Influence of Variety Tolerance, Application Timing and Fungicide Efficacy on Control of Cercospora Leafspot in Michigan

ASSBT – 2011

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Introduction

- Cercospora Leafspot caused by the fungus Cercospora beticola
- Most damaging foliar disease for Michigan sugarbeet growers
- Causes significant losses in sugarbeet yield and quality

Expected Yield and Quality Losses From Cercospora Infestations

Cerc Rating 0-9	Expected Loss Tons/A	Expected Loss % Suc
2.5 or less	0	0
3	1.0	0.25
4	1.5	0.5
5 - 6	2.0	0.75
7 - 8	3.5	1.5
9	5.0	2.5

Cercospora 0-9 Rating Scale

1.5 Rating
No Yield or Quality Loss

2.5 Rating
Can't measure Yield/Quality Losses

3 Rating
Lose 1 Ton/A and 0.25% Suc

Cercospora 0-9 Rating Scale

5 Rating
Lose 2 Tons/A
and
0.75 pt Suc

7 Rating
Lose 3 Tons/A
and
1.5 pts Suc

9 Rating
Lose 5 Tons/A
and
2.5 pts Suc

Control With Fungicides

Triazoles (Good Control)

- Inspire
- Eminent
- Proline + NIS

Control With Fungicides

Strobilurins (Good Control)

- Headline
- Gem

Control With Fungicides

Super Tin

- Fair-Good Control

EBDC's

- Fair Control

Short residual or tank mix

Control With Fungicides

Topsin M

- Widespread resistance

Rotate Fungicide Classes

Strobilurins

- Resistance potential very high

Triazoles

- Resistance potential high

Apply Fungicides Early

Triazoles and Strobilurins

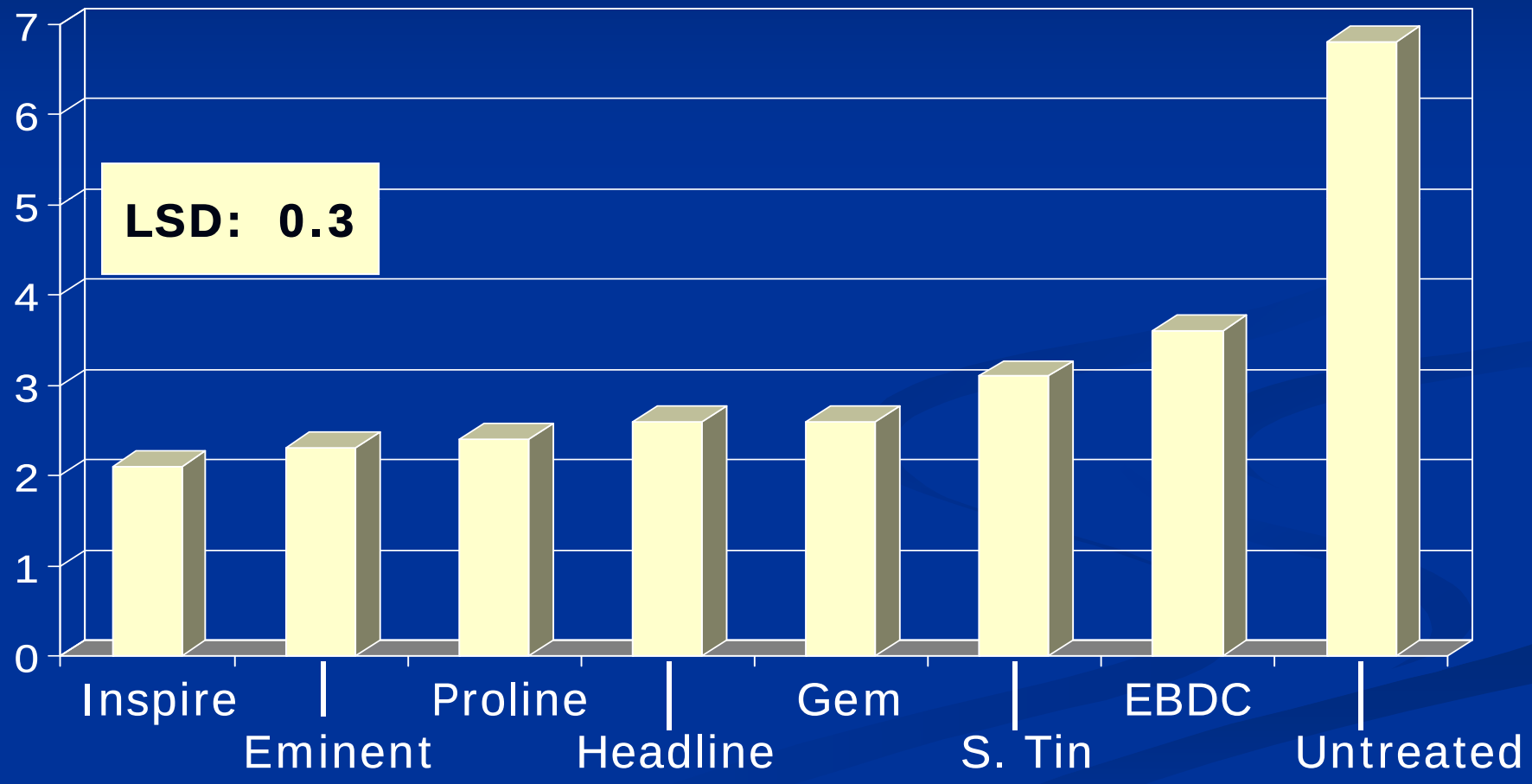
- Good at preventing spore germination
- Good at preventing spores from penetrating leaf

Apply Fungicides Early

Triazoles and Strobilurins

- Not good at curing an existing infection
- Not good at preventing sporulation

Control of Cercospora With Fungicides - 2010



Cercospora Control With Fungicides

Timing of Spray Applications

- Based on BEETcast Prediction Model
- In conjunction with scouting

BEETcast Prediction Model Implemented in 2004

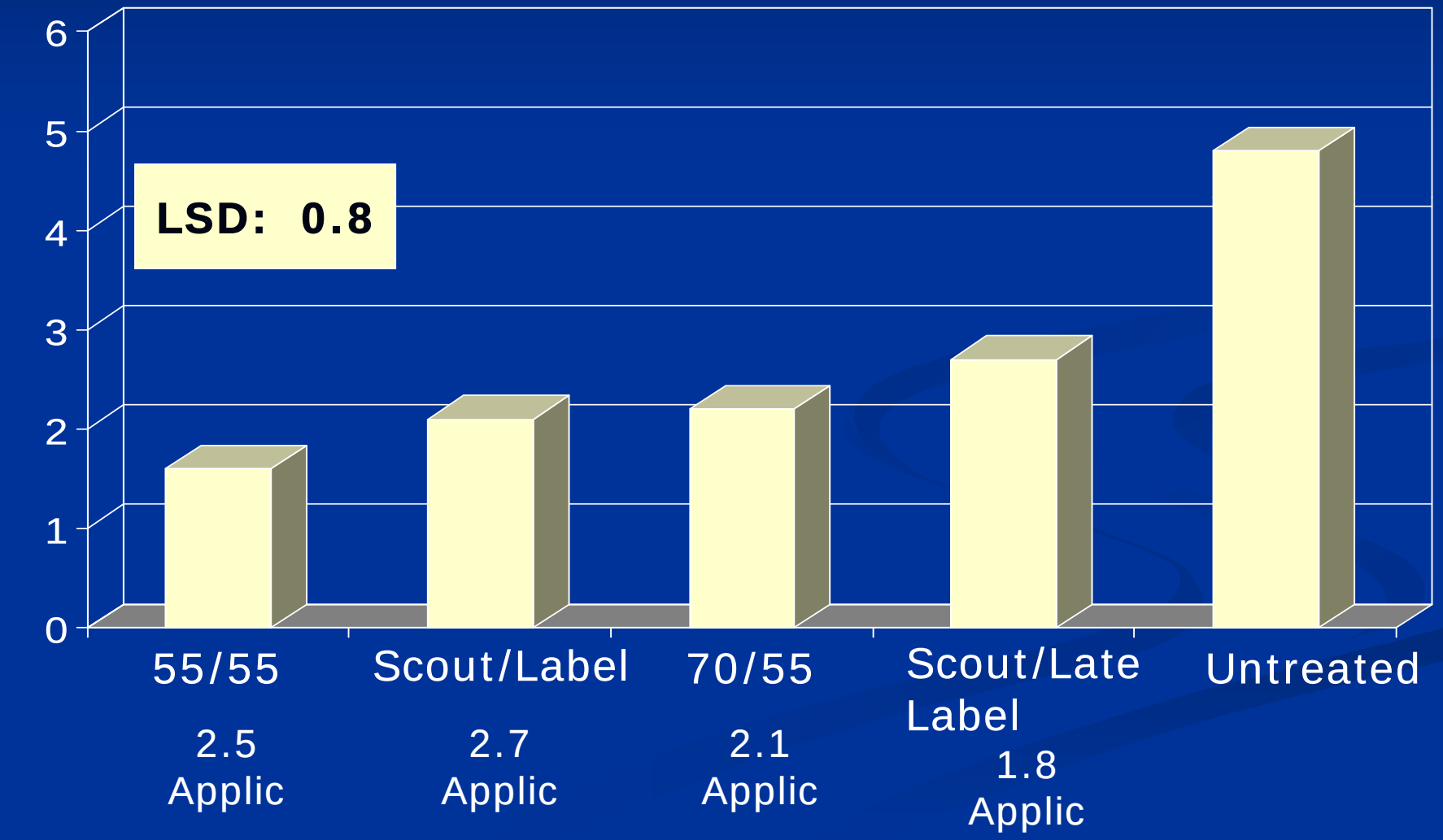
- Measures leaf wetness and air temperature
- Disease severity values (DSV's) reported daily and accumulated

BEETcast Prediction Model

Spray triggers based on

- DSV Level
- Risk Management Zone
- Variety tolerance

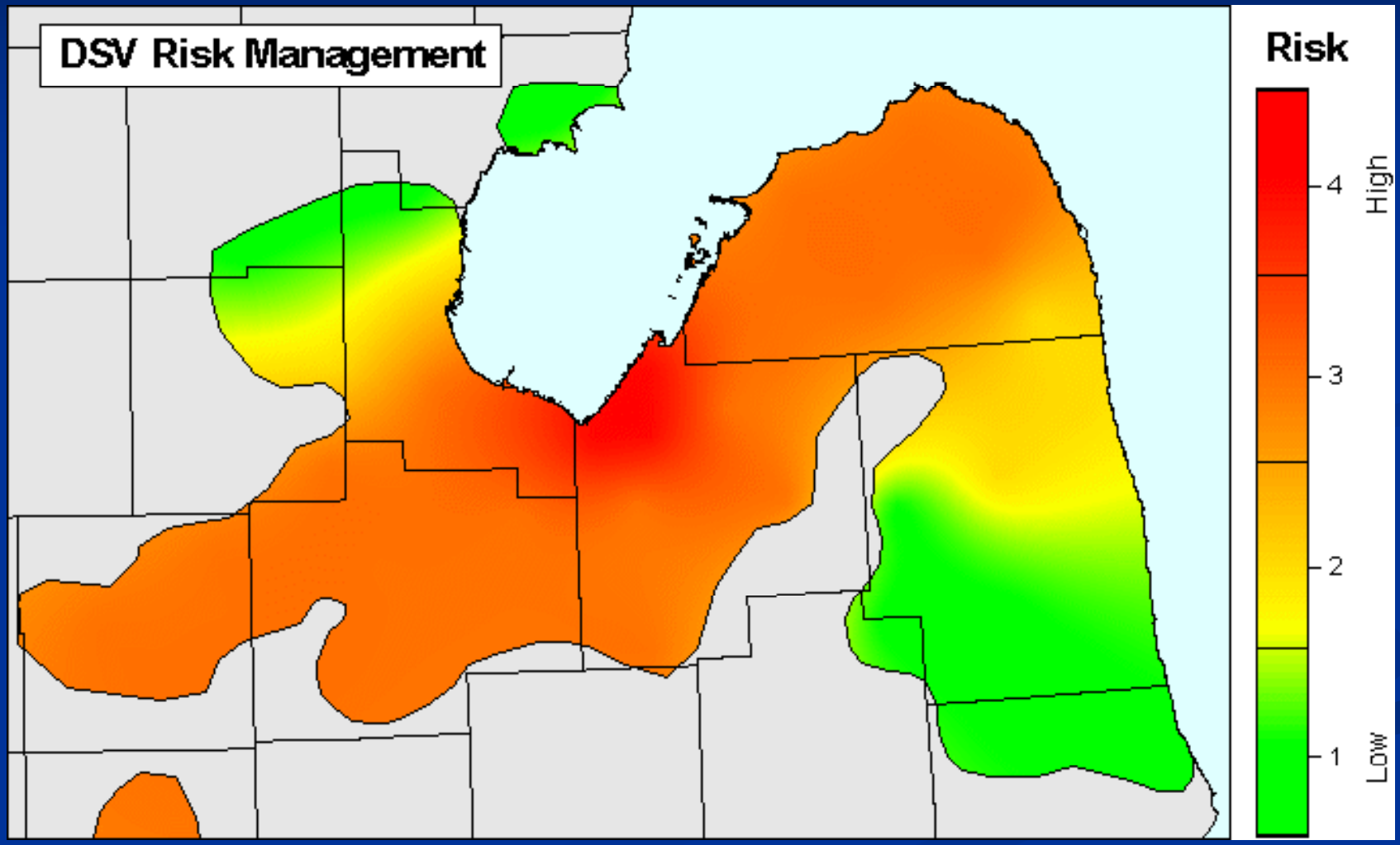
BEETcast Prediction Model
5 Year Summary
Cercospora Ratings



Application Timings
Based on Growing Region

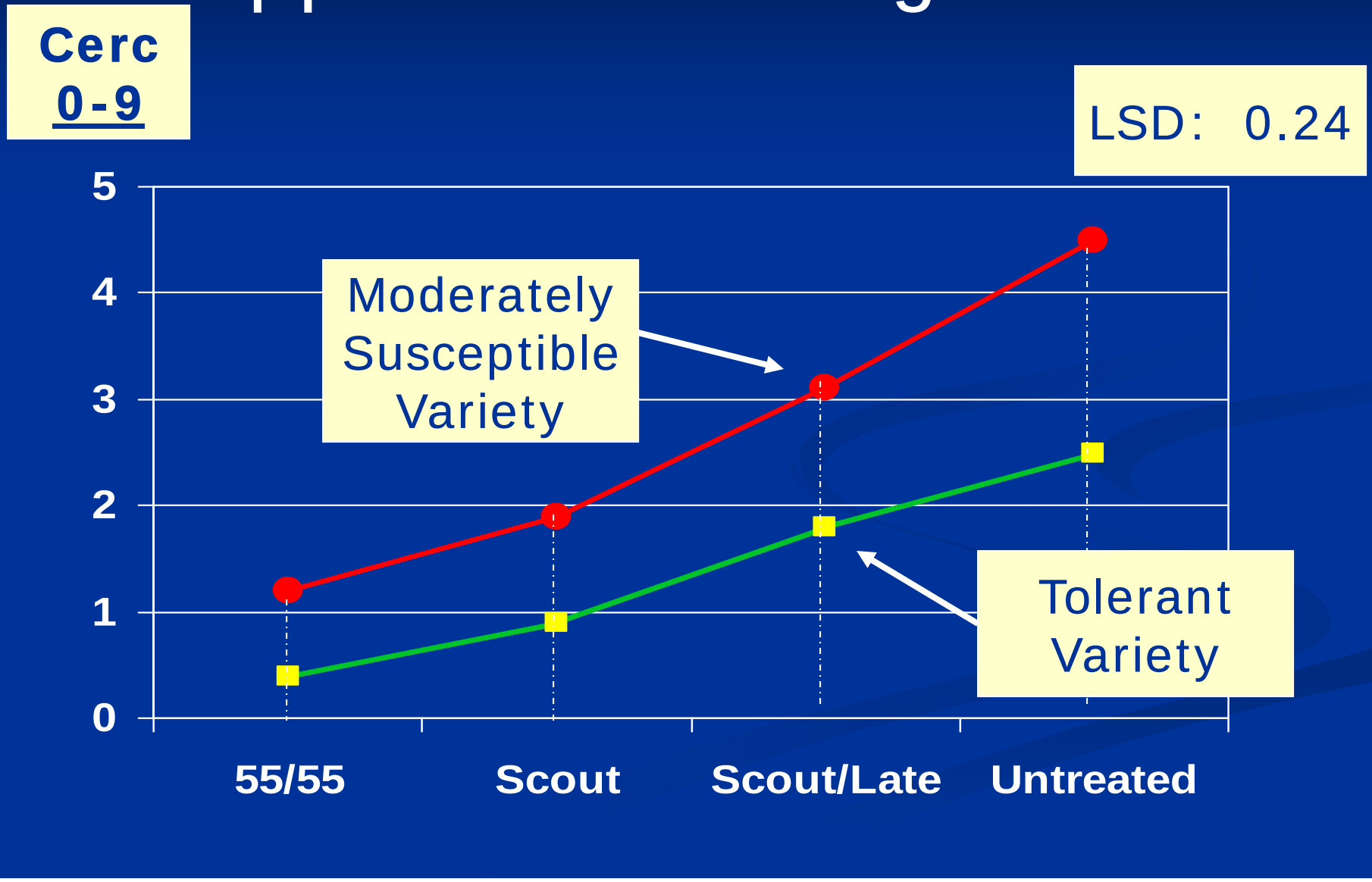
- Very high risk (Red Zone)
- High risk (Red-Orange Zone)
- Moderate risk (Yellow Zone)
- Lower risk (Green Zone)

BeetCast Risk Management Zones

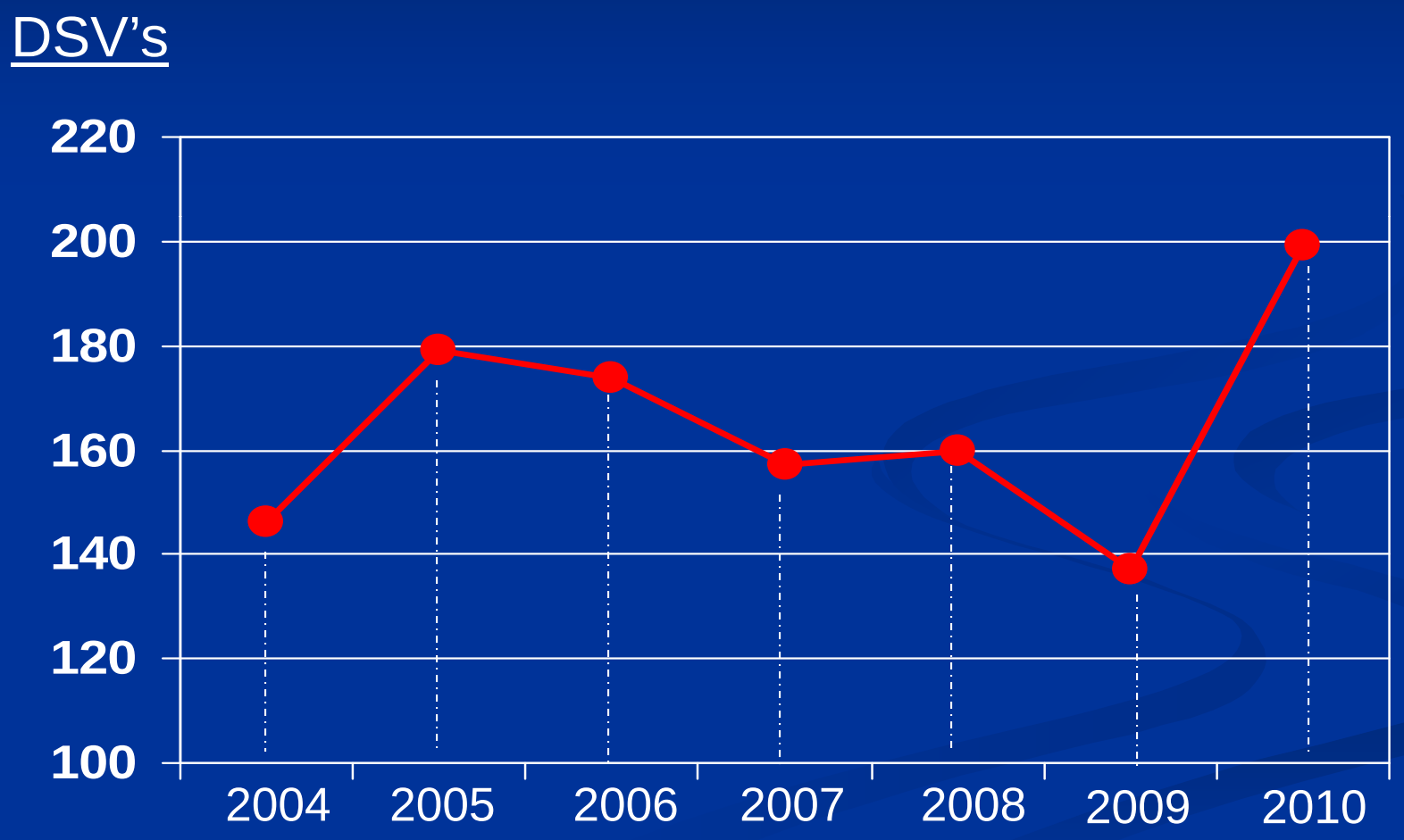


Application Timings Based on Variety Tolerance

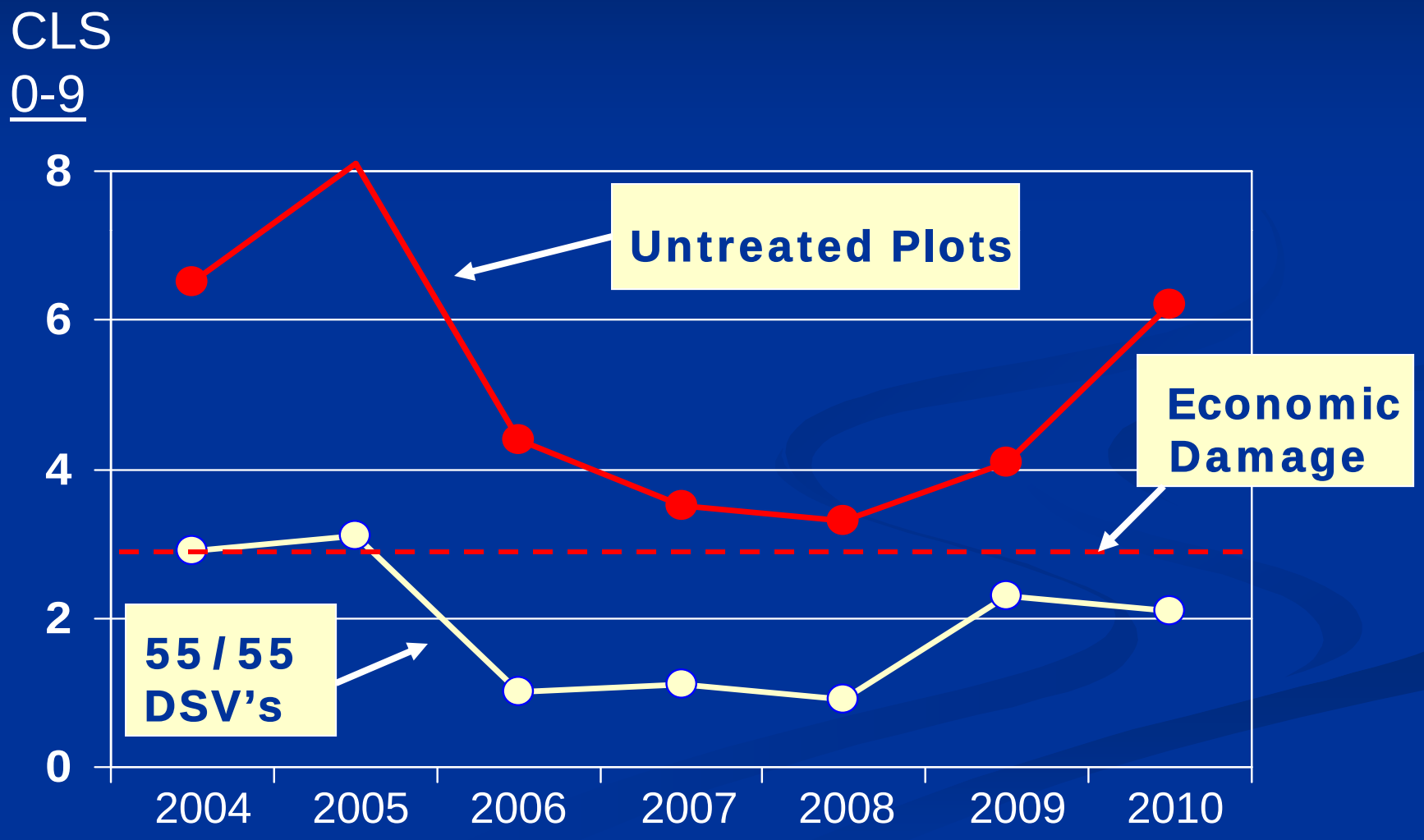
Effect of Variety Tolerance on Application Timings - 2006



DSV Levels From 2004 to 2010 (Sep 10th of Each Year)



Cercospora Infection Levels in Research Trials (Red Zones)



Highly Susceptible Varieties

Red Zones

- 45/45/45 DSV's
- If late tighten up next spray

Moderately Susceptible Varieties

Red Zones

- 55/55 DSV's
- If late tighten up next spray

Tolerant Varieties

Red Zones

- 60/55 DSV's
- If late tighten up next spray

Highly Susceptible Varieties

Green Zones

- 65 DSV's or First Spot
- Follow with 55 DSV's

Moderately Susceptible Varieties

Green Zones

- 75 DSV's or First Spot
- Follow with 55 DSV's

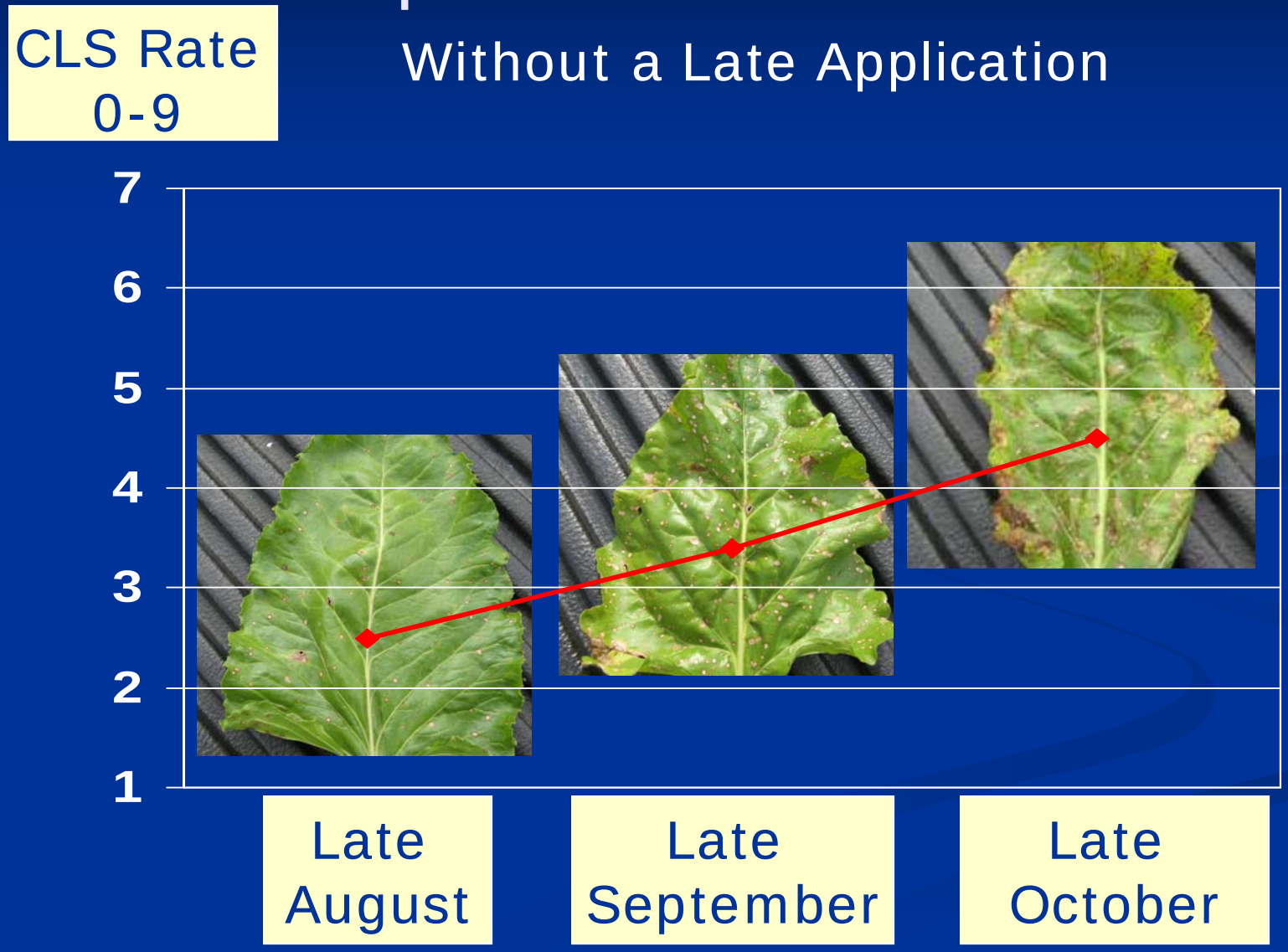
Tolerant Varieties

Green Zones

- 80 DSV's or First Spot
- Follow with 55 DSV's

Progression of Cercospora in September and October

Without a Late Application



Cercospora Summary

- Upward Cercospora trend in Michigan
- Potential for yield and quality loss is high

Cercospora Summary

- Triazoles and Strobilurins very effective
- Resistance management is important

Cercospora Summary

Application timings based on

- DSV Levels and/or scouting
- Risk in Growing region (Red – Green)
- Variety tolerance

Cercospora Summary

- Must spray early
- Late season fungicide applications pay off

Questions