

# Fungicide Apps for reducing DON and FHB: Do It Right (or not at all)!

**UNIVERSITY of GUELPH**  
RIDGETOWN CAMPUS

**Dr. Dave Hooker, U of G Ridgetown Campus**  
[dhooker@uoquelfh.ca](mailto:dhooker@uoquelfh.ca)

**Twitter: cropdoc2**

Dr. Art Schaafsma (UGRC)  
Helmut Spieser (OMAFRA)  
Albert Tenuta (OMAFRA)  
Peter Johnson (OMAFRA)

UTC	Prosaro	Caramba
<p>Both Prosaro and Caramba are excellent fungicides, but they only suppress FHB and reduce DON by about 50% with the BEST application. If coverage could be 100%, then research shows efficacy may be close to 100%. Next to timing, application technology is the limiting factor for greater suppression!</p> <p>~50% suppression @ Best application @ Optimal timing</p>		

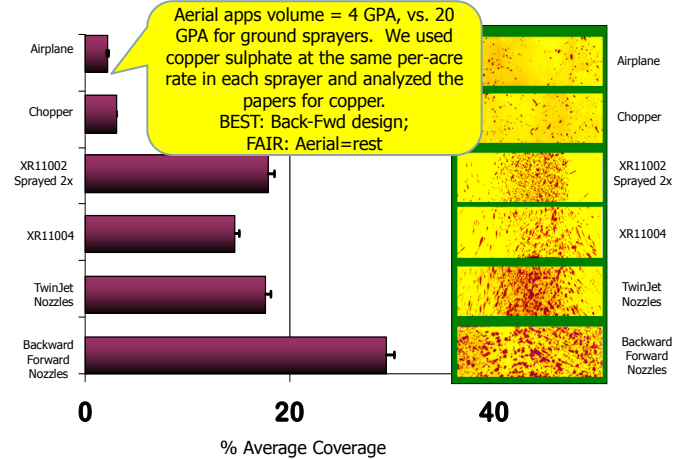
## Sprayer Rodeo – June 2002

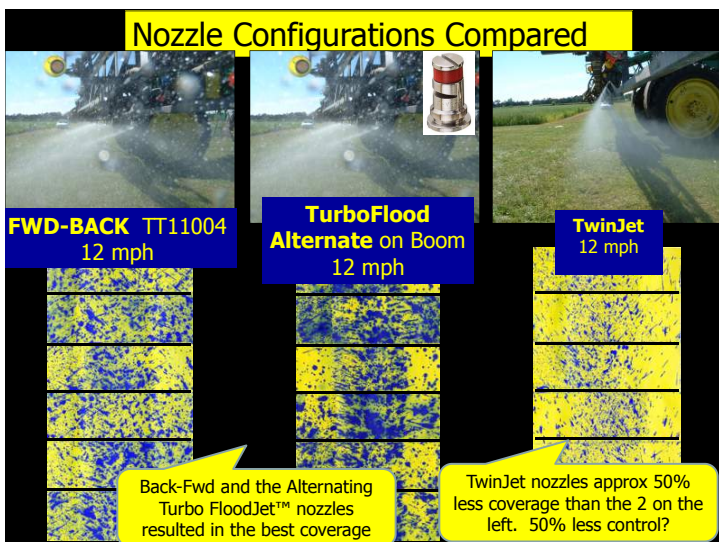
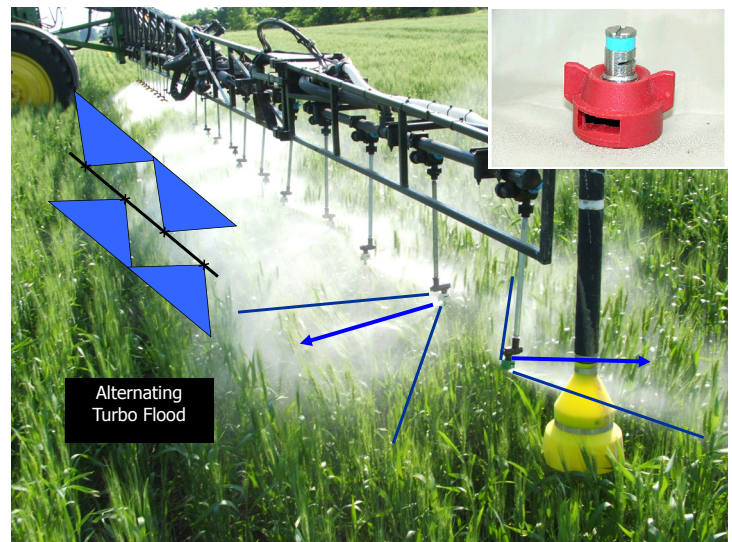
Most of our application technology work started in the late 1990s with dye and UV light. In 2002, we devised a replicated expt to compare airplane and helicopter rigs with ground applicators


We used water sensitive papers to evaluate applicator performance. These were orientated around vials in the field to mimic a wheat head. 4 reps x 45 papers per sprayer.

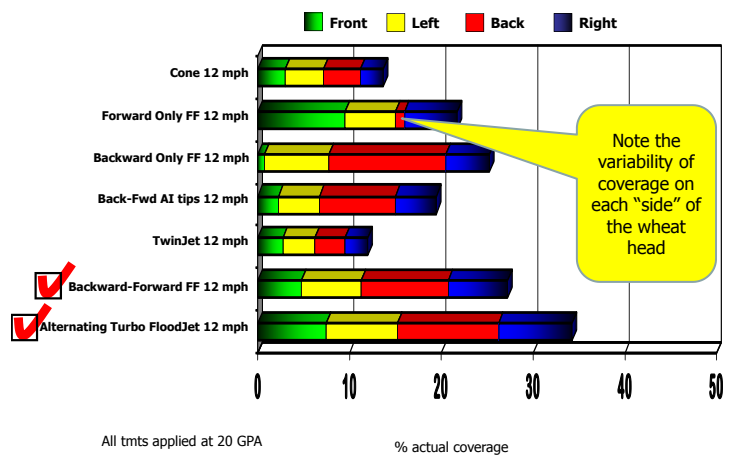
The butted edges always faced the rear of the sprayer. Blue dots represent coverage. Yellow represents no coverage. Spikelets on a wheat head would not be protected here.

## Spray Coverage vs Application Method





Spray Distribution on "Heads" vs Nozzle, 2004



### NDSU Recommendations



**Ground Application of Fungicide for the Suppression of Fusarium Head Blight in Small Grains**

Wern Helman  
 District Extension Agricultural Engineer,  
 South Dakota State University, Fargo  
 Scott Halley



#### Recommended Fungicide Application Techniques for FHB Suppression in Small Grains with Ground Applicators

- Produce a fine- to medium-sized drop (250 to 300 microns) with a flat-fan nozzle.
- Angle all (flat-fan) nozzles forward 30 to 45 degrees down from horizontal. Thirty degrees down is preferred over 45 degrees.
- Apply fungicide at 10 gallons per acre for controlling FHB.
- Position spray nozzles 8 to 10 inches above the grain heads.

**NDSU**  
 Extension Service  
 North Dakota State University  
 Fargo, North Dakota 58105  
 MAY 2006

### NDSU Recommendations

Crop	Spray Volume	Nozzle or Orientation <sup>2</sup>	% Coverage				Mean
			Front	Back	Left	Right	
Barley	10	Forward	69.2	1.2	15.1	9.5	23.7
	10	F + B	6.9	39.7	10.4	20.1	19.3
Wheat	10	Forward	77.5	5.0	63.1	7.5	38.3
	10	F + B	14.3	66.5	63.7	16.7	40.3
	20	F + B	30.9	87.5	34.7	75.4	57.2



US recommendation shows poor coverage on one side of the fwd-only design, similar to our data, but they still recommend.

Increasing boom heights over canopy reduces coverage, but the "best" nozzles at high boom height are still better than the TeeJet Duo or TwinJet at optimal heights.



Source: Tom Robinson, Syngenta. UK

Boom Height 0.8m

Boom Height 0.5m

Lower boom height = less wind effects. Winds >10 kph result in painting one side of heads. Maintain water volumes ~20 GPA for less wind effects. Ideal boom height for B-F nozzles and TurboFlood = 8-12" above canopy

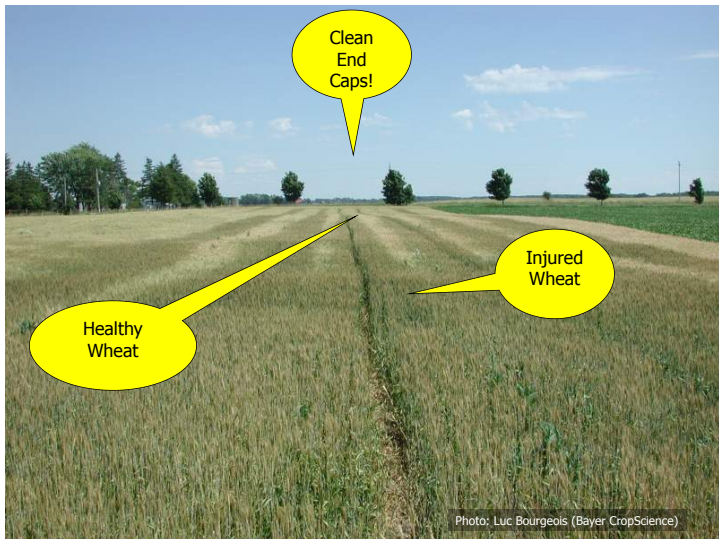


Photo: Luc Bourgeois (Bayer CropScience)



Photo: Luc Bourgeois (Bayer CropScience)

### Sprayer Check List

- Backward-Forward Nozzles or Turbo FloodJet™ alternating along boom
- Keep the 2 nozzle configurations 30 cm (8-12") above canopy
- Backward-Fwd nozzles 15 degrees from horizontal
- Maximize water volume (20 GPA) improves coverage
- Ground (best) vs aerial (good)
- Sprayer cleanout (critical!)
- What's your custom applicator doing?

### Fungicide Efficacy on DON vs. Level

