

The Evaluation of Boomless Nozzles for Weed Control in Pastures, Rangelands, and on Roadsides

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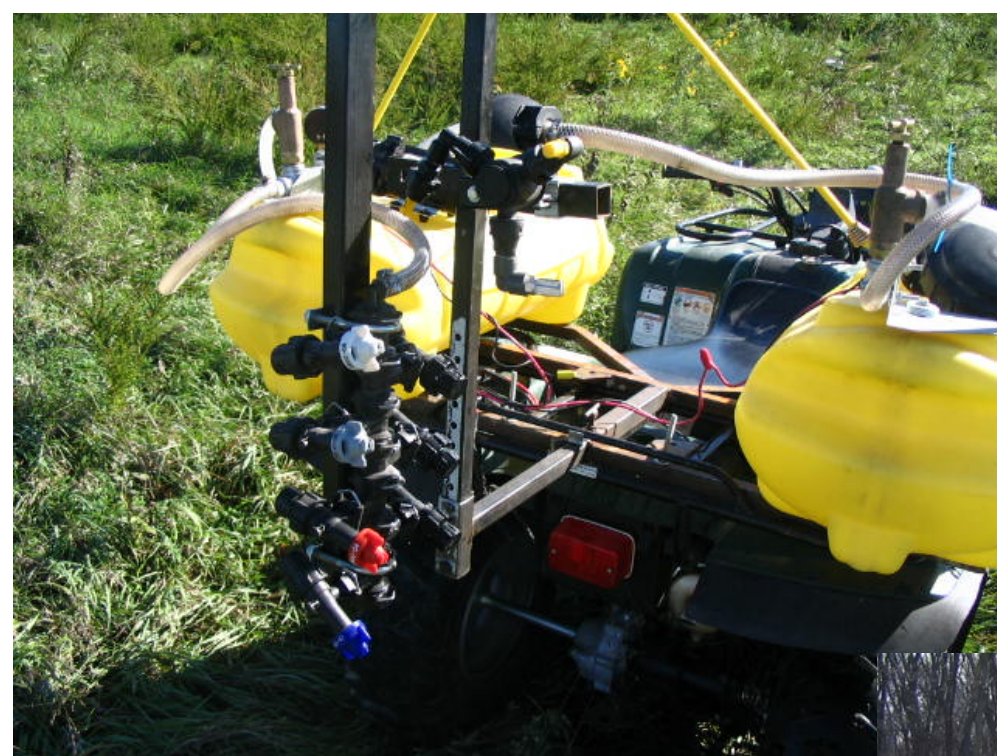




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Field trials were conducted to evaluate pattern quality, herbicide efficacy, droplet spectra and swath width comparing boomless nozzles



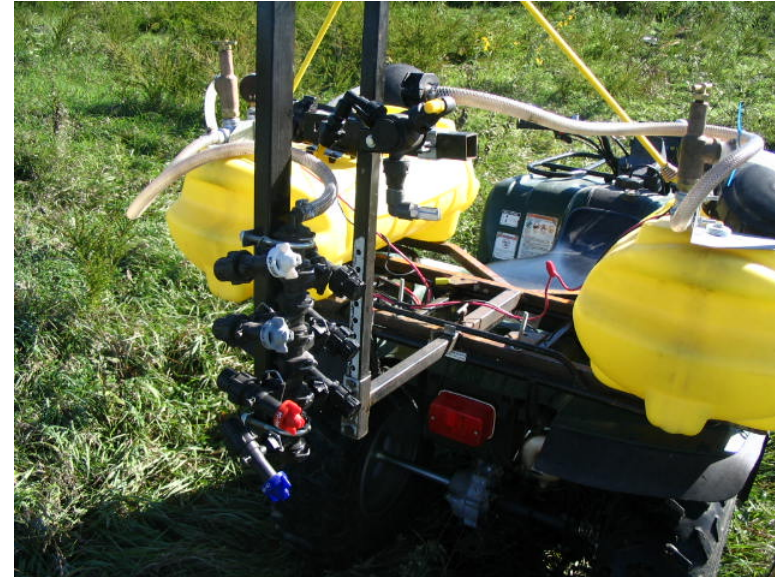
Materials and Methods:

Experiment: Field Plots located near Manhattan, KS
Design: 4 x 2 randomized complete block with split plot and 3 reps.
Main plot: Herbicide (glyphosate and paraquat)
Subplots: Spray nozzle
Plot Size: 20 ft. x 25 ft.
Species: wheat (head and seedling stages)
Visual Ratings: 28 days after treatment (DAT)
Herbicides (2): Paraquat, 0.5 and .375 lb ae/a,
NIS at .25% v/v
Glyphosate, 0.387 and .28 lb ae/a,
N PAK AMS @ 5.0% v/v
Spray Volume: 18 GPA
Estimated swath width: 15 feet
Spring plots: 30-inch wheat
Fall plots: 6-inch wheat
Application Conditions:
Date: May 2 and Nov 14, 2006
Temp: 78 and 55 degrees
R. H.: 40 and 55%
Wind: Direction – 155 and 90 degrees
(90 would be perpendicular to plot).
Wind Speed: 2-5mph, 3-6



Materials and Methods cont.:

- Spray Tips: TeeJet BoomJet XP
Hypro Boom Extender XT
Evergreen Boombuster BB
Wilger ComboJet WC-J
- Orifice Size: XP – 20R
XT - 024
BB – Mod 140
WC-J - DR 8003, 04, 06, 08
- Pressure: 35-40 PSI
- Boom height: 36 inches
- Speed: 3.5 MPH
- Gator/4-wheeler designed sprayer



Materials and Methods cont.:

Boombuster (BB) Mod 140

XP 20R

XT 024

Wilger 8003, 8004, 8006, 8008





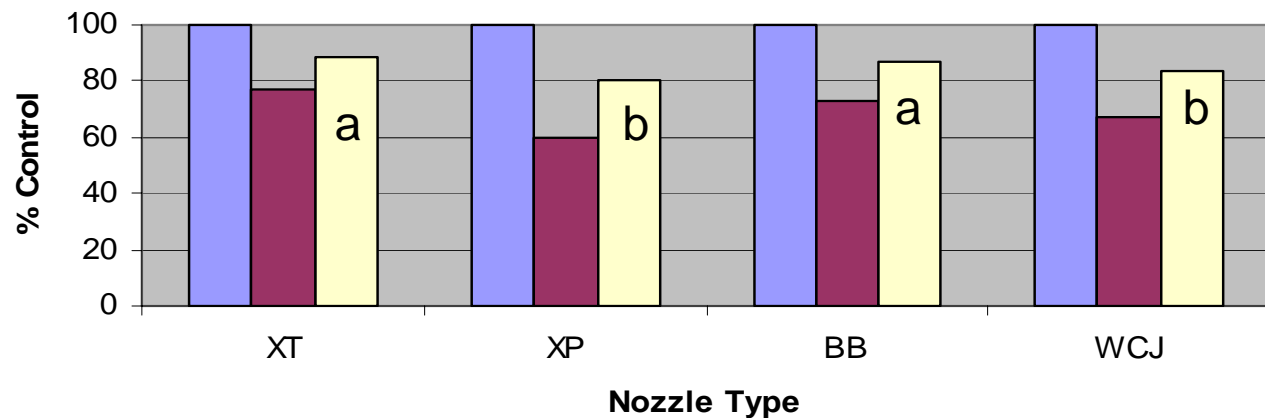
Results

Discussion





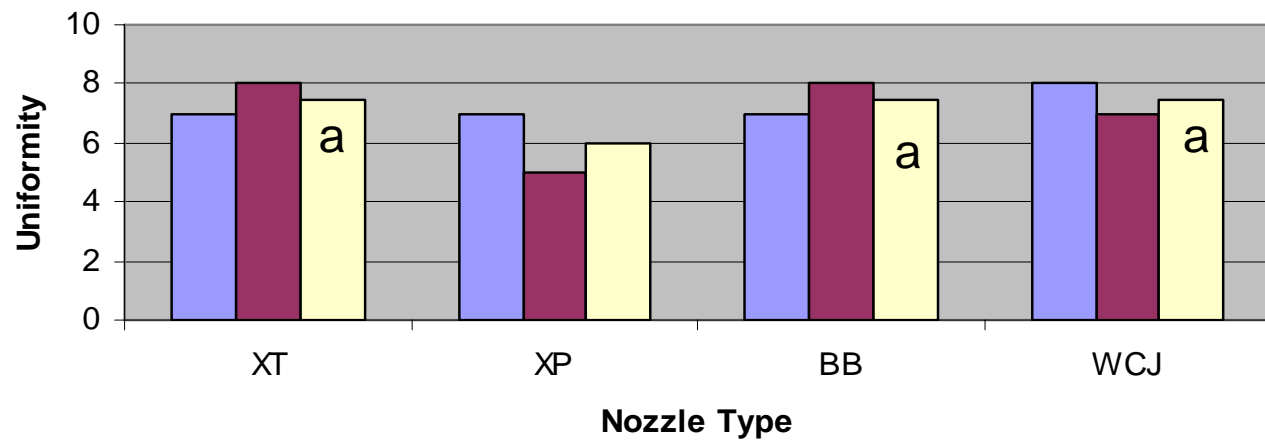
% Control Large Wheat



LSD=5

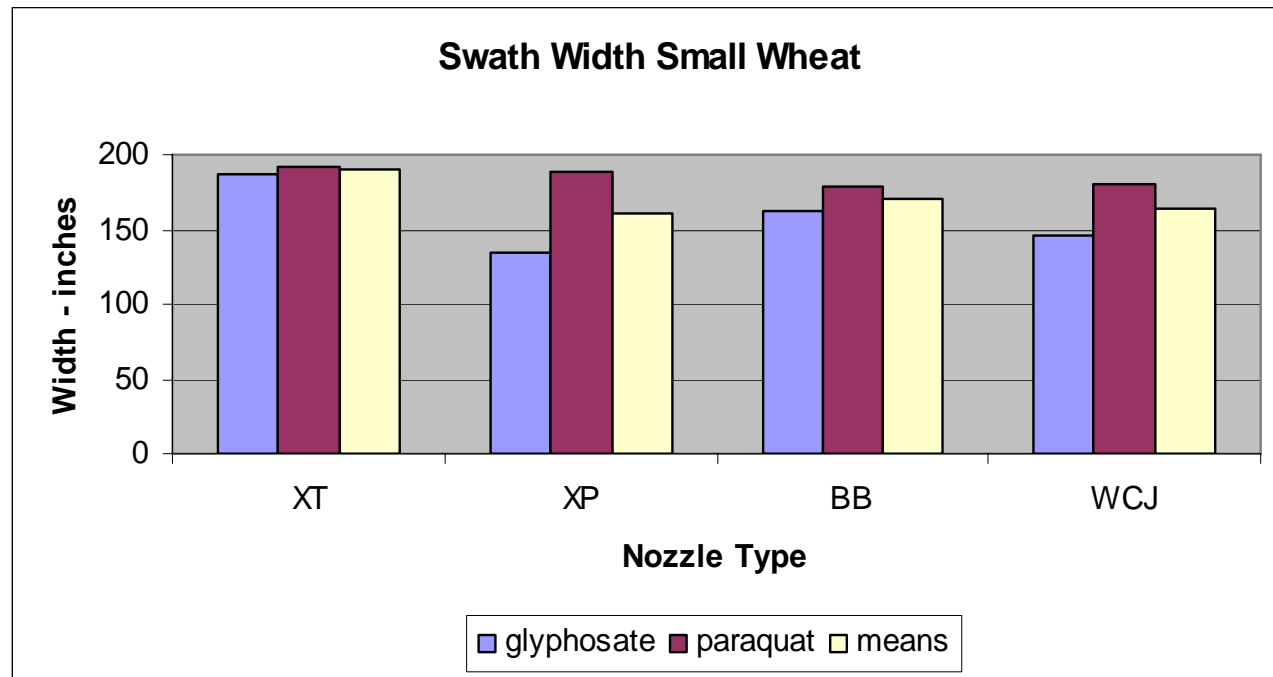
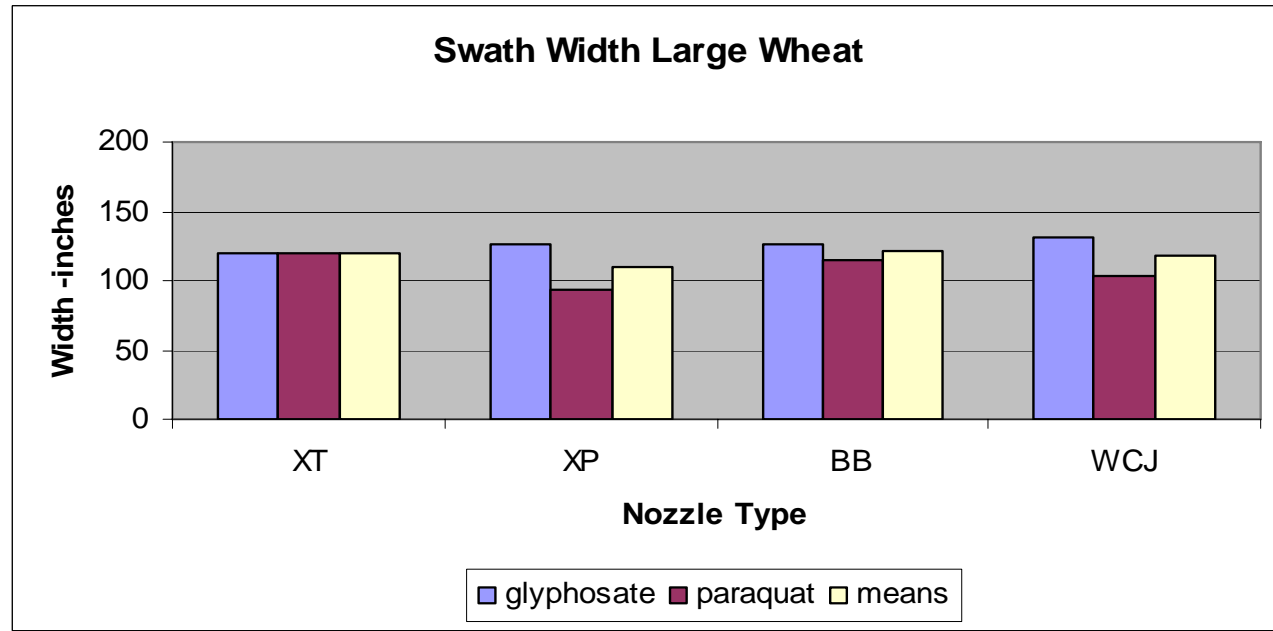
■ glyphosate ■ paraquat ■ means

Spray Uniformity Large Wheat



LSD=1

■ glyphosate ■ paraquat ■ means



Summary Statements:

- Expected differences in chemical were shown with glyphosate at 100% control and paraquat control ranging from 77 (XT) down to 60% (XP). The BB was 73% and the WC-J was 67%
- Uniformity of control across the spray swath showed little differences with glyphosate but ranged from 8 (XT & BB), WC-J at 7, and down to 5 XP with paraquat.
- Mode of action, coverage, and droplet size will effect the results.

Summary Statements:

- In the tall wheat trials the swath width based on width of control was best for WC-J (131-inches with glyphosate) and lowest with the XP (94-inches with paraquat).
- In the small wheat trials the XT had the widest width at 192-inches and the XP controlled over the least width at 134-inches.
- Wind direction and height of spray stream may effect results.
- Droplet analysis and pattern quality evaluations are not complete at this time.

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Thank You