

ABSTRACT

ALLIUM SPP. AMENDMENTS, SOIL TEMPERATURE, AND EXPOSURE TIME AFFECT SEED VIABILITY FOR WEED MANAGEMENT IN CALIFORNIA

A study was conducted during 2000-01 to evaluate soil-incorporated *Allium* spp. amendments to reduce weed seed populations. Residues of onion (*Allium cepa*) and garlic (*Allium sativa*), at 1% and 3% w/w, were evaluated in combination with soil temperatures (23 °C and 39 °C), and exposure times (0, 2, 4, and 7 days) for effects on barnyardgrass (*Echinochloa crus-galli*), purslane (*Portulaca oleracea*), London rocket (*Sisymbrium irio*), and nightshade (*Solanum nigrum*). Results indicated deleterious effects of 39 °C on seed survival compared to 23 °C. Reductions in viability were common in seeds exposed to soil-incorporated onion and garlic. Differences in seed viability due to soil amendments were found in 2000 and 2001. Differences due to concentration were found in barnyardgrass, nightshade, and London rocket in 2000 and 2001. In both experiments, barnyardgrass, purslane, and London rocket seeds were less viable after longer incubation. Nightshade was not significantly affected by exposure time.

Susan Burke Mallek
December 2003