NC1208: Biology, Etiology, and Management of Dollar Spot in Turfgrasses

2024 Annual Meeting Agenda

January 29th: 2:00 to 4:00 MST, Room W213B, Phoenix Convention Center

Zoom link: <https://uwmadison.zoom.us/j/91680516975?pwd=dEYrbWRlc29oWGl6NU5TWk1sSVlOdz09>

The full project outline with objectives can be accessed at the following link if you would like to refresh your memory prior to attending: <https://www.nimss.org/projects/view/mrp/outline/18590>

In attendance:

* Present in person: Koch (chair), Bigelow (Purdue), Carpenter (Purdue), Chou (Rutgers), Clarke (Rutgers), Dykema (Michigan St), Inguagiato (Connecticut), Miller (Purdue), Shahoveisi (Maryland)
* Present online: Hammerschmidt (Administrative Advisor), Byamukama (USDA), Horvath (Tennessee), Kenna (USGA, retired)

Administrative Updates

* Professor Hammerschmidt informed the group that our project renewal proposal was moving through the review process nicely. He provided an initial review of the proposal and said it will then need to proceed through two additional levels of review before a final decision is rendered. Professor Hammerschmidt recently retired and our new Administrative Advisor will be Dr. John Blanton from South Dakota State University.
* Emmanuel Byamukama from the USDA provided an update on potential funding programs of interest to this group.
  + CPPM proposals are due on February 15th.
  + NIFA’s Foundational and Applied Science Program has funding related to pests and beneficial organism that may be of use interest: <https://www.nifa.usda.gov/grants/funding-opportunities/agriculture-food-research-initiative-foundational-applied-science>
  + USDA has a new dashboard for tracking proposals: <https://www.nifa.usda.gov/data/nifa-dashboards/application-status-dashboard>
  + USDA has a new dashboard for grant funding opportunities: <https://www.nifa.usda.gov/data/nifa-dashboards/grant-funding-dashboard>
  + Emmanuel also emailed after the meeting with a clarification on matching requirements for USDA-funded projects. Here is the text of his response: ‘*About the matching requirement, Congress has been waiving this requirement in the last few funding cycles, so it will depend on if the congress includes the language to waive the matching in the new farm bill, if it is passed (see pg 13 for 2023 RFA in the link above).’*
    - Here is the link for SCRI funding that Emmanuel refers to in the above quote: <https://www.nifa.usda.gov/grants/funding-opportunities/specialty-crop-research-initiative>

Short-term outcomes: The NC1208 team is conducting and/or has completed multiple projects in the first 5 years that have begun to provide meaningful recommendations for golf course superintendents. The projects and their various stages of completion are outlined in ‘Activities’ below and the meaningful recommendations are outlined in ‘Impacts’. New projects ideas were also proposed (also outlined below) at the annual meeting, indicating no shortage of collaborative energy moving forward. Lastly, a survey of the NC1208 team indicated strong interest to host a Dollar Spot Conference in 2025 that includes researchers, industry cooperators, and potentially practitioners.

Outputs: Several publications detailing the research results of the NC1208 team are in various stages of completion. The publication for the ‘Cultural Practices’ project is being prepared for submission to the International Turfgrass Research Journal, which is due May 1st of 2024. The team has decided to end the ‘host resistance’ project and focus on data analysis and publication in a peer-reviewed journal. We anticipate this publication ready for submission in late 2024 or early 2025. In addition, a publication of the bentgrass survey results will be prepared for submission to a journal like HortTechnology, Journal of Extension, etc.

Activities:

* Dollar spot cultural practices publication
  + This project was completed following the summer of 2022 and Dr. Shahoveisi is working on the manuscript in preparation to submit to the 2025 International Turfgrass Research Conference. The deadline to submit for publication in a journal affiliated with the ITRC is May 1st, 2024.
* Bentgrass cultivar survey publication
  + This project was completed in the spring of 2022. Numerous interesting results were obtained from the survey results and Dr. Chou has agreed to lead the development of a publication that summarizes the results. Journal of Extension, HortTechnology, and other journals were mentioned as possible hosts for this potential publication.
* Dollar spot host resistance
  + This project was seeded in the summer of 2021 at 7 different locations. Many sites had very high dollar spot pressure in 2022 and saw limited treatment differences within cultivar, though it was clear that Coho had superior dollar spot resistance compared to Shark and Penncross. Paul presented data from 2023 and many locations, notably Michigan State and Wisconsin, had very low dollar spot levels and saw no statistical treatment difference. Results from Rutgers demonstrated that Coho has superior dollar spot resistance compared to Shark and Penncross. Within each cultivar, treatments where the dew was removed had modest reductions in disease compared to where the dew was not removed. The results from Kansas State were similar to Rutgers, except that Shark demonstrated modest resistance compared to Penncross. There was no indication at any site of a dollar spot reduction associated with biocontrol usage.
  + The group discussed whether to continue this project for a 3rd year. The project is labor intensive with daily early morning dew removal. Paul will email all the people included in this project to determine whether a 3rd year should be conducted.
* Dollar spot model on improved cultivars
  + This was a new project initiated in 2023 at Wisconsin, Rutgers, Kansas State, Penn State, UMass, Michigan State, and Maryland. The objective was to determine Smith-Kerns Dollar Spot model thresholds for cultivars with varying resistance to dollar spot. Paul presented results from a few locations and the results were quite consistent in demonstrating that the spray threshold can be increased to 60% or higher on a highly resistant cultivar like Coho.
  + This study will be continued in 2024 using the same treatment list. Paul originally proposed modifying the treatment list given the results from Year 1 but Dr. Shahoveisi correctly argued that it would make statistical analysis more difficult later on.
* Interseeding resistant bentgrass cultivars
  + Dr. Miller provided an update to the group on this project. The objective is to identify and assess bentgrass conversion strategies and document potential fungicide savings following conversion to a more modern bentgrass. Purdue, Penn State, and Wisconsin are participating in this project. All three locations initiated the project with bentgrass interseeding and chemical applications in the summer of 2023. Tissue samples were collected and sent to Scott Warnke with the USDA to determine the genetic makeup of the host plants prior to the interseeding process. The project will continue in 2024 and focus on dollar spot differences observed between the treatments. An additional tissue collection will be performed and submitted to Scott Warnke for analysis of how much of the new bentgrass has actually established itself in the plots.

New project ideas

* Dr. Inguagiato summarized his joint research project with Dr. Murphy investigating aerification and dollar spot development. There was interest from other group members in participating in this project and Dr. Inguagiato will send out a brief proposal to the group to gauge interest.

Dollar spot conference in 2025

* A ‘Dollar Spot Conference’ was supposed to be held in Dallas in March of 2020 to bring together turfgrass researchers, industry cooperators, and potentially some practitioners to identify the key knowledge gaps in dollar spot management and develop strategies to address them. This conference was canceled because of Covid and Paul addressed the possibility of trying to have it again as part of the renewed NC1208 project in 2025. Response from the group was positive, though there was concern over significant travel for 2025 with the ITRC in Japan and APS in Hawaii. A brief survey of the NC1208 team found strong support to host a Dollar Spot Conference in 2025.

Impacts

Based on the research the NC1208 team has collected over the first 5 years of the project we can make the following recommendations with reasonable confidence:

* Dew removal can reduce dollar spot severity relative to a non-treated control by approximately 25% when done prior to 7:30 AM.
* Stacking multiple cultural practices (i.e. dew removal + nitrogen) doesn’t appear to suppress dollar spot more than the individual practices do.
* Host resistant cultivars can provide extremely effective suppression of dollar spot development, however new management programs need to be developed on this resistant cultivars for superintendents to receive the full benefits.
* Biocontrol products failed to provide meaningful dollar spot suppression even on more resistant cultivars.

Publications

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