A BASELINE STUDY REPORT IN TURMERIC SECTOR OF GOALPARA DISTRICT OF ASSAM WITH SPECIAL REFERENCE TO THE SIX GRAM PANCHAYATS OF KUCHDHOWA AND RANJULI DEVELOPMENT BOARD



FY 2021 - 22



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ABOUT ICCo

ICCo is a development organization working to achieve the twin core principles of 'Securing Sustainable Livelihoods' and 'Justice and Dignity for All'. ICCo has been pioneering in India for more than a decade towards the goal of development and in doing so, has partnered with more than 100 agencies across India. We, at ICCo, believe that 'Innovative' strategic thinking and 'Collaborative' effort are the keys to bring a desired change in the society. At ICCo, we envision a just, inclusive and equitable society.

Thereby, working towards a brighter tomorrow, the organization is on a mission of designing and implementing innovative ideas and solutions, strengthening Community-Based Organizations for inclusive and high-impact growth in society. ICCo plays diverse roles as that of a Catalyst, Lobbyist, Networker, Implementer and an Entrepreneurship Booster. This helps in capitalizing on synergies with various stakeholders to amplify the impact of our work. Over the years, the organization has pressed upon three strategic pathways in the pursuit of its goals: Inclusive and Sustainable Agriculture System; Promoting Social Entrepreneurship for Rural Prosperity and Responsible Business Behavior Over the past decade, with its interventions in the areas of Agri-Value Chain, Clean Energy, Food & Nutrition & Social Entrepreneurship, ICCo has ensured accountability, integrity and upliftment of the society at large. Marginalized women are one of our key stakeholders whose capacity we have been building over the years. The organization continues to work extensively with its various stakeholders to empower communities and build a stronger economy which is the key to making Agenda 2030 and the achievement of the Sustainable Development Goals (SDGs) transformational and inclusive

ACKNOWLEDGEMENT

This report is an outcome of the study conducted by the ICCo team in the Kuchdhowa and Rangjuli Development Block of Goalpara district, Assam under the project "Rebuilding Lives by Restoring Farm and Non-Farm Livelihoods in Assam Amidst and Post Covid-19", implemented by ICCo (2021-2026). The team spent a substantial amount of their time collecting the data through door-to-door visits with a structured interview schedule and Participatory Rural Appraisal (PRA) at the community level. ICCo acknowledges the hard work and dedication being put forward by the Community Resource Persons (CRPs) for the door-to-door study irrespective of all the challenges faced in the field. ICCo is also grateful to the respondents of the household study and participants of PRA exercise.

ACRONYMS

APL: Above Poverty Line

ASRLM: Assam State Rural Livelihood Mission

BPL: Below Poverty Line

CRP: Community Resource Person

GP: Gaon Panchayat

Ha: Hectares

NABARD: National Bank for Agriculture and Rural Development

PoP: Package of Practice

SHG: Self Help Group

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CHAPTER 1

INTRODUCTION

Turmeric (*Curcuma longa*) (Family: *Zingiberaceae*), is an important spice that is used widely and commonly throughout India. It is one of the India's oldest and most traditional export products. It's renowned as the "King of Spices". It's also known as "Indian Saffron" as it originated in India.

Turmeric, in addition to its use as a condiment, is also used as a dye and drug. The prevalence of turmeric in religious ceremonies and as a cosmetic is very widespread across the country. According to the Vedic texts, the use of turmeric in India dates back to more than 4000 years. It is popularly known by the name 'Haldi' which has its roots in the Sanskrit word *haridra*, in the northern belt and it is known as 'Manjal' in the southern belt.

India is the world's largest producer, consumer, and exporter of turmeric, accounting for 82 per cent of global production. China, Myanmar, and Bangladesh are the next top producers, consumers, and exporters. Because of the presence of a high amount of an important bioactive compound-curcumin in Indian turmeric, Indian turmeric is popular in the world.

Although more than 30 varieties of turmeric have been identified to have grown across the Indian subcontinent, Amalapuram, Armour, Dindigam, Erode, Krishna, Kodur, RH2 and RH10 are some of the most popular varieties whereas Pattant, Lakadong and Megha - 1 are the famous varieties from the eastern states of the country.

Turmeric in India occupies about 6% of the total area under spices and condiment crops in India. In the year 2008-09, the production was 94.59 thousand tones under 195.07 thousand ha of land which has increased up to 973.09 tones under 192.91 thousand ha of land (Spice board of India- Annual Report 2012-13).

Turmeric production in Assam has increased from 3797 tones under 6371 ha area in 1976-1977 to 15906 tones under 16244 ha area in 2014-15. The Indian Institute of Spice Research has estimated the total demand for turmeric by the year 2030 would be 11,50,003 tones, so to achieve this target, an extra quantity is to be produced over the present 1, 57,103 tones with a productivity of 6450 kg/ha.

Keeping in view the same, ICCo has conducted the study to explore the scope of increasing productivity in the district of Goalpara. Because, the area under turmeric in the district of Goalpara as a percentage of the net cropped area is about four times higher than the national level, but the yield level is quite low in comparison to the national average. Goalpara has witnessed production growth from 123 tones with an area of 240 ha in 2007-08



to 482 tones with an area of 510 ha in 2014-15 (Government of Assam, Directorate of economics and statistics, 2015).

1.1 Objectives of the study

1.1.1 Objectives of the door-to-door study

- To assess the current area under turmeric cultivation of the small and marginal farmers along with their annual production of turmeric.
- To assess the status of adoption of scientific PoP and the varieties used for cultivation.
- To identify the current market channel and analyze the present income through turmeric farming.
- To assess the status of access to govt. schemes and policies.

1.1.2 Objectives of the PRA exercise

- To understand the potential resources of the study area.
- To understand the strength of the community and identify the future scope of development around the turmeric sector.

1.2 Rationale for the Baseline Study (Scope and Purpose)

There is a high scope of scalability of turmeric production in the study area. More than 85% of people in the area are involved in turmeric farming and it is one of the regular subsidiary sources of income for families. The district of Goalpara has a high potential to produce organic turmeric because there is an age-old practice of avoiding inorganic inputs, especially in the tribal areas of the study. ICCo wants to bring significant changes around the turmeric sector in the area by intervening for a longer period, not less than 5 years.

1.3 Limitation of the study:

The scope of the study is limited to household and community level status of turmeric production, it did not cover the perspectives of other stakeholders like KVK, Horticulture department, local sellers, large buyers etc. Although, it tried to cover the farmers' knowledge on local markets and different market channels through PRA exercise.

1.4 Period of the study: July 2021 to September 2021



CHAPTER 2

STUDY AREA AND METHODOLOGY

2.1 Demographic Details:

Goalpara is situated entirely on the south bank of the river Brahmaputra. The district covers an area of 1,824 sq. km. and is bounded by West and East Garo Hill districts of the state of Meghalaya on the south and Kamrup district on the east, Dhubri district on the west and mighty river the Brahmaputra all along the north. The total forest area of the district is 36,91527 hectares and the total cultivated area is 10,200 hectares. The Geographical location is between latitude 25°53' - 26°30' north and longitudes 90°7' - 91°5' east. As per the 2011 census, the total population of the district is 10,08,959, out of which 5,14,162 were male and 4,94,797 were female. Goalpara district has five revenue circles viz., Lakhipur, Baliana, Matia, Dudhnoi and Rangjuli and it has eight development blocks viz., Rangjuli, Kusdhowa, Matia, Krisnai, Balijana, Kharmuja, Lakhipur and Jaleswar. The district has 12 agricultural development circles, 81 Gaon Panchayats and 837 revenue villages. The main languages spoken by common people in the district are Assamese, Bodo, Garo, Rabha, Bengali and Nepali (http://goalpara.gov.in/).

2.2 Methodology Innovate. Change. Collaborate.

Before the actual study was conducted, the methodology that was followed by the ICCo team was typically described as a rapid study to get an overall idea of the area. Thereafter, the household level study was done through a structured interview schedule by using a mobile app named "Kobo collect" for five GPs of the Kuchdhowa Development Block and one GP of the Rongjuli Development Block which covers 2000 small and marginal turmeric farmers. Before the study, a comprehensive questionnaire had been carefully prepared and piloted in 35 households. The necessary modification was done based on the pilot study.

Transect walk for resource identification and mapping, Venn diagram for problem identification and solution, market mapping to understand the existing market channel, daily activity calendar of the respondent women, seasonal calendar of turmeric farming, a simple 'Force Field Analysis' on existence and importance of middleman etc. were done through PRA.



2.2.1. Identification of respondents

List of turmeric farmers was selected by the CRPs with the support of GP representatives, the village heads, women SHGs leaders, Progressive farmers etc. Accordingly, 2237 women turmeric farmers' households were selected irrespective of caste and communities to conduct the study in 6 GPs namely Baguan, Daranggiri, Kuchdhowa, Lela and Puronivita and Kahibari in the Agroclimatic zone of Lower Brahmaputra Valley. The table below shows the locations along with the percentage of respondents.

Block	Total no. of turmeric farmers	Percentage (%)
Kuchdhowa	1801	81
Rongjuli	432	19

Table 1: Block wise number of turmeric farmers

Gaon Panchayats	Total no. of turmeric farmers	Percentage (%)
Baguan	32	1
Daranggiri	516	24
Kuchdhowa	349 Change, Collab	¹⁶ rate.
Lela	511	23
Puronivita	350	16
Kahibari	433	20

Table 2: Gram panchayat wise number of turmeric farmers



Fig 1: Maps of targeted Blocks:

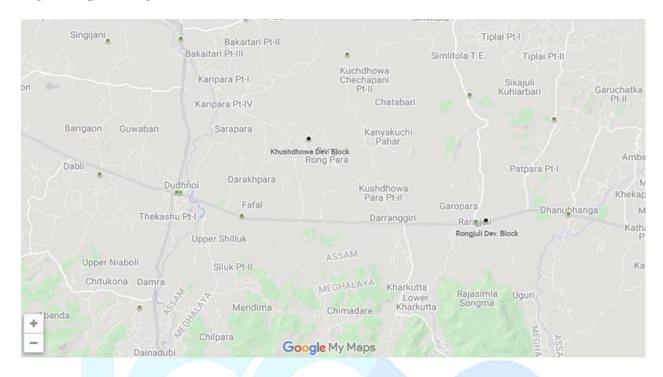
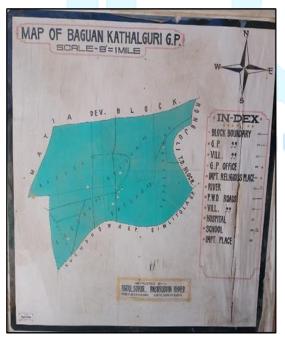


Fig 2: Maps of targeted Gaon Panchayats:





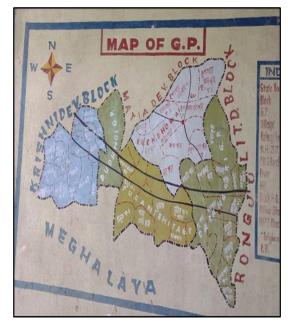
MAP OF DARANGGIRI G.P.

GP: Baguan

GP: Daranggiri



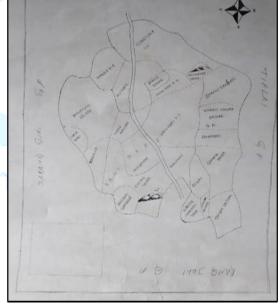




GP: Kuchdhowa

GP: Lela





GP: Puronivita

GP: Kahibari



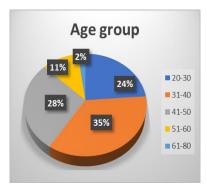
CHAPTER 3

RESULTS AND FINDINGS

3.1 DEMOGRAPHY OF THE STUDY AREA

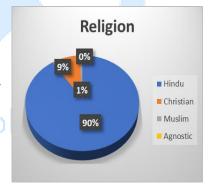
3.1.1 Age of the Respondents

It was found from the study that the age group of 31-40 years old contributed the highest number of respondents i.e., 35%, followed by 41-50 years old which contributed 28% respondents. 24% of respondents were under the age group of 20-30 years old, 51-60 years were 11%, and 61-80 years were 2% only.



3.1.2 Religion of the Respondents

From the baseline it was found that 90% of the respondents were Hindu, 9% were found to be Christian, rest 1% belonged to the Muslim community.



3.1.3 Caste distribution of the Respondents:

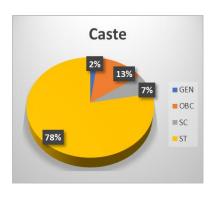
The study sought to understand the caste distribution of the respondent farmers. The findings were as follows:

ST: 1738 nos. i.e., 78%

OBC: 294 nos. i.e., 13%

SC: 150 nos. i.e., 7%

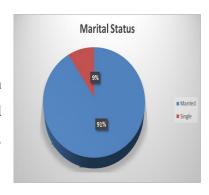
General: 48 nos. i.e., 2%





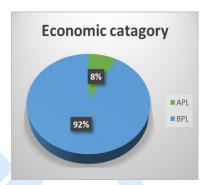
3.1.4 Marital Status:

The study found that amongst 2237 women respondents, 206 women were single (unmarried, widowed and divorced) which consisted of 9% of the total respondents.



3.1.5 Economic Category:

According to the study 8% of the turmeric farmers belonged to APL and 92% were from BPL.



3.1.6 Educational qualification

It was found from the study that 80% of the farmers were below class 10th level. Only 8% were class 10th pass, whereas 4% had completed class 12th level. The literacy rate of the beneficiaries from the target area was 94%.



3.1.7 Annual Income:

From the study, it was found that the income of as much as 64% of the farmers was below 50000 rupees followed by 34% of the farmers with income of rupees 50000 to 1 lakh. Only 2% of the farmers exceeded an income of 1 lakh rupees.

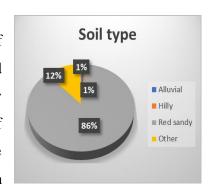




3.2 STATUS OF FARMING PRACTICES OF THE RESPONDENTS

3.2.1 Soil Type

It was found from the study area that 86% of the soil is red sandy type. It shows that 86% of farmers had suitable soil for the cultivation of turmeric. Alluvial and hilly types consisted of 1% each. During the study, the soil type of 12% of farmers could not be identified, which needs to be tested further to understand the status of turmeric production in such soil.



3.2.2 Soil Testing

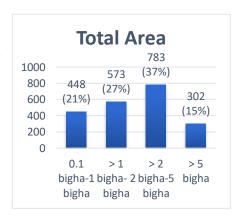
The study showed that 99% of the respondent farmers have not tested their soil yet. It indicates that soil testing is a must to improve the quality and quantity of turmeric production for the better income of the farmers.



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3.2.3 Total Area

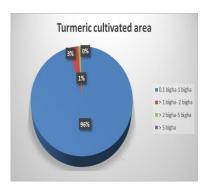
Most of the farmers in the studied area were found to be small and marginal. Total landholding area of the farmers were as: 21% farmers had landholding of less than one bigha. 27% of the farmers possessed the land of 1 to 2 bighas. 37% of the farmers had a landholding of 2 to 5 bighas. Rest 15% of the farmers occupied land more than 5 bighas.





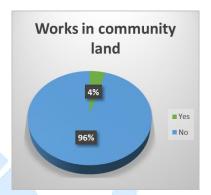
3.2.4 Total Area Under Turmeric Cultivation

It can be depicted from the diagram that 96% of the farmers cultivate turmeric in less than one bigha land area. 3% of the farmers cultivate in an area of 1-2 bighas. Rest 1% cultivate turmeric in 2-5 bighas of area, where the total area of turmeric cultivation was found 813.65 bighas (105.12 hac)



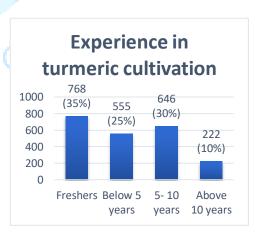
3.2.5 Works in Community Land

The data depicts that 96% of the respondents were involved in turmeric cultivation either in the community land or the abundant land of rich people, which was a joint effort of 5 to 10 women farmers. The estimated type of land size was 200 bigha (25.83 hac) approximately.



3.2.6 Experience in turmeric cultivation:

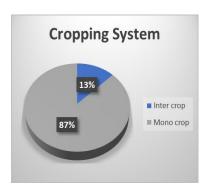
From the study, it was found that 35% of the farmers were new to turmeric cultivation. They have started in the year 2021 only. 25% of them had the experience of fewer than 5 years. 30% of the farmers had the experience of 5 to 10 years. Rest 10% acquired experience of above 10 years.





3.2.7 Cropping System

87% of the farmers follow the practice of monocropping of turmeric while the rest follows intercropping.



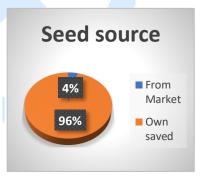
3.2.8 Variety Use

77% of the farmers plant the Megha 1 variety. 1% used the Lakadang variety and the rest 22% planted local germplasms. It showed that the Megha 1 was a popular variety among the farmers.



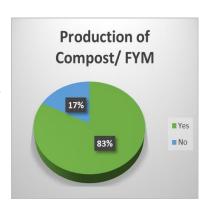
3.2.9 Seed Source

Quality of raw material is one of the most important factors in successful turmeric cultivation. In the study area, 96% of farmers plant seeds from their own saved source. Rest 4% buys from market.



3.2.10 Production of compost/FYM

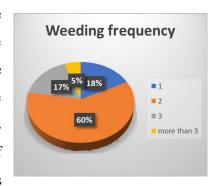
Crop yields and agricultural output would be dramatically lowered if the proper level of nutrition were not used. It was found from the studied area that 83% of farmers produced their own fertilizer i.e., compost or FYM. The rest of the 17% of respondents collect from other sources. There is a need to check the appropriateness and availability of locally made home-based fertilizers.





3.2.11 Weeding

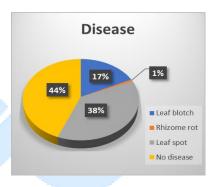
From the study, it was found that all the farmers practice manual weeding in their field. From the diagram, we can see that the weeding frequency of 60% of the farmers is two times. On the other hand, 17% and 18% of the farmers had a weeding frequency of one and three times respectively. Only 5% of them had a weeding frequency of more than three times. It indicates that critical observation is



required to compare the production level of the framers according to the frequency of weeding.

3.2.12 Disease

Leaf spot was the most commonly occurred disease of the studied area. About 38% of the farmers identified leaf spot disease in their field. 17% of farmers spotted leaf blotch and 1% of farmers spotted rhizome rot. It indicates that there is a need for training for the farmers to control the diseases.

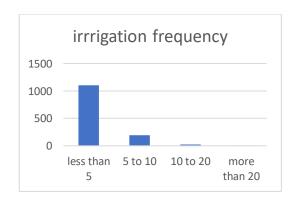


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3.2.13 Irrigation Practices

It shows that only 52% of the farmers applied water in their turmeric crops, the rest 42% did not. Amongst the farmers who applied irrigation in their turmeric field, 83% of them provided less than five times in a season. 15% of the farmers applied irrigation 5-10 times. Only 2% applied irrigation 10 to 20 times.

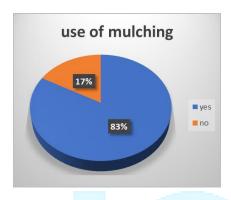


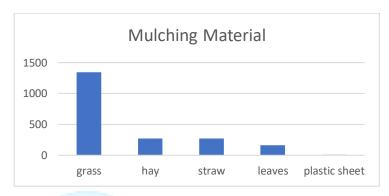




3.2.14 Mulching

It was depicted from the study that 83% of the respondents practiced mulching of their turmeric fields. Out of this 83%, 66% of the respondent farmers used grass for mulching, and the remaining respondents used hay and straw accounted for a similar figure, that was 13%. The rest 17% of farmers did not practice mulching.





3.2.15 Average production and sale:

The range of annual production of the studied area varied from 100-400 kg per bigha. The mean production was found to be 300kg/bigha. Most of the farmers sold raw turmeric at their door steps through middleman at 7 to 8 rupees per Kg, and those who sold to FPC received 20 rupees/Kg.

3.2.16 Training received

The study revealed that 34% of the turmeric farmers had never received any training on turmeric cultivation. Rest 66% received training for at least once on turmeric cultivation.





3.3 MEANS OF FINANCING INPUT COST OF TURMERIC FARMING

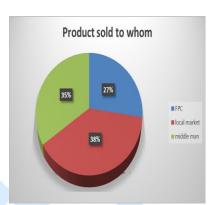
3.3.1 Source of turmeric seed:

From the study it was found that 96% of the farmers used their farm seed saved for planting. Rest 4% farmers procured seeds from local market.

Seed source 4% From Market Own saved

3.3.2. Marketing channel

The marketing channel is an important factor in gaining profit in business. 38% of the farmers sold their turmeric in the local market. It was also found that 35% of the farmers sold their harvest through middlemen. It reflected that minimization of middlemen in the market is necessary and the farmers need to be directly facilitated access to proper markets. Rest 27% farmers sold their produce to the FPC.



3.4 Findings from the PRA exercise (Table 3):

Tools Purpose	Change	Observation
resource mapping perspective of existing history of To understutilization natural re	stand the overall we of the availability g resources and the area. stand the status of n of available sources like barren amunity land, etc.	Banana and areca nut are primary fruit crops of Goalpara district. They cover a remarkable area of the district. It was also observed that there is a huge scope of intercropping of turmeric with those crops. It was also observed that the ASRLM Block office, KVK, GP office, Rabha Hasong office is situated in the study area. Resources from these



		organizations could be mobilized for the benefits of the farmers.
Market Mapping	To understand the local market and current market scenario	It was found that the maximum quantity of turmeric is used at the household level. Most people preferred to sell their produce through middlemen rather than taking extra headache of selling low volume of turmeric directly in the market.
Seasonal calendar of turmeric farming	To identification of problems and possible solutions by the community To get a clear picture of their existing pattern and monthly activities under turmeric farming	The majority of the participants expressed that they are not aware of the scientific way of turmeric farming, which leads to underproduction in the area. The exercise also revealed that there was little knowledge on proper aggregation and storage among the farmers. It was found that the maximum number of farmers did not follow the seasonal calendar of turmeric farming which resulted in less production, and affecting their annual income.
Daily activity calendar related to turmeric farming.	To get a clear picture of the daily activities of farmers	Very few farmers followed the daily activities needed in turmeric cultivation.
Existence and importance of	To understand the perspective of the local	The majority of the farmers sold their turmeric to the local market



middlemen	people on the importance of	through middlemen. It highlights
	middlemen	the need to reduce the number of
		middlemen and connect farmers
		directly to appropriate markets
		for getting fair price.



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CHAPTER 4

CONSTRAINTS OR CHALLENGES FACED DURING THE BASELINE STUDY

4.1 Following were the constraints faced during the study:

- I. Since the study was carried out in the post-second wave of Covid-19, the mobility of the interviewers (CRP) and acceptance of the respondents' household to allow an outsider to conduct the interview caused a great constraint.
- II. Using KOBO tool for collecting data for the study rather than pen and paper method leads to a difficulty for the data collectors and CRPs in the initial stage of the study as the data collectors were not so much user friendly with an electronic application, but with proper guidance and orientation provided by ICCo team helps them to work with the application and they did the task well.
- III. During the study, it was revealed by the localities that many people including government officials had promised to provide them with services from various schemes but they were not provided by any government. support due to which they were not willing to share their details.

4.2 Recommendations: te. Change. Collaborate.

Goalpara being an aspirational district with its vast land resources offer tremendous scope for turmeric farming. Apart from growing a large number of local varieties it also supports a wide range of commercially important varieties. In Spite of having such a huge potential and promising avenues, it has not been able to meet the productivity as that of the national average.

This study tried to understand the underlying reasons for the same and came up with certain recommendations.



4.2.1 Awareness creation among the farmers on low productivity:

The study showed that approximately 15% of respondents followed the practices of scientific turmeric farming. The remaining 85% followed traditional methods of cultivation only. Only 300kgs of production per bigha or 22.5 Q/Ha which is ten times lower than the national average. So, there is a tremendous need for continuous awareness generation among the farmers. Training and constant supporting mechanisms through departments, NGOs can boost the production and income of the farmers.

4.2.2 Use of quality planting material:

Quality planting material is one of the most important inputs in turmeric farming which determines productivity or the outcome. It was found during the PRA that most of the farmers in the study area plant farm-saved seeds. Since the high yielding seed was not readily available locally, farmers found it difficult to manage it from outside because of not having proper information with the farmers. Very few farmers mentioned the high transportation cost and uncertainty in terms of variety and quality, they were not interested in collecting seeds from outside. While calculating the cost and the cultivable area of the small landholding of the farmers, collecting seed from outside by a single farmer was not beneficial. So, there is a high need for the smallholder farmers to access seeds at their doorsteps. Also, systems should be developed for the collective procurement of seeds to reduce input costs. In the KVKs of Assam, the cost of quality seeds is Rs. 40 per kg (2021-22). That means per hectare seed cost is 90000 rupees. For a smallholder farmer, it would be a high level of input cost. To tackle this issue community/group farming to ensure seed production for the farmers could be one of the best solutions to make availability of the seeds among the farmers.

4.2.3 Scope of intercropping to enhance the production level:

It was also observed from the study that there is a remarkable area covered by areca nuts and bananas in the district. Turmeric can be grown along with these crops. Although some farmers have been doing it with areca nuts but not with bananas. There is a need to create awareness among the farmers on the benefits of intercropping, and thereby enhance the production level.



4.2.4 Training on scientific Package of Practices:

The study revealed that a large number of farmers do not follow the proper package of practices. It was found that 66% of the farmers had the practice of mulching by using grass, which was scientifically not correct. Because the grass increases the number of weeds. Also, grass has the characteristics of fast decomposition, which is not suitable for turmeric cultivation. The study also revealed that 52% of the farmers did not apply water in the turmeric cultivable areas, which led to low and inferior quality of production. Scientifically, in a state like Assam, 5 times weeding is a must. But, 60% of the farmers did only two times of weeding. 17% of the farmers did only once. All these non-scientific practices resulted in low productivity. There is a high need to build an environment for constant motivation and learning of the farmers. Demonstration plot/farmers' field school could be a good solution for the experiential learning of the farmers.

4.2.5 Aggregation of turmeric production and value addition:

During the PRA exercise it was revealed that there was no practice of proper aggregation and storage. Also, in the case of value addition, most of the farmers practice only curing and sun-drying processes. There is a need to provide training on proper aggregation and storage facilities of the harvested turmeric. Also, training needs to be provided to the farmers for the value addition of their harvested products.

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CHAPTER 5

LIST OF REFERENCES

- 1. Government of Assam (2012). Statistical handbook of Assam 2012. Guwahati: Directorate of Economics and Statistics, Government of Assam.
- 2. http://goalpara.gov.in/
- 3. https://www.google.com/maps
- 4. https://vikaspedia.in/agriculture/crop-production/package-of-practices/spices/turmeric



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