Oregon State University
Columbia Basin Ag Research Center

Downy brome control in winter wheat with WE 1031-1 added to grass herbicides

Trial ID: 08-114
Location: CBARC

Study Director: Larry Bennett
Investigator: Daniel A Ball

General Trial Information

Study Director: Larry Bennett  Title: Research Assistant
Affiliation: Columbia Basin Ag. Research Center
Postal Code: 97801  E-mail: larry.bennett@oregonstate.edu
Investigator: Daniel A Ball  Title: Professor
Affiliation: Columbia Basin Ag. Research Center
Postal Code: 97801  E-mail: daniel.ball@oregonstate.edu

Crop Description

Crop 1: WHEAT  Cleafield Winter wheat
Variety: ORCF-102
Planting Date: Oct-5-07
Rate, Unit: 22 seeds/ft2
Planting Method: John Deere 9400
Depth, Unit: 1.5 in
Row Spacing, Unit: 10 in
Harvest Date: Jul-17-08
Harvest Equipment: Hege combine

Pest Description

Pest 1 Type: W  Code: DBROME  Bromus tectorum
Common Name: Downy brome

Site and Design

Plot Width, Unit: 9 FT
Plot Length, Unit: 30 FT
Replications: 4
Study Design: Randomized Complete Block

Soil Description

% Sand: 22.2  % OM: 2.9
% Silt: 62.6  pH: 5.6
% Clay: 15.2  CEC: 15.5

Application Description

Application Date: Mar-10-08
Time of Day: 3:35 pm
Application Method: Broadcast
Application Timing: LAPOWE
Application Placement: Foliar
Air Temperature, Unit: 67 F
% Relative Humidity: 34
Wind Velocity, Unit: 5 mph
Wind Direction: S
Dew Presence (Y/N): N
Soil Temperature, Unit: 60 F
Soil Moisture: Dry-surface
% Cloud Cover: 100

Crop Stage At Each Application

Crop 1 Code: WHEAT
Stage: 2-3 tiller
Height, Unit: 5 in
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Pest Stage At Each Application

A
Pest 1 Code: DBROME
Stage: 2-4 tiller
Height, Unit: 2.5 in

Application Equipment

A
Appl. Equipment: Handboom
Operating Pressure, Unit: 30 psi
Nozzle Type: Flat fan
Nozzle Size: XR-8001
Nozzle Spacing, Unit: 18 in
Boom Length, Unit: 9 ft
Ground Speed, Unit: 3.5 mph
Carrier: Water
Spray Volume, Unit: 10 gpa
Mix Size, Unit: 1 liter
Propellant: CO2
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| No. | Treatment No. Name | Form Conc Type | Rate Prod/a | Wheat Crop Rating Date Apr-17-08 | Dbrome Weed Rating Date Apr-17-08 | Dbrome Weed May-27-08 | Rating Data Type Injury % | Control % | Control % |
|-----|-------------------|----------------|------------|-------------------------------|----------------------------------|-----------------------------|------------------------|----------------|----------------|}
| 1   | Untreated control |                | 0          | 0                             |                                  |                             | 0                      |                 |                 |                 |
| 2   | Maverick 75 WG    | 0.67 OZ/A      | 0          | 36                            |                                  |                             | 20                     |                 |                 |                 |
| 3   | Maverick 75 WG    | 0.67 OZ/A      | 0          | 49                            |                                  |                             | 29                     |                 |                 |                 |
| 4   | R-11 SL           | 2 QT/100 GAL   | 0          | 55                            |                                  |                             | 30                     |                 |                 |                 |
| 5   | Maverick 75 WG    | 0.67 OZ/A      | 0          | 64                            |                                  |                             | 39                     |                 |                 |                 |
| 6   | WE1031-1 SL       | 4 FL OZ/GAL    | 0          | 61                            |                                  |                             | 35                     |                 |                 |                 |
| 7   | Olympus Flex      | 3.5 OZ/A       | 0          | 51                            |                                  |                             | 31                     |                 |                 |                 |
| 8   | Bronc Max         | 2 QT/100 GAL   | 0          | 66                            |                                  |                             | 45                     |                 |                 |                 |
| 9   | R-11 SL           | 2 QT/100 GAL   | 0          | 61                            |                                  |                             | 35                     |                 |                 |                 |
| 10  | WE1031-1 SL       | 4 FL OZ/GAL    | 0          | 60                            |                                  |                             | 34                     |                 |                 |                 |
| 11  | Bronc Max         | 2 QT/100 GAL   | 0          | 60                            |                                  |                             | 34                     |                 |                 |                 |

LSD (P=.05)  
Replicate F  0.000  7.506  3.125  
Replicate Prob(F)  1.0000  0.0010  0.0446  
Treatment F  0.000  48.907  10.031  
Treatment Prob(F)  1.0000  0.0001  0.0001
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LSD (P=0.05)

| Replicate F | 5.253 | 22.155 |
| Replicate Prob(F) | 0.0063 | 0.0001 |
| Treatment F | 2.974 | 0.694 |
| Treatment Prob(F) | 0.0183 | 0.6933 |
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The objective of this trial was to determine the effectiveness of an experimental adjuvant, WE1031-1, when added to Maverick or Olympus Flex for downy brome control in winter wheat. Winter wheat, variety ORCF-102 was planted 10/5/07 with a John Deere 9400 planter with a row spacing of 10 in. Treatments were applied 3/10/08 when the wheat was in the 2-3 tiller stage and the downy brome had 2-4 tillers. None of the treatments provided adequate control of downy brome, but the addition of R-11 to Maverick increased downy brome control 13% and the addition of WE-1031-1 increased control 19%. The addition of both increased control 28% at the 4/17/08 rating. At the 5/27/08 ratings the addition of both R-11 and WE-1031-1 increased control about 19% over Maverick by itself. At the early rating Olympus Flex alone gave better control of downy brome than Maverick alone. The addition of Bronc Max and R-11 increased downy brome control by 15%, while the addition of Bronc Max + R-11 + WE-1031-1 increased control only 9%. The 5/27/08 ratings again showed better control with Bronc Max + R-11 added to Olympus Flex than when WE-1031-1 was added to the mixture. No crop injury was observed with any of the treatments. The plots were harvested 7/17/08 with a Hege small plot combine. The harvested samples were further cleaned with an 'Almaco' air cleaner, the samples weighed and test weights taken. The yields were then converted to bu/a using a standard 60 lb/bu test weight. There were not significant differences in test weight with any of the treatments. The Olympus Flex treatments all had significantly higher yields that the untreated control, while only the Maverick with both R-11 and WE-1031-1 added gave a higher yield than the check.

The following procedure was used to mix R-11, Bronc Max and WE-1031 to Maverick, and/or Olympus Flex:

Distilled water was used with a pH of 5.7. When WE1031-1 was added to the distilled water at the rate of 1 fl oz/qt, the pH of the water was raised to 10.96.

Product was placed in spray bottle and then 1 liter of water was mixed in a separate container and the WE-1031-1 and/or other additives such as R-11 or Bronc Max added. The water was then poured into the spray bottles and the mixture shaken well to get everything mixed well. No problems with mixing were encountered.

The results of individual trials are considered to be of a preliminary nature and should not be considered as a product endorsement or recommendation for commercial use. Several treatments or treatment combinations evaluated in these studies are not registered for use. Consult herbicide labels for appropriate application details in appropriate crops. These results are not for publication unless authorized by Oregon State University.