



Promoting the progress of Horticulture through the Rastriya Krishi Vikas Yojana (RKVY) in the Kolasib District of Mizoram

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Abstract

Horticulture as the science and art of cultivating plants such as fruits, vegetables, and flowers, distinguishing it from large-scale agriculture by its specialized practices and smaller operations. It categorizes the industry into nursery, plant-growing, and seed-production sectors, highlighting leading countries in modern horticulture. The text also traces the historical development of horticulture, noting its ancient roots in India, where it has become a significant and fast-growing agricultural sector, contributing substantially to the nation's GDP and nutritional security. Horticulture (Latin hortus = garden; cultura = cultivation), is the science and art of growing fruits, vegetables, flowers, shrubs and trees¹. It originally meant the practice of gardening and, by extension, now means the cultivation of plants once grown in gardens. It includes the growing of fruits (especially tree fruits), production of vegetable crops, production of flowers, and ornamental horticulture, known as landscaping gardening, which includes the maintenance and design of home grounds, public gardens and parks, private estates, botanical gardens, and recreational areas such as golf courses, football fields. Horticulture has been one of the most important sectors under RKVY since the inception of the scheme. Several horticultural activities were undertaken by the State Government in some selected District. In Mizoram, the Department of Horticulture has been entrusted the role of being the implementing agency of the horticulture sector.

Keywords: *Horticulture, Production, Agriculture, Industry, Gardening, Growth, Nursery, Development, Advancement.*

INTRODUCTION

Horticulture as the science and art of cultivating plants such as fruits, vegetables, and flowers, distinguishing it from large-scale agriculture by its specialized practices and smaller operations. It categorizes the industry into nursery, plant-growing, and seed-production sectors, highlighting leading countries in modern horticulture. The text also traces the historical development of horticulture, noting its ancient roots in India, where it has become a significant and fast-growing agricultural sector, contributing substantially to the nation's GDP and nutritional security.

Horticulture (Latin hortus = garden; cultura = cultivation), is the science and art of growing fruits, vegetables, flowers, shrubs and trees². It originally meant the practice of gardening and, by extension, now means the cultivation of plants once grown in gardens. It includes the growing of fruits (especially tree fruits), production of vegetable crops, production of flowers, and ornamental horticulture, known as landscaping gardening, which

¹ Singh, Bijender, (2009), *Horticulture at a glance*, New Delhi: Kalyani Publishers, pp.1.

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includes the maintenance and design of home grounds, public gardens and parks, private estates, botanical gardens, and recreational areas such as golf courses, football fields.

The three primary commercial branches of horticulture. It explains that the nursery industry focuses on cultivating fruit trees. The plant-growing industry is responsible for providing various plants, including annuals, biennials, and perennials, to those who cultivate vegetables, flowers, and ornamental plants. Finally, the text details how the seed-production industry is dedicated to generating the necessary seeds for both flower and vegetable cultivation. The most advanced countries in the field of modern horticulture are the following: - in Europe, the Netherlands, Germany, France, Belgium and the United Kingdom: in Americas, the United States: in Africa, South Africa: and in Australasia, Australia, Tasmania and New Zealand. In recent years India, Japan, China and Russia have extended their horticultural crop production³.

It explores the historical evolution of horticulture, highlighting its distinction from agriculture as a specialized practice, despite their shared roots in humanity's efforts to manage nature. It notes that while its separation is often attributed to the European Middle Ages, horticulture's development is deeply intertwined with agricultural history. The source further emphasizes India's long and significant history in horticulture, evidenced by ancient literature and the cultivation of various fruits and vegetables for centuries. Currently, India holds a prominent global position as the largest producer of fruits and the second-largest producer of vegetables, contributing significantly to worldwide production.

With the technological development in the field of agriculture, India has made rapid progress in horticulture too along with increased foodgrain production. With the changing lifestyle and food habit, the importance of vegetables and fruits in the human diet is being increasingly realized. They supply a great number of essential nutrients to the population of the country that is largely vegetarian. The use of flower is considered inevitable in many cultural and religious practices of many nations including India. Owing to the varied agro-climatic zones, abundance of natural resources like sunlight and water, existence of large number of small and marginal farmers and technology available for their production, India has considerable potential to increase its production of horticultural crops⁴. It is the fastest growing sector within agriculture. It contributes in poverty alleviation, nutritional security and provides ample scope for farmers to increase their income. It further helps in sustaining large number of agro-based industries which generate huge employment opportunities. Presently horticulture contributes 28 per cent of agricultural Gross Domestic Product (GDP). The national goal of achieving 4.0 per cent growth in agriculture can be achieved through major contribution from horticulture growth⁵.

STATEMENT OF THE PROBLEM

As with the rest of the country, agriculture and its allied activities are the mainstay of the people of Mizoram. The existence of subtropical to temperate climatic condition and fertile soil in this region offer good scope for the cultivation of various types of vegetables, fruits and flowers throughout the year. It would not be an exaggeration to say that there is literally no crop that cannot be grown in Mizoram.

The significant growth and potential of horticulture in India, emphasizing its role in nutritional security, poverty alleviation, and economic development, contributing significantly to the agricultural GDP. The sources specifically focus on Mizoram, a region with ideal agro-climatic conditions for diverse horticultural crops. Despite its immense potential and various government initiatives aimed at developing the sector, Mizoram faces challenges such as post-harvest losses, inadequate processing facilities, and a lack of market linkage, leading to substantial imports and a need for greater utilization of its vast potential area to achieve self-sufficiency.

REVIEW OF LITERATURE

K L Chadha, A K Singh, S K Singh and W S Dhillon's (2013) book *Horticulture for Food and Environment Security* is a compilation of 56 lectures on diverse issues in horticulture given by scientists and experts from India and abroad. It covers themes like global horticulture scenario, use of cutting-edge technology,

³ Prasad, S., and Kuma, U., (2005), *Principles of Horticulture*, Jodhpur: Agrobios, pp.1.

⁴ Singh, S.B., Prakash, N., and SV Ngachan, S.V., (2011), *New Perspective on Marketing of Horticultural Crops in North East India*, New Delhi: Today and Tomorrow's Printer and Publishers, pp.1.

⁵ www.krishisewa.com/articles/miscellaneous/258-indian-horticulture-sector.html accessed on 21.12.2018

peri urban and urban horticulture, pre- and post-harvest management, disease management strategies and other horticulture concerns.

S B Singh, NPrakash and S VNgachan (2011) in their book *New Perspectives on Marketing of Horticulture Crops in Northeast India* have highlighted that the production of horticultural crops has assumed great importance in the North-Eastern Hill region of India in view of the diversified topography, agro-climatic conditions and fertile soil resources. Various Central and State horticulture related schemes/projects are also mentioned along with the process of implementation and their impacts.

Mahmood N. Malik's (2010) book *Horticulture* is a collaborative academic exercise undertaken by a group of leading agricultural scientists, aiming at putting together and reviewing the available scientific information on various aspects of horticulture. It discusses systematically the topics like the development and structure of flowers and fruits, plant metabolism, vegetative and floral growth of plants, advanced method of improvement, etc.

K V Peter's (2009) book *Basics of Horticulture* carries information on fundamentals of vegetables, fruits, ornamental plants, spices, medicinal and aromatic plants and post-harvest technology. Its chapters elaborate on horticultural crops, ideal soil, climate, water requirement, pest, disease and nematode management, biotechnology of spices and mechanization of orchards.

J Bimal Deb and B Ray Datta's (2006) edited book *Changing Agriculture Scenario in Northeast India* is the compilation of twenty-six seminar papers. The book analyzes the impact of recent agricultural changes on population growth, migration and health of the rural people in the region. It also addresses a variety of issues concerning crop diversification pattern, land size and productivity, land-use pattern, land ceiling, agrarian reform and the role of women in agriculture sector.

V B Singh, Y Kikon and C S Maiti (2006) book *Horticulture for sustainable Income and Environment Protection* contains 86 papers presented at a national seminar on Horticulture for Sustainable Development and Environment protection, jointly organized by Nagaland University and Department of Horticulture, government of Nagaland. The book analyses different dimensions of horticultural development in India, in general and N E region in particular.

V K Sharma (2004) in his book *Advances in Horticulture* has mentioned that horticulture has a special significance for the economic development, especially of the hilly region. The book covers advances in strategies, production, plant protection, value addition and other important areas of horticulture development. The author urges that to increase the productivity of horticultural crops growers must take the advantage of the expertise of scientists.

G K Kaul's (1989) book *Horticultural Crops in India* states that there has been a gradual change in Indian agriculture particularly in land use system, input utilization, marketing etc. It also stated that the quest for higher productivity is leading to serious problems of soil salinity and high-water table in irrigated areas. All these factors have provided ideal conditions for major trends towards diversification, mostly in favour of horticultural crops.

K C Azad, Swarup R and B K Sikka (1988) in their book *Horticultural development in Hill Areas* highlight the factor responsible for horticulture development in Himachal Pradesh. Economic viability of fruits and marketing has also been covered.

E Thippeswamy (2015) in his article "*Organic Farming and the Quality of Food*" published in the *Journal of Rural Development* has stressed the importance of Organic Farming to provide better quality of food for health. Though more productive, everyone should try to avoid food items adulterated with harmful chemicals. He also stressed on the importance of awareness among the people especially the illiterate and backward sections of the society as these people are still extensively using hazardous chemicals in their agriculture and related activities.

Under the current conditions the desired horticultural development in Mizoram can be achieved only when government take active part right from the beginning as it is the primary source of technical know-how and financial resources. Thus, the role which has been played by the Department of Horticulture, Government of Mizoram for the said development is covered by the study.

OBJECTIVE OF THE STUDY

The following are the objectives of the research.

1. To study the institutional framework for horticulture development in Mizoram.
2. To explore the role played by the Government of Mizoram towards the development of horticulture.
3. To find out the effect of the horticulture schemes being implemented in Mizoram on the lives of the people.
4. To identify the problems in the path of horticulture development administration.
5. To explore and suggest remedial measures.

METHODOLOGY

Research Design

The present study is cross sectional in nature and descriptive in design. Mixed method was applied which involves an approach of enquiry that contains qualitative and quantitative techniques. The present study was undertaken with the help of both primary and secondary data. The primary data were collected through open-ended interview schedule and various other techniques such as field observation, in-depth interviews, reports, Acts and documentary examination to collect the relevant data for the study.

Sampling

Random purposive sampling method was adopted to collect primary data from horticulture farmers and government officials for the study area. For RKVY, 60, 28 and 36 farmers from Kolasib, 20, farmers from Kolasib districts took part in the study. Unstructured and semi-structured interviews were also conducted with 17 officials of the concerned and 5 officials department. Along with the field interviews with the respondents, observation method, was also adopted to get information.

Sources of Data

For the present study, relevant data were collected from both primary and secondary sources. Primary data were collected through open ended semi structured interview schedule from 124 beneficiaries for RKVY and 64 beneficiaries and 5 government officials.

Secondary sources of data were collected from published documents of the Government of India and Mizoram viz., records of the Ministry of Agriculture and Farmers Welfare, Government of India, records of the Department of Horticulture, Government of Mizoram, records of the department of Agriculture, Government of Mizoram, reports of Economic Survey, Statistical Handbook of Mizoram. Further, it includes data collected from books, articles, journals, magazines, and concerned Government Websites etc.

Data Analysis

The collected data were processed and analyzed by using simple percentages and Descriptive Statistics.

Rashtriya Krishi Vikas Yojana (RKVY)

More than 50 per cent of the labour force of the country still depends upon agriculture for their livelihood. Slow growth in agriculture and allied sectors can lead to severe strain in the economy because the population dependent upon this sector is still very large. The main reason behind the slow growth in agriculture is the consistent decrease in investments in the sector by the state governments. While public and private investments are increasing in sectors such as infrastructure, similar investments are not coming in agriculture and allied sectors, leading to distress among the community of farmers, especially those of the small and marginal sections. Hence the need for the states to increase their investments in the agriculture and allied sectors has been felt.

RKVY was initiated by National Development Council (NDC) in 2007 to be an umbrella scheme to ensure holistic development of agriculture and allied activities. It was the outcome of the concern of NDC on the slow progress in the field of agriculture and allied activities. The NDC resolved that strategies for agricultural development should be reoriented and redirected to meet the needs of farmers and called upon the Central and State governments to initiate a new strategy to revitalize agriculture. The NDC reaffirmed its aspiration to achieve at least 4 per cent annual growth in the agricultural sector during the 11th plan. Every state is eligible for fund

allocation under RKVY if the state is maintaining or increasing the State Plan expenditure for Agricultural and Allied sectors in its total State Plan. Further, it was also required of the states to formulate District Agriculture Plan (DAP) and State Agriculture Plan (SAP). The scheme was implemented as an Additional Central Assistance to State Plan Scheme with 100 percent Central assistance. However, the funding pattern was changed with the launch of Rashtriya Krishi Vikas Yojana- Remunerative Approaches for Agriculture and Allied Sector Rejuvenation (RKVY-RAFTAAR) in 2017 in the ratio of 60:40 between the Centre and the State, 90:10 for North Eastern States and 100 percent central grant for UTs. (Operational Guidelines of Rashtriya Krishi Vikas Yojana-Remunerative Approaches for Agriculture and Allied Sector Rejuvenation, 2017. p. 2)

RKVY was formulated with some important objectives:

1. To incentivize the states to increase their investments in agriculture and allied activities.
2. Providing flexibility and autonomy to states in planning and implementing agriculture and allied service schemes.
3. Ensuring agriculture plans for the district and state are based on agro-climatic condition, available technology and natural resources.
4. To give priority to local crops in agricultural plan of the state.
5. To reduce the yield gap in important crops.
6. Maximizing returns to farmers in agriculture and allied activities.
7. To address the agriculture and allied sectors in an integrated manner to bring about measurable changes in production and productivity. (RKVY Operational Guidelines, 2014: p. 1)

RKVY continue to be executed as a state plan. DAP and SAP have been made the cornerstone for formulation of planning and implementation of the scheme. Some sectors specified by the Planning Commission for the basis of expenditure are Crop Husbandry including Horticulture, Animal Husbandry and Fisheries, Dairy Development, Agriculture Research and Education, Forestry and Wildlife, Plantation and Agricultural Marketing, Food Storage and Warehousing, Soil and Water Conservation etc. Under RKVY, every state is required to constitute State Level Project Screening Committee (SLPSC) to be headed by Agriculture Production Commissioner or any officers appointed by the Chief Secretary. SLPSC screens all proposals in accordance with the guidelines of RKVY. It also screens all Detailed Project Reports (DPRs) prepared by different departments for suitability and adherence to the guidelines (RKVY Operational Guidelines, 2014). State Level Sanctioning Committee (SLSC) is also constituted to sanction project proposals recommended by SLPSC. It is headed by the Chief Secretary of the State with at least one representative of the Government of India in a meeting.

Taking into consideration the feedback from States and experiences in the implementation of the scheme, the Government of India decided to continue RKVY in November 2017 and renamed it as Rashtriya Krishi Vikas Yojana- Remunerative Approaches for Agriculture and Allied Sector Rejuvenation (RKVY-RAFTAAR). This scheme was launched to be implemented within three years from 2017-2018 to 2019-2020 with some new objectives. RKVY-RAFTAAR aims at (i) making farming a remunerative economic activity through strengthening the farmers' effort, risk mitigation and promoting agri-business entrepreneurship and (ii) to strengthen the farmer' efforts through creation of required pre and post-harvest agri-infrastructure that increases access to quality inputs, storage, market facilities etc., and enables farmers to make informed choices. The matching share for expenditure between Centre and State has been made as 60:40 but in the case of North East States, it is 90:10. (RKVY-RAFTAAR Operational Guidelines 2017-2020. P.2)

Horticulture Sector under RKVY in Mizoram

Horticulture has been one of the most important sectors under RKVY since the inception of the scheme. In Mizoram, the Department of Horticulture has been entrusted the role of being the implementing agency of the horticulture sector. The Department started to implement the scheme since 2010-2011.

During 2010-2011, the scheme was implemented in six horticulture divisions of the time namely, Aizawl, Saiha, Kolasib, Lawngtlai, Tuidam (Mamit District) and Khawzawl (Champhai District). The component of the scheme called Rainwater Harvesting Structure was undertaken in the Aizawl, Saiha, Kolasib and Lawngtlai

divisions. A total of 18 structures were constructed by spending a total amount of Rs. 22.50 lakh only in these divisions. In Tuidam and Aizawl divisions, the component of the scheme called Stream Water Harvesting Structure was implemented. In these divisions, five structures/tanks were constructed with a total amount of Rs. 5 lakhs only. Khawzawl and Aizawl division had also undertaken the works of the establishment of Market Infrastructure. To undertake this component of works, Rs. 57 lakhs only had been spent to construct four markets.

Items of Work/Component of the Scheme undertaken during 2011-2012 under Horticulture Sector of RKVY

<i>Sl No</i>	<i>Items of work undertaken</i>	<i>District/Division</i>	<i>Amount Spent (in lakh)</i>
1	90 Protected Cultivation (Green House)	All Divisions except Lawngtlai & Saiha	45 (approx)
2	43 Protected Cultivation (Shade House)	All Divisions except Lawngtlai & Saiha	21 (approx)
3	Baseline Survey (under NVIUC)	All Divisions except Lawngtlai & Saiha	7 (approx)
4	Promotion of 35 Farmers Producer Organizations (FPO)	All Divisions except Lawngtlai & Saiha	56 (approx)
5	Trainings of Farmers	All Divisions except Lawngtlai & Saiha	10 (approx)
6	10 Vegetable Cultivation (Open pollinated and Hybrid)	All Divisions except Lawngtlai & Saiha	33 (approx)
7	73 Protected Cultivation (Green House/Shade House)	All Divisions except Lawngtlai & Saiha	36 (approx)

Source: Directorate, Department of Horticulture, Government of Mizoram

Total fund allocated for the implementation of the scheme during 2011-2012 was Rs. 211.125 lakhs. All items of works were implemented in all horticulture divisions except Lawngtlai and Saiha divisions. As the Central Government had given special emphasis on enhancing vegetable production, National Vegetable Initiative for Urban Clusters (NVIUC) had also been introduced as an important component of the RKVY. Under NVIUC, four items of works such as Baseline Survey, Promotion of FPO, Training of Farmers and Vegetable Cultivation were implemented during this period.

During 2012-2013, the fund allocated to the horticulture sector was increased manifold. The activities undertaken were also remarkably increased. During this period, total fund allocated to horticulture sector was Rs. 1951 lakhs to undertake 14 items of work.

Items of Work/Component of the Scheme undertaken during 2012-2013 under Horticulture Sector of RKVY

<i>Sl No</i>	<i>Items of Work undertaken</i>	<i>District/Division</i>	<i>Amount Spent (in lakh) (approx)</i>
1	323 Protected Cultivation of Green Houses	All Divisions except Lawngtlai & Saiha	302
2	249 (approx) acre of land for Spices Crop Bench Terrace	All Divisions except Lawngtlai & Saiha	249
3	Construction of 250 Individual Rain Water Tanks	All Divisions except Lawngtlai & Saiha	257
4	Construction of 12 Community Water Tanks	All Divisions except Lawngtlai & Saiha	207
5	Construction of 6 Rural Market Sheds	All Divisions except Lawngtlai & Saiha	60

6	400 hectare of land for Captive Plantation such as Mandarin Orange, Passion Fruit, Grape, Pineapple	All Divisions except Lawngtlai & Saiha	454
7	Preparation of 140 acre of land for Vegetable crop Bench Terrace	All Divisions except Lawngtlai & Saiha	94
8	Up-gradation & Extension of multi crop Nursery at Thingdawl Horticulture Farm	Kolasib	35
9	Promotion of 50 Farmer Interest Groups (FIG)	All Divisions except Lawngtlai, Saiha and Serchhip	29
10	Training of 700 Farmers	All Divisions except Lawngtlai, Saiha and Serchhip.	10
11	Construction of 4 Retail Shops	Aizawl, Lunglei & Kolasib	20
12	To cover 575 area of land under Integrated Nutrient Management (INM)/ Integrated Pest Management (IPM)	All Divisions except Lawngtlai, Saiha and Serchhip	5
13	To cover 1102 area of land under Vegetable Cultivation such as Open Pollinated & Hybrid	All Divisions except Lawngtlai, Saiha and Serchhip	166
14	Setting up of Protected Cultivation such as 26 Green Houses 26 Shade Houses.	All Divisions except Lawngtlai, Saiha and Serchhip	60

Source: Directorate, Department of Horticulture, Government of Mizoram

All these items of works were carried out in all horticulture divisions except in Lawngtlai and Saiha. Serchhip Division was also excluded in some components.

During 2013-2014, in Mizoram, Rs. 649.230 lakhs had been spent for the horticulture sector under RKVY. The important horticulture activity such as the cultivation of Aromatic and Medicinal Plants (Aloe Vera, Cintronella) which was implemented in Serchhip district was, for the first time, introduced as one of the components of the scheme. The activities undertaken during this period were:

Items of Work/Component of the Scheme undertaken during 2013-2014 under Horticulture Sector of RKVY.

Sl No	Items of Work undertaken	District/Division	Amount Spent (in lakh) (approx)
1	Cultivation of Vegetable Crops (Open Pollinated) to cover 148 (approx) hectare of land	All Divisions except Lawngtlai & Saiha	148
2	Cultivation of Vegetable Crop (Hybrid) covering 198 (approx) hectare of land	All Divisions except Lawngtlai & Saiha	66
3	Cultivation of Aromatic & Medicinal Plant covering 53 (approx) hectare of land	Serchhip	30
4	Construction of 6 Storage Go-down	All Divisions except Lawngtlai & Saiha	60
5	Establishment of 100 Greenhouses	All Divisions except Lawngtlai, Saiha and Tuidam (Mamit District)	159
6	6 Portable Pack Houses	All Divisions except Lawngtlai & Saiha	60
7	Construction of 60 Individual Water Tank	All Divisions except Lawngtlai & Saiha	61
8	Cultivation of Fruit Crop-Mandarin Orange covering 155 hectare of land	All Divisions except Lawngtlai & Saiha	93

Source: Directorate, Department of Horticulture, Government of Mizoram

National Vegetable Initiative for Urban Clusters (NVIUC) also continued to be an important component of the scheme with an expenditure of 85 lakhs rupees taken out of the total fund allocated. The activities undertaken under NVIUC during this period were:

1. Formation of 50 Farmers Interest Groups (FIGs) with expenditure of Rs. 60 lakhs.
2. Cultivation of Hybrid Vegetable covering 30 hectares of land by spending Rs. 10 lakhs.
3. Formation of Farmers Producer Organization (FPO) by the Directorate, Department of Horticulture with the allocation of fund-Rupees 35 lakhs
4. INM/IPM covering 448 hectares of land with expenditure of Rs. more than 4 lakhs.
5. Organizing 55 trainings for Farmers with expenditure of Rs. 10 lakhs.
6. Technical Support from Directorate, Department of Horticulture at the cost of Rs. 6 lakhs.

During 2014-2015, cultivation of fruit crops and infrastructure development continued to be an important target of the scheme. Rs. 1425 lakh was allocated to undertake 17 horticulture activities including 8 items of work under NVIUC. All districts except Lawngtlai and Saiha were once again selected for the implementation of the scheme. Cultivation of fruit crops like Dragon fruit and Strawberry and construction of Horticulture Link Road were added as new component of the scheme. From this period, the scheme was usually divided into four sub-components having different items of works. The component/items of activities undertaken during 2014-2015 were as follows:

Items of Work/Component of the Scheme undertaken during 2014-2015 under Horticulture Sector of RKVY.

SL No	Item of Work	District/Division	Amount Spent (in Lakh) (approx)
1	40 hectares of land under the cultivation of mandarin orange without Drip Irrigation	All Division except Lawngtlai & Saiha	200
2	160 hectares of land under Cultivation of Dragon Fruit	Aizawl, Lunglei and Mamit	100
3	Cultivation of Strawberry without Drip Irrigation covering 80 hectares of land	Aizawl & Mamit	50
4	Cultivation of Hybrid Vegetable Crops covering 720 hectares of land	All divisions except Lawngtlai and Saiha	180
5	Promotion of INM/IPM covering 5000 hectares of land	All divisions except Lawngtlai and Saiha	60
6	Training of Farmers within the state	All divisions except Lawngtlai and Saiha	10
7	Construction of Tubular Structure Greenhouse	All divisions except Lawngtlai and Saiha	284
8	Construction of Individual Rain water Storage Tank	All divisions except Lawngtlai and Saiha	216
9	Construction of 25 km horticulture link road	All divisions except Lawngtlai and Saiha	125

Source: Directorate, Department of Horticulture, Government of Mizoram

Items of works under NVIUC were again made an integral part of the scheme acquiring 200 lakhs rupees allocation. However, they were implemented in Aizawl and Lunglei district only. The components of the scheme implemented under NVIUC were:

1. Construction of 5140 sq.m. Greenhouse (Tubular Structure) at the cost of Rs. 80 lakhs

2. Cultivation of Hybrid Vegetable covering 286 hectares of land with expenditure of Rs. 71 lakhs
3. Promotion of INM/IPM covering 710 hectares of land at the cost of Rs. 8 lakhs
4. Construction of 5 Pack House at the cost of Rs. 10 lakhs
5. Setting up of 2 Evaporation/Low Energy Cool Chamber at the cost of Rs. 5 lakhs
6. Construction of 10 Low-cost Onion Storage Structure at the cost of Rs. 8 lakhs
7. Training of 600 Farmers within the state at the expense of Rs. 6 lakhs
8. Technical Support-Group Management from the Directorate, Department of Horticulture for Rs. 10 lakhs.

During 2015-2016, the horticulture activities undertaken were comparatively less but still covering all the districts that it covered in the previous years. The fund allocated was also comparatively less at Rs. 235.50 lakh only. During this period, the scheme was broken up into 6 components only. They were:

Items of Work/Component of the Scheme undertaken during 2015-2016 under Horticulture Sector of RKVY.

Sl No	Item of Work	District/Division	Amount Spent (in Lakh) (approx)
1	Cultivation of Vegetable Crops (Hybrid) covering 400 ha of land	All division except Lawngtlai and Saiha	100
2	Promotion of INM/IPM covering 2000 ha of land	All division except Lawngtlai and Saiha	24
3	Training of 500 Farmers	All division except Lawngtlai and Saiha	0.98
4	Technical Support Group Management & Monitoring	From Directorate	3.5
5	Construction of 3000 Tubular Structure Green Houses	All division except Lawngtlai and Saiha	36
6	Construction of 51 Individual Rainwater Storage Tank.	All division except Lawngtlai and Saiha	45

Source: Directorate, Department of Horticulture, Government of Mizoram

During 2016-2017, Rs. 239 lakh was allocated towards horticulture sector to undertake 18 items of activities. New items such as cultivation of new variety of papaya (Red Lady), leveling preparation of bed for land development etc., were added as components of the scheme. The components/items of work undertaken during this period were as follows:

Items of Work/Component of the Scheme undertaken during 2016-2017 under Horticulture Sector of RKVY.

Sl No	Items of Work	District/Division	Amount Spent (in Lakh) (approx)
1	Cultivation of High Value Vegetables under Protected Cultivation covering 1900 sq.m. of land.	Aizawl, Lunglei and Kolasib	13
2	Land Development including leveling preparation of bed covering 20000sq.m. of land	Aizawl, Lunglei and Kolasib	3
3	Farm Input	Aizawl, Lunglei and Kolasib	9
4	Training of 1500 farmers	All division except Lawngtlai and Saiha	15
5	Cultivation of Papaya (Red Lady) covering 51 acre of land.	Srchhip, Khawzawl and Tuidam (Mamit District)	63
6	Construction of 3 Training Halls	Aizawl, Lunglei and Kolasib	21
7	Construction of 15 Farm Houses for Trainers under Farmers Training Centre	Aizawl, Lunglei and Kolasib	15
8	Construction of 15 Individual water Tanks	Aizawl, Lunglei and Kolasib	13
9	Installation of Green House covering 3438 sq.m. of land.	Aizawl and Lunglei	33

10	Training Material	Aizawl, Lunglei and Kolasib	0.6
11	Training Equipment	Aizawl, Lunglei and Kolasib	1.5
12	Construction of Pack House for Zo Anthurium Growers Society (ZAGS)	Aizawl	4
13	Setting up of Cold Room of 30MT Capacity	Aizawl	15
14	Packaging Material	Aizawl	6.5
15	Packing and Grading	Aizawl	7
16	Installation of Greenhouse covering 1701 sq.m. in Flagship District	Aizawl	16
17	Micro Irrigation-Drip Irrigation and Sprinkler Irrigation covering 19520sq.m.	Aizawl	1

Source: Directorate, Department of Horticulture, Government of Mizoram

For the period 2017-2018, fund amounting to Rs. 95.13 lakh was allocated to the horticulture sector to undertake 3 items of work. The setting up of Plant Health Clinic in Lunglei, Serchhip and Kolasib is the new activity implemented under the scheme during this period. The other items of activity such as Cultivation of Vegetable Crops (Hybrid) and organization of Training of Farmers in all districts were also undertaken.

Items of Work/Component of the Scheme undertaken during 2017-2018 under Horticulture Sector of RKVY.

Sl No	Items of Work	District/Division	Amount Spent (in Lakh) (approx)
1	Cultivation of vegetable crops (Hybrid) covering 48 ha. of land	All divisions except Lawngtlai and Saiha	12
2	Training of farmers within the state	Lunglei, Serchhip and Kolasib	8
3	Organization of 3 Plant Health Clinic	Lunglei, Serchhip and Kolasib	75

Source: Directorate, Department of Horticulture, Government of Mizoram

RKVY has been formulated to be implemented till 2018 but the Government of India decided to continue it with a new name - Rashtriya Krishi Vikas Yojana- Remunerative Approaches for Agriculture and Allied Sector Rejuvenation (RKVY-RAFTAAR) for the year extending up to 2019-2020. Mizoram, along with the North East States, also automatically continued with the implementation of the scheme with all allied sectors under the scheme.

As can be seen in Table 4.2.8, for the horticulture sector during 2018-2019, Rs.120.33 lakh fund was allocated to the state of Mizoram to undertake 12 items of horticulture activity. Mamit District was chosen to be the only area for carrying out those activities. During this period, the scheme had been broken up into 4 sub-components under which the following activities were taken up:

Items of Work/Component of the Scheme undertaken during 2018-2019 under Horticulture Sector of RKVY-RAFTAAR.

Sl No	Items of Work	District/Division	Amount Spent (in Lakh) (approx)
1	Cultivation of Turmeric (Pre-Harvest) covering 10 ha. of land	Mamit	3
2	Cultivation of Turmeric (Post-Harvest)- Construction of Solar Tunnel Dryer, Plastic Crates and Garden Tool Kit	Mamit	5
3	Cultivation of Turmeric-Value Addition	Mamit	12

4	Purchase of Packing Material of Processed Turmeric and Technical Support (under Flexi Fund)	Mamit	3
5	Enhancement of productivity for plantation and Fruits	Mamit	6
6	Construction of Collection Centre	Mamit	25
7	Distribution of Plastic Crates	Mamit	4
Activities undertaken under the Sub-Component- Value Addition Linked Production Projects			
8	Construction of Fermentation Tank Cum Community Water Tank at Zamuang, Tuidam Division, Mamit District	Mamit	43
9	Site Development for Construction of Community Water Tank at Zamuang, Tuidam Division, Mamit District	Mamit	2.7
10	Fencing of Collection Centre/Fermentation Tank Premises	Mamit	8
11	Group Management, Stationery, Survey, Investigation etc., for Technical Support Group	Mamit	5.6
12	Farmers' Trainings within the state	Mamit	2

Source: Directorate, Department of Horticulture, Government of Mizoram

During 2019-2020, horticulture sector under the scheme was implemented with a fund amounting to 107.93 lakhs rupees. Like the previous year, it was broken up into four sub-components under which 9 items of activity were taken up. Spices, particularly turmeric and storage of water at a large scale continued to acquire an important place in component of the scheme. The following are the areas of activity during 2019-2020:

Items of Work/Component of the Scheme undertaken during 2019-2020 under Horticulture Sector of RKVY-RAFTAAR.

Sl No	Items of Work	District/Division	Amount Spent (in Lakh) (approx)
1	Turmeric Cultivation covering 50 ha of land	Mamit	15
2	Enhancement of Productivity of plantation and Fruit Crops	Mamit	15
3	Construction of 200 Tunnel Dryer (Solar)	Mamit	10
4	Plastic Crates for Handling Turmeric Rhizomes/Fingers	Mamit	5
5	Purchase of Garden Tool Kit for Turmeric	Mamit	3.4
6	Construction of Community Water Tank cum Fermentation tank for Fruit Crops at Tuidam Village	Mamit	43
7	Earth Cutting and Leveling for development of Community Water Tank	Mamit	3.5
8	Technical Support-Group Management, Stationery, Survey, Vehicle Hiring, Investigation etc.	Mamit	12
9	Training of Farmers within the state	Mamit	1

Source: Directorate, Department of Horticulture, Government of Mizoram

During 2016-2017, Rs. 697.53 lakh was proposed to be the total cost of the scheme where 54 percent, 6 percent and 40 percent were to be contributed by the Government of India, State Government and the beneficiaries respectively. During this period, 4 components of works were undertaken for different horticulture crops and one agriculture crop. The following were the components of the scheme on which fund was utilized during this period.

1. **Micro Irrigation at Open Field:** i) Installation of Drip Irrigation (Wide Spaced) for fruit crops like Mandarin Orange, Kiwi, Dragon Fruit and Grape with an expenditure of Rs. 89 lakhs covering 302 ha. of land. ii) Installation of Drip Irrigation (Closed Spaced) for flowers, vegetables and strawberry at the cost of Rs. 126 Lakhs covering 189 ha. of land.
2. **Micro Irrigation for Protected Cultivation:** 1) Installation of Drip Irrigation for flowers and vegetables at the cost of Rs. 30 lakhs covering 24 ha. area of land. 2) Installation of Micro Sprinkler Irrigation for vegetables and flowers to cover 72 ha. of land.
3. **Installation of Micro Irrigation (Drip Irrigation) at open field** for agriculture crops like Oil Palm to cover 424 ha. of land at the cost of Rs. 179 lakhs.
4. **Training Programme:** Organization 19 number of trainings for farmers and technical staff by spending Rupees 9 lakhs.
5. **5% of the fund i.e Rs. 20 lakhs were utilized for administrative cost/Contingency**

During 2017-2018, Rs.850.67 had been allocated to carry out 5 components of the scheme by following the same funding pattern as the previous year. The following were the components of the scheme on which fund was utilized during this period.

1. **Micro-Irrigation on Horticulture Crop at Open Field:** 1) Drip Irrigation system at wide space for selected fruits like Mandarin Orange, Kiwi and Dragon Fruit at the cost of Rs. 280 lakhs. 2) Drip Irrigation at Closed Spaced for flowers and vegetables at the cost of Rs. 179 lakhs.
2. **Micro-Irrigation under Protected Cultivation:** Drip Irrigation System under Closed Spaced for flowers and vegetables covering 200 ha. of land at the cost of Rs. 179 lakhs.
3. **Micro Irrigation for Agriculture Crop at Open Field:** Installation of Drip Irrigation for agriculture crop like Oil Palm to cover 456 ha. of land at the cost of Rs. 205 lakhs.
4. An expenditure of Rs. 9.5 lakh was spent for training Program.
5. 5% of the project cost i.e. Rs. 24 lakhs were spared and utilized for administrative cost or contingency.

During 2018-2019, the total cost of the project was Rs. 866.66 lakhs. From this period, the funding pattern has been altered whereby the Government of India and the state government share the burden in the ratio of 90:10. The areas of activity under which the scheme was implemented during this period were as follows:

1. **Micro Irrigation at Open Field:** (i) Installation of drip irrigation system for Dragon Fruit at the cost of Rs. 198 lakhs covering 761 ha. of land. (ii) Installation of drip irrigation for vegetables and Strawberry to cover 271 ha. of land at the cost of Rs. 176 lakhs.
2. **Micro Irrigation under protected Cultivation:** Installation of Drip Irrigation for vegetables and flowers to cover 337 ha. of land at the cost of Rs. 158 lakhs.
3. **Micro Irrigation system at Open Field:** Installation of Drip Irrigation system for Oil Palm covering 655 ha. of land at the cost of Rs. 190 Lakhs (approx).
4. Organization of 30 Training Programmed at the rate of Rs. 50000 per training. Rupees 15 lakhs were spent for this purpose.
5. 5% of the project cost i.e Rs. 49 lakhs were utilized for administrative cost or Contingency.

During 2019-2020, Rs. 1800.66 lakhs were the total cost of the project. It was spent to carry out four components of the scheme. (i) **Drip Irrigation system** of different spacing like 2mx2m(1Ha), 4mx4m (Ha), 1.2x1.2m (1Ha) and 1.2x0.6m (0.4) were installed at the cost of Rupees 1041 lakhs (approx) to feed various horticulture crops covering around 834 ha. of land. (ii) **Sprinkle Irrigation system** of different spacing such as Portable Sprinkler 63mm (1ha), Micro Sprinkler 3mx3m (1Ha), Mini Sprinkler (1Ha), Semi permanent Sprinkler (1Ha) and large volume sprinkler irrigation system (Rain gun) 63mm (1ha) were also undertaken covering 537 ha. of land at the cost of about Rs. 263.96 lakh. (iii) During this period, **Development of Human resources and Media** were introduced to be a new component of the scheme. About Rs. 40 lakhs were spent for organizing i)

Training of Stakeholder within the state, ii) Exposure visit of Stakeholders (outside the state and abroad), iii) Study Tours of Technical Personnel and Field Staff within the state, to the progressive states within the country and outside the country. 5% of the fund was utilized for **administrative cost**.

During 2020-2021, the scheme was undertaken at the cost Rs. 1249.99 lakh (approx). The components of work carried out during this period were 4 in number.

1. **Drip Irrigation** of four spacing covering 464 ha. of land at the cost of Rs. 930 lakhs to cover 648 hectare of land.
2. **Sprinkle Irrigation** (Large Volume 63mm and Mini sprinkler 8mx8m) covering 111 hectare of land with an expenditure of Rupees 128 lakhs.
3. **Human Resource Development & Media**. Under this component, training of stakeholders within the state, Exposure Visit of Stakeholders (Outside the state and Outside India) and Study Tours of Technical Personnel and Field Staff within the state, to progressive states in the country and outside India were organized. The expenditure incurred for these purposes was Rupees 99 lakhs.
4. 5% of the project cost was reserved for administrative cost.

RKVY

Rashtriya Krishi Vikas Yojana (RKVY) is another important scheme implemented for the development of horticulture in Mizoram. Horticulture has been one of the components of the scheme; its contribution towards the expansion of area coverage under horticulture has been recognized. The amount of funds allocated and utilized has contributed towards several positive changes on many horticulture activities in the state. Since the inception of the scheme, more than 6 thousand lakhs have been spent to cover more than 10 thousand hectares of land and for undertaking other activities such as construction of community and individual water tanks, setting up of greenhouses, construction of roadside markets, etc. Regarding the number of districts covered in the implementation of the scheme, Lawngtlai and Siaha districts were excluded as they have been receiving separate funding due to their status of Autonomous District Council.

Gender Distribution

Gender of the Respondents under RKVY

Sl.No	Trade	Kolasib District		Total	Percentage	
		Male	Female		Male	Female
1	Fruit	24		24	100	
2	Vegetable	12	8	20	60	40
3	Spice					
4	Infrastructure	12	4	16	75	25
5	Total	48	12	60	80	20

The above table shows the gender distribution of respondents under RKVY. In Kolasib district, there are 60 respondents with 48 (80 percent) males and 12 (20) females.

The male respondents constituted 80 percent whereas female respondents are of 20 percent in the cumulative of the districts. Out of the total number of 48 respondent, 24 (40 percent) respondents are under fruit crops. As can be seen in the above table, there are no female respondents undertaking fruit cultivation in the districts.

The number of respondents under vegetable component of the scheme is 20 (33.3 percent), with a wide disparity between the genders. The male respondents were 12 (60 percent) while there were 8 (40 percent) females. Under the spice component there are no respondents in the district. Regarding the number of respondents under infrastructure, there are 12 (75 percent) males whereas female respondents are only 4 in number constituting 25 percent.

Educational Qualification

The below table shows the educational level acquired by the respondents in the three districts. Among the total number of 124 respondents, there is no respondent who is illiterate or any Post Graduate degree holders. Respondents who have passed Middle School standard are highest in number contributing 48.38 percent of the total number of respondents. They are followed by respondents who possess Graduation degree at 19.35 percent, 16.12 percent having studied up to High School Leaving Certificate (HSLC), while 9.67 percent passed Primary School and 6.45 percent are with Higher Secondary Leaving Certificate (HSSLC).

Educational Level of Respondents under RKVY

Sl.No	Educational Level	No of Respondent in the District	Percentage
1	Illiterate		
2	Primary School		
3	Middle School	24	40
4	HSLC	12	20
5	HSSLC	4	6.66
6	Graduate	20	33.33
7	Post Graduate		

Kolasib district has the largest number of respondents possessing up to Middle School education at 24 accounting for 40 percent of the total respondents of the district. There were neither illiterates nor Post Graduate degree holders.

Marital Status

The marital status of the respondents in the three districts is shown in Table No. 5.2.3. Of the total respondents, 116 which constitute 93.54 percent of respondents are married and living with their family while 8 respondents i.e., 6.45 percent of the total respondents are single. All respondents in Mamit district are married accounting for 29.03 of the total number of respondents in the three districts.

Marital Status of Respondents under RKVY

Sl No	District	Married	Unmarried
1	Kolasib	56	4
	Percentage	93.3	6.66

In Kolasib and Serchhip districts, there are 4 unmarried respondents from the district constituting 6.67 percent and 93.3 percent of the married respondents respectively.

Age Groups

Below table depicts the age group of respondents in the selected districts. Respondents belonging to the age group of 51-60 are highest in number forming 40 percent of the total respondents while there are no respondents in the age group of 18-30 and below 18 years. Respondents in the age group of 61-70 stood second in terms of the number of respondents which constitute 26.7 percent. There are 12 respondents in the age group of 41-50 constituting 20 percent. The respondents are 4 in number in the age group of 31-40 and 71-80 and stood fourth. They both constituted 6.66 percent of the total respondents.

Age Group of Respondents under RKVY

Sl. No	Category	Kolasib District	Percentage
1	Below 18		

2	18-30		
3	31-40	4	6.66
4	41-50	12	20
5	51-60	24	40
6	61-70	16	26.7
7	71-80	4	6.66

The differences in the age distribution may be because the lower age groups are still learning in schools and colleges or searching for better jobs to earn more in urban areas. Meanwhile the upper age group of 71 – 80 years contributed lesser number due to health deterioration and lack of stamina caused by age.

Trades Undertaken

The number of respondents based on the activity carried out under the scheme is shown in below table. Respondents who are dealing with fruits within the areas under study are highest in number with 40 percent. They are followed by respondents under vegetables who constituted 33.33 percent and respondents under infrastructure who comprises 6.67 percent of the total number of respondents. There is no respondent in the Spice category.

No of Trade/Crop undertaken by the Respondents under RKVY

Sl.No	Trade	Kolasib District	Percentage
1	Fruits	24	40
2	Vegetables	20	33.33
3	Spice		
4	Infrastructure	16	6.67

Land Holding

The table below shows the land holding status of respondents in terms of area. Respondents having 3-4 hectare of land contributed the highest number among the respondents with 33.33 percent while respondents having 5-6 hectares of land contributed the least number constituting 6.66 percent only. Respondents having 2-3 hectares of land stood second in terms of area of land owned with 20 percent followed by 13.33 percent of respondents with below 1 hectare and 1-2 hectares of land.

Land Holding Status (Area) under RKVY

District	Crop/Trade	Below 1 Hectare	1-2 Hectare	2-3 Hectare	3-4 Hectare	4-5 Hectare	5-6 Hectare	6 or more Hectare
Kolasib	Fruit	8	4		4	4		
	Veg			8	12		4	
	Spice							
	Infra		4	4	4	4		
Total		8	8	12	20	8	4	
Percentage		13.33	13.33	20	33.33	13.33	6.66	

Land Ownership

Land Ownership Status of the Respondents under RKVY

Sl.No	District	Crop/Trade	Owned	Rented
1	Kolasib	Fruit	24	
		Veg	20	
		Spice		
		Infrastructure	16	
2	Total		60	
3	Percentage		100	

The above table depicts the land ownership status of the respondents. It may be highlighted here that respondent's dependent on land owned by others do so free of cost. Such lands are mostly owned by other beneficiaries who possess larger area of land as they are more convenient to establish clustering. It is found that Kolasib district has got the highest number of landowners at 60 while there are none who were undertaking their activity on rented land.

Among the respondents who had undertaken their horticultural activity on their own land under the scheme, the maximum number are those involved in fruit component at 40 percent, vegetable constituted 33.33 percent and Infrastructure category constituted 26.7 percent while there is no respondent among the Spice categories.

Assistance to Beneficiaries

Table below reflects whether respondents received assistance in cash or kind. In respect of the number of respondents who received assistance in kind only, fruits comprise 40 percent of the respondents, vegetables 20 percent, infrastructure 6.66 percent. Out of the 60 respondents who received assistance both in cash and in kind, vegetable and infrastructure constituted 6.67 percent each.

Table showing Form of Assistance Received (Cash or Kind) under RKVY

Sl.No	District	Crop/Trade	In Cash	In Kind	Both
1	Kolasib	Fruit		24	
		Vegetable	4	12	4
		Spice			
		Infrastructure	8	4	4
4	Total		12	40	8
5	Percentage		20	66.66	13.33

The table below relates the number of installments received by respondents. 12 respondents which accounts for 20 percent received assistance only once while those who received assistance twice were 28 respondents accounting for 46.66 percent and thrice or more are received by 20 respondents in number constituting 33.33 percent.

Table showing number of Installments of Assistance Received under RKVY

Sl. No	District	Crop/Trade	1 Instalment	2 instalments	3 or more instalments
1	Kolasib	Fruit	4		20
		Vegetable	8	12	
		Spice			
		Infrastructure	10	6	
4	Total		12	28	20
5	Percentage		20	46.67	33.33

In Kolasib district, 20 percent received assistance as one time assistance, another 46.67 percent received two instalments and 33.33 received three times or more.

Among the fruit respondents, 6.67 percent respondents received one instalment, and 33.33 percent received three or more instalments. Regarding the number of respondents with vegetables, there were 8 respondents who received assistance only once accounting for 13.33 percent and there were 12 respondents accounting for 20 percent. In Kolasib District, no respondents received 3 or more installments.

Among the respondents with infrastructure 10 respondents received 1 installment, and 6 respondents received 2 installments. No respondents received 3 or more installments.

Timely Receipt of Assistance

The table below reveals whether respondents received assistance on time 100 percent could receive assistance on time without any delay. In Kolasib district all respondents could receive assistance on time.

Table showing timely Receipt of Assistance under RKVY

Sl.No	District	Crop/Trade	Yes	No
1	Kolasib	Fruit	24	
		Vegetable	20	
		Spice		
		Infrastructure	16	
4	Total		60	
5	Percentage		100	

Membership in Farmer's Interest Group (FIG)

Table below shows respondents' in Kolasib district, 40 percent are members of their activity related association whereas 60 percent does not belong to any association.

Table showing Membership in FIG

Sl No	District	Crop/Trade	Yes	No
1	Kolasib	Fruit	16	8
		Vegetable		20
		Spice		
		Infrastructure	8	8
4	Total		24	36

5	Percentage	40	60
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In relation to the components among the respondents with fruit, 26.7 percent are members of their activity related association/society while 13.33 percent does not join any. Among the vegetable respondents, 33.33 percent members do not have any relation with association while there were no members in association with society. Regarding spice respondents, 100 percent of the respondents are with no related association. Among the respondents with infrastructure, 13.33 percent are members of associations related to their horticulture activity whereas 13.33 percent are without any membership.

Participation in Training under the scheme

Table below highlights whether the respondent's attended training/s organised for their activity under the scheme. In Kolasib district, 93.33 percent attended at least one training whereas 6.67 percent did not attend any.

Table showing Whether attended Training (s)?

Sl.No	District	Crop/Trade	Yes	No
1	Kolasib	Fruit	20	4
		Vegetable	20	
		Spice		
		Infrastructure	16	
4	Total		56	4
5	Percentage		93.33	6.67

Among the fruit respondents, 33.33 percent attended training and 6.67 percent have not. Regarding vegetables, the numbers of respondents who have attended training are of 33.33 percent. With respect to respondents with spice, no respondents attended any training session. Among the respondents with infrastructure, all of them have attended one or more training organized for their activities.

Table showing: Is/Are Training (s) Helpful?

SN	District	Crop/Trade	Yes	No
1	Kolasib	Fruit	24	
		Vegetable	20	
		Spice		
		Infrastructure	16	
4	Total		60	
5	Percentage		93.33	

In Kolasib district, 100 percent thought that the training organised under the scheme are helping them in their activities.

Extension Services

Table below shows whether respondents under the scheme had received any extension guidance from the implementing agency. Technical/extension guidance from the concerned Department was received by 73.33 percent of the respondents in the course of their work whereas 26.7 percent did not receive any guidance.

Of the respondents with fruit, 33.33 percent were given guidance from the Department more than once while 6.66 percent did not receive any guidance or supervision. In respect of the number of respondents with vegetables, 26.7 percent received guidance from the Department and 6.66 percent worked without any guidance. Regarding the respondents under spice, no respondents received guidance or supervision. The respondents under

infrastructure 13.33 percent were given extension guidance while 13.33 percent do not receive any guidance from the concerned Department through technical staff.

Table showing Whether received technical/extension Guidance?

Sl.No	District	Crop/Trade	Yes	No
1	Kolasib	Fruit	20	4
		Vegetable	16	4
		Spice		
		Infrastructure	8	8
4	Total		44	16
5	Percentage		73.33	26.7

Table showing enumerates the number of respondents who received inspection and monitoring from the Department to make sure that assistances rendered were utilized as stipulated in the scheme. 73.33 were inspected and monitored by the Department whereas 26.7 percent were not.

Table showing Inspection and Monitoring under RKVY

Sl.No	District	Crop/Trade	Yes	No
1	Kolasib	Fruit	20	4
		Vegetable	16	4
		Spice		
		Infrastructure	8	8
4	Total		44	16
5	Percentage		73.33	26.7

Regarding the number of inspected respondents, 33.33 percent respondents of fruit, 26.7 percent respondents of vegetables, and 13.33 percent of infrastructure component were inspected by the Department at least once or more whereas the Department neither monitored nor inspected 6.66 percent, 6.66 percent and 13.33 percent from fruit, vegetable and infrastructure respectively.

Problems and Issues of Respondents

Table below depicts the number of respondents who have problems and those who have no problems or issues during their activities under the scheme. 73.33 percent are facing some problems while 26.7 percent respondents carried out their activities without facing any big obstacle.

Table showing No of Respondents with and without problems and issues in the course of work

Sl.No	District	Crop/Trade	No of Respondents with Problems	No of Respondents without Problems
1	Kolasib	Fruits	20	4
		Vegetable	16	4
		Spice		

	Infrastructure	8	8
4	G. Total	44	16
5	Percentage	73.33	26.7

Regarding the number of respondents with problems in their horticulture activities under the scheme, 33.33 percent of respondents from fruits, 26.7 percent of respondents from vegetables and 13.33 percent from infrastructure have faced one or more problems. Among the respondents who have not faced any problems, fruits and vegetation component has 6.66 percent both followed by infrastructure constituting 13.33 percent.

Table below shows the nature of problems faced by the respondents with problems while carrying out their horticulture activities under the scheme with multiple responses.

In Kolasib district, respondents who have been dealing with the pest problem are highest in number constituting 36.36 percent followed by both poor quality of planting materials with 27.27 percent, natural calamities, poor quality of soil and theft with 18.19 percent each and scarcity of water and scarcity of fertilizers with 9.09 percent.

Table showing: Nature of the Problems and Issues

Sl.No	Problem/ Issue	No of resppndents in Kolasib District	Percentage
1	Scarcity of water	4	6.66
2	Poor quality of Soil	8	13.33
3	Plant Disease		
4	Poor Quality of Planting Materials	12	20
5	Scarcity of fertilizers	4	6.66
6	Storms/Flood/ other calamities	8	13.33
7	Insufficient Assistance		
8	Pest	16	26.7
9	Theft	8	13.33
10	Inappropriate Location of Farm		
11	Wild Animals		

Labour Utilisation

As can be seen in the below, farmers employing regular labour accounted for 46.66 percent of the respondents while those employing labour occasionally are at 53.33 percent. There are no respondents under the scheme who could not carry out their activities without employing additional labour.

Table showing Utilisation of Labour

Sl. No	District	Trade	Farmers with additional Labour (Regular)	Farmers with additional labour (Occasional)	Farmers without additional labour
1	Kolasib	Fruits	16	8	
		Veg	8	12	
		Spice			

		Infra	4	12	
		Total	28	32	
5	Percentage		46.66	53.33	

In addition to the employment opportunities provided to the horticulture farmers through the scheme, those employing additional labour contributes towards providing employment for others.

Table below highlights the average monetary profits of the respondents under RKVY. Those with a profit in the range of Rs. 10,000 – 29,000 in a year hail from Kolasib districts totalling to 6.66 percent. Among the 13.33 percent of respondents with profit amounting Rs 30000-49000 in Kolasib district. 33.33 percent of the respondents from the districts could make a profit range from Rs 50000-99000.

Table showing Yearly Average Monetary Profit of Respondents (District Wise)

Sl.No	Profit	Kolasib	Total	Percentage
1	No Profit	20	20	33.33
2	Below 10000			
3	10000-29000	4	4	6.66
4	30000-49000	8	8	13.33
5	50000-99000	20	20	33.33
6	1 Lakh-1.9 lakh	4	4	6.66
7	2 lakh-2.9 lakh			
8	3 lakh-3.9 lakh	4	4	6.66
9	4 Lakh-4.9 Lakh			
10	5 lakh- 5.9 lakh			

The different mechanisms for selling off the produces by the respondents are reflected in the table below.

Table showing Marketing of the Produces

Sl.No	Mode of Selling	No of respondents	Percentage
1	Sold Directly	4	6.67
2	Sold to intermediaries	20	33.33
3	Both Sl.No 1 & 2	8	13.33
4	Through Dept Arrangement		
5	Both Sl No 2 & 4		
6	Not sold	28	46.67
	TOTAL	60	100

In the district, those respondents who sold their produces to intermediaries are 20 in number constituting 33.33 percent of the total number of respondents of the district. They are followed by both respondents who sold directly and to the intermediaries constituting 13.33 percent and those who sold directly in the market only which

accounted for 6.67 percent. However, there are respondents who did not sell their products through any medium contributing 46.67 percent of respondents.

Table showing Problems/ Issues in selling off the produces

Sl.No	District	Crop/Trade	Respondents with no problem	Respondents with problem
1	Kolasisb	Fruit	4	20
		Vegetable	12	8
		Spice		
		Infrastructure	8	8
4	Total		24	36
5	Percentage		40	60

The above table represents the number of respondents with problems and those having no problem in marketing their produces. 40 percent of respondents could sell their produces without any obstacle whereas 60 percent are facing some problem in marketing their produces. Regarding the number of respondents having no issue in marketing, respondents with fruits constituted 4.67 percent, vegetables constituted 20 percent, and infrastructure contributed 13.33 percent each. Regarding the number of respondents facing problems in marketing, respondents with fruits contributed 33.33 percent each while respondents with vegetables and infrastructure contributed 13.33 percent.

Table showing Whether Post Harvest Management is utilised

Sl No	District	Crop/Trade	No. of Respondents with PHM	No. of Respondents with no PHM
1	Kolasisb	Fruit		24
		Vegetable		20
		Spice		
		Infrastructure		16
4	Total			60
5	Percentage			100

The above table represents the number of respondents who have or have not utilized Post Harvest Management activities. Post Harvest Management activities such as preservation in Cold Storage Facilities, Value Addition etc 100 percent have not incorporated post-harvest management processes.

Future Plans of the Respondents

Table below reflects the future plans of the respondents in relation to the continuance of their trades. Respondents who think that they can continue their horticulture activities only with assistance from the government or any other source are highest in number constituting 50 percent of the total number of respondents. They are followed by those who think they can grow and expand their activities even without additional assistance at 20.97 percent. 19.35 percent already gave up their activity while 9.68 percent are giving up on their crop and plan to undertake a new crop.

Table showing Post-Scheme Plans of the Respondents

Sl. No	District	Crop/Trade	Respondents who can grow/expand	Respondents who can continue only with further assistance	Plan to change crop	Respondent who already gave up their trade

			without assistance	additional		
1	Kolasib	Fruit	4	4	12	4
		Vegetable	12	4		4
		Spice				
		Infrastructure	8	8		
	Total		24	16	12	8
5	Percentage		20.97	50	9.68	19.35

Additional Aid and Income Source

Table below depicts the number of respondents who have regular source of income in addition to their income from the horticultural activity and those who do not have any other source of income. Kolasib district has 86.67 percent of respondents with regular source of income and 13.33 percent without any other income source.

Regarding number of respondents engaged in other income generating activities those dealing with vegetables and fruits comprise 33.33 percent each whereas infrastructure have constituted 20 percent respectively.

Table showing Additional Source of Income

Sl.No	District	Crop/Trade	Respondents with other Regular source of income	Respondent without other Regular source of income
1	Kolasib	Fruit	20	4
		Vegetable	20	
		Spice		
		Infrastructure	12	4
4	Total		52	8
5	Percentage		86.67	13.33

Regarding the number of respondents who do not have any other source of income, infrastructure and fruits have 6.67 percent each while there are none from respondents undertaking vegetable and Spice component.

Additional Back Up for Respondents

As can be seen in the below table, respondents receiving additional assistances/back up from the government in kind, in Kolasib district, 40 percent of respondents received back up assistance from the Department while 60 percent have received assistance under the scheme only.

Table showing Farmers with additional back up from the Dept

Sl.No	District	Crop/Trade	Respondents with additional back up	Respondents without additional back up
1	Kolasib	Fruit	4	20
		Vegetable	12	8
		Spice		
		Infrastructure	8	8
4	Total		24	36
5	Percentage		40	60

In respect of the number of respondents based on different crops/trade who received additional back up, vegetables contributed the highest number of respondents with 20 percent while other crops/trade such as infrastructure contributed 13.33 percent followed by fruit component constituting 6.67 percent.

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