RESEARCH & DEVELOPMENT FIELD REPORT

9TH EDITION - March 2025

The PBI-Gordon Research & Development Team is pleased to present the Ninth 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 2025.

INTRODUCING THE PBI-GORDON FIELD DEVELOPMENT AND COMMERCIAL REP (FDCR) TEAM

- **See the attached announcement for additional information on the team.**

GENERAL OBSERVATIONS

- **Through January, much of the Eastern seaboard, Mountain West, upper Midwest and Southwest United States remain in various levels of drought.**
- **Unseasonably cold temperatures throughout the transition zone and Southern U.S. may result in winterkill to warm-season turfgrasses.**

WEEDS

- **Pre-emergent crabgrass applications**
  - Pre-emergent herbicides should be applied when soil temperatures consistently reach 50-55^0 F for 4-5 consecutive days, or by using a growing degree day (GDD) model to optimize application timing.
    - Bensumec™ 4LF Pre-Emergent Grass & Weed Herbicide
      - Greens and Tee's (6 + 6 or 9 + 9) *Two apps per year*
      - Residential Lawn (6 + 6 + 6 or 9 + 9) *Up to three apps*
        - Applications made 4-6 weeks apart
  - Keep in mind of potential micro-climates in the environment which may provide the opportunity for crabgrass to germinate earlier. In cases where you suspect you may have crabgrass germination.
    - Consider changing your pre-emergent herbicide to dithiopyr.
    - In bermudagrass or zoysiagrass tank mixing Katana® Turf Herbicide with a pre-emergent product can control early-stage crabgrass, emerged nutsedge and kyllinga, as well as winter and emerged summer broadleaf weeds.
    - Plan on making a post emergent application of Q4® Plus Turf Herbicide for Grassy & Broadleaf Weeds as part of a crabgrass/broadleaf weed control plan to clean up any crabgrass or summer broadleaf weeds that may have escaped the pre-emergent application.

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WEEDS (CONTINUED)

- **Pre-emergent goosegrass applications**
  - Typically, goosegrass begins to germinate 4-6 weeks after crabgrass, when soil temps are consistently 60^0 F for 4-5 consecutive days.
  - Oxadiazon and indaziflam are very effective pre-emergent options for goosegrass.
    - Bensumec™
      - Greens and Tees (6 + 6 or 9 + 9) *Two apps per year*
      - Residential Lawn (6 + 6 + 6 or 9 + 9) *Up to three apps*
        - Applications made 4-6 weeks apart
  - In cases where there are escapes from the pre-emergent application, plan on making a post-emergent application as part of a goosegrass/broadleaf weed control plan to clean up any goosegrass or summer broadleaf weeds.
    - SpeedZone® EW Broadleaf Herbicide for Turf (4pt/A) + Topramezone (0.25 oz/A)
- **Winter Annual Weed Control**
  - Cooler weather can limit broadleaf herbicide efficacy.
    - Ester formulations are more efficacious than amine formulations in cooler weather.
      - SpeedZone® EW
      - SpeedZone® Southern EW Broadleaf Herbicide for Turf
      - T-Zone™ SE Broadleaf Herbicide for Tough Weeds
      - PowerZone® Broadleaf Herbicide for Turf (non-2,4-D formulation)
  - Warm-season turfgrass can be susceptible to injury during spring transition (Especially sensitive species such as St. Augustine and Centipede).
    - Avoid products delivering high rates of 2,4-D.
    - Products delivering less 2,4-D include:
      - Avenue™ South Broadleaf Herbicide
      - SpeedZone Southern EW
      - Trimec® Southern Broadleaf Herbicide for Sensitive Grasses
      - Aethon™ Herbicide SL for Turfgrass (non-2,4-D formulation)
- **Overseed transition – Greens, Tees, Fairways, Etc. (Perennial/Annual Ryegrass, *Poa trivialis*)**
  - For a gradual transition use lower rates of Katana.
  - Katana @ 1.5 – 3.0 oz/A + NIS

DISEASES

- **Planning and implementing fungicide spray programs for root pathogens and several foliar pathogens**
  - When 2" soil temperatures reach 55^{0}F at the 2" soil depth for a 3-5 day rolling average, preventive applications for the following diseases should be initiated:
    - **Fairy ring**
      - Two applications of Pedigree Fungicide SC at 3.25 fl. oz./1,000 with a wetting agent 28-days apart are a cornerstone for a fairy ring program.
      - Additional preventive applications with a DMI, SDHI, strobilurin, or combination products containing these modes of action provide additional root disease control and round out a multiple application strategy for control of fairy ring.
      - Immediate post-application irrigation of ~1/4" is required.
    - **Take-all patch**
      - Multiple applications with combination products that contain DMI and strobilurin fungicide are recommended for control of this disease.
        - Immediate post-application irrigation of ~1/4" is required.
      - Take-all patch is more severe on soil with high pH, consider alternative means to reduce soil pH to 6.0.
      - Spring applications of manganese sulfate for deficient soils can reduce disease severity and should be irrigated into soil profile.
    - **Yellow patch and Waitea patch**
      - Preventive applications of Pedigree for fairy ring will double as preventive applications for yellow patch and Waitea patch.
      - Consider DMI or strobilurin fungicides as rotations partners as part of a programmatic approach; use of higher rates of these modes of action will aid in summer patch, take-all patch, and fairy ring control.
  - When 2" soil temperatures reach 60-65^{0}F at the 2" soil depth for a 3-5 day rolling average, preventive applications for the following diseases should be initiated:
    - **Summer patch**
      - Preventive programs with 3 to 5 applications are imperative, particularly for greens or turf with a history of summer patch.
      - Applications of Tekken® Broad Spectrum Fungicide is a top performing fungicide for summer patch control.
      - DMI + strobilurin combination fungicides are highly effective.
      - Immediate post-application irrigation of 1/8" is required.

DISEASES (CONTINUED)

- **Pythium root rot**
  - Segway® Fungicide SC alternated every 14-days with picarbutrazox is the most-used program for Pythium root rot.
  - Immediate post-application irrigation of at least 1/8" is required.
  - Since damage occurs to the root system occurs well before symptoms develop, a preventive program should be deployed.
- Example root disease fungicide program for cool-season turfgrass (starting at 55^{0}F 2-inch soil temperature on a 14 to 21-day interval; post application irrigation required)
  - **App #1:** Pedigree @ 3.25 fl. oz./1,000 sq. ft. + wetting agent
  - **App #2:** Tekken® @ 3.0 fl. oz./1,000 sq. ft.
  - **App #3:** Union® Fungicide SC @ 5.75 fl. oz./1,000 sq. ft. + Pedigree @ 3.25 fl. oz./1,000 sq. ft. + wetting agent
  - **App #4:** Serata™ @ 0.6 oz/1,000 sq. ft. + Maxtima® Fungicide @ 0.8 fl. oz./1,000 sq. ft.
  - **App #5:** Segway® @ 0.9 fl. oz./1,000 sq. ft. + Fame® Fungicide @ 0.38 fl. oz./1,000 sq. ft.
  - **App #6:** Serata™ @ 0.6 fl. oz./1,000 sq. ft. + Navicon® Intrinsic® Fungicide @ 0.85 fl. oz./1,000 sq. ft.
  - **App #7:** Segway @ 0.9 fl. oz./1,000 sq. ft.

- **Pythium blight & Bipolaris leaf spot on Bermudagrass**
  - Control both diseases with one product by applying Union™ (cyazofamid + azoxystrobin) on a 14-d interval when environmental conditions are conducive.
  - Combine your leaf spot control product of choice (such as iprodione or fluazinam) with Segway 0.45 fl. oz./1,000 sq. ft.
  - Applications should be applied in 2 gal./1,000 sq. ft. carrier volume for proper coverage.

INSECTS

- **Annual Bluegrass Weevil (ABW)**
  - Geography:
    - ABW was first detected in Long Island, NY in 1957. Since then, it has been reported in other locations in New York, Pennsylvania, New Jersey, Delaware, Connecticut, Massachusetts, and Rhode Island.
    - Most recently it has been found in Kentucky, West Virginia, Virginia, North Carolina, Ohio, Wisconsin, Michigan, Georgia, Illinois, Nebraska, Kansas and Arkansas.
  - ABW can be a highly problematic and damaging insect pest on golf courses, especially edges of tee boxes, putting greens, collars and approaches, fairways and putting greens. Damage by ABW larvae on putting greens comprised of *Poa annua* is often mistaken for anthracnose.
  - ABW larvae feed on and destroy the roots and crowns of turfgrass plants, especially annual bluegrass.

INSECTS (CONTINUED)

- ABW adult females begin laying in the spring around the time that *Forsythia spp.* have dropped approximately 50% of their petals or when flowering dogwood and Eastern redbud are in full bloom.
- Preventive insecticide treatments (adulticides) can be targeted at ABW adults once they are active, prior to egg lay.
  - Several preventive adulticides are available, including:
    - chlorpyrifos, acephate, bifenthrin, cyfluthrin, deltamethrin, lambda-cyhalothrin, or combination products such as zeta-cypermethrin + bifenthrin + imidacloprid or bifenthrin + clothianidin.
- Curative insecticide treatments (larvicides) can be targeted at ABW larvae, optimally when most of the larvae have chewed their way out of leaf sheaths and entered the soil. Consequently, proactive larval monitoring is critical to determining ABW larval presence and activity.
  - ABW larvae (and pupae) are readily sampled by taking turf-soil core samples with a standard golf course cup cutter, and destructively breaking-apart the turf plugs to determine the presence and density (population) of ABW larvae.
  - Several curative larvicides are available, including:
    - trichlorfon, clothianidin, Spinosad, novaluron, indoxacarb, cyantraniliprole or tetraniliprole.

FORMULATION CHEMISTRY

- If you do not already have them, begin to gather the SDS (Safety Data Sheets) for each of your applications for this year. Aside from the health and safety aspects of an SDS, this document provides valuable chemical and physical data of each product you have in your inventory.
- Conduct advance planning if intending to tank mix products. Refer to Section 9, Physical and Chemical to obtain the pH of your product(s).
  - Compare the pH of your tank mix partners. A successful tank mix will result if the pH difference is no more than +/- 2.0 pH units.
  - If the pH of one of your products is above 7.0 and the other below 7.0, a jar test must be conducted. Mixing an acidic and basic product may result in chemical degradation or physical incompatibility.
- Refer to Section 10, Stability and Reactivity to provide insight into incompatibility issues that may be disclosed. Also understand the composition of your tank gaskets, hoses, nozzles and screens.

R&D TEAM SPOTLIGHT – KEVIN MIELE, M.S.

Kevin is a turfgrass professional with over 15 years of experience in the industry. He earned a master's degree in plant science from the University of Connecticut, where he worked on turfgrass research and field trials. He also taught Turfgrass Management as an adjunct instructor at UConn. Kevin served as superintendent of Windham Golf Course, managing daily operations and overseeing renovations. Kevin started with PBI-Gordon Corporation in January of 2025. He looks forward to using his research and field experience to develop effective solutions for turfgrass management, with a focus on fungicides, herbicides, and integrated pest management.

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