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Establishing perennial grasses for permanent groundcover in corn

Abstract Agricultural intensification has led to both environmental and economic degradation through the loss of topsoil and nitrate leaching into waterways. Interplanting cool season grasses as perennial groundcover (PGC) with maize can restore many of the lost ecosystem services due to agricultural intensification.

Poa bulbosa, with its summer dormancy trait, could be an ideal PGC that can eliminate competition with cash crops. Summer dormancy in *P. bulbosa* is mostly regulated by internal biochemical signals and is genetically controlled. It reproduces vegetatively as bulbils in the seed head and bulbs at the base of the plant, and sexually through seed. This species is native to Eurasia and when introduced to this country, the reproductive pathway is altered, and it mostly reproduces vegetatively. Understanding the environmental cues for true flower and seed formation is crucial for controlled hybridization in breeding *P. bulbosa*. We conducted a systematic examination of seeds, bulbils and bulbils for their dormancy behavior, using two treatments – AOSA and 18degree/8hr. to assess the potential enhancement of germination and dormancy breakage.

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