Colorado Potato Cultivar Management

Research Data Summary

2017

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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 2017, potato cultivars were evaluated under Colorado production conditions for their response to nitrogen fertilizer application management, potassium fertilizer application management, plant population (in-row seed piece spacing) management and deficit irrigation management. Performance of several advanced potato selections under different grower management conditions are also reported.

MATERIALS AND METHODS

Nitrogen application rate Studies.

Field studies were laid out as randomized complete block design. Treatments included nitrogen (N) application rates, 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 2017. 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 50lb N/ac and 54lb 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 24, 2017. AC05039-2RU was harvested on October 2, 2017. No vine kill was needed for AC05039-2RU since it senesced naturally. CO05068-1RU was mechanically vine killed on September 27th. Tubers were harvested on October 6, 2017.

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 19, 2017. Vines were killed on September 27, and tubers harvested on October 6.

Plant Population Management (In-Row Seed Spacing) Study

CO05068-1RU and CO07131-1W/Y were used in the seed spacing study. The studies were laid out in the field as randomized complete block design. For the cultivar CO05068-1RU, in-row seed spacing treatments included planting seed at 10, 12, 14, and 16 inches. For CO07131-1W/Y, in-row seed spacing treatments were 6, 8, 10, and 12 inches. Each treatment was replicated four times. Each plot consisted of three rows spaced 34 inches apart. All potato seed were planted by hand. CO05068-1RU seed was cut and CO07131-1W/Y seed was single drop. Seed for planting were suberized for seven days before planting on June 2, 2017. The plots were harvested on October 12 and 13, for CO05068-1RU and CO07131-1W/Y, respectively.

Deficit Irrigation and Nitrogen Management in Potato Production

The study was laid out as a factorial arrangement of treatments in a randomized complete block design. Treatments included three deficit irrigation scenarios, (1) application of irrigation water to provide 100% ET replacement for the crop growing season. (2) Providing 100% ET replacement until mid-tuber bulking and then applying 77%-90% ET replacement for the rest of the growing season. (3) Providing 100% ET replacement until mid-tuber bulking and then applying 55-65% ET replacement for the rest of the growing season. Within each irrigation treatment, there was a low N (140 N/A) and an optimum N (170 N/A) application rate.
Four Potato cultivars, Russet Norkotah (sel.3), Canela Russet, Mesa Russet and Yukon Gold, which are widely grown in the San Luis Valley were used in this study.
Potato seed pieces were machine planted 12 inches within rows spacing on June 3, 2017. Potato tubers were harvested on October 4, 2017.

SUMMARY OF GROWER NUTRIENT MANAGEMENT PRACTICES

(See pages 19-36 for the response of several potato selections to these practices)

Field # 1: Organic Potato Production Days to Vine Kill: 104

Date	Product	Application Rate
11/15/2016	Chicken Manure	0.95 tons/acre
5/12/2017	Dramatic E Fish	10 gallons/acre
5/12/2017	SPI Mix	5 gallons/acre
6/4/2017	Richlawn Organic 100 5-3-2 screened bulk	1,800 lbs./acre
6/12/2017	Bio-Blend	8.62 gallons/acre
6/30/2017	Bio-Blend	8.42 gallons/acre
7/5/2017	Allganic N Plus	46.93 lb/acre
7/8/2017	Allganic N Plus	46.93 lb/acre
7/14/2017	SPI Mix	1.08 gallons/acre
7/14/2017	Dramatic O	1.08 gallons/acre
7/14/2017	Allganic N Plus	46.93 lb/acre
7/18/2017	Allganic N Plus	46.93 lb/acre
7/27/2017	Dramatic O	2.17 gallons/acre
7/27/2017	SPI Mix	2.17 gallons/acre
8/05/2017	Kolorkrome	0.07 gallons/acre
8/5/2017	BIOMIN Calcium	0.23 gallons/acre

Field # 2: Conventional Potato Production Days to Vine Kill: 106

Date	Product	Application Rate
9/7/2016	Compost	2.03 tons/acre
4/1/2017	15-31-0	300 lb/acre
5/3/2017	1-4-31-SO4	0.30 tons/acre
5/17/2017	SG InFuze SW	0.50 gallons/acre
5/17/2017	7-25-5	8.0 gallons/acre
6/3/2017	Bio-Blend	8.33 gallons/acre
6/12/2017	28-0-0-5	18.18 gallons/acre

Field # 3: Conventional Potato Production Days to Vine Kill: 112

Date	Product	Application Rate
4/1/2017	15-31-0	300 lb/acre
4/26/2017	21-0-0-24S	0.07 tons/acre
4/26/2017	11-52-0	0.11 tons/acre
5/2/2017	6-3-22-SO4	0.38 tons/acre
5/3/2017	6-23-4	0.04 tons/acre
5/3/2017	SG InFuze SW	0.05 gallons/acre
6/3/2017	Bio-Blend	8.0 gallons/acre
6/12/2017	28-0-0-5	36.01 gallons/acre

Field # 4: Conventional Potato Production Days to Vine Kill: 107

Residual Soil Nutrients:

Nitrate Nitrogen = 14 lb/acre
Phosphorus = 175 ppm
Potassium = 347 ppm
Sulfur = 38 ppm

Fertilizer Application:

Date	Fertilizer Type	Application Rate
4/15/2017	21-0-0-24	200 lb/acre
4/15/2017	0-0-60	125 lb/acre
5/7/2017	Kugler 6-24-6	20 gallons/acre
5/7/2017	27-1-0	7.25 gallons/acre
5/7/2017	0-24-12	1 gallon/acre
5/7/2017	Micro pak	1 qt./acre
6/17/17-7/10/17	Kugler 353	25 gallons/acre
7/10/17-7/30/17	Kugler 3-18-18	3 gallons/acre
7/10/17-7/30/17	Kugler 2075	5 gallons/acre

Field # 5: Conventional Potato Production Days to Vine Kill: 107

Residual Soil Nutrients:

Nitrate Nitrogen = 7 lb/acre
Phosphorus = 191 ppm
Potassium = 363 ppm
Sulfur = 85 ppm

Fertilizer Application:

Date	Fertilizer Type	Application Rate
Preplant	100-180-0-15s	-
6/1/2017	21-0-0-18s	200 lb/acre
7/8/17	28-0-0-5s	15 lb/acre
7/10/2017	28-0-0-5s	15 lb/acre
7/12/2017	28-0-0-5s	10 lb/acre
7/15/2017	28-0-0-5s	10 lb/acre
Trickle on with water	28-0-0-5s	35 lb/acre

Field # 6: Conventional Potato Production Days to Vine Kill: 94

Residual Soil Nutrients:

Nitrate Nitrogen = 25 lb/acre
Phosphorus = 116 ppm
Potassium = 570 ppm
Sulfur = 72 ppm

Fertilizer Application:

Date	Fertilizer Type	Applic. Rate	N rate (lb/A)	P rate (lb/A)	K rate (lb/A)	Humic(lb/A)
4/15/17	11-52-0 (MAP)	223.49 lb/A	24.58	116.22	-	-
6/7/17	ISO NPK	24.0 fl. oz./A	0.07	-	0.07	-
6/16/17	12-0-0-26	0.6 gal/A	0.80	-	-	-
6/16/17	32-0-0 (UAN)	8.91 lb/A	8.9	-	-	-
6/16/17	Super Hum	3,062.5 fl. oz/A	-	-	-	12.82
6/19/17	12-0-0-26	0.64 gal/A	0.85	-	-	-
6/19/17	32-0-0 (UAN)	9.43 lb/A	9.43	-	-	-
6/19/17	ISO NPK	24.0 fl. oz./A	0.07	-	0.07	
6/19/17	Super Hum	3,242.7 fl oz./A	-	-	-	13.57
6/21/17	12-0-0-26	0.39 gal/A	0.52	-	-	-
6/21/17	32-0-0 (UAN)	5.76 lb/A	5.76	-	-	-
6/21/17	Super Hum	1,981.6 fl. oz/A	-	-	-	8.29
6/24/17	12-0-0-26	0.36 gal/A	0.47	-	-	-
6/24/17	32-0-0 (UAN)	5.24 lb/A	5.24	-	-	-
6/24/17	Super Hum	1,801.5 fl. oz/A	-	-	-	7.54
7/2/17	ISO NPK	24.0 fl. oz./A	0.07	-	0.07	-
7/4/17	28-0-0-5	5.17 lb/A	5.18	-	-	-
7/4/17	DynaHume	2.50 qt./A	-	-	-	0.54
7/6/17	12-0-0-26	0.64 gal/A	0.85	-	-	-
7/6/17	32-0-0 (UAN)	9.43 lb/A	9.43	-	-	-
7/6/17	Super Hum	3,242.7 fl. oz/A	-	-	-	13.57
7/23/17	Nutri-Cal	114.66 fl. oz/A	0.65	-	-	-
Total			72.268	114.186	0.051	56.345

Field # 7: Organic Potato Production Days to Vine Kill: 94

Residual Soil Nutrients:

Nitrate Nitrogen = 22 lb/acre
Phosphorus = 139 ppm
Potassium = 580 ppm
Sulfur = 133 ppm

Fertilizer Application:

Date	Fertilizer Type	Applic. Rate	N rate (lb/A)	P rate (lb/A)	K rate (lb/A)	Humic(lb/A)
4/10/17	Chicken Manure (Composted)	1.56 ton/A	155.98	93.59	62.39	-
4/10/17	Compost (Compost Tech)	4.54 ton/A	79.97	104.51	206.29	-
6/8/17	Organic CHI Liquid Carbon 6%	4.0 qt./A	-	-	-	0.52
6/22/17	Allganic Nitrogen (Nitrate-Sodium)	73.08 lb/A	11.77	-	-	-
6/22/17	Drammatic "O"	2.0 gal/A	0.36	0.91	0.04	-
6/27/17	Allganic Nitrogen (Nitrate-Sodium)	73.08 lb/A	11.77	-	-	-
6/27/17	Drammatic "E"	2.0 gal/A	0.36	0.91	0.00	-
6/30/17	Allganic Nitrogen (Nitrate-Sodium)	73.08 lb/A	11.77	-	-	-
7/20/17	Drammatic "E"	6.5 gal/A	1.18	2.96	0.01	-
Total			273.152	202.869	268.728	0.516

Table 1. Effect of nitrogen application rate on tuber yield and tuber size distribution of AC05039-2RU, 2017

Nitrogen rate (lb. N/ac)	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
	Yield (cwt/ac)									
0N(61)[1]	232	48	184(79)[2]	111(48)	184	171(74)	13	13	111	0
60N(114)	236	42	194(82)	112(48)	194	180(76)	14	14	112	0
120N(174)	260	60	200(77)	110(42)	200	186(72)	14	14	110	0
180N(234)	269	54	215(80)	148(55)	215	176(65)	39	39	148	0
240N(294)	265	66	199(75)	137(52)	199	168(63)	31	31	137	0

[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, 2017

Nitrogen Rate (bl. N/ac)	% Growth Cracks	% Knobs	% misshapes	% External[2] Defects	% Hollow Heart	Specific Gravity
0N(61)[1]	0	0	0	0	0	1.085
60N(114)	0.6	0	0	0.6	0	1.084
120N(174)	0	0.5	0	0	0	1.084
180N(234)	0	0	0	0	0	1.081
240N(294)	0	0	0	0	0	1.081

[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, 2017

Nitrogen rate (lb. N/ac)	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
	Yield (cwt/ac)									
0N(65)[1]	405	73	332(82)[2]	221(55)	324	245(61)	79	87	213	8
60N(114)	433	57	376(87)	282(65)	369	284(66)	85	92	275	7
120N(174)	444	46	398(90)	320(72)	364	266(60)	98	132	286	34
180N(234)	489	51	438(90)	355(73)	423	293(60)	130	145	340	15
240N(294)	506	45	461(91)	379(75)	435	272(54)	163	189	353	26

[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, 2017

Nitrogen Rate (lb. N/ac)	% Growth Cracks	% Knobs	% misshapes	% External[2] Defects	% Hollow Heart	Specific Gravity
0N(65)[1]	0	0	0.02	0.02	0	1.106
60N(114)	0	0	0	0	0	1.103
120N(174)	0	0	0	0	0.7	1.098
180N(234)	0	0	0	0	0	1.096
240N(294)	0	0	0	0	0.8	1.096

[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, 2017

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]	480	60	420(88)[2]	316(66)	404	286(60)	118	134	300	16
ALL	388	58	330(85)	277(71)	283	163(42)	120	167	230	47
66%	449	68	381(85)	309(69)	338	209(47)	129	172	266	43
50%	460	78	382(83)	325(71)	353	204(44)	149	178	296	29
33%	491	63	428(87)	337(69)	407	301(61)	106	127	316	21

[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, 2017

Pre–Plant N Rate (lb N/ac)	% Growth Cracks	% Knobs	% misshapes	% External[2] Defects	% Hollow Heart	Specific Gravity
In-Season[1]	0	0.04	0	0.04	0	1.100
ALL	0.06	0.03	0	0.09	1.9	1.099
66%	0.03	0	0	0.03	0.5	1.101
50%	0	0	0	0	0	1.101
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, 2017

Seed spacing (Inches)	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
	Yield (cwt/ac)									
10	439	69	370(84)[1]	271(62)	350	268(61)	82	102	251	20
12	414	40	374(90)	281(68)	364	270(65)	94	104	271	10
14	457	47	410(90)	308(67)	394	296(65)	98	114	292	16
16	427	33	394(92)	330(77)	357	249(58)	108	145	293	37

[1] Figures in brackets indicate % of total yield.

Table 8. Effect of in row seed spacing on tuber quality of CO05068-1RU, 2017

Seed spacing (inches)	% Growth Cracks	% Knobs	% Misshapes	% External[1] Defects	% Hollow Heart	Specific Gravity
10	0.3	0	0	0.3	0	1.095
12	0	0	0.5	0.5	0	1.102
14	0.8	0	0.8	1.6	0	1.102
16	0.4	0	0	0.4	0	1.102

[1] Includes growth cracks, knobs and misshapes.

Table 9. Effect of in row seed spacing on tuber yield of CO07131-1W/Y, 2017

Seed spacing (Inches)	Total Yield (cwt/ac)
6	103
8	78
10	67
12	48

Table 10. Effect of in row seed spacing on tuber quality of CO07131-1W/Y, 2017

Seed spacing (inches)	% Growth Cracks	% Knobs	% Misshapes	% External[1] Defects	% Internal[2] Defects
6	0	0	0	0	0
8	0	0	0	0	0
10	0	0	0	0	0
12	0	0	0	0	0

[1] Includes growth cracks, knobs and misshapes.
[2] Includes hollow heart and brown center.

Table 11. Effect of deficit irrigation and nitrogen rate on tuber yield and tuber size distribution of Russet Norkotah (sel.3) -V1, 2017

% Irrigation/ N Rate (lb/ac)	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
					Yield (cwt/ac)					
IRRIG.1V1N1[1]	209	111	98(47)[2]	60(29)	98	80(38)	18	18	60	0
IRRIG.1V1N2	220	105	115(52)	82(37)	115	94(43)	21	21	82	0
IRRIG.2V1N1	242	102	140(58)	98(41)	130	91(38)	39	49	88	10
IRRIG.2V1N2	239	118	121(51)	66(28)	121	108(45)	13	13	66	0
IRRIG.3V1N1	369	101	268(73)	208(56)	246	153(42)	93	115	186	22
IRRIG.3V1N2	405	120	285(70)	223(55)	217	168(42)	49	117	155	68

[1]Irrig. 1 = Irrigation 1 (55% ET); Irrig. 2 = Irrigation 2 (77% ET); Irrig. 3 = irrigation 3 (100% ET).
[2] Figures in brackets indicate % of total yield.
N1 = 140 lb. N/acre; N2 = 170 lb. N/acre.
V1 = Russet Norkotah (sel.3)

Table 12. Effect of deficit irrigation and nitrogen rate on tuber quality of Russet Norkotah (sel.3) -V1, 2017

% Irrigation/ N Rate (lb/ac)	% Growth Cracks	% Knobs	% misshapes	% External[2] Defects	% Hollow Heart	Specific Gravity
IRRIG.1V1N1[1]	0	1.6	0.7	2.3	0	1.086
IRRIG.1V1N2	0.2	0.7	0.7	1.6	0	1.083
IRRIG.2V1N1	0	3.0	0	3.0	0	1.084
IRRIG.2V1N2	0	0.9	0	0.9	0	1.082
IRRIG.3V1N1	0	0	0	0	0	1.081
IRRIG.3V1N2	0	1.0	0	1.0	0	1.081

[1]Irrig. 1 = Irrigation 1, (55% ET); Irrig. 2 = Irrigation 2, (77% ET); Irrig. 3 = irrigation 3 (100% ET).
[2] Includes growth cracks, knobs and misshapes.
N1 = 140 lb. N/acre; N2 = 170 lb. N/acre.
V1 = Russet Norkotah (sel.3)

Table 13. Effect of deficit irrigation and nitrogen rate on tuber yield and tuber size distribution of Canela Russet (V2), 2017

% Irrigation/ N Rate (lb/ac)	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
					Yield (cwt/ac)					
IRRIG.1V2N1[1]	232	98	134(58)[2]	62(27)	134	125(54)	9	9	62	0
IRRIG.1V2N2	254	53	201(79)	120(47)	201	179(71)	22	22	120	0
IRRIG.2V2N1	318	75	243(76)	149(47)	238	199(63)	39	44	144	5
IRRIG.2V2N2	358	63	295(82)	211(59)	279	236(66)	43	59	195	16
IRRIG.3V2N1	321	62	259(81)	198(62)	259	220(69)	39	39	198	0
IRRIG.3V2N2	400	40	360(90)	285(71)	347	243(61)	104	117	272	13

[1]Irrig. 1 = Irrigation 1 (55% ET); Irrig. 2 = Irrigation 2 (82% ET); (Irrig. 3 = irrigation 3 (100% ET).
[2] Figures in brackets indicate % of total yield.
N1 = 140 lb. N/acre; N2 = 170 lb. N/acre.
V2 = Canela Russet

Table 14. Effect of deficit irrigation and nitrogen rate on tuber quality of Canela Russet (V2), 2017

% Irrigation/ N Rate (lb/ac)	% Growth Cracks	% Knobs	% misshapes	% External[2] Defects	% Hollow Heart	Specific Gravity
IRRIG.1V2N1[1]	0	0	0	0	0	1.100
IRRIG.1V2N2	0	0	0	0	0	1.095
IRRIG.2V2N1	0	0	0	0	0	1.096
IRRIG.2V2N2	0	0	0	0	0	1.101
IRRIG.3V2N1	0	0	0	0	0	1.097
IRRIG.3V2N2	0	0	0	0	0	1.096

[1]Irrig. 1 = Irrigation 1, (55% ET); Irrig. 2 = Irrigation 2, (82% ET); Irrig. 3 = irrigation 3 (100% ET).
[2] Includes growth cracks, knobs and misshapes.
N1 = 140 lb. N/acre; N2 = 170 lb. N/acre.
V2 = Canela Russet

Table 15. Effect of deficit irrigation and nitrogen rate on tuber yield and tuber size distribution of Mesa Russet (V3), 2017

% Irrigation/ N Rate (lb./ac)	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
					Yield (cwt/ac)					
IRRIG.1V3N1[1]	199	98	101(51)[2]	47(24)	101	101(51)	0	0	47	0
IRRIG.1V3N2	198	125	73(37)	32(16)	73	70(35)	3	3	32	0
IRRIG.2V3N1	315	65	250(79)	148(47)	241	212(67)	29	38	139	9
IRRIG.2V3N2	291	64	227(78)	142(49)	227	185(64)	42	42	142	0
IRRIG.3V3N1	307	69	238(78)	155(51)	225	166(54)	59	72	142	13
IRRIG.3V3N2	313	73	240(77)	174(56)	236	180(58)	56	60	170	4

[1]Irrig. 1 = Irrigation 1 (65% ET); Irrig. 2 = Irrigation 2 (90% ET); Irrig. 3 = irrigation 3 (100% ET).
[2] Figures in brackets indicate % of total yield.
N1 = 140 lb. N/acre; N2 = 170 lb. N/acre.
V3 = Mesa Russet

Table 16. Effect of deficit irrigation and nitrogen rate on tuber quality of Mesa Russet (V3), 2017

% Irrigation/ N Rate (lb/ac)	% Growth Cracks	% Knobs	% misshapes	% External[2] Defects	% Hollow Heart	Specific Gravity
IRRIG.1V3N1[1]	1.4	0	1.4	2.8	0	1.089
IRRIG.1V3N2	0.3	0	0	0.3	0	1.088
IRRIG.2V3N1	0	0	1.1	1.1	0	1.089
IRRIG.2V3N2	0	0	0	0	0	1.087
IRRIG.3V3N1	0	0.6	0.6	1.2	0	1.085
IRRIG.3V3N2	0	0	0	0	0	1.084

[1]Irrig. 1 = Irrigation 1, (65% ET); Irrig. 2 = Irrigation 2, (90% ET); Irrig. 3 = irrigation 3 (100% ET).
[2] Includes growth cracks, knobs and misshapes.
N1 = 140 lb. N/acre; N2 = 170 lb. N/acre
V3 = Mesa Russet

Table 17. Effect of deficit irrigation and nitrogen rate on tuber yield and tuber size distribution of Yukon Gold (V4), 2017

% Irrigation/ N Rate (lb./ac)	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
					Yield (cwt/ac)					
IRRIG.1V4N1[1]	227	89	138(61)[2]	63(28)	138	133(59)	5	5	63	0
IRRIG.1V4N2	289	75	214(74)	122(42)	214	205(71)	9	9	122	0
IRRIG.2V4N1	312	74	238(76)	133(43)	234	208(67)	26	30	129	4
IRRIG.2V4N2	344	90	254(74)	141(41)	254	238(69)	16	16	141	0
IRRIG.3V4N1	329	75	254(77)	171(52)	250	196(60)	54	58	167	4
IRRIG.3V4N2	374	82	292(78)	207(55)	275	197(53)	78	95	190	17

[1]Irrig. 1 = Irrigation 1 (61% ET); Irrig. 2 = Irrigation 2 (83% ET); Irrig. 3 = irrigation 3 (100% ET).
[2] Figures in brackets indicate % of total yield.
N1 = 140 lb. N/acre; N2 = 170 lb. N/acre.
V4 = Yukon Gold

Table 18. Effect of deficit irrigation and nitrogen rate on tuber quality of Yukon Gold (V4), 2017

% Irrigation/ N Rate (lb/ac)	% Growth Cracks	% Knobs	% misshapes	% External[2] Defects	% Hollow Heart	Specific Gravity
IRRIG.1V4N1[1]	1.3	0	0	1.3	0	1.089
IRRIG.1V4N2	0.8	0	0	0.8	0	1.091
IRRIG.2V4N1	2.3	0	1.0	3.3	0	1.092
IRRIG.2V4N2	0.7	0	0.4	1.1	0	1.092
IRRIG.3V4N1	2.4	0	0.6	3.0	0	1.091
IRRIG.3V4N2	0	0	0.7	0.7	0	1.092

[1]Irrig. 1 = Irrigation 1, (61% ET); Irrig. 2 = Irrigation 2, (83% ET); Irrig. 3 = irrigation 3 (100% ET).
[2] Includes growth cracks, knobs and misshapes.
N1 = 140 lb. N/acre; N2 = 170 lb. N/acre.
V4 = Yukon Gold

Table 19. Tuber yield and tuber size distribution of Russet Norkotah (8) grown under different management practices, 2017.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
					Yield (cwt/ac)					
1	400	56	344	287	260	187	73	157	203	84
2	460	58	402	328	331	194	137	208	257	71
3	539	79	460	345	415	284	131	176	300	45
4	776	71	705	610	521	283	238	422	426	184
5	575	45	530	443	439	299	140	231	352	91
6	423	50	373	279	352	281	71	92	257	21
7	206	96	110	53	110	110	0	0	53	0
Mean	483	65	418	335	347	234	113	184	264	71

Table 20. Tuber quality of Russet Norkotah (8) grown under different management practices, 2017.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External[1] Defects	% Hollow Heart	Specific Gravity
1	0	0	0	0	0	1.075
2	0	1.8	2.5	4.3	2.9	1.073
3	0	0	0	0	3.8	1.073
4	0	0	0	0	0	1.086
5	0	3.9	0	3.9	0	1.082
6	0	0	0	0	0	1.075
7	0	2.0	0	2.0	0	1.069
Mean	0	1.1	0.4	1.5	1.0	1.076

[1]Includes growth cracks, knobs and misshapes.

Table 21. Tuber yield and tuber size distribution of CO08231-1RU grown under different management practices, 2017.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
					Yield (cwt/ac)					
1	286	28	258	203	187	137	50	121	132	71
2	400	56	344	273	331	187	144	157	260	13
3	401	33	368	288	355	246	109	122	275	13
4	401	75	326	240	326	256	70	70	240	0
5	354	107	247	157	222	181	41	66	132	25
6	334	102	232	114	232	211	21	21	114	0
7	255	47	208	139	208	160	48	48	139	0
Mean	347	64	283	202	266	197	69	86	185	17

Table 22. Tuber quality of CO08231-1RU grown under different management practices, 2017.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External[1] Defects	% Hollow Heart	Specific Gravity
1	10.0	0	0	10.0	0	1.078
2	0	0	0	0	2.3	1.082
3	0	0	1.5	1.5	0	1.087
4	2.6	0	0	2.6	0	1.082
5	7.0	0	0	7.0	0	1.090
6	0	0	0	0	0	1.073
7	0	0	2.8	2.8	0	1.076
Mean	2.8	0	0.6	3.4	0.3	1.081

[1]Includes growth cracks, knobs and misshapes.

Table 23. Tuber yield and tuber size distribution of CO08065-2RU grown under different management practices, 2017.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
					Yield (cwt/ac)					
1	350	63	287	235	274	220	54	67	222	13
2	441	63	378	304	350	255	95	123	276	28
3	581	47	534	436	483	369	114	165	385	51
4	339	83	256	178	223	158	65	98	145	33
5	479	61	418	330	378	276	102	142	290	40
6	349	59	290	220	280	190	90	100	210	10
7	103	32	71	38	71	64	7	7	38	0
Mean	377	58	319	249	294	219	75	100	224	25

Table 24. Tuber quality of CO08065-2RU grown under different management practices, 2017.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External[1] Defects	% Hollow Heart	Specific Gravity
1	11.4	0	0	11.4	29.3	1.095
2	14.9	0	0	14.9	2.6	1.094
3	3.2	0	0	3.2	12.0	1.106
4	2.4	0	0	2.4	8.46	1.098
5	0	0	0	0	5.1	1.110
6	19.1	0	0	19.1	0	1.094
7	0	0	0	0	0	1.091
Mean	7.3	0	0	7.3	8.2	1.098

[1]Includes growth cracks, knobs and misshapes.

Table 25. Tuber yield and tuber size distribution of CO09205-2RU grown under different management practices, 2017.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
					Yield (cwt/ac)					
1	241	32	209	171	209	180	29	29	171	0
2	374	59	315	229	315	247	68	68	229	0
3	444	87	357	212	357	350	7	7	212	0
4	518	97	421	266	421	390	31	31	266	0
5	455	125	330	175	330	307	23	23	175	0
6	341	95	246	109	246	238	8	8	109	0
7	169	38	131	36	131	131	0	0	36	0
Mean	363	76	287	171	287	263	24	24	171	0

Table 26. Tuber quality of CO09205-2RU grown under different management practices, 2017.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External[1] Defects	% Hollow Heart	Specific Gravity
1	0	0	0	0	0	1.071
2	4.7	0	0	4.7	0	1.071
3	0	0	0	0	0	1.077
4	0	0	0	0	0	1.075
5	0	0	0	0	0	1.078
6	0	0	0	0	0	1.072
7	0	0	0	0	7	1.067
Mean	0.7	0	0	0.7	1	1.073

[1]Includes growth cracks, knobs and misshapes.

Table 27. Tuber yield and tuber size distribution of CO09036-2RU grown under different management practices, 2017.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
					Yield (cwt/ac)					
1	323	124	199	117	199	185	14	14	117	0
2	403	106	297	231	297	169	128	128	231	0
3	745	168	577	443	566	387	179	190	432	11
4	412	237	175	37	175	175	0	0	37	0
5	381	166	215	88	205	190	15	25	78	10
6	323	179	144	75	144	136	8	8	75	0
7	190	133	57	10	57	57	0	0	10	0
Mean	397	159	238	143	235	186	49	52	140	3

Table 28. Tuber quality of CO09036-2RU grown under different management practices, 2017.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External[1] Defects	% Hollow Heart	Specific Gravity
1	0	1.3	0	1.3	2.2	1.084
2	0	0	1.5	1.5	0	1.085
3	0	0	0	0	4.5	1.093
4	0	0	0	0	0	1.096
5	0	0	0	0	0	1.094
6	0	0	0	0	0	1.082
7	0	0	0	0	0	1.077
Mean	0	0.2	0.2	0.4	1.0	1.087

[1]Includes growth cracks, knobs and misshapes.

Table 29. Tuber yield and tuber size distribution of CO09076-3RUgrown under different management practices, 2017.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
					Yield (cwt/ac)					
1	338	48	290	239	230	150	80	139	179	60
2	333	79	254	194	233	173	60	81	173	21
3	337	80	257	219	235	125	110	132	197	22
4	443	93	350	237	327	284	43	66	214	23
5	571	80	491	385	480	327	153	164	374	11
6	390	63	327	289	316	199	117	128	278	11
7	203	105	98	57	98	98	0	0	57	0
Mean	374	78	295	231	274	194	80	101	210	21

Table 30. Tuber quality of CO09076-3RUgrown under different management practices, 2017.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External[1] Defects	% Hollow Heart	Specific Gravity
1	5.2	2.1	1.2	8.5	3.7	1.069
2	0	1.2	0	1.2	0	1.070
3	2.4	0	0	2.4	0	1.079
4	1.9	0	0	1.9	0	1.088
5	0	0	0	0	0	1.093
6	1.1	0	1.3	2.4	0	1.077
7	0	0	0	0	0	1.072
Mean	1.5	0.5	0.4	2.3	0.5	1.078

[1]Includes growth cracks, knobs and misshapes.

Table 31. Tuber yield and tuber size distribution of Yukon Gold grown under different management practices, 2017.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
					Yield (cwt/ac)					
1	483	25	458	421	330	176	154	282	293	128
2	492	28	464	417	407	197	210	267	360	57
3	432	53	379	297	335	239	96	140	253	44
4	576	33	543	463	531	311	220	232	451	12
5	538	46	492	401	445	325	120	167	354	47
6	292	41	251	182	240	175	65	76	171	11
7	211	55	156	112	144	116	28	40	100	12
Mean	432	40	392	328	347	220	128	172	283	45

Table 32. Tuber quality of Yukon Gold grown under different management practices, 2017.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External[1] Defects	% Hollow Heart	Specific Gravity
1	2.6	0	0	2.6	5.5	1.083
2	5	0	4.2	9.2	0	1.077
3	0	0	0	0	2.4	1.089
4	1.3	0	0	1.3	0	1.100
5	1.3	0	0	1.3	0	1.090
6	0	0	0	0	0	1.083
7	2.9	0	0	2.9	5.8	1.085
Mean	1.9	0	0.6	2.5	2.0	1.087

[1]Includes growth cracks, knobs and misshapes.

Table 33. Tuber yield and tuber size distribution of CO08155-2RU/Y grown under different management practices, 2017.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
					Yield (cwt/ac)					
1	420	76	344	263	318	248	70	96	237	26
2	434	86	348	217	337	248	89	100	206	11
3	630	86	544	403	533	395	138	149	392	11
4	418	117	301	157	291	284	7	17	147	10
5	358	98	260	156	260	227	33	33	156	0
6	356	73	283	139	283	251	32	32	139	0
7	253	103	150	65	150	144	6	6	65	0
Mean	410	91	319	200	310	257	54	62	192	8

Table 34. Tuber quality of CO08155-2RU/Y grown under different management practices, 2017.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External[1] Defects	% Hollow Heart	Specific Gravity
1	2.2	0	0.7	2.9	0	1.074
2	0	0	0	0	0	1.080
3	0	0	0	0	0	1.093
4	0	0	0	0	0	1.090
5	0	0	0	0	0	1.085
6	0	0	0	0	0	1.080
7	0	0	0	0	0	1.071
Mean	0.3	0	0.1	0.4	0	1.082

[1]Includes growth cracks, knobs and misshapes.

Table 35. Tuber yield and tuber size distribution of CO09127-3W/Y grown under different management practices, 2017.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
					Yield (cwt/ac)					
1	279	88	191	88	191	170	21	21	88	0
2	308	44	264	207	244	160	84	104	187	20
3	412	141	271	130	271	236	35	35	130	0
4	561	141	420	258	420	315	105	105	258	0
5	424	101	323	201	299	279	20	44	177	24
6	384	112	272	113	272	250	22	22	113	0
7	232	106	126	69	126	120	6	6	69	0
Mean	371	105	267	152	260	219	42	48	146	6

Table 36. Tuber quality of CO09127-3W/Y grown under different management practices, 2016.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External[1] Defects	% Hollow Heart	Specific Gravity
1	2.6	0	0	2.6	0	1.082
2	0	0	0	0	0	1.076
3	0	0	0	0	0	1.080
4	0	0	0	0	1.5	1.079
5	0	0	0	0	5.6	1.080
6	0	0	0	0	0	1.077
7	0	0	0	0	0	1.075
Mean	0.4	0	0	0.4	1.0	1.078

[1]Includes growth cracks, knobs and misshapes.

Table 37. Tuber yield and tuber size distribution of CO09128-3W/Y grown under different management practices, 2017.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
					Yield (cwt/ac)					
1	337	285	52	13	52	52	0	0	13	0
2	393	321	72	12	72	72	0	0	12	0
3	348	325	23	0	23	23	0	0	0	0
4	458	422	36	0	36	36	0	0	0	0
5	533	482	51	8	51	51	0	0	8	0
6	290	285	5	0	5	5	0	0	0	0
7	277	275	2	0	2	2	0	0	0	0
Mean	377	342	34	5	34	34	0	0	5	0

Table 38. Tuber quality of CO09128-3W/Y grown under different management practices, 2017.

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	1.066
3	0	0	0	0	0	1.070
4	0	0	0	0	0	1.081
5	0	0	0	0	0	1.075
6	0	0	0	0	0	1.070
7	0	0	0	0	0	1.067
Mean	0	0	0	0	0	1.072

[1]Includes growth cracks, knobs and misshapes.

Table 39. Tuber yield and tuber size distribution of CO09128-5W/Y grown under different management practices, 2017.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
					Yield (cwt/ac)					
1	375	252	123	37	123	123	0	0	37	0
2	519	340	179	39	179	179	0	0	39	0
3	492	344	148	28	148	148	0	0	28	0
4	544	378	166	12	166	166	0	0	12	0
5	535	453	82	0	82	82	0	0	0	0
6	427	322	105	35	105	105	0	0	35	0
7	237	222	15	0	15	15	0	0	0	0
Mean	447	330	117	22	117	117	0	0	22	0

Table 40. Tuber quality of CO09128-5W/Y grown under different management practices, 2017.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External[1] Defects	% Hollow Heart	Specific Gravity
1	0	0	0	0	0	1.085
2	0	0	0	0	0	1.080
3	0	0	0	0	0	1.086
4	0	0	0	0	0	1.092
5	0	0	0	0	0	1.095
6	0	0	0	0	0	1.084
7	0	0	0	0	0	1.079
Mean	0	0	0	0	0	1.086

[1]Includes growth cracks, knobs and misshapes.

Table 41. Tuber yield and tuber size distribution of CO09218-4W/Y grown under different management practices, 2017.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
					Yield (cwt/ac)					
1	324	172	152	37	152	152	0	0	37	0
2	278	207	71	23	71	71	0	0	23	0
3	392	247	145	60	145	145	0	0	60	0
4	508	346	162	30	162	162	0	0	30	0
5	482	236	246	69	246	239	7	7	69	0
6	325	214	111	23	111	111	0	0	23	0
7	255	227	28	7	28	28	0	0	7	0
Mean	366	236	131	36	131	130	1	1	36	0

Table 42. Tuber quality of CO09218-4W/Y grown under different management practices, 2017.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External[1] Defects	% Hollow Heart	Specific Gravity
1	0	0	0	0	0	1.066
2	1.5	2.2	0	3.7	0	1.075
3	0	0	0	0	0	1.083
4	0	0	0	0	0	1.079
5	0	0	0	0	0	1.085
6	0	0	0	0	0	1.066
7	0	0	0	0	0	1.064
Mean	0.2	0.3	0	0.5	0	1.074

[1]Includes growth cracks, knobs and misshapes.

Table 43. Tuber yield and tuber size distribution of CO09079-5PW/Y grown under different management practices, 2017.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
					Yield (cwt/ac)					
1	366	220	146	53	146	146	0	0	53	0
2	314	198	116	34	116	116	0	0	34	0
3	571	358	213	71	213	213	0	0	71	0
4	471	315	156	44	156	149	7	7	44	0
5	446	224	222	104	222	207	15	15	104	0
6	318	222	96	21	96	96	0	0	21	0
7	303	252	51	4	51	51	0	0	4	0
Mean	398	256	143	47	143	140	3	3	47	0

Table 44. Tuber quality of CO09079-5PW/Y grown under different management practices, 2017.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External[1] Defects	% Hollow Heart	Specific Gravity
1	0	0	0	0	0	1.058
2	0	0	0	0	0	1.067
3	0	0	0.4	0.4	0	1.072
4	0	0	0	0	0	1.076
5	0	0	0	0	0	1.074
6	0	0	0	0	0	1.065
7	0	0	0	0	0	1.063
Mean	0	0	0.1	0.1	0	1.068

[1]Includes growth cracks, knobs and misshapes.

Table 45. Tuber yield and tuber size distribution of Purple Majesty grown under different management practices, 2017.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
					Yield (cwt/ac)					
1	401	201	200	94	189	174	15	26	83	11
2	395	141	254	134	254	209	45	45	134	0
3	75	30	45	13	45	45	0	0	13	0
4	387	144	243	147	243	237	6	6	147	0
5	631	290	341	158	341	320	21	21	158	0
6	193	153	40	9	40	40	0	0	9	0
7	383	314	69	8	69	69	0	0	8	0
Mean	352	182	170	80	169	156	12	14	79	2

Table 46. Tuber quality of Purple Majesty grown under different management practices, 2017.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External[1] Defects	% Hollow Heart	Specific Gravity
1	0	0	0	0	0	1.077
2	0	4.4	1.0	5.4	1.6	1.071
3	0	0	0	0	0	1.086
4	0	0	0	0	0	1.090
5	0	0	0	0	0	1.088
6	0	0	0	0	0	1.077
7	1.1	0	0	0	0	1.076
Mean	0.2	0.6	0.14	0.8	0.22	1.081

[1]Includes growth cracks, knobs and misshapes.

Table 47. Tuber yield and tuber size distribution of CO08037-2P/P grown under different management practices, 2017.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
					Yield (cwt/ac)					
1	352	114	238	137	238	231	7	7	137	0
2	320	75	245	176	245	208	37	37	176	0
3	367	137	230	131	230	221	9	9	131	0
4	438	180	258	108	258	237	21	21	108	0
5	437	164	273	132	273	260	13	13	132	0
6	304	145	159	52	159	159	0	0	52	0
7	196	153	43	13	43	43	0	0	13	0
Mean	345	138	207	107	207	194	12	12	107	0

Table 48. Tuber quality of CO08037-2P/P grown under different management practices, 2017.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External[1] Defects	% Hollow Heart	Specific Gravity
1	4.7	0	0	4.7	0	1.078
2	0	0	0	0	0	1.080
3	0	0	0	0	0	1.086
4	0	0	0	0	0	1.084
5	0	0	0	0	0	1.094
6	2.0	0	0	2.0	0	1.082
7	0	0	0	0	0	1.077
Mean	1.0	0	0	1.0	0	1.083

[1]Includes growth cracks, knobs and misshapes.

Table 49. Tuber yield and tuber size distribution of Chipeta grown under different management practices, 2017.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
					Yield (cwt/ac)					
1	361	32	329	282	263	181	82	148	216	66
2	617	46	571	500	475	277	198	294	404	96
3	647	29	618	557	462	235	227	383	401	156
4	487	68	419	300	419	343	76	76	300	0
5	548	50	498	413	446	236	210	262	361	52
6	384	49	335	237	335	247	88	88	237	0
7	289	86	203	133	203	174	29	29	133	0
Mean	476	51	425	346	372	242	130	183	293	53

Table 50. Tuber quality of Chipeta grown under different management practices, 2017.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External[1] Defects	% Hollow Heart	Specific Gravity
1	14.2	0	3.1	17.3	8.5	1.087
2	1.8	2.8	0	4.6	0	1.084
3	3.6	0	0.5	4.1	1.9	1.090
4	0	0	0	0	0	1. 106
5	0	0	0	0	0	1.100
6	0	0	0	0	0	1.087
7	6.7	3.2	0	9.9	4.3	1.081
Mean	3.8	0.9	0.5	5.1	2.1	1.091

[1]Includes growth cracks, knobs and misshapes.

Table 51. Tuber yield and tuber size distribution of AC01144-1W grown under different management practices, 2017.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
					Yield (cwt/ac)					
1	462	177	285	147	285	271	14	14	147	0
2	590	99	491	333	491	418	73	73	333	0
3	624	208	416	216	416	387	29	29	216	0
4	593	240	353	108	353	346	7	7	108	0
5	667	281	386	151	386	379	7	7	151	0
6	395	193	202	40	202	202	0	0	40	0
7	303	175	128	13	128	128	0	0	13	0
Mean	519	196	323	144	323	304	19	19	144	0

Table 52. Tuber quality of AC01144-1W grown under different management practices, 2017.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External[1] Defects	% Hollow Heart	Specific Gravity
1	0	0	0	0	0	1.082
2	0	0	0	0	0	1.076
3	0	0	0	0	0	1.085
4	0	0	0	0	0	1.090
5	0	0	0	0	0	1.086
6	0	0	0	0	0	1.077
7	0	0	1.7	1.7	0	1.073
Mean	0	0	0.2	0.2	0	1.081

[1]Includes growth cracks, knobs and misshapes.

Table 53. Tuber yield and tuber size distribution of CO09165-6W grown under different management practices, 2017.

Field Number	Total	< 4oz	> 4oz	> 6oz	4 – 16oz	4 – 10oz	10 – 16oz	> 10oz	6 – 16oz	> 16oz
					Yield (cwt/ac)					
1	335	106	229	137	229	195	34	34	137	0
2	353	138	215	120	215	181	34	34	120	0
3	333	105	228	106	228	210	18	18	106	0
4	409	100	309	200	309	272	37	37	200	0
5	363	162	201	83	190	173	17	28	72	11
6	263	59	204	109	204	188	16	16	109	0
7	139	54	85	45	85	71	14	14	45	0
Mean	314	103	210	114	209	184	24	26	113	2

Table 54. Tuber quality of CO09165-6W grown under different management practices, 2017.

Field Number	% growth Cracks	% Knobs	% Misshapes	% External[1] Defects	% Hollow Heart	Specific Gravity
1	0	0	2.5	2.5	0	1.070
2	0	0	0	0	0	1.064
3	0	0	0	0	0	1.068
4	0	0	0	0	0	1.075
5	0	0	0	0	0	1.073
6	0	0	0	0	0	1.071
7	0	0	0	0	0	1.070
Mean	0	0	0.4	0.4	0	1.070

[1]Includes growth cracks, knobs and misshapes.