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PUBLICATION 1335
REVISED 1972

tuberous begonias

630.4
C212
P1335
1972
(1977 print)
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Copies of this publication may be obtained from
INFORMATION DIVISION
CANADA DEPARTMENT OF AGRICULTURE
OTTAWA
K1A 0C7

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Printed 1967
Revised 1972
Reprinted 1974, 1975, 1977

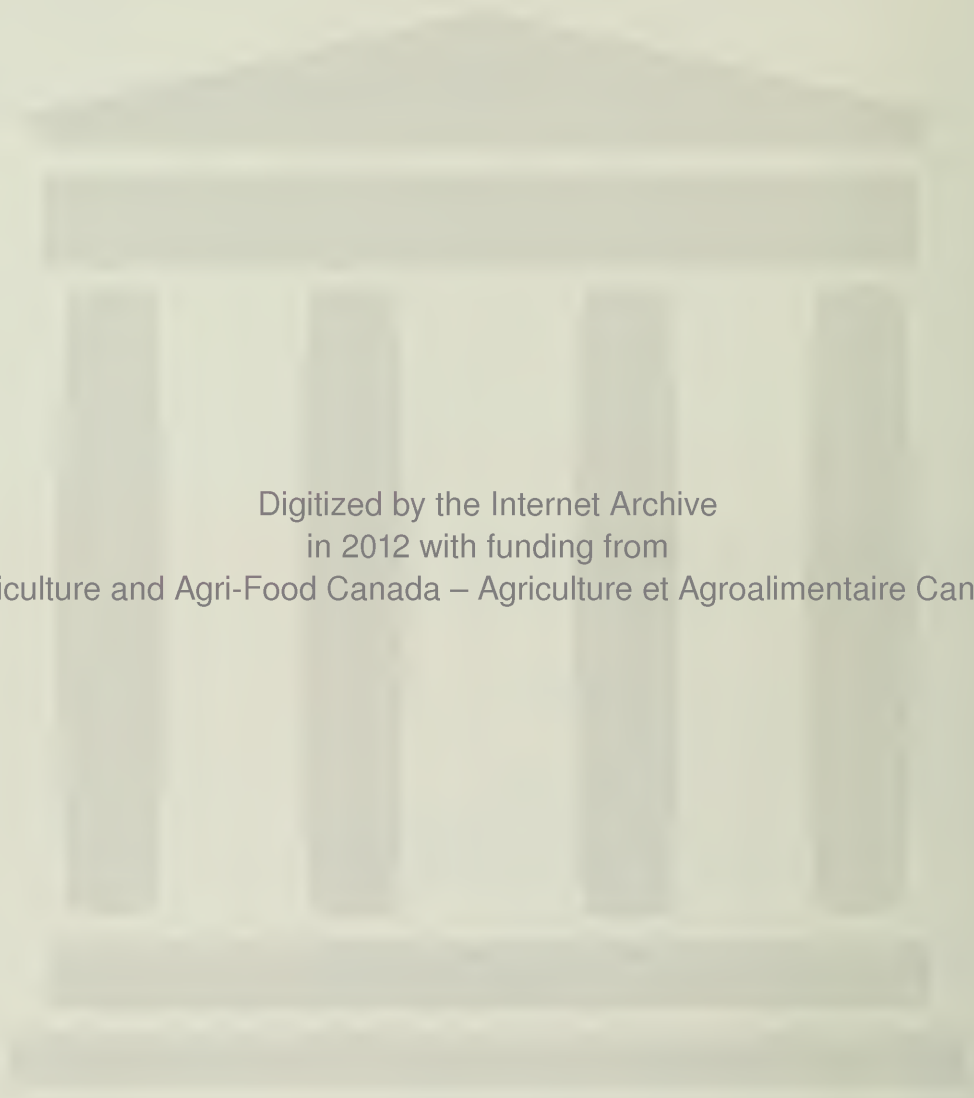
12M-38833-10:77
Cat. No.: A53-1335
ISBN: 0-662-0116-3

Donald F. Runge Limited, Pembroke, Ontario, Canada.
Contract No.: 01A05-7-38833.

forms of tuberous begonias

Tuberous begonias are usually classed by flower shape. The most common are listed below. The first five are the most popular.

- Rose-form — roselike in appearance
- Ruffled — ruffled camellia
- Pendula — basket or hanging type
- Picotee — marginal petal color blending into the dominant shade, and usually in rose and ruffled forms
- Multiflora — many flowered, single and double, bushy, compact, suitable for bedding
- Fimbriata — carnationlike
- Cristata — crestlike outgrowths on petals
- Crispa — frilled petal margins



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tuberous begonias

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The origin of the popular and showy varieties of tuberous begonias has never been established. Species that probably are ancestors are *Begonia Davisii*, *B. pearcei*, *B. clarkei*, *B. veitchii*, *B. rosaeiflora*, and *B. boliviensis*. All these species are found in the foothills of the Andes, where it is foggy most of the year. The climate there is favorable for their growth as it provides the essentials for successful culture — a moist atmosphere, partial shade, and no extreme temperatures.

Tuberous begonias may be grown from seed, tubers, or cuttings. Experience is needed to grow begonias from seed, so the novice should begin with tubers.

growing from tubers

For dependable results, obtain tubers from a reliable source. Sizes range in diameter from $\frac{3}{4}$ inch to $2\frac{1}{2}$ inches and larger. Plants from a small tuber will produce fewer flowers but they will be almost as large as those from a big tuber.

SOIL MIXTURES FOR TUBERS

Tubers should be sprouted and well rooted before they are potted. In early spring, fill 4-inch-deep boxes with a moist mixture of 6 parts by volume friable pasteurized garden loam, 12 parts nursery grade sphagnum peat, and 1 part coarse washed sand. Place the tops of the tubers flush with the surface of the sprouting mixture (Figure 1). Keep the flatted tubers in a moist atmosphere if possible, between 65° and 70° F, until the plants are 3 to 4 inches high. If the plants are for exhibition, limit the number of sprouts to only one per tuber. When the plants are 3 to 4 inches high, transplant them with the least possible root disturbance into pots or containers three times the diameter of the tuber. The pots should never be less than 5 inches. The soil mixture should consist of 7 parts by volume friable pasteurized garden loam, 12 parts nursery-grade sphagnum peat, and 1 part coarse washed sand. For each cubic foot of potting mixture add



Figure 1. Begonia tubers: left, concave (hollow) face; right, convex (rounded) face. Tuber should be planted with concave face upwards.

1½ ounces of blood-meal fertilizer. Ask your agricultural representative or provincial specialist about the need to control the black vine weevil, *Brachyrhinus sulcatus* (Fabricius), and what insecticide to use. After the sprouted tubers have been transplanted, lower the temperature to between 55° and 60° F and ventilate to prevent mildew.

WATERING AND FEEDING

Keep the soil moist. When the buds first appear, avoid wetting the foliage, and liquid-feed at 3-week intervals with a high-analysis soluble fertilizer, such as 23-19-17 or 20-20-20, and continue liquid-feeding throughout the flowering period at the rate recommended by the manufacturers. Moisten the soil before liquid-feeding.

DISBUDDING

If a mass flowering effect is desired, do not remove any flower buds. If you want the largest flowers possible, remove the two outer buds in each naturally occurring group of three when they appear. The outer buds, normally female, develop into flowers with a single row of petals and they set seed. Sometimes, the outer buds develop into semidouble flowers that do not set seed. These buds are easily recognized by the absence of the immature three-winged ovary present only in the normal female type.

When there are not enough branches on the pendula type of begonia, pinch and remove ½ to 1 inch of the terminal growth of the main stem and branches.

PLANTING SITE

When all danger of frost is past, move the plants outdoors. Select a flowering site that does not give long periods of full sun, dense shade, or

wind. Suitable sites are lathhouses, patios with half-shade, heavily shaded greenhouses, northern exposures, and sunny sites till 10 a.m., or locations with half-shade provided by trees. Leave the plants in the pots for easy watering and feeding, and to produce superior results. Place the pots in the earth to the rims and face the points of the leaves in the direction you want the flowers to show. Stake and tie the plants to prevent the stems from breaking. Flowering will begin in three weeks.

DISEASE AND INSECT CONTROL

Begonias are susceptible to the black vine weevil and powdery mildew. Because recommendations on the use of pesticides are subject to change, ask your local agricultural specialist about the need for control and the control measures to use.

BUD DROP

Bud drop is caused by poor drainage, overwatering, extreme dryness, or too little light.

growing from seed

For successful germination and satisfactory flowering, obtain fresh seed. Seedsmen who specialize in begonias are generally reliable sources. Obtain seed so that it can be sown in early spring.

SOIL MIXTURE FOR SEEDING

The sowing mixture consists of 9 parts by volume friable pasteurized garden loam, 10 parts horticultural sphagnum peat moss, and 1 part coarse washed sand. First, screen the sowing mixture through a number 2 (1/2-inch mesh) sieve. Use pasteurized soil to avoid weed seedlings, insects, and harmful disease organisms. To pasteurize the soil, steam it for 35 minutes at 180° F. Small quantities may be pasteurized by placing moist, not wet, soil in a closed pan in an oven, or pasteurized soil can be bought in garden shops.

SOWING THE SEEDS

Place 2½ inches of sowing mixture in a new or pasteurized 3-inch-deep flat or pot. Cover with ¼ inch of the same mixture screened through a number 12 size mesh. Firm lightly. Cover this with ¾ inch of horticultural grade vermiculite. Broadcast the seed uniformly; moisten the surface of the soil mixture with an atomizer sprayer. The use of vermiculite does away with the need to cover the seeded flat with a sheet of glass or paper to retain the moisture and aid germination. For best germination, keep the temperature between 70° and 75° F.

TRANSPLANTING

Eight weeks after germination, the seedlings are ready for their first transplanting into flats at a temperature of 68° F (Figures 2 and 3). Space the seedlings 1 inch apart. Use a pasteurized mixture of 8 parts by volume

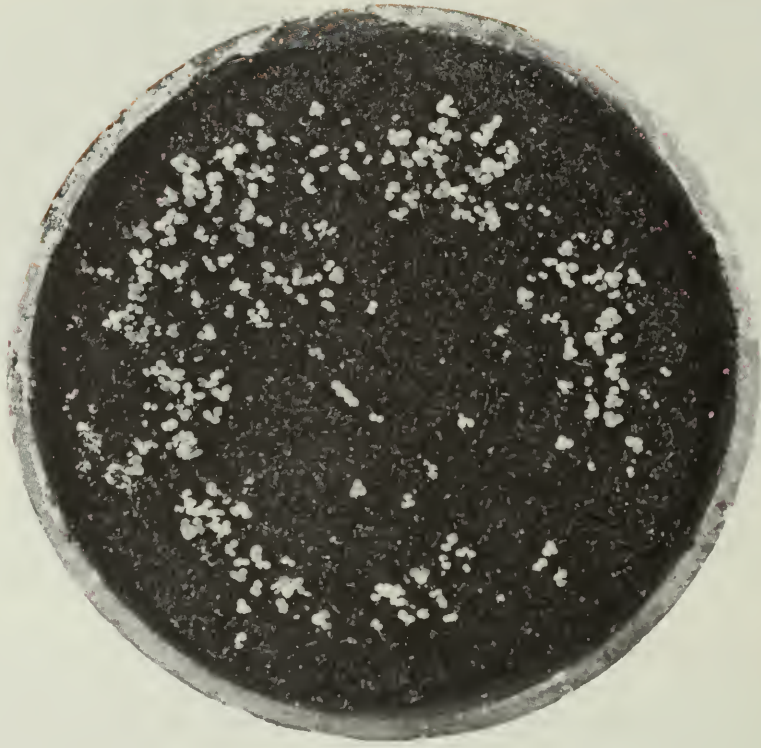


Figure 2. Begonia seedlings ready to be transplanted.

Figure 3. Begonia seedlings after first transplanting.

Figure 4. Begonia transplants in 3-inch peat pots. Three-inch plastic pots serve equally well. The plant on the left has been in this container for several weeks and is ready for final transplanting. The plant on the right has just been transplanted for the second time.

friable loam, 10 parts nursery grade sphagnum peat, and 1 part coarse washed sand. Use a fine spray for watering.

Before the plants start crowding, transfer each one to a 3-inch pot that contains the same soil mixture as the first transplanting.

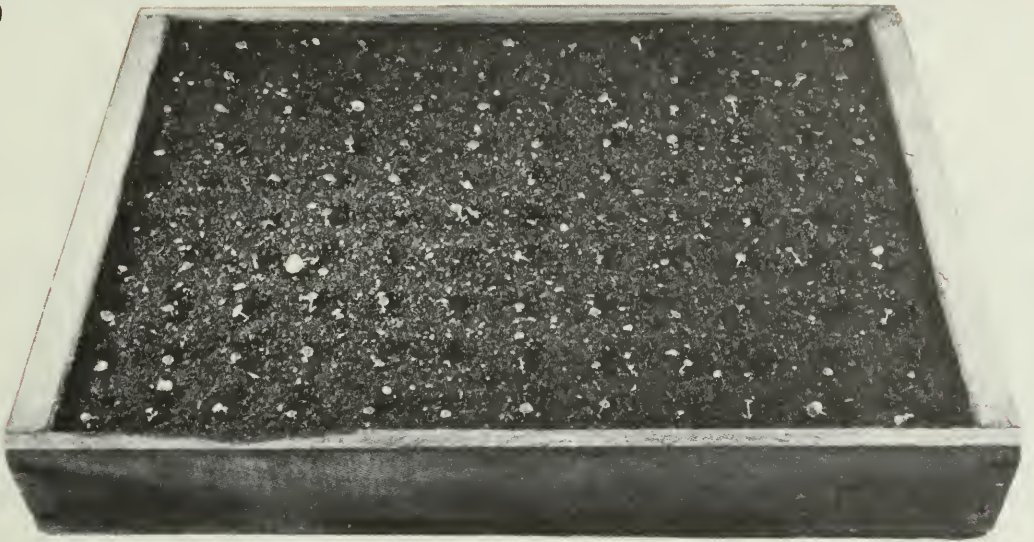
Transplant for the third and final time into 5-inch clay or plastic pots when the plant is wider than the rim of the pot (Figure 4). Use the same soil mixture as the one for potting tubers (see page 5).

growing from tuber divisions and cuttings

Because they do not reproduce true to type from seed, although the color shadings are similar, you must use vegetative reproduction to propagate a particular variety of tuberous begonia. This is done either by making tuber divisions or by taking cuttings.

Divide large tubers with two or more eyes by cutting with a knife. The eyes can be recognized shortly after sprouting and before rooting begins.

3



4



The cutting line should pass midway between the eyes. Dust the cut surfaces with a fungicide and leave them to callous at normal room temperature for one or two hours before returning them to the sprouting-rooting mixture described on page 5.

Cuttings may be taken from the surplus shoots of sprouting tubers when they are 3 inches high, or from the surplus side shoots that develop from half-grown specimens. It is easier to get side shoots if the terminals of the main stems are pinched out when plants are half grown.

Basal and stem cuttings will root in a moist sand-peat mixture (3 to 1 by volume) when the temperature is 60° to 65° F.

Cuttings should be taken as early as possible because plants from cuttings develop slowly and need a long growing season.

fall and winter care

Harvest tubers after the first frost damages the foliage or in October, when rain and cool weather have ended the growth.

Before tubers are stored for the winter, they should be cured and cleaned. To cure them, keep the entire plant with the adhering soil in a ventilated room, between 55° and 60° F, and gradually withhold water. When the stem separates easily from the tuber, clean the tubers by removing the soil. After the tubers have been cured for 10 days in shallow flats, they become callous and firm and they are ready to be stored in almost dry, fine sphagnum peat moss in a cool, frost-free place. Ideal storage temperature is from 35° to 40° F.



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CONVERSION FACTORS FOR METRIC SYSTEM

Imperial units	Approximate conversion factor	Results in:
LINEAR		
inch	x 25	millimetre (mm)
foot	x 30	centimetre (cm)
yard	x 0.9	metre (m)
mile	x 1.6	kilometre (km)
AREA		
square inch	x 6.5	square centimetre (cm ²)
square foot	x 0.09	square metre (m ²)
acre	x 0.40	hectare (ha)
VOLUME		
cubic inch	x 16	cubic centimetre (cm ³)
cubic foot	x 28	cubic decimetre (dm ³)
cubic yard	x 0.8	cubic metre (m ³)
fluid ounce	x 28	millilitre (mL)
pint	x 0.57	litre (L)
quart	x 1.1	litre (L)
gallon	x 4.5	litre (L)
WEIGHT		
ounce	x 28	gram (g)
pound	x 0.45	kilogram (kg)
short ton (2000 lb)	x 0.9	tonne (t)
TEMPERATURE		
degrees Fahrenheit	(°F-32) x 0.56 or (°F-32) x 5/9	degrees Celsius (°C)
PRESSURE		
pounds per square inch	x 6.9	kilopascal (kPa)
POWER		
horsepower	x 746	watt (W)
	x 0.75	kilowatt (kW)
SPEED		
feet per second	x 0.30	metres per second (m/s)
miles per hour	x 1.6	kilometres per hour (km/h)
AGRICULTURE		
gallons per acre	x 11.23	litres per hectare (L/ha)
quarts per acre	x 2.8	litres per hectare (L/ha)
pints per acre	x 1.4	litres per hectare (L/ha)
fluid ounces per acre	x 70	millilitres per hectare (mL/ha)
tons per acre	x 2.24	tonnes per hectare (t/ha)
pounds per acre	x 1.12	kilograms per hectare (kg/ha)
ounces per acre	x 70	grams per hectare (g/ha)
plants per acre	x 2.47	plants per hectare (plants/ha)

