
RECOMMENDED GRADES & STANDARDS FOR POTTED PLANTS

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Preface

For many years, the floral industry has recognized the need for product specifications and standards. There is a need now more than ever to provide a base of common understanding and terminology. This will result in better evaluations of the market value of crops by individuals and companies in the floral industry.

Although characteristics of individual flowers and plants will vary, this system is made uniform by applying the same terminology to identify separate grades. Each grade established certain standards so that the buyer can be assured that those products meeting these standards are equal to or better than the definition of that grade.

A joint committee representing the Floral Marketing Association and the Society of American Florists has compiled recommended product specifications for 20 potted plants. In this book you will find a chart of recommended shipping and storage temperatures, product stage of development photo charts, product history, botanical information, and, of course, recommended standards for each product.

We will continue to provide you with recommended grades and standards for additional products which you can then add to this book. In fact, industry acceptance of the standards for azalea, chrysanthemum, lily, and poinsettia prompted the committee to develop the sixteen additional standards you will find here.

Acceptance of these specifications by individuals and companies in the industry will result in a set of voluntary grades and standards, and will not preclude the marketing of crops which vary from these grades and standards.

NOTE: It is very important to keep in mind that accepted pot crop height varies between the east and west coast of the United States. Pot crops grown and marketed on the west coast may be taller than those grown and marketed on the east coast.

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FMA/SAF

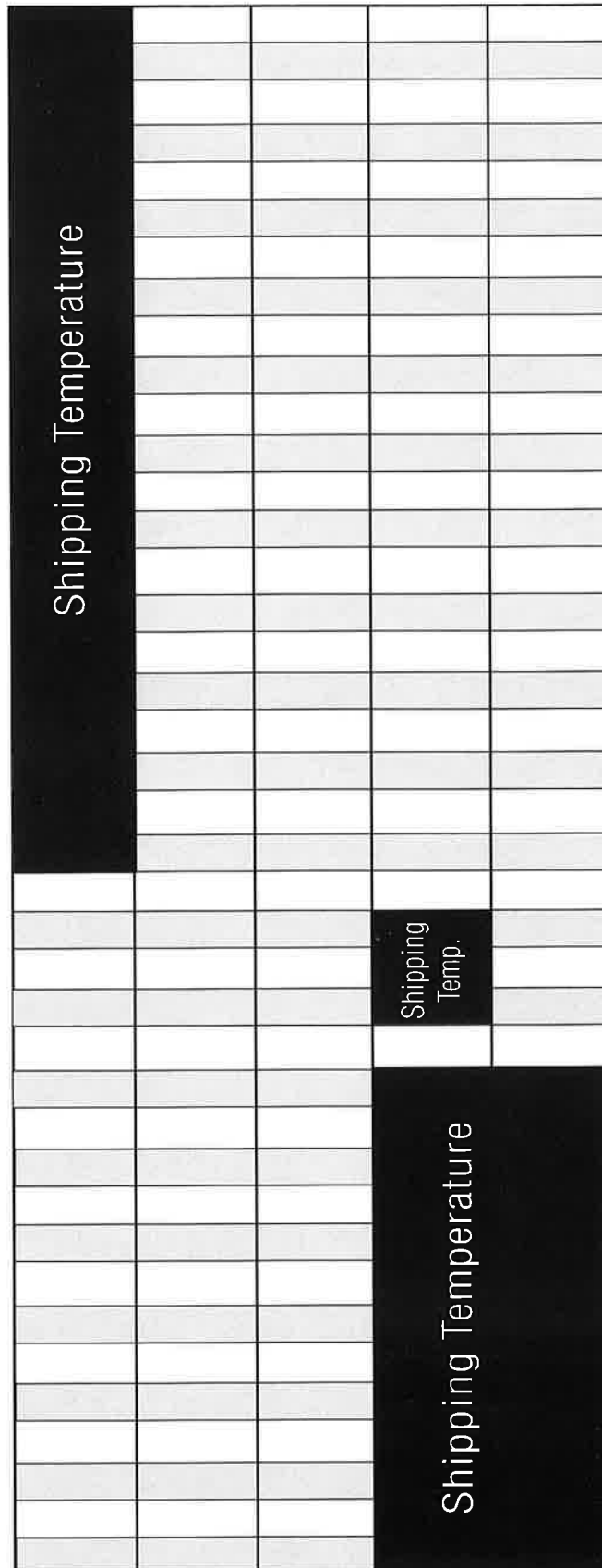
Recommended Shipping and Storage Temperature Chart

35°F 40° 45° 50° 55° 60°

- Amaryllis
- Azalea
- Calceolaria
- Chrysanthemum
- Cineraria
- Crocus
- Cyclamen
- Daffodil
- Dwarf Iris
- Easter Lily
- Freesia
- Gerbera
- Grape Hyacinth
- Hyacinth
- Hybrid Lily
- Hydrangea
- Kalanchoe
- Oxalis
- Paperwhite Narcissus
- Regal Geranium
- Rose
- Tulip

- Calla Lily
- Lisianthus
- Zygocactus

- African Violet
- Begonia-Hiernalis
- Bougainvillea
- Browallia
- Clerodendrum
- Crossandra
- Cymbidium
- Easter Cactus
- Exacum
- Gloxinia
- Hibiscus
- Poinsettia
- Streptocarpus



▼ All temperatures are measured in Fahrenheit.

▼ Shipping plants at higher temperatures will lead to bud drop, leaf yellowing, and reduced shelf life for the consumer. Plants are more sensitive to ethylene as temperature increases.

▼ Plants shipped at cooler temperatures will exhibit chilling symptoms - bud drop, white/blush bracts, premature bud, flower and bract drop, or black spots on leaves. Also, shipping/storage of these plants at higher temperatures will result in rapid leaf yellowing and bud drop.

▼ When products which require a higher temperature range are shipped with those which require a lower temperature range, the higher temperature range should be used for shipping and storage.

Adapted from "Transporting Plants," Terril Nell, *Grower Talks*, January 1990. Partial funding for this research provided by American Floral Endowment, 37 Camelot Drive, Edwardsville, IL.

AFRICAN VIOLET

HISTORY

The African Violet is currently considered one of the most popular hobby plants in the United States. Hybridizers have greatly improved the selection of cultivars that are available to the consumer. The African Violet was discovered in 1892 in Tanga, East Africa, by Baron Walter Von Saint Paul, governor of German East Africa. Hermann Wendlan, a prominent German botanist, named the genus Saintpaulia in honor of its discoverer. The African Violet was first introduced into the United States about 1894. George Stumpp, a New York florist, purchased two plants in Germany and brought them to the United States. In 1927 Walter L. Armacost of the Armacost and Royston Nursery in Los Angeles imported the first seed into the country from England and Germany, thus starting the first commercial production of the African Violet in the United States. The first plants named and offered for sale in this country were grown by Armacost and Royston in 1936. Several of the original cultivars are still available today.

DEFINITIONS

1. An African Violet pot plant consists of one or more plants per pot, equally distributed around the pot or centered in the pot. The quantity of plants per pot will vary, depending on pot size. Pots containing more than one plant should have a symmetrical shape and uniform flower maturity among all plants.
2. Product dimensions of pot plants refer to plants prior to sleeving or six to eight hours after plants have been unsleeved.
3. Stage of openness given is for maximum obtainable shelf life, assuming plants will be going into an environment of 68 to 72 degrees F. with a minimum light of 300 foot candles. (See recommended shipping and storage temperature chart in this book.)
4. Care tag should give product name and user care information for water, light, temperature, and other pertinent information.

AFRICAN VIOLET

SMALL GRADE

PRODUCT DIMENSIONS

There should be a good balance between the size of the plant and pot. The plant should fill the pot enough to prevent the appearance of legginess. The height of the product should be from a minimum of 6" as measured from the bottom of the pot to the top of the plant. The minimum width of plant should be 7".

Note: Generally, small grade African Violets are grown in 4" pots.

NUMBER OF STALKS

Pot African Violets should have a minimum stem or spike count of 3 to the degree of openness as specified. Pot African Violet should also have flower buds uniformly distributed in a loose cluster in the center of the plant carried on strong upright stems well above foliage.

STAGE OF OPENNESS

The stage of openness for pot African Violets should be a minimum of 7 flowers open, per stage 4 of the FMA/SAF African Violet photo chart.

CHARACTERISTICS

Foliage must be healthy, with good color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Stems must be strong enough to support the flowers. The plant must be sturdy in the pot, with a healthy root system. Soil must be damp.

CARE TAGS

Care tag with proper product identification and care information should be attached to the plant or pot.

AFRICAN VIOLET

	Product Dimensions	# of Flower Stalks	Stage of Openness	Characteristics	Care Tags
Small Grade	Height from a minimum of 6" * Top of plant width 7" 4" pots	Minimum stem count of 3	Minimum of 7 flowers in open stage	Foliage of good color Strong stems Healthy root system <u>Soil must be damp</u>	Yes
Large Grade	Height from a minimum of 7" * Top of plant width 9" 5 1/2" - 6" pots	Minimum stem count of 6	Minimum of 12 flowers in open stage	Foliage of good color Strong stems Healthy root system <u>Soil must be damp</u>	Yes

* Width is a minimum measurement.

STAGES IN FLOWER DEVELOPMENT OF AFRICAN VIOLET



DAY 1
STAGE 1



DAY 4
STAGE 2



DAY 7
STAGE 3



DAY 10
STAGE 4



DAY 13
STAGE 5

AZALEA

HISTORY

Azaleas have been grown as flowering potted plants in American greenhouses for more than a century but the popularity of the crop has fluctuated from one decade to the next. Census figures have shown continuous increases in the wholesale value of potted Azaleas and in the number of plants produced.

DEFINITIONS

1. An Azalea pot plant consists of one or more plants per pot. The quantity of plants per pot will vary, depending on variety consideration and grade. Pots containing more than one plant should have a symmetrical shape and uniform flower maturity among all plants.
2. The term 'candle bud stage' used throughout these standards refers to the development of the flower bud at harvest.
3. Product dimensions of pot plants refer to plants prior to sleeving or six to eight hours after plants have been unsleeved.
4. Stage of openness given is for maximum obtainable shelf life, assuming plants will be going into an environment of 68 to 72 degrees F. with a minimum light of 300 foot candles. (See recommended shipping and storage temperature chart in this book.)
5. Care tag should give product name and user care information for water, light, temperature, and other pertinent information.

BOTANICAL INFORMATION

The Azalea is one of 43 series in the genus *Rhododendron*. There are six azalea subseries, but the most important subseries containing Azaleas for forcing is *R. obtusum*. Primarily, nine species of this subseries have been used in the development of cultivars that are most prominent today. Currently, Azalea taxonomy is in a rather confused state and it is not easy to determine the ancestry of some cultivars currently used in industry.

Azaleas can also be classified by flower types. There are single, single hose-in-hose, semidouble, semidouble hose-in-hose, double, and double hose-in-hose. There are different flower shapes and sizes and a wide array of color choices, although red, pink, and white flowers are most popular. Some cultivars have relatively fragrant flowers but the most prominent ones seem to be almost odorless. Foliage shape, size, and color also can vary.

AZALEA

LARGE GRADE

PRODUCT DIMENSIONS

There should be a good balance between the size of the plant and pot. The plant should be full to avoid the appearance of legginess. The height should be between 12" - 16" tall from the bottom of the pot to the top of the plant. The minimum width at top of plant should be 9".

Note: Generally, large grade Azaleas are grown in 6" - 6 1/2" pots.

NUMBER OF FLOWER BUDS

Plants should have a bud count of between 15 - 20. Pot Azalea will have a good floral display with uniform distribution of flowers about the pot.

STAGE OF OPENNESS

The stage of flower openness for pot Azaleas should be a minimum of 50% of the flowers in the candle bud stage, per stage 3 of the FMA/SAF Azalea photo chart.

CHARACTERISTICS

Foliage should be dark green, with no evidence of nutritional deficiencies, insect damage, spray residues, or mechanical injury. Stems must be strong enough to support the flowers. The plant must be sturdy in the pot with a healthy root system. Soil must be damp. At times, foliage directly under a flower bud may show some tip burn. This is not too unusual with azaleas. However, by the time the flowers open, it's usually not visible.

CARE TAGS

Care tags with proper product identification and care information should be attached to the plant or pot.

AZALEAS

	Product Dimensions*	# of Flower Buds	Stage of Openness	Characteristics	Care Tags
Small Grade	Height 8" - 10" *Top of plant width 6" 4" - 4 1/2" pots	8 - 10	Minimum 50% of flowers in candle bud stage	Dark green foliage Strong stems Healthy root system <u>Soil must be damp</u>	Yes
Large Grade	Height 12" - 16" *Top of plant width 9" 6" - 6 1/2" pots	15 - 20	Minimum 50% of flowers in candle bud stage	Dark green foliage Strong stems Healthy root system <u>Soil must be damp</u>	Yes
Extra Large Grade	Height 16" - 20" *Top of plant width 13" 7" - 8" pots	30 - 35	Minimum 50% of flowers in candle bud stage	Dark green foliage Strong stems Healthy root system <u>Soil must be damp</u>	Yes

*Width is a minimum measurement.

STAGES IN FLOWER DEVELOPMENT OF AZALEAS



STAGE 1
Color showing. Candle stage.



STAGE 2
1/4 to 1/3 open.



STAGE 3
1/2 open.



STAGE 4
2/3 to 3/4 open.



STAGE 5
Mature. All flowers open.

Prize (P.P. #3795)
by Yoder®

BEGONIA HIEMALIS

HISTORY

Very few flowering potted plants have gained popularity as quickly or dramatically as the *Hiemalis Begonias*. These Begonias were the result of crosses between *B. socotrana* and the winter-flowering bulbous species *Begonia* and the summer-flowering *B. tuberhybrida*. Two prominent dates in the history of these crosses are 1883 when the original cross between *B. socotrana* and *B. tuberhybrida* was made, and 1953 when Otto Rieger of Germany introduced the Rieger elatior Begonia. These revolutionary introductions had attractive flowers, were easy to propagate, and reportedly quite free from flower bud abscission. The "Aphrodite" series had a growth habit that made the plants ideally suited for hanging baskets whereas the other introductions were more upright in growth habit and made excellent potted plants. In the United States, Jim Mikkelsen and his associates at Mikkelsen's, Inc. of Ashtabula, OH, must be credited for introducing and promoting the Rieger Begonias.

DEFINITIONS

1. A Hiemalis Begonia pot plant consists of one or more plants per pot, equally distributed around the pot or centered in the pot. The quantity of plants per pot will vary, depending on variety, conditions, and grade. Pots containing more than one plant should have a symmetrical shape and uniform flower maturity among all plants. Most cultivars have a green-colored leaf, but some of the varieties have deep bronze or mahogany green foliage. The flowers come in scarlet, white, yellow, orange, pink, and other pastel colors.
2. Product dimensions of pot plants refer to plants prior to sleeving or six to eight hours after plants have been unsleeved.
3. Stage of openness given is for maximum obtainable shelf life, assuming plants will be going into an environment of 68 to 75 degrees F with a minimum light of 300 foot candles. (See recommended shipping and storage temperature chart in this book.)
4. Care tags should give product name and user care information for water, light, temperature, and other pertinent information.

BOTANICAL INFORMATION

The denotation "Elatior" was derived from the varietal name of a hybrid introduced by Veitch in 1906. The varieties are often referred to as Winter Flowering Begonia hybrids in British literature. "Elatior" Begonias are also called "Hiemalis" Begonias from the name *Begonia x hiemalis* proposed for this group by Fotsch (1933). In the U.S. some times the name Holland Begonia is used.

BEGONIA HIEMALIS

LARGE GRADE

PRODUCT DIMENSIONS

The plant should be symmetrical with good balance between the size of the plant and pot. The plant should fill the pot enough to prevent the appearance of legginess. The height of the product should be from a minimum of 12" to a maximum of 16" as measured from the bottom of the pot to the top of the plant. The minimum width of the plant should be 9".

Note: Generally, large grade Hiemalis Begonias are grown in 6" - 6 1/2" pots.

NUMBER OF FLOWER STEMS

Hiemalis Begonias will have a minimum of 9 flower stems with multiple buds and flowers to the degree of openness specified. They will also have a good floral display with uniform distribution of flowers about the pot.

STAGE OF OPENNESS

The stage of flower openness for Hiemalis Begonias should be stage 2 or 3 per the FMA/SAF Begonia Hiemalis photo chart.

CHARACTERISTICS

Foliage should be healthy with good color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Stem should be strong enough to support the flowers. The plant should be sturdy in the pot with a healthy root system. Soil should be damp.

CARE TAGS

Care tags with proper product identification and care information should be attached to the plant or pot.

STAGES IN FLOWER DEVELOPMENT OF BEGONIA HIEMALIS



Day 1
Stage 1



Day 2
Stage 2



Day 3
Stage 3



Day 4
Stage 4



Day 5
Stage 5

CALLA LILY

HISTORY

This exotic plant is a native of South Africa. In some parts of the world, Calla means only the large white plants (*Zantedeschia aethiopica*) commonly used for weddings and funerals, but the Golden Yellow Calla (*Z. elliottiana*) has long been available wherever summer-flowering bulbs are sold. Callas are grown outside in warm areas, and in cold areas they are grown in greenhouses for cut flowers. Hybrid Callas have only recently become available.

DEFINITIONS

1. A Calla pot plant consists of one or more rhizomes per pot. The quantity of rhizomes per pot will vary depending on size of rhizomes, variety considerations, and grade. Pot Callas containing more than one rhizome should have a symmetrical shape and uniform flower maturity.
2. Regardless of size, the plants should be marketed when the flower buds show good color.
3. Stages of Calla development occur rapidly. There are only 2 days between each stage at normal room temperature 68 to 75 degrees F with a minimum light of 300 foot candles. (See recommended shipping and storage temperature chart in this book.)
4. Care tags should give the product name and user care information for water, light, temperature, and other pertinent information.

BOTANICAL INFORMATION

The first commercial Calla variety was called *Richardias*. These varieties include white (*R. albo maculata*), pink (*R. rehmannii*) and yellow (*R. elliottiana*). The yellow is the most common one. The newest, most interesting Callas are the hybrid *Richardias*, Rancho strain. This strain introduces the new colors of deep purple, rose, apricot, salmon, and cream to the Calla group. A mixture of these hybrids will include many intermediate shades of color, ranging anywhere between the extremes of deep purple and light cream. There are also combinations of these colors such as yellow with red edges, purple with white centers, and white flowers with red centers. They vary greatly in flower size and foliage color.

CALLA LILY

MEDIUM GRADE

PRODUCT DIMENSIONS

The plant should be symmetrical with good balance between the size of the plant and pot. The height of the product should be from a minimum of 11" to a maximum of 15" as measured from the bottom of the pot to the top of the plant.

Note: Generally, medium grade pot Callas are grown in 5" - 5 1/2" pots.

NUMBER OF FLOWERS

Pot Callas will have a minimum of 2 open flowers with 2 flowers showing slight color.

STAGE OF OPENNESS

The stage of flower development should show slight color per stage 1 or 2 of the FMA/SAF Calla chart.

CHARACTERISTICS

Foliage should be healthy with good color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Calla leaves can vary from dark green to dark green with white translucent spots. Stem should be strong enough to support the flower. The plant should be sturdy in the pot with a healthy root system. Soil should be damp.

CARE TAGS

Care tags with proper product identification and care information should be attached to the plant or pot.

CALLA LILY

EXTRA LARGE GRADE

PRODUCT DIMENSIONS

The plant should be symmetrical with good balance between the size of the plant and pot. The height of the product should be from a minimum of 14" to a maximum of 18" as measured from the bottom of the pot to the top of the plant.

Note: Generally, extra large grade pot Callas are grown in 7" pots.

NUMBER OF FLOWERS

Pot Callas will have a minimum of 3 open flowers with 3 flowers showing slight color.

STAGE OF OPENNESS

The stage of flower development should show slight color per stage 2 or 3 of the FMA/SAF Calla chart.

CHARACTERISTICS

Foliage should be healthy with good color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Calla leaves can vary from dark green to dark green with white translucent spots. Stem should be strong enough to support the flower. The plant should be sturdy in the pot with a healthy root system. Soil should be damp.

CARE TAGS

Care tags with proper product identification and care information should be attached to the plant or pot.

STAGES IN FLOWER DEVELOPMENT OF CALLAS



Day 1
Stage 1



Day 3
Stage 2



Day 5
Stage 3



Day 7
Stage 4



Day 9
Stage 5

CHRYSANTHEMUM

HISTORY

Year-round pot Chrysanthemums (or mums) continue to be the undisputed number one pot plant among major pot crops. Numerous cultivars of Chrysanthemums were grown in Europe prior to 1800 as garden flowers. Since that time the Chrysanthemum has been refined and developed to the point where it is now a year-round crop and the primary pot plant grown in much of the world. The real growth in the pot mum industry has occurred since the 1940s, and new innovations are being developed every day.

DEFINITIONS

1. A Chrysanthemum pot plant consists of one or more cuttings per pot, equally distributed around the pot or centered in the pot. The quantity of cuttings per pot will vary, depending on variety consideration, climatic and seasonal conditions. Pots containing more than one cutting should have a symmetrical shape and uniform flower maturity among all cuttings.
2. The terms 'single flower' and 'multiple flowers' are used throughout these standards. 'Single flower' refers to a stem or branch of the plant that terminates with one single flower, with all side buds removed. 'Multiple flower' refers to a stem or branch with numerous flowers, often in various stages of maturity.
3. Product dimensions of pot plants refer to plants prior to sleeving or six to eight hours after plants have been unsleeved.
4. Stage of openness given should be for maximum obtainable shelf life, assuming plants will be going into an environment of 68 to 72 degrees F. with a minimum light of 300 foot candles. (See recommended shipping and storage temperature chart in this book.)
5. Care tag should give product name and user care information for water, light, temperature and other pertinent information.

CHRYSANTHEMUM

MINIATURE GRADE

PRODUCT DIMENSIONS

There should be a good balance between the size of the plant and pot. The plant should fill the pot enough to prevent the appearance of legginess. The height of the product should be from a minimum of 9" to a maximum of 12" as measured from the bottom of the pot to the top of the plant. The minimum width at top of plant should be 7".

Note: Generally miniature grade mums are grown in 4" - 4 1/2" pots.

NUMBER OF FLOWER BUDS

Pot mum should have a minimum of 4 flowers to the degree of openness as specified. Pot mum will also have a good floral display with uniform distribution of flowers about the pot.

STAGE OF OPENNESS

The stage of flower openness for decorative mums should be 1/2 to 3/4 open, per the FMA/SAF decorative mum photo chart. Daisy mums must be 1/3 to 1/2 open, per the FMA/SAF daisy mum photo chart.

CHARACTERISTICS

Foliage must be healthy, with good color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Stems must be strong enough to support the flowers. The plant must be sturdy in the pot with a healthy root system. Soil must be damp.

CARE TAGS

Care tags with proper product identification and care information should be attached to the plant or pot.

CHRYSANTHEMUM

MEDIUM GRADE

PRODUCT DIMENSIONS

There should be a good balance between the size of the plant and pot. The plant should fill the pot enough to prevent the appearance of legginess. The height of the product should be from a minimum of 12" to a maximum of 15" as measured from the bottom of the pot to the top of the plant. The minimum width at top of plant should be 11".

Note: Generally, medium grade mums are grown in 5 1/2" pots.

NUMBER OF FLOWER BUDS

Pot mum should have a minimum of 11 single flowers or 27 multiple flowers to the degree of openness as specified. Pot mum will also have a good floral display with uniform distribution of flowers about the pot.

STAGE OF OPENNESS

The stage of flower openness for decorative mums should be 1/2 to 3/4 open, per the FMA/SAF decorative mum photo chart. Daisy mums must be 1/3 to 1/2 open, per the FMA/SAF daisy mum photo chart.

CHARACTERISTICS

Foliage must be healthy, with good color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Stems must be strong enough to support the flowers. The plant must be sturdy in the pot with a healthy root system. Soil must be damp.

CARE TAGS

Care tags with proper product identification and care information should be attached to the plant or pot.

CHRYSANTHEMUM

EXTRA LARGE GRADE

PRODUCT DIMENSIONS

There should be good balance between the size of the plant and pot. The plant should fill the pot enough to prevent the appearance of legginess. The height of the product should be from a minimum of 14" to a maximum of 18" as measured from the bottom of the pot to the top of the plant. The minimum width at top of plant should be 14".

Note: Generally, extra large grade mums are grown in 6 1/2" pots.

NUMBER OF FLOWER BUDS

Pot mum should have a minimum of 15 single flowers or 37 multiple flowers to the degree of openness as specified. They will also have a good floral display with uniform distribution of flowers about the pot.

STAGE OF OPENNESS

The stage of flower openness for decorative mums should be 1/2 to 3/4 open, per the FMA/SAF decorative mum photo chart. Daisy mums must be 1/3 to 1/2 open, per the FMA/SAF daisy mum photo chart.

CHARACTERISTICS

Foliage must be healthy, with good color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Stems must be strong enough to support the flowers. The plant must be sturdy in the pot with a healthy root system. Soil must be damp.

CARE TAGS

Care tags with proper product identification and care information should be attached to the plant or pot.

CHRYSANTHEMUM

	Product Dimensions	# of Flower Buds	Stage of Openness	Characteristics	Care Tags
Miniature Grade	Height 9" - 12" Top of plant width 7" 4" - 4 1/2" pots	Minimum of 4	Decorative mums: 1/2 - 3/4 open Daisy mums: 1/3 - 1/2 open	Healthy foliage Strong stems Healthy root system <u>Soil must be damp</u>	Yes
Small Grade	Height 11" - 14" Top of plant width 10" 5" pots	At Least 10 Single/ 25 Multiple	Decorative mums: 1/2 - 3/4 open Daisy mums: 1/3 - 1/2 open	Healthy foliage Strong stems Healthy root system <u>Soil must be damp</u>	Yes
Medium Grade	Height 12" - 15" Top of plant width 11" 5 1/2" pots	At Least 11 Single/ 27 Multiple	Decorative mums: 1/2 - 3/4 open Daisy mums: 1/3 - 1/2 open	Healthy foliage Strong stems Healthy root system <u>Soil must be damp</u>	Yes
Large Grade	Height 13" - 17" Top of plant width 12" 6" pots	At Least 12 Single/ 30 Multiple	Decorative mums: 1/2 - 3/4 open Daisy mums: 1/3 - 1/2 open	Healthy foliage Strong stems Healthy root system <u>Soil must be damp</u>	Yes
Extra Large Grade	Height 14" - 18" Top of plant width 14" 6 1/2" pots	At Least 15 Single/ 37 Multiple	Decorative mums: 1/2 - 3/4 open Daisy mums: 1/3 - 1/2 open	Healthy foliage Strong stems Healthy root system <u>Soil must be damp</u>	Yes
Jumbo Grade	Height 15" - 20" Top of plant width 15" 7" - 8" pots	At Least 18 Single/ 45 Multiple	Decorative mums: 1/2 - 3/4 open Daisy mums: 1/3 - 1/2 open	Healthy foliage Strong stems Healthy root system <u>Soil must be damp</u>	Yes

The terms 'single flower' and 'multiple flower' are used throughout these standards. 'Single flower' refers to a stem or branch of the plant which terminates with one single flower, with all side buds removed. 'Multiple flower' refers to a stem or branch with numerous flowers in various stages of maturity.

STAGES IN FLOWER DEVELOPMENT OF DECORATIVE POT MUMS



STAGE 1
Color showing. Petals upright.



STAGE 2
1/4 to 1/3 open.



STAGE 3
1/2 open.



STAGE 4
2/3 to 3/4 open.



STAGE 5
Mature. All flowers open.

Iridon (P.P. #6125)
by Yoder®

STAGES IN FLOWER DEVELOPMENT OF DAISY POT MUMS



STAGE 1
Color showing. Petals upright.



STAGE 2
1/4 to 1/3 open.



STAGE 3
1/2 open.



STAGE 4
2/3 to 3/4 open.



STAGE 5
Mature. All flowers open.

Dalvina (P.P. #6771)
by Yoder®

CINERARIA

HISTORY

Cineraria, *Senecio cruentus*, appears to have originated in England as a cross between *S. cruentus* and *S. heritieri* and possibly other species from the Canary Islands. This old-fashioned potted plant is making a comeback because of its long shelf life, cool temperature preference, and new vibrant colors.

DEFINITIONS

1. A Cineraria pot plant consists of one plant centered in the pot.
2. Product dimensions of pot plants refer to plants prior to sleeving or six to eight hours after plants have been unsleeved.
3. Stage of openness given is for maximum obtainable shelf life, assuming plants will be going into an environment of 68 to 75 degrees F with a minimum light of 300 foot candles. There are only two days between each stage of flower development. (See recommended shipping and storage temperature chart in this book.)
4. Care tags should give product name and user care information for water, light, temperature, and other pertinent information.

BOTANICAL INFORMATION

Cineraria cruentus from the Canary Islands, after much modification and hybridization, have become the widely cultivated Cineraria we know today. The large leaves with rich green color above and purple beneath are grouped around a large, rounded dense truss of starry flowers. The flower's rays may be white, pink, rose, purple, blue, or bi-colored.

CINERARIA

MEDIUM GRADE

PRODUCT DIMENSIONS

There should be a good balance between the size of the plant and pot. The plant should fill the pot enough to prevent the appearance of legginess. The height of the product should be from a minimum of 10" to a maximum of 14" as measured from the bottom of the pot to the top of the plant. The minimum width of the plant should be 9".

Note: Generally, medium grade Cineraria are grown in 5" - 5 1/2" pots.

NUMBER OF FLOWER BUDS

Pot Cineraria will have a minimum of 30 flowers to the degree of openness specified. Flowers and flower buds should be sufficient to cover the plant. Flowers should be above the foliage and distributed uniformly about the plant.

STAGE OF OPENNESS

The stage of openness for pot Cineraria should be 1/3 to 1/2 of flowers open per stage 3 of the FMA/SAF Cineraria photo chart.

CHARACTERISTICS

Foliage should be healthy, with good color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Stems should be strong enough to support the flowers. The plant should be sturdy in the pot with a healthy root system. Soil should be damp.

CARE TAGS

Care tags with proper product identification and care information should be attached to the plant or pot.

CINERARIA

	Product Dimensions	# of Flower Stems	Stage of Openness	Characteristics	Care Tags
Small Grade	Height 8" - 11" *Top of plant width 7" 4" - 4 1/2" pots	Minimum of 25 flowers	1/3 to 1/2 open	Foliage of good color Strong stems Healthy root system <u>Soil must be damp</u>	Yes
Medium Grade	Height 10" - 14" *Top of plant width 9" 5" - 5 1/2" pots	Minimum of 30 flowers	1/3 to 1/2 open	Foliage of good color Strong stems Healthy root system <u>Soil must be damp</u>	Yes
Large Grade	Height 12" - 15" *Top of plant width 11" 6" - 6 1/2" pots	Minium of 40 flowers	1/3 to 1/2 open	Foliage of good color Strong stems Healthy root system <u>Soil must be damp</u>	Yes

* Width is a minimum measurement.

STAGES IN FLOWER DEVELOPMENT OF CINERARIA



Day 1
Stage 1



Day 2
Stage 2



Day 3
Stage 3



Day 4
Stage 4



Day 5
Stage 5

COLORED LILIES

HISTORY

The Asiatic and Oriental Lilies used for forcing are the result of extensive hybridization efforts. Most of this has occurred since World War II. Today, there are many breeding programs worldwide that are selecting for pot plant cultivars. Thus, the selections are constantly changing. One of the main goals is to develop dwarf selections that will not require the use of exogenous plant growth regulators. Also, a high flower count is one of the goals.

DEFINITIONS

1. Colored lilies are sold in 4" (1 bulb) and 6" inch (1-3 bulb) pots. A colored lily pot plant consists of one or more plants per pot.
2. Regardless of size, the plants should be marketed when the first flower buds are colored and puffy.
3. Care tag should give product name and user care information for water, light, temperature, and other pertinent information.
4. Stages of colored lily development occur rapidly. Note number of days between stages 1 and 5 on the FMA/SAF colored lily photo chart. There is only one day between each stage at normal room temperature of 68 -72 degrees F. (See recommended shipping and storage temperature in this book.)

BOTANICAL INFORMATION

Asiatic and Oriental Lilies have 6 petals, 6 anthers, and a trilobed pistil. Mature anthers should be removed from flowers as the pollen may stain clothing. All the Oriental hybrids have fragrance and some of the Asiatics do, too. They come in wide range of colors; red, pink, white, yellow, rose, orange, and bronze. Some petals have solid colors, while others have blotches and/or spots. Most Asiatic Lilies are upright facing, while Orientals can be upright or outfacing. The main sources for Asiatic and Oriental hybrids for pot plant forcings are The Netherlands and United States. There are more than 30 cultivars available. Depending on prevailing climatic condition, the flowering season can be year-round.

COLORED LILIES

MEDIUM GRADE

PRODUCT DIMENSIONS

The plant should be symmetrical with good balance between the size of the plant and pot. The height of the product should be from a minimum of 14" to a maximum of 18" as measured from bottom of the pot to the top of the plant.

Note: Generally, medium grade colored pot lilies are grown in 5" - 5 1/2" pots.

NUMBER OF FLOWER BUDS

Colored pot lily should have a minimum of 5 flower buds.

STAGE OF OPENNESS

The stage of flower development should be colored and puffy, per stage 3 of the FMA/SAF colored lily photo chart.

CHARACTERISTICS

Foliage must be healthy, with good color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Stem must be strong enough to support the flowers and centered in the pot. The flower buds should be uniformly placed at the top of the stem to form a regular pattern in all directions of the compass. Missing foliage at soil line will generally be prevalent with all cultivars of colored lilies. The plant must be sturdy in the pot, with a healthy root system. Soil must be damp.

CARE TAGS

Care tag with proper product identification and care information should be attached to the plant or pot.

COLORED LILIES

	Product Dimensions	# of Flower Buds	Stage of Openness	Characteristics	Care Tags
Small Grade	Height 11" - 14" 4" - 4 1/2" pots	Minimum of 3	Buds showing color and puffy	Healthy foliage Strong stems Sturdy in pot Healthy root system <u>Soil must be damp</u>	Yes
Medium Grade	Height 14" - 18" 5" - 5 1/2" pots	Minimum of 5	Buds showing color and puffy	Healthy foliage Strong stems Sturdy in pot Healthy root system <u>Soil must be damp</u>	Yes
Large Grade	Height 17" - 22" 6" - 6 1/2" pots	Minimum of 5	Buds showing color and puffy	Healthy foliage Strong stems Sturdy in pot Healthy root system <u>Soil must be damp</u>	Yes

STAGES IN FLOWER DEVELOPMENT OF COLORED LILY (ORIENTAL)



DAY 1
STAGE 1



DAY 2
STAGE 2



DAY 3
STAGE 3



DAY 4
STAGE 4



DAY 5
STAGE 5

STAGES IN FLOWER DEVELOPMENT OF COLORED LILY (ASIATIC)



DAY 1
STAGE 1



DAY 2
STAGE 2



DAY 3
STAGE 3



DAY 4
STAGE 4



DAY 5
STAGE 5

CROCUS

HISTORY

Crocus originate in a broad area from the Mediterranean to Afghanistan. There are two basic groups, the spring flowering and the autumn flowering types. Only the spring flowering selections are forced as potted plants. They have been extensively hybridized, and only hybrid cultivars are used for forcing.

DEFINITIONS

1. Crocus are sold in 4" (5-6 bulbs), 5" (7-9 bulbs), and 6" (10-12 bulbs) pots. Crocus pot plants consist of one or more plants per pot.
2. Regardless of size, the plants should be marketed in the sprout stage of development (note that foliage has not yet emerged from sheath.)
3. Care tag should give product name and user care information for water, light, temperature, and other pertinent information.
4. Stages of Crocus development occur rapidly. Note number of days between stage 1 and stage 5 on the FMA/SAF Crocus photo chart. There is only one day between each stage at normal room temperature of 68 - 72 degrees F. (See recommended shipping and storage temperature chart in this book.)

BOTANICAL INFORMATION

"Crocus" is Greek for "saffron;" the spice saffron is made of pollen from Crocus anthers. Only selections of C. vernus and C. flavus are forced. They have 6 petals, 6 anthers, and a trilobed pistil. The primary colors available are: lavender, white, yellow, and striped (lavender and white). When large-sized corms are used, they will produce more than 1 flower. The main source of Crocus for forcing is The Netherlands. There are seven cultivars available for forcing. The flowering season is from January to March.

CROCUS

MEDIUM GRADE

PRODUCT DIMENSIONS

The plant should be symmetrical, with good balance between the size of the plant and pot. The height of the product should be from a minimum of 6" to a maximum of 8" as measured from the bottom of the pot to the top of the plant.

Note: Generally, medium grade pot Crocus are grown in 5" - 5 1/2" pots.

NUMBER OF FLOWER BUDS

Pot Crocus should have a minimum of 7 flower buds.

STAGE OF OPENNESS

The stage of flower development should be the sprout stage, per stage 1 or 2 of the FMA/SAF Crocus photo chart.

CHARACTERISTICS

Flower bud spikes or sprouts should be healthy, showing no evidence of disease, insect damage, spray residues, or mechanical injury. The plant must be sturdy in the pot, with a healthy root system. Soil must be damp.

CARE TAGS

Care tag with proper product identification and care information should be attached to the plant or pot.

CROCUS

	Product Dimensions	# of Flower Buds	Stage of Openness	Characteristics	Care Tags
Small Grade	Plant height 5" - 7" 4" - 4 1/2" pots	5	Flower development should be in sprout stage	Bud spikes or sprouts free of disease Must be sturdy in the pot <u>Soil must be damp</u>	Yes
Medium Grade	Plant height 6" - 8" 5" - 5 1/2" pots	7	Flower development should be in sprout stage	Bud spikes or sprouts free of disease Must be sturdy in the pot <u>Soil must be damp</u>	Yes
Large Grade	Plant height 7" - 9" 6" - 6 1/2" pots	10	Flower development should be in sprout stage	Bud spikes or sprouts free of disease Must be sturdy in the pot <u>Soil must be damp</u>	Yes

STAGES IN FLOWER DEVELOPMENT OF CROCUS



DAY 1 STAGE 1
Sprout Stage



DAY 2 STAGE 2
Sprout Stage



DAY 3 STAGE 3
1/4 to 1/2 open



DAY 4 STAGE 4
1/2 to 3/4 open



DAY 5 STAGE 5
full open

CYCLAMEN

HISTORY

“Kyklos” is Greek for circle, apparently referring to the leaf shape. The original species, Cyclamen persicum, is native to Palestine, Asia Minor, and islands of the Aegean and eastern Mediterranean seas. Earliest mention of the species was probably in 15th century transcripts. It was introduced into Western Europe as a collector’s item in the early 17th century. Breeding began in the middle of the 19th century when the plant started to achieve economic significance. The herbaceous plants consist of a cluster of bluish green, heart-shaped to ovate leaves with silvery markings and crenate/dentate margins, on long petioles arising from flattened tubers. Attractive sympetalous five-parted, strongly reflexed flowers are borne above the leaf canopy on scapes also arising from the corm. The Cyclamen has been a leading year-round pot plant crop in northern Europe for many years. It is less popular in America, where sales have been limited primarily to late fall and winter, but production and demand are overlapping to other seasons. American interest in Cyclamen is increasing with the development of improved cultivars and improved, accelerated production techniques.

DEFINITIONS

1. Pot Cyclamen consists of one plant centered in the pot with dark green, silver green, or white green, heart-shaped leaves. The flowers come in red, white, pink, lavender, and many other pastel colors.
2. Product dimensions of pot plants refer to plants prior to sleeving or six to eight hours after plants have been unsleeved.
3. Stage of openness given is for maximum obtainable shelf life, assuming plants will be going into an environment of 68 to 72 degrees F. with a minimum light of 300 foot candles. (See recommended shipping and storage temperature chart in this book.)
4. Care tag should give product name and user care information for water, light, temperature and other pertinent information.

CYCLAMEN

SMALL GRADE

PRODUCT DIMENSIONS

There should be a good balance between the size of the plant and pot. The plant should fill the pot enough to prevent the appearance of legginess. The height of the product should be from a minimum of 8" to a maximum of 11" as measured from the bottom of the pot to the plant. The minimum width of plant should be 7".

Note: Generally, small grade Cyclamen are grown in 4" - 4 1/2" pots.

NUMBER OF FLOWER BUDS

Pot Cyclamen should have a bud count of between 10 to 15 to the degree of openness as specified. Pot Cyclamen should also have flower buds uniformly distributed in a loose cluster in the center of the plant with more mature buds and flowers carried on strong upright stems well above foliage.

STAGE OF OPENNESS

The stage of openness for pot Cyclamen should be a minimum of 3 flowers open, per stage 3 of the FMA/SAF Cyclamen photo chart.

CHARACTERISTICS

Foliage should be healthy, with good color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Stems should be strong enough to support the flowers. The plant must be sturdy in the pot, with a healthy root system. Soil must be damp.

CARE TAGS

Care tag with proper product identification and care information should be attached to the plant or pot.

CYCLAMEN

LARGE GRADE

PRODUCT DIMENSIONS

There should be a good balance between the size of the plant and pot. The plant should fill the pot enough to prevent the appearance of legginess. The height of the product should be from a minimum of 11" to a maximum of 15" as measured from the bottom of the pot to the top of the plant. The minimum width of plant should be 11".

Note: Generally, large grade Cyclamen are grown in 6" - 6 1/2" pots.

NUMBER OF FLOWER BUDS

Pot Cyclamen should have a bud count of between 14 to 19 to the degree of openness as specified. Pot Cyclamen should also have flower buds uniformly distributed in a loose cluster in the center of the plant, with more mature buds and flowers carried on strong upright stems well above foliage.

STAGE OF OPENNESS

The stage of openness for pot Cyclamen should be a minimum of 5 of the flowers open, per stage 4 of the FMA/SAF Cyclamen photo chart.

CHARACTERISTICS

Foliage should be healthy, with good color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Stems must be strong enough to support the flowers. The plant must be sturdy in the pot, with a healthy root system. Soil must be damp.

CARE TAGS

Care tag with proper product identification and care information should be attached to the plant or pot.

STAGES IN FLOWER DEVELOPMENT OF CYCLAMEN



DAY 1
STAGE 1



DAY 3
STAGE 2



DAY 5
STAGE 3



DAY 7
STAGE 4



DAY 9
STAGE 5

DAFFODIL

HISTORY

Daffodils (Narcissus) originated in a broad area from Europe and North Africa across to Western Asia. They have been in cultivation for hundreds of years. They have been extensively hybridized. Thus, all of the Daffodils sold as potted plants are hybrid cultivars.

DEFINITIONS

1. Daffodils are sold in 4" (2 bulbs), 5" (2-3 bulbs), 6" (3-5 bulbs), and 8" (5-7 bulbs) pots or bulb pans. A Daffodil pot plant consists of one or more plants per pot.
2. Regardless of size, the plants should be marketed in the pencil stage of development.
3. Care tag should give product name and user care information for light, water, temperature, and other pertinent information.
4. Pencil stage of development refers to the flower buds.
5. Stages of Daffodil development occur rapidly. Note number of days between stage 1 and stage 5 on both the FMA/SAF Miniature Daffodil and Daffodil photo charts. There is only one day between each stage at normal room temperature of 68-72 degrees F. (See recommended shipping and storage temperature chart in this book.)

Note: Pencil stage to full open is generally 3 days.

BOTANICAL INFORMATION

Daffodil is the common name for Narcissus. The genus is classified into 11 divisions. There are large single-flowered, double-flowered, and multiflowered types available. Many are fragrant, and they come in yellow and white as well as various bicolor combinations of white, yellow, orange, and pink. The main sources of Daffodils for forcing are The Netherlands, Great Britain, and the United States. There are about 50 cultivars available for forcing as potted plants. Cultivars such as 'Little Beauty', 'Jumble', 'Peeping Tom', 'Tete-A-Tete', etc., are suggested for 4" or 4 1/2" pots. The flowering season extends from mid-December to May.

DAFFODIL

MEDIUM GRADE

PRODUCT DIMENSIONS

The plant should be symmetrical with good balance between the size of the plant and pot. The height of the product can be from a minimum of 12" to a maximum of 15" as measured from the bottom of the pot to the top of the plant.

Note: Generally, medium grade pot Daffodils are grown in 5" - 5 1/2" pots.

NUMBER OF FLOWER BUDS

Pot Daffodils should have a minimum of 4 flower buds.

STAGE OF OPENNESS

The stage of flower development should be the pencil stage per stage 2 of the FMA/SAF Daffodil photo chart.

CHARACTERISTICS

Foliage should be healthy, with good color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Stem must be strong enough to support the flower. The flower buds should be upright. The plant must be sturdy in the pot, with a healthy root system. Soil must be damp.

CARE TAGS

Care tag with proper product identification and care information should be attached to the plant or pot.

DAFFODIL

EXTRA LARGE GRADE

PRODUCT DIMENSIONS

The plant should be symmetrical with good balance between the size of the plant and pot. The height of the product should be from a minimum of 11" to a maximum of 15" as measured from the bottom of the pot to the top of the plant.

Note: Generally, pot Daffodils are grown in 8" bulb pans.

NUMBER OF FLOWER BUDS

Pot Daffodils should have a minimum of 7 flower buds.

STAGE OF OPENNESS

The stage of flower development should be the pencil stage per stage 2 of the FMA/SAF Daffodil photo chart.

CHARACTERISTICS

Foliage should be healthy, with good color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Stem should be strong enough to support the flowers. The flower buds should be upright. The plant should be sturdy in the pot, with a healthy root system. Soil must be damp.

CARE TAGS

Care tag with proper product identification and care information should be attached to the plant or pot.

STAGES IN FLOWER DEVELOPMENT OF DAFFODIL (MINIATURE)



DAY 1
STAGE 1



DAY 2
STAGE 2



DAY 3
STAGE 3



DAY 4
STAGE 4



DAY 5
STAGE 5

STAGES IN FLOWER DEVELOPMENT OF DAFFODIL



DAY 1
STAGE 1



DAY 2
STAGE 2



DAY 3
STAGE 3



DAY 4
STAGE 4



DAY 5
STAGE 5

DWARF IRIS

HISTORY

Iris danfordiae and I. reticulata are forced as potted plants. I. danfordiae is native to Turkey and I. reticulata originated in Russia, Caucasus, and Iran. These irises have been either cultivated or hybridized in The Netherlands for centuries. Thus, only cultivated species or cultivars are used for forcing.

DEFINITIONS

1. Dwarf Iris are sold in 4" (6 bulbs), 5" (7 bulbs), and 6" (10 bulbs) pots. A Dwarf Iris plant consists of one or more plants per pot.
2. Regardless of size or grade, the plants must be marketed in the sprout stage of development.
3. Care tag should give product name and user care information for light, water, temperature, and other pertinent information.
4. Stages of Dwarf Iris development occur rapidly. Note number of days between stage 1 and stage 5 on the FMA/SAF Dwarf Iris photo chart. There is only one day between each stage at normal room temperature of 68 -72 degrees F. (See recommended shipping and storage temperature chart in this book.)

BOTANICAL INFORMATION

Dwarf Irises are true bulbs; they produce plants with 2-4 leaves, they are single-flowered, and have standard and fall petals. Cultivars are available in light and deep blue, lavender, and yellow. The main source of Dwarf Iris for forcing is The Netherlands. There are four cultivars. The flowering season is from mid-December to March.

DWARF IRIS

MEDIUM GRADE

PRODUCT DIMENSIONS

The plant should be symmetrical with good balance between the size of the plant and pot. The height of the product should be from a minimum of 7" to a maximum of 9" as measured from the bottom of the pot to the top of the plant.

NOTE: Generally, medium grade Dwarf Iris are grown in 5" - 5 1/2" pots.

NUMBER OF FLOWER BUD SPIKES

Dwarf Iris should have a minimum of 6 flower bud spikes.

STAGE OF OPENNESS

The stage of flower development should be in the sprout stage, per stage 1 of the FMA/SAF Dwarf Iris photo chart.

CHARACTERISTICS

Flower bud spikes or sprouts must be healthy, showing no evidence of disease, insect damage, spray residues, or mechanical injury. The plant must be sturdy in the pot, with a healthy root system. Soil must be damp.

CARE TAGS

Care tag with proper product identification and care information should be attached to the plant or pot.

DWARF IRIS

	Product Dimension	# of Flower Bud Spikes	Stage of Openness	Characteristics	Care Tags
Small Grade	Height 6" - 8" 4" - 4 1/2" pots	5	Sprout Stage	Healthy flower bud spikes or sprouts <u>Soil must be damp</u>	Yes
Medium Grade	Height 7" - 9" 5" - 5 1/2" pots	6	Sprout Stage	Healthy flower bud spikes or sprouts <u>Soil must be damp</u>	Yes
Large Grade	Height 8" - 10" 6" - 6 1/2" pots	7	Sprout Stage	Healthy flower bud spikes or sprouts <u>Soil must be damp</u>	Yes

STAGES IN FLOWER DEVELOPMENT OF DWARF IRIS



DAY 1
STAGE 1



DAY 2
STAGE 2



DAY 3
STAGE 3



DAY 4
STAGE 4



DAY 5
STAGE 5

EASTER LILY

HISTORY

The Easter Lily (*Lilium longiflorum* Thunb. Liliaceae), is a native of Japan and its center of origin is apparently Japan's three small southernmost islands. Although this white or trumpet Lily was found under cultivation on the mainland of China and Formosa by early Western explorers, it is only endemic to the Liu-chiu (Ryukus) Islands and is unknown in the wild state elsewhere.

DEFINITIONS

1. A Lily pot plant may consist of one or more plants centered in the pot. The quantity of plants per pot will vary, depending on the grade.
2. Stage of openness given is for maximum obtainable shelf life, assuming plants will be going into an environment of 68 to 72 degrees F. with a minimum light of 300 foot candles. (See recommended shipping and storage temperature chart in this book.)
3. Care tag should give product name and user care information for water, light, temperature and any other pertinent information.

BOTANICAL INFORMATION

"*Lilium*" is derived from the Celtic word "li," meaning whiteness. This refers, no doubt, to *Lilium candidum*, the Madonna Lily. However, *L. longiflorum* has become much better known and indeed is the most valuable species of the genus *Lilium*. *L. longiflorum* Thunb. was introduced to England about 1819, and almost immediately became one of the most popular in commercial floriculture when it gained general acceptance as the Easter plant. Japan was exporting *L. longiflorum* bulbs to Europe and the United States as early as 1876. The main production of bulbs to be forced for potted plant production in greenhouses is now concentrated along the West Coast of the United States, in the northern part of California, and the southern part of Oregon. 'Nellie White' and 'Ace' are the two leading cultivars grown in the Pacific Northwest for forcing in the United States and Canada.

EASTER LILY

MEDIUM GRADE

PRODUCT DIMENSIONS

The plant should be symmetrical with good balance between the size of the plant and pot. The height of the product should be from a minimum of 16" to a maximum of 22" as measured from the bottom of the pot to the top of the plant.

Note: Generally, pot Lilies are grown in 5 1/2" - 6 1/2" pots.

NUMBER OF FLOWER BUDS

Pot Lily should have a minimum of 4 flower buds.

STAGE OF OPENNESS

The stage of flower development should be such that lower buds are white and puffy, per stage 2 of the FMA/SAF Easter Lily photo chart.

CHARACTERISTICS

Foliage must be healthy, with good color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Stem must be strong enough to support the flowers, and centered in the pot. The flower buds should be uniformly placed at the top of the stem to form a regular pattern in all directions of the compass. Missing foliage at soil line or rim of pot should be a maximum of 3". The plant must be sturdy in the pot with a healthy root system. Soil must be damp.

CARE TAGS

Care tags with proper product identification and care information should be attached to the plant or pot.

EASTER LILY

EXTRA LARGE GRADE

PRODUCT DIMENSIONS

The plant should be symmetrical with good balance between the size of the plant and pot. The height of the product should be from a minimum of 16" to a maximum of 22" as measured from the bottom of the pot to the top of the plant.

NOTE: Generally, pot Lilies are grown in 5 1/2" - 6 1/2" pots.

NUMBER OF FLOWER BUDS

Pot Lily should have a minimum of 6 buds.

STAGE OF OPENNESS

The stage of flower development should be such that lower buds are white and puffy, per stage 2 of the FMA/SAF Easter Lily photo chart.

CHARACTERISTICS

Foliage must be healthy, with good color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Stem must be strong enough to support the flowers, and centered in the pot. The flower buds should be uniformly placed at the top of the stem to form a regular pattern in all directions of the compass. Missing foliage at soil line or rim of pot should be a maximum of 3". The plant must be sturdy in the pot with a healthy root system. Soil must be damp.

CARE TAGS

Care tags with proper product identification and care information should be attached to the plant or pot.

STAGES IN FLOWER DEVELOPMENT OF EASTER LILY



DAY 1
STAGE 1



DAY 2
STAGE 2



DAY 3
STAGE 3



DAY 4
STAGE 4



DAY 5
STAGE 5

EXACUM

HISTORY

Exacum affine Balf.F (Gentianaceae) is the annual species of Exacum grown in the greenhouse as a flowering pot plant. It is commonly known as the German or Persian violet and has flowers up to 1.3 cm across. This beautiful blue or white flowered plant has exploded into popularity as a pot plant in just a few years. When in flower Exacum also has a mild fragrance.

DEFINITIONS

1. An Exacum pot plant consists of one plant centered in the pot.
2. Product dimensions of pot plants refer to plants prior to sleeving or six to eight hours after plants have been unsleeved.
3. Stage of openness given is for maximum obtainable shelf life, assuming plants will be going into an environment of 68 to 72 degrees F. with a minimum light of 300 foot candles. (See recommended shipping and storage temperature charts in this book.)
4. Care tag should give product name and user care information for water, light, and other pertinent information.

BOTANICAL INFORMATION

Exacum affine is seed propagated. Exacum can be germinated over a wide range of temperatures but requires light for germination.

EXACUM

MEDIUM GRADE

PRODUCT DIMENSIONS

There should be a good balance between the size of the plant and pot. The plant should fill the pot enough to prevent the appearance of legginess. The height of the product should be from a minimum of 10" to a maximum of 13" as measured from the bottom of the pot to the top of the plant. The minimum of width of plants should be 9".

Note: Generally, medium grade Exacum are grown in 5" - 5 1/2" pots.

NUMBER OF FLOWER BUDS

Pot Exacum should have a minimum of 40 flowers to a degree of openness as specified. Flowers and flower buds should be sufficient to cover to the plant. Flowers should be above the foliage and distributed uniformly about the plant.

STAGE OF OPENNESS

The stage of openness for pot Exacum should be 1/3 to 1/2 of flowers open per stage 3 of the FMA/SAF Exacum photo chart.

CHARACTERISTICS

Foliage must be healthy, with good color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Stems must be strong enough to support the flowers. The plant must be sturdy in the pot, with a healthy root system. Soil must be damp.

CARE TAGS

Care tag with proper product identification and care information should be attached to the plant or pot.

EXACUM

	Product Dimension*	# of Flower Buds	Stage of Openness	Characteristics	Care Tags
Small Grade	Height 8" - 10" *Top of plant width 7" 4" - 4 1/2" pots	Minimum of 30	1/3 - 1/2 flowers should be open	Strong stems Flower buds to be above the foliage Flowers uniformly distributed <u>Soil must be damp</u>	Yes
Medium Grade	Height 10" - 13" *Top of plant width 9" 5" - 5 1/2" pots	Minimum of 40	1/3 - 1/2 of flowers should be open	Strong stems Flower buds to be above the foliage Flowers uniformly distributed <u>Soil must be damp</u>	Yes
Large Grade	Height 12" - 15" *Top of plant width 11" 6" - 6 1/2" pots	Minimum of 50	1/3 - 1/2 of flowers should be open	Strong stems Flower buds to be above the foliage Flowers uniformly distributed <u>Soil must be damp</u>	Yes

*Width is a minimum measurement.

STAGES IN FLOWER DEVELOPMENT OF EXACUM



DAY 1 STAGE 1
showing color



DAY 4 STAGE 2
1/4 open



DAY 7 STAGE 3
1/3 to 1/2 open



DAY 10 STAGE 4
2/3 to 3/4 open



DAY 13 STAGE 5
full open

GERBERA

HISTORY

Gerbera was first discovered in 1878 in South Africa by botanist R. Jameson. The plant has since proved to be excellent for cultivation, and has become a popular and wide-spread cut flower and pot plant. Nurseries are constantly producing new hybrids and cultivars, and new varieties are being introduced to the market all the time.

DEFINITIONS

1. Pot Gerbera consist of one or more plants centered in the pot with dark green, toothed leaves. The flowers come in scarlet, yellow, orange, pink, and other pastel colors.
2. Product dimensions of pot plants refer to plants prior to sleeving or six to eight hours after plants have been unsleeved.
3. Stage of openness given is for maximum obtainable shelf life, assuming plants will be going into an environment of 68 to 72 degrees F. with a minimum light of 300 foot candles. (See recommended shipping and storage temperature chart in this book.)
4. Care tag should give product name and user care information for water, light, temperature and other pertinent information.

BOTANICAL INFORMATION

The Gerbera, with more than 70 species in the Asteraceae family, is widely grown throughout the world. The species commonly grown is Gerbera jamesonii and is sometimes called Barberton Daisy or Transvaal Daisy. The individual flowers, or florets, are aggregated into showy, capitate inflorescences. They can be found in many shades and colors, from delicate pastels to the sharper, brighter shades.

GERBERA

MEDIUM GRADE

PRODUCT DIMENSIONS

There should be a good balance between the size of the plant and pot. The plant should fill the pot enough to prevent the appearance of legginess. The height of the product should be from a minimum of 10" to a maximum of 14" as measured from the bottom of the pot to the top of the plant. The minimum width of plant should be 9".

Note: Generally, medium grade Gerbera are grown in 5" - 5 1/2" pots.

NUMBER OF FLOWER BUDS

Pot Gerbera should have a minimum of 3 open flowers with 1 bud coming.

STAGE OF OPENNESS

The stage of openness for pot Gerbera should be a minimum of 3 flowers open, per stage 3 of the FMA/SAF Gerbera photo chart.

CHARACTERISTICS

Foliage should be healthy, with good color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Foliage should also be full enough not to see soil when looking down on plant. Stem should be strong enough to support the flowers. The plant should be sturdy in the pot with a healthy root system. Soil must be damp.

CARE TAGS

Care tags with proper product identification and care information should be attached to the plant or pot.

GERBERA

	Product Dimension	# of Flower Buds	Stage of Openness	Characteristics	Care Tags
Small Grade	Height 8" - 14" *Top of plant width 7" 4" - 4 1/2" pots	2 open flowers 1 bud coming	Minimum of 2 flowers open	Healthy foliage Strong stems Healthy root system <u>Soil must be damp</u>	Yes
Medium Grade	Height 10" - 14" *Top of plant width 9" 5" - 5 1/2" pots	3 open flowers 1 bud coming	Minimum of 3 flowers open	Healthy foliage Strong stems Healthy root system <u>Soil must be damp</u>	Yes
Large Grade	Height 12" - 20" *Top of plant width 10" 6" - 6 1/2" pots	3 open flowers 2 buds coming	Minimum of 3 flowers open	Healthy foliage Strong stems Healthy root system <u>Soil must be damp</u>	Yes

*Width is a minimum measurement.

STAGES IN FLOWER DEVELOPMENT IN GERBERA



DAY 1
STAGE 1



DAY 4
STAGE 2



DAY 7
STAGE 3



DAY 10
STAGE 4



DAY 13
STAGE 5

GLOXINIA

HISTORY

Sinningia speciosa was first named *Gloxinia speciosa* in 1817 by Conrad Loddiges, an English nurseryman, after he had studied the new plant from Brazil. Although incorrect, the name Gloxinia has remained in use.

DEFINITIONS

1. A Gloxinia pot plant consists of one plant centered in the pot.
2. Product dimensions of pot plants refer to plants prior to sleeving or six to eight hours after plants have been unsleeved.
3. Stage of openness given is for maximum obtainable shelf life, assuming plants will be going into an environment of 68 to 72 degrees F with a minimum light of 300 foot candles. (See recommended shipping and storage chart in this book.)
4. Care tag should give product name and user care information for water, light, temperature, and other pertinent information.

BOTANICAL INFORMATION

Gloxinia belongs to the Gesneriad family, *Gesneriaceae*. Through hybridization and selection, Gloxinias may be single- or double-flowered with colors ranging from pure white to pink, lavender, and red to dark purple. For commercial production, plants are grown from seed. A plant with a large single head of flowers can be produced using this method in approximately six to seven months.

GLOXINIA

MEDIUM GRADE

PRODUCT DIMENSIONS

There should be good balance between the size of the plant and pot. The plant should fill the pot enough to prevent the appearance of legginess. The height of the product should be from a minimum of 9" to a maximum of 13" as measured from the bottom of the pot to the top of the plant. The minimum width of plant to be 11".

Note: Generally, medium grade Gloxinia are grown in 5"- 5 1/2" pots.

NUMBER OF FLOWER BUDS

Pot Gloxinia should have a bud count of between 12 to 15 to the degree of openness as specified. Pot Gloxinia should also have flower buds uniformly distributed in a loose cluster in the center of the plant carried on strong upright stems well above foliage.

STAGE OF OPENNESS

The stage of openness for pot Gloxinias should be a minimum of 75% of the flowers in the bud stage per stage 2 of the FMA/SAF Gloxinia photo chart.

CHARACTERISTICS

Foliage should be healthy, with good color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Stems should be strong enough to support the flowers. The plant should be sturdy in the pot, with a healthy root system. Soil must be damp.

CARE TAGS

Care tag with proper product identification and care information should be attached to the plant or pot.

GLOXINIA

	Product Dimension	# of Flower Buds	Stage of Openness	Characteristics	Care Tags
Small Grade	Height 7" - 11" *Top of plant width 8" 4" - 4 1/2" pots	Between 8 -12	Minimum of 75% in bud stage	Healthy foliage Strong stems Healthy root system <u>Soil must be damp</u>	Yes
Medium Grade	Height 9" - 13" *Top of plant width 11" 5" - 5 1/2" pots	Between 12 -15	Minimum of 75% in bud stage	Healthy foliage Strong stems Healthy root system <u>Soil must be damp</u>	Yes
Large Grade	Height 10" - 14" *Top of plant width 13" 6" - 6 1/2" pots	Between 15 - 20	Minimum of 75% in bud stage	Healthy foliage Strong stems Healthy root system <u>Soil must be damp</u>	Yes

*Width is a minimum measurement.

STAGES IN FLOWER DEVELOPMENT OF GLOXINIA



Day 1
Stage 1



Day 2 1/2
Stage 2



Day 4
Stage 3



Day 5 1/2
Stage 4



Day 7
Stage 5

HIBISCUS

HISTORY

Hibiscus has long been popular in Europe but only recently has it gained interest in the United States. It has developed into a specialty item sold during the spring and summer for a variety of uses - indoor, patio, and landscape. It is extremely tolerant to high temperature and full sun in the south as well as being an excellent patio plant in the north.

DEFINITIONS

1. Hibiscus pot plants consist of one or more cuttings per pot equally distributed around or centered in the pot.
2. The term flower bud is a bud whose length exceeds 1/2".
3. Product dimensions of pot plants refer to plants prior to sleeving or six to eight hours after plants have been unsleeved.
4. Stages of openness given is for maximum obtainable shelf life, assuming plants will be going into an environment of 68 to 72 degrees F. with a minimum light of 300 foot candles. (See recommended shipping and temperature chart in this book.)
5. Care tag should give product name and user care information for water, light, temperature and other pertinent information.

BOTANICAL INFORMATION

The Hibiscus is a member of the Malvaceae or mallow family. The name originated from ancient Greece for a particular species of mallow. The plant is believed to have originated in China and Vietnam and is extremely common in the East Indies. In China, some varieties that have been cultivated have been grown since the dawn of history, as recorded in ancient art and writings. Women have used the sap from the flowers for hair dye and black stain on leather. The cultivated Hibiscus of today is a shrub with leaves that are a shiny dark green or variegated. The flowers are mostly solitary with colors ranging from vivid red to white. Flowers can be single or double. Today there are many cultivars of hibiscus which vary greatly in characteristics. Hibiscus cultivars that are suitable for pot culture should exhibit the following characteristics: form a well-shaped plant, branch easily, and uniformly produce flowers on each of its terminal branches.

HIBISCUS

MEDIUM GRADE

PRODUCT DIMENSIONS

There should be a good balance between the size of the plant and pot. The plant should fill the pot enough to prevent the appearance of legginess. The height of the product should be from a minimum of 10" to a maximum of 14" as measured from the bottom of the pot to the top of the plant. The minimum width of plant to be 8".

Note: Generally, medium grade Hibiscus are grown in 5" - 5 1/2" pots.

NUMBER OF FLOWER BUDS

The number of flower buds for hibiscus should be 2 that are showing slight color with 3 to 5 additional buds to follow, per stage 3 of the FMA/SAF Hibiscus photo chart.

STAGE OF OPENNESS

Hibiscus flowers last only one day. Plants should be shipped when buds are showing slight color. The largest buds should open in 1 to 3 days.

CHARACTERISTICS

Foliage should be healthy, with good color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residue, or mechanical damage. Stems should be strong enough to support the flowers. The plant should be sturdy in the pot with a healthy root system. Soil must be damp. Some bud drop is normal in transit.

CARE TAGS

Care tags with proper product identification and care information should be attached to the plant or pot.

HIBISCUS

	Product Dimension	# of Flower Buds	Stage of Openness	Characteristics	Care Tags
Small Grade	Height 8" - 12" *Top of plant width 7" 4" - 4 1/2" pots	2 buds with slight color 2-3 buds coming	Hibiscus flowers last only one day. Ship when buds show slight color	Healthy foliage Strong stem Healthy root system <u>Soil must be damp</u>	Yes
Medium Grade	Height 10" - 14" *Top of plant width 8" 5" - 5 1/2" pots	2 buds with slight color 3-5 buds coming	Hibiscus flowers last only one day. Ship when buds show slight color	Healthy foliage Strong stem Healthy root system <u>Soil must be damp</u>	Yes
Large Grade	Height 13" - 16" *Top of plant width 10" 6" - 6 1/2" pots	3 buds with slight color 5 or more buds coming	Hibiscus flowers last only one day. Ship when buds show slight color	Healthy foliage Strong stem Healthy root system <u>Soil must be damp</u>	Yes

*Width is a minimum measurement.

STAGES IN FLOWER DEVELOPMENT OF HIBISCUS



STAGE 1



STAGE 2



STAGE 3



STAGE 4



STAGE 5

HYACINTH

HISTORY

Hyacinths originated in the Eastern Mediterranean. They were introduced into The Netherlands in the late 1500s. For the past 400 years, they have been extensively hybridized. Thus, all of the Hyacinths sold as potted plants are hybrid cultivars.

DEFINITIONS

1. Hyacinths are sold in 4" (1 bulb), 5" (3 smaller sized bulbs), 6" (3 to 5 bulbs), 7" (5 to 6 bulbs) and 8" (6 to 8 bulbs) pots or bulb pans. Hyacinth pot plants consist of one or more plants per pot.
2. Regardless of size, the plants should be marketed when buds are green or showing slight color.
3. Care tag should give the product name and user care information for light, water, temperature, and other pertinent information.
4. Stages of Hyacinth development occur rapidly. Note number of days between stages 1 and 5 on the FMA/SAF Hyacinth photo chart. There is only one day between each stage at normal room temperature 68 -72 degrees F. (See recommended shipping and storage temperature chart.)

BOTANICAL INFORMATION

The name "Hyacinth" is derived from ancient Greece. According to the myth, a flower grew from the blood of the Hyakinthos, who had been killed by Apollo. Hyacinths have multiflowered inflorescences. Most are single-stemmed but double-stemmed and fasciated stems are also possible. The flowers are very fragrant and come in red, pink, white, blue, and violet. The leaves are straplike and shorter than the inflorescence. Each floret consists of 6 petals, 6 anthers, and a trilobed pistil. The main source of Hyacinths for forcing is The Netherlands. There are about 30 cultivars available for forcing as potted plants. The flowering season extends from mid-December to mid-April. With special programming it is possible to have them for Mother's Day.

HYACINTH

MEDIUM GRADE

PRODUCT DIMENSIONS

The plant should be symmetrical with good balance between the size of the plant and pot. The height of the product should be from a minimum of 7" to a maximum of 11" as measured from the bottom of the pot to the top of the plant.

Note: Generally, medium grade Hyacinths are grown in 5" - 5 1/2" pots.

NUMBER OF FLOWER STALKS

Pot Hyacinths should have a minimum of 3 flower stalks.

STAGE OF OPENNESS

The stage of flower development should be green to slight color, per stage 2 or 3 of the FMA/SAF Hyacinth photo chart.

CHARACTERISTICS

Foliage should be healthy, with good color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Stems should be strong enough to support the flowers. The flower buds should be uniformly spaced to form a regular pattern in all directions of the compass. The plant should be sturdy in the pot, with a healthy root system. Soil must be damp.

CARE TAGS

Care tag with proper product identification and care information should be attached to the plant or pot.

HYACINTH

EXTRA LARGE GRADE

PRODUCT DIMENSIONS

The plant should be symmetrical with good balance between the size of the plant and pot. The height of the product should be from a minimum of 8" to a maximum of 12" as measured from the bottom of the pot to the top of plant.

Note: Generally, extra large grade pot Hyacinths are grown in 8" bulb pans.

NUMBER OF FLOWER STALKS

Pot Hyacinths should have a minimum of 5 flower stalks.

STAGE OF OPENNESS

The stage of flower development should be green to slight color, per stage 2 or 3 of the FMA/SAF Hyacinth photo chart.

CHARACTERISTICS

Foliage should be healthy, with good color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Stems should be strong enough to support the flowers. The flower buds should be uniformly spaced to form a regular pattern in all directions of the compass. The plant should be sturdy in the pot, with a healthy root system. Soil must be damp.

CARE TAGS

Care tag with proper product identification and care information should be attached to the plant or pot.

STAGES IN FLOWER DEVELOPMENT OF HYACINTH



DAY 1
STAGE 1



DAY 2
STAGE 2



DAY 3
STAGE 3



DAY 4
STAGE 4



DAY 5
STAGE 5

HYDRANGEA

HISTORY

Native to China and Japan, the Hydrangea has been celebrated for centuries. While there is a growing U. S. market for newly introduced 'lace cap' varieties, the Hydrangea most commonly known is Hydrangea macrophylla.

Hydrangea macrophylla's rich history includes an identity crisis of sort. Included among its many past names are Hydrangea hortensis, H. hortensia, and H. opuloides. In 1712, taxonomist Kaempfer called it Sambucus aquaticus. Thirty-six years later, another taxonomist, Thunberg, brought two dried specimens from Japan and called it Viburnum macrophyllum. Only 23 more years passed, and in 1771, a self-proclaimed taxonomist (an astronomer by profession) coined it Lepeautia. Since 1771, following further name changes, we now know this most recognized of Hydrangea varieties as Hydrangea macrophylla.

While hybridizing has been somewhat limited in the past, what work has been done with this plant has been significant commercially. In 1708, breeder Lemoine of Nancy succeeded in creating the first recorded hybrids that were embraced by the French. In the U.S., the variety 'Merritt's Supreme' was developed and is currently the most popular variety among Hydrangea growers. Currently, there are literally hundreds of varieties that are known, of which only a few are suitable for growing commercially. Hydrangeas are currently being bred in the U.S., Japan, Germany, and France.

DEFINITIONS

1. A pot Hydrangea plant consists of one or more cuttings centered in the pot. It can be pinched, or grown without being pinched. Plants should be uniform in shape and flowers on multi-stemmed plants should be uniform in maturity and color.
2. Florets are the individual small flowers that, clustered together, make one flower head.
3. Product dimension of pot plants refer to plants prior to sleeving, or six to eight hours after the plants have been unsleeved.
4. Stage of openness given is for maximum obtainable shelf life, assuming that the plants will be going into an environment of 68 to 72 degrees F. with a minimum light of 300 foot candles. (See recommended shipping and storage temperature chart in this book.)
5. Care tag should give product name and user care information for water, light, temperature, and other pertinent information.

HYDRANGEA

SMALL GRADE

PRODUCT DIMENSION

There should be a good balance between the size of the plant and the pot. The plant should fill the pot enough to prevent the appearance of legginess. The height of the product should be from a minimum of 10" to a maximum of 15", as measured from the bottom of the pot to the top of the plant. The minimum width of the bloom should be 5".

Note: Generally, small grade Hydrangeas are grown in 4 1/2 - 5" pots.

NUMBER OF BLOOMS

Small grade Hydrangeas normally will have one flower head. The florets should exhibit uniform size on a well-rounded head.

STAGE OF OPENNESS

Florets should be 90% pigmented color. No greater than 50% of the tiny flowers found in the centers of each floret should be open, per the FMA/SAF Hydrangea photo chart.

CHARACTERISTICS

Foliage should exhibit a healthy, dark green color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. The single plant stem must be strong enough to support the flower head without wilting or flopping over sideways. The plant must be sturdy in the pot with a healthy root system. Soil must be damp.

CARE TAGS

Care tags with proper identification and care information should be attached to the plant or pot.

HYDRANGEA

LARGE GRADE

PRODUCT DIMENSION

There should be a good balance between the size of the plant and the pot. The plant should fill the pot enough to prevent the appearance of legginess. The height of the product should be from a minimum of 14" to a maximum of 20", as measured from the bottom of the pot to the top of the plant. The minimum width of at least three (3) blooms should be 5" each.

Note: Generally, large grade Hydrangeas are grown in 6 - 6 1/2" pots.

NUMBER OF BLOOMS

Large grade hydrangeas normally will have a minimum of three flower heads. The florets should exhibit uniform size on well-rounded heads.

STAGE OF OPENNESS

On a minimum of three flower heads, florets should be 90% pigmented color. Given the sum of all the flowers, no greater than 50% of the tiny flowers found in the centers of each floret should be open, per the FMA/SAF Hydrangea photo chart.

CHARACTERISTICS

Foliage should exhibit a healthy, dark green color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Staking hydrangea stems is acceptable; however, stems must be sturdy enough so that the blooms can be supported without wilting or flopping over sideways. The plant must be sturdy in the pot with a healthy root system. Soil must be damp.

CARE TAGS

Care tags with proper product identification and care information should be attached to the plant or pot.

HYDRANGEA

	Product Dimension	# of Flower Heads	Stage of Openness	Characteristics	Care Tags
Small Grade	Height 10" - 15" *Bloom width 5" 4 1/2" - 5" pots	1 flower head	50% of tiny flowers open 90% of all florets pigmented	Healthy foliage Strong stems Healthy root system <u>Soil must be damp</u>	Yes
Medium Grade	Height 14" - 19" *Bloom width 5" (2 blooms) 6" - 6 1/2" pots	2 flower head	50% of tiny flowers open 90% of all florets pigmented	Healthy foliage Strong stems Healthy root system <u>Soil must be damp</u>	Yes
Large Grade	Height 14" - 20" *Bloom width 5" (3 blooms) 6" 6 1/2" pots	3 flower head	50% of tiny flowers open 90% of all florets pigmented	Healthy foliage Strong stems Healthy root system <u>Soil must be damp</u>	Yes
Extra Large Grade	Height 18" - 24" *Bloom width 5" (5 blooms) 8" pots	5 flower head	50% of tiny flowers open 90% of all florets pigmented	Healthy foliage Strong stems Healthy root system <u>Soil must be damp</u>	Yes

*Bloom width is a minimum measurement.

STAGES IN FLOWER DEVELOPMENT OF HYDRANGEA



DAY 1
STAGE 1



DAY 4
STAGE 2



DAY 7
STAGE 3



DAY 10
STAGE 4



DAY 13
STAGE 5

LISIANTHUS

HISTORY

Eustoma, commonly known as Lisianthus, is a native wildflower of the United States and is found from Texas to New Mexico and northward to Nebraska and Colorado. It blooms in the wild from mid to late summer only. Lisianthus is commonly known in the Southwest as the Texas Bluebell. Now, through breeding work in the U.S. and Japan, Lisianthus is offered in many colors from blues, pinks, bi-colors, and white.

DEFINITIONS

1. A Lisianthus pot plants consists of one or more plants per pot. The quantity of plants per pot will vary depending on variety considerations and grade. Pots containing more than one plant should have a symmetrical shape and uniform flower maturity among all plants.
2. Product dimensions for pot plants refer to plants prior to sleeving or six to eight hours after plants have been unsleeved.
3. Stage of openness given is for maximum obtainable shelf life, assuming plants will be going into an environment of 68 to 75 degrees F with a minimum of 300 foot candles. There are only two days between each stage of flower development. (See recommended shipping and storage temperature chart in this book.)
4. Care tags should give product name and user care information for water, light, temperature, and other pertinent information.

BOTANICAL INFORMATION

Lisianthus, *Eustoma grandiflorum*, belongs to the *Gentianaceae* family and has been known botanically as *Eustoma Rusellianum*. Lisianthus has gained much attention in the past decade in the United States and Europe. In nature, it can grow up to 3 feet tall. Leaves are opposite, dull green, 3" long, and are oblong to ovate. The flowers are five-lobed and are borne on an erect stem with one terminal and several lateral flowers per stem. Flowers seem delicate and have a silk-like texture, but are actually sturdy, long lasting, and non-shattering. The new hybrids are easily adaptable for 4" and 6" pot plant production.

LISIANTHUS

MEDIUM GRADE

PRODUCT DIMENSIONS

The plant should be symmetrical with good balance between the size of the plant and pot. The plant should fill the pot enough to prevent the appearance of legginess. The height of the product should be from a minimum of 10" to a maximum of 13" as measured from the bottom of the pot to the top of the plant. The minimum width of the plant should be 9".

Note: Generally, medium grade Lisianthus are grown in 5" - 5 1/2" pots.

NUMBER OF FLOWER BUDS

Pot Lisianthus should have a minimum of 3 open flowers with 2 buds showing color.

STAGE OF OPENNESS

The stage of openness for pot Lisianthus should be a minimum of 3 flowers in the open stage per stage 3 of the FMA/SAF Lisianthus photo chart.

CHARACTERISTICS

Foliage should be healthy with good color (dusty gray green), showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Stem should be strong enough to support the flowers. The plant should be sturdy in the pot with a healthy root system. Soil should be damp.

CARE TAGS

Care tags with proper product identification and care information should be attached to the plant or pot.

LISIANTHUS

	Product Dimensions	# of Flower Stems	Stage of Openness	Characteristics	Care Tags
Small Grade	Height 8" - 10" *Top of plant width 7" 4" - 4 1/2" pots	Minimum of 4 flowers	2 open flowers	Foliage of good color Strong stems Healthy root system <u>Soil must be damp</u>	Yes
Medium Grade	Height 10" - 13" *Top of plant width 9" 5" - 5 1/2" pots	Minimum of 5 flowers	3 open flowers	Foliage of good color Strong stems Healthy root system <u>Soil must be damp</u>	Yes
Large Grade	Height 13" - 17" *Top of plant width 10" 6" - 6 1/2" pots	Minimum of 7 flowers	4 open flowers	Foliage of good color Strong stems Healthy root system <u>Soil must be damp</u>	Yes

* Width is a minimum measurement.

STAGES IN FLOWER DEVELOPMENT OF LISIANTHUS



Day 1
Stage 1



Day 3
Stage 2



Day 5
Stage 3



Day 7
Stage 4



Day 9
Stage 5

KALANCHOE

HISTORY

The Kalanchoe was introduced in Potsdam, Germany, in 1932 by Robert Blossfeld. Many mutations and hybrids were developed for florists' use from the original Kalanchoe blossfeldiana. Some of the earlier Swiss hybrids were not true from seed and had to be propagated by vegetative methods. Today almost all Kalanchoe starts are from terminal cuttings. With its variation in leaf shape, flower colors, and good keeping quality in the home, the Kalanchoe has good potential as a major flowering potted plant for the future.

DEFINITIONS

1. A Kalanchoe pot plant consists of one or more cuttings per pot, equally distributed around the pot or centered in the pot. The quantity of cuttings per pot will vary, depending on variety consideration, climatic and seasonal conditions. Pots containing more than one cutting should have a symmetrical shape, and uniform flower maturity among all cuttings.
2. Product dimensions of pot plants refer to plants prior to sleeving or six to eight hours after plants have been unsleeved.
3. Stage of openness given is for maximum obtainable shelf life, assuming plants will be going into an environment of 68 to 72 degrees F. with a minimum light of 300 foot candles. (See recommended shipping and storage temperature chart in this book.)
4. Care tag should give product name and user care information for water, light, temperature and other pertinent information.

KALANCHOE

SMALL GRADE

PRODUCT DIMENSIONS

There should be good balance between the size of the plant and pot. The plant should fill the pot enough to prevent appearance of legginess. The height of the product should be from a minimum of 9" to a maximum of 12" as measured from the bottom of the pot to the top of the plant. The minimum width of plant should be 6".

Note: Generally, small grade Kalanchoes are grown in 4" - 4 1/2" pots.

NUMBER OF FLOWER BUDS

Pot Kalanchoes should have a minimum of 40 flowers to a degree of openness as specified. Flowers and flower buds should be sufficient to cover the plant. Flowers should be held above the foliage on strong stems distributed uniformly about the plant.

STAGE OF OPENNESS

The stage of openness for pot Kalanchoes should be 1/3 to 1/2 of the flowers in the open stage, per stage 3 of the FMA/SAF Kalanchoe photo chart.

CHARACTERISTICS

Foliage must be healthy, with good color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Stems should be strong enough to support the flowers. The plant should be sturdy in the pot, with a healthy root system. Soil must be damp.

CARE TAGS

Care tag with proper product identification and care information should be attached to the plant or pot.

KALANCHOE

LARGE GRADE

PRODUCT DIMENSIONS

There should be good balance between the size of the plant and pot. The plant should fill the pot enough to prevent the appearance of legginess. The height of the product should be from a minimum of 11" to a maximum of 14" as measured from the bottom of the pot to the top of the plant. The minimum width of plant should be 10".

Note: Generally, large grade Kalanchoes are grown in 6" - 6-1/2" pots.

NUMBER OF FLOWER BUDS

Pot Kalanchoes should have a minimum of 80 flowers to a degree of openness as specified. Flowers and flower buds should be sufficient to cover the plant. Flowers should be held above the foliage on strong stems distributed uniformly about the plant.

STAGE OF OPENNESS

The stage of openness for pot Kalanchoes should be 1/3 to 1/2 of the flowers in the open stage, per stage 3 of the FMA/SAF Kalanchoe photo chart.

CHARACTERISTICS

Foliage should be healthy, with good color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Stems must be strong enough to support the flowers. The plant should be sturdy in the pot, with a healthy root system. Soil must be damp.

CARE TAGS

Care tag with proper product identification and care information should be attached to the plant or pot.

STAGES IN FLOWER DEVELOPMENT OF KALANCHOE



DAY 1 STAGE 1
showing color



DAY 5 STAGE 2
1/4 open



DAY 9 STAGE 3
1/3 to 1/2 open



DAY 13 STAGE 4
2/3 to 3/4 open



DAY 17 STAGE 5
full open

MUSCARI (GRAPE HYACINTH)

HISTORY

Muscari armeniacum is the only grape hyacinth forced as a potted plant. It is native to Turkey, but has been cultivated for over a century in The Netherlands. Thus, the selections used are cultivated varieties.

DEFINITIONS

1. Muscari are sold in 4" (5 bulbs), and 5" (7 bulbs) pots. A muscari pot plant consists of one or more plants per pot.
2. Regardless of size, the plants should be marketed in the stage of development called green to bud showing slight color.
3. Care tag should give product name and user care information for light, water, temperature, and other pertinent information.
4. Stages of Muscari develop rapidly. Note the number of days between stage 1 and stage 5 on the FMA/SAF muscari photo charts. There is only one day between each stage at normal room temperature of 68 -72 degrees F. (See recommended shipping and storage temperature chart in this book.)

BOTANICAL HISTORY

Muscari armeniacum (grape hyacinth) is a true bulb. It produces a multi-flowered inflorescence. Large bulbs will produce two floral stalks, thereby enhancing consumer satisfaction. The potted plants have a long home life. Each floret has 6 petals, 6 anthers, and a trilobed pistil. The main source of Muscari for forcing is The Netherlands. Two cultivars are available; 'Early Giant' is a single-flowered form, and 'Blue Spike' is a double-flowered form. The latter is best flowered late in the mid-January to April flowering season.

MUSCARI

LARGE GRADE

PRODUCT DIMENSIONS

The plant should be symmetrical with good balance between the size of the plant and pot. The height of the product should be from a minimum of 7" to a maximum of 9" as measured from the bottom of the pot to the top of the plant.

Note: Generally, large grade Muscari are grown in 5" - 5 1/2" pots.

NUMBER OF FLOWER BUDS

Muscari should have a minimum of 6 floral stalks.

STAGE OF OPENNESS

The stage of flower development should be green to slight color, per stage 2 of the FMA/SAF Muscari photo chart.

CHARACTERISTICS

Foliage should be healthy, with good color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Stem should be strong enough to support the flowers. The flower buds should open from bottom to top of the inflorescence. The plant should be sturdy in the pot, with a healthy root system. Soil must be damp.

CARE TAGS

Care tag with proper product identification and care information should be attached to the plant or pot.

STAGES IN FLOWER DEVELOPMENT OF MUSCARI (GRAPE HYACINTH)



DAY 1
STAGE 1



DAY 2
STAGE 2



DAY 3
STAGE 3



DAY 4
STAGE 4



DAY 5
STAGE 5

PAPERWHITE NARCISSUS

HISTORY

Paperwhite Narcissus belong to the species Narcissus tazetta. They originated in Southern France. They are tender bulbs and they have been extensively hybridized. Thus, the major cultivars used for forcing as potted plants are hybrids.

DEFINITIONS

1. Paperwhites are sold in 5" (3 bulbs), 6" (5 bulbs), and 8" (7-9 bulbs) pots or bulb pans. Paperwhite Narcissus pot plants consist of one or more plants per pot.
2. Regardless of size or grade, the plants should be marketed when the plants are 8" to 12" tall and have 1 to 3 flowers in the near open stage.
3. Care tag must give product name and user care information for light, water, temperature, and other pertinent information.
4. Stages of Paperwhite Narcissus development occur rapidly. Note number of days between each stage on the FMA/SAF Paperwhite photo chart. There is only one day between each stage at normal room temperature of 68 - 72 degrees F. (See recommended shipping and storage temperature chart in this book.)

BOTANICAL INFORMATION

Paperwhite Narcissus are multiflowered and are very fragrant. There are 6 petals, 6 anthers, and trilobed pistil. The two major cultivars available are 'Galil' and 'Ziva'. Both are all white, and the bulbs are produced in Israel. The flowering season for Paperwhite Narcissus extends from mid-November to March.

PAPERWHITE NARCISSUS

LARGE GRADE

PRODUCT DIMENSIONS

The plant should be symmetrical with good balance between the size of the plant and pot. The height of the product should be from a minimum of 8" to a maximum of 12" as measured from the bottom of the pot to the top of the plant.

Note: Generally, large grade potted Paperwhite Narcissus are grown in 6" - 6 1/2" pots.

NUMBER OF FLOWER STALKS

Potted Paperwhite Narcissus should have a minimum of 4 flower stalks.

STAGE OF OPENNESS

The stage of flower development should be in 8" to 12" sprout stage with one to three flowers in the near open stage, per stage 2 of the FMA/SAF Paperwhite Narcissus photo chart.

CHARACTERISTICS

Foliage must be healthy, with good color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Stem must be strong enough to support the flowers. The flower buds should develop above the foliage at flowering. The plant must be sturdy in the pot, with a healthy root system. Soil must be damp.

CARE TAGS

Care tag with proper product identification and care information should be attached to the plant or pot.

PAPERWHITE NARCISSUS

	Product Dimension	# of Flower Stalks	Stage of Openness	Characteristics	Care Tags
Medium Grade	Height 8" - 12" 5" - 5 1/2" pots	3	8" - 12" Sprout stage with 1 -3 in near open stage	Good color Strong stems Buds should develop above foliage <u>Soil must be damp</u>	Yes
Large Grade	Height 8" - 12" 6" - 6 1/2" pots	4	8" - 12" Sprout stage with 1 -3 in near open stage	Good color Strong stems Buds should develop above foliage <u>Soil must be damp</u>	Yes
Extra Large Grade	Height 8" - 12" 8" bulb pans	6	8" - 12" Sprout stage with 1 -3 in near open stage	Good color Strong stems Buds should develop above foliage <u>Soil must be damp</u>	Yes

STAGES OF FLOWER DEVELOPMENT OF PAPERWHITE NARCISSUS



DAY 1
STAGE 1



DAY 2
STAGE 2



DAY 3
STAGE 3



DAY 4
STAGE 4



DAY 5
STAGE 5

POINSETTIA

HISTORY

The common name Poinsettia given to *Euphorbia pulcherrima* [(Willd. ex. Koltzsch) *Euphorbiaceae*] is a result of its introduction into the United States by Joel Robert Poinsett who, finding these plants growing on the hillsides near Taxco, Mexico sent plants to his home in Greenville, South Carolina shortly after assuming the office of first U.S. ambassador to Mexico in 1825. Poinsettias were grown commercially for Christmas sales in the latter part of the 19th century, and both propagation stock and young plants were offered for sale in the trade magazines of the early 20th century.

DEFINITIONS

1. A Poinsettia pot plant consists of one or more cuttings per pot, equally distributed around the pot or centered in the pot. The quantity of cuttings per pot will vary, depending on variety consideration and grade. Pots containing more than one cutting should have a symmetrical shape and uniform bract maturity among all plants.
2. The terms non-pinched single bloom and pinched multi-bloom are used through out these standards. Non-pinched single bloom refers to a plant that terminates with one single bloom. Pinched multi-bloom refers to a plant that has been pinched or topped, resulting in a single plant (single cutting) with multiple blooms.
3. Product dimensions of pot plants refer to plants prior to sleeving or six to eight hours after plants have been unsleeved.
4. Stage of openness given is for maximum obtainable shelf-life, assuming plants will be going into an environment of 68 to 72 degrees F with a minimum light of 300 foot candles. (See recommended shipping and storage temperature chart in this book.)
5. Care tag must give product name and user care information for water, light, temperature, and other pertinent information.

POINSETTIA

SMALL GRADE NON-PINCHED SINGLE BLOOM

PRODUCT DIMENSIONS

There should be a good balance between the size of the plant and pot. The plant should fill the pot enough to prevent the appearance of legginess. The height of the product should be from a minimum of 8" to a maximum of 12" as measured from the bottom of the pot to the top of the plant. The minimum width at top of plant should be 6."

Note: Generally, small grade non-pinched Poinsettias are grown in 4" - 4 1/2" pots.

NUMBER OF PLANTS PER POT

There should be 1 single-bloom plant per pot.

STAGE OF OPENNESS

When bloom development is complete, the blooms should be fully pigmented and cyathia should be present per stage 3 of the FMA/SAF Poinsettia photo chart.

CHARACTERISTICS

Foliage must be healthy, with good color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Stems must be strong enough to support the blooms. The plant must be sturdy in the pot with a healthy root system. Soil must be damp.

CARE TAGS

Care tags with proper product identification and care information should be attached to the pot or plant.

POINSETTIA

LARGE GRADE NON-PINCHED SINGLE BLOOM

PRODUCT DIMENSIONS

There should be a good balance between the size of the plant and pot. The plant should fill the pot enough to prevent the appearance of legginess. The height of the product should be from a minimum of 18" to a maximum of 22" as measured from the bottom of the pot to the top of the plant. The minimum width at top of plant should be 14."

Note: Generally, large grade non-pinched Poinsettias are grown in 6" - 7" pots.

NUMBER OF PLANTS PER POT

There should be 3 single-bloom plants per pot.

STAGE OF OPENNESS

When bloom development is complete, the blooms should be fully pigmented and cyathia should be present per stage 3 of the FMA/SAF Poinsettia photo chart.

CHARACTERISTICS

Foliage must be healthy, with good color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Stems must be strong enough to support the blooms. The plant must be sturdy in the pot with a healthy root system. Soil must be damp.

CARE TAGS

Care tags with proper product identification and care information should be attached to the pot or plant.

POINSETTIA

JUMBO GRADE NON-PINCHED SINGLE BLOOM

PRODUCT DIMENSIONS

There should be a good balance between the size of the plant and pot. The plant should fill the pot enough to prevent the appearance of legginess. The height of the product should be from a minimum of 22" to a maximum of 26" as measured from the bottom of the pot to the top of the plant. The minimum width at top of plant should be 18."

Note: Generally, jumbo grade non-pinched Poinsettias are grown in 7" - 8" pots.

NUMBER OF PLANTS PER POT

There should be 5 single-bloom plants per pot.

STAGE OF OPENNESS

When bloom development is complete, the blooms should be fully pigmented and cyathia should be present per stage 3 of the FMA/SAF Poinsettia photo chart.

CHARACTERISTICS

Foliage must be healthy, with good color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Stems must be strong enough to support the blooms. The plant must be sturdy in the pot with a healthy root system. Soil must be damp.

CARE TAGS

Care tags with proper product identification and care information should be attached to the pot or plant.

STAGES IN FLOWER DEVELOPMENT OF NON-PINCHED SINGLE BLOOM POINSETTIA



Day 1
Stage 1



Day 7
Stage 2



Day 14
Stage 3
Ideal stage, fully pigmented



Day 21
Stage 4
Mature, fully pigmented

POINSETTIA

SMALL GRADE PINCHED MULTI-BLOOM

PRODUCT DIMENSIONS

There should be good balance between the size of the plant and pot. The plant should fill the pot enough to prevent the appearance of legginess. The height of the product should be from a minimum of 8" to a maximum of 12", as measured from the bottom of the pot to the top of the plant. The minimum width at top of plant should be 9".

Note: Generally, small grade Poinsettias are grown in 4" - 4 1/2" pots.

NUMBER OF BLOOMS

Pot Poinsettia will have a minimum of 3 fully pigmented blooms. It will also have a good floral display with uniform distribution of blooms about the pot.

STAGE OF OPENNESS

When bract development is complete, the bracts should be fully pigmented and cyathia should be present per stage 3 of the FMA/SAF Poinsettia photo chart.

CHARACTERISTICS

Foliage must be healthy, with good color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Stems must be strong enough to support the blooms. The plant must be sturdy in the pot with a healthy root system. Soil must be damp.

CARE TAGS

Care tag with proper identification and care information should be attached to the plant or pot.

POINSETTIA

LARGE GRADE PINCHED MULTI-BLOOM

PRODUCT DIMENSIONS

There should be good balance between the size of the plant and pot. The plant should fill the pot enough to prevent the appearance of legginess. The height of the product should be from a minimum of 14" to a maximum of 19", as measured from the bottom of the pot to the top of the plant. The minimum width at top of plant should be 15".

Note: Generally, large grade Poinsettias are grown in 6" - 6 1/2" pots.

NUMBER OF BLOOMS

Pot Poinsettia should have a minimum of 5 fully pigmented blooms. It should also have a good floral display with uniform distribution of blooms about the pot.

STAGE OF OPENNESS

When bract development is complete, the bracts should be fully pigmented and cyathia should be present per stage 3 of the FMA/SAF Poinsettia photo chart.

CHARACTERISTICS

Foliage must be healthy, with good color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Stems must be strong enough to support the bracts. The plant must be sturdy in the pot with a healthy root system. Soil must be damp.

CARE TAGS

Care tag with proper identification and care information should be attached to the plant or pot.

POINSETTIA

JUMBO GRADE PINCHED MULTI-BLOOM

PRODUCT DIMENSIONS

There should be good balance between the size of the plant and pot. The plant should fill the pot enough to prevent the appearance of legginess. The height of the product should be from a minimum of 22" to a maximum of 26", as measured from the bottom of the pot to the top of the plant. The minimum width at top of plant should be 26".

Note: Generally, jumbo grade Poinsettias are grown in 10" pots.

NUMBER OF BLOOMS

Pot Poinsettia should have a minimum of 15 fully pigmented blooms. It should also have a good floral display with uniform distribution of blooms about the pot.

STAGE OF OPENNESS

When bract development is complete, the bracts should be fully pigmented and cyathia should be present per stage 3 of the FMA/SAF Poinsettia photo chart.

CHARACTERISTICS

Foliage must be healthy, with good color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Stems must be strong enough to support the bracts. The plant must be sturdy in the pot with a healthy root system. Soil must be damp.

CARE TAGS

Care tag with proper identification and care information should be attached to the plant or pot.

STAGES IN FLOWER DEVELOPMENT OF PINCHED MULTI-BLOOM POINSETTIA



Day 1
Stage 1



Day 7
Stage 2



Day 14
Stage 3
Ideal stage, fully pigmented



Day 21
Stage 4
Mature, fully pigmented

ROSE

HISTORY

Present day commercial Rose cultivars are all hybrids of Rose species several generations removed. For as many years as Americans have been gardening, Roses have held great importance in our homes and gardens. Actually, fossil evidence from the Pacific Northwest dates Roses back as far as 32 million years ago, even before man. Roses also appear to have been one of the first cultivated flowers and used extensively in early art, poetry, music, and literature.

DEFINITIONS

1. A Rose pot plant consists of one or more plants per pot, equally distributed around the pot or centered in the pot. The quantity of plants per pot will vary, depending on variety, conditions, and grade. Pots containing more than one plant should have a symmetrical shape and uniform flower maturity among all plants.
2. Product dimensions of pot plants refer to plants prior to sleeving or six to eight hours after plants have been unsleeved.
3. Stage of openness given is for maximum obtainable shelf life, assuming plants will be going into an environment of 68 to 75 degrees F with a minimum light of 300 foot candles. There is only one day between each stage of flower development. (See recommended shipping and storage temperature chart in this book.)
4. The small and medium grade pot Roses are generally the miniature type. The large grade is generally of the Floribunda class.
5. Care tags should give product name and user care information for water, light, temperature, and other pertinent information.

BOTANICAL INFORMATION

Rosa rosaceae, botanically classified as a shrub, vary greatly in plant types and habit of growth. There are approximately 200 botanical species of Roses that are natives of the Northern Hemisphere alone. The potted plant industry is using many miniature types in production today, most of which are also garden hardy through zone six. Flower colors range from red, white, pink, yellow, orange, and lavender with many shades, hues, and tints between. Flowers are borne on upright, prickly stems.

ROSE

MEDIUM GRADE

PRODUCT DIMENSIONS

There should be a good balance between the size of the plant and pot. The plant should fill the pot enough to prevent the appearance of legginess. The height of the product should be from a minimum of 9" to a maximum of 12" as measured from the bottom of the pot to the top of the plant. The minimum width of the plant should be 8".

Note: Generally, medium grade pot Roses are grown in 5" - 5 1/2" pots.

NUMBER OF FLOWER BUDS

Pot Roses should have a minimum of 4 open flowers and 4 buds coming.

STAGE OF OPENNESS

The stage of openness for pot Roses should be a minimum of 4 flowers in the near-open stage per stage 2 or 3 of the FMA/SAF Rose photo chart.

CHARACTERISTICS

Foliage should be healthy, with good color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Stems should be strong enough to support the flowers. The plant should be sturdy in the pot with a healthy root system. Soil should be damp.

CARE TAGS

Care tags with proper product identification and care information should be attached to the plant or pot.

ROSE

	Product Dimensions	# of Flower Buds	Stage of Openness	Characteristics	Care Tags
Small Grade	Height 8" - 10" *Top of plant width 6" 4" - 4 1/2" pots	Minimum of 5 flower buds	Minimum of 2 flowers in near-open stage	Foliage of good color Strong stems Healthy root system <u>Soil must be damp</u>	Yes
Medium Grade	Height 9" - 12" *Top of plant width 9" 5" - 5 1/2" pots	Minimum of 8 flower buds	Minimum of 4 flowers in near-open stage	Foliage of good color Strong stems Healthy root system <u>Soil must be damp</u>	Yes
Large Grade	Height 12" - 18" *Top of plant width 10" 6" - 6 1/2" pots	Minimum of 10 flower buds	Minimum of 5 flowers in near-open stage	Foliage of good color Strong stems Healthy root system <u>Soil must be damp</u>	Yes

* Width is a minimum measurement.

STAGES IN FLOWER DEVELOPMENT OF ROSES



Day 1
Stage 1



Day 2
Stage 2



Day 3
Stage 3



Day 4
Stage 4



Day 5
Stage 5

TULIP

HISTORY

Tulips originated in a broad area from the Mediterranean to China. They were introduced in The Netherlands in the late 1500s. For the past 400 years, they have been extensively hybridized. Thus, all of the Tulips sold as potted plants are hybrid cultivars.

DEFINITIONS

1. Tulips are sold in 4" (3 bulbs), 5" (5 bulbs), 6" (6-7 bulbs), and 8" (9-10 bulbs) pots or bulb pans. A Tulip pot plant consists of one or more plants per pot.
2. Regardless of size, the plants should be marketed in the stage of green to buds showing slight color.
3. Care tag should give product name and user care information for light, water, temperature, and other pertinent information.
4. Stages of Tulip development occur rapidly. Note number of days between stages 1 and 5 on the FMA/SAF Tulip photo chart. There are only two days between each stage at normal room temperature 68 - 72 degrees F. (See recommended shipping and storage temperature chart.)

BOTANICAL INFORMATION

The term "Tulip" refers to the turban shape of the flower. Traditionally, Tulips are assumed to be single-flowered with 6 petals, 6 anthers, and a trilobed pistil. There are, however, doubles and multiflowered cultivars that are forced as potted plants. Also, there is a wide range of colors: red, pink, white, lavender, yellow, orange, apricot, and various bicolored types. The main source of Tulips for forcing is The Netherlands. There are about 100 cultivars available for forcing as potted plants. The flowering season extends from late December to early May.

TULIP

MEDIUM GRADE

PRODUCT DIMENSIONS

The plant should be symmetrical with good balance between the size of the plant and pot. The height of the product should be from a minimum of 9" to a maximum of 14" as measured from the bottom of the pot to the top of the plant.

Note: Generally, medium grade Tulips are grown in 5" - 5 1/2" pots.

NUMBER OF FLOWER BUDS

Pot Tulips should have a minimum of 5 flower buds.

STAGE OF OPENNESS

The stage of flower bud development should be green to a slight tinge of color, per stage 2 or 3 of the FMA/SAF Tulip photo chart.

CHARACTERISTICS

Foliage should be healthy, with good color showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Stems should be strong enough to support the flowers. The flower buds should be uniformly developed. The plant should be sturdy in the pot, with a healthy root system. Soil must be damp.

CARE TAGS

Care tag with proper product identification and care information should be attached to the plant or pot.

TULIP

EXTRA LARGE GRADE

PRODUCT DIMENSIONS

The plant should be symmetrical with good balance between the size of the plant and pot. The height of the product should be from a minimum of 11" to a maximum of 17" as measured from the bottom of the pot to the top of the plant.

Note: Generally, extra large grade Tulips are grown in 8" bulb pans.

NUMBER OF FLOWER BUDS

Pot Tulips will have a minimum of 9 buds.

STAGE OF OPENNESS

The stage of flower bud development should be green to a slight tinge of color, per stage 2 or 3 of the FMA/SAF Tulip photo chart.

CHARACTERISTICS

Foliage should be healthy, with good color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. Stems should be strong enough to support the flowers. The flower buds should be uniformly developed. The plant should be sturdy in the pot, with a healthy root system. Soil must be damp.

CARE TAGS

Care tag with proper product identification and care information should be attached to the plant or pot.

STAGES IN FLOWER DEVELOPMENT OF TULIP



DAY 1
STAGE 1



DAY 3
STAGE 2



DAY 5
STAGE 3



DAY 7
STAGE 4



DAY 9
STAGE 5

ZYGOCACTUS

HISTORY

Schlumbergera bridgesii Lofgr. (*Cactaceae*), commonly known as the Christmas cactus, and *Schlumbergera truncata* Moran, the Thanksgiving cactus, are epiphytic cacti with flat-jointed stem segments (phylloclades) and are native to Brazil.

DEFINITIONS

1. A Zygocactus pot plant consists of one or more plants per pot, equally distributed around the pot or centered in the pot. The quantity of plants per pot will vary, depending on variety, conditions, and grade. Pots containing more than one plant should have a symmetrical shape and uniform flower maturity among all plants.
2. Product dimensions of pot plants refer to plants prior to sleeving or six to eight hours after plants have been unsleeved.
3. Stage of openness given is for maximum obtainable shelf life, assuming plants will be going into an environment of 68 to 75 degrees F with a minimum of 300 foot candles. (See recommended shipping and storage temperature chart in this book.)
4. Care tags should give product name and user care information for water, light, temperature, and other pertinent information.

BOTANICAL INFORMATION

The holiday cacti is now placed in genus *Schlumbergera*, formerly being called *Zygocactus*, *Epiphyllum*, *Cereus*, and *Cactus*. Plants normally flower in late November to early December. Flowering historically was often close to Thanksgiving and Christmas and therefore the names, Thanksgiving and Christmas cactus. Confusion exists in the description of these plants. Two species exist, *S. bridgesii* and *S. truncata*. The plants are epiphytic cacti native to a small region in the Organ Mountains north of Rio de Janeiro in South America. *S. truncata* grows in the rain forest at an altitude between 3,000 and 5,000 feet, rooting into plant debris trapped among branches or on decaying humus on the ground in stony, shady places. The Christmas cactus is actually *S. bridgesii*. It is characterized by smaller, smoothed-edged stems (segments). The plants most often sold as Christmas cacti are actually Thanksgiving cacti, *S. truncata*. They are characterized by segments with toothed or jagged edged joints. Flowers appear under natural photoperiods earlier than on *S. bridgesii*. *S. bridgesii* originated at somewhat higher altitudes in the mountains.

ZYGOCACTUS

LARGE GRADE

PRODUCT DIMENSIONS

There should be a good balance between the size of the plant and the pot. The plant should fill the pot enough to prevent the appearance of legginess. The height of the product should be from a minimum of 11" to a maximum of 14", as measured from the bottom of the pot to the top of the plant. The minimum width of the plant should be 10".

Note: Generally, large grade Zygocactus are grown in 6" - 6 1/2" pots.

NUMBER OF FLOWER BUDS

Large grade Zygocactus should have from 30-50 buds and blooms.

STAGE OF OPENNESS

There should be a minimum of 15 puffy mature buds each measuring a minimum of 3/4" in bud length. There should be a maximum of 4 to 5 open flowers per stage 3 of the FMA/SAF Zygocactus photo chart.

CHARACTERISTICS

Foliage should be healthy with good color, showing no evidence of nutritional deficiencies, disease, insect damage, spray residues, or mechanical injury. The plant should be sturdy in the pot with a healthy root system. Soil should be damp.

CARE TAGS

Care tags with proper product identification and care information should be attached to the plant or pot.

ZYGOCACTUS

	Product Dimensions	# of Flower Stems	Stage of Openness	Characteristics	Care Tags
Small Grade	Height 7" - 10" *Top of plant width 7" 4" - 4 1/2" pots	Minimum of 12 buds	6 mature buds measuring 3/4" each	Foliage of good color Strong stems Healthy root system <u>Soil must be damp</u>	Yes
Large Grade	Height 11" - 14" *Top of plant width 10" 6" - 6 1/2" pots	Minimum of 30 buds	15 mature buds measuring 3/4" each	Foliage of good color Strong stems Healthy root system <u>Soil must be damp</u>	Yes
Extra Large Grade	Height 14" - 17" *Top of plant width 10" 8" - 8 1/2" pots	Minium of 50 buds	25 mature buds measuring 3/4" each	Foliage of good color Strong stems Healthy root system <u>Soil must be damp</u>	Yes

* Width is a minimum measurement.

STAGES IN FLOWER DEVELOPMENT OF ZYGOCACTUS



Day 1
Stage 1



Day 3
Stage 2



Day 6
Stage 3



Day 9
Stage 4



Day 12
Stage 5