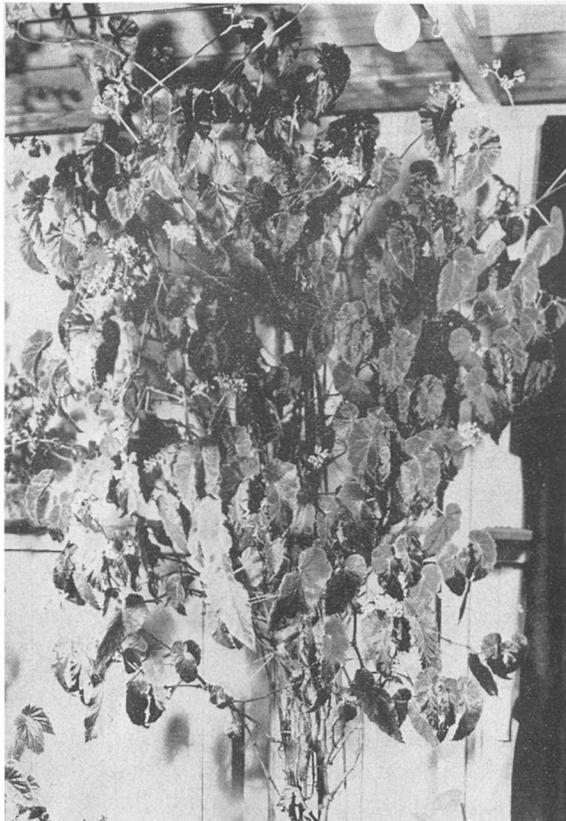


FIBROUS BEGONIAS

THEIR PROPAGATION
AND CULTURE

AMERICAN BEGONIA SOCIETY
RESEARCH DEPARTMENT
SPECIAL BULLETIN NO. 2

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(Third Revision)



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● This bulletin deals with the branching type of Fibrous Begonias. In the classification scheme presented on the opposite page no attempt is made to include all fibrous begonias. Those listed are only examples to illustrate the different groups, show the great variety existing in fibrous begonias, and as an aid in applying cultural directions.

● These cultural methods are not necessarily the only ones to follow, but are used by successful growers, and should provide a working base for the amateur. They must often be altered to suit different conditions.

● The authors wish to express their appreciation to A. D. Robinson for his very capable advice and assistance, and to others who have rendered assistance.

● The monthly Bulletin of the American Begonia Society, *The Begonian*, will keep you informed of the latest developments of begonias and their culture. It is only one dollar a year. The *Begonian* also contains advertisements of many growers who can supply fibrous begonias at moderate prices. The corresponding secretary can also furnish on request the names of other dealers who cater to local trade only.

FIBROUS BEGONIAS

I.—Rhizomatous begonias, including scandent, Rex and "Star" begonias, listed in the Rex bulletin.

II.—Succulent, herbaceous types. Bedding begonias, *B. semperflorens* and its hybrids.

Singles—

Leaves uniformly green, bronzed, or darker.

Coarser foliage, and thicker stems. *Semperflorens* class: *Vernon*, *Triomphe de Lorraine*, etc.

Foliage more compact, more slender stems. *Gracilis* class: *Carmen*, *Mignon*, etc.

Leaves variegated: *Calla*, *Lepidota*.

Doubles—*Bijou de Jardin*, *Dresden*, *Westport Beauty*.

III.—Shrubby types, woody or semi-woody.

Low growing, spreading plants.

Leaves thin, hairy, red beneath: *B. schmidtiana* (*Schmidtii*).

Leaves thick, white-scurfy: *B. peltata*, *B. venosa*.

Medium to tall, upright plants.

Leaves small; slender plants: *B. fuchsioides*, *B. foliosa*, *B. incarnata*, *Corbeille de Feu*, *Digswelliana*, etc.

Leaves medium to large.

Leaves deeply lobed or divided: *B. luxurians*, *B. diadema*, *B. carolinaefolia*, etc.

Leaves not deeply lobed or divided.

Whole plant more or less hairy.

Foliage light green: *B. subvillosa* (*Scotch Luxurians*), *B. vitafolia*, *B. engleri*, etc.

Foliage distinctly colored, at least underneath.

Flowers white: *B. scharffiana*, *Duchartrei*, etc.

Flowers colored: *B. haageana*, *B. metallica*, *Thurstonii*, *Arthur Mallet*, *Margaritae*, etc.

Whole plant smooth, not generally hairy.

Leaves thick, fleshy, entire: *B. sanguinea*.

Leaves relatively thin.

Leaves not sharply angled or toothed.

Flowers white: *B. angularis* (*Zebrina*), *Compta*, *Shasta*, *Odorata alba*, *Alba perfecta*, etc.

Powers pink: *B. nitida*, *B. dichroa*, *B. coccinea*, *Wallow*, *Rosea gigantea*, *Rubra* class. etc.

Leaves strongly toothed, incised, or lobed.

Flowers white: *B. olbia*, *Madame de Lesseps*, etc.

Flowers colored.

Leaves white-spotted: *B. corallina*, *Maculata*, *Argenteo-guttata*, *Lucerne* class, etc.

Leaves uniformly green or colored, when mature: *B. phyllomaniaca*, *President Carnot*, etc.

FIBROUS BEGONIAS

Description and History

Fibrous begonias form the largest section of the Begonia family, especially so far as native species are concerned. They show a larger variety in habit of growth and leaf form than do either of the other two large groups, and some are winter flowering, while others bloom only in summer. Some need the same care as Rex begonias, but many others do well in the average living room, while still others make a show in beds or as edgings in the open ground. Fibrous begonias are accordingly much more widely grown, and are known by thousands of people who are unaware of the existence of the Rex and tuberous groups.

Fibrous begonias come from tropical and semitropical countries in most parts of the earth. Nearly every place that has a uniformly warm, moist climate and free from drying winds, has contributed species to our gardens. There are still many species that have not yet been introduced to cultivation, and others that have disappeared from cultivation during the past century. Many of these are not worthwhile for cultivation.

The first begonia to be discovered was a fibrous begonia found in the West Indies, which we now know as *B. acuminata*. It was first described in 1690 by Plumier, and the generic name *Begonia* was given in honor of Governor Michel Bigon of Santo Domingo. The first begonia to be introduced into Europe was *B. nitida*, brought to the Kew Gardens from Jamaica in 1777. There are apparently no native begonias in either Europe, Australia, or the United States.

The true fibrous begonias have more or less erect stems that are either succulent or woody, but not swollen at the base, from which are given off masses of fine fibrous roots. Many people consider the rhizomatous, trailing, and semi-tuberous begonias in the same general classification as the fibrous, and indeed, the general methods of culture and propagation are much the same for all these groups mentioned, but because there are some differences in growth habit, in culture, in propagation, and considerable differences in their botanical relationships, these other classes will be discussed in the Rex or the Tuberous Cultural Bulletins.

SPECIAL TYPES

The cane types, often known as the tree form, include such begonias as *B. corallina* and its hybrids, especially that old standard favorite known as *Coralline Lucerne*; *Rubra* and its hybrids, often known as the "angel-winged" begonias; *Multiflora rosea*; *B. angularis*; *Compta*, *Wallow*; *Rigi*; *Shasta*; *B. fuchsioides*; *Haageana* and its hybrids; and many others. *Marjorie Daw*, which is a hybrid of *B. scandens*, is the only one of the fibrous that may be termed a climber.

The winter flowering types include such fibrous begonias as *Mrs. W. A. Wallow*, *Washington Street*, *B. acuminata*, *B. incarnata*, *Haageana*, *Corbeille de Feu*, *Multiflora rosea*, *Medora*, *B. dichroa*, *Odorata alba*, *B. nitida*, *B. foliosa*, *B. fuchsioides*, and the many hybrids of *B. semperflorens*, especially the *Gracilis* group. Many others bloom in the late fall or the early spring.

The *semperflorens* group in general stand more sunlight, and are not so particular as to soil. They make splendid bedding plants, and are also useful as edgings for beds of other plants. While these begonias may be grown from cuttings they start very easily from seed sown in an ordinary flat with little special care except what should naturally be given such fine seed.

Some of the fibrous are considered rather difficult to grow, such as *Arthur Mallet*, the *Calla Lily* begonia, *Dawn*, *Mme. Fanny Giron*, and other varieties related to these. *Arthur Mallet* should best be grown in leaf mold or peat, and kept quite warm. The *Calla Lily* begonia on the other hand must be kept quite dry, though it likes cool, moist air. It apparently does best when the pot is sunk in another pot with sand or ashes filling the space between, and water applied only to this outer pot. *Dawn* may be grown in a glass case, or where the air can be kept constantly moist and the plant protected from drafts.

PROPAGATION

Fibrous begonias may be propagated either by stem cuttings or by seeds. Cuttings always produce true duplicates of the parent plants, and as the young plants develop quite rapidly, it is the method favored by most amateurs. Seeds are slower to develop and many uncertainties affect the growth, yet because of the pleasure encountered in looking ahead to possible new variations it is practiced by many hobbyists. Leaf cuttings will succeed in some few cases, but is not so much used as stem cuttings.

Stem Cuttings

Cuttings may be made at any season of the year, but early spring seems to be the best season as the cuttings root quickly and can establish themselves as mature plants during good growing weather. Where one has good temperature control and bottom heat, however, the fall and winter months are almost equally desirable for propagation. Cuttings require a moist atmosphere, good ventilation, and a uniformly mild temperature.

It is not necessary to use root-growth hormones in starting begonia cuttings; in fact, the liquid forms seem harmful to soft wood cuttings, but the use of a hormone in powdered form or as a paste seems to be helpful in securing more rapid rooting and more numerous roots.

The cutting bed should be in a shaded and well protected location. A shallow pot, box, or flat should be used. The one essential of the cutting bed is that it should have good drainage. Two to four inches of sharp river sand, free from alkali, is preferred by most growers, but some prefer three to six inches of coarse leaf mold. German or Swedish peat may be used also, but only with bottom heat, and care must be used in keeping the peat from getting too wet. In starting cuttings in a pot it seems very successful practice to insert the cuttings close to the sides of the pot. Sand gives good drainage, is warm, and the cuttings start quickly, but the cuttings must be removed soon after the roots develop as sand has no food value. Leaf mold requires less watering and care, and the plants may be left to grow as long as desired. Cuttings may also be rooted in nutrient sand, using the standard nutrient sand culture practice. With this method the plants may be left longer in the sand, and will develop more vigorously.

The new tender shoots are much preferable to old stems as they root much more quickly. As the roots start at the nodes the cutting should be cut off just below a node, and there should be at least two nodes to each cutting. If the growing tip is not included in the cutting, the top end of the cutting should be cut off just above a node. Remove all leaves from the lower part of the cutting, but leave one or more leaves toward the top. The cutting should be placed in the cutting bed so that the lower node is about one or two inches below the surface.

Water the cutting bed immediately after setting out the cuttings and keep it moist at all times, but not wet enough to keep the air out. Excess watering causes decay

of the cuttings, too little watering causes drying out, and too low night temperatures (below 50 degrees) will cause "damping off" if the soil is on the wet side. Watering with water containing 4% of Clorox, will tend to prevent damping off. Good ventilation also tends to prevent "damping off." A moist air is essential at all times. Whenever the nights are cool, it is preferable to water shortly after sunrise, just as the day is beginning to warm up.

When both leaves and roots have developed on the cutting it is ready to pot. Use a clean, moist pot of two or three inch size. A soil of about equal parts of light loam, sand, and compost or leaf mold should be used. The smallest size pot that will hold the roots without crowding should be used, as the soil of a larger pot may hold an excess of water that will injure the plant. A small amount of gravel or broken crockery should be placed in the bottom of the pot for drainage. A small amount of soil should be placed over the drainage material and soil should be filled about the roots of the plant so that the plant stands a little deeper than it did in the cutting bed. Press down rather firmly toward the outside of the pot with the fingers. Water from the top and place in a location similar to that of the cutting bed.

Leaf Cuttings

Only a few of the fibrous begonias may be propagated by leaf cuttings, particularly *B. cathayana*. The petiole or stem of the leaf should be placed about two inches deep in sharp sand. Bottom heat or a temperature of about 70 degrees is necessary. Powdered charcoal may be sprinkled on the sand to prevent "damping off" or rot. *B. phyllomanica* and its variants, Paul Bruant, *Templinii*, etc., may be propagated from the tiny adventitious leaves and plantlets produced on the leaves and stem of the parent plant. However, in all cases with the fibrous begonias, stem cuttings are much preferable.

Seeds

Most fibrous seed grows quite readily, but it takes a long time and lots of care to produce a good sized plant. The seedlings of the fibrous species, and of several varieties of the *Semperflorens* hybrids, will come true to type, but in all hybrids or other horticultural varieties a large percentage of variation may be expected. Begonia seeds are very tiny and delicate. They are very easily crushed, and are very susceptible to moisture when in storage. If properly stored, however, the seed may retain its viability for several years. Seed may be planted any time after Aug.

The seed bed should be prepared by using some coarse gravel or broken pots for drainage on the bottom of the flat or seed pan. On top of this should be placed some coarse leaf mold or coarse sand and leaf mold to within an inch or less of the top. Above this should be placed the top layer of very fine leaf mold and fine sand, with perhaps a little finely screened peat mixed in. The soil in the seed bed should be thoroughly sterilized to prevent worms. One good way to do this is to use Black-leaf 40 in a double strength solution. Use this for your initial watering from the bottom.

Set the container in water and let the moisture rise to the top. Then set aside for several hours or longer to drain, and then carefully scatter the seed on the surface. Do not cover the seed with soil, but cover the seed box with glass to prevent evaporation. Place in a shaded place where the temperature may be constantly maintained between 65 and 70 degrees until germination. If the soil is thoroughly moistened as directed, the seed should germinate without further watering. However, should the surface show signs of drying out, water again from the bottom. Rain water should always be used for watering.

After the seed has sprouted remove the glass and allow the temperature to drop a little. The young plants should be watered by a very fine spray whenever the surface of the soil dries out. A watering with a 4% solution of Clorox in water will tend to prevent damping off. After the third leaf develops, the small plants may be pricked out and set further apart in a flat. Use a finely screened soil composed of a third each of leaf mold, sand, and loam. When the young plants are several inches high they are ready for potting, the same as for cuttings.

GENERAL CULTURE

Care of Growing Plant

The plant is ready to transplant to a larger pot when the roots begin to grow around the inside of the pot and stem has made considerable growth. A pot two inches larger in diameter than the present one, should be used. Place drainage in the bottom of the new pot. Remove the plant from the old pot by turning it upside down and shaking the pot against some object. Take away the old drainage material and put enough transplanting soil on top of the new drainage material to hold the plant within half an inch of the top. Remove any old soil, such as the top soil, without disturbing the roots, and set the plant in a new pot. Fill around with soil and press down

with fingers against the outside. This allows a space of one-half to one inch at the top of the pot for water. New plants should be started about every two years.

Soil

The soil for fibrous begonias varies with the kind of begonia, the location in which it is to be placed, and the nature of the soil components available. It should always be light, porous, well drained, slightly on the acid side, and rich in organic matter. A fundamental soil mixture might be one-third leaf mold, compost, or well rotted manure, one-half light fibrous loam, and one-sixth granitic sand. This can be varied to meet local conditions, some growers using less loam, and others even more, but this depends largely on the character of the loam. Care should be used in selecting sand, as sand is often alkaline, a coarse, granitic sand is best. A little bone meal or other commercial fertilizer can be added if more rapid growth is desired. A little vaporite or naphthalene may be mixed in to discourage worms and other soil pests.

Fertilizing

Plants, like people, must have a regular supply of foods. These foods are the organic and mineral elements in the soil. Sufficient food makes a plant thrive, while excess food may kill it. If the repotting soil is fairly rich, it may not be necessary to fertilize the plant from one repotting until the next. Well rotted manure, composts, and bone meal are slow acting but long lasting. So also are such fertilizers as Nitrogranic, and alfalfa leaf meal. Never use fresh manure as it will burn the plant. Most commercial fertilizers are quick acting, but short lived. For vigorous growth a small amount of commercial fertilizer should be used frequently and regularly. A good plan is to mix this with the water once a week, about one teaspoonful to a gallon of water, more if you feed the plant every two weeks. Never fertilize a dry plant, or one that is sick. Unless the plant is winter flowering it should not be fertilized during the winter, as that is the resting period for most begonias.

Mulching

The roots of fibrous begonias grown in the open ground grow close to the surface and do not like to be disturbed. Soil cultivation is not desirable. It is best to put some mulch like peat, leaf mold, or grass cuttings, over the soil about the plant. This keeps the ground cooler, saves water by preventing evaporation, and keeps the weeds down. Most mulch material will finally decay into food for the plant.

Housing

Fibrous begonias like a moist atmosphere and good drainage. Some, like the *semperflorens*, will do well in the open ground in partial sun, or even full sun where the air is not too hot or dry. Most kinds do well in an ordinary lathhouse, while a few require the protection of muslin in a cloth house. Most of the fibrous begonias make splendid house plants if the air does not become too dry. The winter blooming varieties are especially desirable for this purpose. In the house they should be watered rather sparingly but kept moist. When plants are kept too wet, they will be apt to drop their leaves. Hot, dry air also causes the leaves to fall. Fresh air should be admitted to room during the warm part of the day, but a direct draught should not be allowed to strike the plants. The air should be kept moist by setting the plants on a pan of gravel or moss, or by setting pans of water on the radiators.

Out of doors one must also be careful of over-watering. Where the rainfall is heavy they should be planted in raised beds, or a deep hole should be dug and partially filled with drainage material before the begonia soil is filled in. Most begonias like to grow among rocks, so that rock drainage is particularly desirable. A few of the fibrous varieties will stand very light frosts, but all are set back by frosts, and it is wise not to take chances. They should all be given adequate protection during periods of cold weather. While they like a resting period after the flowering season, they do not become completely dormant like the tuberous begonias. During this rest period they should not be watered heavily nor given any fertilizer.

Watering

As begonias like a slightly acid soil, they should not be watered with "hard" or alkaline water. If only hard water is available it should be neutralized by the use of aluminum sulphate or common alum. Use about one-half ounce of a supersaturated solution of alum to a gallon of water. A supersaturated solution is one which contains more of the alum than the water will dissolve. Enough water should be applied to keep the soil moist, not wet, at all times. Daily waterings are usually necessary during the hot summer days, for potted plants, at least. Plants in the ground may go for several days if they are well mulched. The soil should never get so dry that the plant wilts, or so wet as to exclude air from the roots. The amount of water should be cut down as the days

become cooler and evaporation becomes less. During the resting period only enough water should be added to keep the plants from drying out. During cool weather the watering should be done in the morning, while in warm weather the roots keep moist longer if watered in the afternoon. On hot, dry days two waterings may be desirable, and the foliage should also be sprinkled.

Pruning

It is desirable to prune out all old wood, and dead or broken stems. You may largely shape the plant by the way you prune. Cut out the center, leaving a uniform grouping of stocks about the outside, if you wish to make a plant low and bushy; vice versa if you wish a tall plant. In the case of the bedding type begonias you should cut them back to two or three inches above the ground during their resting period. As with all flowering plants, do not allow the flowers to form seed but keep them cut off when their charm is past, if you wish to continue their blooming period. The taller varieties generally require staking to keep them from breaking off. This should be done early in the season to support the plant and cause it to grow upright.

Pests and Diseases

Most pests and diseases are more easily prevented than cured. A constant condition of high humidity will tend to discourage aphids, thrips, mealy bugs, and red spider. Wash your plants daily with a brisk spray of water and most of these pests will be washed off, if they appear. Strong, vigorous growth of plants in fresh, rich soil is the best protection against disease. Keep your garden clean, with no litter about the plants and they will be relatively free from pests. It is well to mix vaporite, naphthalene, or calcium arsenate with the soil to drive off or kill out harmful insects and worms in the soil. If necessary to use an insecticide, a pyrethrum spray is the safest, and a rotonone spray is perhaps the best, but any good commercial spray compound will do the work if used properly and not too strong. Poisoned bait, with metaaldehyde in it should be placed about to get the slugs and snails. If nematodes should get into your soil it must be sterilized thoroughly and all roots burned. Clean garden practice is the best deterrant for most pests and diseases. If you need further information, consult our special bulletin on Begonia Pests and their Control.



BEGONIA MARGARITAE

Many unforeseen problems are constantly arising in the culture and propagation of begonias. When such difficulties arise, write to

AMERICAN BEGONIA SOCIETY

Question Box Department

P. O. Box 375

Long Beach, California

The solution of your difficulties will also help others with their related troubles.

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