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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

FIELD TRIAL LOCATIONS IN DECIMAL DEGREES (DD)

LOCATION	LATITUDE	LONGITUDE

Directions: Please follow the UPOV Test Guidelines for Lettuce (TG013) when collecting data. Unless otherwise indicated, all quantitative observations should be made on 20 plants or parts taken from each of 20 plants.

UPOV Morphology:

I. SEED:

1. _____Seed Color:

1. White 2. Yellow 3. Brown

4. Black

II. PLANT:

1. _____Plant Head Diameter:

1. Very Small 2. Very Small to Small 3. Small

4. Small to Medium 5. Medium 6. Medium to Large

7. Large 8. Large to Very Large 9. Very Large

2. _____Plant: Degree of Overlapping of Upper Part of Leaves:

1. Absent or Weak 2. Medium 3. Strong

UPOV Morphology:

II. PLANT: (continued)

3. _____Plant: Number of Leaves (Only Varieties with Degree of Overlapping of Upper Part of Leaves Absent or Weak)

1. Very Few

2. Very Few to Few

3. Few

4. Few to Medium

5. Medium

6. Medium to Many

7. Many

8. Many to Very Many

9. Very Many

III. LEAF:

1. _____Leaf Attitude:

1. Erect

2. Erect to Semi-Erect

3. Semi-Erect

4. Semi-Erect to Horizontal

5. Horizontal

UPOV Morphology:

III. LEAF: (continued)

2. _____Leaf: Number of Divisions:

1. Absent or Very Few

3. Few

4. Few to Medium

5. Medium

6. Medium to Many

7. Many

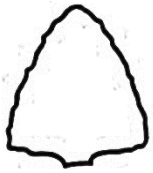
8. Many to Very Many

9. Very Many

UPOV Morphology:

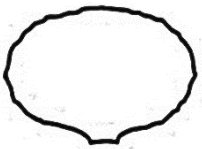
III. LEAF: (continued)

3. _____Leaf: Shape (Only Varieties with Number of Divisions Absent or Very Few)

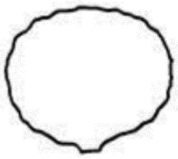


1. Triangular

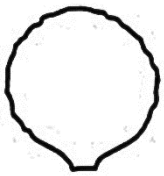
2. Lanceolate



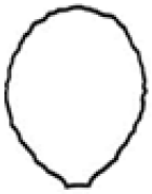
3. Medium Oblate



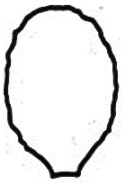
4. Narrow Oblate



5. Circular



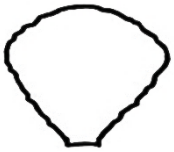
6. Broad



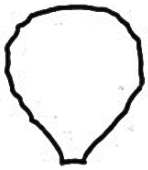
7. Medium Elliptic

8. Narrow Elliptic

9. Linear



10. Broad Obtrullate



11. Obovate

12. Oblanceolate

UPOV Morphology:

III. LEAF: (continued)

4. _____Leaf: Shape of Apex (Only Varieties with Number of Divisions: Absent or Very Few):

1. Acute

2. Obtuse

3. Rounded

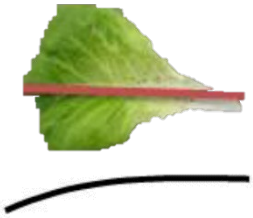
4. Obcordate

5. _____Leaf: Longitudinal Section:

1. Concave

2. Concave to Flat

3. Flat



4. Flat to Convex

5. Convex

UPOV Morphology:

III. LEAF: (continued)

6. _____Leaf: Width of Lobes (Only Oakleaf Type Varieties):

1. Very Narrow
2. Very Narrow to Narrow
3. Narrow

4. Narrow to Medium
5. Medium
6. Medium to Broad

7. Broad
8. Broad to Very Broad
9. Very Broad

7. _____Leaf: Anthocyanin Coloration:

1. Absent or Very Weak
2. Very Weak to Weak
3. Weak
4. Weak to Medium
5. Medium
6. Medium to Strong
7. Strong
8. Strong to Very Strong
9. Very Strong

8. _____Leaf: Hue of Anthocyanin Coloration:

1. Reddish
2. Purplish
3. Brownish

UPOV Morphology:

III. LEAF: (continued)

9. _____Leaf: Area Covered by Anthocyanin Coloration:

1. Very Small
2. Very Small to Small
3. Small

4. Small to Medium
5. Medium
6. Medium to Large

7. Large
8. Large to Very Large
9. Very Large

10. _____Leaf Color:

1. Green
2. Yellowish Green
3. Greyish Green

11. _____Leaf: Intensity of Green Color:

1. Very Light
2. Very Light to Light
3. Light
4. Light to Medium
5. Medium
6. Medium to Dark
7. Dark
8. Dark to Very Dark
9. Very Dark

12. _____Leaf: Glossiness of Upper Side:

1. Absent or Very Weak
2. Very Weak to Weak
3. Weak
4. Weak to Medium
5. Medium
6. Medium to Strong
7. Strong
8. Strong to Very Strong
9. Very Strong

13. _____Leaf Thickness:

1. Very Thin
2. Thin
3. Medium
4. Thick
5. Very Thick

UPOV Morphology:

III. LEAF: (continued)

14. _____Leaf: Blistering:

1. Absent or Very Weak
2. Very Weak to Weak
3. Weak
4. Weak to Medium
5. Medium
6. Medium to Strong
7. Strong
8. Strong to Very Strong
9. Very Strong

15. _____Leaf: Size of Blisters:

1. Very Small
2. Very Small to Small
3. Small

4. Small to Medium
5. Medium
6. Medium to Large

7. Large
8. Strong to Very Strong
9. Very Large

16. _____Leaf: Undulation of Margin:

1. Absent or Very Weak
2. Very Weak to Weak
3. Weak
4. Weak to Medium
5. Medium
6. Medium to Strong
7. Strong
8. Strong to Very Strong
9. Very Strong

UPOV Morphology:

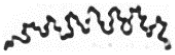
III. LEAF: (continued)

17. _____Leaf: Type of Incisions of Margin:

1. Crenate

2. Regularly Dentate

3. Irregularly Dentate



4. Bidentate

5. Tridentate

18. _____Leaf: Depth of Incisions of Margin:

1. Absent or Very Shallow
2. Very Shallow to Shallow
3. Shallow
4. Shallow to Medium
5. Medium
6. Medium to Deep
7. Deep
8. Deep to Very Deep
9. Very Deep

19. _____Leaf: Depth of Secondary Incisions of Margin (Only Varieties with Type of Incisions of Margin Irregularly Dentate Bi- or Tri-dentate)

1. Very Shallow
2. Very Shallow to Shallow
3. Shallow
4. Shallow to Medium
5. Medium
6. Medium to Deep
7. Deep
8. Deep to Very Deep
9. Very Deep

20. _____Leaf: Density of Incisions of Margin:

1. Very Sparse
2. Very Sparse to Sparse
3. Sparse
4. Sparse to Medium
5. Medium
6. Medium to Dense
7. Dense
8. Dense to Very Dense
9. Very Dense

21. _____Leaf: Venation:

1. Not Flabellate

2. Semi-Flabellate

3. Flabellate

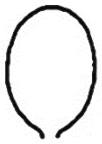
UPOV Morphology:

IV. HEAD:

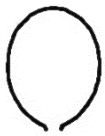
1. _____Head: Size (Only Varieties with Plant: Degree of Overlapping of Upper Part of Leaves: Medium or Strong):

1. Very Small	2. Very Small to Small	3. Small
4. Small to Medium	5. Medium	6. Medium to Large
7. Large	8. Large to Very Large	9. Very Large

2. _____Head: Shape in Longitudinal Section (Only Varieties with Degree of Overlapping of Upper Part of Leaves: Medium or Strong):



1. Narrow Elliptic



2. Broad Elliptic

3. Circular

4. Narrow Oblate

3. _____Head: Density (Only Varieties with Degree of Overlapping of Upper Part of Leaves: Medium or Strong):

:

1. Very Loose	2. Very Loose to Loose	3. Loose
4. Loose to Medium	5. Medium	6. Medium to Dense
7. Dense	8. Dense to Very Dense	9. Very Dense

V. STEM:

1. _____Stem: Length (Only Stem Type Varieties):

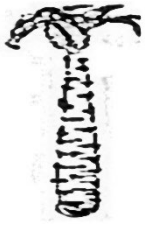
1. Very Short	2. Very Short to Short	3. Short
4. Short to Medium	5. Medium	6. Medium to Long
7. Long	8. Long to Very Long	9. Very Long

2. _____Stem: Width (Only Stem Type Varieties):

1. Narrow	2. Medium	3. Broad

3. _____Stem: Shape in Longitudinal Section (Only Stem Type Varieties):

1. Cylindrical



2. Conical

3. Fusiform

UPOV Morphology:

V. STEM: (continued)

4. _____Stem: Color (Only Stem Type Varieties):

1. Whitish Green	2. Light Green	3. Medium Green
4. Greenish Purple	5. Purplish Red	

5. _____Stem: Color of Flesh (Only Stem Type Varieties):

1. Yellowish White	2. Whitish Green	3. Light Green
4. Medium Green	5. Dark Green	

VI. HARVEST MATURITY:

1. _____Time of Harvest Maturity (Only Varieties with Degree of Overlapping of Upper Part of Leaves: Medium or Strong):

1. Very Early	2. Very Early to Early	3. Early
4. Early to Medium	5. Medium	6. Medium to Late
7. Late	8. Late to Very Late	9. Very Late

VII. BOLTING:

1. _____Bolting: Time of Beginning of Bolting:

1. Very Early	2. Very Early to Early	3. Early
4. Early to Medium	5. Medium	6. Medium to Late
7. Late	8. Late to Very Late	9. Very Late

2. _____Auxiliary Sprouting:

1. Absent or Weak	2. Medium	3. Strong

UPOV Morphology:

VII. BOLTING: (continued)

3. _____Bolting: Bolting Stem: Fasciation:

1. Absent or Very Weak

2. Very Weak to Weak

3. Weak

4. Weak to Medium

5. Medium

6. Medium to Strong

7. Strong

8. Strong to Very Strong

9. Strong

UPOV Disease Resistance:

VIII. RESISTANCE: (1= Absent, 9=Present)

1. _____Resistance to *Bremia lactucae* Isolate BI: 16EU
2. _____Resistance to *Bremia lactucae* Isolate BI: 17EU
3. _____Resistance to *Bremia lactucae* Isolate BI: 20EU
4. _____Resistance to *Bremia lactucae* Isolate BI: 21EU
5. _____Resistance to *Bremia lactucae* Isolate BI: 22EU
6. _____Resistance to *Bremia lactucae* Isolate BI: 23EU
7. _____Resistance to *Bremia lactucae* Isolate BI: 24EU
8. _____Resistance to *Bremia lactucae* Isolate BI: 25EU
9. _____Resistance to *Bremia lactucae* Isolate BI: 26EU
10. _____Resistance to *Bremia lactucae* Isolate BI: 27EU
11. _____Resistance to *Bremia lactucae* Isolate BI: 29EU
12. _____Resistance to *Bremia lactucae* Isolate BI: 30EU
13. _____Resistance to *Bremia lactucae* Isolate BI: 31EU
14. _____Resistance to Lettuce mosaic virus (LMV) Pathotype II
15. _____Resistance to *Nasonovia ribisnigri* (Nr) Biotype Nr: 0

16. _____Resistance to *Fusarium oxysporum* 6.sp. lactucae Race Fol: 1

    1. Susceptible
    2. Moderately Resistant
    3. Highly Resistant

USDA Morphology:

I. PLANT TYPE:

1. _____Plant Type:

1. Butterhead

2. Novita Type

3. Iceberg Type

3A. Iceberg Type: Eastern Iceberg Group

3B. Iceberg Type: Great Lakes Group

3C. Iceberg Type: Salinas Group

3D. Iceberg Type: Vanguard Group

3E. Iceberg Type: Other (Specify) _____

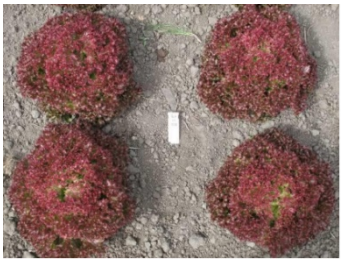
4. Batavia Type

USDA Morphology:

I. PLANT TYPE: (continued)

1. _____Plant Type: (continued)

5. Frisee d'Amerique Type



6. Lollo Type

7. Oakleaf Type

8. Multi-Divided Type

9. Frillice Type

USDA Morphology:

I. PLANT TYPE: (continued)

1. _____Plant Type: (continued)

10. Cos or Romaine

11. Bibb/Gem

12. Stem

13. Cutting/Whole Leaf

14. Latin

15. Other (Specify)_____

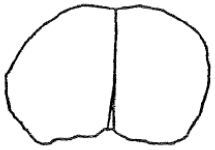
USDA Morphology:

II. COTYLEDON TO FOURTH LEAF STAGE:

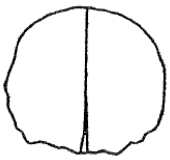
1. _____Cotyledon to Fourth Leaf Stage: Shape of Cotyledons:

1. Broad 2. Intermediate 3. Spatulate

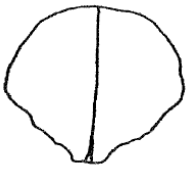
2. _____Cotyledon to Fourth Leaf Stage: Shape of Fourth Leaf:



1. Transverse Oval



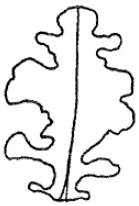
2. Round



3. Oval

4. Elongated

5. Lanceolate



6. Pinnately Lobed

III. PLANT:

1. _____Plant Head Diameter (cm)

2. _____Plant Spread of Frame Leaves (cm)

3. _____Plant: Number of Leaves (Only Varieties with Degree of Overlapping of Upper Part of Leaves Absent or Weak) (#)

IV. LEAF:

1. _____Leaf: Number of Divisions (#)

V. STEM:

1. _____Stem: Length (Only Stem Type Varieties) (cm)

2. _____Stem: Width (Only Stem Type Varieties) (cm)

VI. BUTT:

1. _____Butt Shape:

1. Slightly Concave 2. Flat 3. Rounded

2. _____Butt: Midrib:

1. Flattened 2. Moderately Raised 3. Prominently Raised

VII. HARVEST MATURITY:

1. _____Time of Harvest Maturity (Only Varieties with Degree of Overlapping of Upper Part of Leaves: Medium or Strong) (Days)

USDA Disease Resistance:

VIII. VIRAL DISEASES:

(1=Immune, 2=Resistant, 3=Moderately Resistant/Moderately Susceptible, 4=Susceptible, 5=Highly Susceptible)

Please List Disease: Response:

1. Big Vein
2. _____
3. _____
4. _____
5. _____

IX. FUNGAL/BACTERIAL DISEASES:

(1=Immune, 2=Resistant, 3=Moderately Resistant/Moderately Susceptible, 4=Susceptible, 5=Highly Susceptible)

Please List Disease: Response:

1. Corky Root Rot
2. _____
3. _____
4. _____
5. _____

USDA Insect Resistance:

X. INSECTS:

(1=Immune, 2=Resistant, 3=Moderately Resistant/Moderately Susceptible, 4=Susceptible, 5=Highly Susceptible)

Please List Insect: Response:

1. _____
2. _____
3. _____
4. _____
5. _____

USDA Physiological and Post-Harvest Stress:

XI. PHYSIOLOGICAL STRESSES:

(1=Immune, 2=Resistant, 3=Moderately Resistant/Moderately Susceptible, 4=Susceptible, 5=Highly Susceptible)

Please List Stressor: Response:

1. _____
2. _____
3. _____
4. _____
5. _____

XII. POST-HARVEST STRESS:

(1=Immune, 2=Resistant, 3=Moderately Resistant/Moderately Susceptible, 4=Susceptible, 5=Highly Susceptible)

Please List Stressor: Response:

1. _____
2. _____
3. _____
4. _____
5. _____

XIII. BIOCHEMICAL OR ELECTROPHORETIC MARKERS:

1. _____Biochemical or Electrophoretic Markers:

1. Absent 2. Present

[PLEASE ENTER ADDITIONAL VARIETY TRAITS ON NEXT PAGE]

Disease Resistance Comments:

Insect Resistance Comments:

Additional Comments:

References:

Anonymous, 1976. All About Tomatoes. Ortho Books, Chevron Chemical Co., San Francisco. In three volumes: Midwest/Northeast Edition, West Edition, and South Edition.

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Webb, R.E., T.H. Barksdale, & A.K. Stoner, 1973. “Tomatoes”, pp. 344-361, in: Nelson, R.R. (Ed.), Breeding Plants for Disease Resistance. Pennsylvania State University Press, University Park.

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