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Short Note

Status of apple orchards vis-à-vis technological interventions in Chamba district of Himachal Pradesh

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Abstract

The present status of apple orchards and technological gaps in adoption of modern apple cultivation were studied in 28 orchards in major apple growing pockets in Chamba district of Himachal Pradesh. The study revealed that in almost all orchards, only two main commercial cultivars viz; Red Delicious and Royal Delicious were planted expect one orchard having Mollies delicious, Bright-N-Early, Mutsu, Top Red, Criterion, Silver Spur and Oregon Spur besides two above mentioned cultivars. The range of pollinizers in different orchards were 4-40 per cent. The major technological gaps identified in apple orchard management were poor quality planting material, old varieties, inadequate pollinizers, lack of pollinators, poor nutrition, faulty pruning practices, low planting density, lack of assured irrigation facilities, imbalanced use of insecticides/pesticides and poor post harvest management practices. Various technological interventions were given, keeping in view the poor state of apple orcharding in the district.

Himachal Pradesh is bestowed with diversified agro- climatic conditions for harnessing the horticultural potential of western Himalayan region. Amongst all the horticultural crops, apple occupies a dominant position in terms of area and production. The Chamba district of Himachal Pradesh has been identified as one of the five horticultural districts of the State. The district is wholly mountainous (Altitude 654- 6776 m amsl) and located between Latitude 32^0 10' and 33^0 13' N and $75^0$45' and 77^0 33' E Longitude. The climate varies from semi tropical to semi arctic. The apple cultivation is emerging as a big industry in this geographically isolated district of the state. The area under fruit plants has increased from 722 ha in 1951 to 2.18 lakh ha in 2001-2002 in the state (Anonymous, 2002a). About 60 per cent of the total area falls under temperate fruit cultivation and the predominant fruit crop is apple contributing substantially to the economy of the state. However, in the district apple occupies 7081.90 ha of land with a meager production of 8550 MT (Anonymous, 2002b) thereby demanding technological interventions from extension agencies to improve the average production.

The cultivation of apple in Chamba district is not like as in other temperate regions of the state. The productivity of these orchards is quite low (around 1.0 MT) against the average productivity of the state (around 4-5.0 MT) as well as the developed countries. This scenario reflects a very vivid picture of the present apple orchard management practices. Apart from weather vagaries, reasons associated with low productivity and inferior quality are non-adoption of scientific management practices thereby leading to colossal economic loss to the orchardists.

The information available with the extension agencies regarding reasons of low productivity and inferior quality apple is scanty which is the major hurdle for transfer of technology on scientific management of orchards. Whereas the transfer of technology in the hilly terrain is cumbersome, it is also difficult to plan out training programme and conduct demonstration trials without having any preliminary data on the status of orcharding. However, the district has ample potential for surging ahead in the state if proper and timely scientific interventions of the extension agencies are included in the present cultivation practices.

In the light of the aforesaid facts, a survey was therefore, undertaken in Chamba district to ascertain the present status of apple orchards. The objective of the survey was to generate first hand information regarding the general condition of the apple orchards in Chamba district in order to make recommendation about the apple orchard management to the orchardists for the their improvement in future.

An extensive field survey was carried out in the different major apple growing pockets of the Chamba district from 1999 to 2004 and the observations on major aspects like location, age of plants, total number of plants, aspect, altitude, cultivars and pollinizers in orchards, space, presence of insect pollinators, occurrence of insect-pests and diseases, over all status of orchard (with regard to management) etc. were recorded. On this basis the inventory about general condition of apple orchards were prepared and to fill up the technological gaps a comprehensive strategy was formulated. Accordingly technological interventions were provided by the University of Horticulture and Forestry, Krishi Vigyan Kendra Chamba to the orchardists from time to time in collaboration with the state department of horticulture. A complete action plan encompassing general recommendation for all the orchards surveyed were prepared on individual basis and supplied to each orchardist for its follow up and improvement.

The present study conducted in 28 apple orchards situated at different locations ranging from 1250 to 2500 m amsl showed that in almost all the orchards two main commercial varieties, Red Delicious, and Royal Delicious were planted, except in the orchards of Sh. MK Badyal where maximum promising cultivars viz; Red Delicious, Royal Delicious, Mollies Delicious, Bright-N-Early, Mutsu, Top Red, Criterion, Silver spur and Oregon spur were observed. The pollinizers observed in different orchards in Chamba district were Golden Delicious, Red Gold, Granny Smith, Tydeman's Early Worcester, Golden spur and crab apples. The main pollinizer cultivar in almost all the orchards under present study was found to be the Golden Delicious. However, the pollinizer Golden Delicious does not synchronize in flowering with maximum commercial delicious cultivars in Himachal Pradesh (Awasthi *et al.*, 1999). As regard placement of Pollinizer, standard layout was not followed in any of the orchards surveyed under present study. To ensure effective and maximum pollination, placement of pollinizer at every third row is recommended (Mayer *et al.*, 1985)

The proportion of the pollinizers in these orchards varied from 4 to 40 per cent in all the orchards surveyed in Chamba district but mostly having below the recommended level of pollinizers i.e. 33 per cent for an ideal apple orchard in Himachal Pradesh (Anonymous, 1996).

The minimum number (4%) of pollinizers was observed in the orchard of Sh Nihalu Ram of Masroond village, whereas maximum pollinizers (40%) were observed in the orchard of Sh.MK Badyal of Dand village. The spacing of plants observed in almost all the orchards were variable except in two orchards i.e. orchard of Sh. Nitya Kalyan Sharma of Masroond village and that orchard of Sh. Lajpat Singh of Banog. The insect pollinators observed during flowering season under all the locations were *Apis cerana*, syrphid flies, bumble bees and butterflies. Maximum number of orchards under the present study were found to be infested with Apple Woolly aphid, Stemborer, Sanjose scale, Root borer, Canker, Papery bark, Smoky blight and Lichen etc. The over all status of the orchards (with regard to management) was observed to be poor in 18 orchards except the remaining 11 orchards where the general conditions was good as well as fair to good.

The factors influencing apple yield in present study which includes soil condition, type of cultivar, spacing, cultural as well as pests and disease management practices are in accordance with the findings of Awasthi *et al.* (1999). The steep slopes, shallow soils with poor water retentivity of the soils of the region also add to the problems.

Technological gaps identified in the orchard management include poor quality planting material,Old varieties, inadequate pollinizers, absence of honey bee colonies, imbalanced use of fertilizers and FYM, faulty pruning practices, low planting density, no assured irrigation facilities, imbalanced use of insecticides /pesticides and poor post-harvest management.

Technological interventions by the Krishi Vigyan Kendra

The Kendra is involved in transfer of technology through: farm advisory service, awareness camps, training camps (in-service training camps for extension officials (HDO/HEO) of the department of Horticulture on production technology & plant protection measures and location specific need-based training camps at the campus for the orchardists of the district), demonstrations, diagnostic visits, vocational training for rural youths, extension publications (pamphlets, popular articles news paper coverage), kisan goshthi and farmer- scientist interaction meet, participation in kisan melas and exposure visit of the orchardists.

Conclusion:The orchardists of the Chamba district have become sensitized now and as a result

of the interventions imparted by KVK, they are enthusiastic to adopt the modern scientific techniques of orchard management.

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