

FUTURE HORTICULTURAL DEVELOPMENT PROGRAMMES IN RASUWA DISTRICT

Area and Production

The projection of the situation up to 1990/91 is given in Table 13; 37.2 per cent was assumed as the mortality rate (MPHD), and, according to this, the area under walnuts, peaches, and other fruits was estimated. The production figures seem to be exaggerated in the case of fruits. However, this computed figure was taken as the base for area and production while calculating and formulating plans for the next 10 years.

Fruits

The fruits grown in Rasuwa include apples, pears, plums, walnuts, citrus fruits, guavas, and mangoes. The area under fruits, in the district should not be increased. In view of the climate and market and transportation facilities, apples should be given priority. The expected area increase in the coming 10 years is 250 ha. This area will not yield any returns during that period, but by introducing better and scientific management practices, and with substantially improved facilities, productivity can be increased up to 15MT/ha. Production will reach 2,092MT at the end of 1996/97 and 2,792MT at the end of 2001/2002. However, these estimates are very conservative and farmers may not adopt all of the recommendations for improvement of orchards.

Apple varieties should be limited to the Delicious variety, as it has already been introduced into the area.

The estimated increase in the area under walnuts is limited to five ha/year. The productivity reported does not appear to be correct. However, production may increase to six MT/ha, thus the reported productivity could be maintained.

Peaches are recommended for cultivation in warm temperate zones. Marketing fresh fruit may be difficult because of its highly perishable nature. Varieties for processing (non-clinging type) should be introduced for canning purposes in future. The varieties introduced at present will produce peaches suitable for fermentation which can be used instead of millet. The area increase in the coming 10 years will be only five ha every year. The total area will be 119ha with a production of 450MT (Table 13). However, peach productivity may increase up to 10-12MT/ha under ideal conditions.

Vegetables

Rasuwa has a temperate climate which is suitable for the cultivation of off-season vegetables and high-value vegetable seeds. The vegetables produced can easily be marketed in Kathmandu. Therefore, cauliflower varieties such as Pusa Depali and Nuzerkiwase - as early varieties, Kathmandu Local - as mid-season varieties, and Snowball-16 - as late varieties can be grown in areas along the roadside as off-season vegetables. These areas can supply cauliflowers from

April to October. In addition, cauliflowers, cabbages (Copenhagen Market, KK Cross) and green pod peas (Sikkim, Arkel, NLP) can also be grown. Peas sown during July-August will be ready for marketing during September-November.

Table 13: Expected Area and Production of Fruits, Vegetables, and Potatoes in Rasuwa District

Commodities	Existing Situation until 1990/91			Expected Area and Production									
				1992 - 1997					1997 - 2002				
	Area (ha)	Production (MT)	Productivity (MT/ha)	Additional Area (ha)	Prod. (ha)	Prod. (MT/ha)	Total Area	Total Prod.	Additional Area (ha)	Prod. (MT)	Prod. (MT/ha)	Total area	Total Prod. (MT)
Apple	224	1691.36	7.55	125	2092	9.33	349	2092	125	2792		474	2792
Walnut	45	126.40	2.80	25	130	2.88	70	130	25	130	2.88	95	130
Peach	69	397.90	5.76	25	415	6.01	94	415	25	450	6.52	119	450
Other fruits	194	2007.89	10.35	-	-	-	-	-	-	7500	21.42	200	2007.89
Vegetables	225	3682	16.36	300	5400	18.0	300	5400	350	41400	18.0	350	7500
Potato	2316	16750	7.23	2300	27600	12.0	2300	27600	2300			2300	41400

* This figure is computed from Table 3 on the basis of a 37.2% mortality rate.

The estimated increase in the area under vegetables for the next 10 years is 350ha only, near and around the roadside. Intensive cultivation technologies can increase production up to 7,500MT (Table 13). The vegetables can be intercropped in apple orchards.

Carrot, cauliflower, and cabbage seeds can also be grown. Presently, these seeds are either imported from abroad or grown in Dolpa, Jumla, or Marpha in limited amounts.

Potato Cultivation

Potatoes are the main crop grown in Rasuwa. Local varieties of potato used to be grown in Rasuwa and supplied to other districts.

If appropriate technologies are used by the farmers, productivity can increase to as high as 30-40MT/ha. However, in the next 10 years, productivity may be expected to increase up to 12MT/ha on an average or 41,400MT every year (Table 13).

The potatoes produced in the district are marketed immediately after harvest at low prices, due to lack of storage facilities and lack of knowledge of local, improved methods of storage. Therefore, storage facilities should be improved.

Under normal conditions, potato seeds are flown from higher altitudes to lower in order to reduce the risk of occurrence of viral diseases. Viral diseases negatively affect the seed quality, thereby the yield decreases. In the past, potato seeds were sold from Rasuwa to Nuwakot. To exploit this advantage, a proper seed production programme should be implemented in the

district. The natural climate can be manipulated to construct cellars at low cost for storing seeds. Even a sophisticated cold storage can be built in Rasuwa. Entry of seeds from other districts should be restricted. Wart disease has been reported in Nuwakot, and this is dangerous as it remains in the soil even up to a period of 20 years.

The popular varieties grown in Rasuwa are Kufri Jyoti (White) and Cardinal (Red) only. Cardinal is susceptible to late blight. Other varieties, such as Hybrid - 14, CFM and Deserve, should also be introduced. Local varieties could be replaced by these high-yielding varieties.

Institutions

To implement the above-mentioned programmes more efficiently, institutions must be developed. At present, the Agricultural Development Office (ADO) is conducting a cereal programme and has subject matter specialists (SMS) in agronomy. Therefore, considering the potential of horticultural crops, the ADO should be converted into a Horticultural Development Office (HDO), or a separate HDO should be established to look after the horticultural sector only. The HDO should have a Horticultural Development Officer (GIO) responsible for horticultural crops (fruits) and administration, assisted by two vegetable and potato development officers (GIII). Nine Junior Technicians (JT) are recommended for placement in four to five service centres. Three administrative (Junior) staff and three peon-level staff are also recommended.

Similarly, the horticultural farm should be improved so that it can provide diagnostic services and information on basic seed production. The Government is presently considering privatising this farm or converting it into a national park.

Tourism

Since Rasuwa is linked by an all-weather road to Kathmandu, the flow of tourists is increasing every year. There are about seven to eight thousand foreign tourists every year in addition to Nepalese pilgrims travelling to Gosainkund. Horticultural development in the area will attract more tourists as there will be an abundant supply of fruits and vegetables to cater to trekkers' needs. Tourism can provide a boost to horticultural development as is evident in the Jomsom-Marpha area of Mustang.

Government Farm vis-a-vis Private Nurseries

To produce an additional 25ha of apples, five ha of walnuts, and five ha of peaches every year, 7,500 apple saplings, 1,200 walnut saplings, and 1,500 peach saplings are required per year. The saplings should be produced in the district itself.

Private nurseries are producing only 429-1,500 saplings every year. Private nurseries should therefore be promoted so that the required number of saplings are produced.

The horticultural farm should not be involved in the production of saplings. Therefore, this farm should involve itself in the following activities.

a) More than 1,50,000 plants have been planted in the district. In future, a programme for intensive horticultural development should aim at increases in area, production, and productivity. Diagnostic services, high quality saplings, as well as foundation seeds are required. Therefore, the farm should concentrate on the following objectives.

1. Providing diagnostic services.
2. Conducting problem-oriented research and adaptive research.
3. Producing quality saplings of newly introduced fruit varieties.
4. Producing foundation seeds of vegetables for supply to seed growers in the district as well as in other needy districts.
5. Producing basic potato seeds from tissue culture tuberlets.
6. Collecting and maintaining locally grown potato varieties.

Investment

Investment in the horticultural sector is very nominal. Investment made by the ADO in the horticultural sector is negligible and not clearly known. Agricultural Extension is investing Rs 625,350/- and Rs 892,450/- for programmes and manpower respectively every year. The horticultural farm has invested Rs 5,559,520/- in the last 20 years for research and development, with a total revenue of Rs 384,348.

The projected investment from the government sector for 10 years is Rs 15,302,500 for horticultural research and development (Rs 5,492,700), for the horticultural extension programme, Rs 3,400,000, and for manpower for horticultural extension, Rs 4,409,800 at the current rupee value (Table 13). In Rasuwa, a Rs 2,000,000 investment has been proposed for market establishment.

The proposed investments for extension services and for the horticultural farm do not include investments in vehicles and construction of buildings. Construction of storage facilities for farmers to store their excess produce and potato seeds requires additional funds as well as additional investment for granting production loans.

Farmers in Rasuwa are unable to invest much on the production side, except for locally available labour and compost. The estimated increase in production loans for 10 years is Rs 6,891,250 for fruits, vegetables, and potatoes. For production of saplings, Rs 10,392 per nursery is required. Two cold storages and 10 cellar storages require Rs 83,928,500 and Rs 1,600,000 respectively for construction. The total investment by both the Government and the private sector is Rs 124,861,350 (Table 14).

The Government should subsidise the full interest on production loans provided by the ADB/N for five years as the plants do not bear any fruit during that period.

Table 14: Investment for Horticultural Development in Rasuwa

(in Thousands)

Investment Sectors	Total Expenditure until 1990/91	Budget for 1990/91	Proposed Investment			Remarks
			1991-96	1997-2002	Total	
A. Government Sector						
1. Horticultural Farm* (Research & Development)	5559.52	549.27	2746.36	2746.35	5492.7	
2. Agril. Extension		1517.80				
Programmes	NA	625.35	-	-	-	
Manpower & others	NA	892.45	-	-	-	
3. Horticultural Extension			3904.90	3904.90	7809.80	
Programmes	-	NA	1700.0	1700.0	3400.0	
Manpower & others	-	-	2204.9	2204.9	4409.8	
4. Market establishment	-	-	1000.0	1000.0	2000.0	Local level
Total	5559.52	2067.07	7651.26	7651.26	15302.5	
B. Private or Other Sectors*						
1. Storage investment						
Cold storage (2)			41964.28	41964.28	83928.5	Cold Storage Capacity 1000mt & Cellar Storage Capacity 7-10mt
Cellar storage (10)			800.00	800.00	1600.0	
2. Production loans						
Fruits			3445.62	3445.62	6891.25	For additional area only
Vegetables			967.5	1128.75	2096.25	
Potatoes			7417.5	7417.5	14835.00	
3. Nursery management			103.92	103.92	207.85	For two nurseries
Total			54698.82	54860.07	109558.85	
Total (A+B)	5559.52	2067.07	62350.08	62511.32	124861.35	

Figures in parentheses are numbers.

- Revenue Rs 384348/98 (from 028/29 to 2047/48)
- Loans' requirement was derived from the Master Plan for Horticultural Development in Nepal (HMG/ADB 1990). Market establishment investment was also derived from the Master Plan.