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Breeding perspective and the development of dollar spot resistant varieties

Mads Wadum Larsen, Researcher



Breeding for Dollar Spot Resistance: An Industry Perspective

- Who is DLF Pathology?
- Turfgrass focus, but work across forage grass and legumes
- Dollar spot is one of the major diseases of sport turf grass

Breeding is part of the long-term solution for dollar spot management



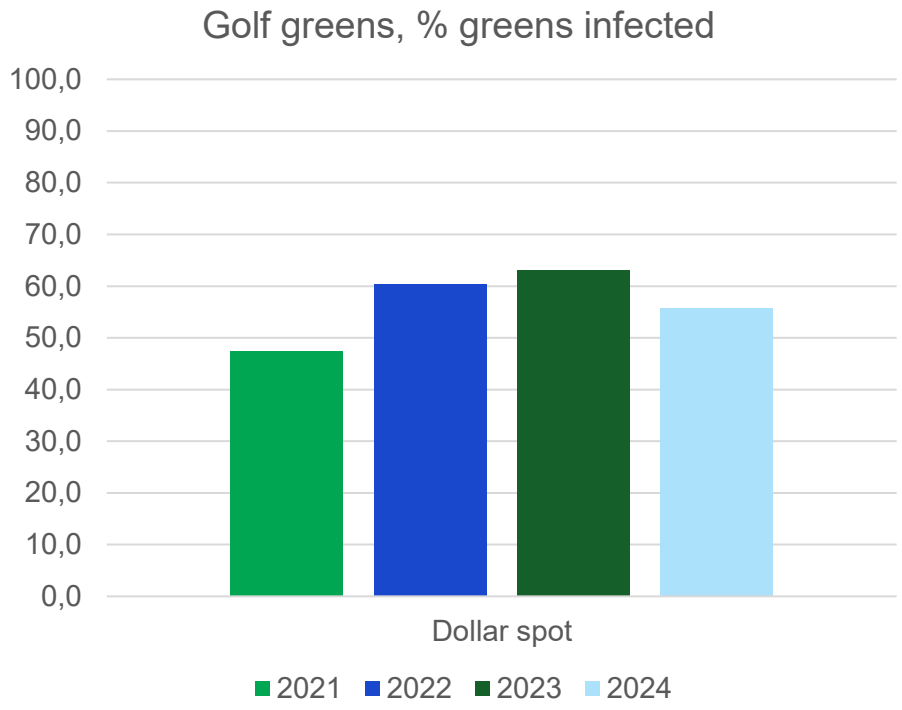


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Why Breeding Matters

- Demand for sustainable disease management
- Reduced reliance on fungicides
- Resistant cultivars provide value year after year
- Interest increasing globally

The question is not whether resistance is valuable. The question is how we identify it efficiently.



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What Does a Breeder Need?

Collection → Crossing → Selection → Field → Variety

- Thousands of genotypes
- Multiple years
- Multiple locations

A breeder never selects only for disease resistance. Resistance has to come together with important traits and performance.





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The Main Challenge: Phenotyping

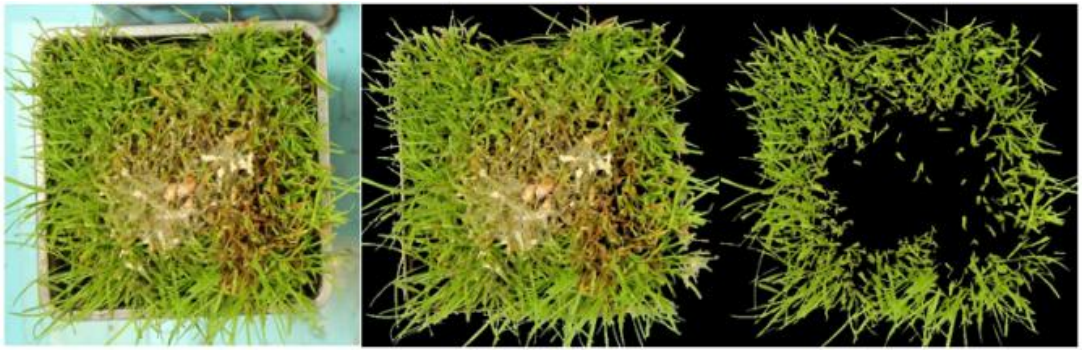
The biggest bottleneck is reliable screening

- Field disease pressure is variable
- Environment strongly influences disease development

Field reality ← ? → Controlled experiment

The closer our screening reflects field conditions, the more useful it becomes for breeding.





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Building a Screening Platform

- Artificial inoculation system
- Built on recognized, peer-reviewed scientific protocols
- Controlled disease pressure
- Standardized scoring
- Quarantine conditions to avoid spread of isolates





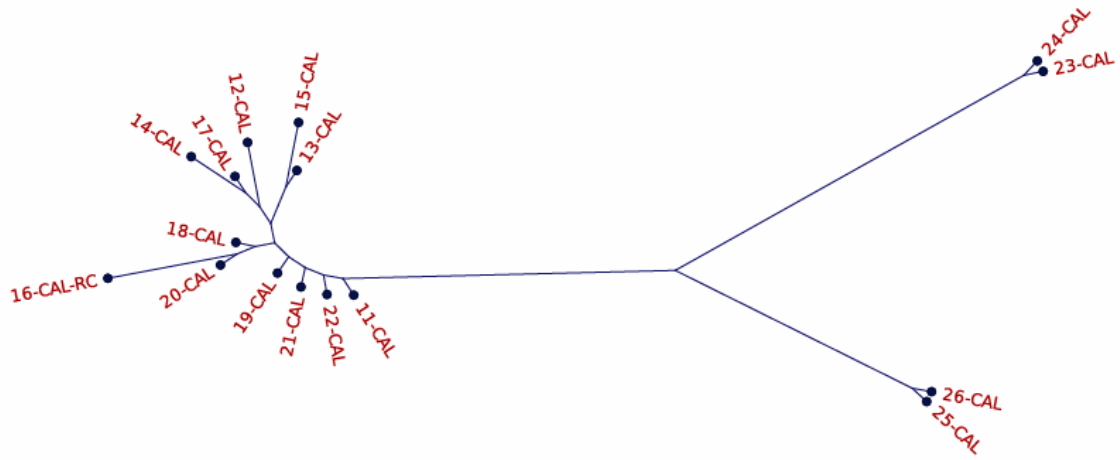
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Understanding the Pathogen

- Collection of isolates from different sources
- DNA analysis
- Diversity among isolates

Are we breeding resistance against one isolate, or against a diverse pathogen population?

DNA analysis highlights diversity

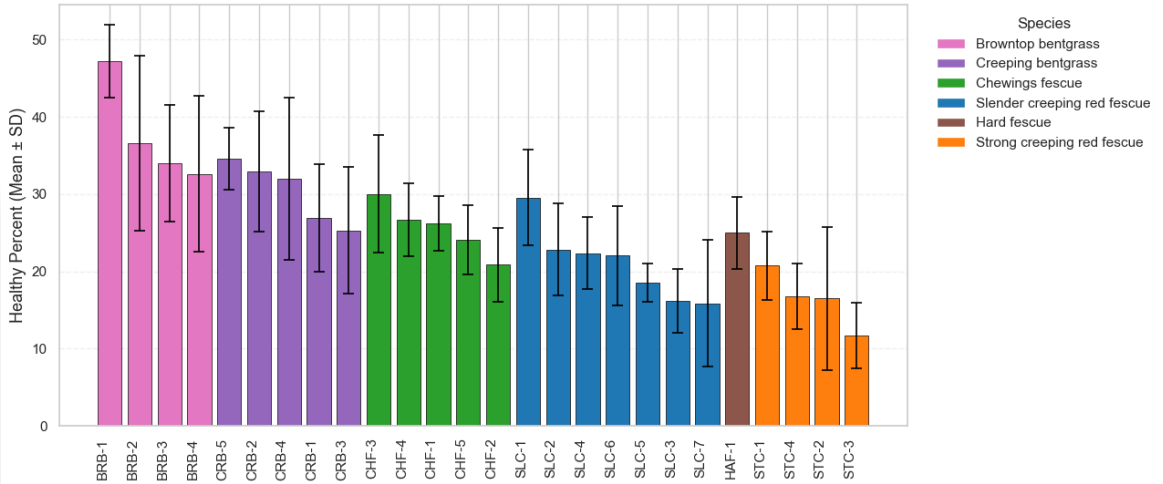


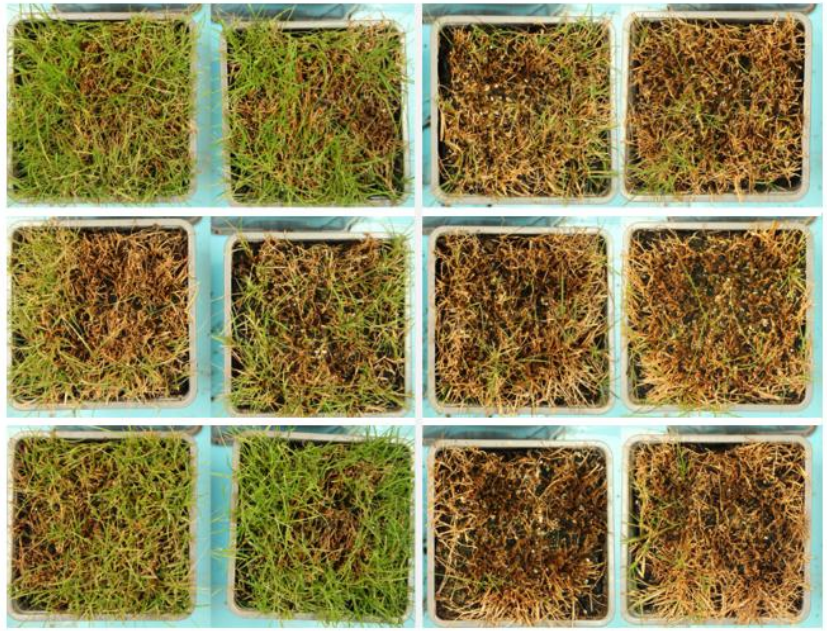
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Early Findings

- Some entries consistently performs better
- Significant differences between isolates
- Resistance and recovery may not be identical traits

Some entries demonstrated superior performance.





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Innovation Through Partnership

- Better understanding of disease epidemiology and pathogen diversity
- Standardized screening approaches
- More multi-location testing

Breeding companies and researchers have complementary strengths. Progress is fastest when these strengths are combined.



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Take Home Messages

1. Use of resistant cultivars are the foundation of long-term disease management.
2. Established screening methods are continuously optimized to improve prediction of field performance.
3. Continued collaboration between researchers, breeders and practitioners will be essential.

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