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

Exhibit C

OBJECTIVE DESCRIPTION OF VARIETY
Lettuce *(Lactuca sativa* L.*)*

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

Place the appropriate number that describes the varietal character on the lines below. The design of the tests should be such that plants or parts of plants may be removed for measurement or counting without prejudice to the observations which must be made up to the end of the growing cycle. Each test should be designed to result in a total of at least 60 plants per variety, which should be divided between two or more replicates. Unless otherwise indicated, all observations should be made on 20 plants or parts taken from each of 20 plants. Royal Horticultural Society or any recognized color standard may be used to determine plant colors.

The Location of the Test Area is:	Color System Used:

1. ____ PLANT TYPE: (See List of Suggested Check Varieties on Page 8)

01 = Cutting/Leaf	04 = Cos or Romaine	07 = Salinas Group	10 = Latin
02 = Butterhead	05 = Great Lakes Group	08 = Eastern (Ithaca) Group	11 = Other (Specify) _____
03 = Bibb	06 = Vanguard Group	09 = Stem	

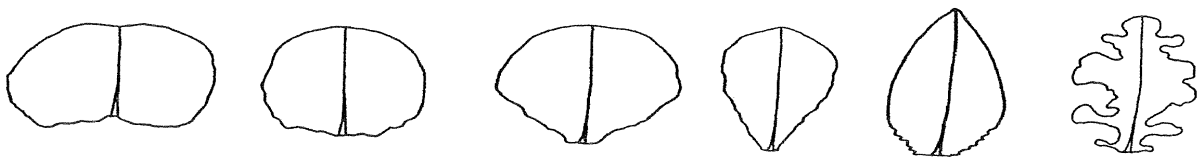
2. SEED: ____ COLOR ___ LIGHT DORMANCY ____ HEAT DORMANCY

1 = White (Silver Gray)	1 = Light Required	1 = Susceptible
2 = Black (Grey Brown)	2 = Light Not Required	2 = Not Susceptible
	3 = Brown (Amber)	

3. COTYLEDON TO FOURTH LEAF STAGE: NOTE: Provide a color photograph or photocopy of the fourth leaf from 20 day-old seedling grown under optimal conditions.

____ SHAPE OF COTYLEDONS: 1 = Broad 2 = Intermediate 3 = Spatulate

____ SHAPE OF FOURTH LEAF:



1. Transverse oval 2. Round 3. Oval 4. Elongated 5. Lanceolate 6. Pinnately lobed

____ LENGTH/WIDTH INDEX OF FOURTH LEAF: L/W x 10

____ APICAL MARGIN: 1 = Entire 4 = Moderately Dentate 7 = Lobed
2 = Crenate/Gnawed 5 = Coarsely Dentate 8 = Other (Specify) _____
3 = Finely Dentate 6 = Incised

____ BASAL MARGIN: (Use the options for Apical Margin above)

____ UNDULATION: 1 = Flat 2 = Slight 3 = Medium 4 = Marked

____ GREEN COLOR: 1 = Yellow Green 3 = Medium Green 5 = Blue Green 7 = Grey Green
2 = Light Green 4 = Dark Green 6 = Silver Green

ANTHOCYANIN:

____ DISTRIBUTION: 1 = Absent 3 = Spotted 5 = Other (Specify) _____
2 = Margin Only 4 = Throughout

____ CONCENTRATION: 1 = Light 2 = Moderate 3 = Intense

____ CUPPING: 1 = Uncupped 2 = Slight 3 = Markedly

____ REFLEXING: 1 = None 2 = Apical Margin 3 = Lateral Margins

4. MATURE LEAVES (Observe Harvest-Mature Outer Leaves)

NOTE: Provide color photo of a harvest-mature leaf which accurately shows color and margin characteristics.

MARGIN:

____ INCISION DEPTH: 1 = Absent/Shallow (Dark Green Boston) 2 = Moderate (Vanguard) 3 = Deep (Great Lakes 659)
(deepest penetration of the margin)

____ INCISION DENSITY: 3=Sparse 5=Medium 7=Dense 9= Very Dense
(on margin on apical part)

____ INDENTATION: (Finest divisions of the margin)

1 = Entire (Dark Green Boston) 4 = Crenate (Vanguard)
2 = Shallowly Dentate (Great Lakes 65) 5 = Other (Specify) _____
3 = Deeply Dentate (Great Lakes 659)

____ UNDULATIONS OF THE APICAL MARGIN: 1 = Absent/Slight (Dark Green Boston) 2 = Moderate (Vanguard) 3 = Strong (Great Lakes 659)

____ GREEN COLOR: 1 = Very Light Green (Bibb) 3 = Medium Green (Great Lakes) 5 = Very Dark Green
2 = Light Green (Minetto) 4 = Dark Green (Vanguard) 6 = Other (Specify) _____

ANTHOCYANIN:

____ DISTRIBUTION: 1 = Absent 3 = Spotted (California Cream Butter) 5 = Other (Specify) _____
2 = Margin Only (Big Boston) 4 = Throughout (Prize Head)

____ CONCENTRATION: 1 = Light (Iceberg) 2 = Moderate (Prize Head) 3 = Intense (Ruby)

____ SIZE: 1 = Small 2= Medium 3 = Large

____ GLOSSINESS: 1 = Dull (Vanguard) 2 = Moderate (Salinas) 3 = Glossy (Great Lakes)

____ BLISTERING: 1 = Absent/Slight (Salinas) 2 = Moderate (Vanguard) 3 = Strong (Prize Head)

____ LEAF THICKNESS: 1 = Thin 2 = Intermediate 3 = Thick

____ TRICHOMES: 1 = Absent (Smooth) 2 = Present (Spiny)

5. PLANT:

____ SPREAD OF FRAME LEAVES (cm):

____ HEAD DIAMETER: (Market Trimmed with Single Cap Leaf)

____ HEAD SHAPE: 1 = Flattened 2 = Slightly Flattened 3 = Spherical 4 = Elongate 5 = Non-Heading 6 = Other (Specify)_____

____ VARIETIES WITH CLOSED HEAD FORMATION ONLY: (Head: degree of overlapping of upper part of leaves)
1=Very Weak 3=Weak 5=Medium 7=Strong 9=Very Strong

____ HEAD SIZE CLASS: 1 = Small 2 = Medium 3= Large

____ HEAD PER CARTON _____ HEAD WEIGHT

____ HEAD FIRMNESS: 1 = Loose 2 = Moderate 3= Firm 4 = Very Firm

6. BUTT:

____ SHAPE: 1 = Slightly Concave 2 = Flat 3 = Rounded

____ MIDRIB: 1 = Flattened (Salinas) 2 = Moderately Raised 3 = Prominently Raised (Great Lakes 659)

7. CORE:

____ DIAMETER AT BASE OF HEAD (mm):

____ . __ RATIO OF HEAD DIAMETER/CORE DIAMETER:

CORE HEIGHT FROM BASE OF HEAD TO APEX:

____ AVERAGE: (mm)

RANGE (mm) ____ to ____

8. BOLTING: (Give First Water Date: _____) NOTE: First Water Date is the date seed first receives adequate moisture to germinate. This can and often does equal the planting date.

____ NUMBER OF DAYS FROM FIRST WATER DATE TO SEED STALK EMERGENCE: (summer conditions)

____ BOLTING CLASS: 1 = Very Slow 2 = Slow 3 = Medium 4 = Rapid 5 = Very Rapid

____ HEIGHT OF MATURE SEED STALK (cm)

____ SPREAD OF BOLTER PLANT: (cm) (At widest point)

____ BOLTER LEAVES: 1 = Straight 2 = Curved

____ MARGIN: 1 = Entire 2 = Dentate

____ COLOR: 1 = Light Green 2 = Medium Green 3 = Dark Green

BOLTER HABIT:

____ TERMINAL INFLORESCENCE: 1 = Absent 2 = Present

____ LATERAL SHOOTS: 1 = Absent 2 = Present

____ BASAL SIDE SHOOTS: 1 = Absent 2 = Present

9. MATURITY: (earliness of harvest-mature head formation)

NOTE: Complete this section for at least one season.

SEASON	APPLICATION VARIETY No. of Days[1]		
Spring			
Summer			
Fall			
Winter			

[1] *First Water Date to Harvest*

Give Planting Date(s) and Location(s):

Spring: _____

Summer: _____

Fall: _____

Winter: _____

10. ADAPTATION:

PRIMARY REGIONS OF ADAPTATION (tested and proven adapted): 0 = Not Tested 1 = Not Adapted 2 = Adapted

____ Southwest (CA and/or AZ desert) ____ West Coast ____ Northeast

____ North Central ____ Southeast ____ Other (Specify) _____

SEASON:

____Spring (Area _____) ____ Fall (Area _____)

____ Summer (Area _____) ____Winter (Area _____)

____GREENHOUSE: 0 = Not Tested 1 = Not Adapted 2 = Adapted

____ SOIL TYPE: 1 = Mineral 2 = Organic 3 = Both

11. VIRAL DISEASES:

1 = Immune 3 = Resistant 5 = Moderately Resistant/Moderately Susceptible 7 = Susceptible 9 = Highly Susceptible

____ Big Vein

____ Lettuce Mosaic

____ Cucumber Mosaic

____ Tomato Bushy Stunt, cause of dieback

____ Turnip Mosaic

____ Beet Western Yellows

____ Lettuce Infectious Yellows

____ Other (Specify) _____

12. FUNGAL/BACTERIAL DISEASES:

1 = Immune 3 = Resistant 5 = Moderately Resistant/Moderately Susceptible 7 = Susceptible 9 = Highly Susceptible

____ Corky Root Rot-
(Races: _____)

____ Downy Mildew
(Races: _____)

12. FUNGAL/BACTERIAL DISEASES: (continued)

____ Powdery Mildew

____ Sclerotinia Drop

____ Bacterial Soft Rot

____ Botrytis (Grey Mold)

____ Verticillium Wilt

____ Bacterial Leaf Spot

____ Anthracnose

____ Other (Specify) _____

13. INSECTS:

1 = Immune 3 = Resistant 5 = Moderately Resistant/Moderately Susceptible 7 = Susceptible 9 = Highly Susceptible

____ Cabbage Loopers

____ Root Aphids

____ Green Peach Aphid

____ Lettuce Aphid

____ Pea Leafminer

____ Other (Specify) _____

14. PHYSIOLOGICAL STRESSES:

1 = Immune 3 = Resistant 5 = Moderately Resistant/Moderately Susceptible 7 = Susceptible 9 = Highly Susceptible

____ Tipburn

____ Heat

____ Drought

____ Cold

____ Salt

____ Brown Rib
(Rib Discoloration, Rib Blight)

____ Other (Specify) _____

15. POST HARVEST STRESS:

1 = Immune 3 = Resistant 5 = Moderately Resistant/Moderately Susceptible 7 = Susceptible 9 = Highly Susceptible

____ Pink Rib

____ Russet Spotting

____ Rusty Brown Discoloration

____ Internal Rib Necrosis
(Blackheart, Grey Rib, Grey Streak)

____ Brown Stain

16. BIOCHEMICAL OR ELECTROPHORETIC MARKERS:

17. COMMENTS:

SUGGESTED CHECK VARIETIES

	TYPE	CHECK VARIETY
1	Cutting/Leaf	Waldmann's Green
2	Butterhead	Dark Green Boston
3	Bibb	Bibb
4	Cos or Romain	Parris Island
5	Great Lakes Group	Great Lakes 659-700
6	Vanguard Group	Vanguard
7	Salinas Group	Salinas
8	Eastern Group	Ithaca
9	Stem	Celtuce
10	Latin	Little Gem

REFERENCES

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