

Seed Propagation of Native Shrubs

D.T. Booth

USDA-ARS High Plains Grassland Research Station, Cheyenne, Wyoming

Propagation of shrubs by direct seeding is most successful where the seed science and the seedbed ecology are well understood and where seeding techniques support known reproductive interactions between a species and its environment. Research conducted at the High Plains Grassland Research Station has dealt with seed propagation of sagebrush (Asteraceae); winterfat, fourwing, shadscale and Gardner saltbushes (Chenopodiaceae); and the Rosaceous shrubs bitterbrush, mountain mahogany, and American plum. The work has included various studies of seed production, harvesting, storage, germination, seeding strategies, and early survival rates. Two predominant themes of the research are diaspore functions other than dispersal and seed dormancy. Winterfat and fourwing saltbush have little if any post after-ripening seed dormancy, but dormancy in the other species affect seed testing, seeding strategies, and may affect seedling vigor. Wyoming big sagebrush seed dormancy is addressed simply by increasing the seeding rate. Dormancy in the other species requires other approaches. Similarly, some species such as bitterbrush can be easily sown with a standard seed drill, but species like winterfat require other dispersal methods that effectively support evolved diaspore mechanisms for seedling establishment. All the studies illustrate the need to understand a species' seed physiology and seedbed ecology as a basis for developing optimum propagation technologies.