NC1208 Dollar Spot Meeting Summary and Project Sign Up

* Objective 1: Improve our understanding of dollar spot biology and epidemiology through taxonomic analysis, molecular assay development, and host-pathogen interaction research.
  + Summary: UW and Rutgers have created molecular assays that effectively quantify the dollar spot fungus. UW, Rutgers, and Missouri have collected dollar spot isolates from the same location in the summer and fall and will send those isolates to Rutgers for sequencing to determine any temporal genetic differences. Ongoing studies are being conducted, and there seemed to be particular interest in looking at the summer vs fall aspects of dollar spot.
  + Potential project 1: Assess the microbiome at different times of year to determine whether there are temporal differences in the microbial community.
    - *Random thought from Paul*: I think this is a great project. But I think we will want to give some more thought to this project and exactly what we’re targeting so we can combine the general next gen sequencing with something more targeted. Also, given the cost of next gen sequencing we might want to wait until we have more funds to conduct this.
    - Are you interested in participating in this project (nothing final yet)? If so please write your name below:
      * Write names here:
  + Other projects for this objective?
    - Write potential projects here
* Objective 2: Assess current dollar spot resistance among bentgrass cultivars and new selections, identify barriers to their utilization in golf course establishment and renovations, and develop strategies for overcoming the identified barriers.
  + Summary: Lots of discussion around this topic. We discussed surveys to assess barriers to adoption of dollar spot resistant bents, latest research on the most effective strategies for transitioning to new bents, and potential research using dollar spot as a marker for how effective the transition was. We also discussed setting up several demos of older vs newer cultivars at multiple research stations to present at field days and other events. USGA offered potential support for this project and Brilman said seed could potentially be donated.
  + Potential project 1: Conduct a survey of the golf course industry to determine what barriers exist for using or transitioning to disease-resistant cultivars. Koch will contact Mark Johnson from GCSAA to see if they can assist with creation and dissemination of the survey. Will work with Bonos and Brilman to draft the survey and send out to the this group for edits before any final survey is sent. Target winter 2021-2022 to send this survey out.
  + Potential project 2: Create a BMP or fact sheet with our recommendations for transitioning to new, disease-resistant bentgrasses. This could include time of year, recommended seeding rate, PGRs, what cvr’s to use, etc.
    - Are you interested in participating in this project (nothing final yet)? If so please write your name below:
      * Write names here: Koch,
  + Potential project 3: Demonstration plots of susceptible vs more resistant cultivars to show at field days and other events. Ideally we would have 4 or more sites and about 3 cultivars (susceptible, moderate resistance, high resistance). Could potentially include other trials from the next objective (ie cultural practices, spray interval, biologicals) in this demo if there is enough space, or keep those completely separate. Target to install these summer of 2021 and evaluate in following years.
    - Are you interested in participating in this project (nothing final yet)? If so please write your name below:
      * Write names here: Koch,
  + Other projects for this objective?
    - Write potential projects here
* Objective 3: Develop cultural-based dollar spot management strategies that combine multiple cultural practices (e.g., fertility, rolling, topdressing, irrigation) to limit dollar spot development in multiple geographic regions.
  + Summary: Again, lots of discussion on this objective. Rutgers has been looking at some of these practices and has observed increasing dollar spot with increasing K, and decreasing dollar spot following late fall aerification. Also discussed whether dollar spot can be ‘cleaned out’ if it’s serving as an endophyte and provide long lasting disease suppression. Discussed what factors we could possibly combine to assess dollar spot, such as host resistance x fertility, or HR x rolling, etc. Also discussed Dykema’s project looking at irrigation timing and the impact on dollar spot, but the group was unsure how to study that given the large space needed to conduct this work.
  + Potential Project 1: Combine host resistance and one or more cultural practices to assess dollar spot suppression in the absence of fungicides (or reduced fungicides). Include a susceptible and more resistant cultivar, practices to test include rolling, fertility, biological products, etc. Once the people participating in this project are selected they can refine the variables.
    - Are you interested in participating in this project (nothing final yet)? If so please write your name below:
      * Write names here: Koch,
  + Potential Project 2: The same project as above but NOT including host resistance. So just look at multiple factors on a susceptible cvr. Could include rolling, dew removal, biologicals, etc.
    - Are you interested in participating in this project (nothing final yet)? If so please write your name below:
      * Write names here: Koch,
  + Potential Project 3: Can you ‘clean out’ the dollar spot fungus in it’s endophytic form. Some more thought would be needed on how to pursue this by those that choose to participate here.
    - Are you interested in participating in this project (nothing final yet)? If so please write your name below:
      * Write names here:
  + Other projects for this objective?
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* Objective 4: Develop integrated and targeted chemical dollar spot management strategies that maintain current levels of disease control, potentially reduce chemical inputs, and limit development of fungicide resistant populations.
  + Summary: There are LOTS of projects that we have conducted that fall into this category. Jung provided an update on his LAMP assay to rapidly detect point mutations for SDHI resistance. The assay could be used in the field with results in less than 2 hours. Miller also discussed his research looking at watering in DMIs for fairy ring control and the potential impact for dollar spot, Kaminski commented that some of his related work found watering in decreased dollar spot control. Murphy/Clarke discussed their fall fungicide timing work and the impacts on dollar spot the following year. Koch discussed his precision management work with Toro, and McCall followed up with some of his related aerial imagery work.
  + Potential Project 1: Once Jung’s LAMP assay is complete, send a wide collection of dollar spot samples from around the country and with differing fungicide histories to Jung so he can use the LAMP assay to assess their SDHI-specific mutations.
    - Are you interested in participating in this project (nothing final yet)? If so please write your name below:
      * Write names here: Koch,
  + Other projects for this objective?
    - Write potential projects here
* Objective 5: Assess the ability of antagonistic organisms to suppress dollar spot when combined with the aforementioned cultural and chemical strategies.
  + Summary: We ran out of time to talk about this objective in detail. In short, current biological products on the market are mostly ineffective. However, if combined with resistant cultivars or other cultural practices their utility may increase. The projects related to this objective may merge in with earlier objectives looking at the combination of multiple practices to achieve effective dollar spot suppression. Koch has conducted some initial microbiome work related to biological control, the results are too early to have any meaningful follow up projects at this point.
  + Potential Project 1: Similar to objective 3, combine currently available biological fungicides with host resistance and/or other cultural practices (rolling, dew removal, etc)
    - Are you interested in participating in this project (nothing final yet)? If so please write your name below:
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  + Other projects for this objective?
    - Write potential projects here