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

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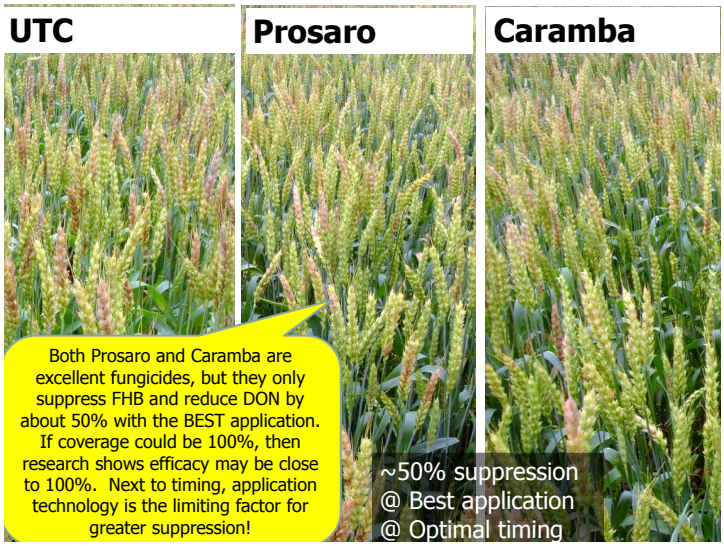
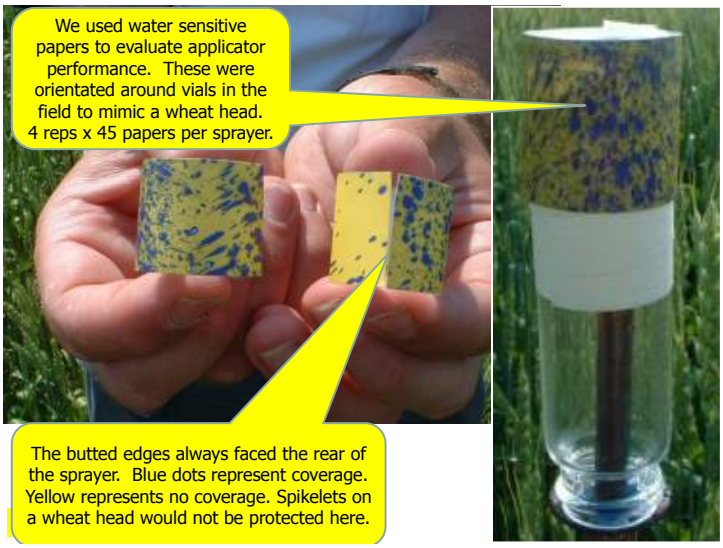


Both Prosaro and Caramba are excellent fungicides, but they only suppress FHB and reduce DON by about 50% with the BEST application. If coverage could be 100%, then research shows efficacy may be close to 100%. Next to timing, application technology is the limiting factor for greater suppression!

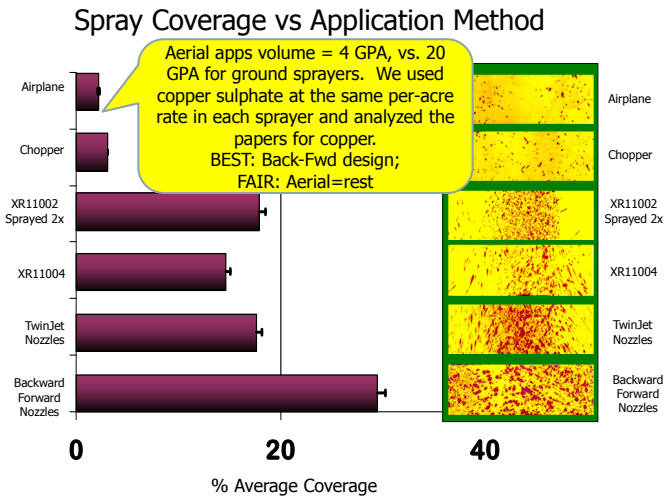
Sprayer Rodeo – June 2002

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

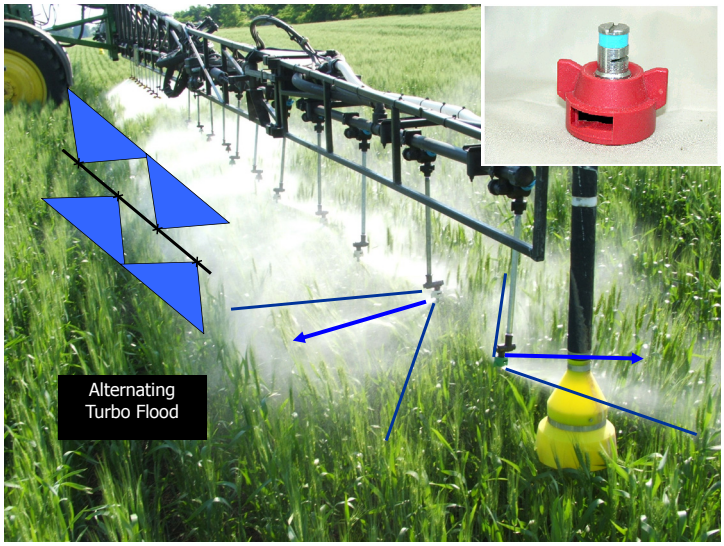


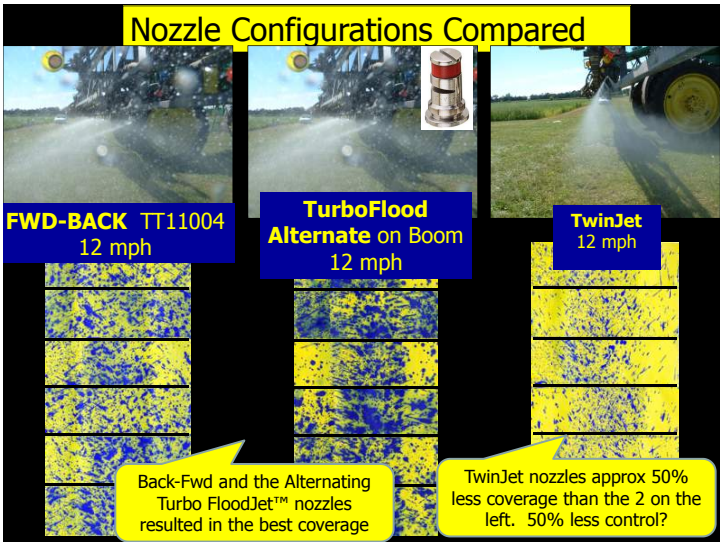
We used water sensitive papers to evaluate applicator performance. These were orientated around vials in the field to mimic a wheat head. 4 reps x 45 papers per sprayer.

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.

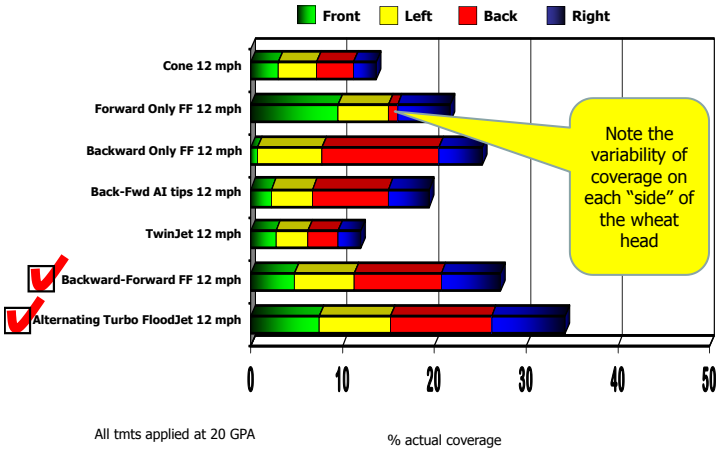


Aerial apps volume = 4 GPA, vs. 20 GPA for ground sprayers. We used copper sulphate at the same per-acre rate in each sprayer and analyzed the papers for copper.
BEST: Back-Fwd design;
FAIR: Aerial=rest





Spray Distribution on "Heads" vs Nozzle, 2004



NDSU Recommendations

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

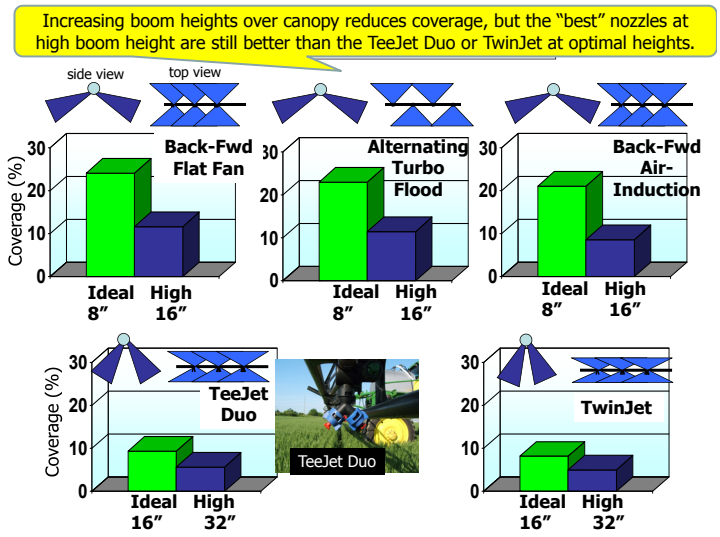
Recommended Fungicide Application Techniques for FHB Suppression in Small Grains with Ground Applicators

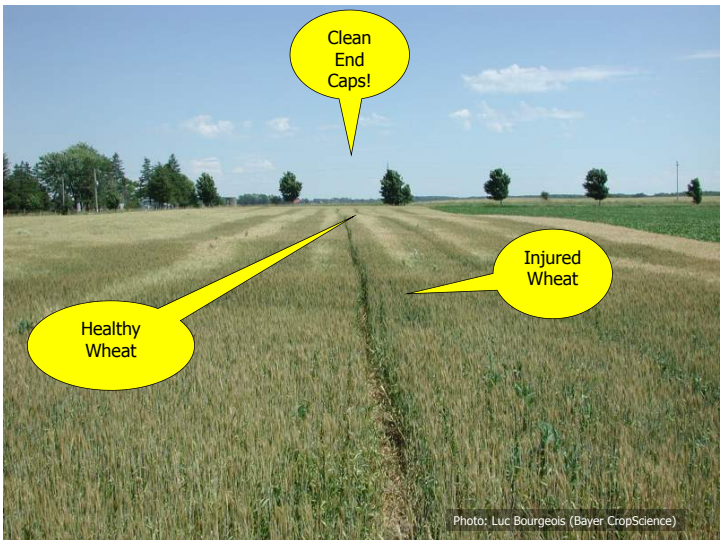
- Produce a fine- to medium-sized drop (250 to 300 microns) with a flat-fan nozzle.
- Angle all (flat-fan) nozzles forward 30 to 45 degrees down from horizontal. Thirty degrees down is preferred over 45 degrees.
- Apply fungicide at 10 gallons per acre for controlling FHB.
- Position spray nozzles 8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

NDSU Recommendations

	Spray Volume	Nozzle or Orientation[2]	% Coverage Front	Back	Left	Right	Mean
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.





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?