Dr. Mir-M Seyedbagheri, Director of Research and Development

An Overview of 2014 Potato Field Trials using Humi[K]

Our superior humate extraction methods and spray drying technology results in high polydispersion (solubility) of our Potassium Humate Powder, Humi[K] WSP. Additionally, our Humi[K] reflects a high humic content when analyzed using established Humic Acid testing methods such as A&L, CDFA and ISO. In contrast, some humic companies offer humic products with low humic content, little to no solubility, low polydispersion signatures and higher levels of undissolved solids and heavy metals. We didn't invent Humic, we just perfected it!

We market actively to over 40 countries and consistently receive glowing feedback from international agronomists *(especially in Brazil)* on different potato varieties, vegetable crops, many row crops, and various fruit trees. *They specifically praise the dynamic roles our Humi[K] plays on overall crop yield and quality.*

Below is our 2014 replicated potato research, using our Humi[K] powder, which we solubilized and applied *(please refer to pages 2 and 3).*

In the plots below, we've documented major healthy stolons, along with great tuber initiation, tuber bulking, yield and quality. In other years, many potato growers have demonstrated good results, applying 2 gal at planting, 2 gal at tuber bulking and 2 gal in July, with 10 units of liquid K, along with 6 oz of 2.5 % B. *We have also heard from many growers that potatoes treated with Humi[K] exhibited better storability, minimal hallow heart and shatter bruise.* They have had similar results in Brazil with a plethora of potato studies, namely good yield and quality, water-use efficiency, and ROI.

At HGS, we adhere to the old maxim, *the proof is in the pudding.* This data and other research provide a number of good reference points. *In particular, they highlight the importance of not applying more than 10 gal/acre in one application and the potential ramifications.* Also, our assorted research demonstrates that applying humic in different stages of potato growth *(along with any other crops)* will create more yield and quality.

Liquid Humate Potato Trials 2014

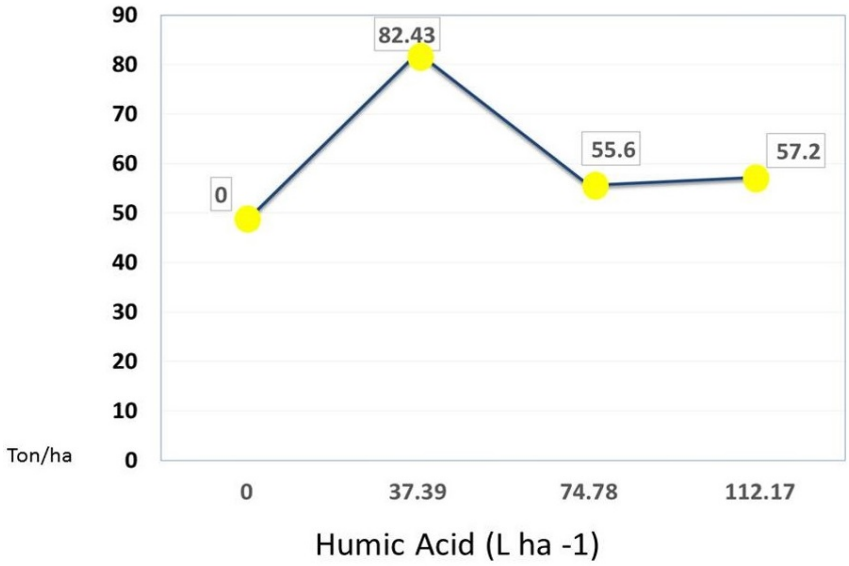
Materials and Methods

In 2014, we conducted potato field trials in Hammett, Idaho, utilizing Norkotah potatoes in sandy loam soil with a pH of 7.9 and 1.4% O.M. We did four replications of each treatment: *Control, 1X, 2X, & 3X, 0, 37.39, 74.78, and 112.17 L* ha^{-1} *respectively.* The plots were 50 feet rows and 8 rows each. We applied HA as a foliar spray, using backpack sprayers on plants 4-6 inches in diameter with dry soil conditions on top. The objectives were to evaluate the influence of HA on crop yield and quality. The potatoes were hand-harvested and weighed. Our data showed that the potatoes from row 1X had a 26.8% difference in yield compared to the control rows. *(Fig. 3)*

Results and Discussion

The trial results shown in tables 5 & 6 documented differences between control and treated rows. The regression graph *(Fig. 3)* shows the statistically significant difference between control and 1X (*37.39 L ha^{-1}*). On rows 2X *(74.78 liters/ ha^{-1})* and 3X *(112.17 L/ ha^{-1})* there was not a statistically significant control.

Effects of Different Rates of Humic Acids (L ha-1) on Potato Yield



2014 Potato research: Total yield per treatment

	Treatment	Rate/ha	<4	4-6	6-8	8-10	10-12	12-14	14-16	>16	TOTAL
1	CONTROL	0.00	11	12	17	15	9	8	6	8	86
2	CONTROL	0.00	10	13	16	13	7	8	5	7	79
3	CONTROL	0.00	12	14	17	14	8	7	6	6	84
4	CONTROL	0.00	14	12	16	14	6	5	4	6	77
5	HUMIC A-1X	37.39	28	22	23	15	9	10	8	14	129
6	HUMIC A-1X	37.39	19	19	27	20	14	9	10	14	132
7	HUMIC A-1X	37.39	18	18	30	28	11	12	12	12	141
8	HUMIC A-1X	37.39	12	16	29	25	14	8	14	16	143
9	HUMIC A-2X	74.78	20	12	18	11	10	9	4	11	95
10	HUMIC A-2X	74.78	22	14	17	12	11	8	5	10	99
11	HUMIC A-2X	74.78	21	14	17	10	9	7	8	8	94
12	HUMIC A-2X	74.78	19	10	20	9	10	9	4	11	92
13	HUMIC A-3X	112.17	22	17	19	10	13	7	7	9	104
14	HUMIC A-3X	112.17	20	18	20	8	11	8	8	8	101
15	HUMIC A-3X	112.17	23	19	19	10	12	7	7	8	105
16	HUMIC A-3X	112.17	24	18	17	8	12	6	7	7	99

2014 Potato research: Total tubers/yield per treatment

	Treatment	Total Tuber #	TT# <4	Total Yield per ha	Total Yield (-<4)
1	CONTROL	205622.56	2236.86	**53142.43**	**50905.57**
2	CONTROL	188885.84	2033.51	**47855.30**	**45821.79**
3	CONTROL	200840.64	2440.21	**49346.55**	**46906.33**
4	CONTROL	184103.92	2846.92	**43313.79**	**40466.88**
5	HUMIC A-1X	308433.84	5693.83	**73952.03**	**68258.20**
6	HUMIC A-1X	315606.72	3863.67	**80933.76**	**77070.09**
7	HUMIC A-1X	337125.36	3660.32	**86695.37**	**83035.05**
8	HUMIC A-1X	320388.64	2440.21	**88118.83**	**85678.62**
9	HUMIC A-2X	227141.20	4067.02	**56260.48**	**52193.46**
10	HUMIC A-2X	236705.04	4473.73	**57141.67**	**52667.95**
11	HUMIC A-2X	224750.24	4270.37	**53955.84**	**49685.46**
12	HUMIC A-2X	219968.32	3863.67	**55108.16**	**51244.49**
13	HUMIC A-3X	248659.84	4473.73	**59310.75**	**54837.03**
14	HUMIC A-3X	241486.96	4067.02	**57683.94**	**53611.92**
15	HUMIC A-3X	251050.80	4677.08	**58226.21**	**53549.14**
16	HUMIC A-3X	236705.04	4880.43	**53802.27**	**48939.84**

Dr. Mir and Humi[K], both hard at work for the American farmer

The proverbial proof is in the pudding (or potatoes in this case)