U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE

Exhibit C

OBJECTIVE DESCRIPTION OF VARIETY
Vinca (*Catharanthus* spp.)

NAME OF APPLICANT (S)	TEMPORARY OR EXPERIMENTAL DESIGNATION	VARIETY NAME

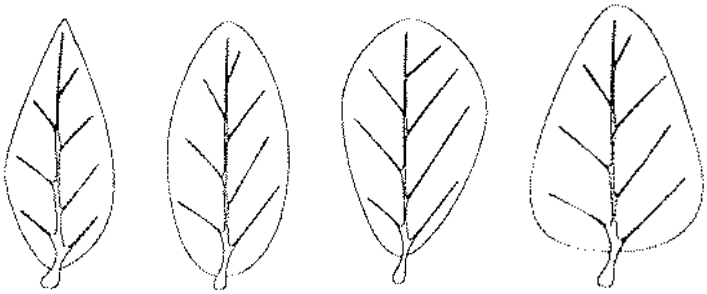
ADDRESS *(Street and No. or RD No., City, State, Zip Code and Country)*	FOR OFFICIAL USE ONLY
	PVPO NUMBER

PLEASE READ ALL INSTRUCTIONS CAREFULLY:

In the spaces on the left, enter the appropriate numbers that describe the characteristics of the application variety. On the right, enter the appropriate numbers that describe the characteristics of the most similar comparison variety. Right justify whole numbers by adding leading zeros if necessary. The variety that you choose for comparison should be the most similar one in terms of overall morphology, background and maturity. The comparison variety should be grown in field trials with the application variety for 2-3 location/years (environments) in the region and season of best adaptability. In general, measurements of quantitative traits should be taken from one trial on 15-25 randomly selected plants or plant parts to obtain averages and statistics that describe a typical field of the variety.

Application Variety Data	Comparison Variety Data
1. OVERALL PLANT HABIT (at flowering stage):	
Data Collection Site _____	Comparison Variety Name _____
____ Species: 1 = C. roseus 2 = Other _____	___ Species
____ Ploidy: 1 = Haploid 2 = Diploid 3 = Triploid 4 = Tetraploid	___ Ploidy
____ Life Cycle: 1 = Annual 2 = Biennial 3 = Perennial	___ Life Cycle
____ Growth Habit: 1 = Determinate 2 = Semi-determinate 3 = Indeterminate	___ Growth Habit
____ Growth Form: 1 = Upright 2 = Semi-prostrate 3 = Prostrate	___ Growth Form
_____Flowering: 1 = Very Early 2 = Early 3 = Mid-season 4 = Late 5 = Continuous	___ Flowering Season
__ __ __ Days from Planting to First Flowering	__ __ __ Days to First Flowering
__ __ __ Length of Flowering Season in Days	__ __ __ Days – Flowering Season Length
__ __ __•__ cm Plant Height at Maturity	__ __ __•__ cm Plant Height
__ __ __•__ cm Plant Width at Maturity	__ __ __•__ cm Plant Width
___ Plant Height Class: 1 = Extra Dwarf 2 = Dwarf 3 = Semi-dwarf 4 = Tall	___ Plant Height Class
___ Plant Width Class: 1 = Compact 2 = Semi-compact 3 = Spreading/Lax	___ Plant Width Class

Application Variety Data | Comparison Variety Data

Application Variety Data	Comparison Variety Data
2. STEM:	
___ Profile: 1 = Straight 2 = Zig-Zag	___ Profile
___ Branching Pattern: 1 = Single Stem 2 = Few Branches 3 = Many Branches	___ Branching Pattern
__ __•__ cm Stem Length from Base of Stem to Terminal Flower	__ __•__ cm Stem Length (total)
__ __ Number of Internodes Below First Branch	__ __ Number of Internodes Below First Branch
__ __ Number of First Order Branches (From Main Stem)	__ __ Number of First Order Branches
___ Stem Anthocyanin: 1 = Absent 2 = Along Veins Only 3 = Solid Coloration	___ Stem Anthocyanin
3. FOLIAGE:	
___ Leaf Type: 1 = Simple 2 = Compound	___ Leaf Type
___ Leaf Margin: 1 = Entire 2 = Serrate 3 = Other _____	___ Leaf Margin
___ Leaf Odor: 1 = None 2 = Mile 3 = Strong	___ Leaf Odor
___ Petiole Anthocyanin: 1 = Absent 2 = Mild 3 = Strong	___ Petiole Anthocyanin
___ Leaf Shape: 1 = Lanceolate 2 = Elliptic 3 = Obovate 4 = Ovate	___ Leaf Shape
 Lanceolate Elliptic Obovate Ovate	
__ __ __•__ mm Leaf Width	__ __ __•__ mm Leaf Width
__ __ __•__ mm Leaf Length	__ __ __•__ mm Leaf Length
LEAF DORSAL SIDE:	**LEAF DORSAL SIDE**
___ Leaf Color: 1 = Light Green 2 = Medium Green 3 = Dark Green 4 = Other (Describe) _____	___ Leaf Color
Color Chart Name _____ Color Chart Reading _____	Color Chart Reading _____
___ Pubescence: 1 = Absent 2 = Light 3 = Heavy	___ Pubescence
___ Luster: 1 = Dull 2 = Shiny	___ Luster
LEAF VENTRAL SIDE:	**LEAF VENTRAL SIDE**
___ Leaf Color: 1 = Light Green 2 = Medium Green 3 = Dark Green 4 = Other (describe) _____	___ Leaf Color
Color Chart Name _____ Color Chart Reading _____	Color Chart Reading _____
___ Pubescence: 1 = Absent 2 = Light 3 = Heavy	___ Pubescence
___ Luster: 1 = Dull 2 = Shiny	___ Luster

Application Variety Data	Comparison Variety Data
4. FLOWER:	
___ Type: 1 = Single 2 = Semi-Double 3 = Double	___ Type
___ Form: 1 = Flat 2 = Cupped 3 = Other _____	___ Form
___ Shape: 1 = Round (petals overlap) 2 = Intermediate 3 = Star (petals gapped)	___ Shape
___ Flower Odor: 1 = None 2 = Mild 3 = Strong	___ Flower Odor
___ Pedicel Anthocyanin: 1 = Absent 2 = Faint 3 = Strong	___ Pedicel Anthocyanin
___ ___ Number Flowers per Plant	___ ___ Number Flowers per Plant
__ __ __●__ mm flower Diameter	__ __ __●__ mm flower Diameter
__ __●__ mm Orifice Size (including the opening of the corolla tube)	__ __●__ mm Orifice Size
__ __●__ mm Ring Width (From Outside Orifice to Edge of Color Band)	__ __●__ mm Ring Width
__ __ __●__ mm Petal Width (At Widest Point)	__ __ __●__ mm Petal Width
__ __ __●__ mm Petal Length (From Ring to Outer Edge)	__ __ __●__ mm Petal Length

5. FLOWER COLORS: (Note: Common Color Charts: RHS=Royal Horticultural Society Colour Chart; Munsell=Munsell Book of Color)

	Color Verbal Name	Color Chart Code	Color Chart Name		Color Name	Chart Code
EXAMPLE	Light Blue	106C	RHS			
Petal Color				Petal Color		
Ring Color				Ring Color		
Orifice Color				Orifice Color		
Other Color (describe location or placement)						

6. SEEDS (Measure Mature (Dry) Seeds):	
___ Seed Set: 1 = None 2 = Poor 3 = Fair 4 = Good 5 = Excellent	___ Seed Set
___ Seed Coat Color: 1 = White 2 = Tan 3 = Brown 4 = Black 5 = Other _____	___ Seed Coat Color
__ __ __●__ mg Weight per 1000 Seeds	__ __ __●__ mg Seed Weight

7. RESISTANCE: Test as many disease and insect reactions as possible before applying for protection. Tests for disease and insect reactions should include a resistant check and a susceptible check for each disease or insect being tested. When using disease resistance to describe distinctness, information on these checks should be included in the distinctness statement in support of the distinctness claim. Rate the application variety and the comparison variety on a scale of 1 (most susceptible) to 9 (most resistant) for each disease or insect reaction being reported. Give the scientific and common names of each disease/insect for completeness, and the race or strain, if known. **(Rate from 1 (most susceptible) to 9 (most resistant))**:

Rating	Disease/Insect Name (give race or strain, if known)	Rating	Disease/Insect Name
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

8. Attach ONE photographic print of the application variety and the comparison variety described above, indicating the identity of each variety. This photograph should show flower heads of each variety at a magnification sufficient to identify most of the verbal descriptors given above. (Additional comments and photographs in support of this application may be supplied as part of the Exhibits B or D.)

OBJECTIVE DESCRIPTION OF VARIETY
VINCA (*Catharanthus*)

INSTRUCTIONS

Please read instructions carefully before completing the attached form. The Objective Description Form is a necessary part of an application for Plant Variety Protection (Breeder's Rights) in the United States of America. It is designed to guide the applicant in describing a variety in detail so that comparisons with other varieties in the same crop may be done in a meaningful way. To aid in this goal, data collectors and breeders from different locations should collect the data in a similar fashion. These instructions describe the way in which to take each measurement needed to complete this form. It is possible that some traits are unobtainable for a certain variety, causing some blanks to be left empty. It is in your best interest to describe your variety as completely as possible to establish an adequate variety description.

The applicant's name and complete address should be at the top of the form. The country should be included since it is needed when mailing to some areas. The name of the variety is also entered at the top of the form. The Plant Variety Protection Office will assign a unique PVPO Number to each application and enter it below the variety name.

The variety that you choose for comparison should be the most similar one in terms of background and maturity. The comparison variety (ies) used should be grown in field trials with the application variety for 2-3 location/years (environments) in the region and season of best adaptability. The varietal and environmental data collection should remain available for an additional 3 years to resolve any questions concerning comparisons or descriptions of varieties. In general, measurements of quantitative traits should be taken in one trial on 15-25 randomly selected plants or plant parts to obtain averages and statistics that describe a typical field of the variety.

1. OVERALL PLANT HABIT
 -- Name the variety to be used for comparison. Describe the comparison variety in the right-hand column for all traits on form.
 -- Name the location where data was collection to complete this form.
 -- Identify the plant species. If it is a species not listed on the form, then name it in the space provided.
 -- Indicate the ploidy level, life cycle, growth habit, and growth form.
 -- Indicate the season in which the variety flowers.
 -- Measure the average number of days from planting seeds to first-flowering.
 -- Indicate the length of the flowering season.
 -- Measure the average plant width at maturity.
 -- Measure the average plant height from ground level to top of flower at maturity.
 -- Indicate the plant height class as compared to other varieties of the crop.

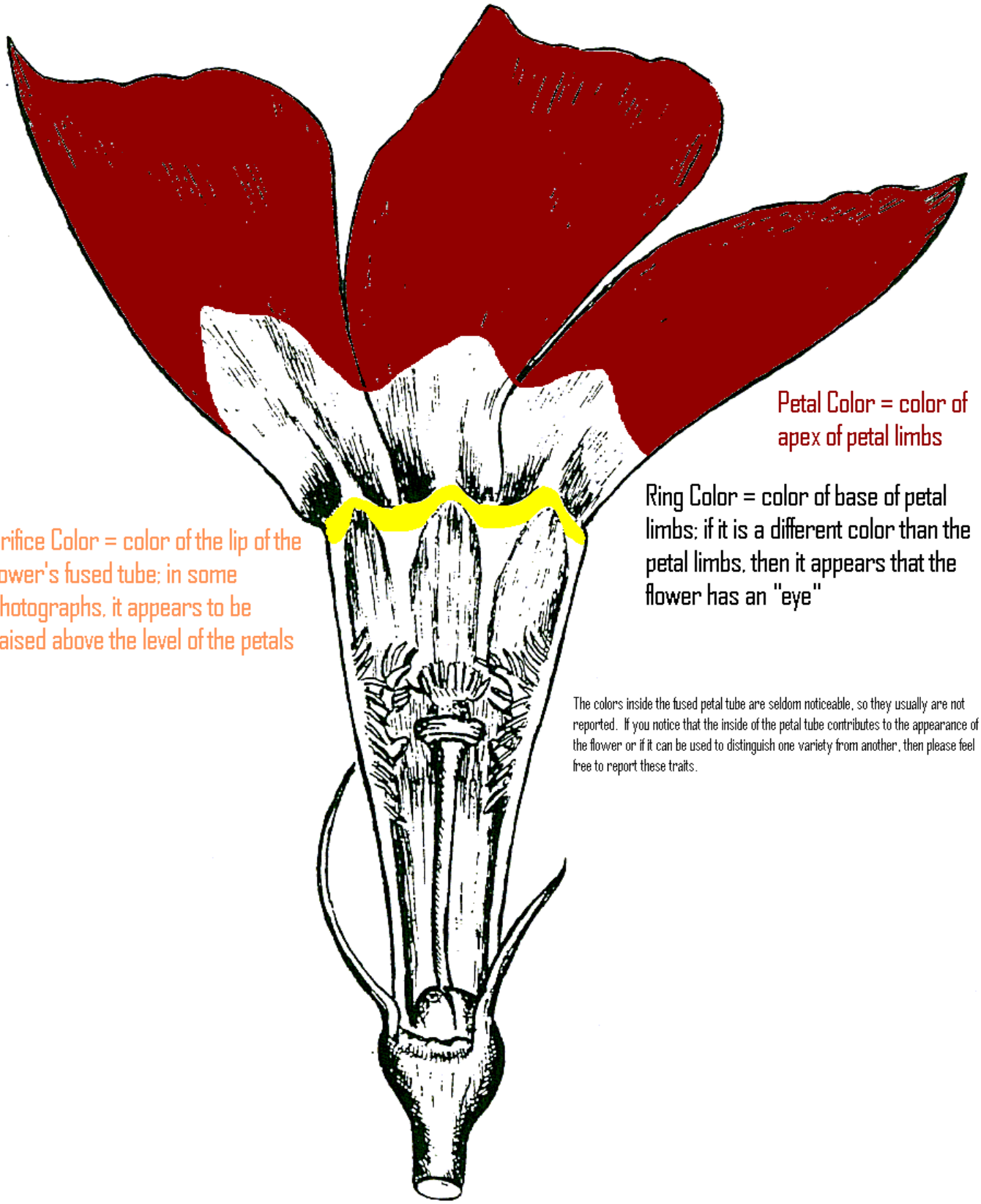
2. STEM
 -- Report the appearance of the main stem as viewed from the side.
 -- Describe the branching pattern of the plant, including secondary branching.
 -- Measure the average number of internodes below the first branch and the number of branches attached to the main stem.
 -- Indicate the amount of anthocyanin on the main stalk.

3. FOLIAGE
 -- Describe the leaf type, margin, and fragrance.
 -- Describe the leaf shape, using the diagrams as references. If compound leaf, describe the leaflet shape.
 -- Measure the average leaf width (at its widest) and length. Include the petiole. If a compound leaf, measure the average length of the leaflets.
 -- Describe the color, pubescence, and luster of the dorsal (lower) side of the leaf.
 -- Describe the color, pubescence, and luster of the ventral (upper) side of the leaf.

4. FLOWER
 -- Describe the flower type, form, shape, and fragrance.
 -- Measure the average flower diameter, from petal edge, across the middle, to petal edge.
 -- Measure the average orifice size, inside the ring and including the opening of the corolla tube.
 -- Measure the average ring width, from outside the orifice to the edge of the color band.
 -- Measure the average petal width (at its widest point) and petal length (from the ring to the outer edge).
 -- Describe the colors of the orifice, ring, and petal by naming the color and listing the color chart code. For example, in the Royal Horticultural Society chart: RHS 78A (Imperial Purple); or in the Munsell Book of Color: Munsell 2.5RP 4/12 (reddish purple).
 -- Indicate the amount of anthocyanin on the pedicel.

5. SEEDS
 -- Judge the following characteristics on DRY (at 12-13% grain moisture) seeds.
 -- Report the amount of seed set.
 -- Report the seed coat color.
 -- Measure the average weight of 1000 seeds.

6. DISEASE/INSECT REACTION
 -- Test as many disease and insect reactions as possible BEFORE applying for protection. Tests for disease and insect reactions should include a resistant check and a susceptible check for each disease or insect being tested. When using disease resistance to describe distinctness, information on these checks should be included in the distinctness statement in support of the distinctness claim. Rate the application variety and the comparison variety on a scale of 1 (most susceptible) to 9 (most resistant) for each disease or insect reaction being reported. Give the scientific and common names of each disease/insect for completeness and the race or strain, if known.



Petal Color = color of apex of petal limbs

Ring Color = color of base of petal limbs; if it is a different color than the petal limbs, then it appears that the flower has an "eye"

Orifice Color = color of the lip of the flower's fused tube; in some photographs, it appears to be raised above the level of the petals

The colors inside the fused petal tube are seldom noticeable, so they usually are not reported. If you notice that the inside of the petal tube contributes to the appearance of the flower or if it can be used to distinguish one variety from another, then please feel free to report these traits.

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