# **AgroLiquid Pro-Germinator Trial**

Company:Basin Fertilizer & Chemical Co.Acres:44Crop:Russet Norkotah PotatoesSeason:2015

#### **Objective:**

To compare AgroLiquid Pro-Germinator against conventional 10-34-0 applied in-season based on tissue samples through solid-set irrigation

#### Methods:

Prior to planting, a dry fertilizer blend was spread evenly across the full 44 acres. The grower planted Russet Norkotah's north-south in a 44 acre field with his conventional planter fertilizer mix. Prior to the first tissues being pulled, a fertigation was made with 5 gal of 10-34-0 per acre applied to both halves. Once weekly tissue sampling began, fertigation recommendations were made and applied based on tissue results. One fertigation saw the West ½ receive an additional 1 gal of 12-0-0-26 (Thiosul), which increased the total cost for the West ½ treatment. The East ½ of the field (22 acres) was fertigated with 10-34-0, while the West ½ (22 acres) received Pro-Germinator. This was the *only* difference in management for the season.

Pro-Germinator treatment:

- 7.5 gal/Ac @ \$70.88/Ac
  - o 86.25 lbs of Phosphorus based on efficiency (20 lbs actual Phosphorus)

#### 10-34-0 treatment:

- 17.05 gal/Ac @ \$68.20/Ac
  - o 68 lbs of actual Phosphorus

### Negating the efficiency value of Pro-Germinator, the Pro-Germinator treatment received 48 lbs less Phosphorus than the 10-34-0 treatment

#### Summary:

Total Fertigation Cost per Acre:

Pro-Germinator:	<u>\$291.39</u>
<u>10-34-0:</u>	<u>\$286.11</u>
Difference:	\$5.28/Ac

**Note:** the Pro-Germinator cost an additional \$2.68/Ac over the 10-34-0 and that side of the treatment also received an additional gallon of 12-0-0-26 @ \$2.60/Ac, giving us the additional \$5.28/Ac cost of treatment

## **AgroLiquid Pro-Germinator Trial**

 Total Length
 Width Dug
 Area Dug
 Area Dug
 Yield/Acre

\$

\$

+ 41

+ 95

287.00 /Ac

665.00 /Ac

Company: Basin Fertilizer & Chemical Co.

Distances Travelled

Acres:

Crop: **Russet Norkota Potatoes** 

44

2015 Season: Control:

(in	f+ )	(* . (* .)	/* (* )	1 5. 1	/· \				
()	11.)	(in ft.)	(in ft.)	(sq. ft.)	(in acres)	(275 sack T/L)	15% dirt		
641	1542	2183	9	19647	0.4510	610	521		
831	1419	2250	9	20250	0.4649	592	506		
856	1572	2428	9	21852	0.5017	548	468		
869	1357	2226	9	20034	0.4599	598	511		
218	1572	1790	9	16110	0.3698	744	635		
983	1572	2555	9	22995	0.5279	521	445		
	Average	2239	9	20148	0.4625	602	514		
Gro	ower Estimate	1800	12	21600	0.4959	555	474		
Distances	Travelled	Total Length	Width Dug	Area Dug	Area Dug	Yield/Acre	Yield/Acre		
(in	ft.)	(in ft.)	(in ft.)	(sq. ft.)	(in acres)	(275 sack T/L)	15% dirt		
s 872 550		1422	12	17064	0.3917	702	600		
1012 470		1482	12	17784	0.4083	674	576		
1091	762	1853	12	22236	0.5105	539	460		
800	737	1537	12	18444	0.4234	649	555		
824	902	1726	12	20712	0.4755	578	494		
659	672	1331	12	15972	0.3667	750	641		
600	926	1526	12	18312	0.4204	654	559		
	Average	1554	12	18646	0.4281	649	555		
Gro	ower Estimate	1500	12	18000	0.4132	666	569		
mate: 1,500 ft	to fill Pro-	Totals	Average Yie	ld (sacks/Ac)	Difference	Gross incre	crease over		
00 ft to fill 10-	34-0		10-34-0	Pro-Germ	(sacks/Ac)	10-34-0 at \$7/cwt			
	641 831 856 869 218 983 Gro Distances (in 872 1012 1091 800 824 659 600 Gro mate: 1,500 ft	641       1542         831       1419         856       1572         869       1357         218       1572         983       1572         Average         Grower Estimate         Distances Travelled (in ft.)         872       550         1012       470         1091       762         800       737         824       902         659       672         600       926         Average         Grower Estimate	641       1542       2183         831       1419       2250         856       1572       2428         869       1357       2226         218       1572       1790         983       1572       2555         Average       2239         Grower Estimate       1800         Distances Travelled (in ft.)       Total Length (in ft.)         872       550       1422         1012       470       1482         1091       762       1853         800       737       1537         824       902       1726         659       672       1331         600       926       1526         Average       1554         Grower Estimate       1500         mate: 1,500 ft to fill       Pro-       Totals:	641       1542       2183       9         831       1419       2250       9         856       1572       2428       9         869       1357       2226       9         218       1572       1790       9         983       1572       2555       9         Average       2239       9         Grower Estimate       1800       12         Distances Travelled (in ft.)       Total Length (in ft.)       Width Dug (in ft.)         872       550       1422       12         1012       470       1482       12         1091       762       1853       12         800       737       1537       12         824       902       1726       12         659       672       1331       12         600       926       1526       12          1500       12          1554       12         600       926       1554       12          1500       12          1500       12	641       1542       2183       9       19647         831       1419       2250       9       20250         856       1572       2428       9       21852         869       1357       2226       9       20034         218       1572       1790       9       16110         983       1572       2555       9       22995         Average       2239       9       20148         Grower Estimate       1800       12       21600         Distances Travelled (in ft.)       Total Length (in ft.)       Width Dug (in ft.)       Area Dug (sq. ft.)         872       550       1422       12       17064         1012       470       1482       12       17784         1091       762       1853       12       22236         800       737       1537       12       18444         824       902       1726       12       20712         659       672       1331       12       15972         600       926       1526       12       18312         600       926       1554       12       18646         Grower Esti	641       1542       2183       9       19647       0.4510         831       1419       2250       9       20250       0.4649         856       1572       2428       9       21852       0.5017         869       1357       2226       9       20034       0.4599         218       1572       1790       9       16110       0.3698         983       1572       2555       9       22995       0.5279         Average       2239       9       20148       0.4625         Grower Estimate       1800       12       21600       0.4959         Distances Travelled (in ft.)       Total Length (in ft.)       Width Dug (in ft.)       Area Dug (in acres)       Area Dug         872       550       1422       12       17064       0.3917         1012       470       1482       12       17784       0.4083         1091       762       1853       12       22236       0.5105         800       737       1537       12       18444       0.4234         824       902       1726       12       20712       0.4755         659       672       1331	641         1542         2183         9         19647         0.4510         610           831         1419         2250         9         20250         0.4649         592           856         1572         2428         9         21852         0.5017         548           869         1357         2226         9         20034         0.4599         598           218         1572         1790         9         16110         0.3698         744           983         1572         2555         9         22995         0.5279         521           Average         2239         9         20148         0.4625         602           Grower Estimate         1800         12         21600         0.4959         555           Distances Travelled (in ft.)         Total Length (in ft.)         Width Dug (in ft.)         Area Dug (sq. ft.)         Yield/Acre (275 sack T/L)           872         550         1422         12         17064         0.3917         702           1012         470         1482         12         17784         0.4083         674           1091         762         1853         12         22236         0.5105		

514

474

555

569

Actual:

Grower:

Ty Hulse **Basin Fertilizer** 

			Total Nutrients Applied/Ac													
Field	\$/Ac	Ν	Р	К	S	Zn	Mn	Cu	Fe	Humic						
West 1/2	\$ 291.39	117.7	106.5	43.1	86.4	0.6	0.6	0.3	0.8	14.1						
East 1/2	\$286.11 129.4		88.2	40.6	83.4	0.6	0.6	0.3	0	14.1						
Difference from West 1/2 to East 1/2		-11.7	18.3	2.5	3	0	0	0	0.8	0						
	+\$5.28/Ad	c for West	1/2													

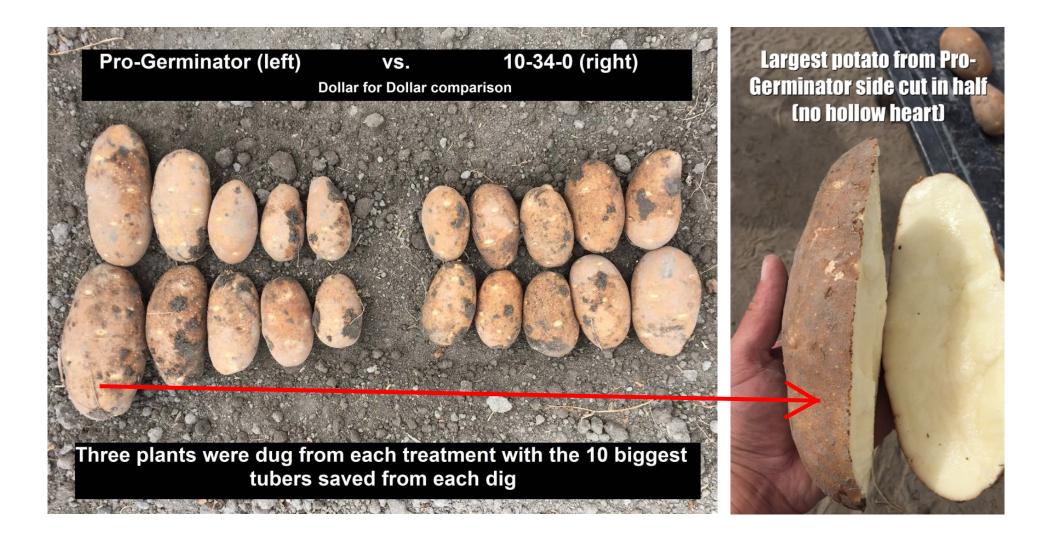
(this total also includes the 5 gal	10-34-0 applied to both ha	lves prior to tissue results)
(this total also includes the 5 gai	10-34-0 applied to both ha	ives prior to tissue results

#### **Results:**

As stated, tissue samples were pulled weekly for five consecutive weeks beginning July 15<sup>th</sup> and ending August 12<sup>th</sup>. The results (attached at the end of this report) show no significant differences. The Pro-Germinator side showed lower Phosphorus tissue levels only in the first and last results and neither are statistically significant. Overall, the tissue results did not show any difference which isn't a drawback or a concern as the purpose of the tissues was to ensure we weren't going backwards on the Pro-Germinator side as we were technically applying far less actual phosphorus than the 10-34-0 side. The difference showed in the tubers coming out of the field, both in size and yield. We would have liked to have seen a big difference in the tissue levels and maybe we will with future results.

The Pro-Germinator treatment cost an additional \$5.28/Ac but resulted in an additional 44 sacks of potatoes per acre with a larger size profile as well. Both treatments ended up with nearly identical nutrients applied, except for the Pro-Germinator received nearly 12 lbs *less* Nitrogen but 18 lbs *more* Phosphorus. Again, that is based on the perceived efficiency of the Phosphorus provided by Pro-Germinator. In all actuality, the Pro-Germinator side received 48 lbs less Phosphorus if the efficiency is to be negated. Due to the increase in yield and size profile, the efficiency of Pro-Germinator looks to be confirmed or at least worthy of further examination/experimentation.

- Market price: \$7.00/cwt fresh market potatoes
- Cost of investment: \$5.28/Ac
- Yield increase: 44 sacks/Ac
- Gross return: \$287.00/Ac
- Net return: \$281.72/Ac



	Pro-Germinate	or - West Half	10-34-(	) - East Half
Date	Product	Rate	Product	Rate
	32-0-0	3 gal/Ac	32-0-0	3 gal/Ac
	12-0-0-26	5 gal/Ac	12-0-0-26	5 gal/Ac
25-Jun	10-34-0	5 gal/Ac	10-34-0	5 gal/Ac
23-Juli	Humic Acid	0.25 gal/Ac	Humic Acid	0.25 gal/Ac
	Zicron	0.25 gal/Ac	Zicron	0.25 gal/Ac
	Manron	0.25 gal/Ac	Manron	0.25 gal/Ac
	32-0-0	3 gal/Ac	32-0-0	3 gal/Ac
	12-0-0-26	5 gal/Ac	12-0-0-26	5 gal/Ac
	Pro-Germinator	2.23 gal/Ac	10-34-0	5 gal/Ac
3-Jul	Humic Acid	0.25 gal/Ac	Humic Acid	0.25 gal/Ac
	Zicron	0.25 gal/Ac	Zicron	0.25 gal/Ac
	Manron	0.25 gal/Ac	Manron	0.25 gal/Ac
	Copron	0.25 gal/Ac	Copron	0.25 gal/Ac
	32-0-0	3 gal/Ac	32-0-0	3 gal/Ac
	12-0-0-26	5 gal/Ac	12-0-0-26	5 gal/Ac
	Pro-Germinator	2.14 gal/Ac	10-34-0	5 gal/Ac
15-Jul	Humic Acid	0.25 gal/Ac	Humic Acid	0.25 gal/Ac
	Zicron	0.25 gal/Ac	Zicron	0.25 gal/Ac
	Manron	0.25 gal/Ac	Manron	0.25 gal/Ac
	Copron	0.25 gal/Ac	Copron	0.25 gal/Ac
	32-0-0	5 gal/Ac	32-0-0	5 gal/Ac
	12-0-0-26	2 gal/Ac	12-0-0-26	2 gal/Ac
	Pro-Germinator	2.23 gal/Ac	10-34-0	5 gal/Ac
20-Jul	Humic Acid	0.25 gal/Ac	Humic Acid	0.25 gal/Ac
	Zicron	0.25 gal/Ac	Zicron	0.25 gal/Ac
	Manron	0.25 gal/Ac	Manron	0.25 gal/Ac
	Sure-K	3 gal/Ac	Sure-K	3 gal/Ac
	32-0-0	2.05 gal/Ac	32-0-0	2.05 gal/Ac
24-Jul	12-0-0-26	5.11 gal/Ac	12-0-0-26	4.09 gal/Ac
24-Jui	Pro-Germinator	0.91 gal/Ac	10-34-0	2.05 gal/Ac
	Magnesium	0.25 gal/Ac	Magnesium	0.25 gal/Ac
1-Aug	32-0-0	2 gal/Ac	32-0-0	2 gal/Ac
T-Ang	12-0-0-26	3 gal/Ac	12-0-0-26	3 gal/Ac
	32-0-0	1.14 gal/Ac	32-0-0	1.14 gal/Ac
12-Aug	12-0-0-26	3 gal/Ac	12-0-0-26	3 gal/Ac
	KTS	2 gal/Ac	KTS	2 gal/Ac

	Pro-Germinat	or - West Half	10-34-	0 - East Half
	Product	Rate	Product	Rate
	32-0-0	19.18 gal/Ac	32-0-0	19.18 gal/Ac
	12-0-0-26	28.11 gal/Ac	12-0-0-26	27.09 gal/Ac
	Pro-Germinator	7.50 gal/Ac	10-34-0	22.05 gal/Ac
	10-34-0	5 gal/Ac	Humic Acid	1 gal/Ac
ŝ	Humic Acid	1 gal/Ac	Zicron	1 gal/Ac
Totals:	Zicron	1 gal/Ac	Manron	1 gal/Ac
Ĕ	Manron	1 gal/Ac	Copron	0.5 gal/Ac
	Copron	0.5 gal/Ac	Magnesium	0.25 gal/Ac
	Magnesium	0.25 gal/Ac	Sure-K	3 gal/Ac
	Sure-K	3 gal/Ac	KTS	2 gal/Ac
	KTS	2 gal/Ac		

### WESTERN LABORATORIES, INC.

P.O. Box 1020 • 211 Highway 95 • Parma, ID 83660 208-722-6564 • 1-800-658-3858 • FAX 208-722-6550

Grower: Variety:

Dealer:

10-34-0 Treatment

Monitor No: 531

Acres: 22.5 Area:

SV No:

<b>MX Nutrient</b>	Monitoring	Program	2015	
		FIUYIAIII	2015	

Field id:

			, ing		grai		20	IJ														
LABORAT	ORY	NO	494	1	6147		741 <sup>.</sup>	1	838	1	9022											
DA	ΓE		7/15	5	7/22		7/29	)	8/5	5	8/12											
PLANT NUTRIENTS	SUFFIC RAN		YOUF	ts R	YOUR	S R	YOUF	१ TS	YOUI RESUL	R .TS	YOUR RESULTS	YOUR RESULTS	YO RESL		YOUR RESULTS		OUR SULTS	YOU RESU		YOUR RESULTS		UR ULTS
Nitrates	784	40	1842	6 1	17819	9 1	572	27	1472	20	17237											
Phosphorus	.2 -	.55	0.49	)	0.43		0.53	3	0.40	)	0.26											
Potassium	7.5 -	15	10.2	6	11.03	3 '	10.3	2	7.64	4	10.17											
Sulfur	.2 -	.5	0.30	)	0.32		0.27	7	0.2	5	0.33											
Calcium	.45 -	2	0.88	3	0.94		0.78	3	0.9	6	1.49											
Magnesium	.4 -	1.7	0.26	6	0.17		0.29		0.3	1	0.35											
Zinc	23 -	55	23		25		51		30		42											
Manganese	33 -	70	60		52		50		18		28											
Copper	5 -	30	9		6		6		6		6											
Iron	75 -	350	321		138		262	2	280	)	220											
Boron	21 -	55	29		25		28		29		25											
SOIL NO <sub>3</sub>	POUN	DS																				
SOIL NH4	POUN	DS																				
TOTAL LB	S SOI	LN																				
HIGH	•												REC	ОММ	IENDAT	ION	S IN F	POUN	DS F	PER AC	RE	
	_										-	N	Ρ	Κ	S	Са	Mg	Zn	Mn	Cu	Fe	В
SUFFICIENT		•	• •	•		•		•		•	FOLIAF	ર					0.25		0.2			
DEFICIENT	•				•		•															
ELEMENT	N	Р	ĸs	Ca	Mg	Zn	Mn	Cu	Fe	в	WATEF RUN						5		0.2 5			

## WESTERN LABORATORIES, INC.

P.O. Box 1020 · 211 Highway 95 · Parma, ID 83660 208-722-6564 • 1-800-658-3858 • FAX 208-722-6550 Grower: Variety:

Dealer:

Pro-Germinator Treatment

Monitor No: 542 Acres: 22.5

Area:

SV No:

										Varioty								Area:					SV No:		
MX Nutrient Monitoring Program 2015											Field	d id:	· ·												
LABORAT	ORY	NO	4	954	6	6157	,	742	1	839	1	9032													
DA	ΓE		7	7/15		7/22		7/29	)	8/5	5	8/12													
PLANT NUTRIENTS	SUFFIC RAN	-		OUR SULT		YOUR ESULT	S R	YOUF		YOUI RESUL		YOUR RESULTS			UR ULTS	YOUR RESULTS		OUR SULTS	YOU RESU		YOUR RESULTS		OUR		
Nitrates	78	40	18	878	5   1	745	5   1	1529	8	1792	20	15114													
Phosphorus	.2 -	.55		).41	(	0.50		0.57	7	0.43	3	0.25													
Potassium	7.5 -	15	1	0.23	1	10.75	5	9.36	6	7.92	2	6.45													
Sulfur	.2 -	.5	0	).20		0.25		0.29	9	0.2	1	0.28													
Calcium	.45 -	2	1	1.02		0.85		0.80	)	1.0	7	1.41													
Magnesium	.4 -	1.7		0.50	(	0.52		0.33	3	0.28	8	1.05													
Zinc	23 -	55		95		67		51		30		67													
Manganese	33 -	70		41		35		113	3	32		41													
Copper	5 -	30		10		6		6		4		12													
Iron	75 -	350	) :	352		114		266	6	132	2	197													
Boron	21 -	55		41		27		33		29		26													
SOIL NO <sub>3</sub>	POUN	IDS																							
SOIL NH4	POUN	DS																							
TOTAL LE	S SOI	LN																							
HIGH	•						•							REC	1	1 1		1			PER AC				
SUFFICIEN	r l	•		•	•	•		•	•	•	•		N	Ρ	K	S	Са	Mg	Zn	Mn	Cu	Fe	В		
DEFICIENT			•									FOLIA	R		2										
ELEMENT	N	Р	K	S	Ca	Mg	Zn	Mn	Cu	Fe	В	WATER RUN	२		20										