



Evaluation of a Comprehensive “Points” Variety Approval System

ASSBT 2011

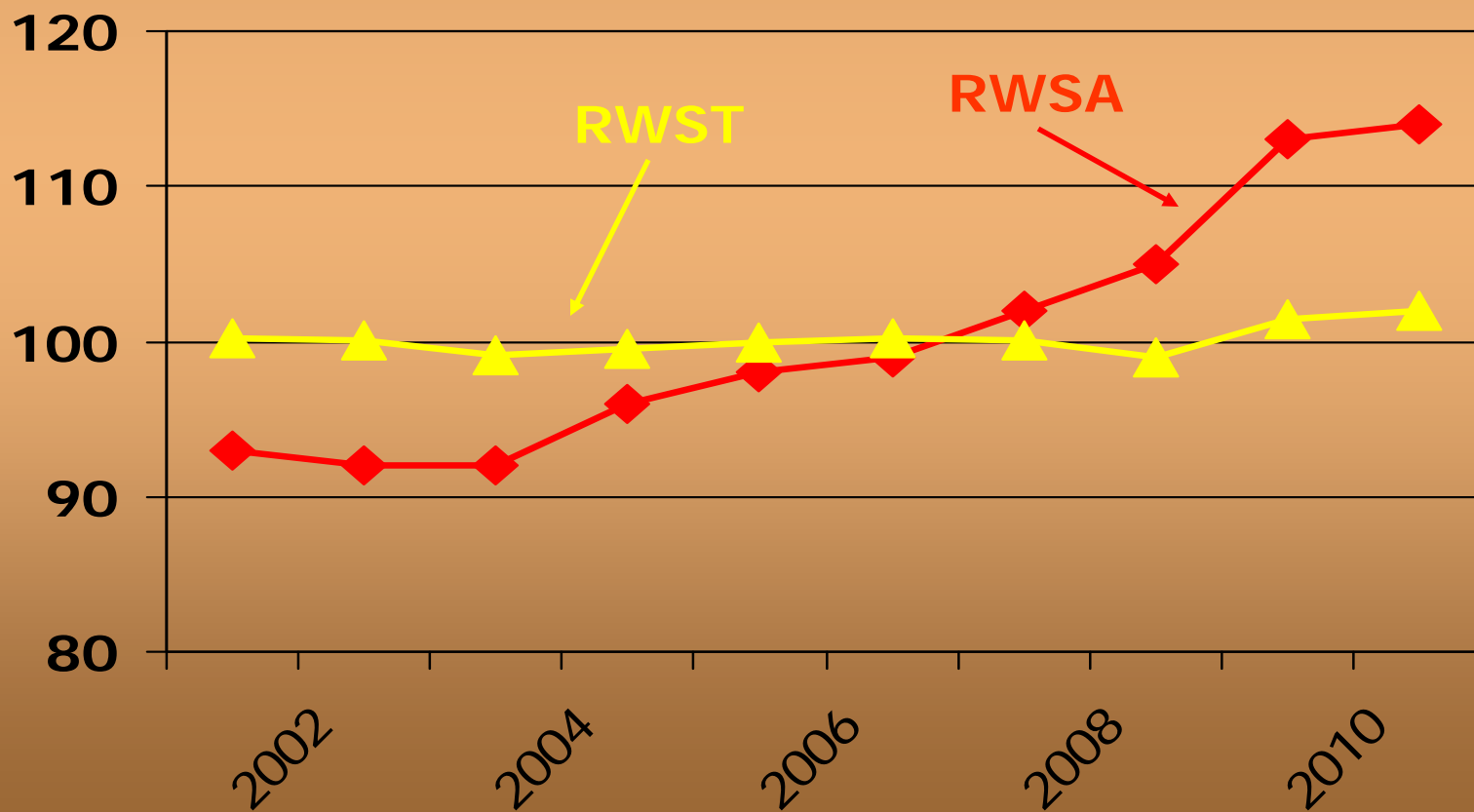
growth

Jim Stewart
Director of Research
Michigan Sugar Company



Sugarbeet Yield and Quality Trends in Michigan

% of Check





Why Have Quality Improvements Been Slow?

Breeding focus has been on

- ✿ Rhizomania
- ✿ Rhizoctonia
- ✿ Cercospora
- ✿ Tons
- ✿ Roundup Ready



Major Goal of Michigan Sugar is to Improve Sugarbeet Quality

✿ Increase sugar from 18 to 19 percent by 2015

✿ "The Road to 19"



“The Road to 19” How Do We Get There?

- ✦ Plant early
- ✦ Narrow rows
- ✦ Good populations
- ✦ Starter nitrogen 2x2



“The Road to 19”

How Do We Get There?

- ✿ Control Cercospora leafspot
- ✿ Control Rhizoctonia root rot
- ✿ Manage nematodes



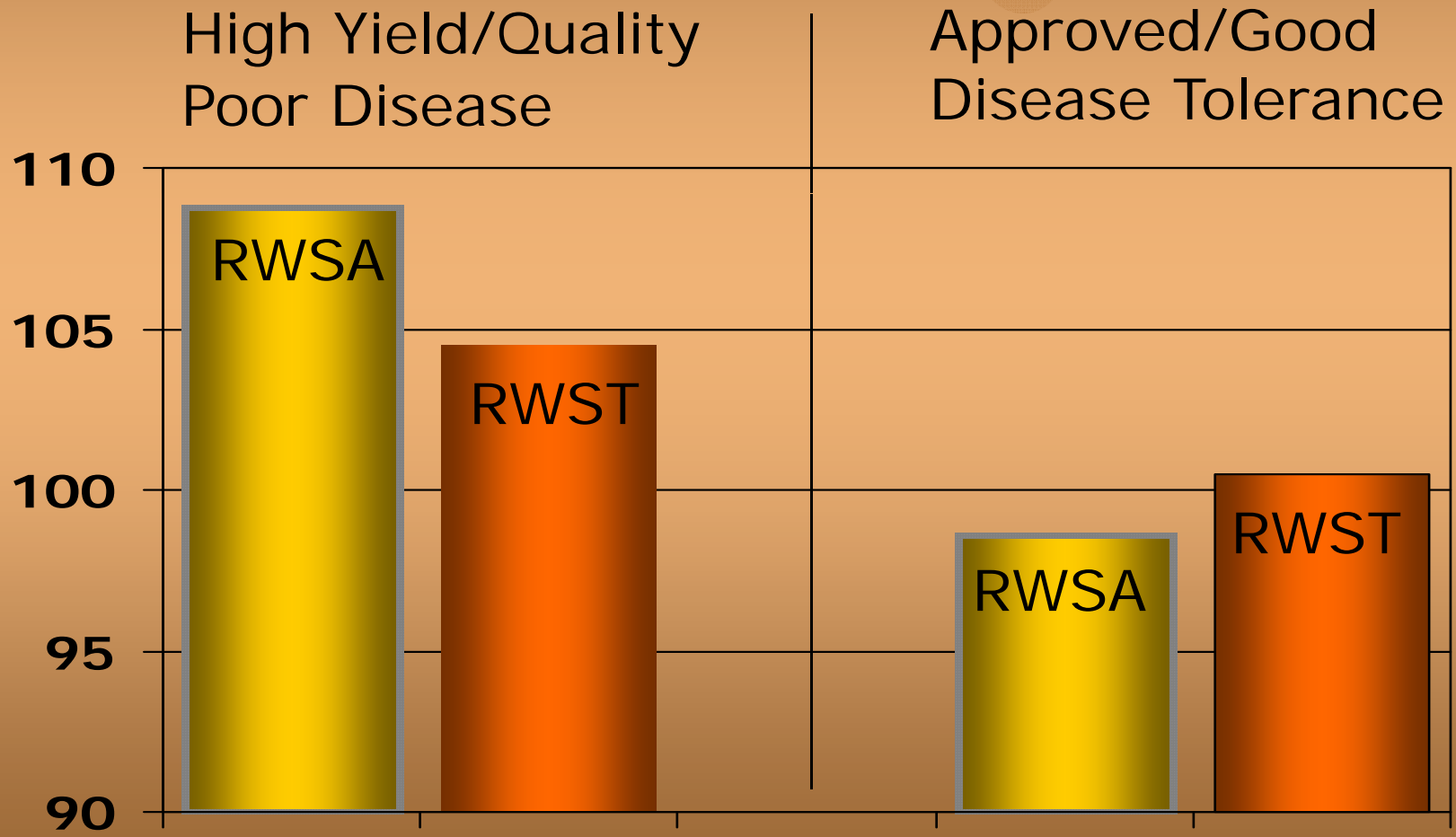
“The Road to 19” How Do We Get There?

✿ We need higher quality varieties



Variety Mix in Michigan

% of Check





Cercospora Varietal Differences

growin





Rhizoctonia Varietal Differences



Tolerant



Moderately Susceptible



Highly Susceptible



Nematode Tolerant Varieties

- ❁ 25% of acres with nematode problems
- ❁ Varieties don't pass approval





New Approval System

✦ Quality (3X premium)

✦ Cercospora level relaxed



Compare Approval Systems

Old System

- ✿ RWSA
- ✿ RWST
- ✿ Cercospora
- ✿ Storage RWST

New System

- ✿ RWSA
- ✿ RWST
- ✿ Cercospora
- ✿ Rhizoctonia
- ✿ Root Aphid
- ✿ Rhizomania
- ✿ Emergence
- ✿ Storage RWST



Comparing Approval Levels Old vs New "Points" System

<u>Year</u>	<u>RWSA</u>	<u>RWST</u>	<u>Cerc</u>	<u>Points</u>
2009	99.4	99.7	113.7	na
2010	105.0	101.0	140.0	105
2015	110.0	104.0	125.0	105

All Values % of Check



How “Points” System Works

Starting Point is RWSA

✿ RWSA for variety (X) is
113.9 % of check

✿ Points = 113.9



How "Points" System Works

RWST level for variety (X) is
109.7 % of check

✿ Variance from 100 = 9.7×3

✿ Points = 29.1



How "Points" System Works

Variety (X) Cercospora level is
124.1 % of check (-18 to 10
points range)



From conversion table

$$124.1 = \underline{-18 \text{ points}}$$



How "Points" System Works

Variety (X) Rhizoctonia level is
109.3% of check (0 to 10 points
range)



From conversion table

109.3 = 2 points



How "Points" System Works

Variety (X) Rhizomania level is
5.0 (0 to 3 points range)



From conversion table

5.0 = 2 points



How “Points” System Works

Variety (X) Root Aphid level is 2.1
(0 to 5 points range)



From conversion table

2.1 = 3 points



How "Points" System Works

Variety (X) emergence level is
63.1 % of check (-5 to 5
points range)



From conversion table

63.1 = 0 points



How "Points" System Works

RWSA:	109.7	<u>Variety X</u>
RWST:	29.1	very high yield
Cercospora:	-18	very high quality
Rhizoctonia:	2	poor disease
Rhizomania:	2	
Root Aphid:	3	
Emergence:	0	need 105%
Total:	127.8	= 120.2% of check



How "Points" System Works

RWSA: 95.2

RWST: 9.8

Cercospora: 7

Rhizoctonia: 6

Rhizomania: 2

Root Aphid: 3

Emergence: 1

Variety Y

moderate yield

medium to high quality

good disease

need 105%

Total: 124.0 = 114.6% of check



Plans to Manage Cercospora and Rhizoctonia with Susceptible Varieties

- ✦ Research and grower experience has shown that diseases can be controlled





Plans to Manage Cercospora with Susceptible Varieties



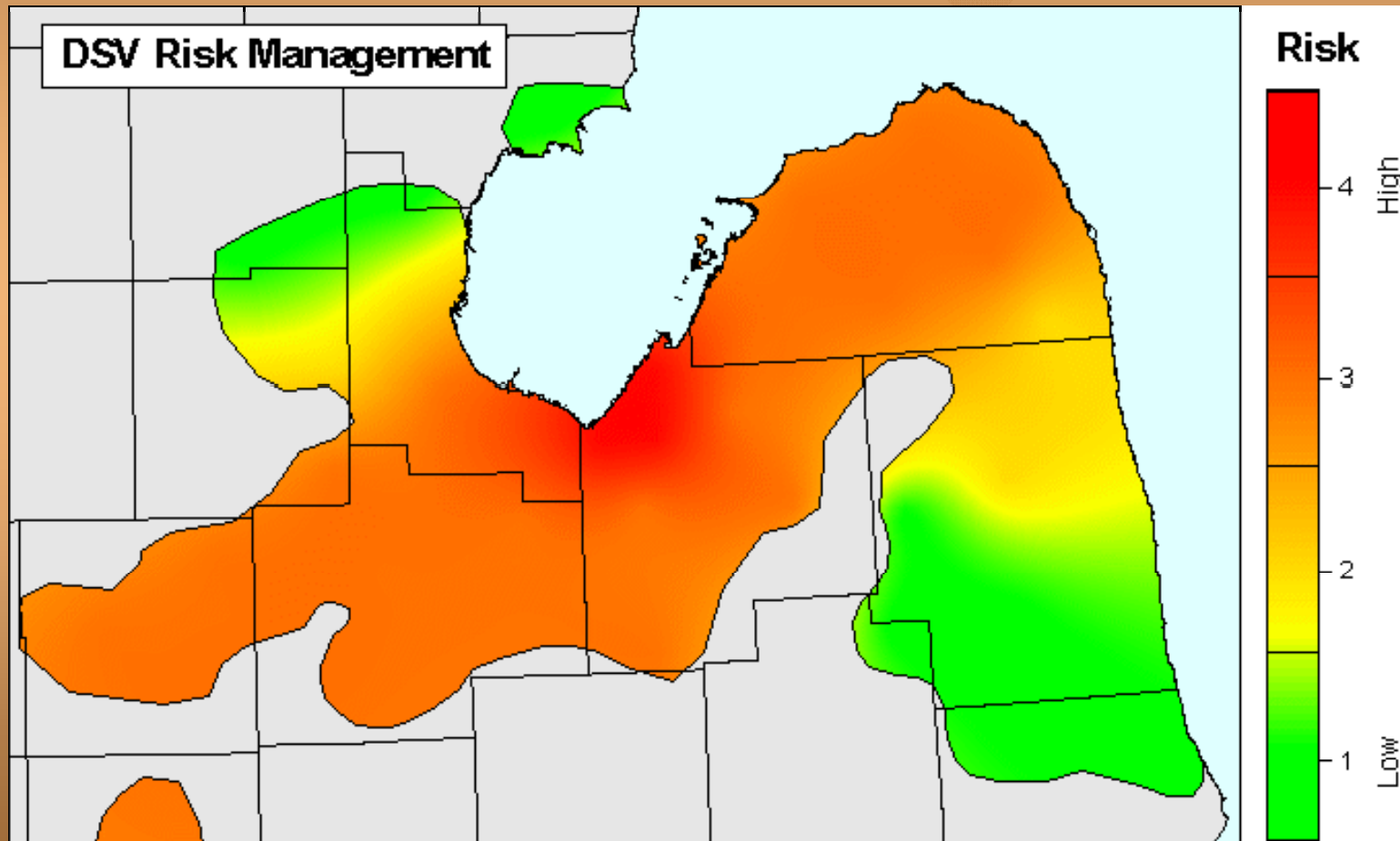
Required Spray Dates

🌿 Red Zone: 45/45/45

🌿 Green Zone: 65 or 1st spot /55



BeetCast Risk Management Zones





Plans to Manage Rhizoctonia with Susceptible Varieties

Field Selection is Critical

- ✦ 25-30% of area not suitable for highly susceptible varieties





Plans to Manage Rhizoctonia with Susceptible Varieties

Required to Apply
Quadris

✿ 1 or 2 applications
depending upon
situation





Summary

- ✿ Goal to increase sugar content by 1 percentage point by 2015

“The Road to 19”



Summary

- ❖ New Approval System will allow approval of higher quality varieties
- ❖ Will increase income to growers and the Co-op



Summary

Must manage diseases

❖ Cercospora

❖ Rhizoctonia