Update on nozzle type effects on fungicide applications to corn

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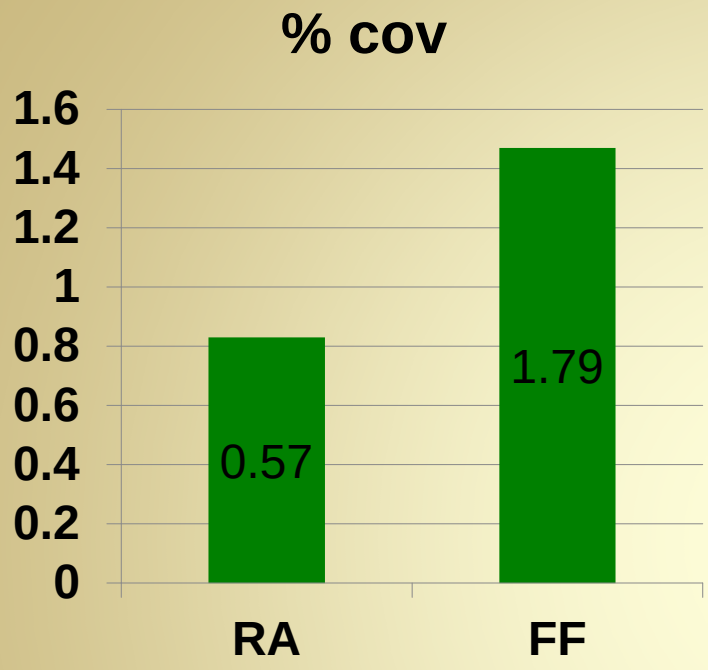
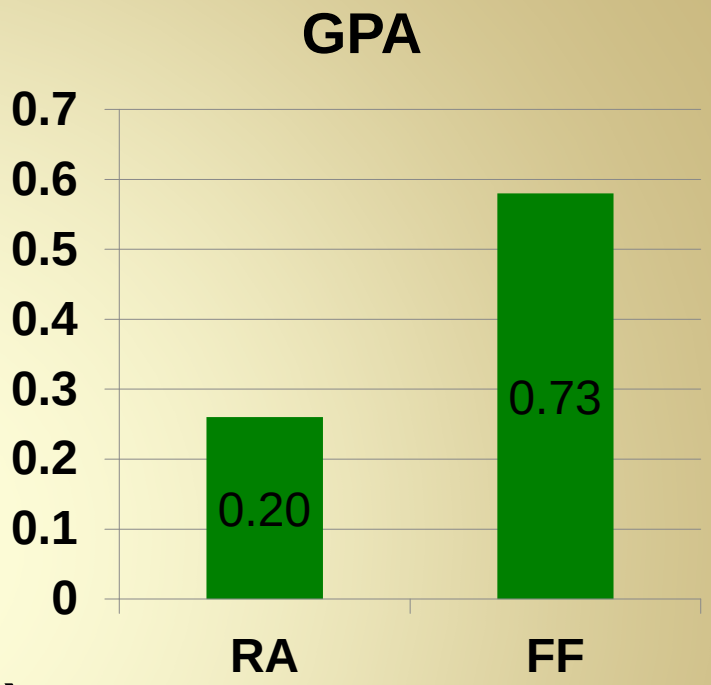
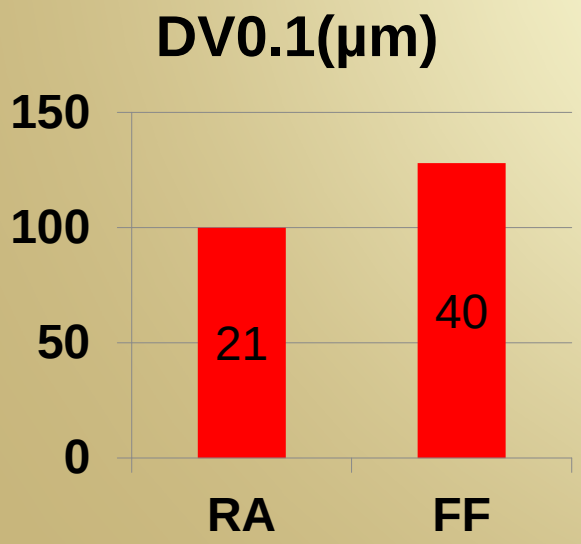
2009 Study

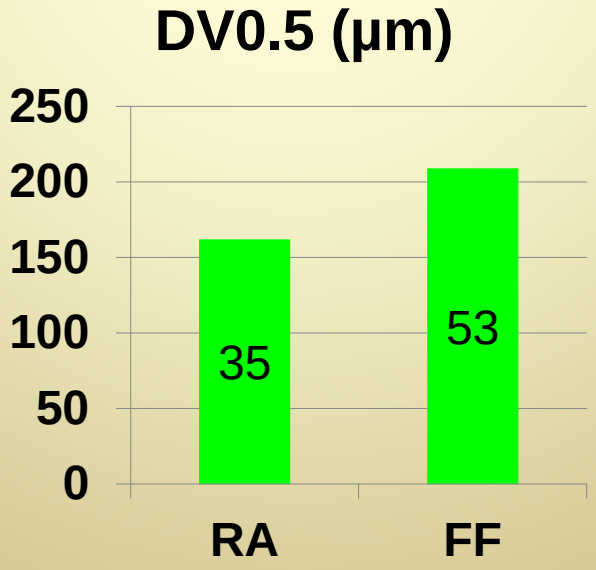
- Compare flat-fan nozzles with rotary atomizers for fungicide applications to corn
- Stratego fungicide with vision pink dye
- Kromekote card on metal holder at ear height used to sample coverage
- 4 plots per treatment; 10 plants per plot
- Plots systematically placed in field – no effort to position within certain part of swath
- FF4010; 35 psi; 15 deg; 38 nozzles
- AU5000; VRU 13; 35 psi; 11 nozzles

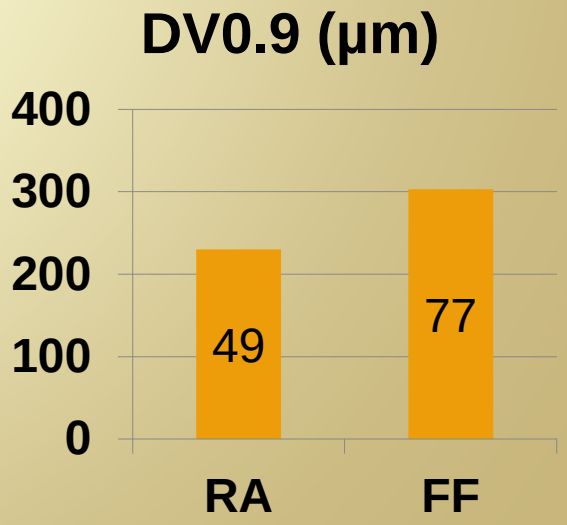
Results – means all significantly different











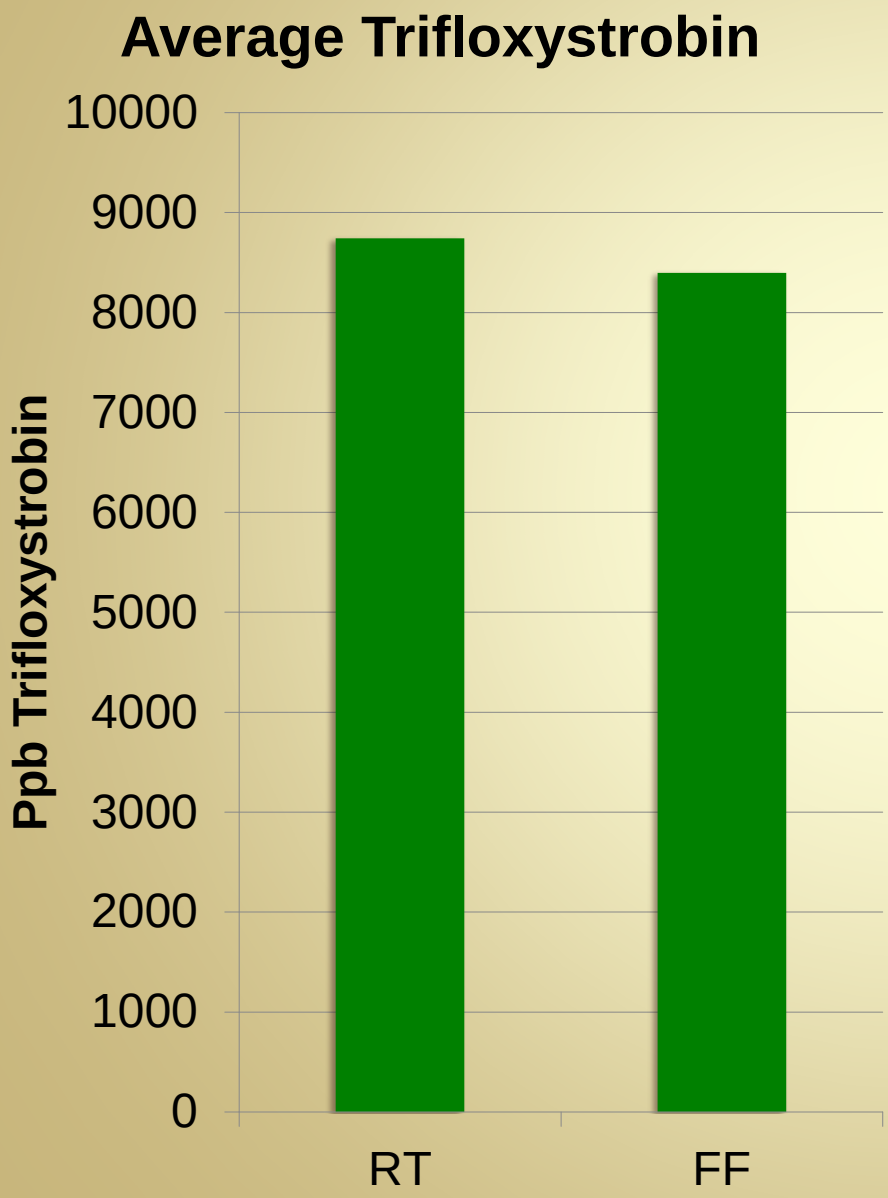
2011 Study

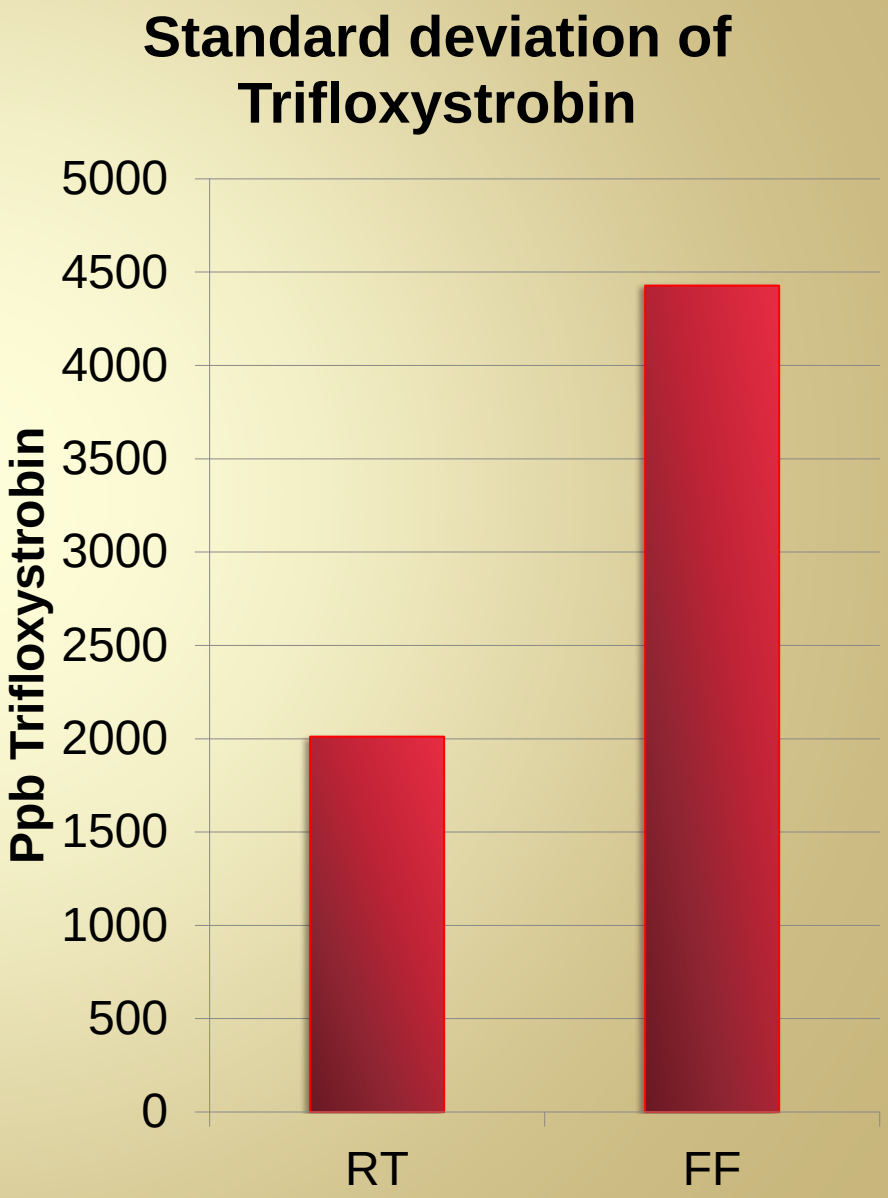
- Goal: compare flat-fans with rotary atomizers – same nozzles as in 2009
  - FF4006; 24 nozzles; 30 psi; 15 deg deflection
  - AU5000; VRU 9; 40 psi; 11 nozzles; w/diffuser
- Stratego YLD fungicide on corn @ 1 GPA
- Field split in half east/west - 1 treatment on each side
- 4 plots per treatment – systematically located
- At each plot 16 corn plants sampled; every other row for total width of 80 feet
- Plots not centered around flight path

2011 Study

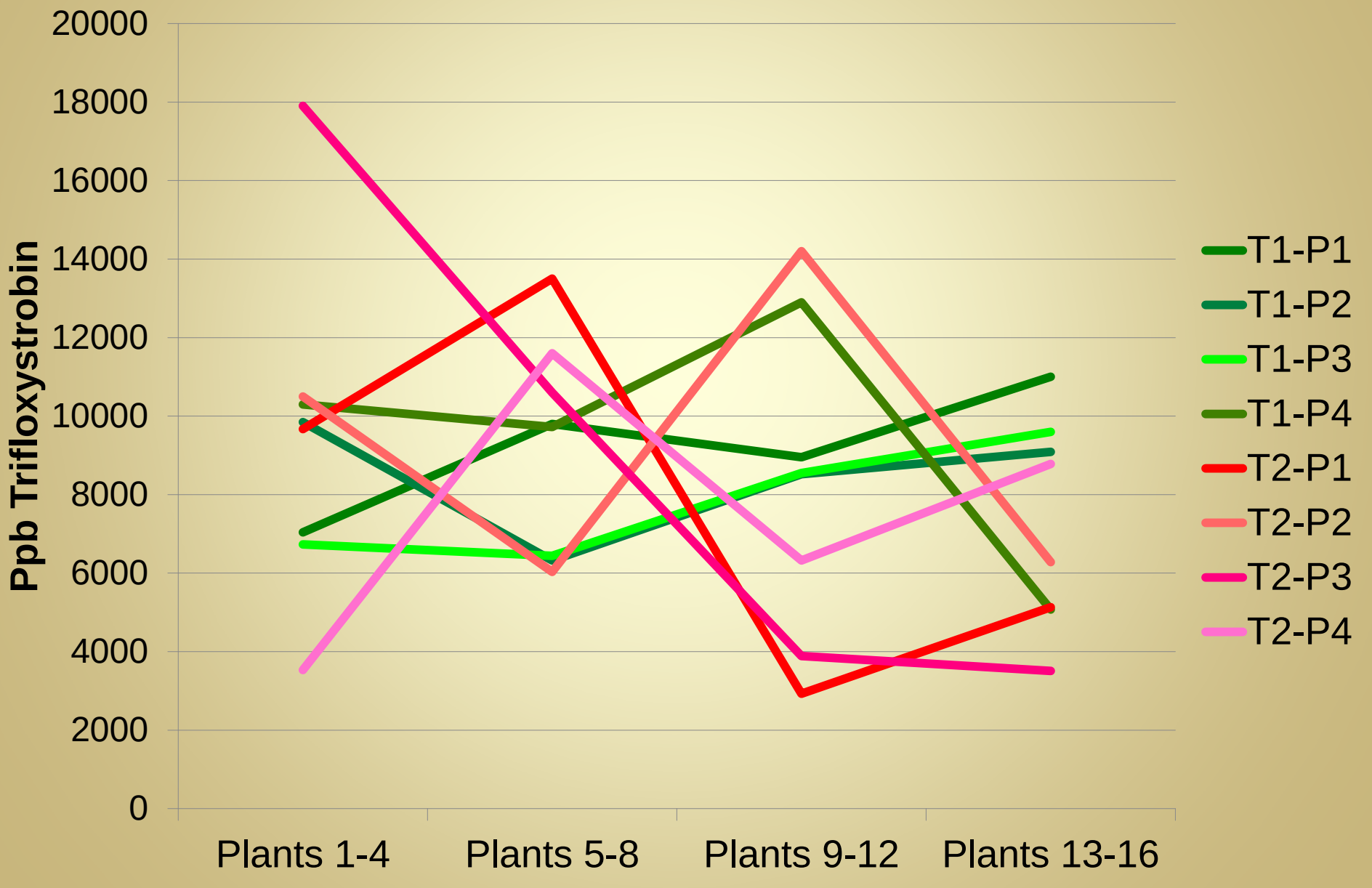
- On each plant, 6 inches of ear leaf was removed 12 inches out from stalk
- Samples frozen and stored until analysis
- Samples analyzed by Bayer for Trifloxystrobin
- 3 cm diameter circle cut from center of each leaf sample and then analyzed
- Circles composited in groups of 4 plants to achieve suitable detection levels
- Analyzed using liquid chromatography/mass spectrometry (LC/MS/MS)

2011 Study


Average Trifloxystrobin
Ppb Trifloxystrobin
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
RT
FF


Standard deviation of Trifloxystrobin
Ppb Trifloxystrobin
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
RT
FF

2011 Study


20000
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
Ppb Trifloxystrobin
Plants 1-4
Plants 5-8
Plants 9-12
Plants 13-16
T1-P1
T1-P2
T1-P3
T1-P4
T2-P1
T2-P2
T2-P3
T2-P4

Summary

- 2009 Study – 2 GPA
  - Coverage sampled using Kromekote cards
  - Flat fans had greater coverage
  - Rotary atomizers were more uniform across plots
- 2011 Study – 1 GPA
  - Deposition sampled by measuring amount of fungicide deposited on corn leaves
  - Rotary atomizers had slightly greater deposition
  - Rotary atomizers were more uniform across plots