Quantifying genetic variance in developing, stressed white clover populations. (C02-gustine102549-Poster)

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Abstract:

Water availability may control genetic diversity within an emerging population. We characterized genetics and water relations of white clover (WC) populations in simple or complex species mixes under three different irrigation rates. Randomized tilled plots were seeded in fall, 1999 and measurements made during the following two growing seasons. The genetic makeup of populations under rainout shelters in the field was based on random amplified polymorphic DNA profiles for individuals sampled in October of both years. WC transpiration rates in a simple grass/WC mix were 15 to 30 % lower than in a complex forbe/grass/WC mix both years. Water potential values were similar each year. After two years, WC populations grown in the complex mix under all irrigation levels and in the simple mix under dry conditions had lower genetic diversity and increased production of clonal plants. All WC populations were genetically distinct from the starting Will population. Reduction of genetic diversity in a WC population may indicate selection for genotypes best suited to local competition and water availability.

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