2004 POTATO - EARLY BLIGHT FUNGICIDE TRIALS

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Location: San Luis Valley Research Center, Center, CO

Cultivar: Russet Norkotah Selection 8, cut seed, 2-4 oz.

Application: All treatments applied using an R & D CO_2 charged tractor mounted plot sprayer with four XR 8002VS nozzles spaced seventeen inches apart at 60 psi pressure and applying 40 gallons/acre as a broadcast application.

Spray Dates: July 6; July 12; July 19; July 26; August 3; August 12; August 16; August 23

Planted: May 5, 2004

Plot Design: Randomized complete block

Plot Size: 4 - 20 foot rows per treatment per replication, treatments applied to center two rows and data taken on center two rows.

Plant Spacing: 12 inches

Row Spacing: 34 inches

Replications: Four

Irrigation: Solid set sprinkler, rate based on ET

Fertilizer: 80N-60P-40K-25S-2.5Zn, preplant, 20N through sprinkler after tuber set

Herbicide: Sencor, 0.66 lb./A + Dual Magnum, 1.5 pt./A + Spartan, 2.66 oz./A

Insecticide: None

Vine Killer: Mechanically removed on September 2, 2004

Harvested: September 16 & 17, 2004

DATA:

Disease: Early blight disease incidence based on percent leaves infected, readings taken weekly starting August 4, 2004.

Yield: 2-20 foot rows per treatment per replication, total yield expressed as cwt/A.

Grade: By hand, percent tubers by weight in pounds < 4 oz., 4-10 oz., > 10 oz., US #2's, and culls.

Table 1. Fungicide programs evaluated for early blight control, San Luis Valley, Colorado 2004.

Program	Products	Rate	Application Schedule[a]
1	Untreated Control		
2	Dithane DF	2.0 lb./A	1,2,3,4,5,6,7,8
3	Cuprofix MZ Penncozeb 75DF Headline	4.0 lb./A 2.0 lb./A 6.1 fl.oz./A	1 3,7 5
4	Cuprofix MZ Penncozeb 75DF Headline	4.0 lb./A 3.0 pt./A 6.1 fl.oz./A	1 3,7 5
5	Cuprofix MZ Penncozeb 75DF	4.0 lb./A 2.0 lb./A	1,5 3,7
6	Cuprofix MZ Penncozeb 4F Bond	4.0 lb./A 3.0 pt./A 4.0 fl.oz./A	1,5 3,7 1,3,5,7
7	Headline Preference Dithane	6.0 fl.oz./A 0.25 %v/v 2.0 lb./A	1,5 1,5 3,7
8	Endura Rivet Headline Preference Dithane	2.5 oz./A 0.5 %v/v 6.0 fl.oz./A 0.25 %v/v 2.0 lb./A	1,7 1,7 3 3 5
9	Amistar Bravo WS	2.0 oz./A 1.25 pt./A	1,5 3,7
10	AGM 04004	32.0 fl.oz./A	5,7
11	AGM 04010	32.0 fl.oz./A	5,7
12	AGM 04009	32.0 fl.oz./A	5,7
13	AGM 040024 10-52-10 Class Act	0.6 fl.oz./A 5.0 lb./A 2.5 gal./100gal.	1,4,8 1,4,8 1,4,8
14	AGM 04024	0.6 fl.oz./A	1,4,8
15	AGM 04026	6.0 fl.oz./A	1,4,8
16	Quadris Bravo WS	6.2 fl.oz./A 1.25 pt./A	1,5 3,7
17	Amistar Bravo WS	2.0 oz./A 1.25 pt./A	1,5 3,7
18	Bravo WS Quadris Dithane SuperTin	1.25 pt./A 6.2 fl.oz./A 2.0 lb./A 2.5 oz./A	1 3 5 7
19	Dithane Quadris SuperTin	2.0 lb./A 6.2 fl.oz./A 2.5 oz./A	1 3 5
20	Bravo WS Quadris Bravo WS	1.25 pt./A 6.2 fl.oz./A 1.5 pt./A	2 3 5
21	Champ 2F Polyram DF Champ 2F	1.0 pt./A 2.0 lb./A 1.95 pt./A	2 3 5

[a] Schedule for applying treatments on a weekly basis, schedule started on July 6 (i.e. 1 = week 1, 2 = week 2).

Table 2. Effect of fungicide programs on the incidence of early blight in the cultivar Russet Norkotah Selection 8, San Luis Valley, Colorado, 2004; No Late Blight occurred within the trial.

	Percent Leaves Infected					
Treatment	August 4	August 13	August 19	August 25	August 30	AUDPC[a]
1	9.4	30.8	36.0	96.3	100.0	954.0 a
2	2.3	5.3	14.7	58.3	85.8	582.4 fgh
3	3.2	4.8	13.3	46.7	77.8	509.8 hij
4	3.0	6.1	13.8	43.8	75.4	497.0 h-k
5	4.5	6.8	18.1	70.4	91.3	668.5 def
6	3.1	6.4	15.9	64.2	83.8	606.6 efg
7	2.3	5.9	13.5	45.0	79.2	510.4 hij
8	2.8	6.4	16.6	35.4	60.8	427.3 jkl
9	3.2	4.8	14.2	27.1	54.2	361.7 l
10	8.5	14.6	16.8	79.6	97.8	760.4 bc
11	8.4	15.0	24.5	77.5	97.3	779.6 bc
12	7.5	16.3	24.7	81.3	96.5	791.6 b
13	5.1	10.9	20.6	67.9	94.8	697.6 cde
14	7.2	17.0	24.5	80.8	99.6	801.8 b
15	8.3	16.5	25.4	80.0	96.9	794.8 b
16	2.3	6.7	13.7	35.4	60.0	413.3 kl
17	2.2	6.3	14.9	28.8	54.2	372.2 l
18	1.9	7.0	18.2	44.6	64.6	477.1 ijk
19	2.6	7.6	14.8	57.1	69.2	529.4 ghi
20	2.3	6.0	12.9	42.5	75.8	488.6 ijk
21	5.3	12.3	22.7	77.1	95.7	745.5 bcd
LSD(P=0.05)	1.88	4.42	7.96	17.67	9.91	91.78

[a]AUDPC is the Area Under the Disease Progress Curve.
Means followed by the same letters are not significantly different at P=0.05 for AUDPC.

Table 3. Effect of fungicide programs on tuber yield and quality in the cultivar Russet Norkotah Selection 8, San Luis Valley, Colorado, 2004.

	Percent[a]					
Treatment	< 4 oz.	4-10 oz.	> 10 oz.	US #2s	Culls	Cwt/A[b]
1	4.8	33.7	42.1	1.0	1.2	309.9
2	4.3	28.6	43.6	0.2	1.0	294.1
3	5.7	32.6	48.2	0.5	2.1	332.6
4	4.4	28.6	41.8	0.5	1.4	287.8
5	4.0	27.9	48.4	0.6	1.6	308.9
6	3.4	29.2	51.6	0.4	1.2	324.1
7	4.3	34.6	46.8	1.5	1.6	329.6
8	4.5	29.1	54.4	1.0	2.1	338.4
9	2.9	28.9	48.2	0.3	1.5	307.7
10	4.1	31.1	35.8	2.1	2.1	272.9
11	5.1	31.1	42.0	0.4	0.2	300.7
12	4.5	31.1	41.6	1.1	0.5	296.7
13	4.9	27.4	42.9	1.4	0.6	289.3
14	4.5	30.1	37.7	0.4	0.6	278.1
15	4.7	30.0	46.8	0.8	0.8	313.3
16	4.3	27.2	49.0	0.9	1.3	309.8
17	3.8	32.0	48.6	1.1	0.7	324.6
18	3.8	29.0	48.4	1.3	1.1	312.2
19	3.8	29.4	45.0	0.4	1.1	300.7
20	4.4	30.3	57.2	0.6	1.0	353.6
21	4.2	28.4	53.4	1.8	0.8	330.9
LSD(P=0.05)	NS	NS	NS	NS	NS	NS

[a] Based on tuber weight in pounds, mean of four replications.
[b] Total yield expressed as hundred weight per acre, 2-20 foot rows per treatment per replication, mean of four replications.