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MANAGED CROP POLLINATION

The Missing Dimension of Mountain Agricultural Productivity

U. Partap
and
T. Partap

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Dr. U. Partap is a Research Officer at ICIMOD and works with its beekeeping project.
Dr. T. Partap is the Head, Mountain Farming Systems' Division, ICIMOD.

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Preface

Applied research on sustainable mountain agricultural development issues has been a principal undertaking of the Mountain Farming Systems' Programme of ICIMOD since 1988. The project on 'Strategies for Sustainable Mountain Agricultural Development' not only focussed on the analysis of farmers' strategies and public interventions, but also on research on the latest technological innovations to increase and maintain farm productivity supported by programme activities. Farming with comparative advantages and harnessing and conserving the local resource base, as far as possible, are the key strategies of technology identification and promotion at ICIMOD.

Most of us know that beekeeping is one of the integral components of the small-scale, off-farm activities of mountain farmers. The products from beekeeping provide cash income and nutritive food items to the household, besides pollinating crops. Thus, the conventional notion of beekeeping is that it is 'primarily to produce honey and other hive products with crop pollination as a secondary activity'. The latter benefit is not assured but assumed under the conventional beekeeping approach.

However, with the ongoing transformation of mountain agriculture from subsistence systems to commercial agriculture, new challenges to improving and maintaining productivity are emerging. Among these challenges are crop failures due to lack of pollination. Hence, the need for managed crop pollination will increase in future all across the HKH Region. Isolated incidences of this have been recorded by ICIMOD from a number of mountain areas. This calls for a more intensive focus on the issue from the perspectives of policy, research, development, and extension. Improving institutional capabilities and developing human resources are key areas needing attention.

This paper analyses the need for managed crop pollination in the light of the findings of experimental research carried out so far by ICIMOD and in the light of the current information on crop pollination. The paper tries to present an alternative perception to beekeeping and that is: 'to promote beekeeping primarily for crop pollination with honey and other beehive products as by-products.' The new approach combines the two benefits well but institutional reorientation in the context of policies, research, and extension might be necessary.

Experimental research demonstrates the scope managed crop pollination provides to improve productivity. The need to manage the pollination of cash crops in mountain areas is indicated by research into agricultural development processes. Constraints to and opportunities for promoting managed crop pollination in the HKH are analysed in this paper.

Abstract

The ongoing transformation of mountain agriculture from subsistence systems to diversified agriculture is bringing forth new research and development challenges to maintaining productivity. One among these several challenges is crop failure caused by the lack of pollination. Hence the necessity for managed crop pollination is going to increase in the coming years throughout the Hindu Kush-Himalayan Region. Isolated evidence of this problem has been recorded by ICIMOD through research in several pocket areas. This Discussion Paper analyses the need for managed crop pollination in light of the findings of experimental research carried out by ICIMOD over the last few years and in light of other information available on crop pollination. The paper has tried to present an alternative perspective to the significance of beekeeping. It discusses pollination as a natural ecological process which is vital for the production of fruits and seeds. The scope for and experiences of managing honeybees and other pollinating insects for the pollination of different crops have been discussed. In this respect, the paper highlights the importance of honeybees and the economic value of bee pollination. It has also compared the foraging behaviour of the Himalayan honeybee, *Apis cerana,* and the European honeybee, *Apis mellifera,* in relation to their efficiency in pollinatiing different fruit crops and their suitability for crop pollination in different agro-ecozones. The role of managed crop pollination in food security, biodiversity conservation, and in overall agricultural development processes shows that, in the very near future, a greater need will be felt for managing pollination of cash crops in mountain areas. The paper sums up by outlining the possible constraints to and opportunities for promoting managed crop pollination in the Hindu Kush-Himalayan Region.

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