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MISSION STATEMENT

The mission of the Colorado Potato Field Management and Whole Plant Physiology program is to develop cultural management guidelines for the successful, sustainable and economic production of newly released and existing potato cultivars, as well as advanced potato selections that have the potential of being released, through field and laboratory research.

INTRODUCTION

Each potato cultivar has its own unique set of cultural management requirements to maximize yield of premium size and quality tubers. Therefore, cultural management practices that maximize tuber production and quality of each potato cultivar must be developed. The best guidelines for nutrient management, irrigation management, plant population management, vine kill management, and other cultural management practices are obtained from field experiments conducted in replicated trials. New cultivars are much more successful when release is accompanied by cultivar specific management guidelines. Information reported in this manual reveals management practices that are agronomically sound, economically advantageous, and environmentally responsible, while optimizing potato tuber yield and quality. When management guidelines are tailored for individual cultivars it leads to the successful, sustainable, and economic production of the cultivar, which results in the optimization of its genetic potential, while minimizing economic inputs and environmental degradation.

In 2018, potato cultivars were evaluated under Colorado production conditions for their response to nitrogen fertilizer application management, potassium fertilizer application management, and plant population (in-row seed piece spacing) management. Performance of several advanced potato selections under different grower management conditions were also evaluated.

MATERIALS AND METHODS

Nitrogen application rate Studies.

Field studies were laid out in a randomized complete block design. Treatments included nitrogen (N) application rates at 60, 120, 180 and 240 lb. N/ac. A control treatment was included where no nitrogen fertilizer was applied. Each treatment was replicated four times.

Soil samples were taken from each experimental site in the spring of 2018. The soil samples were analyzed for residual soil nitrate nitrogen as well as other soil nutrients. Water samples were taken from irrigation wells and analyzed for nitrate nitrogen concentration. The residual soil and irrigation water nitrate nitrogen concentration added up to 47lb N/ac and 50lb N/ac for AC05039-2RU and CO05068-1RU respectively. Knowledge of the residual soil and irrigation water nitrate nitrogen content is important to help estimate how much nitrogen fertilizer will be needed to apply to the potato crop for optimum tuber yield and quality. Residual soil N + irrigation water N + applied N fertilizer = available nitrogen (N) for the plant.

Sixty lb. N/ac was applied pre-plant to all plots except the control treatment. The remaining required N for each treatment was applied in-season in split applications. Urea ammonium nitrate (32-0-0) was used as source of N fertilizer application. In-season N application started after tuber formation. In-season N fertilizer applications were done by applying 10-20 lb. N/acre at every application time until all required N rate for a particular treatment was met.

Potato seed piece were cut and suberized for 7 days before planting. AC05039-2RU and CO05068-1RU were planted on May 8, 2018. AC05039-2RU, CO05068-1RU were mechanically vine killed on September 8. Tubers were harvested on September 21 and 24, 2018 respectively.

Nitrogen Application Timing Studies

Potato cultivar used in this field study was CO05068-1RU. The experimental design was randomized complete block with five treatments and four replications per treatment. The treatments included 1. In-Season application (Control), where no nitrogen was applied Pre-Plant, but all required N was applied during the growing season 2. Applying all required N at planting (All pre-plant), 3. Applying 66% of the required N at planting and the rest applied during the growing season, 4. Applying 50% of the required N at planting and the remainder applied during the growing season, 5. Applying 33% of the required N at planting and the rest applied during the growing season. The total amount of N applied for each treatment was 150 lb. N/acre.

In-season N fertilizer applications were done by applying 10-20 lb. N/acre at every application time until the required N for each treatment was met.

Potato seed pieces were machine planted at a spacing of 12 inches within rows and 34 inches between rows on May 3, 2018. Tubers were harvested on September 24, 2018.

Plant Population Management (In-Row Seed Spacing) Study

CO05037-3W/Y and CO05068-1RU were used in the seed spacing study. The study was laid out in the field as randomized complete block design. In-row seed spacing treatments included planting seed at 10, 12, 14, and 16 inches. Each treatment was replicated four times. Each plot consisted of three rows spaced 34 inches apart. All potato seed were planted by hand. Potato seed piece were cut and suberized for 7 days before planting on May 15, 2018. The plots were harvested on September 18 and 19 respectively.

Table 1. Effect of nitrogen application rate on tuber yield and tuber size distribution of AC05039-2RU, 2018

Nitrogen rate (lb. N/ac.)	Total	< 4oz	> 4oz	> 6oz	Yield (cwt/ac)					
					4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
0N(47) ¹	384	50	334(87) ²	249(65)	328	259(68)	69	75	243	6
60N(89)	432	65	367(85)	248(57)	358	295(68)	63	72	239	9
120N(149)	443	64	379(86)	285(64)	359	286(65)	73	93	265	20
180N(209)	458	52	406(87)	320(70)	375	252(55)	123	154	289	31
240N(269)	508	57	451(89)	353(70)	432	319(63)	113	132	334	19

¹ Figures in brackets and beside N rate treatments indicate total available N (applied + soil + irrigation water N).

² Figures in brackets and beside yield data indicate % of total yield.

Table 2. Effect of nitrogen application rate on tuber quality of AC05039-2RU, 2018

Nitrogen Rate (lb. N/ac)	% Growth Cracks	% Knobs	% misshapes	% External ² Defects	% Hollow Heart	Specific Gravity
0N(47) ¹	1.1	0	0	1.1	1.0	1.108
60N(89)	0.7	0	0	0.7	1.0	1.113
120N(149)	0	0	0.6	0.6	2.8	1.109
180N(209)	0	0	0.7	0.7	5.2	1.104
240N(269)	0.2	0	0	0.2	1.5	1.102

¹ Figures in brackets indicate total available N (applied + soil + irrigation water N).

² Includes growth cracks, knobs and misshapes.

Table 3. Effect of nitrogen application rate on tuber yield and tuber size distribution of CO05068-1RU, 2018

Nitrogen rate (lb. N/ac)	Total	< 4oz	> 4oz	> 6oz	Yield (cwt/ac)					
					4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
0N(50) ¹	371	39	332(90) ²	282(76)	318	173(47)	145	159	268	14
60N(92)	441	53	388(88)	288(65)	376	290(66)	86	98	276	12
120N(152)	474	55	419(88)	338(71)	402	289(61)	113	130	321	17
180N(212)	481	44	437(91)	373(78)	410	235(49)	175	202	346	27
240N(272)	505	40	465(92)	394(78)	410	261(52)	149	204	339	55

¹ Figures in brackets and beside N rate treatments indicate total available N (applied + soil + irrigation water N).

² Figures in brackets and beside yield data indicate % of total yield.

Table 4. Effect of nitrogen application rate on tuber quality of CO05068-1RU, 2018

Nitrogen Rate (lb. N/ac)	% Growth Cracks	% Knobs	% misshapes	% External ² Defects	% Hollow Heart	Specific Gravity
60N(92)	0	0	0	0	0.6	1.107
120N(152)	0	0	0	0	1.2	1.105
180N(212)	0	0	0	0	1.3	1.097
240N(272)	0	0	0	0	0.8	1.095

¹ Figures in brackets indicate total available N (applied + soil + irrigation water N).

² Includes growth cracks, knobs and misshapes.

Table 5. Effect of nitrogen application timing on tuber yield and tuber size distribution of CO05068-1RU, 2018

Pre-Plant N Rate (lb N/ac)	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
	Yield (cwt/ac)									
In-Season ¹	441	50	391(89) ²	319(72)	382	243(55)	139	148	310	9
ALL	457	40	417(91)	355(78)	383	237(52)	146	180	321	34
66%	486	47	439(90)	333(69)	421	316(65)	105	123	315	18
50%	516	52	464(90)	366(71)	445	301(58)	144	163	347	19
33%	471	53	418(89)	308(65)	399	305(65)	94	113	289	19

¹ Indicates % of required N rate applied pre-plant.

² Figures in brackets indicate % of total yield.

Note: Total fertilizer N applied for each treatment was 150lb N/Ac.

Table 6. Effect of nitrogen application timing on tuber quality of CO05068-1RU, 2018

Pre-Plant N Rate (lb N/ac)	% Growth Cracks	% Knobs	% misshapes	% External ² Defects	% Hollow Heart	Specific Gravity
In-Season ¹	0	0	0	0	0.09	1.095
ALL	0.03	0	0	0.03	0.37	1.099
66%	0	0	0	0	0.43	1.102
50%	0	0	0	0	0.26	1.103
33%	0	0	0	0	0	1.100

¹ Indicates % of required N rate applied pre-plant.

² Includes growth cracks, knobs and misshapes.

Note: Total fertilizer N applied for each treatment was 150lb N/Ac.

Table 7. Effect of in row seed spacing on tuber yield and tuber size distribution of CO05068-1RU, 2018

Seed spacing (Inches)	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
	Yield (cwt/ac)									
10	486	79	407(84) ¹	295(61)	395	340(70)	55	67	283	12
12	496	69	427(86)	329(66)	399	321(65)	78	106	301	28
14	507	76	431(85)	328(65)	411	319(63)	92	112	308	20
16	490	59	431(88)	334(68)	408	313(64)	95	118	311	23

¹ Figures in brackets indicate % of total yield.

Table 8. Effect of in row seed spacing on tuber quality of CO05068-1RU, 2018

Seed spacing (inches)	% Growth Cracks	% Knobs	% Misshapes	% External ¹ Defects	% Hollow Heart	Specific Gravity
10	0	0	0.4	0.4	0.5	1.102
12	0	0	0.4	0.4	1.6	1.102
14	0	0	0	0	3.0	1.102
16	0	0	0.7	0.7	1.4	1.102

¹ Includes growth cracks, knobs and misshapes.

Table 9. Effect of in row seed spacing on tuber yield and tuber size distribution of CO05037-3W/Y, 2018

Seed spacing (Inches)	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
		Yield (cwt/ac)								
10	503	385	118(24) ¹	24(5)	118	112(22)	6	6	24	0
12	465	357	108(23)	25(5)	108	106(23)	2	2	25	0
14	526	352	174(33)	52(10)	174	172(33)	2	2	52	0
16	492	315	177(36)	63(13)	177	173(35)	4	4	63	0

¹ Figures in brackets indicate % of total yield.

Table 10. Effect of in row seed spacing on tuber quality of CO05037-3W/Y, 2018

Seed spacing (inches)	% Growth Cracks	% Knobs	% Misshapes	% External ¹ Defects	% Hollow Heart	Specific Gravity
10	0.1	0	0	0.1	0	1.080
12	0	0	0	0	0	1.080
14	0.2	0	0	0.2	0	1.083
16	0.3	0	0	0.3	0	1.080

¹ Includes growth cracks, knobs and misshapes.

Table 11. Effect of potassium acetate (Nachurs K-fuel) and other supplemental nutrient application on tuber yield and tuber size distribution of Colorado Rose, 2018

nachurs (lb. /ac)	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
Yield (cwt/ac)										
T1 ^x	524	89	435(83) ¹	343(66)	373	266(51)	107	169	281	62
T2	556	85	471(85)	371(67)	419	267(48)	152	204	319	52
T3	565	103	462(82)	363(64)	433	287(51)	146	175	334	29
T4	514	49	465(91)	405(79)	395	236(46)	159	229	335	70
T5	545	101	444(82)	352(65)	408	283(52)	125	161	316	36
T6	503	55	448(89)	384(76)	377	247(49)	130	201	313	71
T7	570	106	464(81)	355(62)	399	287(50)	112	177	290	65
T8	498	50	448(90)	376(76)	395	260(52)	135	188	323	53
T9	533	90	443(83)	346(65)	416	276(52)	140	167	319	27
T10	540	64	476(88)	403(75)	400	241(45)	159	235	327	76
T11	513	77	436(85)	360(70)	401	257(50)	144	179	325	35
T12	564	69	495(88)	425(75)	450	286(51)	164	209	380	45
T13	545	95	450(83)	359(66)	407	282(52)	125	168	316	43
T14	517	75	442(86)	373(72)	382	254(49)	128	188	313	60
T15	539	89	450(84)	355(66)	397	250(46)	147	200	302	53
T16	559	50	509(91)	438(78)	423	248(44)	175	261	352	86
T17	484	71	413(85)	345(71)	353	212(44)	141	201	285	60
T18	579	45	534(92)	474(82)	416	245(42)	171	289	356	118

¹ Figures in brackets indicate % of total yield.

^x In-furrow (on seed piece) treatments

1. NACHURS 6-24-6 @ 6 gal/ac + NACHURS 9% Zn @ 1 qt/ac
2. NACHURS 6-24-6 @ 6 gal/ac + NACHURS K-fuel @ 1 gal + NACHURS 9% Zn @ 1 qt/ac
3. NACHURS 6-24-6 @ 3 gal/ac + Rhyzo-Link 3-10-13 @ 2 gal/ac + NACHURS K-fuel @ 1 gal/ac + NACHURS 9% Zn @ 1 qt/ac
4. NACHURS K-fuel @ 2 gal/ac (applied per 2014-16 protocol)
5. Potassium chloride (KCl) @ 64.5 lbs (applied per 2014-16 protocol)
6. No in-furrow treatment

Foliar treatments

7. In-furrow trt#1 -fb- NACHURS K-fuel @ 2 gal/ac + NACHURS Finish Line @ 1 qt/ac at 35 DAE
8. In-furrow trt#2 -fb- NACHURS K-fuel @ 2 gal/ac + NACHURS Finish Line @ 1 qt/ac at 35 DAE
9. In-furrow trt#3 -fb- NACHURS K-fuel @ 2 gal/ac + NACHURS Finish Line @ 1 qt/ac at 35 DAE
10. In-furrow trt#4 -fb- NACHURS K-fuel @ 2 gal/ac + NACHURS Finish Line @ 1 qt/ac at 35 DAE
11. In-furrow trt#5 -fb- NACHURS K-fuel @ 2 gal/ac + NACHURS Finish Line @ 1 qt/ac at 35 DAE
12. In-furrow trt#6 -fb- NACHURS K-fuel @ 2 gal/ac + NACHURS Finish Line @ 1 qt/ac at 35 DAE
13. In-furrow trt#1 -fb- NACHURS K-fuel @ 1 gal/ac at 28 DPK
14. In-furrow trt#2 -fb- NACHURS K-fuel @ 1 gal/ac at 28 DPK
15. In-furrow trt#3 -fb- NACHURS K-fuel @ 1 gal/ac at 28 DPK
16. In-furrow trt#4 -fb- NACHURS K-fuel @ 1 gal/ac at 28 DPK
17. In-furrow trt#5 -fb- NACHURS K-fuel @ 1 gal/ac at 28 DPK
18. In-furrow trt#6 -fb- NACHURS K-fuel @ 1 gal/ac at 28 DPK

Table 12. Effect of potassium acetate (Nachurs K-fuel) and other supplemental nutrient application on tuber quality of Colorado Rose, 2018.

nachurs (lb. /ac)	% External Defects ¹	% Internal Defects	Specific Gravity
T1 ^x	0.2	1.0	1.089
T2	0	0	1.088
T3	1.3	0	1.089
T4	0.5	0	1.093
T5	1.0	0	1.087
T6	0.4	1.1	1.091
T7	0.9	0	1.090
T8	1.2	0	1.091
T9	0	0	1.094
T10	0.9	0	1.093
T11	0.3	0	1.088
T12	0.3	0	1.093
T13	1.6	0	1.093
T14	0	0	1.093
T15	0.2	0	1.092
T16	1.2	0.8	1.093
T17	0	0	1.091
T18	0	0	1.096

¹ Includes growth cracks, knobs and misshapes.

^x In-furrow (on seed piece) treatments

1. NACHURS 6-24-6 @ 6 gal/ac + NACHURS 9% Zn @ 1 qt/ac
2. NACHURS 6-24-6 @ 6 gal/ac + NACHURS K-fuel @ 1 gal + NACHURS 9% Zn @ 1 qt/ac
3. NACHURS 6-24-6 @ 3 gal/ac + Rhyzo-Link 3-10-13 @ 2 gal/ac + NACHURS K-fuel @ 1 gal/ac + NACHURS 9% Zn @ 1 qt/ac
4. NACHURS K-fuel @ 2 gal/ac (applied per 2014-16 protocol)
5. Potassium chloride (KCl) @ 64.5 lbs (applied per 2014-16 protocol)
6. No in-furrow treatment

Foliar treatments

7. In-furrow trt#1 -fb- NACHURS K-fuel @ 2 gal/ac + NACHURS Finish Line @ 1 qt/ac at 35 DAE
8. In-furrow trt#2 -fb- NACHURS K-fuel @ 2 gal/ac + NACHURS Finish Line @ 1 qt/ac at 35 DAE
9. In-furrow trt#3 -fb- NACHURS K-fuel @ 2 gal/ac + NACHURS Finish Line @ 1 qt/ac at 35 DAE
10. In-furrow trt#4 -fb- NACHURS K-fuel @ 2 gal/ac + NACHURS Finish Line @ 1 qt/ac at 35 DAE
11. In-furrow trt#5 -fb- NACHURS K-fuel @ 2 gal/ac + NACHURS Finish Line @ 1 qt/ac at 35 DAE
12. In-furrow trt#6 -fb- NACHURS K-fuel @ 2 gal/ac + NACHURS Finish Line @ 1 qt/ac at 35 DAE
13. In-furrow trt#1 -fb- NACHURS K-fuel @ 1 gal/ac at 28 DPK
14. In-furrow trt#2 -fb- NACHURS K-fuel @ 1 gal/ac at 28 DPK
15. In-furrow trt#3 -fb- NACHURS K-fuel @ 1 gal/ac at 28 DPK
16. In-furrow trt#4 -fb- NACHURS K-fuel @ 1 gal/ac at 28 DPK
17. In-furrow trt#5 -fb- NACHURS K-fuel @ 1 gal/ac at 28 DPK
18. In-furrow trt#6 -fb- NACHURS K-fuel @ 1 gal/ac at 28 DPK

Table 13. Tuber yield and tuber size distribution of Russet Norkotah (3) grown under different management practices, 2018.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
Yield (cwt/ac)										
1	392	47	345	269	291	189	102	156	215	54
2	657	46	611	519	542	253	289	358	450	69
3	456	89	367	291	367	278	89	89	291	0
Mean	502	61	441	360	400	240	160	201	319	41

Table 14. Tuber quality of Russet Norkotah (3) grown under different management practices, 2018.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External ¹ Defects	% Hollow Heart	Specific Gravity
1	0	0	1.3	1.3	0	1.069
2	0	0	0	0	0	1.081
3	0	0	0	0	0	1.082
Mean	0	0	0.4	0.4	0	1.077

¹Includes growth cracks, knobs and misshapes.

Table 15. Tuber yield and tuber size distribution of CO09036-2RU grown under different management practices, 2018.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
Yield (cwt/ac)										
1	369	151	218	115	218	202	16	16	115	0
2	591	208	383	236	368	344	24	39	221	15
3	397	162	235	120	235	228	7	7	120	0
Mean	452	174	279	157	274	258	16	21	152	5

Table 16. Tuber quality of CO09036-2RU grown under different management practices, 2018.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External ¹ Defects	% Hollow Heart	Specific Gravity
1	0	0	0	0	0	1.079
2	0	0	0	0	0	1.094
3	0	0	0	0	0	1.093
Mean	0	0	0	0	0	1.089

¹Includes growth cracks, knobs and misshapes.

Table 17. Tuber yield and tuber size distribution of CO09076-3RU grown under different management practices, 2018.

Field Number	Total	< 4oz	> 4oz	> 6oz	Yield (cwt/ac)					
					4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
1	506	83	423	355	413	230	183	193	345	10
2	604	92	512	367	500	381	119	131	355	12
3	539	111	428	282	417	363	54	65	271	11
Mean	550	95	454	335	443	325	119	130	324	11

Table 18. Tuber quality of CO09076-3RU grown under different management practices, 2018.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External ¹ Defects	% Hollow Heart	Specific Gravity
1	0	0	0	0	0	1.072
2	0	0	0	0	0	1.086
3	0	0	0	0	0	1.082
Mean	0	0	0	0	0	1.080

¹Includes growth cracks, knobs and misshapes.

Table 19. Tuber yield and tuber size distribution of CO09205-2RU grown under different management practices, 2018.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
Yield (cwt/ac)										
1	472	61	411	240	411	359	52	52	240	0
2	633	164	469	278	469	440	29	29	278	0
3	513	128	385	133	385	378	7	7	133	0
Mean	539	118	422	217	422	392	29	29	217	0

Table 20. Tuber quality of CO09205-2RU grown under different management practices, 2018.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External ¹ Defects	% Hollow Heart	Specific Gravity
1	0	0	1.3	1.3	0	1.069
2	0	0	0	0	0	1.069
3	0	0	0	0	0	1.073
Mean	0	0	0.4	0.4	0	1.070

¹Includes growth cracks, knobs and misshapes.

Table 21. Tuber yield and tuber size distribution of CO10087-4RU grown under different management practices, 2018.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
Yield (cwt/ac)										
1	476	63	413	286	413	370	43	43	286	0
2	562	77	485	340	485	411	74	74	340	0
3	481	48	433	309	421	365	56	68	296	12
Mean	506	63	444	312	440	382	58	62	308	4

Table 22. Tuber quality of CO10087-4RU grown under different management practices, 2018.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External ¹ Defects	% Hollow Heart	Specific Gravity
1	0	0	0	0	0	1.089
2	0	0	0	0	0	1.092
3	0	0	0	0	0	1.095
Mean	0	0	0	0	0	1.092

¹Includes growth cracks, knobs and misshapes.

Table 23. Tuber yield and tuber size distribution of CO10091-1RU grown under different management practices, 2018.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
Yield (cwt/ac)										
1	311	133	178	49	178	171	7	7	49	0
2	651	90	561	351	561	474	87	87	351	0
3	501	148	353	207	353	339	14	14	207	0
Mean	488	124	364	202	364	328	36	36	202	0

Table 24. Tuber quality of CO10091-1RU grown under different management practices, 2018.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External ¹ Defects	% Hollow Heart	Specific Gravity
1	0	0	0	0	0	1.075
2	0	0	0	0	0	1.086
3	0	0	0	0	0	1.087
Mean	0	0	0	0	0	1.083

¹Includes growth cracks, knobs and misshapes.

Table 25. Tuber yield and tuber size distribution of Purple Majesty grown under different management practices, 2018.

Field Number	Total	< 4oz	> 4oz	> 6oz	Yield (cwt/ac)					
					4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
1	621	290	331	120	331	318	13	13	120	0
2	688	374	314	102	314	307	7	7	102	0
3	643	442	201	51	201	201	0	0	51	0
Mean	651	369	282	91	282	275	7	7	91	0

Table 26. Tuber quality of Purple Majesty grown under different management practices, 2018.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External ¹ Defects	% Hollow Heart	Specific Gravity
1	0	0	0	0	0	1.083
2	0	0	0	0	0	1.081
3	0	0	0	0	0	1.088
Mean	0	0	0	0	0	1.084

¹Includes growth cracks, knobs and misshapes.

Table 27. Tuber yield and tuber size distribution of CO08037-2P/P grown under different management practices, 2018.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
Yield (cwt/ac)										
1	205	87	118	48	118	110	8	8	48	0
2	389	112	277	146	277	249	28	28	146	0
3	276	130	146	76	146	139	7	7	76	0
Mean	290	110	180	90	180	166	14	14	90	0

Table 28. Tuber quality of CO08037-2P/P grown under different management practices, 2018.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External ¹ Defects	% Hollow Heart	Specific Gravity
1	1.5	0	0	1.5	0	1.081
2	0	0	0	0	0	1.086
3	0	0	0	0	0	1.082
Mean	0.5	0	0	0.5	0	1.083

¹Includes growth cracks, knobs and misshapes.

Table 29. Tuber yield and tuber size distribution of Yukon Gold grown under different management practices, 2018.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
Yield (cwt/ac)										
1	447	18	429	409	320	125	195	304	300	109
2	544	36	508	447	370	208	162	300	309	138
3	558	59	499	395	466	321	145	178	362	33
Mean	516	38	479	417	385	218	167	261	324	93

Table 30. Tuber quality of Yukon Gold grown under different management practices, 2018.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External ¹ Defects	% Hollow Heart	Specific Gravity
1	0	0	0	0	0	1.086
2	0	0	0	0	0	1.086
3	0	0	0	0	0	1.085
Mean	0	0	0	0	0	1.086

¹Includes growth cracks, knobs and misshapes.

Table 31. Tuber yield and tuber size distribution of CO09079-5PW/Y grown under different management practices, 2018.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
					Yield (cwt/ac)					
1	394	241	153	51	153	153	0	0	51	0
2	660	440	220	84	220	213	7	7	84	0
3	602	365	237	54	237	237	0	0	54	0
Mean	552	349	203	63	203	201	2	2	63	0

Table 32. Tuber quality of CO09079-5PW/Y grown under different management practices, 2018.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External ¹ Defects	% Hollow Heart	Specific Gravity
1	0	0	0	0	0	1.069
2	0	0	0	0	0	1.066
3	0	0	0	0	0	1.069
Mean	0	0	0	0	0	1.068

¹Includes growth cracks, knobs and misshapes.

Table 33. Tuber yield and tuber size distribution of CO09128-3W/Y grown under different management practices, 2018.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
Yield (cwt/ac)										
1	381	318	63	4	63	63	0	0	4	0
2	445	362	83	12	83	83	0	0	12	0
3	398	362	36	13	36	36	0	0	13	0
Mean	408	347	61	10	61	61	0	0	10	0

Table 34. Tuber quality of CO09128-3W/Y grown under different management practices, 2018.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External ¹ Defects	% Hollow Heart	Specific Gravity
1	0	0	0	0	0	1.070
2	0	0	0	0	0	1.067
3	0	0	0	0	0	1.075
Mean	0	0	0	0	0	1.071

¹Includes growth cracks, knobs and misshapes.

Table 35. Tuber yield and tuber size distribution of CO09218-4W/Y grown under different management practices, 2018.

Field Number	Total	< 4oz	> 4oz	> 6oz	Yield (cwt/ac)					
					4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
1	359	165	194	93	194	188	6	6	93	0
2	572	227	345	176	345	331	14	14	176	0
3	451	282	169	36	169	169	0	0	36	0
Mean	461	225	236	102	236	229	7	7	102	0

Table 36. Tuber quality of CO09218-4W/Y grown under different management practices, 2018.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External ¹ Defects	% Hollow Heart	Specific Gravity
1	0	0	0	0	0	1.071
2	0	0	0	0	0	1.076
3	0	0	0	0	0	1.070
Mean	0	0	0	0	0	1.072

¹Includes growth cracks, knobs and misshapes.

Table 37. Tuber yield and tuber size distribution of AC10376-1W/Y grown under different management practices, 2018.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
Yield (cwt/ac)										
1	413	139	274	148	274	267	7	7	148	0
2	485	136	349	202	349	308	41	41	202	0
3	544	207	337	148	337	321	16	16	148	0
Mean	481	161	320	166	320	298	22	22	166	0

Table 38. Tuber quality of AC10376-1W/Y grown under different management practices, 2018.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External ¹ Defects	% Hollow Heart	Specific Gravity
1	0	0	0	0	0	1.073
2	0	0	0	0	0	1.083
3	0	0	0	0	0	1.078
Mean	0	0	0	0	0	1.078

¹Includes growth cracks, knobs and misshapes.

Table 39. Tuber yield and tuber size distribution of CO10064-1W/Y grown under different management practices, 2018.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
Yield (cwt/ac)										
1	503	166	337	166	337	308	29	29	166	0
2	657	261	396	227	396	354	42	42	227	0
3	430	312	118	22	118	118	0	0	22	0
Mean	530	246	284	138	284	260	24	24	138	0

Table 40. Tuber quality of CO10064-1W/Y grown under different management practices, 2018.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External ¹ Defects	% Hollow Heart	Specific Gravity
1	0	0	0	0	0	1.098
2	0	0	0	0	0	1.096
3	0	0	0	0	0	1.092
Mean	0	0	0	0	0	1.095

¹Includes growth cracks, knobs and misshapes.

Table 41. Tuber yield and tuber size distribution of CO10097-2W/Y grown under different management practices, 2018.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
Yield (cwt/ac)										
1	416	118	298	135	298	298	0	0	135	0
2	568	229	339	117	339	339	0	0	117	0
3	626	351	275	16	275	275	0	0	16	0
Mean	537	232	304	90	304	304	0	0	90	0

Table 42. Tuber quality of CO10097-2W/Y grown under different management practices, 2018.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External ¹ Defects	% Hollow Heart	Specific Gravity
1	0	0	0	0	0	1.072
2	0	0	0	0	0	1.079
3	0	0	0	0	0	1.136
Mean	0	0	0	0	0	1.096

¹Includes growth cracks, knobs and misshapes.

Table 43. Tuber yield and tuber size distribution of CO10098-4W/Y grown under different management practices, 2018.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
Yield (cwt/ac)										
1	395	266	129	21	129	129	0	0	21	0
2	550	251	299	166	299	288	11	11	166	0
3	526	426	100	0	100	100	0	0	0	0
Mean	490	314	176	62	176	173	4	4	62	0

Table 44. Tuber quality of CO10098-4W/Y grown under different management practices, 2018.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External ¹ Defects	% Hollow Heart	Specific Gravity
1	0	0	0	0	0	1.097
2	0	0	0	0	0	1.10
3	0	0	0	0	0	1.099
Mean	0	0	0	0	0	1.099

¹Includes growth cracks, knobs and misshapes.

Table 45. Tuber yield and tuber size distribution of CO09128-5W/Y grown under different management practices, 2018.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
Yield (cwt/ac)										
1	492	355	137	27	137	137	0	0	27	0
2	607	487	120	9	120	120	0	0	9	0
3	502	453	49	0	49	49	0	0	0	0
Mean	534	432	102	12	102	102	0	0	12	0

Table 46. Tuber quality of CO09128-5W/Y grown under different management practices, 2018.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External ¹ Defects	% Hollow Heart	Specific Gravity
1	0	0	0	0	0	1.076
2	0	0	0	0	0	1.088
3	0	0	0	0	0	1.082
Mean	0	0	0	0	0	1.082

¹Includes growth cracks, knobs and misshapes.

Table 47. Tuber yield and tuber size distribution of CO10098-5W/Y grown under different management practices, 2018.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
Yield (cwt/ac)										
1	329	172	157	60	157	157	0	0	60	0
2	379	275	104	13	104	104	0	0	13	0
3	290	212	78	10	78	78	0	0	10	0
Mean	333	220	113	28	113	113	0	0	28	0

Table 48. Tuber quality of CO10098-5W/Y grown under different management practices, 2018.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External ¹ Defects	% Hollow Heart	Specific Gravity
1	0	0	0	0	0	1.094
2	0	0	0	0	0	1.105
3	0	0	0	0	0	1.101
Mean	0	0	0	0	0	1.10

¹Includes growth cracks, knobs and misshapes.

Table 49. Tuber yield and tuber size distribution of Chipeta grown under different management practices, 2018.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
Yield (cwt/ac)										
1	454	24	430	398	382	223	159	207	350	48
2	863	51	812	731	726	466	260	346	645	86
3	493	55	438	329	438	371	67	67	329	0
Mean	603	43	560	486	515	353	162	207	441	45

Table 50. Tuber quality of Chipeta grown under different management practices, 2018.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External ¹ Defects	% Hollow Heart	Specific Gravity
1	0	2.5	0	2.5	0	1.092
2	0	0	0	0	0	1.103
3	0	0	0	0	0	1.096
Mean	0	0.8	0	0.8	0	1.097

¹Includes growth cracks, knobs and misshapes.

Table 51. Tuber yield and tuber size distribution of CO10073-7W grown under different management practices, 2018.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
Yield (cwt/ac)										
1	437	77	360	232	360	331	29	29	232	0
2	503	230	273	100	273	273	0	0	100	0
3	507	178	329	136	329	322	7	7	136	0
Mean	483	162	321	156	321	309	12	12	156	0

Table 52. Tuber quality of CO10073-7W grown under different management practices, 2018.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External ¹ Defects	% Hollow Heart	Specific Gravity
1	4	0	0	4	0	1.074
2	0	0	0	0	0	1.079
3	0	0	0	0	0	1.079
Mean	1.3	0	0	1.3	0	1.077

¹Includes growth cracks, knobs and misshapes.

Table 53. Tuber yield and tuber size distribution of CO10076-4W grown under different management practices, 2018.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
Yield (cwt/ac)										
1	442	29	413	332	403	294	109	119	322	10
2	660	154	506	301	506	469	37	37	301	0
3	590	155	435	233	435	428	7	7	233	0
Mean	564	112	451	289	448	397	51	54	285	3

Table 54. Tuber quality of CO10076-4W grown under different management practices, 2018.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External ¹ Defects	% Hollow Heart	Specific Gravity
1	0	0	0	0	0	1.074
2	0	0	0	0	0	1.084
3	0	0	0	0	0	1.079
Mean	0	0	0	0	0	1.079

¹Includes growth cracks, knobs and misshapes.