

Banking Sagebrush Seed

R.P. Karrfalt

USDA Forest Service, National Seed Laboratory, Dry Branch, GA

Sagebrush seed is produced by wild land collecting. As a consequence seed must be collected when available. If seed can be stored in good crop years, it would be available for use in years with poor seed crops. Additionally, seed banks allow seed to be on hand for timely restoration following large fires. Without banked seed, large rush collections must be made and these present serious logistical, organizational, and scheduling problems. Therefore, a long term seed storage study was initiated to determine the feasibility of banking sagebrush seeds.

Sagebrush is a small non-dormant seed that has a relatively short shelf life when stored under ambient conditions in warehouse storage with seeds of other range species. However, it can be dried to low moisture condition and maintain viability. It is, therefore, considered an orthodox and a candidate for long term storage. A study was initiated in 2007 to test the long term storability of Wyoming big sagebrush.

Five seed lots were acquired through commercial sources. Each lot was split in half at the Forest Service Lucky Peak nursery in Boise, ID. One portion of the lot was left in its purchased condition and referred to as low purity and the other half cleaned to remove a large majority of the trash. Fractions of each of these portions were equilibrated at 30, 40, 50, and 70% relative humidity, sealed in 6 mil polyethylene bags, and stored at either 20, 2, -8, and -20° C. There were 32 treatment combinations.

All low purity seed lots died within the first year in the sealed bags. High purity seed lots stored better, but seeds stored at 20° C or equilibrated at higher relative humidity died rapidly or stored less well. Original germination percentages were best preserved by equilibrating seeds to 30% relative humidity (30% ERH) sealing in 6 mil poly bags, and freezing the seeds. This study suggests that successful banking of large numbers of sagebrush seeds is a definite possibility and that work should continue on producing and storing high quality seeds in support of sagebrush habitat restoration.