Cold Storage Not Required for Fourwing Saltbush Seeds

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Highlight

Seeds refrigerated 4 years germinated no better than seeds stored under ordinary conditions. Viability was retained for 6 years under storage at 55 to 95 F.

[1] Central headquarters maintained at Fort Collins in cooperation with Colorado State University; research reported here was conducted at Albuquerque in cooperation with the University of New Mexico.

Little information is available concerning proper storage of fourwing saltbush (*Atriplex canescens* (Pursh) Nutt.) seeds. The U. S. Forest Service (1948) recommended storing the seeds in a dry place, and reported the seeds apparently do not deteriorate appreciably, as one lot of seed germinated 19% after 9 years of dry open storage. Wilson (1928) concluded germination decreases little if any until at least 6 or 7 years after maturity.

We conducted studies to determine the effects of refrigeration on viability of fourwing saltbush seeds. Four sources of seed were included; three were collected in 1961 and one in 1962. Samples of these seeds were put in cloth bags in June 1963 and stored in a refrigerator (38 to 42 F). Other samples were kept in paper bags and stored in a heated garage (55 to 95 F).

The principal experiment was conducted at Santa Fe, New Mexico, in July 1967, after 4 years of storage at the two temperatures. Fifty seeds from each sample were placed on moist vermiculite in petri dishes. Each dish contained 100 ml of vermiculite and 50 ml of distilled water. Dishes were randomly arranged on one tray in a germinator. There were six replications. Germination temperatures during the 30-day test ranged from 63 to 65, and averaged 64.4 F.

Germinated seeds were counted at 2- to 4-day intervals. Seeds were considered germinated when radicles and

shoots measured 0.5 inch or more. Germination percentages were transformed to arc sin for analysis of variance.

Seeds stored under refrigeration for 4 years germinated no better than seeds stored at ordinary temperatures:

Seed source and year collected	Percent germination when stored at—	
	55–95 F	38–42 F
Isleta (1961)	79	74
Mountainair (1961)	53	61
Corona (1961)	47	43
Bernalillo (1962)	29	33

There were large differences, however, between sources of seed.

Additional evidence shows that viability of fourwing saltbush seeds is retained satisfactorily under ordinary storage temperatures. Two of the lots of seed used in the comparisons discussed above were tested for germination prior to 1967. Samples used in these earlier tests were taken from paper bags stored at 55 to 95 F. Germination test procedures were essentially the same as described above. The results show no decline in viability:

Year of test	Average germ. temp.	Percent germination	
		Isleta	Corona
	F		
1963	68	72	30
1965	68	67	36
1966	68	75	41
1967	64	79	47

In fact, the above germination percentages indicate a trend toward increased viability with age.

We may conclude that special storage conditions are not necessary for fourwing saltbush seeds. Certainly refrigeration does not seem to improve retention of viability. The evidence shows viability is retained at a high level for at least 6 years when seeds are stored under dry conditions at temperatures of 55 to 95 F.

LITERATURE CITED

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