the corm is planted in the spring, root and top growth start almost simultaneously. Each bud produces a shoot, and when the leaf blades reach a height of 6 to 8 inches the base of each thickens just above the old corm. That is the beginning of the new corm. When the plants reach a height of 12 to 15 inches the new

corm has grown to a diameter of about 1 inch and throws out new rootlike organs. A little later the flowering spikes develop and little cormlets start at the base of the new corm.

At digging time the old corm is practically gone, while the one or more large ones have completed their growth on top of it and are surrounded at the base by numerous cormlets.

PROPAGATION

The most common method of propagation is by means of the cormlets, which produce flowering size the second or third years. Sometimes the old corms are divided in the spring, so that each section has a bud and preferably a piece of the base. Each division will act in the same manner as the mature corm and produce new corms above it. This method is employed with newly introduced varieties to hasten increases. Some kinds are not vigorous enough for such a procedure and may be injured in the process. Frequently, higher crowned corms are secured by this means and it is thus used as a rejuvenation process of flat corms.

New varieties are produced from seed, which is sown in the spring and will often develop flowering corms during the second year. Since our present day varieties are hybrids, seed sowing will result in a miscellaneous array of seedlings, which may or may not resemble the parents.

SOIL SUITED TO GLADIOLUS

Although *Gladiolus* will grow in any good garden soil which is well prepared, the best results are secured in sandy loam if average spikes are desired and many new cormlets are to be developed. Heavier soils produce higher crowned corms, with better quality flowers but a smaller number of reproductive units.

The incorporation of humus in the form of stable manure or green manure is advisable. Experimental data indicate that slightly acid or neutral soils are preferable to alkaline types. As a consequence, additions of lime are not needed unless the test of the soil indicates a high degree of acidity.

FERTILIZERS

Average soils are benefited by the addition of the three limiting elements in plant nutrition—nitrogen, phosphorus, and potash. The other essential ingredients are usually present in sufficient quantities. In many soils, phosphorus is deficient; in the light sandy types potash may be lacking. Additions of nitrogen are also desirable.

In general, the recommendations for fertilization may be as follows: in the spring apply 20 per cent superphosphate in the trench before planting, at the rate of 5 pounds to a hundred feet of row. Later, when our development study has shown that new roots are forming from the base of corms (12 to 24 inches in height) additions of potash and nitrogen may be made to further the growth of the corms and spikes. Muriate of potash may be added at the rate of 2 pounds to a hundred feet, while nitrogen in the form of urea or ammonium sulfate should be used at one half that rate.

To produce large florets, another application of ammonium sulfate may be made when the flowering spikes appear. To eliminate these separate applications, a complete fertilizer such as 6-8-6 or 4-12-4 may be used in the spring in the trench at the rate of 3 pounds per hundred feet, while a side dressing should be made later.

When fertilizers are applied in the trench as suggested, they should be covered with a layer of soil before planting the corms. Organic materials such as tankage or cottonseed oil may be substituted for the suggested commercial fertilizers.

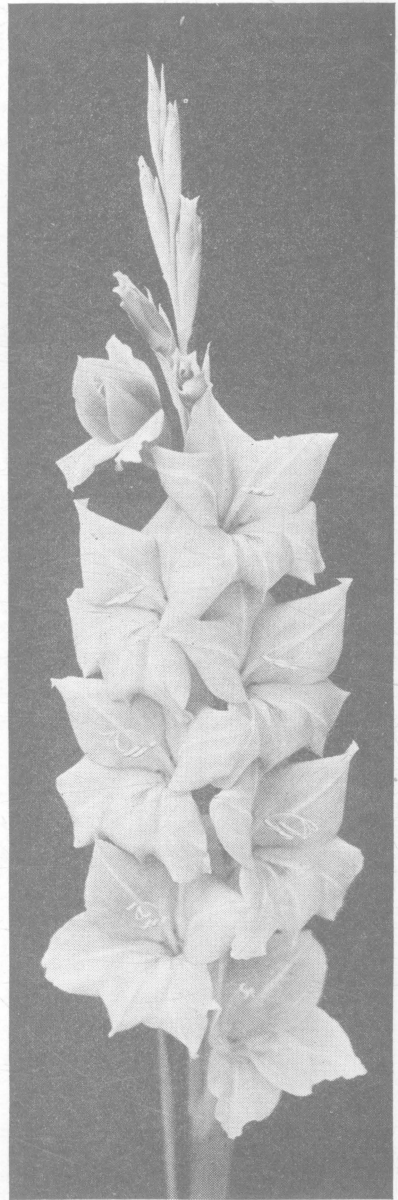


Fig. 1.—Longfellow, a recommended variety.

PLANTING

No matter how well prepared the soil, nor how thoroughly it is supplied with the needed nutrients, full sunlight is essential for

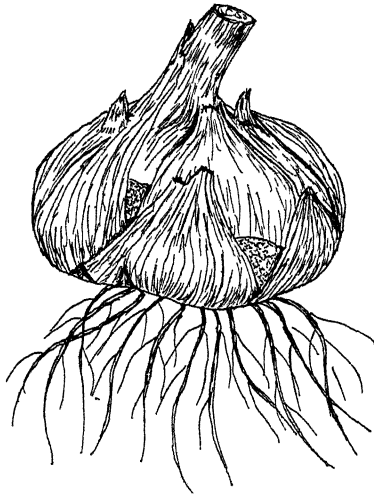


Fig. 2.—Gladiolus corm soon after planting.

mature at different intervals. The same succession may be obtained by planting the corms of varying sizes. The smaller sizes take longer to bloom. To produce extreme earliness, corms may be planted in 3-inch pots in cold frames or hot beds and set out in the beds after danger of frost is over. In this manner they will gain

proper growth. Planting close to trees, shrubs, buildings, or fences is sure to lead to disappointment. The time to plant depends upon the climate, the ease of working the soil and the desired earliness of bloom. Usually the early varieties may be planted just as soon as the frost is out of the ground. If planted too early and if the ground remains cold and wet for several weeks, the growth will be retarded and development checked to such an extent as to be injurious.

A succession of bloom may be desired and may be secured by planting the same variety at two-week intervals, or by using varieties which fully two or three weeks in growth.

If the proper storage facilities are available so that the corms do not start growth of their own accord in the spring, late plantings may be made as late as July. In this way the planting season is often prolonged from April until mid-July.

As stated before, the smaller the corms, the longer it takes to develop and mature. As a consequence the cormlets should be planted first and be followed by the smaller and the larger sizes in succession. Many cormlets have hard husks and germinate poorly. Some varieties like Mrs.

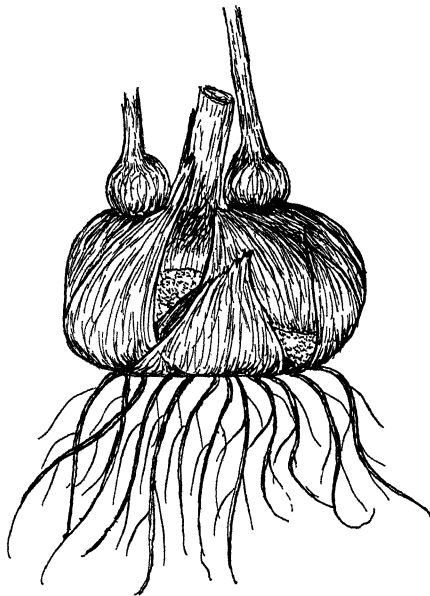


Fig. 3.—Showing development of new corms.

Dr. Norton, Purple Glory, and War are known to be hard germinators. In such cases the cormlets may be soaked in water from three to six days before planting. Another method developed by the writer consists of dropping the hard shelled cormlets in a commercial strength (75 percent) solution of sulfuric acid and allowing them to remain there for ten minutes. They should then be taken out, washed, and planted at once.

Depth of Planting.—The depth of planting for cormlets need not be over 2 inches. The larger sizes should be planted at an average depth of 4 inches. Our data indicate that deeper planting reduces the number of cormlets formed, but produces better corms.



Fig. 4.—At maturity.

In heavy soils, shallower planting is permissible. Shallow planting is disadvantageous during drouths, and also fails to provide sufficient depth for the support of the stems when in flower.

Distance Apart.—The distance apart for the larger corms need not be over 2 inches in the row. For the small plantings two or even three rows may be set, 2 or 3 inches apart, with a space of 3 feet between each group of rows. On commercial scale the rows are usually 3 feet apart and the corms planted by a machine so that the spacing is not as definite.

Method of Planting Corms.—A trench should be scooped out with a hoe, fertilizer applied (covered with a layer of soil) and then the corms set or dropped with the growing point up. This precaution assures even germination and no delay in development. Addition of superphosphate tends toward earliness.

SUMMER CARE

During the season of growth, shallow cultivation is necessary to conserve moisture and keep down weeds. Wherever possible, some form of water supply should be provided in the event of a long drouth. Mulches of manure, peat moss, or other decayed materials have proven very beneficial. A 2- or 3-inch mulch of this character may be applied early in June.

Mulch paper has also been tried and is unquestionably beneficial during dry seasons. Even with sufficient rainfall, longer spikes and earliness are secured with mulch paper, provided it is placed between rows immediately after planting, allowing just enough space between strips for the leaves to come through. The paper not only conserves moisture and keeps down weeds, but furnishes a clean and carpet-like covering.

Supports may be required by many tall growing varieties. Individual stakes or wire stretched between stakes will serve for this purpose. Hilling of individual plants also helps.

CUTTING FLOWERS

The flower spikes are ready to cut when the first floret opens. Use a sharp knife, making the cut slanting between the third and fourth leaf. It is necessary to leave at least three leaves on the plant to further its development and assure the maturity of the corms.

After cutting, the stems should be placed in cold water in a dark place so that proper water absorption will take place before arranging the flowers in containers. For exhibitions, if necessary to carry for a distance, such a treatment will open the flowers properly.

DIGGING AND CURING

The new corms are ready to dig as soon as the foliage turns yellow, about six weeks after blooming. If allowed to become dead ripe there is the danger of losing many cormlets at digging. A number of methods are employed in digging, but on a small scale the easiest way is to cut the tops off within 2 inches of the ground, insert a spading fork under the row of plants, and lift them out carefully. These should then be stored in an airy, frost proof shed for about two weeks to help maturity.

Each variety should be labeled and placed in shallow trays or paper bags. To insure no mixtures the name should be written on bag or tray and a label inserted in the container as well. Further to eliminate mixtures, all cormlets should be lifted out of the soil, since occasionally some winter over and will mix with next year's planting.

CLEANING AND STORAGE

Before storing for the winter the corms should be cleaned. The old mother corm which was planted in the spring has done

its work, and, together with the roots, should be removed from the new corms and cormlets. The former may be placed in trays, while the latter will go in bags unless they are in large quantity. The



Fig. 5.—“Sunnymede,” orange with crimson hearts, spikes medium in size.

trays should be spaced when piled on top of one another to facilitate curing and reduce moisture. The use of peat moss is desirable for hard shelled cormlets. It will keep them from becoming too hard.

Gladiolus corms are graded according to size :

No. 1.....	1½ inches and up
No. 2.....	1¼ to 1½ inches
No. 3.....	1 to 1¼ inches
No. 4.....	¾ to 1 inch
No. 5.....	½ to ¾ inch
No. 6.....	below ½ inch

The blooming sizes are Nos. 3, 2 and 1, although No. 4 and sometimes even smaller sizes may flower during the season. Some varieties do not produce large corms, and as a consequence their scale of sizes varies somewhat. Sizing of stock may be accomplished by grading machines on a large scale and by grading boards or wire screens for the amateur grower.

A fruit cellar is an ideal place to store gladiolus corms. The temperature should be 40 to 45 degrees F., the air fairly humid (80 percent) and well ventilated. The critical time comes in the spring, since a rise of temperature is apt to cause the starting of growth. This may be deleterious if the growth develops into shoots over 2 inches long. The brittle growth may be broken off in planting and handling, which will delay development and weaken the plants.

PESTS

INSECTS.—There are comparatively few insects which trouble the gladiolus.

The red spider is sometimes troublesome during hot, dry seasons. A forcible spray of water will dislodge this pest, or a pyrethrum spray may be used if the infestation is serious.

Aphids may be troublesome at times, but are easily controlled by a contact spray such as nicotine sulfate used at the rate of a teaspoon to a gallon of water.

Borers often enter the stalk just below the lowest flower. The only remedy which may be suggested is the burning of all rubbish, old leaves and stalks in the fall of the year.

Cut worms may cut young shoots at the base. Poisoned bran mash will take care of these pests.

Root aphids, mealy bugs and *mites* often attack corms in storage. Fumigation with tobacco or calcium cyanide will control these insects. Tobacco fumigation may be carried on in any cellar, since no damage can be done to living beings, only discomfort. Fumiga-

tion with calcium cyanide, however, may be done only in separated compartments or storage, since the hydrocyanic acid gas generated is extremely poisonous. The dosage used should be 1 ounce to 3,000 cubic feet of space.

Another method which is effective, but inconvenient, is the dipping of the corms in a solution of nicotine sulfate mixed with soap, at the rate of 1 ounce of nicotine and 3 ounces of soap to 3 gallons of water.

FUNGOUS AND BACTERIAL TROUBLES.—These are becoming more and more serious each year. The former notion that gladiolus were immune to disease no longer holds true. In fact, very few corms sent out even by the most reliable growers are free of disease. A number of hard and soft rots occur in storage, but on the whole they are not very serious as yet. Low humidity and low temperatures will reduce trouble from this source. Care in digging, which means no injury to the surface of the corms, will prevent infection.

Neck rot or scab.—Under field conditions the neck rot, often known as scab, is very serious. The disease is characterized by minute specks of a bright reddish-brown color, slightly elevated, and appearing on leaves in considerable numbers. Yellowing of foliage, rotting at the neck, and lesions on husks and under husks are sure indications of this disease. The lesions on the corms resemble scab, from which the disease gets its name. Soil becomes infected and thus should not be used again for several years.

A number of disinfectants have been found as effective measures of control. Soaking the corms for two hours in a solution of formaldehyde one part to eighty parts of water; or mercuric chloride (or mercurous chloride) 1 ounce to 7½ gallons water is effective. This should be done in the spring, before planting.

A number of fungous troubles are rapidly becoming serious in the field, but at present no adequate methods of control have been developed, except sanitation and disinfection. The above mentioned chemicals should be used as cleansing fluids on all corms in the spring, regardless of their apparent immunity to disease.

The practice of spraying with Bordeaux mixture has been recommended for the control of hard, scab, and bacterial blight. This is done during the summer, using the 4-6-50 formula. The first application may be made when the plants are about 12 inches high, succeeding treatments being given at two-week intervals. The effectiveness of Bordeaux mixture for the control of leaf hoppers may make its application advisable even though complete control of disease is not obtained.

VARIETIES OF GLADIOLUS



White

Albania
Mrs. F. C. Hornberger
Mammoth White
Joerg's White
Helen Wills

Light Pink

Halley
Mrs. Dr. Norton
Elizabeth Tabor
W. H. Phipps
Pearl of California
Annie Laurie
Edith Mason
Longfellow

Deep Pink

E. J. Shaylor
Evelyn Kirtland
1910 Rose
Bobby
Sentinel

Red

Crimson Glow
Red Emperor
Pfizers Triumph
Dr. T. E. Bennett
Forest Fire

Yellow

Golden Measure
Souvenir
Tobersun
Golden Dream
L. W. Wheeler (cover)

Orange

Ming Toy
Betty Nuthall
Orange Queen
Tawney
Sunnymede

Violet

Heavenly Blue
Veilchen-blau
Royal Lavender
Rosa Raisa
Geraldine Farrar
Purple Glory

Lavender

Minuet
Jane Addams
Captain Boynton
Berty Snow
Dr. Moody
Miss Des Moines
Mrs. F. C. Peters

Smoky

Marmora
Mother Machree
Romance
Emile Aubrun

PRIMULINUS TYPE

White

White Orchid

Yellow

Gold Eagle

Lavender

Orchid

Orange

Alice Tiplay

Red

Aflame

Pink

Myra

THE DAHLIA

The dahlia, with its great variety of forms and colors, its dense masses of dark green foliage and brilliant flowers standing out in sharp relief, is a most useful plant for obtaining striking yet harmonious effects. The flowers range from $\frac{1}{2}$ inch in diameter to the size of a huge sunflower; in color from deep maroon that is almost black to pure white, including many combinations of tints and shades.

It is classified in several distinct groups: single, anemone, collarette, duplex, cactus, decorative, show, peony, pompon, and Tom Thumb.

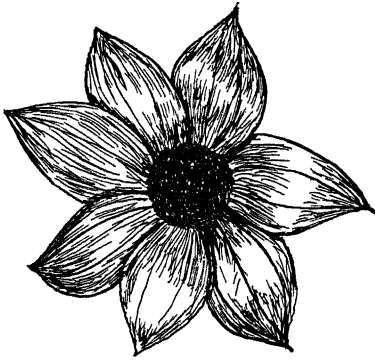


Fig. 6.—Single variety.

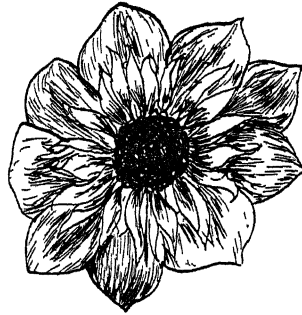


Fig. 7.—One of the Collarette group.

Single—Open centered flowers with seven to twelve floral rays in one circle, margins often turn down or back (see Fig. 6).

Anemone—Flowers with one row of large floral rays like single dahlias, but the disk flowers changing into tubular florets, presenting a simulant to a cushion.

Collarette—Open centered flowers with not more than nine floral rays, but with one or more rows of smaller rays, usually of a different color, making a collar about the disk (see Fig. 7).

Duplex—Semi-double flowers with center always exposed and with florets in more than one row, long and flat, or broad and rounded, slightly twisted or curled (see Fig. 8).

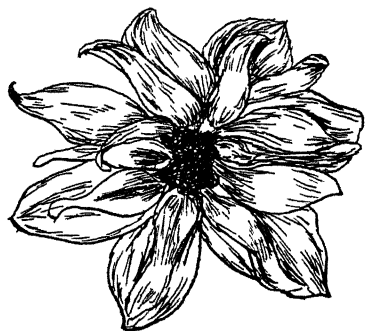


Fig. 8.—“Duplex” dahha

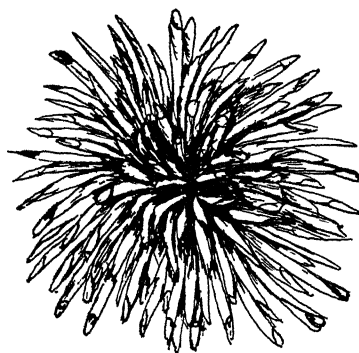


Fig. 9.—Cactus, a fluted type.

Cactus—A fluted type with double flowers (see Fig. 9).

Decorative — Double flowers, flat, having broad, loosely arranged floral rays with rounded tips and revolute margins (see Fig. 10).

Show—Double flowers, globular, full to center, showing regular spiral arrangement of florets, floral rays with involute margins and rounded tips (see Fig. 11).

Peony flowered—Semi-double with open center, the inner rays curled and twisted, the outer florets flat and irregular.

Pompon—Small flowered show type.

Tom Thumb—Dwarf, bushy, single flowered.



Fig. 70.—The Decorative group have double flowers.

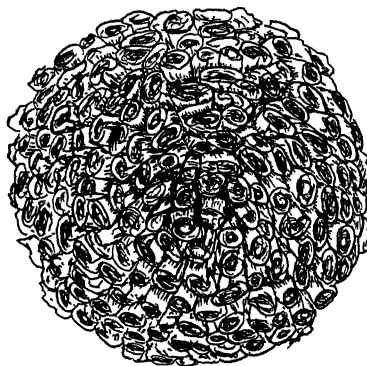


Fig. 11.—“Show” group present an interesting spiral arrangement.

PROPAGATION OF DAHLIAS

There are three common methods of propagating the dahlia—division of the roots, cuttings, and seed. Grafting is sometimes used.

Division of Roots—The simplest method of propagation, when there is an abundance of material, is by means of the division of the roots. Examination of a clump will show that the buds or “eyes” appear upon the stem at or near its junction with the roots. These buds develop into the new shoots and should be preserved intact. For that reason it is imperative that a portion of the stem be left with each division of the crown. The dahlia root is not a tuber or an underground stem like the potato, and will not produce stems from its own body.

To be sure that some buds are left on each division, spring is the safest time for this work. The clump should be cleaned of soil or washed before dividing. The cut should be made with a sharp knife, not too close to the buds. After division, the parts should be stored in dry sand, sawdust, or peat and kept in a cool place until planting time. When ready to plant, if some of the shoots have elongated, they should be cut back to one set of leaves and not torn off, otherwise permanent injury may result. The advocacy of cutting off about one-third of the root before planting has virtue only in the convenience of planting shorter pieces.

Cuttings.—When greenhouse facilities, hotbeds, or cold frames are available, the best method of propagation and one resulting in quantity production is by means of cuttings. This manner of propagation has many advantages in addition to the securing of a large quantity of stock; (1) there is less danger of carrying over insects and diseases from year to year; (2) finer exhibition flowers may be secured; (3) cultivation of the ground may be started earlier, since the shoots show above ground as soon as planted. However, to succeed with this method, the cuttings must be taken early and the plants grown on without a check, so that they may start as soon as planted.

Failures result because of shallow planting. The ball of soil on the plants should be fully 4 inches below the surface of the ground. Spindly plants will result in poor quality of flowers. Another cause of failure is due to in-



Fig. 12.—A dahlia cutting

sufficient amounts of potash and phosphorus in the soil, which inhibits proper formation of storage roots, and causes subsequent decay in storage.

Early in March is the best time to start the clumps for cuttings. The old roots (which are first selected on the basis of plumpness and general healthy appearance) should be placed in boxes and covered with soil, peat, or sphagnum moss; the last two are most desirable, developing earlier shoots. Bottom heat under the boxes and a humid atmosphere with a temperature averaging 60 degrees F., give ideal conditions for development.

When the shoots develop three sets of leaves, cuttings may be made by cutting through the node so as to leave one set of leaves for further growth. Good healthy roots will produce several cuttings on each shoot. As soon as made, the leaves should be trimmed to reduce evaporation. Place cuttings in a propagating box containing sand or a sand and peat mixture, preferably with a constant supply of heat from below. The rooting medium and cuttings should be watered as soon as planted and kept shaded. With proper watering, shading, and heat, rooting should take place in about three weeks. As soon as rooted the new plants should be potted in 2½- or 3-inch pots and kept growing until ready to set out of doors. A hotbed may be used for rooting and subsequent placement of plants. When used for this purpose, bottom heat should be supplied by fermenting manure placed below the sand.

Seed.—Seed may be sown any time after the first of March. Sown at that time the plants will be large enough to set out as soon as the weather is favorable. Boxes or pots filled with light soil may be used for sowing the seed. It should be covered with ¼ inch of fine sand or peat and kept moist in a temperature of 60 to 65 degrees Fahrenheit. A hot, moist atmosphere is conducive to “damping off,” so that precautions should be taken to avoid such conditions upon the germination of the seed. As soon as the first true leaves appear, the seedlings should be “pricked off” in other boxes or potted individually in 2½-inch pots. After they become established the pots may be set in a protected cold frame until planting time.

It should be understood that the seed produced is of hybrid origin and the offspring may not resemble the parents at all. Propagation by seed is used as a method of producing new varieties, but the unknown factors with which we deal and the consequent anticipation attendant upon such experiments, make it an interesting phase of dahlia culture.

SOIL AND FERTILIZERS

That any garden loam will grow dahlias is true, but a clay loam is much better than a light sandy type. On heavier soils which are well supplied with humus, the growth will be ranker and the flowers much larger. Manure may be incorporated for the needed humus, and together with it bone meal may be added at the rate of 10 pounds to every hundred square feet. In place of bone meal, 20 percent superphosphate may be substituted in the spring before planting. The soil should be spaded and left loose over winter. In heavy soils the need for potash will not be as important as upon lighter types, but even there some potash should be applied in the spring. This may be in the form of hardwood ashes at the rate of 20 pounds per hundred square feet; or 3 pounds muriate of potash to the same area.

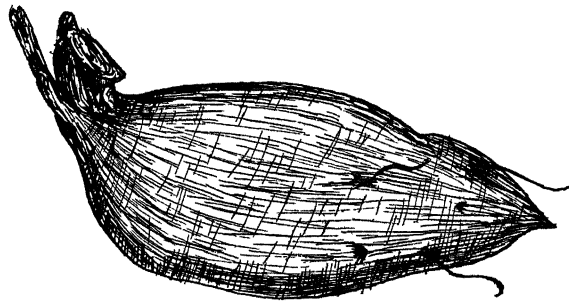


Fig. 13.—A dahlia root ready for planting.

As soon as buds appear, nitrogenous materials, such as ammonium sulfate or urea, should be applied at regular two-week periods. They may be used in liquid form dissolved at the rate of 1 ounce to 2 gallons and 1 ounce to 7 gallons respectively. In dry form, about 2 ounces to each plant will be sufficient. Commercial fertilizer with a formula of 0-12-12 is suitable.

Applications of bone meal during the summer are wasted, while shredded sheep manure is too expensive, even though it may be advocated by some. The needed nitrogen is secured cheaply from the sources mentioned.

For commercial clump production sandy loams are preferable, since the object is to secure good sized roots in the shortest possible time.

PLANTING

Though the dahlia is a perennial, it is tender to frost. Consequently it is necessary to lift the roots in the fall, store them

during the winter, and plant late in the spring when all danger of frost is past; late May or early June is suitable. The plants may be spaced from 3 to 4 feet each way, though on a large scale they are usually planted 4 feet between rows and 18 inches in the row.

Large clumps should not be planted. They will produce luxuriant foliage and few flowers. The division of the clump as suggested under propagation will furnish a quantity of individual roots each with a bud or two. These should be placed horizontally in a hole so that they are from 4 to 6 inches deep. Potted cuttings may be set somewhat deeper than rim of the ball of soil.

SUMMER CARE OF DAHLIAS

Cultivation is essential, although a mulch of manure or peat about the base of each plant will eliminate the need of it. A stake should be provided for each plant and the stems tied to it at regular intervals.

Disbudding is important. The top of the plant should be pinched after six laterals have developed. Two lower branches may be left on each lateral. Such practice will produce eighteen blooms per plant. The laterals, except the two lower shoots, should be disbudded to the end bud. The two branches on each of the six originals should be treated in the same manner. This will produce six large flowers first and twelve others later. The six flowers will be as large as the original center stem blooms, and the other twelve much larger than any flowers obtained without disbudding.

Watering should be done regularly and thoroughly.

CUT FLOWERS

For satisfactory use as cut flowers the blooms should be cut early in the morning or late in the evening and the stems thrust deeply in water in a cool, dark place. Their keeping quality will be improved by removing most of the foliage, plunging the stems in hot water, and then placing them in cold water.

DIGGING AND STORING

The roots should be dug as soon as the frost has killed the tops. They may be left out to dry for a day before removing to a cool (40 to 45 degrees F.), moist cellar. The roots may be packed in barrels of sawdust or sand, or placed in boxes or bins, provided that the humidity is fairly high in the cellar. The notion that all roots should be stored tops down is erroneous. There is no advantage in such a practice. The roots keep just as well stored with the tops up, and besides there is less injury from handling.

PESTS

Insects.—Cut worms, stem borers, aphids, red spider, thrips and leaf hoppers are the most serious of the insect pests of the dahlia. Poisoned bran bait for cut worms, and nicotine dust for the other insects will serve as effective control measures. The stem borer, however, cannot be eliminated by means of sprays or dusts, although some growers have destroyed the pest by pouring dilute nicotine in a slit made in a stem showing borer presence. Pyrethrum sprays are fairly effective against red spider.

Fungous Diseases.—A number of serious dahlia diseases are often noted. Mildew may become troublesome unless its spread is prevented by regular dusting with superfine sulfur on sunny days. The heat of the sun is essential in volatilizing the sulfur and making it effective against fungous troubles. If the plants are too crowded, with attendant soft growth and lack of air circulation, mildew becomes quite prevalent.

A more dangerous malady is the "stunt." It behaves like a number of other virus or mosaic diseases. The stems become stunted and yellow, and the flowers imperfect. No remedy may be suggested, since no organism responsible for the trouble has been isolated. Destruction of affected plants should be practiced, as the disease is carried over in the storage roots.

VARIETIES OF DAHLIA GROUPS

Cactus

F. W. Fellows (orange)
Mariposa (pink)
Mrs. C. H. Breck (yellow)
Prima Donna (white)
Union Jack (red)

Peony Flowered

Geisha (red)
White Dove (white)
Sherlock Holmes (pink)
City of Portland (yellow)

Decorative

Jersey's Beauty (pink)
Judge Marean (multicolored)
Millionaire (lavender)
Mrs. I de Ver Warner (pink)
Sagamore (yellow)
Grizzly (red)
U. S. A. (orange)
Trentonian (bronze)
Eliza Clark Bull (white)

Show

A. D. Livoni (pink)
Maude Adams (white)
Miss Helen Hollis (red)
Storm King (white)

Collarette

Ami Nonin (pink)
Mon Ami (red)
San Mateo Star (white and pink)

Pompon

Aimee (bronze)
Bobby (purple)
Dainty (white)
Elizabeth (yellow)
Helen Cottrell (pink)
Tom Thumb (red)

Single

Josephine (white)
Rose Pink Century (pink)
Sensation (purple)

Bulletins on Flowers

Issued by your

Agricultural College Extension Service

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About Perennials
Beautifying the Farm Home
Garden Roses
The Home Flower Garden
Annual Flowers
Floriculture Bulletins and Books

The last mentioned is a circular which lists many sources of information. The others in the list above are similar to this bulletin. They are intended for distribution and use in Ohio.

Write to the Agricultural College Extension Service, the Ohio State University, Columbus, Ohio.