

# Assessing the best fungicide application timing for Fusarium head blight and mycotoxin management

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# Acknowledgements

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**Data source:** Uniform fungicide testing program, 2009-2010

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# Current Recommendations ([www.scabsmart.org](http://www.scabsmart.org))

**SCAB SMART  
MANAGEMENT**

## Fungicide Timing for all Grain Classes

Favorable environmental conditions may allow scab development over a wide window following head emergence of small grains. However, fungicides can't be applied too late in the growing season, because each fungicide has a pre-harvest interval that prohibits later application. The shortest preharvest interval for registered fungicides is 30 days. Research has shown that the optimal timing for fungicide application under current registration laws is:

**Hard Red Spring Wheat:** Optimum time to apply a single fungicide for scab and DON reduction is at early flowering, equal to Feekes 10.51. Applications prior to this growth stage have not adequately reduced scab severity or DON.





- Scheduling proper timing
- Low spray volumes



# Objective

- To better understand the size of the fungicide application timing window for FHB and DON management



# Wheat in Corn Residue





Mist irrigation used at most locations



# Treatments

## ■ Fungicides:

- Prosaro 6.5 fl oz + non-ionic surfactant (prothioconazole + tebuconazole)
- Caramba 13.5 fl oz + non-ionic surfactant (metconazole)

## ■ Timings:

- Feekes 10.5 (heading complete)
- Feekes 10.5.1 (beginning flowering)
- 5 days after Feekes 10.5.1

# Trials

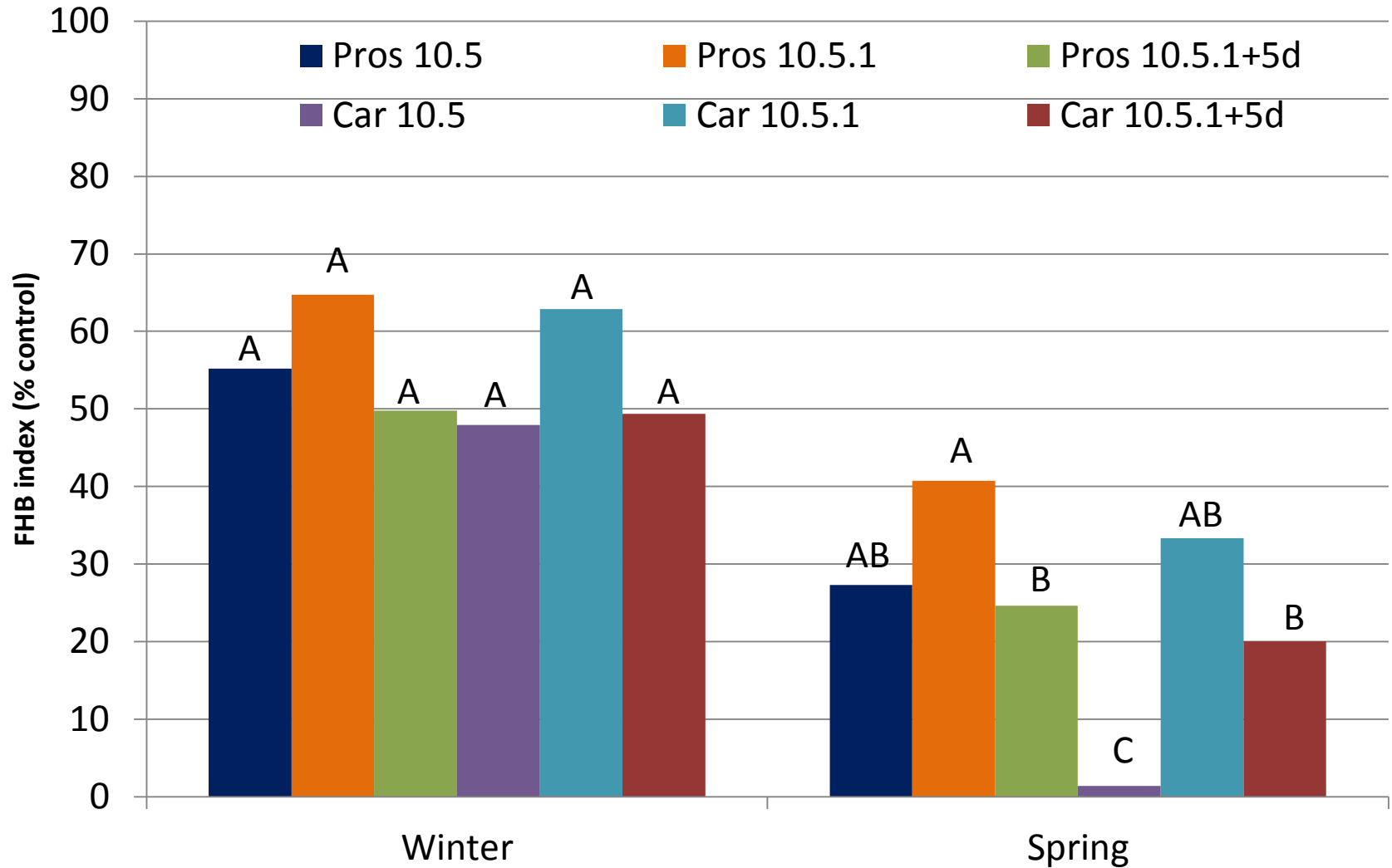
- Conducted in 2009 and 2010
- Data from location used in analysis if:
  - Mean FHB index in non-treated  $\geq 10$
  - Mean DON in non-treated  $\geq 2$  ppm
- Data analyzed as % control relative to the non-treated check
  - $(1 - (\text{trt}/\text{non-trted})) * 100$

# Trials

- Locations:
  - AR (1), IL (3), MD (1), MN (2), ND (1), SD (2)
- Classes:
  - Hard red winter, hard red spring, durum, soft red winter
- N = 432

# Effect of timing on FHB index

(2009-2010 – USWBSI Uniform Fungicide Trials)

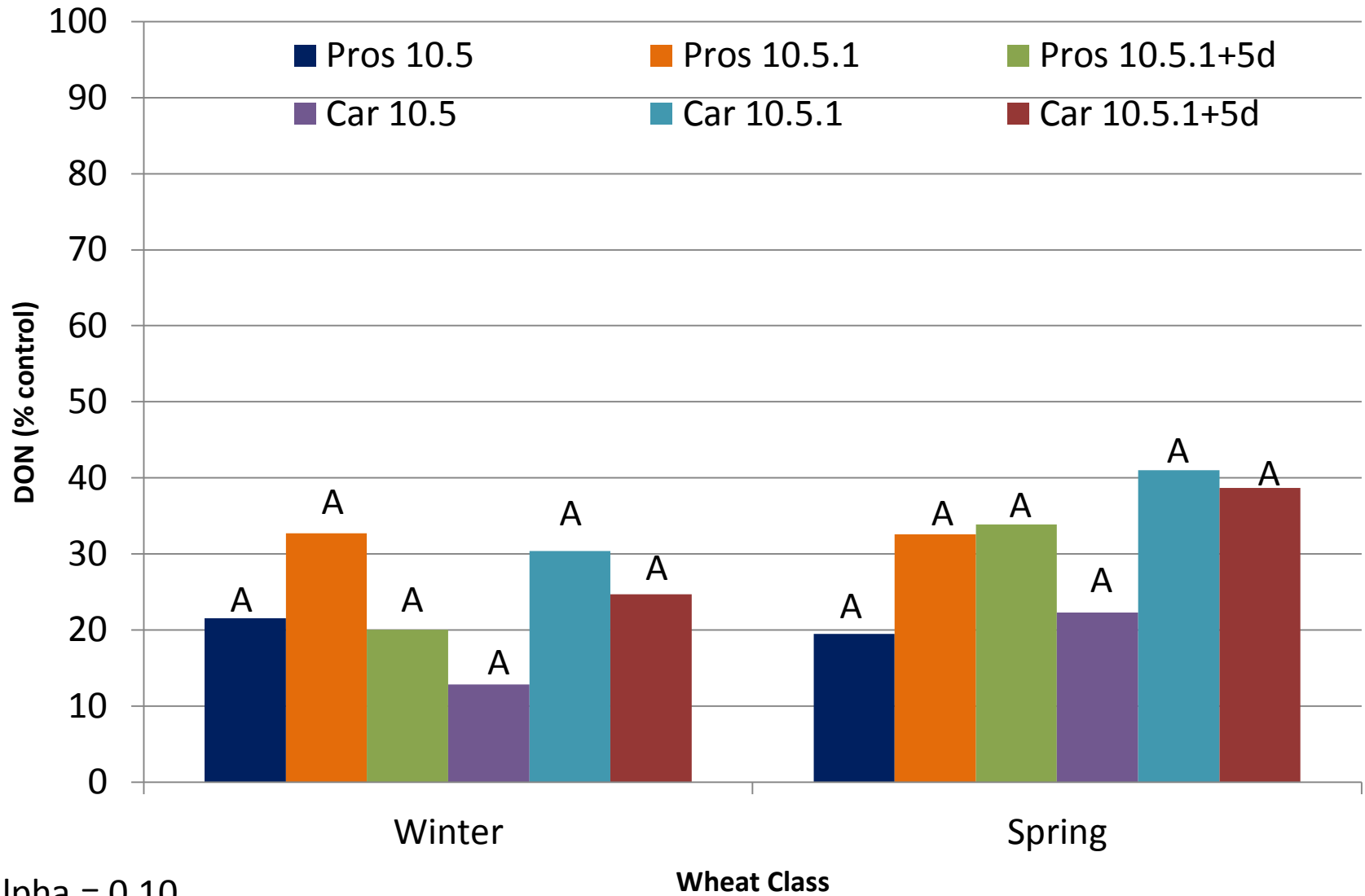


Alpha = 0.10

Wheat Class

# Effect of timing on DON

(2009-2010 – USWBSI Uniform Fungicide Trials)



Alpha = 0.10

# Second Trial – Treatments

## ■ Fungicides:

- Prosaro 6.5 fl oz + non-ionic surfactant (prothioconazole + tebuconazole)
- Caramba 13.5 fl oz + non-ionic surfactant (metconazole)

## ■ Timings:

- Feekes 10.5.1 (beginning flowering)
- 3 days after Feekes 10.5.1
- 6 days after Feekes 10.5.1

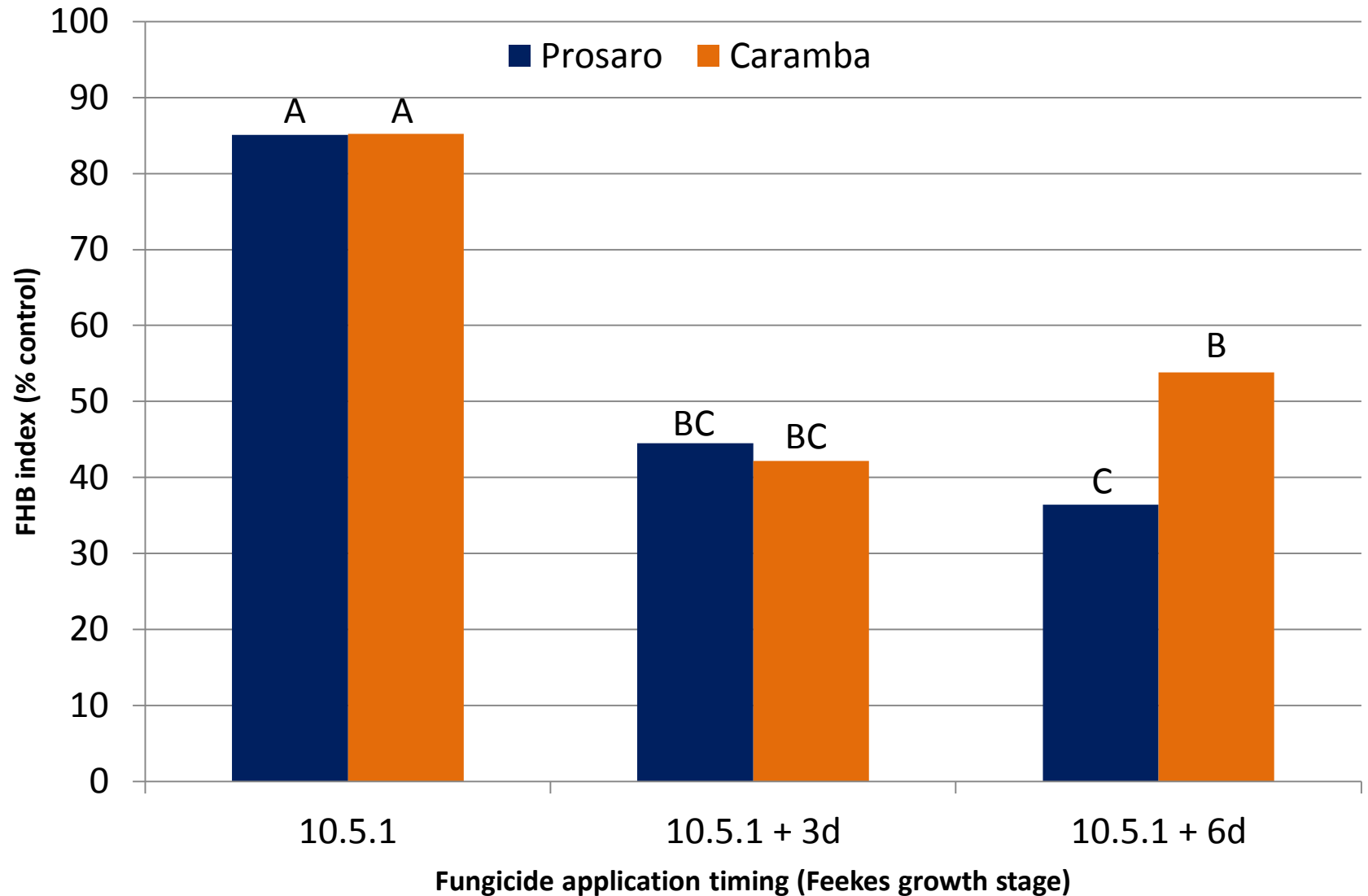
# Second Trial

- Inoculation:
  - Conidial suspension inoculated at Feekes 10.5.1 (~6 hours after fung application)
- Location:
  - Urbana, IL – 2011
- Class:
  - Soft red winter (Pioneer 25R47)



# Effect of fungicide timing on FHB index

(Urbana, IL – 2011)

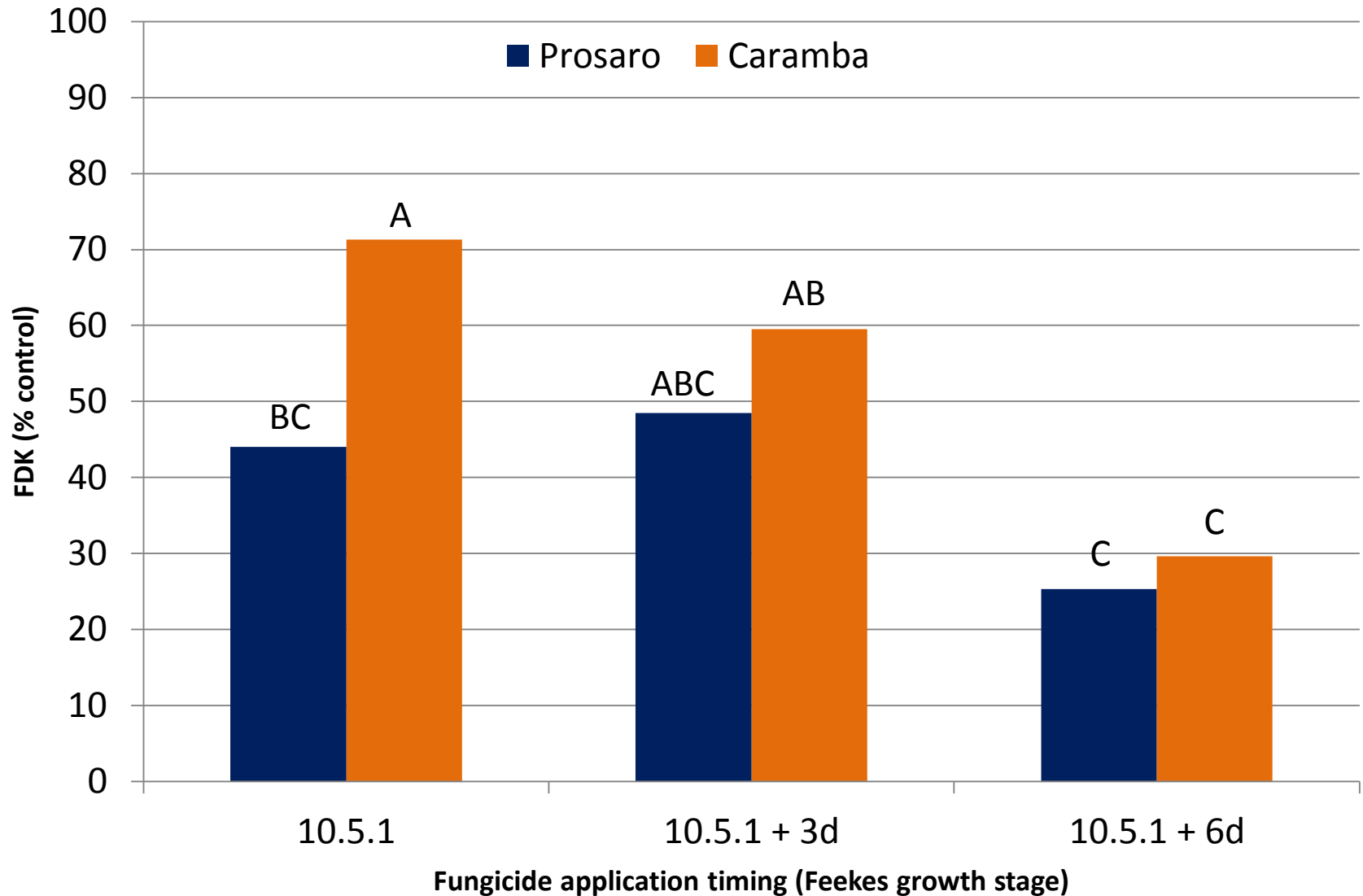


FHB index in non-treated = 38.6

Alpha = 0.10

# Effect of fungicide timing on FDK

(Urbana, IL – 2011)

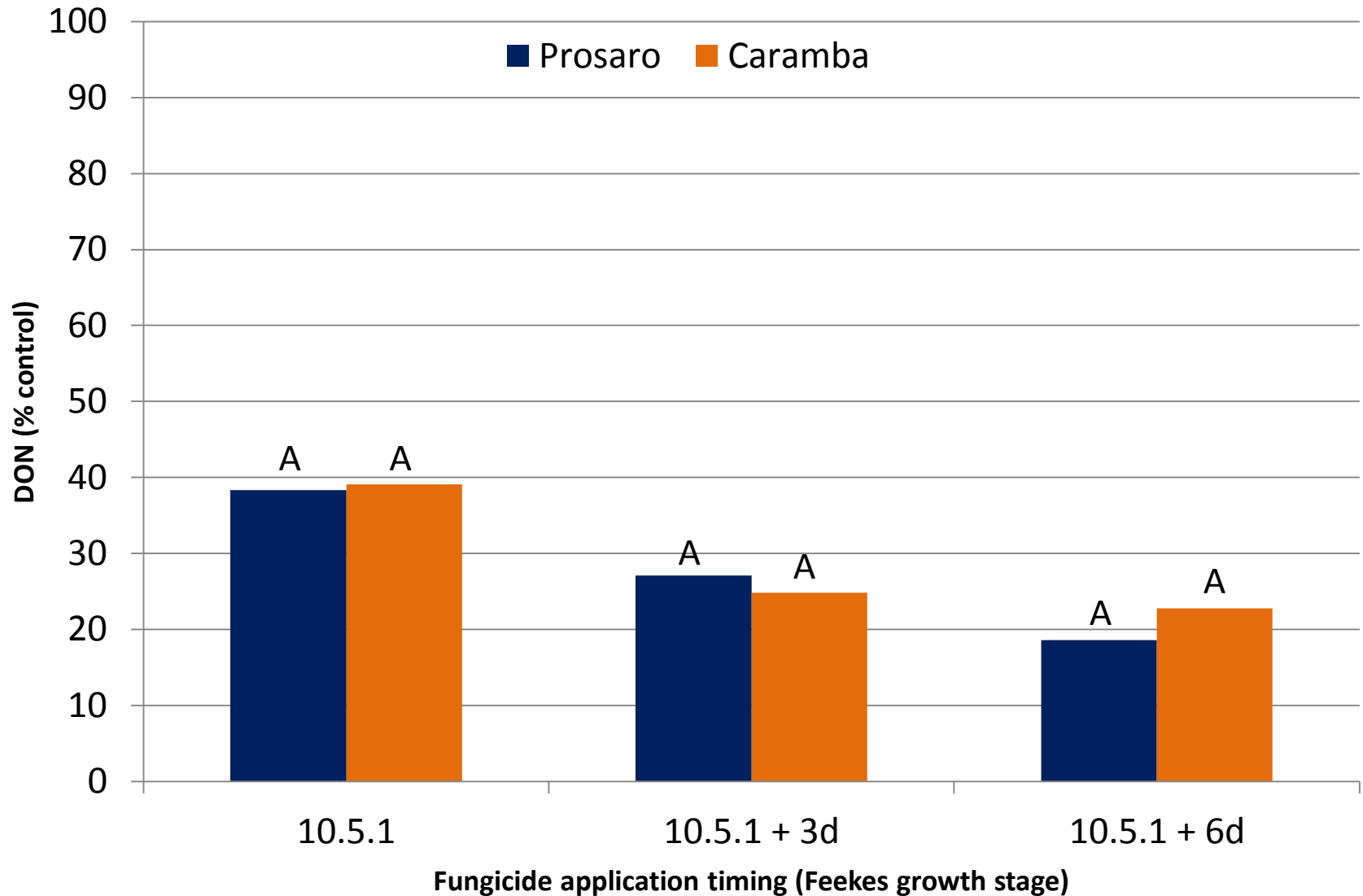


FDK in non-treated = 8.7%

Alpha = 0.10

# Effect of fungicide timing on DON

(Urbana, IL – 2011)



DON in non-treated = 3.9 ppm

Alpha = 0.10

# Conclusions

- Growers should shoot for 10.5.1
- BUT, maybe some room for error
  - Conidia-inoculated trials – bigger drop-off of control of FHB after Feekes 10.5.1
  - “Natural spore” trials – drop-off of FHB control after Feekes 10.5.1 not as large
- Future research.....
  - How late can we go?
  - Fungicide labels (30 day PHI)

A photograph of a lush green wheat field under bright sunlight. The wheat stalks are tall and densely packed, with their heads beginning to form. A solid yellow rectangular banner is positioned at the top center of the image, containing the text "Thank You" in a bold, black, sans-serif font.

**Thank You**