

Weed control and crop tolerance with Warrant in established alfalfa

Trial ID: ALF01-17
 Conducted: Campus B-10 (Quonset)

Study Dir.: Sprague, Powell, Stiles
 Investigator: Christy Sprague

Planting Date: Apr-19-2016
Variety: DKC 44-16 RR
Population: 26 LB/A
Soil Type: L loam
Plot Size: 10 X 30 FT

Row Spacing: 7.5 IN
No. of Reps: 4
% OM: 2.3
pH: 7.3
Study Design: Randomized Complete Block (RCB)

Tillage/Previous Crops:
Fertilizer:

Crop and Weed Description

| Weed | Code | Common Name | Scientific Name |
|------|-------|-------------------|-------------------------|
| 1 | POAAN | bluegrass, annual | Poa annua |
| 2 | THLAR | field pennycress | Thlaspi arvense |
| 3 | CAPBP | Shepherd's purse | Capsella bursa-pastoris |
| 4 | STEME | chickweed, common | Stellaria media |
| Crop | Code | Common Name | |
| 1 | MEDSA | Alfalfa | |

Application Description

| | A | B |
|---------------------------------------|-------------|-------------|
| Application Timing: | EPOS | LPOS |
| Date Treated: | Apr-12-2017 | Jun-12-2017 |
| Time Treated: | 2:00 PM | 9:00 AM |
| % Cloud Cover: | 10 | 30 |
| Air Temp., Unit: | 53 F | 76 F |
| % Relative Humidity: | 49 | 58 |
| Wind Speed/Unit/Dir: | 5 mph NW | 2 mph W |
| Soil Temp, Unit: | 51 F | 70 F |
| Leaf Moist/Dew Presence (Y/N): | 5 | 5 |
| Soil Moist: | 3 | 5 |

Crop Stage at Each Application

| | A | B |
|---------------------|-------------|------------|
| Crop 1 Name: | MEDSA | MEDSA |
| Height: | 3-4 " (3.5) | 8-10 " (9) |
| Stage: | 4 Tri | |

Weed Stage at Each Application

| | A | B |
|---------------------|-----------|-------|
| Weed 1 Name: | POAAN | POAAN |
| Height: | 2 " | |
| Stage: | 4 | |
| Weed 2 Name: | THLAR | THLAR |
| Height: | 2-6 " (4) | |
| Stage: | Many | |
| Weed 3 Name: | CAPBP | CAPBP |
| Height: | 3 " | |
| Stage: | 12L | |
| Weed 4 Name: | STEME | STEME |
| Height: | 2 " | |
| Stage: | Many | |

Weed Density

| | 1 | 2 | 3 | 4 |
|-------------------|-------------|-------------|-------------|-------------|
| Date: | Apr-12-2017 | Apr-12-2017 | Apr-12-2017 | Apr-12-2017 |
| Weed Name: | POAAN | THLAR | CAPBP | STEME |
| Density: | 3 FT2 | 1 FT2 | 2 FT2 | 1 FT2 |

Application Equipment

| Appl | Sprayer Type | Ground Speed | Nozzle Type | Nozzle Size | Nozzle Height | Nozzle Spacing | Boom Width | Spray Volume | Carrier | Operation Pressure |
|------|--------------|--------------|-------------|-------------|---------------|----------------|------------|--------------|---------|--------------------|
| A | Cub | 3.8 MPH | AIXR | 11003 | 22 " | 20 " | 100 " | 19 GPA | WATER | 30 PSI |
| B | Cub | 3.8 MPH | AIXR | 11003 | 24 " | 20 " | 100 " | 19 GPA | WATER | 30 PSI |

Comments: The establishment year for this trial was spring 2016. After the first cutting there were no weeds to evaluate for control in any of the treatments including the untreated control throughout the remainder of the season.

Weed control and crop tolerance with Warrant in established alfalfa

Trial ID: ALF01-17

Location: Campus B-10 (Quonset)

Investigator: Christy Sprague

Study Director: Sprague, Powell, Stiles

| Pest Code | MEDSA A | MEDSA B | MEDSA | POAAN | THLAR |
|--------------------|-------------|-------------|-------------|-------------|-------------|
| Crop Code | Apr-12-2017 | Apr-12-2017 | Apr-19-2017 | Apr-19-2017 | Apr-19-2017 |
| Rating Date | stand count | stand count | injury | control | control |
| Rating Type | ft2 | ft2 | percent | percent | percent |
| Rating Unit | 0 DA-A | 0 DA-A | 7 DA-A | 7 DA-A | 7 DA-A |
| Trt-Eval Interval | 0 | 0 | 0 | 0 | 0 |
| Number of Decimals | | | | | |

| Trt No. | Treatment Name | Form Conc | Form Type | Rate | Rate Unit | Appl Code | * | * | * | * | * |
|--------------------|----------------------|-----------|-----------|---------------|-----------|-----------|-------|-------|-------|-------|-------|
| 1 | Roundup PowerMax | 4.5 | SL | 32 fl oz/a | | A | 3 | 5 | 0 | 38 | 38 |
| 1 | Warrant | 3 | L | 3 pt/a | | A | | | | | |
| 1 | AMS | | WG | 17 lb/100 gal | | A | | | | | |
| 2 | Roundup PowerMax | 4.5 | SL | 32 fl oz/a | | A | 5 | 5 | 0 | 39 | 28 |
| 2 | Warrant | 3 | L | 6 pt/a | | A | | | | | |
| 2 | AMS | | WG | 17 lb/100 gal | | A | | | | | |
| 3 | Untreated | | | | | | 4 | 4 | 0 | 0 | 0 |
| 4 | Roundup PowerMax | 4.5 | SL | 32 fl oz/a | | A | 4 | 5 | 0 | 38 | 38 |
| 4 | AMS | | WG | 17 lb/100 gal | | A | | | | | |
| 4 | Warrant | 3 | L | 3 pt/a | | B | | | | | |
| 4 | Roundup PowerMax | 4.5 | SL | 32 fl oz/a | | B | | | | | |
| 4 | AMS | | WG | 17 lb/100 gal | | B | | | | | |
| 5 | Roundup PowerMax | 4.5 | SL | 32 fl oz/a | | A | 4 | 4 | 0 | 38 | 38 |
| 5 | AMS | | WG | 17 lb/100 gal | | A | | | | | |
| 5 | Warrant | 3 | L | 6 pt/a | | B | | | | | |
| 5 | Roundup PowerMax | 4.5 | SL | 32 fl oz/a | | B | | | | | |
| 5 | AMS | | WG | 17 lb/100 gal | | B | | | | | |
| 6 | Raptor | 1 | L | 6 fl oz/a | | A | 5 | 5 | 10 | 10 | 38 |
| 6 | SelectMax | 0.97 | L | 12 fl oz/a | | A | | | | | |
| 6 | Crop oil concentrate | | L | 1 % v/v | | A | | | | | |
| 6 | AMS | | L | 2.5 lb/a | | A | | | | | |
| 7 | Warrant | 3 | L | 3 pt/a | | A | 5 | 4 | 9 | 13 | 40 |
| 7 | Raptor | 1 | L | 6 fl oz/a | | A | | | | | |
| 7 | Crop oil concentrate | | L | 1 % v/v | | A | | | | | |
| 7 | AMS | | L | 2.5 lb/a | | A | | | | | |
| LSD P=.05 | | | | | | | 1.8 | 1.5 | 1.0 | 4.9 | 11.5 |
| Standard Deviation | | | | | | | 1.2 | 1.0 | 0.7 | 3.3 | 7.7 |
| CV | | | | | | | 28.91 | 23.01 | 24.77 | 13.25 | 24.91 |

* Adjusted means

Could not calculate LSD (% mean diff) for columns 6,8,13,14 because error mean square = 0.

Weed control and crop tolerance with Warrant in established alfalfa

Trial ID: ALF01-17

Location: Campus B-10 (Quonset)

Investigator: Christy Sprague

Study Director: Sprague, Powell, Stiles

| Pest Code | CAPBP | STEME | MEDSA | POAAN | THLAR | CAPBP | | | | | |
|--------------------|----------------------|-------------|------------|---------------|------------|------------|-------|-----|------|------|------|
| Crop Code | Apr-19-2017 | Apr-19-2017 | May-3-2017 | May-3-2017 | May-3-2017 | May-3-2017 | | | | | |
| Rating Date | control | control | injury | control | control | control | | | | | |
| Rating Type | percent | percent | percent | percent | percent | percent | | | | | |
| Rating Unit | 7 DA-A | 7 DA-A | 21 DA-A | 21 DA-A | 21 DA-A | 21 DA-A | | | | | |
| Trt-Eval Interval | 0 | 0 | 0 | 0 | 0 | 0 | | | | | |
| Number of Decimals | | | | | | | | | | | |
| Trt No. | Treatment Name | Form Conc | Form Type | Rate Unit | Appl Code | * | * | * | * | * | * |
| 1 | Roundup PowerMax | 4.5 | SL | 32 fl oz/a | A | 30 | 39 | 0 | 97 | 99 | 99 |
| 1 | Warrant | 3 | L | 3 pt/a | A | | | | | | |
| 1 | AMS | | WG | 17 lb/100 gal | A | | | | | | |
| 2 | Roundup PowerMax | 4.5 | SL | 32 fl oz/a | A | 30 | 43 | 0 | 97 | 99 | 99 |
| 2 | Warrant | 3 | L | 6 pt/a | A | | | | | | |
| 2 | AMS | | WG | 17 lb/100 gal | A | | | | | | |
| 3 | Untreated | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 | Roundup PowerMax | 4.5 | SL | 32 fl oz/a | A | 30 | 43 | 0 | 97 | 99 | 99 |
| 4 | AMS | | WG | 17 lb/100 gal | A | | | | | | |
| 4 | Warrant | 3 | L | 3 pt/a | B | | | | | | |
| 4 | Roundup PowerMax | 4.5 | SL | 32 fl oz/a | B | | | | | | |
| 4 | AMS | | WG | 17 lb/100 gal | B | | | | | | |
| 5 | Roundup PowerMax | 4.5 | SL | 32 fl oz/a | A | 30 | 39 | 0 | 98 | 99 | 99 |
| 5 | AMS | | WG | 17 lb/100 gal | A | | | | | | |
| 5 | Warrant | 3 | L | 6 pt/a | B | | | | | | |
| 5 | Roundup PowerMax | 4.5 | SL | 32 fl oz/a | B | | | | | | |
| 5 | AMS | | WG | 17 lb/100 gal | B | | | | | | |
| 6 | Raptor | 1 | L | 6 fl oz/a | A | 30 | 15 | 0 | 87 | 100 | 100 |
| 6 | SelectMax | 0.97 | L | 12 fl oz/a | A | | | | | | |
| 6 | Crop oil concentrate | | L | 1 % v/v | A | | | | | | |
| 6 | AMS | | L | 2.5 lb/a | A | | | | | | |
| 7 | Warrant | 3 | L | 3 pt/a | A | 30 | 23 | 0 | 99 | 100 | 100 |
| 7 | Raptor | 1 | L | 6 fl oz/a | A | | | | | | |
| 7 | Crop oil concentrate | | L | 1 % v/v | A | | | | | | |
| 7 | AMS | | L | 2.5 lb/a | A | | | | | | |
| LSD P=.05 | | | | | | . | 7.4 | . | 2.1 | 1.4 | 2.0 |
| Standard Deviation | | | | | | 0.0 | 5.0 | 0.0 | 1.4 | 0.9 | 1.3 |
| CV | | | | | | 0.0 | 17.47 | 0.0 | 1.73 | 1.09 | 1.57 |

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Location: Campus B-10 (Quonset)

Investigator: Christy Sprague

Study Director: Sprague, Powell, Stiles

| | | | | | | |
|--------------------|------------|-------------|------------|-------------|-------------|-------------|
| Pest Code | STEME | | | | | |
| Crop Code | | MEDSA | MEDSA | MEDSA | MEDSA | MEDSA |
| Rating Date | May-3-2017 | Jun-19-2017 | Jul-3-2017 | Jun-2-2017 | Jul-6-2017 | Aug-7-2017 |
| Rating Type | control | injury | injury | cut 1 yield | cut 2 yield | cut 3 yield |
| Rating Unit | percent | percent | percent | ton/acre | ton/acre | ton/acre |
| Trt-Eval Interval | 21 DA-A | 7 DA-B | 21 DA-B | 51 DA-A | 24 DA-B | 56 DA-B |
| Number of Decimals | 0 | 0 | 0 | 2 | 2 | 2 |

| Trt No. | Treatment Name | Form Conc | Form Type | Rate | Rate Unit | Appl Code | * | * | * | * | * | * |
|--------------------|----------------------|-----------|-----------|---------------|-----------|-----------|------|-----|-----|-------|-------|-------|
| 1 | Roundup PowerMax | 4.5 | SL | 32 fl oz/a | | A | 100 | 0 | 0 | 1.75 | 0.98 | 0.67 |
| 1 | Warrant | 3 | L | 3 pt/a | | A | | | | | | |
| 1 | AMS | | WG | 17 lb/100 gal | | A | | | | | | |
| 2 | Roundup PowerMax | 4.5 | SL | 32 fl oz/a | | A | 100 | 0 | 0 | 1.63 | 0.84 | 0.56 |
| 2 | Warrant | 3 | L | 6 pt/a | | A | | | | | | |
| 2 | AMS | | WG | 17 lb/100 gal | | A | | | | | | |
| 3 | Untreated | | | | | | 0 | 0 | 0 | 1.50 | 0.89 | 0.74 |
| 4 | Roundup PowerMax | 4.5 | SL | 32 fl oz/a | | A | 100 | 0 | 0 | 1.71 | 0.76 | 0.52 |
| 4 | AMS | | WG | 17 lb/100 gal | | A | | | | | | |
| 4 | Warrant | 3 | L | 3 pt/a | | B | | | | | | |
| 4 | Roundup PowerMax | 4.5 | SL | 32 fl oz/a | | B | | | | | | |
| 4 | AMS | | WG | 17 lb/100 gal | | B | | | | | | |
| 5 | Roundup PowerMax | 4.5 | SL | 32 fl oz/a | | A | 100 | 0 | 0 | 1.74 | 0.88 | 0.68 |
| 5 | AMS | | WG | 17 lb/100 gal | | A | | | | | | |
| 5 | Warrant | 3 | L | 6 pt/a | | B | | | | | | |
| 5 | Roundup PowerMax | 4.5 | SL | 32 fl oz/a | | B | | | | | | |
| 5 | AMS | | WG | 17 lb/100 gal | | B | | | | | | |
| 6 | Raptor | 1 | L | 6 fl oz/a | | A | 100 | 0 | 0 | 1.77 | 0.81 | 0.50 |
| 6 | SelectMax | 0.97 | L | 12 fl oz/a | | A | | | | | | |
| 6 | Crop oil concentrate | | L | 1 % v/v | | A | | | | | | |
| 6 | AMS | | L | 2.5 lb/a | | A | | | | | | |
| 7 | Warrant | 3 | L | 3 pt/a | | A | 97 | 0 | 0 | 1.86 | 0.92 | 0.61 |
| 7 | Raptor | 1 | L | 6 fl oz/a | | A | | | | | | |
| 7 | Crop oil concentrate | | L | 1 % v/v | | A | | | | | | |
| 7 | AMS | | L | 2.5 lb/a | | A | | | | | | |
| LSD P=.05 | | | | | | | 2.6 | . | . | 0.309 | 0.234 | 0.248 |
| Standard Deviation | | | | | | | 1.8 | 0.0 | 0.0 | 0.208 | 0.157 | 0.167 |
| CV | | | | | | | 2.09 | 0.0 | 0.0 | 12.18 | 18.16 | 27.41 |

* Adjusted means

Could not calculate LSD (% mean diff) for columns 6,8,13,14 because error mean square = 0.

Weed control and crop tolerance with Warrant in established alfalfa

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Location: Campus B-10 (Quonset)

Investigator: Christy Sprague

Study Director: Sprague, Powell, Stiles

| | | | |
|--------------------|--|-------------|-------------|
| Pest Code | | | |
| Crop Code | | MEDSA | MEDSA |
| Rating Date | | Sep-9-2017 | |
| Rating Type | | cut 4 yield | total yield |
| Rating Unit | | ton/acre | ton/acre |
| Trt-Eval Interval | | 89 DA-B | |
| Number of Decimals | | 2 | 2 |

| Trt No. | Treatment Name | Form Conc | Form Type | Rate | Rate Unit | Appl Code | * | * |
|---------|----------------------|-----------|-----------|---------------|-----------|-----------|-------|-------|
| 1 | Roundup PowerMax | 4.5 | SL | 32 fl oz/a | | A | 0.38 | 3.77 |
| 1 | Warrant | 3 | L | 3 pt/a | | A | | |
| 1 | AMS | | WG | 17 lb/100 gal | | A | | |
| 2 | Roundup PowerMax | 4.5 | SL | 32 fl oz/a | | A | 0.27 | 3.30 |
| 2 | Warrant | 3 | L | 6 pt/a | | A | | |
| 2 | AMS | | WG | 17 lb/100 gal | | A | | |
| 3 | Untreated | | | | | | 0.44 | 3.56 |
| 4 | Roundup PowerMax | 4.5 | SL | 32 fl oz/a | | A | 0.32 | 3.30 |
| 4 | AMS | | WG | 17 lb/100 gal | | A | | |
| 4 | Warrant | 3 | L | 3 pt/a | | B | | |
| 4 | Roundup PowerMax | 4.5 | SL | 32 fl oz/a | | B | | |
| 4 | AMS | | WG | 17 lb/100 gal | | B | | |
| 5 | Roundup PowerMax | 4.5 | SL | 32 fl oz/a | | A | 0.39 | 3.68 |
| 5 | AMS | | WG | 17 lb/100 gal | | A | | |
| 5 | Warrant | 3 | L | 6 pt/a | | B | | |
| 5 | Roundup PowerMax | 4.5 | SL | 32 fl oz/a | | B | | |
| 5 | AMS | | WG | 17 lb/100 gal | | B | | |
| 6 | Raptor | 1 | L | 6 fl oz/a | | A | 0.26 | 3.34 |
| 6 | SelectMax | 0.97 | L | 12 fl oz/a | | A | | |
| 6 | Crop oil concentrate | | L | 1 % v/v | | A | | |
| 6 | AMS | | L | 2.5 lb/a | | A | | |
| 7 | Warrant | 3 | L | 3 pt/a | | A | 0.33 | 3.72 |
| 7 | Raptor | 1 | L | 6 fl oz/a | | A | | |
| 7 | Crop oil concentrate | | L | 1 % v/v | | A | | |
| 7 | AMS | | L | 2.5 lb/a | | A | | |
| | LSD P=.05 | | | | | | 0.168 | 0.768 |
| | Standard Deviation | | | | | | 0.113 | 0.517 |
| | CV | | | | | | 33.21 | 14.67 |

* Adjusted means

Could not calculate LSD (% mean diff) for columns 6,8,13,14 because error mean square = 0.