

POTATO HERBICIDE EFFICACY EVALUATION - Arlington, WI - 2012
 Daniel J. Heider / Jed B. Colquhoun

Location: Arlington Ag Research Station - Field 619

Plot Information:

Soil Type: Plano Silt Loam; pH 6.8; OM 3.6%.
 Potato Cultivar: Superior
 Date Planted: 5/10/12
 Row Spacing: 36 Inches, 4 rows/plot
 Plant Spacing: 12 inches
 Date Harvested: 8/22/12
 Plot Size-Design: 12' x 20', 4 Reps
 Rating Dates: 6/4, 6/13, 6/20

Application Equipment: Tractor mounted air pressure sprayer. GPA 20, PSI 27, MPH 3.3
 Nozzle - XR8003VS, Nozzle spacing 18", Height 18".

Herbicide Application Data:

| Date | 5/22 | 6/4 |
|----------------|-----------|-----------|
| Time | 6:00 am | 12:00 pm |
| Treatment | HS | PO1 |
| Soil Moisture | | |
| SF | dry | dry |
| 1" | dry | dry |
| 3" | moist | moist |
| Soil Temp (F°) | | |
| SF | 60.3 | 107.1 |
| 3" | 58.0 | 73.4 |
| Air Temp (F°) | 59.2 | 80.6 |
| Wind | 1.8 E | 0.7 N |
| %RH | 47.8% | 45.2% |
| Sky Condition | 0% clouds | 0% clouds |
| Crop Stage | pre | 8-12" |
| Weed & Size | pre | COLQ 1" |
| | ----- | RRPW 1" |
| | ----- | VELE 1" |
| | ----- | YEFT 1" |
| | ----- | |

Summary: This site received only 0.56" of rain during the 48 days beginning June 1st. This lack of moisture resulted in relatively poor weed control across most treatments. Several of the unregistered treatments that included herbicides such as Callisto, Firstrate, V-10142 and Pyroxasulfone all performed quite adequately with no reported crop injury. Yield comparisons are not as dramatic as expected and may have been hindered more from dry conditions than from reduced performance of weed control.

Fertilization and other pesticides: 6-24-24 @ 350 lb/A on 5/10 with Platinum insecticide impregnated on fertilizer. 6/21 - Baythroid 2XL 2.8 oz/a. 6/25 - Coragen 5.0 oz/A
 Irrigation: 7/1 - 1", 7/17 - 0.8"

Vine Desiccation: 8/10 - Reglone 1 pt/a + NIS

Weed Abbreviations:

COLQ = Common Lambsquarters
 RRPW = Redroot Pigweed
 YEFT = Yellow Foxtail
 VELE = Velvetleaf

Plot Weed Density:

high
 Moderate
 high
 Moderate

Potato Herbicide Efficacy 2012 - Arlington, WI

| Trt No. | Treatment Name | Rate | Unit | Grow Stg | % Injury 6/4/12 | % Weed Control 6/4/12 | | | |
|---------|-----------------|------------|------|----------|-----------------|-----------------------|---------|---------|----------|
| | | | | | | COLQ | CORW | VELE | YEFT |
| 1 | Untreated Check | | | | 0 b | 0 c | 0 c | 0 d | 0 e |
| 2 | Metribuzin | 0.5 LB | A/A | HS | 0 b | 100 a | 100 a | 100 a | 100 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 3 | Lorox | 1 LB/A | | HS | 0 b | 100 a | 100 a | 81.7 ab | 98.3 ab |
| | Curbit | 3 PT/A | | HS | | | | | |
| 4 | NAI 1333 | 1.5 OZ/A | | HS | 0 b | 100 a | 100 a | 83.3 ab | 100 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 5 | NAI 1333 | 2 OZ/A | | HS | 0 b | 100 a | 98.3 ab | 65 bc | 43.3 d |
| 6 | NAI 1333 | 2 OZ/A | | HS | 0 b | 100 a | 100 a | 83.3 ab | 100 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 7 | NAI 1333 | 2.5 OZ/A | | HS | 0 b | 100 a | 100 a | 53.3 c | 76.7 bc |
| 8 | NAI 1333 | 2.5 OZ/A | | HS | 0 b | 100 a | 100 a | 90 a | 98.3 ab |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 9 | NAI 1333 | 3 OZ/A | | HS | 0 b | 99.3 b | 96.7 b | 66.7 bc | 88.3 abc |
| 10 | NAI 1333 | 3 OZ/A | | HS | 0 b | 100 a | 100 a | 86.7 a | 100 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 11 | NAI 1333 | 4.25 OZ/A | | HS | 0 b | 100 a | 100 a | 91.7 a | 99.3 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 12 | NAI 1333 | 5.5 OZ/A | | HS | 0 b | 100 a | 100 a | 96 a | 100 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 13 | Matrix | 1.5 OZ/A | | PO1 | 0 b | 0 c | 0 c | 0 d | 0 e |
| | NIS | 0.25 % V/V | | PO1 | | | | | |
| 14 | Solida | 1.5 OZ/A | | PO1 | 0 b | 0 c | 0 c | 0 d | 0 e |
| | NIS | 0.25 % V/V | | PO1 | | | | | |
| 15 | Callisto | 1 OZ/A | | HS | 0 b | 100 a | 100 a | 100 a | 100 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 16 | Callisto | 2 OZ/A | | HS | 0 b | 100 a | 100 a | 99.3 a | 100 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 17 | Sharpen | 1.5 OZ/A | | HS | 0 b | 100 a | 100 a | 100 a | 99.3 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 18 | Sharpen | 2.5 OZ/A | | HS | 0 b | 100 a | 100 a | 100 a | 100 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 19 | Firstrate | 0.25 OZ/A | | HS | 0 b | 100 a | 100 a | 100 a | 100 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 20 | Firstrate | 0.5 OZ/A | | HS | 0 b | 100 a | 100 a | 100 a | 100 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 21 | V-10142 | 0.4 LB | A/A | HS | 0 b | 100 a | 100 a | 99.3 a | 66 c |
| 22 | Pyroxasulfone | 0.213 LB | A/A | HS | 0 b | 100 a | 100 a | 100 a | 100 a |
| 23 | Pyroxasulfone | 0.213 LB | A/A | HS | 0 b | 100 a | 100 a | 97.7 a | 100 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 24 | Chateau | 2 OZ/A | | HS | 5 a | 100 a | 100 a | 100 a | 100 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |

LSD (P=.05)

1.68

0.39

2.19

19.99

22.50

Means followed by same letter do not significantly differ (P=.05, LSD)

Potato Herbicide Efficacy 2012 - Arlington, WI

| Trt No. | Treatment Name | Rate | Unit | Grow Stg | % Injury 6/13/12 | % Weed Control 6/13/12 | | | |
|---------|-----------------|------------|------|----------|------------------|------------------------|--------|----------|--------|
| | | | | | | COLQ | RRPW | VELE | YEFT |
| 1 | Untreated Check | | | | 0 c | 0 c | 0 c | 0 f | 0 a |
| 2 | Metribuzin | 0.5 LB | A/A | HS | 0 c | 100 a | 100 a | 100 a | 100 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 3 | Lorox | 1 LB/A | | HS | 0 c | 97.7 a | 65 b | 83.3 abc | 97.7 a |
| | Curbit | 3 PT/A | | HS | | | | | |
| 4 | NAI 1333 | 1.5 OZ/A | | HS | 0 c | 97.7 a | 98.3 a | 91 ab | 400 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 5 | NAI 1333 | 2 OZ/A | | HS | 0 c | 92.7 a | 55 b | 76 bcd | 23.3 a |
| 6 | NAI 1333 | 2 OZ/A | | HS | 0 c | 98.7 a | 98.3 a | 88.3 abc | 98.3 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 7 | NAI 1333 | 2.5 OZ/A | | HS | 0 c | 83.3 a | 55 b | 53.3 de | 55 a |
| 8 | NAI 1333 | 2.5 OZ/A | | HS | 0 c | 96.7 a | 96 a | 90 abc | 100 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 9 | NAI 1333 | 3 OZ/A | | HS | 0 c | 64.3 b | 63.3 b | 48.3 e | 62.7 a |
| 10 | NAI 1333 | 3 OZ/A | | HS | 0 c | 86.7 a | 95 a | 66.7 cde | 96.7 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 11 | NAI 1333 | 4.25 OZ/A | | HS | 0 c | 98.7 a | 100 a | 86 abc | 100 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 12 | NAI 1333 | 5.5 OZ/A | | HS | 0 c | 96.7 a | 99.3 a | 86 abc | 100 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 13 | Matrix | 1.5 OZ/A | | PO1 | 8.3 b | 100 a | 100 a | 100 a | 100 a |
| | NIS | 0.25 % V/V | | PO1 | | | | | |
| 14 | Solida | 1.5 OZ/A | | PO1 | 11.7 a | 100 a | 100 a | 100 a | 100 a |
| | NIS | 0.25 % V/V | | PO1 | | | | | |
| 15 | Callisto | 1 OZ/A | | HS | 0 c | 100 a | 99.3 a | 99.3 ab | 99.3 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 16 | Callisto | 2 OZ/A | | HS | 0 c | 100 a | 99.3 a | 100 a | 100 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 17 | Sharpen | 1.5 OZ/A | | HS | 0 c | 99.3 a | 100 a | 99.3 ab | 99.3 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 18 | Sharpen | 2.5 OZ/A | | HS | 0 c | 100 a | 100 a | 100 a | 100 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 19 | Firstrate | 0.25 OZ/A | | HS | 0 c | 100 a | 100 a | 99.3 ab | 99.3 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 20 | Firstrate | 0.5 OZ/A | | HS | 0 c | 100 a | 100 a | 100 a | 98.3 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 21 | V-10142 | 0.4 LB | A/A | HS | 0 c | 99.3 a | 100 a | 98.7 ab | 53.3 a |
| 22 | Pyroxasulfone | 0.213 LB | A/A | HS | 0 c | 100 a | 100 a | 100 a | 100 a |
| 23 | Pyroxasulfone | 0.213 LB | A/A | HS | 0 c | 100 a | 100 a | 96.7 ab | 100 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 24 | Chateau | 2 OZ/A | | HS | 0 c | 100 a | 100 a | 100 a | 100 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |

LSD (P=.05) 2.72 17.13 24.93 23.40 179.21

Means followed by same letter do not significantly differ (P=.05, LSD)

Potato Herbicide Efficacy 2012 - Arlington, WI

| Trt No. | Treatment Name | Rate | Unit | Grow Stg | % Injury 6/20/12 | % Weed Control 6/20/12 | | | |
|---------|-----------------|------------|------|----------|------------------|------------------------|---------|----------|---------|
| | | | | | | COLQ | RRPW | VELE | YEFT |
| 1 | Untreated Check | | | | 0 a | 0 f | 0 d | 0 f | 0 d |
| 2 | Metribuzin | 0.5 LB | A/A | HS | 0 a | 100 a | 100 a | 100 a | 99.3 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 3 | Lorox | 1 LB/A | | HS | 0 a | 83.3 bc | 60 b | 68.3 bcd | 91.7 a |
| | Curbit | 3 PT/A | | HS | | | | | |
| 4 | NAI 1333 | 1.5 OZ/A | | HS | 0 a | 92.7 ab | 95 a | 94.3 ab | 97.7 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 5 | NAI 1333 | 2 OZ/A | | HS | 0 a | 76.7 c | 23.3 c | 48.3 de | 36.7 c |
| 6 | NAI 1333 | 2 OZ/A | | HS | 0 a | 97 ab | 95 a | 90 ab | 97.7 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 7 | NAI 1333 | 2.5 OZ/A | | HS | 0 a | 40 e | 13.3 cd | 38.3 e | 53.3 bc |
| 8 | NAI 1333 | 2.5 OZ/A | | HS | 0 a | 93.3 ab | 98.7 a | 80 abc | 97.7 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 9 | NAI 1333 | 3 OZ/A | | HS | 0 a | 59.3 d | 56.7 b | 51.7 cde | 61.7 b |
| 10 | NAI 1333 | 3 OZ/A | | HS | 0 a | 88.3 abc | 93.3 a | 80 abc | 93.3 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 11 | NAI 1333 | 4.25 OZ/A | | HS | 0 a | 88.3 abc | 99.3 a | 88.3 ab | 96 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 12 | NAI 1333 | 5.5 OZ/A | | HS | 0 a | 91.7 ab | 93.3 a | 86.7 ab | 99.3 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 13 | Matrix | 1.5 OZ/A | | PO1 | 0 a | 98 ab | 97 a | 99.3 a | 96.7 a |
| | NIS | 0.25 % V/V | | PO1 | | | | | |
| 14 | Solida | 1.5 OZ/A | | PO1 | 0 a | 97.7 ab | 98.7 a | 97 ab | 98.3 a |
| | NIS | 0.25 % V/V | | PO1 | | | | | |
| 15 | Callisto | 1 OZ/A | | HS | 0 a | 99.3 a | 96.7 a | 97.7 ab | 96.7 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 16 | Callisto | 2 OZ/A | | HS | 0 a | 100 a | 95.3 a | 97.7 ab | 96.7 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 17 | Sharpen | 1.5 OZ/A | | HS | 0 a | 99.3 a | 100 a | 99.3 a | 94.3 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 18 | Sharpen | 2.5 OZ/A | | HS | 0 a | 100 a | 100 a | 100 a | 96.7 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 19 | Firstrate | 0.25 OZ/A | | HS | 0 a | 100 a | 100 a | 98.3 a | 94.3 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 20 | Firstrate | 0.5 OZ/A | | HS | 0 a | 100 a | 100 a | 100 a | 91.7 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 21 | V-10142 | 0.4 LB | A/A | HS | 0 a | 98.3 a | 100 a | 97.7 ab | 62.7 b |
| 22 | Pyroxasulfone | 0.21 LB | A/A | HS | 0 a | 99.3 a | 98.3 a | 100 a | 97.7 a |
| 23 | Pyroxasulfone | 0.21 LB | A/A | HS | 0 a | 97.7 ab | 98.3 a | 94.3 ab | 96.7 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |
| 24 | Chateau | 2 OZ/A | | HS | 0 a | 97.7 ab | 98.3 a | 98.3 a | 98.7 a |
| | Dual Magnum | 1 PT/A | | HS | | | | | |

LSD (P=.05) 0.00 14.76 22.16 29.75 17.82

Means followed by same letter do not significantly differ (P=.05, LSD)

Potato Herbicide Efficacy 2012 - Arlington, WI

| Trt No. | Treatment Name | Rate | Unit | Grow Stg | Yield 8/22/12 (cwt/A) | | | |
|---------|-----------------|-------|--------|----------|-----------------------|-----------|------------|-------------|
| | | | | | B's | Cull's | A's | Total Yield |
| 1 | Untreated Check | | | | 38.60 f | 5.45 f | 65.22 h | 109.26 i |
| 2 | Metribuzin | 0.5 | LB A/A | HS | 67.03 ab | 15.97 a-d | 123.78 b-e | 206.79 a-d |
| | Dual Magnum | 1 | PT/A | HS | | | | |
| 3 | Lorox | 1 | LB/A | HS | 48.28 def | 8.59 c-f | 93.05 e-h | 149.92 ghi |
| | Curbit | 3 | PT/A | HS | | | | |
| 4 | NAI 1333 | 1.5 | OZ/A | HS | 71.03 a | 14.76 a-e | 124.75 b-e | 210.54 a-d |
| | Dual Magnum | 1 | PT/A | HS | | | | |
| 5 | NAI 1333 | 2 | OZ/A | HS | 51.43 b-f | 7.62 def | 79.50 gh | 138.55 hi |
| 6 | NAI 1333 | 2 | OZ/A | HS | 46.83 ef | 8.59 c-f | 113.74 c-g | 169.16 d-h |
| | Dual Magnum | 1 | PT/A | HS | | | | |
| 7 | NAI 1333 | 2.5 | OZ/A | HS | 58.93 a-e | 6.66 ef | 77.68 gh | 143.26 hi |
| 8 | NAI 1333 | 2.5 | OZ/A | HS | 61.95 a-e | 18.63 ab | 129.47 a-e | 210.06 a-d |
| | Dual Magnum | 1 | PT/A | HS | | | | |
| 9 | NAI 1333 | 3 | OZ/A | HS | 53.97 b-f | 7.50 def | 93.53 e-h | 155.00 fgh |
| 10 | NAI 1333 | 3 | OZ/A | HS | 54.69 a-f | 6.17 ef | 99.22 d-h | 160.08 e-h |
| | Dual Magnum | 1 | PT/A | HS | | | | |
| 11 | NAI 1333 | 4.25 | OZ/A | HS | 61.71 a-e | 6.66 ef | 100.67 d-h | 169.04 d-h |
| | Dual Magnum | 1 | PT/A | HS | | | | |
| 12 | NAI 1333 | 5.5 | OZ/A | HS | 54.09 b-f | 8.11 c-f | 83.01 fgh | 145.20 ghi |
| | Dual Magnum | 1 | PT/A | HS | | | | |
| 13 | Matrix | 1.5 | OZ/A | PO1 | 53.12 b-f | 11.98 b-f | 123.66 b-e | 188.76 b-g |
| | NIS | 0.25 | % V/V | PO1 | | | | |
| 14 | Solida | 1.5 | OZ/A | PO1 | 59.65 a-e | 21.05 a | 131.53 a-d | 212.23 a-d |
| | NIS | 0.25 | % V/V | PO1 | | | | |
| 15 | Callisto | 1 | OZ/A | HS | 66.31 abc | 16.21 a-d | 139.76 abc | 222.28 ab |
| | Dual Magnum | 1 | PT/A | HS | | | | |
| 16 | Callisto | 2 | OZ/A | HS | 63.65 a-d | 18.03 ab | 141.33 abc | 223.00 ab |
| | Dual Magnum | 1 | PT/A | HS | | | | |
| 17 | Sharpen | 1.5 | OZ/A | HS | 49.61 c-f | 10.65 b-f | 142.78 abc | 203.04 a-e |
| | Dual Magnum | 1 | PT/A | HS | | | | |
| 18 | Sharpen | 2.5 | OZ/A | HS | 67.16 ab | 16.70 abc | 135.64 a-d | 219.49 abc |
| | Dual Magnum | 1 | PT/A | HS | | | | |
| 19 | Firstrate | 0.25 | OZ/A | HS | 48.28 def | 12.22 a-f | 116.52 c-f | 177.02 c-h |
| | Dual Magnum | 1 | PT/A | HS | | | | |
| 20 | Firstrate | 0.5 | OZ/A | HS | 57.84 a-e | 10.65 b-f | 127.53 a-e | 196.02 b-f |
| | Dual Magnum | 1 | PT/A | HS | | | | |
| 21 | V-10142 | 0.4 | LB A/A | HS | 66.07 abc | 10.77 b-f | 124.39 b-e | 201.22 a-e |
| 22 | Pyroxasulfone | 0.213 | LB A/A | HS | 64.01 a-d | 18.03 ab | 162.62 a | 244.66 a |
| 23 | Pyroxasulfone | 0.213 | LB A/A | HS | 61.83 a-e | 10.65 b-f | 144.47 abc | 216.95 abc |
| | Dual Magnum | 1 | PT/A | HS | | | | |
| 24 | Chateau | 2 | OZ/A | HS | 58.20 a-e | 9.80 b-f | 155.24 ab | 223.25 ab |
| | Dual Magnum | 1 | PT/A | HS | | | | |

LSD (P=.05)

16.705

8.870

36.577

43.779

Means followed by same letter do not significantly differ (P=.05, LSD)