Chapter 10
Horticulture as a Reliable Source of Livelihood in Andaman and Nicobar Islands, India

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ABSTRACT

The tropical region is typically warm to hot and moist year-round with lush vegetation thus is favourable for horticultural diversity. The horticulture sector has shown remarkable progress in production and the shift in consumption patterns towards healthier diets within the principles of sustainability. Plantation crops are major contributors to the farm income and livelihoods of millions of people in the tropical region, while fruits and vegetables have direct roles in improved health through their micronutrient and antioxidants properties. Tuber and root vegetables are staple diets for indigenous tribes and one cannot imagine tribal life without coconut. Plantations crops and spices bring additional farm income and add flavour to foods and life. Medicinal plants have huge potential in the modern pharmaceutical and functional food industries. Research and development efforts have made horticulture an indispensable option for livelihood and nutrition, however, there are several issues which need timely attention for sustainable development.

INTRODUCTION

The potential of tropical horticulture is tremendous. In contrast to temperate regions, environmental conditions in the tropics are defined by less seasonal temperature fluctuations and more by seasonality of precipitation; however, temperature conditions are affected by altitude. The tropics have a rich biodiversity of flora and fauna but also have around 40% of world population which will be going to increase

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55% by 2050. In addition, anthropogenic and climatic factors have made the region highly vulnerable to sustain the population with decent level of livelihood. The expanding population and shrinking land resources due to rising sea levels are creating further challenges. In the region, industrial development is slow and agriculture and tourism sectors are only source of food and livelihood security. They are also interdependent. In agriculture, horticultural crops, for example plantation crops, tropical fruits and vegetables, spices and medicinal plants are sources of income for the region. Historically, this sector has its roots in existing tribes and settler communities because they can be easily prepared for eating. However, efforts need to be made for sustainable utilization of the regions rich biodiversity and fragile natural resources. In this region, the economies and livelihood are traditionally mainly dependent on a horticultural based farming system. However, a recent trend shows that while the younger generation is opting for other occupations for livelihood and comfort, the horticulture sector still attract a large section of youth from rural and tribal regions. However, for its improvement due attention must be given to promotion of area-specific modern hi-tech technologies, ensuring timely supply of inputs, adopting high value crops, strengthening post harvest technologies, planning proper marketing strategies, effective disease and pest control through quarantine and integrated pest management, creating infrastructure development, crop diversification and integrated farming system, adopting organic farming, rejuvenation of existing old and semi-abandoned plantations with improved dwarf varieties, promotion of low-input-requiring locally adaptable crops, bioprospecting of underutilized horticultural crops, floriculture development through promotion of indigenous orchids and ferns and developing effective plans for germplasm conservation for long-term use and protection from biopiracy incidents. In tropical and coastal regions, the human resource development, effective waste land management and developing horticulture-based tourism will need to be further strengthened with adequate scientific information to present horticulture as a lucrative option for livelihood and thus attract the younger generation. Effective planning and implementation of action plans to address identified issues will certainly contribute to the mitigation of problems associated with employment opportunities and malnutrition, and in-turn improve the livelihood standard without further deteriorating the fragile island ecosystem. Along with this, systematic and robust weather forecasting and associated crop advisories will help to reduce the negative impact of climate change on horticulture in tropical regions. However, there is need for much systematic information on such efforts and strategies for horticultural development in tropical islands. This chapter reviews the efforts and proposes practical strategies for the development of the horticulture sector in tropical regions with special emphasis on Andaman and Nicobar Islands.

HORTICULTURE IN TROPICAL ISLANDS

There are 45 island nations in the world which differ from one another in terms of size, shape, wealth, and natural and economic resources. The tourism, agriculture and fishing sectors are three important sources of livelihood in tropical regions with limited contribution from the industrial sector. An analysis of the agricultural scenario of the islands indicates that agriculture is an important source of income in many of the tropical islands. Nearly 80% of the population of Comoros islands, 70% of Fiji, 65% of Vanuatu and 40% of Dominica are dependent on agriculture. Agriculture also contributes significantly to GDP of the tropical island nations like Solomon Islands (31.70%), Federal State of Micronesia (28.90%) and Madagascar (26.80%) (Singh & Singh, 2014). Horticultural crops occupy large land area with coconut, banana, coffee, black pepper, rubber, cocoa vanilla, and along with tuber crops contribute