

STATUS OF HORTICULTURAL DEVELOPMENT PROGRAMMES

Major crops such as paddy, maize, and wheat are grown generally in the middle mountain belt which has suitable soils and climates. In general, barley, finger millet, and buckwheat are cultivated in the mountains. Maize and other vegetables are also grown as alternate crops. Owing to the cold weather that prevails most of the year, only one cereal crop - either maize, wheat, or millet - is grown annually. These crops are grown in the lower parts of the districts, e.g., Dadagaun, Lahrepauwa, Sarmathali, Bhorle, etc.

Fruit Production

As can be observed from Table 1, the district has very limited land for the cultivation of cereal grains. Most of the cultivated lands are marginal and the productivity of cereals is very low (Table 2). Nearly 50 per cent of the land in the high mountain and high Himalayan belts are either rocky, icy, or covered with forests and pasture. Horticultural land lies mainly in the high mountains.

Table 2:
Land Distribution According to the Various Crops Grown in Rasuwa District

| Crops | 1988/89 | | 1989/90 | | 1990/91 | | 1991/92 (target) | |
|----------------|-----------|---------------|-----------|---------------|-----------|---------------|------------------|---------------|
| | Area (ha) | Production MT | Area (ha) | Production MT | Area (ha) | Production MT | Area (ha) | Production MT |
| Paddy | 1059 | 2162 | 1067 | 2083 | 1068 | 2253 | 1072 | 2265 |
| Maize | 2030 | 3136 | 2317 | 3540 | 2325 | 3697 | 2330 | 3711 |
| Wheat | 873 | 830 | 886 | 978 | 886 | 1012 | 905 | 1135 |
| Finger millet | 1353 | 1300 | 1302 | 1460 | 1305 | 1355 | 1400 | 1470 |
| Barley | 270 | 405 | 442 | 445 | 452 | 458 | 450 | 460 |
| Buckwheat | - | - | - | - | - | - | 5 | 4 |
| Pulses | 21 | 21 | 45 | 47 | 46 | 53 | 46 | 44.25 |
| Potatoes | 2334 | 14524 | 2322 | 15035 | 2316 | 16730 | 2300 | 16660 |
| Vegetables | 190 | 1432 | 211 | 1597 | 225 | 3682 | 215 | 3700 |
| Oilseeds | 5 | 4 | 10 | 7 | 12 | 6 | 12 | 9.5 |
| Onions | - | - | 10 | 56 | 10 | 55 | 10 | 55 |
| Ginger | 7 | 5 | 5 | 30 | 5 | 31 | 6 | 42 |
| Garlic | 5 | 5 | 5 | 26 | 5 | 27 | 6 | 45 |
| Soyabeans | 50 | 52 | 67 | 66 | 60 | 60 | 60 | 61 |
| Chillies | 24 | 21 | 45 | 23 | 22 | 60 | 24 | 74.5 |
| Turmeric | 2 | 12 | 5 | 33 | 5 | 31 | 5 | 30 |
| Fruits (other) | 51 | - | 39 | - | 34.35 | - | 23.5 | 5171 |
| Citrus | - | - | 4.2 | - | - | - | 1.5 | 143 |

Source: Department of Agriculture & Agricultural Development Office, Rasuwa, 1988/89, 1989/90, 1990/91, and 1991/92

Although Rasuwa District has some wild species, such as walnuts and pears, fruit cultivation, especially of apples, was started during the F.Y. 2027/28 (1971) after the establishment of a horticulture station in Rasuwa. The total area and production of fruits are estimated to be 847.75ha and 6,725.42MT respectively. Apples are the main fruit with an estimated acreage of 356ha, followed by pears with 169ha (Table 3). Walnuts are also gaining popularity in the district and cover about 72ha. These figures in Tables 2 and 3 do not include the losses caused by wild animals, due to mismanagement and natural mortality.

Table 3: Distribution in Rasuwa District up to the F.Y. 1990/91

| Kinds of fruit | Until 1985/86 | | Until 1989/90 | | Until 1990/91 | |
|--------------------------------|---------------|-----------------|---------------|-----------------|---------------|-----------------|
| | Area (ha) | Production (MT) | Area (ha) | Production (MT) | Area (ha) | Production (MT) |
| <u>Other Fruits</u> | <u>651</u> | <u>4480</u> | <u>812</u> | <u>6411.12</u> | <u>832</u> | <u>6592.42</u> |
| Apple | | | 341 | 2546.04 | 356 | 2693.26 |
| Pear | | | 167 | 2263.20 | 169 | 2263.20 |
| Peach | | | 109 | 612.48 | 110 | 633.20 |
| Plum | | | 52 | 316.8 | 53 | 323.84 |
| Apricot | | | 10 | 35.20 | 10 | 35.20 |
| Walnut | | | 71 | 195.36 | 72 | 201.28 |
| Persimmon | | | 2 | - | 2 | - |
| Mango | | | 3 | 26.04 | 3 | 26.04 |
| Guava | | | 42 | 295.68 | 42 | 295.68 |
| Jack Fruit | | | 1 | 7.04 | 1 | 7.04 |
| Pineapple | | | 1 | 16.14 | 1 | 16.14 |
| Banana | | | 2 | 20.10 | 2 | 20.10 |
| Papaya | | | 11 | 77.04 | 11 | 77.04 |
| <u>Citrus</u> | | | 15.75 | 122.32 | 15.75 | 133 |
| | | | 827.75 | 6533.44 | 847.75 | 6725.42 |
| 32.2 per cent mortality (MPHD) | | | | | 532.38 | 4223.56 |

Source: Fruit Development Division, DOH, 1990/91

Apples are mainly grown in the Goljung, Gatlang, Bridim, Thuman, Syaphrubesi, Chilime, Manchet, and Dhunche villages of Rasuwa District. The dominant varieties of apple are Red Delicious, Royal Delicious, Rich-e-Red, and Golden Delicious (polleniser). The most common variety of pears is Pharping Naspati. In the case of walnuts, thin-shelled varieties are planted.

Apples grown in Rasuwa have already been introduced into the Kathmandu market and fetch better prices than apples from Helambu and Daman. Nevertheless, the majority of farmers in Rasuwa do not give due consideration to horticultural production because of their conservative way of thinking. Further, fruit cultivation takes a long time and relatively high initial investments. Thus, the plantation of fruit crops is mainly at a subsistence level. The few orchards are not well maintained due to the lack of appropriate management practices, e.g., pruning, control measures, fertiliser application, etc. Plant mortality is very high due to lack of care and preference for growing cereal crops. According to the Horticultural Development Master Plan Report, the mortality rate is about 37.2 per cent in Rasuwa. If this is taken as an indicator, the total area under fruits in Rasuwa comes to 532.387ha, with a total production of 4223.56MT.

Nursery Management

The policy of privatisation introduced by the Government for fruit nurseries in Rasuwa District, in order to meet the sapling requirements of the district locally, has resulted in the

establishment of two nurseries for deciduous fruits, although a government-owned horticultural farm exists. If private nurseries help to meet the district's requirement for saplings, the government farm can focus on problem-oriented research as well as on providing technical services. But, due to lack of sufficient interest and training, these nurseries cannot produce enough saplings. The farmers still have to depend on the horticultural farm at Rasuwa. However, the existing private nurseries are not registered.

Vegetable Production

From Table 2 it is clear that vegetables cover a considerable area in the district. Mainly radishes, broad leaved mustard, cauliflowers, and cabbages are grown. The total area covered by these vegetables was 190ha in 1988/89 and 215ha in 1991/92. Until recently, this district used to import vegetables from other districts. At present, the farmers are more interested in growing vegetables. One farmer from Bharkhu earned Rs 9,000/- last year solely from cauliflowers.

The total production of vegetables was 1,432MT in 1988/89 and 3,700MT in 1991/1992 with a productivity ratio of 7.53MT/ha and 17.21MT/ha respectively. This is a clear indicator of high productivity. In addition to these vegetables, there is substantial cultivation of ginger, garlic, turmeric, and chillies. Vegetables are mainly grown in the lower hill areas, i.e., Ramche, Laharepauwa, Bhorle, and areas along the Trishuli River and in the Phalangu Khola Valley.

The climate of Rasuwa can be cold according to the season. In most parts of Rasuwa, off-season vegetables can be grown as cash crops and they can be marketed to Trishuli and Kathmandu as the Trishuli-Somdang road joins Trishuli with Rasuwa.

Potato Production

Traditionally potatoes are one of the main cash crops in Rasuwa District. Even when local varieties were cultivated, Rasuwa used to supply potato seeds and potatoes to Trishuli and Kathmandu. Many farmers in Rasuwa District, including Yarsa farmers in the high mountains, still grow low-yielding, local white varieties of potato. However, now, the farmers from Dhunche, Ramche, Laharepauwa, Saamathali, Bhorle, Dhaibung, and Thulogaun are adopting high-yielding, improved varieties, namely, Kufri Jyoti (white) and Cardinal (red). The improved varieties have a productivity ratio of 15MT/ha. The average production in the district in the year 1989/90 was 6.47MT/ha, with a total production of 15,035MT (Table 2). On about 90 per cent of the total area under potatoes, improved varieties were grown after the ADO started distributing improved seeds in 1979. Prior to 1979, only local cultivars were grown throughout the district.

Institutions

In the late fifties, several horticultural stations were established in Nepal. However, the Government's priority was to promote cereal production. The extension activities also emphasised cereal grain production. As a result of the increasing interest of Nepalese farmers in horticultural crops, as well as the encouragement of a limited number of horticulturists, the

district extension offices also started expanding fruit and vegetable production. The horticultural station at Dhunche was established in 1970 to serve the farmers of Rasuwa. Until recently, the horticultural development programme was planned and supervised by the Fruit Development Division, the Vegetable Development Division, the Potato Development Programme, and the Citrus Development Programme. Some of the institutions in Rasuwa which are involved in horticultural programmes are mentioned below.

i) *Horticultural Farm*

This farm is located in Dhunche, the headquarters of the district, and lies 50km northwest of Trishuli at an altitude of 1,950masl. It was established in 1970 as a horticultural station with the collaboration of the Indian Cooperation Mission. It was renamed the agricultural farm in 1972. It was again renamed the horticultural farm in 1990. Its objectives are (i) production of improved varieties of fruit saplings and vegetable seeds, (ii) research on fruits and vegetables (local problem-oriented research), (iii) distribution of saplings and seeds, and (iv) provision of technical services to the local farmers. This farm has 25ha land out of which eight ha consist of orchards, one ha nursery; four ha vegetables; one ha buildings, roads, and canals; six ha uncultivated land, and five ha forest land.

Activities of the Farm

- a) Orchard. The main fruits grown in the orchard are apples, pears, plums, peaches, and walnuts. There are about 813 plants at present.
- b) Production and Distribution. Fruit plant production was started in 1973/74. Since then, 45,091 plants have been produced, out of which 22,053 were apple saplings (about 50%).
- c) Staff. Altogether there are 12 technical staff (G II-one, G III-one, NG I-one, NG-II-two, and gardeners-seven). The Rasuwa-Nuwakot Integrated Rural Development Project had also provided temporary technical staff.

ii) *Agricultural Development Office (ADO)*

As in the other districts of Nepal, the ADO office was established in 1971 to cater to the needs of the agricultural sector in the district, including the horticultural programme. This office is mainly responsible for providing information on all types of input as well as for educating and encouraging the farmers to adopt new farming technologies. However, this office also provides information on cereal crop farming technologies, despite this district's potential for fruit, vegetable, and potato cultivation. Lack of manpower and of training on specific crops for the JT/JTAs are constraints. The staff consists of one Class II officer and four Class III officers with 12 JTs, 15 JTAs, and nine others. There are eight service centres in the district under the supervision of this office. However, there is no subject matter specialist in horticulture among the four SMS (subject matter specialists) staff.

iii) *Agricultural Development Bank (ADB/N)*

This institution is responsible for providing credit to the farmers. This Bank is also located in Dhunche and five Small Farmers' Development Programmes (SFDP) at Bhorle, Parchyang,

Haaku, and Goljung. Between 1986/87 and 1990/91, ADB/N, together with SFDP, had advanced a loan of Rs 1,924,000/ at an interest rate of 14 per cent. The loan was sanctioned for about 70-80 per cent of the total scheme. Innovative farmers may get approval of about 80 per cent. SFDP advances loans worth 100 per cent of the scheme in some cases.

Agricultural Inputs' Corporation (AIC)

This office is located in Dhunche and provides necessary inputs such as fertilisers, insecticides, and fungicides as and when needed. The stock is kept as requested by the ADO. AIC supplies inputs to the village cooperatives on credit to ease the supply of inputs to farmers. *Sajha* (or cooperatives) collect the inputs from AIC.

Institutions

In the office, several horticultural extension activities are being carried out. The office is also involved in the extension of horticulture to the farmers. The office is also involved in the extension of horticulture to the farmers. The office is also involved in the extension of horticulture to the farmers.