

## SEED PRODUCTION IN CHIRPINE, 1978, AND FUTURE TRENDS

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Seed production is a necessary part of any tree improvement programme. It is not a problem in crop plant breeding because most crop plants are raised for their seed and heavy and regular seed production is taken for granted. Most trees however, are not grown for their seed, and many trees that otherwise have desirable characteristics, seed only occasionally or not at all. Therefore, a tree breeder is concerned with seed production. Considerable research is underway in almost all countries on the stimulation of flowering and fruiting of trees (Wright, 1976). This note describes seed production in chir pine (*Pinus roxburghii*) growing in Pakistan and Azad Kashmir during 1978 and gives future trends.

Surveys of chir pine forests were carried out during April and May, 1978 to select phenotypically superior trees and seed stands and to collect seed from them under a project sponsored by Agricultural Research Council of Pakistan. In this connection Chamankot forest of Muzaffarabad Forest Division, Arja forest of Bagh Forest Division, Sensa and Chario forests of Kotli Forest Division and Pulandri and Kakrol forests of Poonch Forest Division in Azad Kashmir were surveyed. Ghoragali, Ban, Karor, Surba, Lehtarar, Danoi, Punjar, Kotli and Tret forests were also visited in Murree and Kahuta Forest Divisions. In Hazara, Dadar, Baz Khan, Tanglai, Choki, Batrasi, Gidarpur, Kathai and Khabal forests of Siran Forest Division; Bagnotar forest of Gallies Forest Division and Makhaniyal forest of Haripur Forest Division were gone over. Surveys were also carried out in Murghazar, Barikot, Amazai, and Gokand forest in Swat Forest Division and Sunyed Shang, Puran and Martung forest in Alpuri Forest Division. During these surveys the entire range of natural occurrence of chir pine in Pakistan and Azad Kashmir was covered.

The seed production for 1978 was generally poor in almost all chir pine forests covered by this study. Very few ripe cones were observed on trees throughout these forests. Small quantity of seed could only be collected from the selected trees in Gidarpur, Kathai, Oghi, Choki, Tanglai and Baz Khan chir pine forests of Siran Forest Division; Makhaniyal forest of Haripur Forest Division and Ghoragali, Ban, Karor and Lehtarar forests of Murree and Kahuta Forest Divisions. Seed was not available in Azad Kashmir, Swat and Alipur forests.

Chir pine cones take about twenty six to twenty seven months to ripen after the first appearance of the female flowers. Since mature trees have three types of cones during April and May, e.g. mature brown cones, fourteen to fifteen-month old green cones and young two to three-month old cones, trends of seed production in this species can be reasonably predicted for next two years. From the observations made in the field it can be stated that the

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seed production of chir pine in 1979 and 1980 will be fair in the forests of Alipur, Swat, Siran, Gallies and Haripur. It would be poor in most of the forests of Azad Kashmir and Murree and Kahuta Forest Divisions. It may be mentioned here that some of the chir pine forests in Hazara were also gone over during 1977 for seed collection and it was generally found to be poor seed year in this locality.

According to Troup (1921), good seed year occurs on an average once every three to four years in chir pine growing in Rawalpindi and Hazara districts. Field observations have shown that 1977 and 1978 were poor seed years in chir pine. Similar situation can be expected in 1979 for most of the chir pine forests. Under these circumstances it is necessary to plan seed collection and storage judiciously to meet the requirements of seed of this species for afforestation programme. Furthermore since trees of desirable characteristics selected for improvement work fruit only occasionally or not at all, the selection of phenotypically superior trees and seed stands should be extensive as well as in large number so that sufficient quantity of seed could be collected in good seed years to meet the current and future needs in lean seed years.

Attempts are being made to select a large number of phenotypically superior trees as well as seed stands covering an adequate area under A.R.C. project of tree introduction and improvement throughout Pakistan and Azad Kashmir in collaboration with forestry research units of N.W.F.P., Punjab and Azad Kashmir. With the commencement of this project in 1977, 162 candidate plus trees and 12 seed stands over 60 hectares have been selected and marked in chir pine forests. The work of thinning to remove inferior trees within the seed stands as well as experiments on stimulation of flowering and fruiting would be taken up in coming years. Seed production would also be recorded during the surveys of chir pine forests.

#### Literature Cited

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