EVALUATION OF NATIVE PLANT SEEDS:
GERMINATION, DORMANCY AND SEED QUALITY

William E. Pomplun and R. Neil Reese
Department of Biology & Microbiology
South Dakota State University
Brookings, SD 57007

ABSTRACT

Plant species native to the Northern Great Plains are beginning to be included in landscapes, xeriscapes and revegetation projects throughout the region. For many of these plant species, this has led to the commercial availability of their seeds, with a concomitant need to provide seed quality evaluation and information on germination and dormancy rates to potential growers. Many of these species are deep-rooted perennials that produce variable quantities of seeds depending upon environmental conditions in a given year. Furthermore, the quality of the seed and its dormancy state are also regulated by the growing conditions, as well as the time and conditions of storage. To advance the horticultural uses of these species and help growers who are purchasing or collecting wild seed, we have conducted a study of seeds of 50 native plant species from 25 plant families. Germination tests, tetrazolium evaluations of viability, and ethephon treatments to break dormancy have been completed for a large number of the species. Tests of additional plant species are still in progress. Cold stratification and ethylene stimulation of seeds to break dormancy have been evaluated. A majority of plant species break seed dormancy in response to ethylene (ethephon) applications. For ethylene insensitive seeds, cold stratification has generally proved successful. Seed germination has been shown to require a few days to more than three months to break dormancy after these treatments. Seed quality and dormancy have been evaluated and the effects of seed quality, seed dormancy, and seed storage conditions on the germination of individual seed types has been described.