MOUNTAIN FARMING SYSTEMS

Discussion Paper Series

**DEVELOPMENT OF HORTICULTURE IN THE MOUNTAIN REGIONS
OF PAKISTAN : PROGRESS, POTENTIAL, AND CONSTRAINTS**

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PREFACE

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PREFACE

I. INTRODUCTION

ICIMOD's approach to problem oriented research involves both knowledge reviews and field studies. The focussed reviews and field studies conducted by the Mountain Farming Systems' Division cover various aspects of agricultural development. Since early 1988, a series of 'State of the Art' reviews of agricultural policies and programmes were sponsored by ICIMOD in different countries of the HKH Region. The purpose of these studies and the subsequent National Workshops in different countries was to understand some of the constraints and prospects of mountain area development. These exercises were also aimed at acquiring comparative perspectives of development approaches and strategies in different countries.

This paper was a part of this series of studies, commissioned by ICIMOD, and was also presented at the "International Expert Meeting on Horticulture and Beekeeping", in June 1988, Kathmandu, Nepal. This paper gives an overview of horticultural development in Pakistan with special focus on progress, potential, and constraints followed by recommendations.

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The mountain areas examined in this report cover the following administrative sub-divisions:

- The federally administered Northern Areas comprising the districts of Gilgit, Baltistan, and Diamer;
- the Malakand and Hazara divisions of the North West Frontier Province (NWFP); Hazara Division consists of Kohistan, Mansehra, and Abbottabad districts and the Malakand Division includes the districts of Chitral and Swat, and the provincially administered Malakand Agency;
- the Murree Hills Tehsil of the Rawalpindi District of the Punjab Province; and
- the Province of Baluchistan a major part of which is mountainous.

The next section of this report presents the climate and ecological zoning of the mountain areas of Pakistan. This is followed by separate sections on fruit crop cultivation; vegetable crop cultivation; and potato cultivation. The two remaining sections deal with marketing and processing of fruits and vegetables and with strategies and recommendations for future development.

II. CLIMATE AND ECOLOGICAL ZONING OF PAKISTAN'S MOUNTAIN AREAS

A. The Northern Areas

The climate varies in each valley according to altitude. Each valley has its own micro-climate so that plants respond not to an average situation, but to the immediate, proximal prevailing conditions of an area. However, generally speaking, most parts of the Northern Areas are arid rugged mountain deserts. Being a rain shadow area, the annual rainfall varies between 100-200 mm. The climate at lower elevations has two extremes, cold in winter and hot in summer, becoming temperate (continental mediterranean) at about 2000 m above sea level. Most precipitation occurs during winter, mostly in the form of snow.

Due to aridity, vegetation is absent and there is nothing to insulate the bare rock. Solar radiation is absorbed and converted into a long heat wave. At 37°N latitude, days are long in summer, with virtually no cloud cover and nights are correspondingly short, causing considerable discomfort to people. On the other hand, the same process is important at high altitudes (3000 m), where it enables most heat to be accumulated during a shorter growing season which hastens the maturing of crops.

Temperature

Figure 1 represents a summary of the monthly mean average daily temperature for selected places in the Northern Areas located at different elevations. The most striking features are the great