

POPULUS TRICHOCARPA SEEDS ENDURE ADVERSITIES

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Seeds of Populus species are usually nondormant and short-lived unless stored in sealed containers at cold temperatures (1). Generally, authorities recommend that Populus seed be sown immediately after collection to prevent rapid loss of viability. However, a recent experience in collecting, fumigating, and shipping black cottonwood (Populus trichocarpa) seeds indicates that seeds of this species are relatively durable.

The seeds were collected for the Hessisches Institut für Forstpflanzenzüchtung at Hannoversch-Münden, Germany. Normally, in the lower Columbia River Valley, black cottonwood seeds ripen in May, but the cool, damp spring of 1963 delayed ripening until early June. Seed was collected east of Portland, Oreg., on July 3, a month after ripening. All aments had dropped from the trees, and most capsules had released their seeds, which were found in balls of the trees' cotton lodged here and there on the ground. Apparently, most seeds had fallen 1 or 2 weeks before. The cotton was soggy from the rain that fell during 11 of the 14 days preceding collection. Moreover, the cotton was inhabited by ants, beetles, and various other tiny creatures.

Cotton, containing 5,000 to 6,000 seeds, was placed in a large plastic bag. It was taken to the laboratory, dried overnight on trays, freed of ament stems and other larger debris, and stored at 34° F. in a refrigerator until July 8. On this date, the cotton mass was inspected by the Plant Quarantine Division of the U.S. Agricultural Research Service. ARS declared that it needed fumigation to eliminate "hitchhikers" before a phytosanitary certificate could be issued for export. The cotton with seeds was mailed to the Plant Quarantine Division's facilities in Seattle, Wash.; there it was fumigated for 2 hours at 80° F. with methyl bromide at a concentration of 1 ½ pounds per 1,000 cubic feet.

The cotton with seeds was airmailed to Germany on July 10. The Hessisches Institut received the lot on July 15 and sowed it immediately. Dr.-H. J. Frohlich of the Institut wrote, "The seed lot was in good condition . . . germination capacity was very good. It doesn't seem as if the different treatments and delays had any effect on the viability." About 4,000 seedlings were obtained.

Summary

Black cottonwood seed was subjected to conditions that violated many precepts of good Populus seed handling. It was collected a full month after ripening, having remained on damp ground for a week or more during wet weather. It was stored for 1 week in an unsealed container after only brief drying, was fumigated with methyl bromide at 80° F. for 2 hours, and spent nearly a week in the uncertain environment of the international mails. Despite these abuses, the seed showed no injury and produced a fine crop of seedlings. As poplars go, P. trichocarpa apparently produces seed of robust constitution.

Literature Cited

- (1) U.S. Forest Service. 1948. Woody-plant seed manual. U.S. Dept. Agr. Misc. Pub. 654, 416 pp., illus.