

NEW INNOVATIONS WITH FLURPRIMIDOL USE ON TURFGRASS, CONTAINERIZED ORNAMENTALS, AND LANDSCAPE ORNAMENTALS.

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ABSTRACT

Flurprimidol (FP) is a nitrogen-containing heterocycle Type II, class B plant growth regulator (PGR) in the pyrimidine class of chemistry. Specifically, flurprimidol inhibits the enzyme cytochrome P₄₅₀ monooxygenase blocking the formation of *ent*-kaurenoic acid, a precursor to active GA's. PGRs with similar chemistries and modes of action include: ancymidol and the triazoles, paclobutrazol (PB) and uniconazole. Registered uses for FP in the US include turfgrass and established landscape ornamentals. Registration is pending for FP application to containerized ornamentals and trees. Extensive research trials have been performed in these use sites to evaluate plant responses to flurprimidol. Discussions will include: plant site of FP uptake and resulting height control in containerized ornamentals, lateral recovery of turfgrass following FP applications, and FP activity on established perennial landscape ornamentals.

In FP tissue absorption trials performed at North Carolina State University in Spring 2002, investigators applied equal amounts of FP and PB (119 ppm, or 1.25 mg) to leaves, stems and roots of containerized potted sunflower (*Helianthus*), cultivar 'Pacino'. Above-ground applications were made by painting stems and leaves, while a concentrated dose was drenched to roots. The objective was to determine differential absorption of FP among plant tissues and compare with absorption of PB. Results indicate that FP is more active through the stem and substrate for root uptake than through foliar application. Furthermore, FP elicits greater activity through the stem compared to PB. With the greatest activity of FP through the stem, active sites on whole plants can be characterized as: stems >> roots >> leaves.

In the lateral recovery studies on turfgrass, FP and PB were applied twice, 4 weeks apart at equal active ingredient per acre rates (0.28 and 0.56 kg ai/ha) on a creeping bentgrass [*Agrostis stoloniferous* L. var. *palustris* (Huds.)] fairway in central Indiana. The objective was to evaluate the lateral regrowth (RG) of creeping bentgrass following sequential applications of FP and PB. In order to evaluate lateral RG of creeping bentgrass, soil cores were extracted from each replicate plot prior to application and backfilled with topdressing sand. In order to measure lateral RG, a wire mesh grid was constructed equal to the dimension of the original extracted core. Digital images were taken every 2 weeks with the wire mesh grid overlaying the backfilled soil core to calculate lateral regrowth. By 4 weeks after initial treatment (WAIT), PB at 0.56 kg ai/ha reduced lateral RG by 11 to 13% compared to FP at 0.28 and 0.56 kg ai/ha. At the final rating date, at 8 WAIT, plots receiving sequential applications of PB at 0.56 kg ai/ha reached 82% total RG, whereas sequential applications of FP at 0.56 kg ai/ha reached 98%.

Current and future investigations will evaluate a granular formulation of FP for application to established perennial landscape ornamentals. Expected responses to FP to landscape ornamentals include: shoot growth regulation resulting in less pruning frequency and trim biomass, darker green foliage, more compact growth habit, and the potential for improved plant health.

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