

A Three-Year Summary of Fungicide Trials for Rust

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Outline

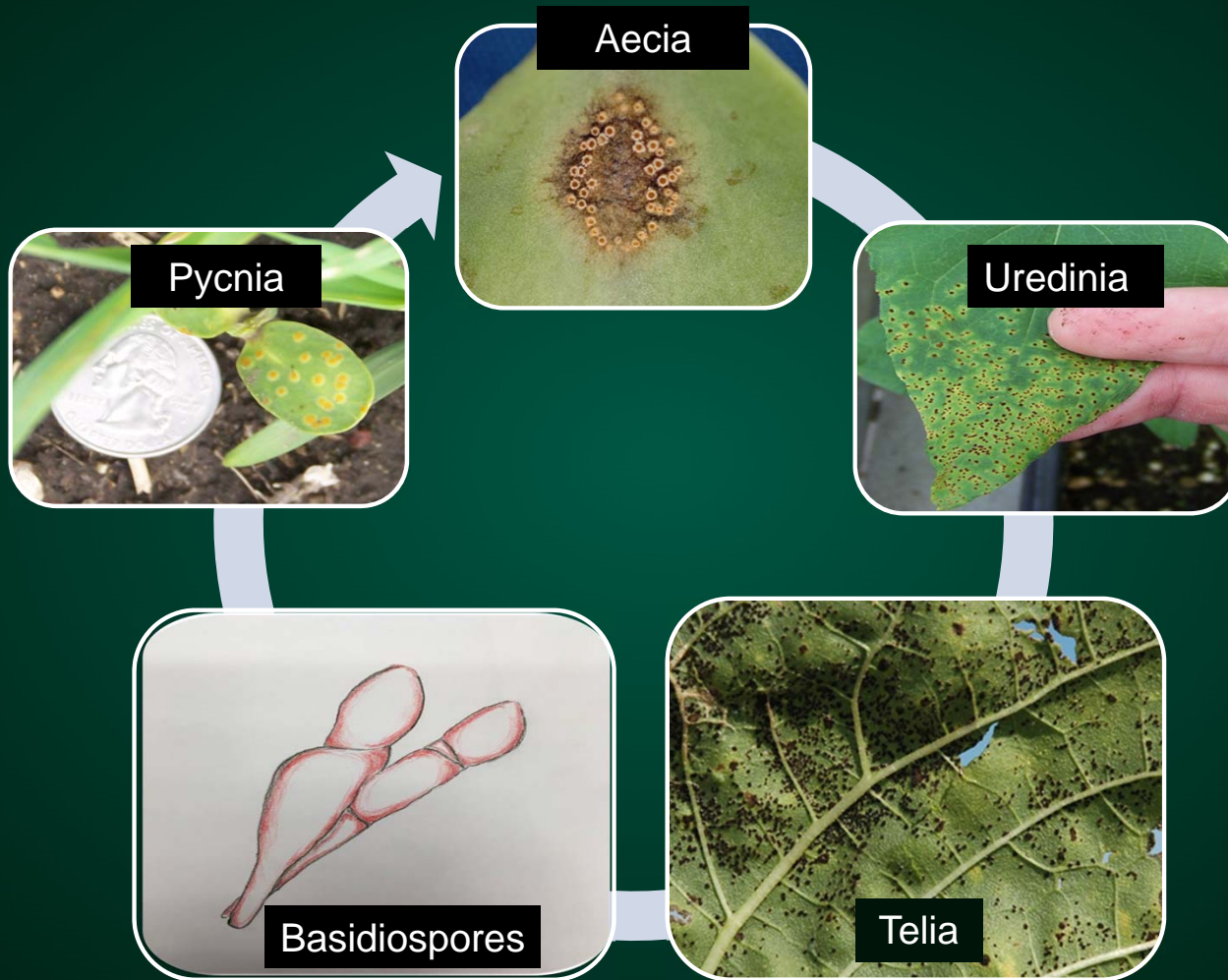
- I. Introduce rust and fungicides
- II. Objective
- III. Materials and Methods
- IV. Conclusion
- V. Acknowledgements



**80%
yield
loss**



Sunflower rust (*Puccinia helianthi*)



Introduction fungicides

- The optimal fungicide timing was severity of 1% at or before R5
- All fungicide trials were on confection hybrids
- New fungicides available to growers



Objective

The objective of this study is to evaluate the efficacy of new fungicides on oilseed and confection sunflower hybrids for rust management

Materials and Methods

- Ten trials between the years 2016-2018
- Oilseed and confection sunflower hybrids trials were planted in four row plots
- Randomized complete block design
- Four reps
- Twelve fungicide treatments

Treatments	FRAC Group	Rate (fl oz)	Active Ingredient
Non-treated	NA	NA	NA
Onset	3	4	Tebuconazole
Orius	3	4	Tebuconazole
Tebustar	3	4	Tebuconazole
Headline	11	6	Pyraclostrobin
Quadris	11	6	Azoxystrobin
Aproach	11	6	Picoxystrobin
Vertisan	7	10	Penthiopyrad
Vertisan	7	20	Penthiopyrad
Aproach Prima	11, 3	3.4	Picoxystrobin, Cyproconazole
Priaxor	7, 11	4	Fluxapyroxad, Pyraclostrobin
Priaxor + Onset	7, 11, 3	4+2	Fluxapyroxad, Pyraclostrobin, Tebuconazole

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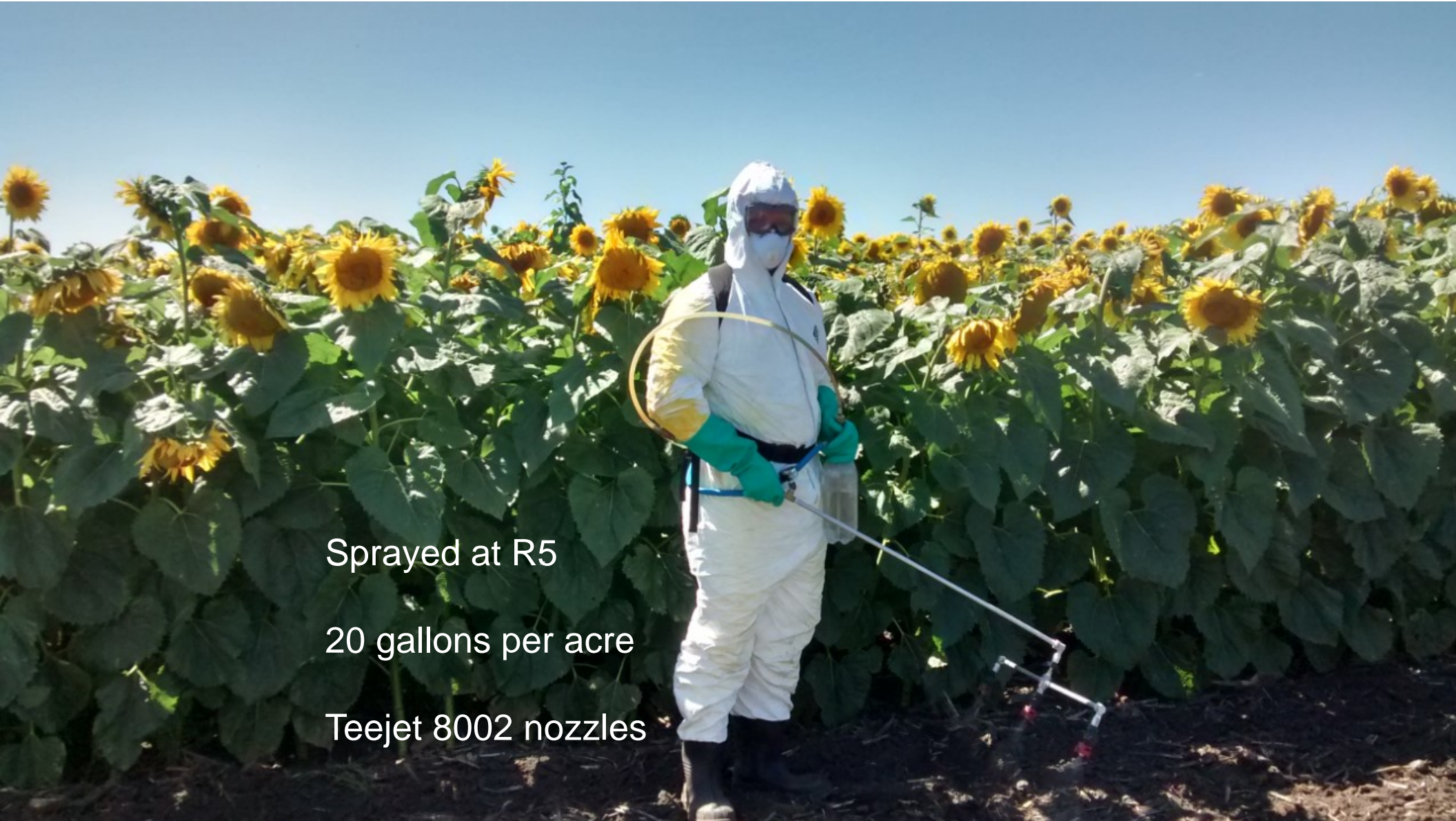












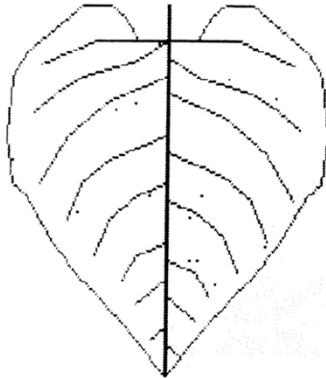
Sprayed at R5

20 gallons per acre

Teejet 8002 nozzles

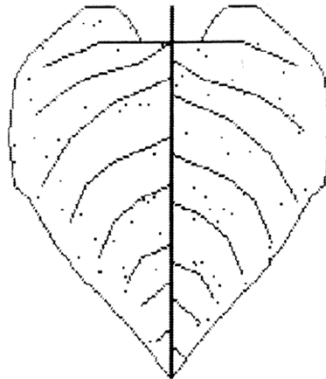
Rust Severity Ratings

0.1%



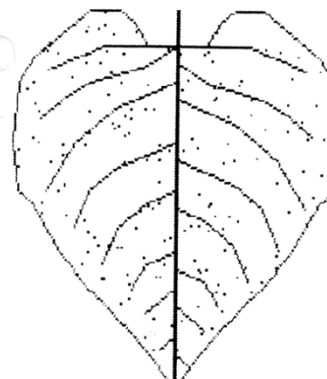
Leaf Area Affected .1%

0.5%



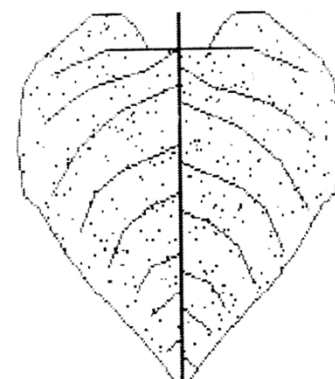
Leaf Area Affected .5%

1%



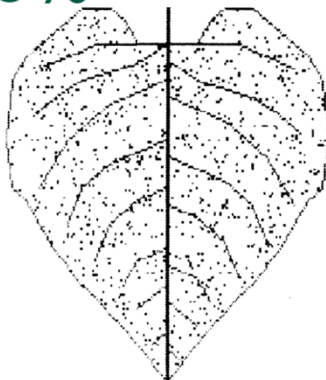
Leaf Area Affected 1%

2%



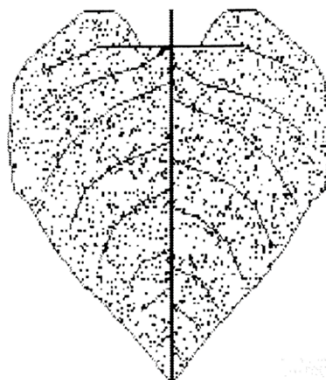
Leaf Area Affected 2%

5%



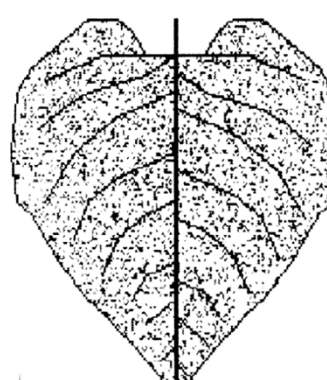
Leaf Area Affected 5%

10%



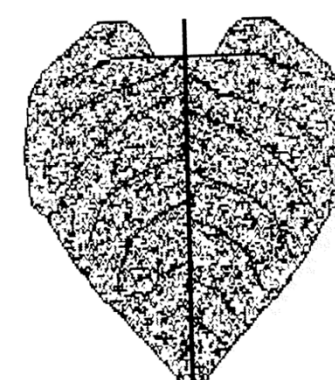
Leaf Area Affected 10%

20%



Leaf Area Affected 20%

40%



Leaf Area Affected 40%

(Friskop et al 2011)



2018

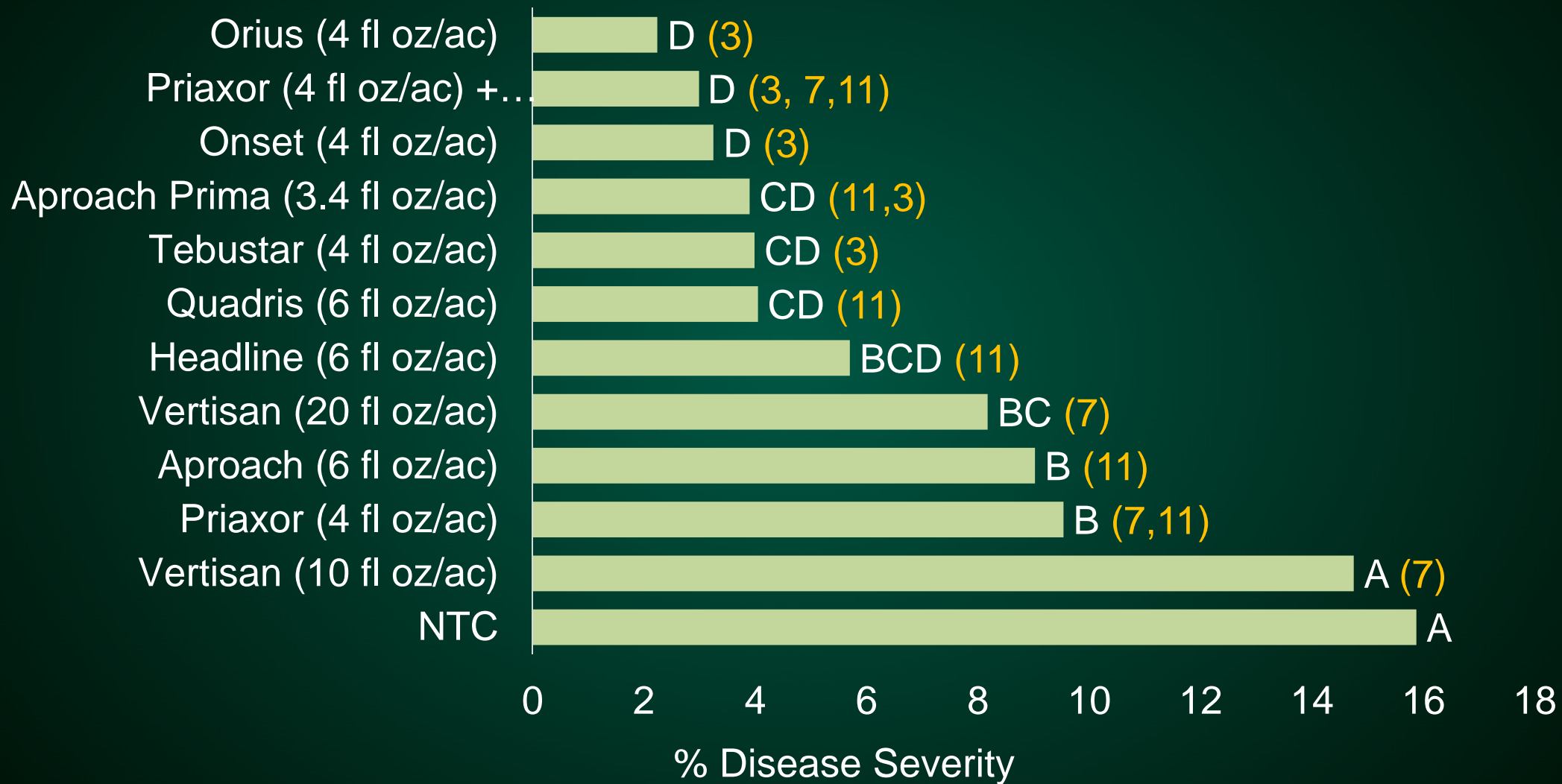
(Photo courtesy of Scott Fitterer)

An aerial photograph of a cornfield in 2018. The field is divided into several long, parallel rows of crops. The plants are dark green, and many have bright yellow tassels, indicating they are in the late stages of growth. The rows are separated by dark, tilled soil. In the background, there are other agricultural fields, including a large green field and a smaller brown field. The year '2018' is printed in large white text across the upper middle of the image.

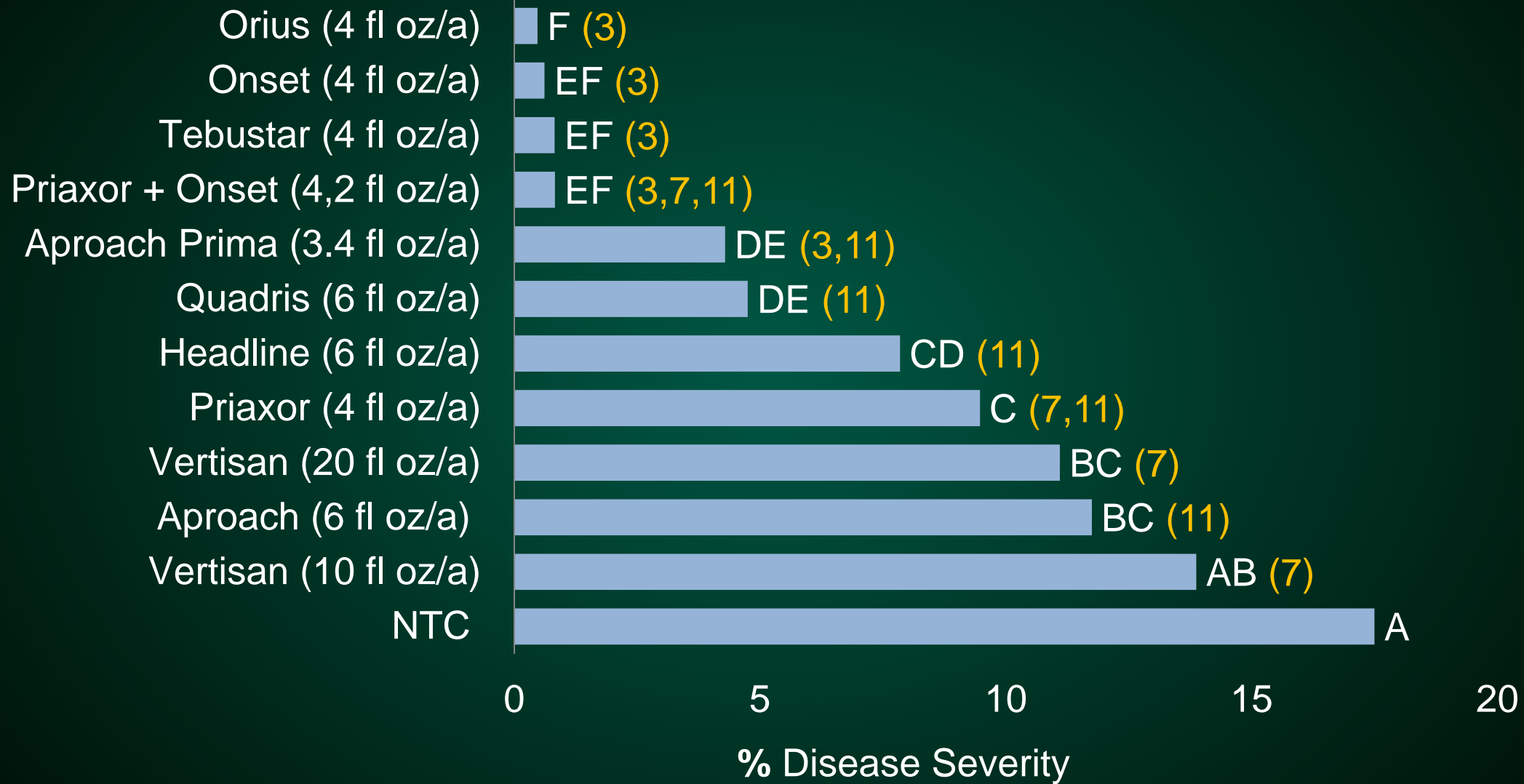
2018

(Photo courtesy of Scott Fitterer)

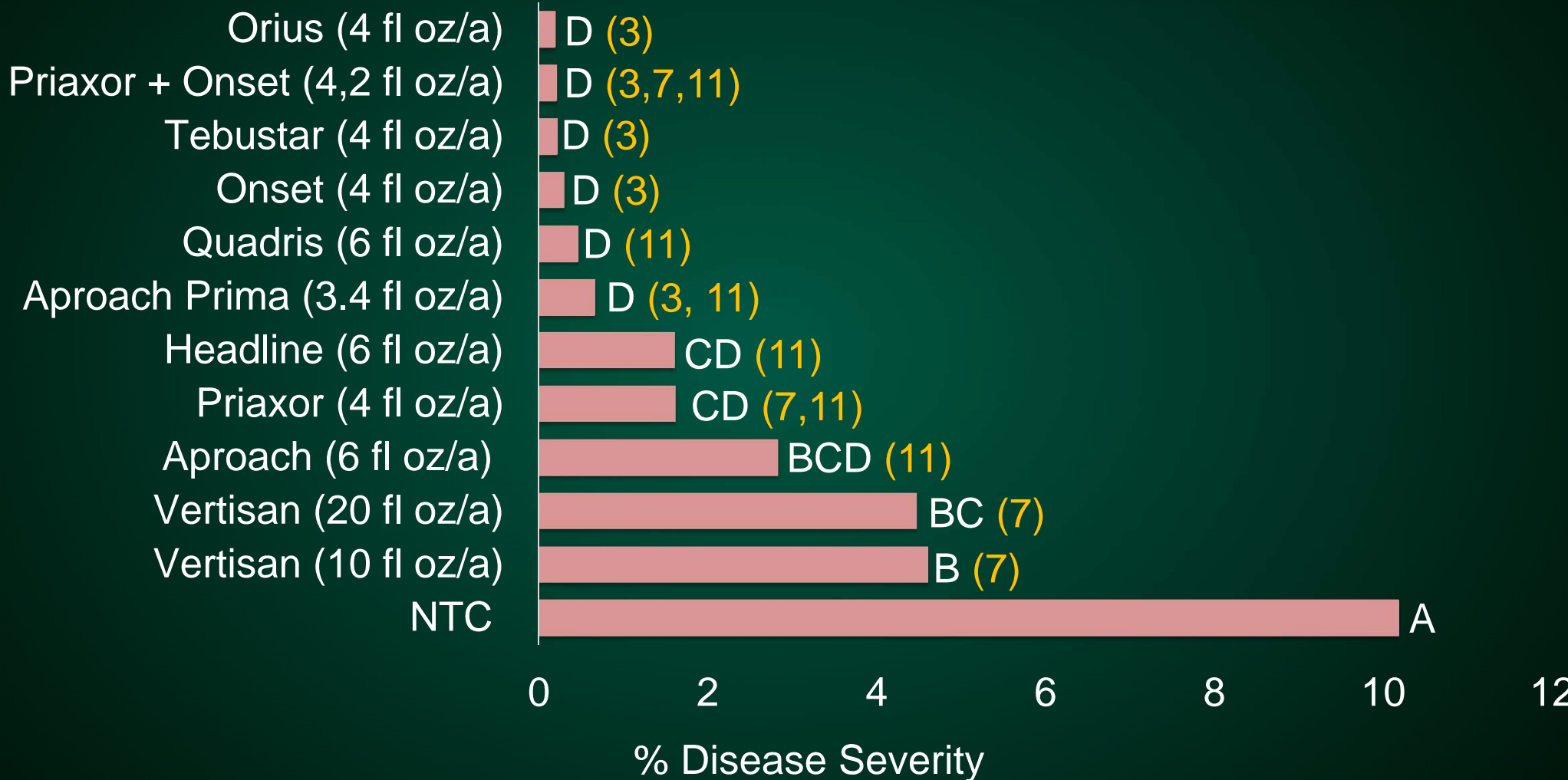
2016 Confection Hybrid in Leonard, ND



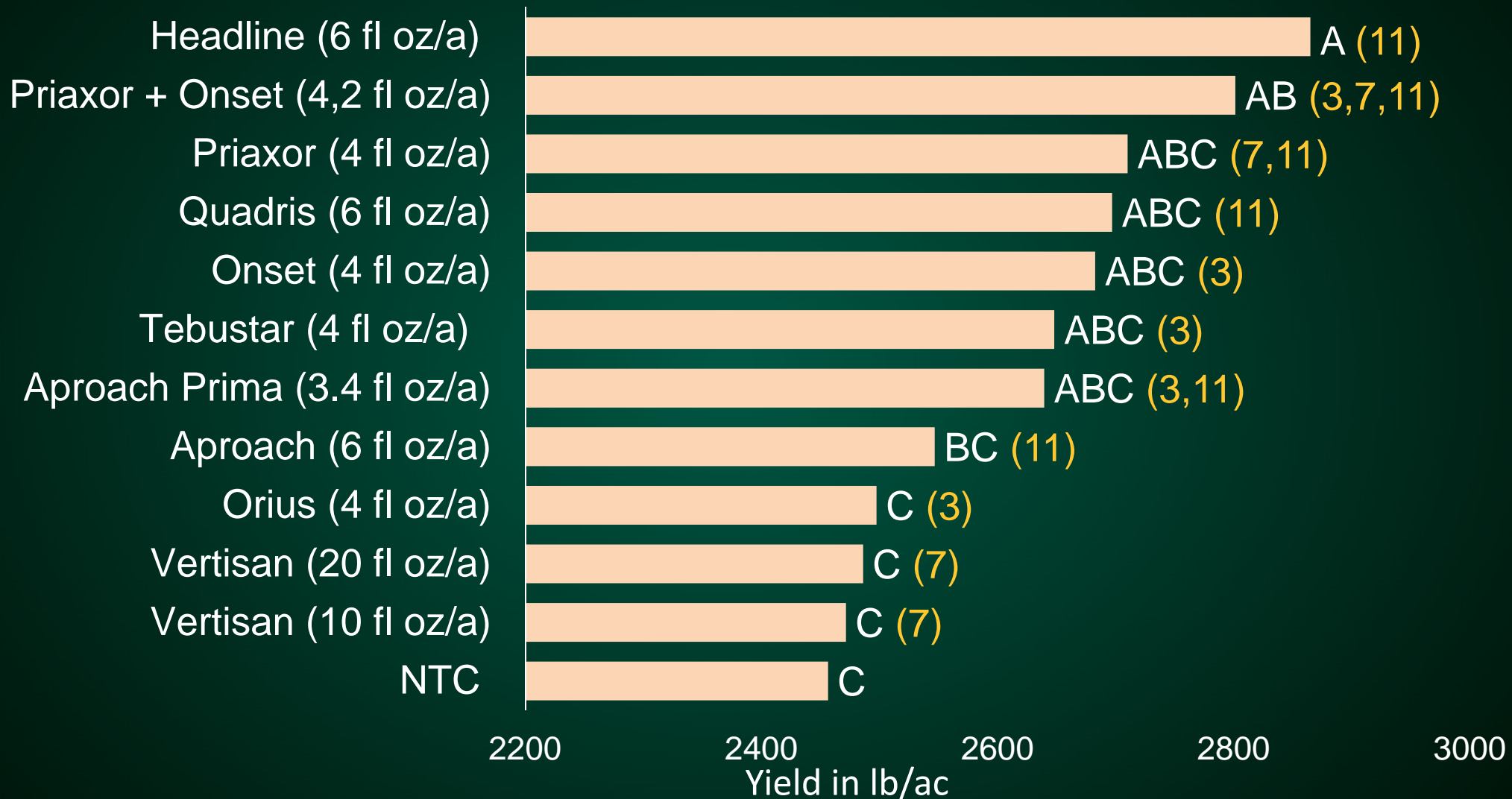
2017 Confection Hybrid in Davenport, ND



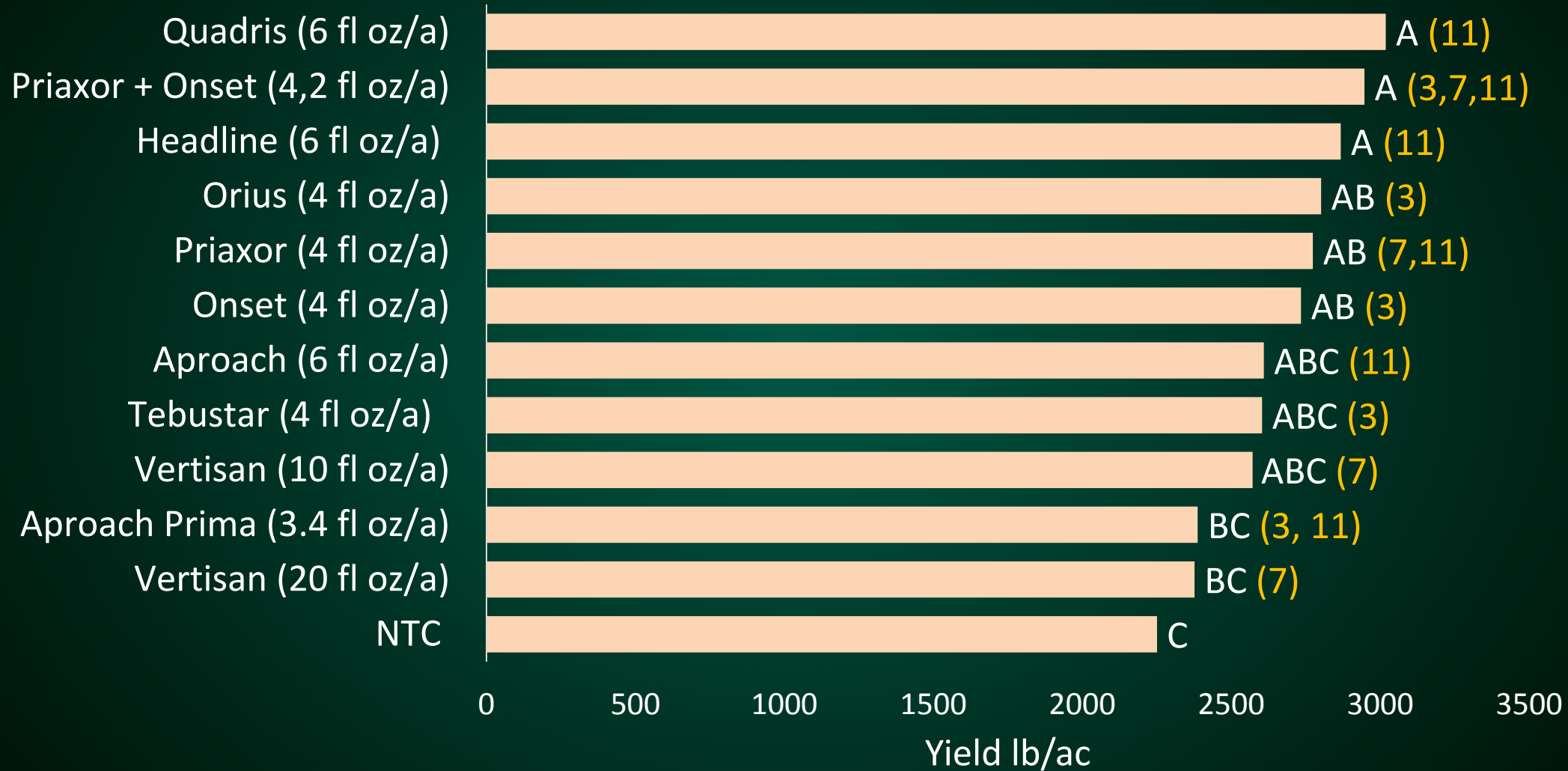
2018 Confection Hybrid in Davenport, ND



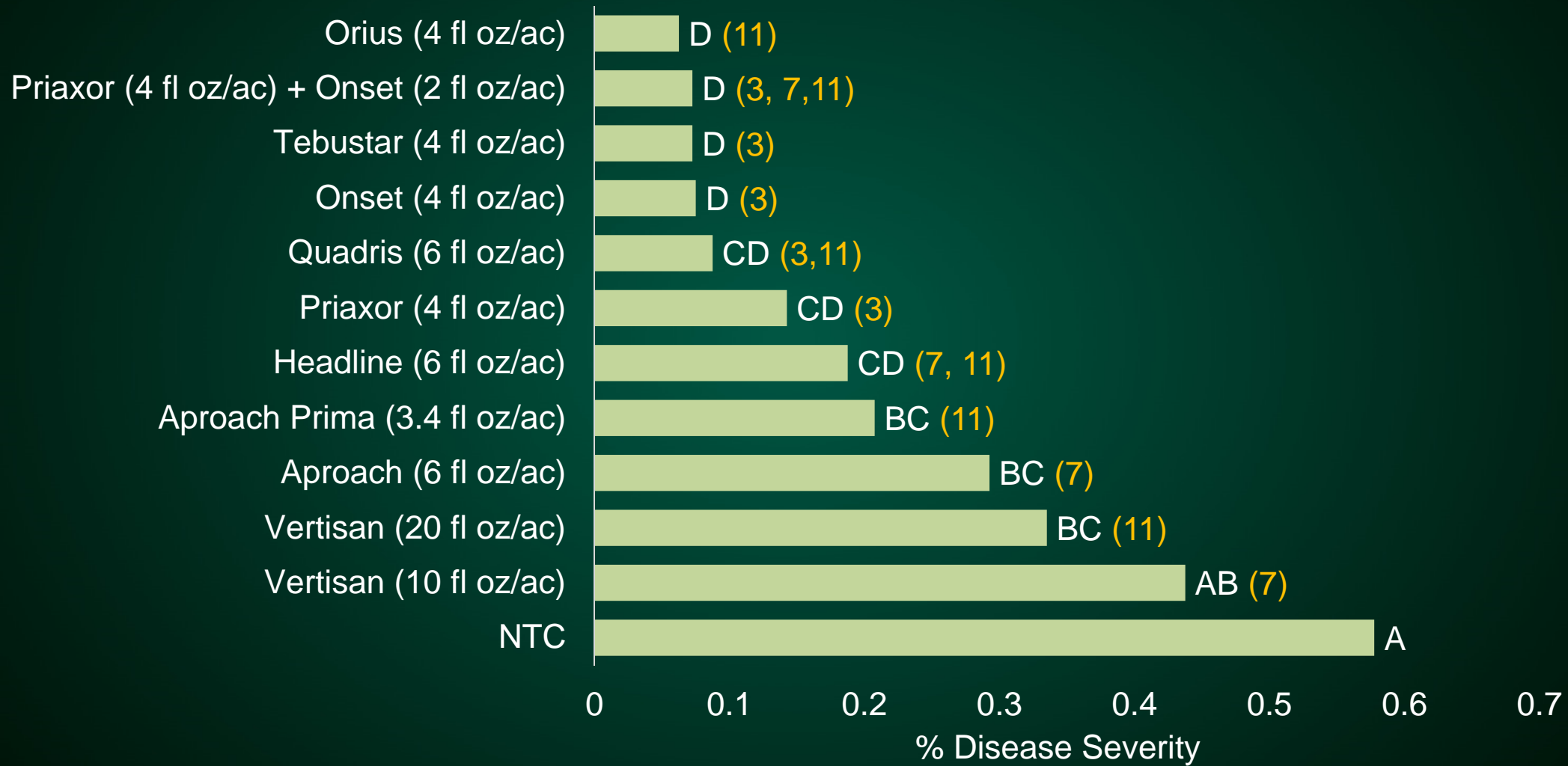
2017 Confection Hybrid Yield in Davenport, ND



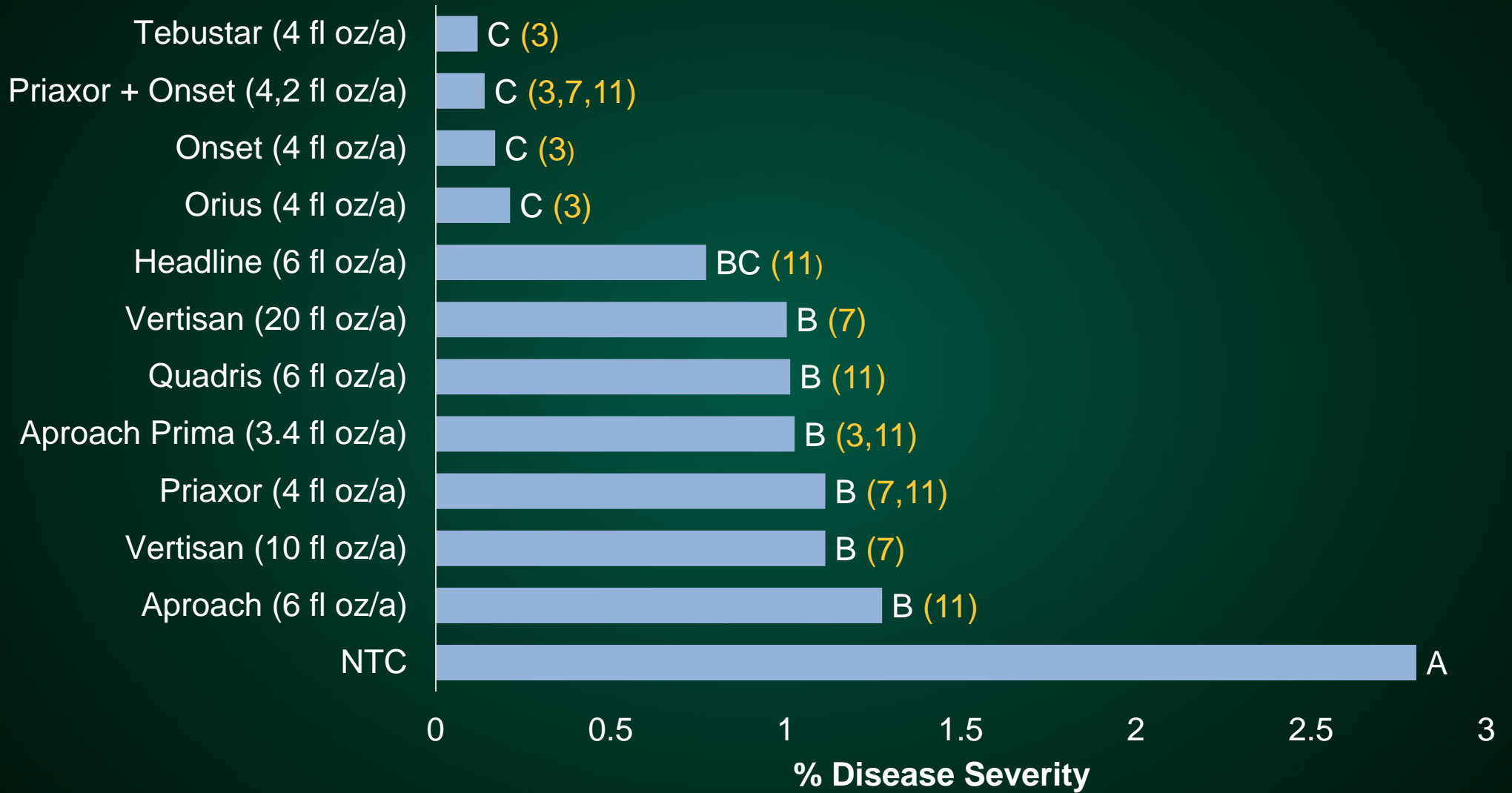
2018 Confection Hybrid Yield in Davenport, ND



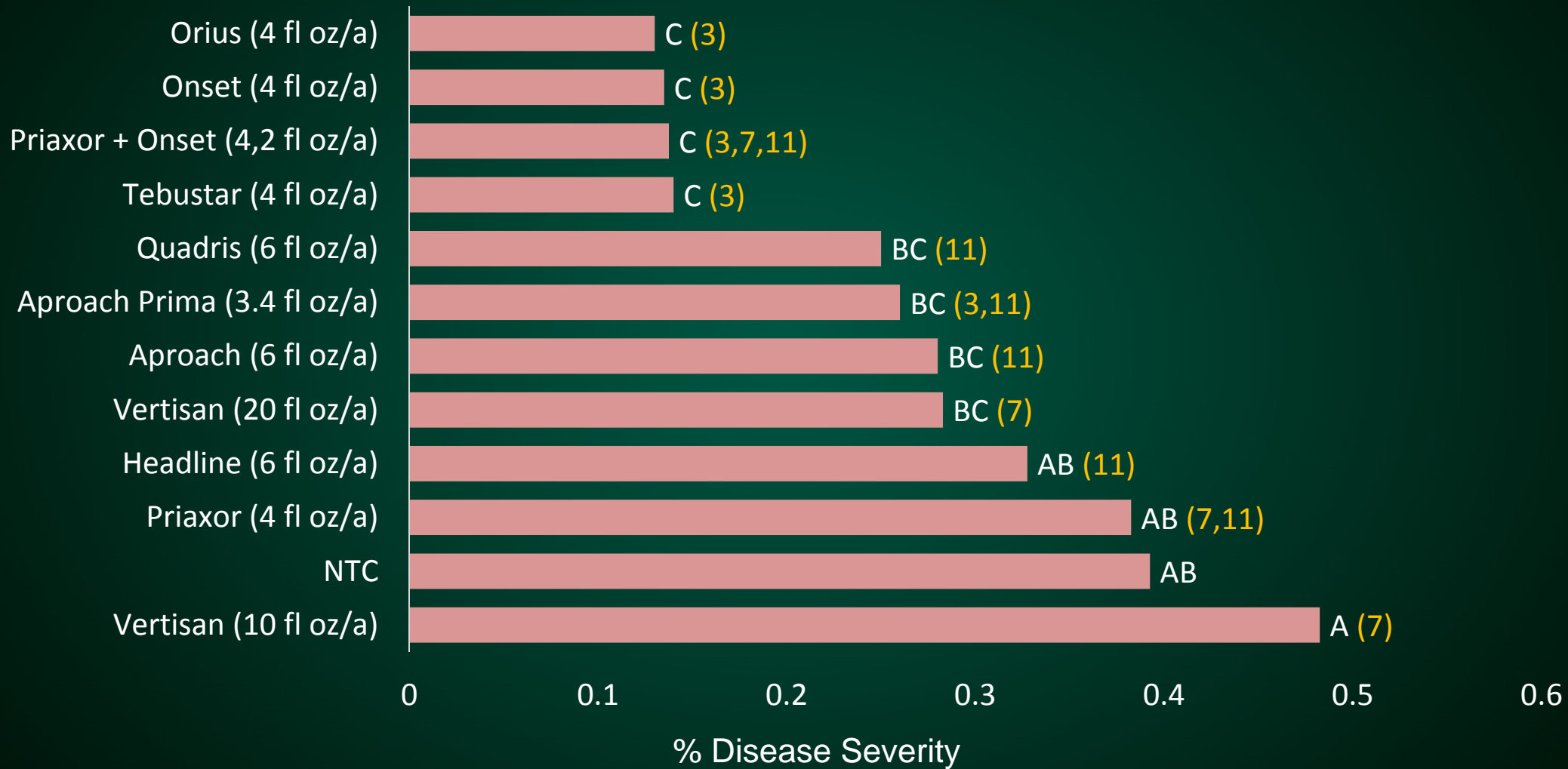
Oilseed hybrid in Rothsay, MN 2016



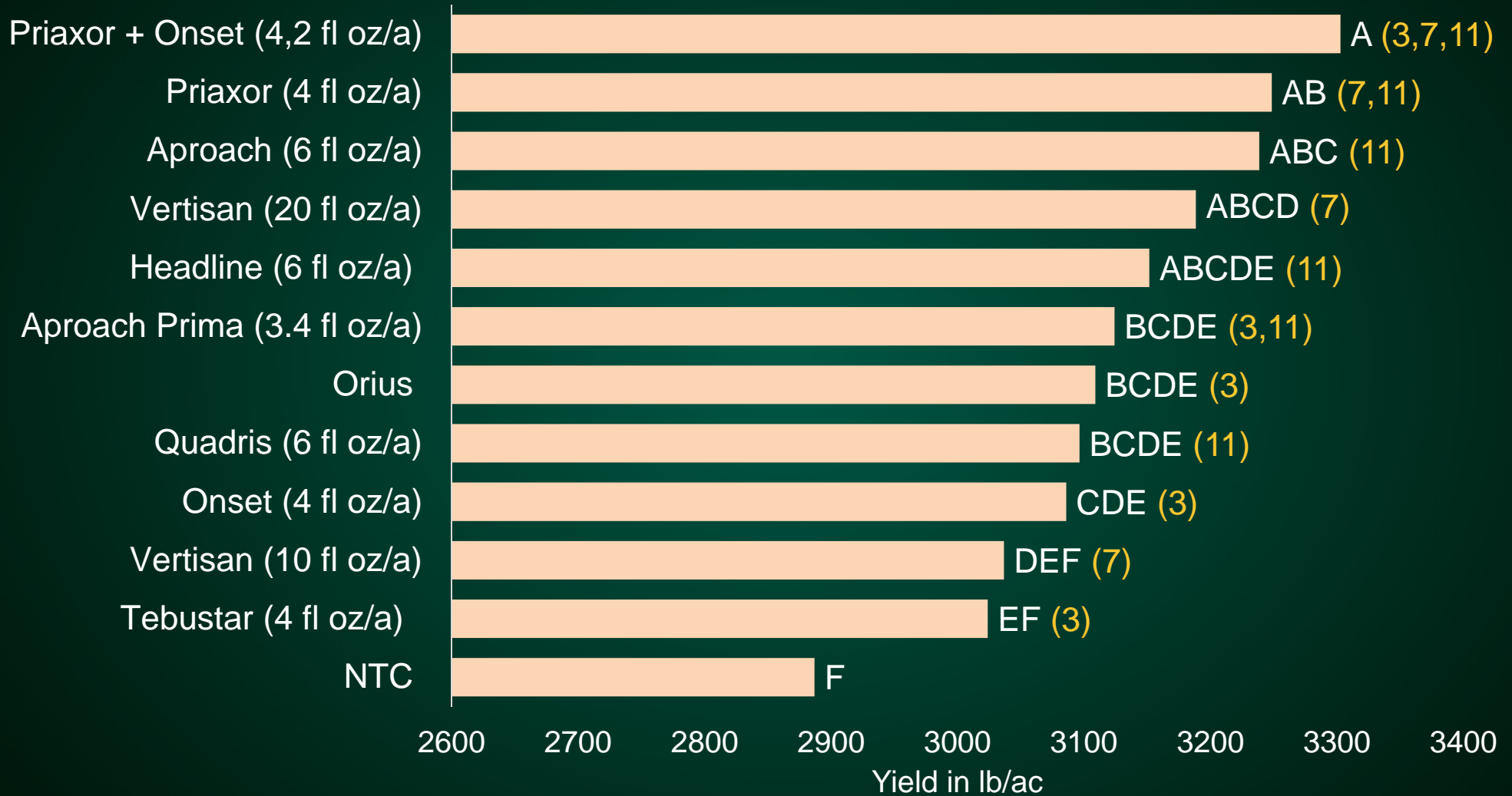
Oilseed Hybrid in Davenport, ND 2017



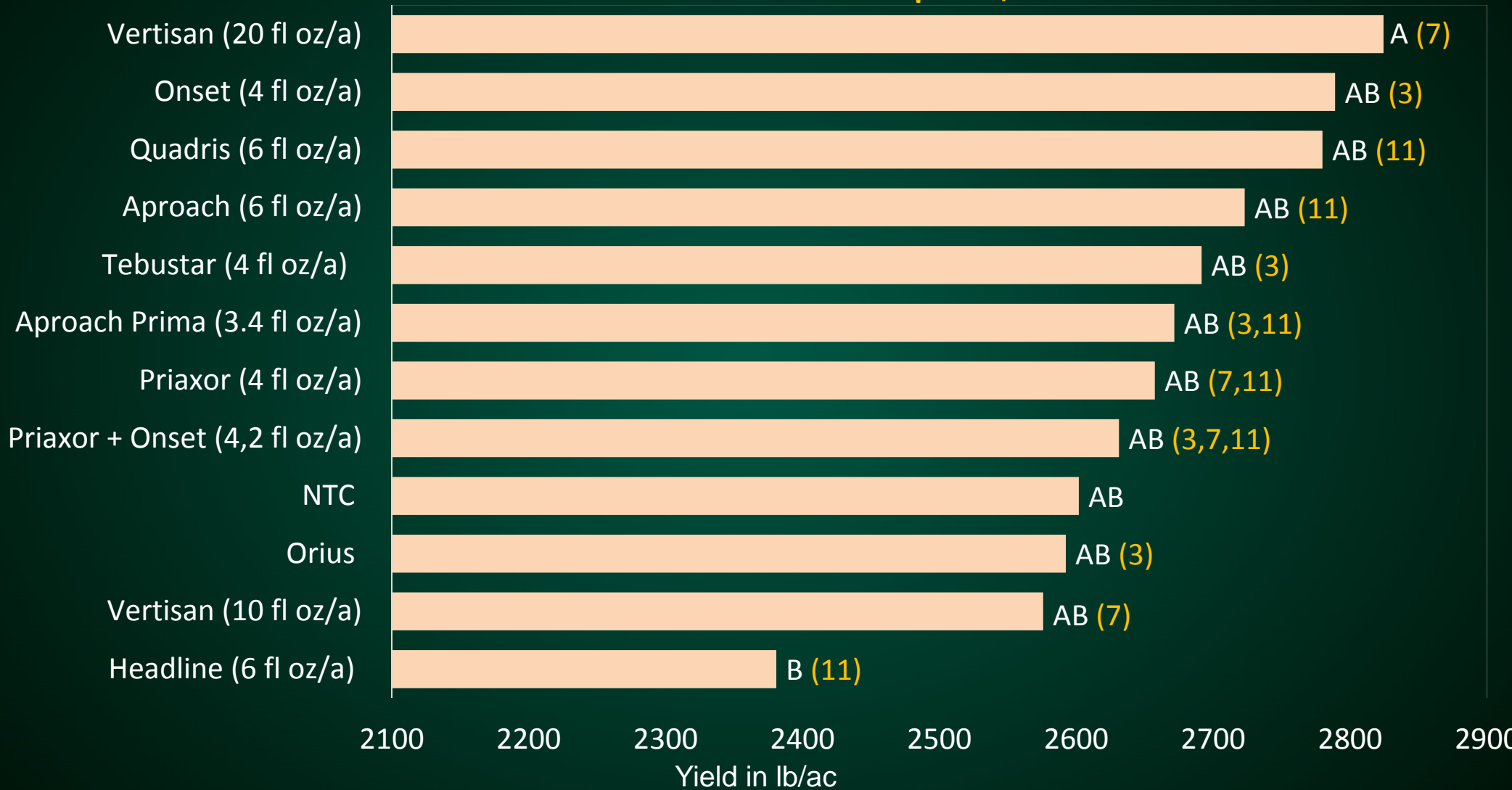
Oilseed Hybrid in Davenport, ND 2018



Oilseed Yield Data for Davenport, ND 2017



Oilseed Yield Data for Davenport, ND 2018



Conclusion

- DMI and QoI chemistries generally worked the best
- Lots of effective fungicides
- It would be interesting to test the efficacy of new succinate dehydrogenase inhibitors (SDHI)

Thank you!



Acknowledgements

- National Sunflower Association
- NDSU Agriculture Experiment Station
- NDSU Extension Service
- BASF
- Mycogen Seed
- Carrington Research Extension Center