RegenPGC Graduate Education Community

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Genetic and Physiological Characterization of Summer Vegetative, Bulbil, and Basal Bulb Dormancy in *poa Bulbosa**

Abstract

Poa bulbosa, a bulb-forming perennial grass, is a strong candidate for use as a perennial groundcover (PGC) in row crop systems due to its potential to enter dormancy during the crop-growing season.

However, limited knowledge of its dormancy behavior across different propagules hinders its integration into such systems. This study evaluates the genetic variation in summer vegetative dormancy, bulbil dormancy, and basal bulb dormancy among 50 USDA *Poa bulbosa* accessions.

Field experiments were conducted using a randomized block design with three replicates, and multiple traits related to dormancy, phenology, and morphology were recorded. A subset of 20 accessions was further evaluated in a controlled germination experiment over a 10-week collection period to investigate dormancy phase transitions in both bulbils and basal bulbs. Two germination treatments, a control mimicking fall conditions and an AOSA-recommended dormancy-breaking treatment, were applied.

Weekly germination patterns were used to infer pre-dormancy, true dormancy, and post-dormancy phases. Results are expected to reveal significant genetic variation in dormancy-related traits and offer insights into the physiological dormancy behavior of both bulbils and basal bulbs.

These findings will guide the selection of *Poa bulbosa* genotypes best suited for synchronized dormancy with summer crops, enhancing the utility of this species in sustainable PGC-based cropping systems.

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