

[54] DWARF CARNATION PLANT 'QUANDARY'  
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[57] ABSTRACT

A carnation plant known by the cultivar name Quan-

dary was developed through a breeding program and is particularly characterized as to uniqueness by its dwarf growth habit and the following combined characteristics: upon pinching a rooted cutting, forms 4 to 6 lateral stems 24 to 26 cm long, each developing a terminal flower and 4 to 6 secondary buds which open intermittently after the terminal flowers senesces; light pink and red variegated flowers 5.0 to 6.0 cm in diameter with a slight fragrance; can be grown under specified environmental conditions either as a single pinched plant per 10 cm pot or 3 pinched plants per 13 cm pot, which results in an ideal new flowering house plant.

1 Drawing Sheet

1

My present invention relates to a new and distinct dwarf cultivar of *Dianthus caryophyllus* Linn. identified as plant 85-215-120 and given the name Quandary.

Quandary is a product of a breeding program started by me at Colorado State University in 1974, using commercially available semi dwarf germplasm, crossing selected unnamed seedlings and incorporating various known carnation germplasm with an objective of creating dwarf carnation cultivars that could be asexually produced for commercial use, in controlled environments, as flowering houses plants.

Quandary was originated from a cross made in a controlled breeding program at the Horticulture Department, W. D. Holley Plant Environmental Research Center, Colorado State University, Fort Collins, Colo. using the unnamed seed parent 83-15-20 and an unnamed pollen parent 82-43A, also developed by the present inventor.

Quandary was discovered and selected as one flowering plant within the progeny of the stated cross by Kenneth L. Goldsberry on July 20, 1985 in a controlled environment in Fort Collins, Colo.

The first act of asexual reproduction of Quandary was accomplished when vegetative cuttings were taken, by the inventor, from the initial selection on Sept. 5, 1985 in a controlled environment in Fort Collins, Colo. The initial rooting of the cuttings and performance of the resulting plants have demonstrated that the distinctive characteristics of this new cultivar Quandary, here in disclosed, appear to be firmly fixed and hold true from generation to generation.

Quandary has not been observed under all possible environmental conditions. The phenotype may vary significantly with variation in the production environment including irrigation regimes, temperature, light intensity, day length and nutritional programs. It has been observed and evaluated, from a rooted cutting to a mature plant while being grown in Fort Collins and Denver, Colo. and Encinitas and Salinas, Calif. under greenhouse conditions, which approximate those generally used in commercial practice.

2

The following traits, which have been repeatedly observed, characterize Quandary and distinguishes it as a new and distinct dwarf carnation cultivar:

1. Somatic chromosome is  $2n=30$
2. A double type flower, similar to commercial cut flower spray types
3. Flower sizes range from 5.0 to 6.0 cm in diameter
4. Light pink flower color with red variegation
5. Medium flowering response on a scale of early, medium or late flowering
6. Four to six lateral shoots develop following a pinch of the main stem
7. The terminal flower, four to six secondary buds, four to seven tertiary buds and three to four quaternary buds form on each flowering stem. As the old flowers senese, the secondary buds and tertiary buds continue to open and quaternary buds usually abort
8. Secondary peduncle lengths on a single stem varies between 1.8 to 7.9 cm.
9. Plant height ranges between 24.0 to 26.0 cm.
10. Little or no fragrance is present

There are no dwarf carnation cultivars, for house plant use, presently developed and known to the inventor.

BRIEF DESCRIPTION OF THE DRAWING

The accompanying top colored photograph taken on May 1, 1987, using an 18 percent Kodak photographic gray card as a color base, illustrates in perspective view and the overall appearance of Quandary (85-215-120) grown in 10 cm (single plant) and 15 cm (3 plants) azalea pots. The bottom photo shows buds, inflorescence, stem, foliage characteristics and color of Quandary are typical and true as possible with illustrations of this type.

The following detailed description of my new dwarf carnation cultivar are based upon observations of greenhouse grown plants made in 1986 and 1987 at Fort Collins, Colo. The color values were determined in a standard color viewing booth with a 5000° K. fluorescent light source using references developed and published by The Royal Horticultural Society, London, England.



## PLANT CHARACTERISTICS

Origin: Seedling selection.

Parentage:

*Seed parent*.—Selected unnamed seedling, 83-15-20 5  
(Goldsberry).

*Pollen parent*.—Selected unnamed seedling 82-43A  
(Goldsberry).

Classification:

*Botanic*.—*Dianthus caryophyllus* Linn. cv. Quan- 10  
dary.

*Commercial*.—Dwarf carnation for pot plant pro-  
duction.

Propagation: Vegetative cuttings, 6 to 7 cm. in length  
initiate visible roots in 8 to 10 days in the winter and 15  
5 to 8 during the summer, when rooted under mist in  
a rooting medium temperature of 20° C. A quality  
rooted cutting with an abundance of roots, is usually  
ready to plant in 15 days in the summer and 18 to 20  
in the winter.

Growth habit: Three to four lateral shoots form natu- 20  
rally, but are accelerated by removing the terminal  
portion of the main stem, at the sixth or seventh node  
from the top, resulting in a compact, bushy and  
strong up right plant. Some basal branches may elon-  
gate enough to place apical buds on a plane equal to  
the terminal flowers of the initial stems.

Stems: Numerous lateral branches form close to the  
base of the plant and vary in length from 24–26 cm,  
having 5 to 9 nodes with opposite leaves. A reproduc- 30  
tive bud usually forms at each upper 4 to 6 nodes.  
Shoots forming at the seventh or tenth node below  
the terminal flower, usually develop into another  
flower stem in proper environmental conditions. All  
stems have a blue-grey glaucous condition, approxi-  
mating 189B in color.

Foliage: Leaves are abundant and typical of the com- 35  
mercial carnation type. The longest leaves at the  
seventh node from the top of each stem range in  
length from 8.0 to 13.4 cm. The fifth node from the  
top has the widest leaves, 0.7 to 1.0 cm. The foliage is  
progressively smaller above and below these nodes. 40  
Both the upper and lower sides of the leaves are dark  
green and have a blue-grey glaucous condition. The  
color of both surfaces is identified as 189B with the  
surface bloom present and 137A when it is removed. 45

## INFLORESCENCE CHARACTERISTICS

Buds: Terminal buds average 3.0 cm in length just prior  
to opening and the secondary buds 2.5 to 3.0 cm. The  
average bud circumference ranges from 5.0 cm for  
the terminal and 4.4 cm. for secondary buds, at the  
first sign of petal color. Significantly visible tertiary  
buds form on the peduncles of the upper six second-  
ary buds and quaternary buds are most prevalent on  
tertiary buds at nodes through seven from the top of  
the stem. Double quaternary buds are usually present. 55  
The tertiary and quaternary buds do not open in low  
light conditions. All buds are oval in shape and  
pointed.

Sequence of development: The terminal bud on each  
stem will show color before any lateral bud color is 60  
visible. The opening sequence of the secondary buds  
is generally at node positions one, three, four, two  
and five from the terminal flower position on each  
stem. In the proper environments, new flower bear-  
ing shoots emerge from the seventh to tenth nodes 65  
below the terminal flower and at the base of the plant,  
creating a perpetual flowering plant in high light  
conditions. p0 Flowering response: A rooted cutting

pinched 2 to 4 weeks after planting will flower 14 to  
16 weeks following the pinch from a October 1 plant  
date and 11 to 12 weeks from a June 1 date in Fort  
Collins, Colo. when growing temperatures approxi-  
mate 11° C. at night and 17° C. during the day.

Inflorescence type: Each initial stem is a semi-com-  
pound spray with a terminal bud 4 to 6 secondary, 4  
to 7 tertiary, 3 to 4 quaternary buds and 3 to 5 lateral  
shoots.

Number of buds and flowers per stem: Each stem has a  
terminal flower that develops along with the upper  
most, of the 4 to 6 secondary buds; new flowering  
shoots usually form at the sixth to ninth nodes of each  
initial stem resulting in an average of 5.0 flowers per  
stem. The tertiary and quaternary buds do not de-  
velop petals in low light and many do not open.

Peduncle length: The length of the peduncles range  
from 1.2 cm for the top secondary bud to 7.9 cm for  
the lowest bud, on each stem, when the terminal  
flower is in prime condition. The peduncles of the  
tertiary buds vary from 0.7 to 3.3 cm.

Peduncle strength: Strong, holds flowers erect during  
all growing seasons; degree of brittleness is related to  
environmental conditions.

Flower:

*Size*.—Terminal flowers range in size from 5.0 to  
6.0 cm and the secondaries, 5.0 to 6.0 cm depend-  
ing on the environment.

*Type*.—Commercial double with 33 to 48 moder-  
ately serrated petals in the terminal flowers,  
which have an average length and width of 5.0  
cm and 3.2 cm, respectively.

*Form*.—Sub hemispherical in longitudinal section  
with the petals adjacent to the calyx, slightly  
reflexed at maturity. Seldom splits. The second-  
ary flowers are 4.5–6.0 cm in diameter and have  
average petal lengths of 4.6 cm and 2.6 cm wide.  
The tertiary buds may open under ideal light  
conditions; the quaternary buds seldom open.

Corolla color: General tonality at a distance of 1 meter:  
variegated with 50D as a base petal color and 53C  
blotches and streaks. Upper petal surface: newly  
opened petals are similar in color, but fade to 54CD  
and 49D in greenhouse conditions. Lower petal sur-  
face: have the same color characteristics as the upper  
surface.

Keeping quality: In the greenhouse, individual flowers  
remain aesthetically pleasing up to 6 days; in the  
home 8 to 13 days with room temperatures of 17° C.  
and high, natural light intensity.

50 Fragrance: No fragrance is specifically apparent.

Reproductive organs:

*Androecium*.—Typical carnation except has  
aborted 13–9 filaments, no anthers or pollen.

*Gynoecium*.—Typical of carnation in all respects;  
pistil is 0.7 to 1.2 cm in length and has 2 styles  
and stigmas. The stigmas are white at all stages  
of maturity.

Disease resistance: The plant has been found free of  
pathogen races currently associated with standard  
carnation cultivars, including the wilts and Etched  
Ring or Fleck viruses.

I claim:

1. A new and distinct cultivar of *Dianthus caryophyl-  
lus*, Linn, identified as 85-215-120 and known as Quan-  
dary and substantially as herein described and illus-  
trated.

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