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Research & Development Field Report
3rd Edition - July 2023

The PBI-Gordon Research & Development Team is pleased to present the Third Edition of the R&D Field Report. This report contains scientific information to support the important work underway by our agronomic partners, distribution representatives, and end-users. Our intent is to provide useful, research-based information prior to the seasonal emergence of pests. You can look for updated R&D Field Reports on a quarterly basis throughout 2023.

Diseases

- Anthracnose
  - Effective AI's (active ingredients)/products include: penthiopyrad, mefentrifluconazole, chorothalonil, Tekken® Broad Spectrum Fungicide SC, phosphites, and spoon-feeding of quick-release nitrogen are optimal for control
- Brown patch
  - Environmental conditions: >85°F daytime, >65°F nighttime, >10 hours leaf wetness
  - Effective AIs/products include: Pedigree SC Fungicide, penthiopyrad, Tekken® Broad Spectrum Fungicide SC, prothioconazole, and azoxystrobin
- Dollar spot
  - Alternating modes of action is particularly critical with the dollar spot pathogen(s)
  - Do not use more than 5 applications of each site-specific mode of action per year
  - Effective AIs/products include: Kabuto® Fungicide SC, fluazinam, chlorothalonil, Tekken Broad Spectrum Fungicide SC and mefentrifluconazole
- Gray leaf spot
  - This disease is most problematic with cloudy and humid conditions (9 hours of leaf wetness is needed), often associated with extended rainfall/over-irrigation
  - Effective AIs/products include: thiophanate-methyl, azoxystrobin, prothioconazole, and chlorothalonil; apply all treatments on 14-day intervals
- Pythium blight
  - On cool-season turf, specific environmental conditions are necessary for disease to develop: >85°F daytime, >65°F nighttime; 14 hours or more of relative humidity >90%
  - On warm-season turf, cool, cloudy conditions with high relative humidity (often associated with tropical systems) are optimal for disease development
  - For preventative control: Applying Segway® Fungicide SC (or Union® Fungicide SC) on 14-day intervals will provide industry leading Pythium blight control; propamocarb or mefenoxam are ideal rotation partners for blight
    - Union® Fungicide SC is ideal for bermudagrass greens where leaf spot occurs
- **Curative fungicide applications** will not result in immediate benefit and clean-up of disease damage. Time is necessary for the fungicide to be absorbed by the pathogen, stop the infection process, and allow the plant to recover (often 7-14 days). *Be patient!*

Weeds

- Post-emergent Goosegrass Control
    - SpeedZone® EW Broadleaf Herbicide for Turf controls goosegrass with two applications at 4 to 5 pints/acre.
    - The tank-mix* of SpeedZone® EW with 0.25 fl. oz./acre of topramezone significantly improves goosegrass control and reduces bleaching.
        - Evaluate turf safety on bermudagrass, zoysiagrass, and reduced heights of creeping bentgrass before making broadcast applications.
- Post-emergent Crabgrass Control
    - Q4® Plus Turf Herbicide for Grassy & Broadleaf Weeds best controls crabgrass when applied prior to the 3-tiller stage.
        - Sequential applications may be necessary when crabgrass is larger.
        - The addition of a NIS or MSO surfactant will improve control.
    - Katana® Turf Herbicide is labeled for POST crabgrass control on bermudagrass putting greens. Apply two applications at 2.5 – 3.0 oz./acre + NIS.
- Doveweed Control
    - Two applications of SpeedZone or Surge® Broadleaf Herbicide for Turf will control doveweed in bermudagrass and Zoysiagrass
        - See Surge's 2(ee) Recommendation
    - Avenue™ South Broadleaf Herbicide (two applications) will control doveweed in St. Augustinegrass and centipedegrass.
- General herbicide application reminders
    - Drought has been prevalent in certain parts of the country, and herbicide applications should only be made when adequate soil moisture is present, and turfgrass/weeds are actively growing.

Insects

- White grubs
    - Preventive applications for white grubs should be timed prior to or soon after egg-laying.
        - Effective AI's include: chlorantraniliprole, clothianidin, tetraniliprole, and imidacloprid
    - Curative applications for white grubs should be applied when grubs are first observed and are smaller (younger) in size.
        - Effective AI's include: clothianidin, trichlorfon, and carbaryl
- Spotted Lantern Fly
    - 2nd - 4th instars will be found through July, and adults will begin to emerge in July
    - The use of "sticky-bands" around tree trunks will help to catch instars
    - Zylam® Liquid Insecticide (dinotefuran) is highly effective for control of adult spotted lantern flies[1], with adult death occurring in as little as 24-hr in treated trees[2].
        - Optimal application method is by bark-banding, with rate determined by tree DBH.
        - Apply Zylam® at the appropriate rate with an organosilicate surfactant.

Formulation Chemistry

- With the many uses of fungicides and herbicides, a sufficient level of surface-active ingredients may not be included in these products. The use of an adjuvant added directly to the spray tank with the fungicide or insecticide can boost the activity of these products. Many of these adjuvants are formulated not to exceed 0.25% vol/vol to prevent phytotoxicity.
- Take the time to calculate the amount of adjuvant needed so suggested label rate is not exceeded.

New Product Corner: Arkon™ Herbicide Liquid

- Arkon™ is a new solution for turf professionals to control nutsedges and kyllinga.
- Can be used on many turfgrass species and use sites as listed, including golf course putting greens.
- Proven to reduce the number and viability of nutsedge tubers.
- Coming Soon! For more information, contact your PBI-Gordon Sales Representative.

[1]Heather Leach and others, Evaluation of Insecticides for Control of Spotted Lanternfly in Ornamental Nursery Crop, 2019, *Arthropod Management Tests*, Volume 46, Issue 1, 2021, tsab043, https://doi.org/10.1093/amt/tsab043
[2]https://extension.psu.edu/spotted-lanternfly-management-for-landscape-professionals

*Follow the most restrictive of the labeling limitations and precautions of all products used in mixtures.

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