



Techniques for Developing Plant Parameters for Simulating Native Plants with the Almanac Model

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The Agricultural Land Management Alternatives with Numerical Assessment Criteria model (ALMANAC) is being applied to sites in the intermountain west as a first step in the recently initiated Rangeland Conservation Effects Assessment Project (R-CEAP) project. Herein we present appropriate field techniques to derive plant parameters to simulate native plant species interaction, success, and productivity with ALMANAC. Species parameters are validated with field trials wherein empirical measurements are taken under ideal growing conditions. The model process-based model accounts for decreases in potential leaf area growth and biomass growth due to nutrient, drought, temperature, and competition stresses. Critical parameters for simulating interactions of plant species in different sites will be potential leaf area index at different plant densities, light extinction coefficient for Beer's law to simulate light competition, optimum nutrient concentrations, and radiation use efficiency. The latter is the amount of above-ground dry matter produced per unit intercepted solar radiation. Techniques used to derive these parameters will be presented.

2009. 62nd Society for Range Management Annual Meeting. Paper No. 2060-26.