

Significant Accomplishments for 2001 Advanced Clone Disease Assessment Program

Sixteen advanced clones were evaluated for their reaction to potato leafroll virus, twenty five advanced clones and cultivars for their reaction to bacterial ring rot and, thirty five advanced clones were evaluated for storage rots caused by *Fusarium* spp., *Erwinia carotovora* and, *Alternaria solani*. All but two of the advanced selections, CO94019-1R and VCO967-2R/Y, demonstrated adequate symptoms to leafroll. The two selections will be in the trials in 2002. In field spread levels were much more realistic this year, given the low aphid vector population, with only one clone, NDC6084C-2W, demonstrating high levels of spread (26.8%). This was the highest level of spread showing among all of the treatments and may be of concern when the GPA populations are higher. Additionally, there were very few plants showing PVY infection, a sign that these clones may show less tendency to become infected by PVY during the season.

Several clones did not demonstrate adequate symptom expression to bacterial ring rot in 2001. Three clones are of concern; CO93037-6R, NDC5281-2R and TC1675-1RU. The first clone has been tested for two years and will be screened for a third and final year in 2002. While the timing of symptom expression is early (75 days after planting "DAP") and symptoms are visually easy to identify, the percent of plants infected 100 DAP is quite low (14.3% in 2000 and 0.0% in 2001). The latter two clones have been tested for three years and they also show similar problems with symptom expression early (75 DAP) and good, but percent of plants infected 100 DAP low (NDC5281-2R; 15.0% in 1999, 15.0% in 2000 and 0.0% in 2001, TC1675-1RU; 9.5% in 1999, 9.5% in 2000 and 14.3% in 2001). While this reaction to bacterial ring rot should not eliminate them from release to growers, there should be a strong note of caution at the time of release. One clone, NDC6084C-2W, demonstrated high levels of tuber decay (30%) which again might be cause for concern to potato growers.

Several advanced selections with resistance to *Fusarium* spp. and *Erwinia carotovora* were evaluated along with other selections moving through the normal breeding channels. There does appear to be a few selections which demonstrate good resistance to both pathogens among the clones. These will be tested for a final year to determine the actual level of resistance present and to finish evaluating tuber type and qualities.

Finally, the last phase of a study to determine if red color intensity and retention can be selected in the field was completed. Six cultivars and/or selections were evaluated for skin color. Tubers were selected in 1999 from Generation 2 plants grown in the field at the SLVRC. Tubers were divided into bright and control (light) skin color. They were initiated into tissue culture, grown in the greenhouse to produce minitubers and these minitubers were planted into the field in 2001. Throughout the two year process both foliage and tuber color were evaluated. The tubers harvested from these plants in 2001 were evaluated after two months in storage. Three of the cultivars showed distinct color improvements in the skin when comparing the controls with the bright tubers. The other three had varying results with the controls often having brighter skin color than the tubers selected originally as bright. It appears that selections can be made in the field favoring more intense red color in the skin which will be retained in storage. This technique will be used as one of the criteria for selecting the appropriate tubers for initiation into the certified seed tissue culture clone bank.

2001 Potato Leafroll Clonal Evaluation

Location: NW Corner, Selter's Farm, 9 North, ½ East of SLVRC

Treatments: PLRV Infected and Healthy

Plot Design: RCB - 5 seedpieces or reps/cv x two treatments

Plant Date: 5/2/01

Plot Size, etc.: See plot map; 12" plant spacing x 34" row spacing

Cultivars:

1. CO94019-1R	9. CO94165-3P/P	17. Russet Burbank
2. CO94024-16RU	10. CO94183-1R/R	18. Sangre
3. CO94027-6W	11. CO94222-6RU/Y	19. Centennial Russet
4. CO94032-3W	12. NDC6084C-2W	20. WNC 230-14
5. CO94035-15RU	13. NDC6184-3R	21. Ute Russet
6. CO94055-8RU	14. VCO967-2R/Y	22. Nugget
7. CO94065-2RU	15. VCO967-5R/Y	23. Norkotah
8. CO94084-12RU	16. VC1002-3W/Y	

Irrigation: Ground sprinkler: rate based on ET. Total water for season: 35.60".

Fertilizer: Planting fertilizer chemigated 80:60:40 on 5/18/01 & 6/6/01; Chemigated 12-0-0-24 on 7/3/01; for a seasonal total of 131:60:40:72, with 12# N from irrigation water.

Herbicide: Chemigated Eptam, 4 pts/acre; and Matrix 1.5 oz/acre, applied on 5/31/01.

Fungicide: Polyram 8DF, 2.0#/acre (7/4/01), Dithane DF 2.0#/acre (7/22), Bravo Weatherstick 720, 1.0 pt./acre (8/3).

Insecticide: Aerial application of Monitor on 8/11/01.

Harvest: 9/11/01.

Table 1. Clonal Evaluation 2001 Leafroll Symptom Expression in Advanced Clones and Standard Cultivars

Cultivar/Clone	PLRV Reaction (0-3+)	Symptoms
CO94019-1R	0	N/A
CO94024-16RU	42% 3+	LL,CC,WP
CO94027-6W	25% 3+	LL,CC,WP
CO94032-3W	30% 3+	LL,CC,WP
CO94035-15RU	28% 3+	LL,CC
CO94055-8RU	33% 3+	LL,CC,WP
CO94065-2R	89% 3+	LL,CC,WP,P
CO94084-12RU	55% 3+	LL,CC,WP
CO94165-3P/P	20%+ 2+	LL,CC,WP
CO94183-1R/R	7%+ 3+	LL,CC,WP,P
CO94222-6RU/Y	25%+ 2+	LL,CC,WP
NDC6084C-2W	38%+ 3+	LL,CC,WP
NDC6184-3R	4%+ 2+	LL,CC,WP
VCO967-2R/Y	0	N/A
VCO967-5R/Y	25%+ 2+	LL,CC,WP
VC1002-3W/Y	4%+ 3+	LL,CC,WP
Russet Burbank	3+	LL,CC,WP
Sangre	2+	LL,CC,WP,P
Centennial Russet	2+	LL,CC
WNC230-14	0	N/A
Ute Russet	2+	LL,CC
Russet Nugget	2+	LL,CC,WP,P
Russet Norkotah	3+	LL,CC,WP

Key - Rating for the symptom expression is 0 = No symptoms to 3+ = Strong typical symptoms. % based on the number of plants total versus the number positive for LR. LL = lower leaf rolling, CC = good color change evident (yellowing or bronzing), WP = whole plant involvement and P = purpling evident on leaf margins.

2001 Potato Leafroll Natural In-Field Spread

Location: NW Corner, Selter's Farm, 9 North, ½ East of SLVRC

Treatments: Healthy with LR+ between treatments

Plot Design: RCB - 12eedpieces/cultivar x 3 reps with LR+ between treatments

Plant Date: 5/2/01

Plot Size, etc.: See plot map; 12" plant spacing x 34" row spacing

Cultivars:

1. CO94019-1R	15. VCO967-5R/Y
2. CO94024-16RU	16. VC1002-3W/Y
3. CO94027-6W	17. Russet Burbank
4. CO94032-3W	18. Sangre
5. CO94035-15RU	19. Centennial Russet
6. CO94055-8RU	20. WNC 230-14
7. CO94065-2RU	21. Ute Russet
8. CO94084-12RU	22. Nugget
9. CO94165-3P/P	23. Norkotah
10. CO94183-1R/R	24. Green Mountain
11. CO94222-6RU/Y	25. Houma
12. NDC6084C-2W	26. Katahdin
13. NDC6184-3R	27. Keswick
14. VCO967-2R/Y	28. Penobscot

Irrigation: Ground sprinkler: rate based on ET. Total water for season; 35.57".

Fertilizer: Planting fertilizer chemigated 80:60:40 on 5/18/01 & 5/29/01;
Chemigated 12-0-0-24 on 7/3/01; for a seasonal total of 131:60:40:72,
With 12N from irrigation water.

Herbicide: Chemigated Eptam 4 pts/acre, and Matrix 1.5 oz/a applied on 5/31/01.

Fungicide: Polyram 8DF, 2#/acre (7/4/01), Dithane DF 2#/acre (7/22), Bravo
Weatherstick 720, .98 pt./acre (8/3).

Insecticide: Aerial application of Monitor on 8/11/01.

Harvest: 9/11/01.

Table 2. 2001 Natural In-Field Spread of Leafroll in Advanced Clones and Standard Cultivars

Cultivar/Clone	# pos/ # emerged	% Spread		Risk
		2001	12 yr avg.	
CO94019-1R	0/50	0.0		Low
CO94024-16RU	1/64	0.0		Low
CO94027-6W	3/49	6.1		Medium
CO94032-3W	1/71	1.4		Low
CO94035-15RU	6/68	8.8		Medium
CO94055-8RU	1/11	9.1		Medium
CO94065-2R	3/56	5.3		Medium
CO94084-12RU	1/41	2.4		Low
CO94165-3P/P	1/55	1.8		Low
CO94183-1R/R	3/44	6.8		Medium
CO94222-6RU/Y	2/64	3.1		Low
NDC6084C-2W	15/56	26.8		High
NDC6184-3R	2/50	4.0		Low
VCO967-2R/Y	0/49	0.0		Low
VCO967-5R/Y	0/50	0.0		Low
VC1002-3W/Y	1/64	1.6		Low
Russet Burbank	4/68	5.9	6.8	Medium
Sangre	1/15	6.6	5.7	Medium
Centennial Russet	1/69	1.5	2.9	Low
WNC230-14	0/61	0.0	0	Very low
Ute Russet	0/82	0.0	11.7	High
Russet Nugget	4/72	5.5	13.8	High
Russet Norkotah	2/60	3.3		Low
Green Mountain	9/57	15.8	13.8	High
Houma	3/61	4.9	3.3	Low
Katahdin	1/64	1.6	3.3	Low
Keswick	2/56	3.6	5.1	Medium
Penobscot	3/53	5.6	0.9	Very low

Data is from two tubers/plant, 12 plants/rep, and three replications/cultivar for a total of 72 tubers planted per clone in each year. Advanced clones have been tested for one year only. Risk assessment - Low = 0 - 4.9%, Medium = 5.0 - 9.9% and High = 10% and higher.

2001 Bacterial Ring Rot Evaluation

- Location:** NW Corner, Selter's Farm, 9 North, ½ East of SLVRC
- Treatments:** 1) BRR inoculated: 6-7 plates of Cms scraped into 2 litres of cold Ringer's solution. Tubers cut lengthwise and immersed in solution for 5 minutes. BRR suspension changed every five treatments and kept no longer than 30 minutes total.
2) Healthy control: Tubers cut lengthwise and planted.
- Plot Design:** RCB - 7 seedpieces/cultivar x 3 reps with healthy planted south of infected.
- Plant Date:** Inoculation 5/2/01; Planting 5/3/01
- Cultivars:**
- | | |
|------------------|-----------------------|
| 1. AC93026-9RU | 19. CO94222-6RU/Y |
| 2. AC93047-1RU | 20. NDC6184-3R |
| 3. CO93001-11RU | 21. NDC6184-3R |
| 4. CO93016-3RU | 22. VCO967-2R/Y |
| 5. CO93024-2RU | 23. VCO967-5R/Y |
| 6. CO93037-6R | 24. VC1002-3W/Y |
| 7. NDC5281-2R | 25. Huckleberry |
| 8. TC1675-1RU | 26. FL2027 |
| 9. CO94019-1R | 27. FL1900 |
| 10. CO94024-16RU | 28. FL 2025 |
| 11. CO94027-6W | 29. FL 2006 |
| 12. CO94032-3W | 30. FL 2020 |
| 13. CO94035-15R | 31. Russet Burbank |
| 14. CO94055-8RU | 32. Sangre |
| 15. CO94065-2R | 33. Centennial Russet |
| 16. CO94084-12RU | 34. WNC230-14 |
| 17. CO94165-3P/P | 35. Ute Russet |
| 18. CO94183-1R/R | 36. Norkotah |
- Irrigation:** Ground sprinkler: rate based on ET. Total water for season, 35.57".
- Fertilizer:** Planting fertilizer chemigated 80-60-40 on 5/18/01 & 6/6/01; Chemigated 12-0-0-24 on 7/13/01; for a seasonal total of 131:60:40:72, with 12N from irrigation water.
- Herbicide:** Chemigated Eptam, 4 pts/acre, and Matrix, 1.5 oz/acre on 5/31/01.
- Insecticide:** Aerial application of Monitor on 8/11/01.
- Harvest:** 9/19/01

Table 3. 2001 Clonal Evaluation for Bacterial Ring Rot Foliar Symptom Expression.

^	Clone	Date of First Symptoms	# of Reps Positive	# of Plants Positive	% Plants Positive	Date 50% or More +	% Plants + 100 DAP	Summary of Symptoms
2	AC93026-9RU	7/11	1	1	4.8	-----	33.3	ED,R,IVC,MN,W
2	AC93047-1RU	7/25	1	3	14.3	-----	14.3	IVC,W
2	CO93001-11R	7/19	2	2	9.5	-----	33.3	ED,R,IVC,IVN,MN,W
2	CO93016-3RU	7/11	2	2	9.5	-----	47.6	ED,R,IVC,IVN,MN,W
2	CO93024-2RU	7/19	2	2	9.5	-----	38.1	ED,R,IVC,IVN,MN,W
2	CO93037-6R	-----	-----	-----	0.0	-----	0.0	-----
3	NDC5281-2R	-----	-----	-----	0.0	-----	0.0	-----
3	TC1675-1RU	7/11	1	2	9.5	-----	14.3	ED,R,IVC,IVN,MN,W
1	CO94019-1RU	7/11	1	1	5.3	-----	5.3	ED,R
1	CO94024-16RU	7/11	1	1	4.8	-----	9.5	ED,R
1	CO94027-6W	7/11	2	2	11.8	-----	35.3	ED,R,IVC,IVN,MN
1	CO94032-3W	7/11	3	6	28.6	-----	38.1	ED,R,IVC,IVN,MN
1	CO94035-15RU	8/6	1	4	19.0	-----	28.6	IVC,IVN,MN
1	CO94055-8RU	7/11	2	2	10.0	-----	20.0	ED,R,IVC,IVN,MN,W
1	CO94065-2R	8/6	1	1	4.8	-----	4.8	IVC,IVN,MN
1	CO94084-12RU	8/6	3	4	19.0	-----	19.0	IVC,IVN,MN,W
1	CO94165-3P/P	7/11	1	1	4.8	-----	33.3	ED,R,IVC,IVN,MN,W
1	CO94183-1R/R	7/11	2	2	9.5	-----	19.0	ED,R,IVC,IVN,MN
1	CO94222-6RU/Y	7/11	3	6	28.6	8/6	52.4	ED,R,IVC,IVN,MN,W
1	NDC6084C-2W	7/19	1	1	4.8	-----	9.5	ED,R,IVC,IVN

^	Clone	Date of First Symptoms	# of Reps Positive	# of Plants Positive	% Plants Positive	Date 50% or More +	% Plants + 100 DAP	Summary of Symptoms
1	NDC6184-3R	7/19	2	3	21.4	-----	21.4	ED,R
1	VCO967-2R/Y	7/11	1	1	5.6	-----	33.3	ED,R,IVC,IVN,MN,W
1	VCO967-5R/Y	7/19	1	2	9.5	-----	9.5	ED,R
1	VC1002-3W/Y	8/6	1	1	6.3	-----	6.3	IVC,IVN,MN,W
2	Huckleberry	8/6	1	2	10.5	-----	21.1	IVC,IVN,MN,W
	Russet Burbank	7/11	3	6	28.6	8/6	57.1	ED,R,IVC,IVN,MN
	Sangre	8/6	3	7	33.3	8/15	52.4	IVC,IVN,MN
	Centennial Russet	8/6	1	1	4.8	-----	8.3	IVC,IVN,MN
	WNC230-14	7/11	3	4	19.0	-----	19.0	ED,R
	Ute Russet	7/11	1	1	4.8	-----	28.6	ED,R,IVC,IVN,MN,W
	Russet Norkotah	7/11	2	3	14.3	-----	42.9	ED,R,IVC,IVN,MN,W

^ Number of years tested. Planting date - 5/3/01; Harvest date - 9/19/01. Key to symptoms: ED - Early dwarf, R- Rosette, IVC - Interveneal chlorosis, IVN - Interveneal necrosis, MN - Marginal necrosis and W - Wilt. No stem squeezes were completed due to plant vigor.

**Table 4. 2001 Clonal Evaluation for Bacterial Ring Rot
Tuber Symptom Expression**

Clone	# Reps +	# Tubers +	% Tubers+
AC93026-9RU	1	2	10
AC93047-1RU			
CO93001-11RU	1	1	5
CO93016-3RU	1	1	5
CO93024-2RU	1	1	5
CO93037-6R			
NDC5281-2R			
TC1675-1RU			
CO94019-1RU	1	1	5
CO94024-16RU			
CO94027-6W			
CO94032-3W	1	2	10
CO94035-15RU	1	1	5
CO94055-8RU			
CO94065-2R	1	1	5
CO94084-12RU	2	2	10
CO94165-3P/P	1	2	10
CO94183-1R/R	1	3	15
CO94222-6RU/Y	1	1	5
NDC6084C-2W	2	6	30
NDC6184-3R	1	1	5
VCO967-2R/Y	1	1	5
VCO967-5R/Y			
VC1002-3W/Y	1	1	5
Huckleberry	1	1	5
Russet Burbank			
Sangre	1	3	15
Centennial Russet	2	4	20
WNC230-14			
Ute Russet			
Norkotah	2	3	15

Clonal Evaluation for Storage Rots

Treatments: *Erwinia* - 50ul of 1×10^4 cfu/ml
Fusarium - 50ul of 500-1000 spores/tuber
Alternaria - 10 spores/gm soil

Inoculation/Reading: *Erwinia* (10/12/01; 11/27/01); *Fusarium* (3/21/01; 5/1//01 & 10/12/01; 11/27/01) *Alternaria* (11/19/01; 2/4/02)

Cultivars:

1. CO93001-11RU	16. CO96320-1RU	31. CO96049-4R
2. CO96049-6RU	17. NDC5281-2R	32. CO96332-1W
3. Sangre 10	18. TC1675-1RU	33. AC91014-2RU
4. CO96197-3RU	19. CO96050-2RU	34. CO96048-1RU
5. CO96284-3W	20. NDC5372-1RU	35. Russet Nugget
6. Russet Norkotah 3	21. CO96324-3RU	36. CO86051-3RU
7. CO93016-3RU	22. CO92077-2RU	37. CO86030-1RU
8. CO96008-2RU	23. CO92027-2RU	38. CO86153-2RU
9. CO96339-7W	24. AC92009-4RU	39. CO96211-1W
10. CO96050-3RU	25. CO93037-6RU	
11. CO96326-1RU	26. CO96048-4RU	
12. CO96021-1RU	27. CO96211-2W	
13. AC93047-1RU	28. CO96339-4W	
14. CO96320-2RU	29. CO96332-3W	
15. AC93026-9RU	30. CO96284-1W	

Evaluation: Ranked by Score. Scores based upon 3 reps x 15 tubers/rep.
 Tuber evaluations follow: Control will always equal 1 or 0.

<i>Fusarium</i>	<i>Erwinia</i>	<i>Alternaria</i>
1 = No symptoms	1 = No symptoms	0 = No symptoms
2 = Localized damage	2 = Localized damage	1 = 1/8" dia./1 peel
3 = <50% tuber damage	3 = < 50% tuber damage	2 = 1/4" dia./2 peels
4 = >50% tuber damage	4 = >50% tuber damage	3 = 1/2" dia./3 peels
5 = 100% tuber damage	5 = 100% tuber damage	4 = > 10% tuber damage
		5 = 100% tuber damage

Grade loss occurs at 3 for *Fusarium* and *Erwinia* and at 4 for *Alternaria*

Table 5: 2001 Clonal Evaluation for Storage Rots

Fusarium			Erwinia		Alternaria	
Inoc- Reading-	3/21/01 5/1/01	10/12/01 11/27/01	Inoc- Reading-	10/12/01 11/27/01	Inoc- Reading-	11/19/01 2/4/02
Clone	Avg Score	Avg Score	Clone	Avg Score	Clone	Avg Score
AC91014-2RU		3.87	AC91014-2RU	4.07	AC91014-2RU	0.00
AC92009-4RU		3.33	AC92009-4RU	1.80	AC92009-4RU	0.00
AC93026-9RU		3.00	AC93026-9RU	2.13	AC93026-9RU	0.06
AC93047-1RU		2.93	AC93047-1RU	2.00	AC93047-1RU	0.06
CO92027-2RU		3.30	CO92027-2RU	2.40	CO92027-2RU	0.46
CO92077-2RU		3.20	CO92077-2RU	3.13	CO92077-2RU	0.27
CO93001-11RU		1.87	CO93001-11RU	2.87	CO93001-11RU	0.00
CO93016-3RU		2.86	CO93016-3RU	2.20	CO93016-3RU	0.06
CO93037-6RU		3.33	CO93037-6RU	3.13	CO93037-6RU	0.13
CO96008-2RU	2.40	2.86	CO96008-2RU	2.60	CO96008-2RU	0.00
CO96021-1RU	4.00	2.92	CO96021-1RU	2.40	CO96021-1RU	0.00
CO96048-1RU	4.00	3.93	CO96048-1RU	1.80	CO96048-1RU	0.00
CO96048-4RU	4.40	3.33	CO96048-4RU	2.33	CO96048-4RU	0.00
CO96049-4RU	4.50	3.53	CO96049-4RU	2.20	CO96049-4RU	0.00
CO96049-6RU	2.40	2.36	CO96049-6RU	2.67	CO96049-6RU	0.06
CO96050-2RU	4.00	3.06	CO96050-2RU	2.27	CO96050-2RU	0.06
CO96050-3RU	4.10	2.87	CO96050-3RU	2.07	CO96050-3RU	0.00
CO96197-3RU	3.70	2.80	CO96197-3RU	4.33	CO96197-3RU	0.06
CO96211-1W	4.30	3.29	CO96211-1W	2.21	CO96211-1W	0.07
CO96211-2W	3.80	3.33	CO96211-2W	2.20	CO96211-2W	0.06
CO96284-1W	4.90	3.47	CO96284-1W	1.93	CO96284-1W	0.00
CO96284-3W	3.50	2.80	CO96284-3W	2.40	CO96284-3W	0.00
CO96320-1RU	4.00	3.00	CO96320-1RU	2.71	CO96320-1RU	0.00
CO96320-2RU	3.90	2.93	CO96320-2RU	2.80	CO96320-2RU	0.00
CO96324-3RU	3.80	3.07	CO96324-3RU	3.27	CO96324-3RU	0.06
CO96326-1RU	3.60	2.87	CO96326-1RU	3.80	CO96326-1RU	0.00
CO96332-1W	4.30	3.73	CO96332-1W	3.70	CO96332-1W	0.00
CO96332-3W	4.20	3.40	CO96332-3W	2.07	CO96332-3W	0.00
CO96339-4W	4.00	3.33	CO96339-4W	2.00	CO96339-4W	0.00
CO96339-7W	4.80	2.86	CO96339-7W	3.93	CO96339-7W	0.06
NDC5281-2R		3.00	NDC5281-2R	1.77	NDC5281-2R	0.46
NDC5372-1RU		3.06	NDC5372-1RU	2.21	NDC5372-1RU	0.06
Russet Norkotah 3		2.80	Russet Norkotah 3	2.27	Russet Norkotah 3	0.13
Russet Nugget		4.26	Russet Nugget	2.47	Russet Nugget	0.20
Sangre 10		2.47	Sangre 10	2.60	Sangre 10	0.06
TC1675-1RU		3.00	TC1675-1RU	2.60	TC1675-1RU	0.33
CO86030-1RU		3.20				
CO86051-3RU		3.00				
CO86153-2RU		3.80				

2001 Potato - Red Color Retention Study

- Location:** NW Corner, Selter's Farm, 9 North, ½ East of SLVRC
- Plot Design:** CRD - 5 seed pieces/cultivar x 3 reps.
- Plant Date:** 5/15/01
- Plot Size, etc.:** See plot map; 12" plant spacing x 34" row spacing
- Cultivars:**
1. Dark Red Norland
 2. Red LaSoda
 3. Sangre 10
 4. Sangre 11
 5. Sangre 14
 6. Sangre standard
- Irrigation:** Ground sprinkler: rate based on ET. Total water for season: 35.57".
- Fertilizer:** Planting fertilizer chemigated 80:60:40 on 5/18/01 & 6/6/01; Chemigated 12-0-0-24 on 7/3/01; for a seasonal total of 131:60:40:72, with 12N from irrigation water.
- Herbicide:** Chemigated Eptam, 4 pts/acre; and Matrix 1.5 oz/acre, applied on 5/31/01.
- Fungicide:** Polyram 8DF, 2#/acre (7/4/01), Dithane DF 2#/acre (7/22), Bravo Weatherstick 720, .98 pt./acre (8/3).
- Insecticide:** Aerial application of Monitor on 8/11/01.
- Harvest:** 9/11/01.
- Project description:** During harvest, 1999, the ten brightest tubers and the ten with average brightness (control) were selected from different red cultivars (15-50 hills each) that were grown in the Colorado certified seed program at the Generation 2 level. Tubers were scored for their skin color intensity either "bright" or "control". Several selections were placed into tissue culture in the fall of 1999 and increased. Plants were taken to the greenhouse in the fall of 2000 and minitubers were produced. Plates were rated for leaf color intensity (which should relate to tuber color). Minitubers produced were rated for color intensity and separated. In 2001, the treatments (representing given tubers originally identified) were planted in the Selter's corner, grown and harvested as hills. Tubers were rated after two months in storage (Table 6). Selections with the highest color intensity and retention will be moved into clone bank for future growth.

Table 6. 2001 Red Tuber Color Intensity and Retention

Cultivar	Treatment	Color Intensity Rating
Dark Red Norland	1	7
	2	6
	3 (Control)	5
Red LaSoda	4	8
	5	5
	6, 7(Control)	5
Sangre 10	8	7
	9	5
	10 (Control)	5
	11 (Control)	7
Sangre 11	12	5
	13	6
	14 (Control)	7
	15 (Control)	5
Sangre 14	16, 17, 18	5
	19 (Control)	5
	20 (Control)	8
	30	7
Sangre standard	21	5
	22	7
	23, 24 (Control)	5
	27, 28	6

20 to 25 tubers per treatment were evaluated from 5 plants/3 reps/treatment. Tubers were evaluated in direct sunlight with three observers on 11/27/01 after two months of storage. Ratings were taken by looking at the lightest red color from each cultivar's controls and giving it a 5. Then, other treatments were evaluated from this base level. Ratings move from a base level of 5 up to a 10 for the most intense red color.