Chapter VII
FINDINGS AND RECOMMENDATIONS

7.1 Introduction
The present chapter highlights the findings and recommendations in view of the objectives undertaken. It contains results of the survey conducted in the South Konkan of Maharashtra about cashew cultivation and its various aspects.

7.2 Findings

7.2.1 The South Konkan region of Maharashtra covers 4.32 per cent of the geographical area of Maharashtra state comprising 17 tahsils from Ratnagiri and Sindhudurg districts. The physiography of the study area is divided into three major divisions, i.e., uplands, midlands and low lands. About 85 per cent area of the region is having undulating topography.

7.2.2 The region is dissected by numerous short streams, rising in the steep western scrap of the Ghats. The rivers are seasonal by nature of flows. The rivers are entirely rainfed and the ground water recharge is poor. The soils of region are grouped into three groups, i.e., laterite soils, salty soils and coastal alluvium soils. The light, varkas, lateritic soils on the hill slopes are suitable for cashew cultivation.

7.2.3 In the study region daily maximum temperature varies from 30° C to 33° C. The range of annual temperature is very low. The rainfall is reliable and varies from 200 cm to 400 cm. It increases from coastal areas to the Western Ghats. Temperature, rainfall and humidity together form the growing season of cashew. The gusty winds and cyclones create many hurdles during the growth and harvesting of cashew.
7.2.4 The water resources of region consist of surface water and ground water. However, area suffers from water deficit in summer season. The annual replenishable ground water resource is 76537 Ha m which needs to be tapped properly for the agricultural and industrial development of the region.

7.2.5 The analysis reveals that the climatic conditions of the South Konkan are very suitable for the fruit farming like mango, cashew, jackfruit, pineapple, betelnut and kokum etc.

7.2.6 The population density of the region is (187 sq per km as per census, 2001) low as compared to state average. But the sex ratio of region (1108) is high as compare to state average (937), because most of the male people have migrated to Mumbai and other places for employment. The literacy ratio of the study region is higher (77.68 per cent) than state (76.88 per cent) average.

7.2.7 In the region, 27.83 per cent farmers are marginal farmers and 26.80 per cent are small farmers, whereas only 13.81 per cent farmers are big farmers.

7.2.8 There are 597 Primary Agricultural Co-operative Credit Societies providing partly financial aid to the farmers. The total length of the road density in the study region is 90.09. There are twenty two storage facility units supported by government for all crops which have the storage capacity of 17,000 tonnes of goods. However, there is no separate provision of storage for cashew nut.

7.2.9 In order to cater the needs of teaching, research and extension activities in the agriculture and allied sector, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli plays very vital role. The university has provided the improved varieties of the seeds, pests, fertilizers, technical supports and advanced equipments through various research centers.
7.2.10 The general landuse analysis reveals that the area under forest is only 3.02 per cent during the year 1980-85 which has increased by 0.34 per cent only. The land not available for cultivation was 28.86 per cent, which has decreased by 1.44 per cent during study period. Total area under fallow land is 13.48 per cent. Proportion of land under this category is relatively high (Above 20 per cent) in Sangameshwar, Lanja, Vaibhavwadi and Dodamarg tahsils. The spatio-temporal distribution of net sown area has been influenced by physiographic constraints of the region. This category has occupied about 27.19 per cent area during 1980-85 which has increased upto 31.74 per cent during 2000-05.

7.2.11 Rice is an important crop among all cereals. It is the traditional staple food crop. Rice occupies about 37.45 per cent of total cropped area having more variations at tahsil level. It ranges from below 25 per cent to over 50 per cent in some tahsils. Area under ragi cultivation is about 5.32 per cent. Total cereals occupy 45.63 per cent of the gross cropped area.

7.2.12 Mango occupies about 8.09 per cent of total cropped area in the region. Relatively high proportion of area under mango (above 10 per cent) is noted in Ratnagiri, Devagad, Kankawali and Vengurla tahsils. Moderate proportion (5 to 10 per cent) is recorded in three pockets, comprising northern most tahsils of study region.

7.2.13 Cashew is a traditional crop of South Konkan. The climate and soils are most suitable for growing cashew. It grows well under rainfed condition on hill slopes, varkas, light, soils up to 150 mt elevations from mean sea level. Cashew shares about 11.00 per cent of the total cropped area. Its spatial distribution differs largely through out the region.
7.2.14 Overall area of change with an high dynamic swing (over 30 per cent) is observed in Mandangad, Dapoli, Khed, Ratnagiri, Lanja, Kankawali and Vengurla tahsils, where the level of technological development has increased. The proportion of moderate change (15 to 30 per cent) is observed in Guhagar, Chiplun, Sangameshwar, Vaibhavwadi and Kudal tahsils. The area below 15 per cent is observed in Rajapur, Sawantwadi, Malwan and Dodamarg tahsils where major crops of increase are traditional.

7.2.15 In India, Maharashtra ranks 2nd in cultivated area under cashew, where in Ratnagiri and Sindhudurg are the leading districts followed by Raigad, Thane and Kolhapur.

7.2.16 The area under cashew cultivation of South Konkan has increased from 15,818 to 67,442 hectares during period under investigation. The tahsils like Chiplun (7.63 per cent) and Sangameshwar (6.94 per cent) have recorded positive change in area under cashew.

7.2.17 The farmers cultivate various varieties of cashew. Among the respondent farmers 31.23 per cent farmers practice Vengurla-4 variety followed by traditional varieties (13.79 per cent).

7.2.18 The Productivity index of cashew shows that the Lanja and Vengurla tahsils have high productivity. The moderate productivity zone covers 74.69 per cent of the study area comprising Dapoli, Khed, Chiplun, Sangmeshwar, Ratnagiri tahsils and all the tahsils of Sindhudurg district (excluding Vengurla), where varkas soil condition is suitable for cashew crop. Low productivity zone has noted 19.13 per cent of study area. The analysis of levels of cashew cultivation reveals that there is variation in the levels of cashew productivity. By M. Husain's method (productivity in term of money per unit area) which has given more realistic results, over half of the region
possess high productivity zone. About 20 per cent of the area in the region has low productivity, which is a potential area for bringing additional area under cashew cultivation.

7.2.19 In general the cost benefit ratio of cashew crop is 1:2.26. However, it varies as per the size of holdings. As such the medium, semi medium and big size of holding farmers have noted high cost benefit ratio i.e. 1:2.76, 1:2.52 and 1:2.42 respectively. On the other hand the small and marginal size of holding farmers have below regional average cost benefit ratio (1:1.99 and 1:1.73). Thus the hypothesis postulated that, “the returns from cashew cultivation varies according to the size of holding” is tested positively.

7.2.20 Altitude wise analysis reveals that, per hectare yield of cashew crop is 1943.54 kg in zone C (below 150 mt) and it is 1451.45 and 1641.41 kg in zone A (above 150 mt) and zone B (150-450 mts) respectively. Hence the hypothesis postulated, “returns from cashew plantation vary according to the altitudinal zones” is tested positively.

7.2.21 Cost benefit analysis of selected crops shows that, the cost benefit ratios of mango, nagali and paddy is 1:1.97, 1:2.89 and 1:1.95 respectively. Mango has low cost benefit ratio as compared to nagali because nagali has insignificant input cost. The net returns from cashew culture is higher as compared to cereal crops like paddy and nagali (ragi). Hence the hypothesis postulated that, “cashew culture yields high returns as compared to cereal crops particularly paddy and nagali (ragi)” is tested positively.

7.2.22 It is observed that most of cashew growers (75.90 per cent) sale their raw cashew to the local traders. Only 16.67 per cent of cashew growers sell their raw cashew directly to local cashew processing units. Remaining 7.43 per cent of cashew
growers are linked with wholesaler. Only 6.41 per cent of farmers sign contracts with traders. It is interesting to note that majority farmers (90.51 per cent) dry their raw cashew before sale. But 91.62 per cent farmers sell their cashew to the traders without doing any gradation of raw cashew.

7.2.23 During the field work it is observed that, there are very low numbers of cashew processing units in the South Konkan. Hence, above 80 per cent of raw cashewnuts are send to the other regions of the nation. Only 20 per cent of raw cashew is used by local cashew processing units.

7.2.24 In the study region it is observed that there is weak organization of farmers to support cashew cultivation and marketing practices. Upto some extent Kaju Ratna Samooh organization in Ratnagiri district helps cashew growers through Self Help Groups.

7.3 Recommendations

Although the study region is most suitable for cashew cultivation, the development of cashew cultivation is not enough; still there is a plenty of scope for bringing additional land under cashew cultivation. In this regards two-fold development strategies could be adapted to argument the development of cashew cultivation. Firstly, by bring potential land under cashew cultivation and secondly, by improving the productivity of cashew crop and quality of cashew nuts. Hence the following recommendations may be of much use.

7.3.1 The region as whole has over 13 per cent of fallow land. This is the potential area which can be brought under cultivation. As such the high potential lies in the tahsils namely Vaibhavwadi, Lanja, Dodamarg, Sawantwadi, Sangameshwar and Malawan.
However, it needs to take special efforts to bring this potential under cashew cultivation.

7.3.2 About one forth of the total geographical areas is shared by other uncultivable land excluding fallow, of which major area is observed under culturable waste. This land should be given second priority for bringing it under cashew cultivation. The high potential lies in the tahsils namely Rajapur, Dapoli, Khed, Guhagar, Ratnagiri, Devgad, Malvan and Vengurla.

7.3.3 To promote the level of cashew productivity the moderate productivity zones (Table 5.17 and 5.19) need be given proper agronomic treatments. The use of H.Y.V. seeds particularly Vengurla-4; along with adequate application of compost fertilizer and pesticides is highly necessary.

7.3.4 To upgrade the quality of the cashew nuts and returns from cashew cultivation, zone C (Fig. 6.4 and Table 6.6) i.e. land below 150 mt elevation need to give special emphasis as it is proved that the elevation of the land matter much in quality control of the cashew nuts and high returns.

7.3.5 To strengthen the economy of the cashew grower the cashew by-products such as CNSL (Cashew nut shell liquid) juice and syrup through cashew apple etc. need be started at places like Vengurla, Kudal, Sawantwadi, Kankawali, Dapoli, Chipolun and Sangameshwar. In particular cashew apple has good potential for producing various byproducts. Hence small scale processing units to produce juice, syrup, alcohol etc. need be started at various centers.

7.3.6 There is a need to develop cashew marketing centers in the region as the existing marketing channels are poor. Either co-operative based or government owned market channels need be developed as a basic infrastructure.
7.3.7 Although cost-benefit ratio of mango cultivation is higher than cashew cultivation, the small and marginal farmers cannot offer the mango cultivation as it is very costly. Hence the small and marginal farmers need to be diverted towards cashew cultivation by offering them special incentives by government. There is large scope to establish co-operative based small scale cashew apple processing units.

7.3.8 For the betterment of the cashew growers, at the beginning of the agriculture year state government should declare the minimum support prices of cashew nuts. Moreover, there should be direct linkage between cashew growers and cashew processing units.

7.3.9 To enhance the productivity and quality of cashew, the farmers must be well acquainted to the technical know-hows. Although Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli is doing best to provide all the facilities to the farmers, government must strengthen his extension services upto the farm very efficiently through agro-service centers. The deficiencies in respect of the other infrastructure such as electricity, communication, marketing etc. which affect adversely on cashew cultivation should be investigated at micro-level and need be provided on priority basis.

The further fruit cultivation plans of the region need to be formulated keeping in view the problems and recommendations made. This would help to became Konkan as a “California of Maharashtra”.