

Genesis

Dynamics of farm innovation





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Dynamics of farm innovation



ICAR- Agricultural Technology Application Research Institute
Umiam (Barapani) RI- Bhoi District, Meghalaya-793103

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KVK-Zunheboto, Dimapur, Wokha and Phek (Nagaland)

KVK- Imphal East, Chandel and Bishnupur (Manipur)

KVK-Lunglei, Kolasib and Mamit (Mizoram)

KVK-North Tripura and Khowai (Tripura)

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Dr. A.K. Singh
Deputy Director General (Agricultural Extension)

Foreword

Agricultural Extension Division of ICAR, New Delhi through its Agricultural Technology Application Research Institutes (ATARIs) has been pursuing to take technologies to different micro agro ecological conditions across the country. ATARI, Umiam through various programmes of ICAR, viz., Mera Gaon Mera Gaurav (MGMG), Pulses and Oilseeds Cluster Demonstrations, Skill Development on Agriculture, Attracting and Retaining Youth in Agriculture (ARYA) and Farmers FIRST etc. has been trying to reach out to the farmers in association with the KVKs and other line departments in the region. KVKs of the region are addressing the location specific problems of the respective districts and providing the need based solution to problems.

I am happy to learn that ICAR-ATARI Umiam has taken a timely initiative to bring out a publication consisting of the activities of selected innovative farmers of five states, viz. Manipur, Meghalaya, Mizoram, Nagaland and Tripura. I am sure this publication will be of immense help to the farmers and KVKs of the region.

I compliment the Director, ICAR-ATARI, Umiam and the entire team for their effort to bring out this valuable publication.

Dated : 06.03.2018



(A.K.Singh)

Preface

ICAR-Agricultural Technology Application Research Institute (ATARI), Umiam, Meghalaya with its 42 Krishi Vigyan Kendras (KVK) across 5 North Eastern states, viz. Manipur, Meghalaya, Mizoram, Nagaland and Tripura has been working as a frontline extension education organization to cater the needs of various stakeholders including farmers of the region. KVKs of the region are addressing the location specific problems in the respective districts and providing the need based solution to such problems with utmost sincerity and dedication. During the process of implementation of various programmes in farmers' field, it has been observed that some of the farmers have come up with innovative ideas based on their needs to minimize the cost of production. These innovative ideas in consultation with the KVK scientists had been finally translated into viable technologies at local level. Looking into the acceptance of these innovations by the stakeholders, these have been compiled and few of them have been incorporated in this publication.

We sincerely hope this publication will encourage the farmers to come forward with their new ideas to develop low cost and need based technology with the available resources. We sincerely acknowledge the services rendered by the staff of the KVKs and ICAR-ATARI, Umiam including the RAs/ SRFs/ DEOs for their input in bringing out this publication in time.



(Bidyut C. Deka)
Director

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TEA PROCESSING THROUGH INDIGENOUS METHOD



Background

Tea is one of the most preferred beverages in Nagaland. Tea processing as such is an age old technology. Mr. Tohovi Chishi, a progressive farmer from Zunheboto was inspired to take up tea farming after having attended one training programme organized by the state government in the year 2002 and thereafter, he planted tea in his backyard. Once his plantation was ready for harvesting, he did not find market to sale his tea leaves. This situation has compelled him to come up with an innovative idea of processing local tea through indigenous method.

Methodology

The following techniques are followed by Mr. Chishi for producing Green tea, Organic tea and Normal Black tea.

(a) Organic Green Tea

- Plucking of top two leaves early in the morning
- Put the leaves in a net bag
- Soak it for 2 minutes in boiling water
- Take it out and put it again in cold water for 2 minutes
- Place it in locally made sieving basket made of bamboo to drain water
- Immediately roll the leave manually and keep it under the shade for 1 hour
- Sundry it and roll it manually thoroughly
- Sundry the rolled leaves till it becomes brittle
- Put it in an airtight plastic jar and keep it near fire place
- After one month of storage it develops good quality color and flavor of green tea
- Green Tea so produced can be stored up to two years with no change in colour and flavor

Farmer's Profile



Name: Tohovi Chishi

Age: 55 years

Education level: Secondary

Address: Littami New Village,
V.K. Town, Zunheboto, PIN- 798601
Nagaland

Mobile number: 8731801324

Size of land holding: 19.76 (acres)

(b) Organic Tea

- Plucking of top three leaves early in the morning
- Shade dry for overnight by turning it over 3-4 times
- The next morning rolling of leaves manually under very bright sunlight
- Dry under bright sunlight till the rolled leaves become brittle
- Store it in a plastic jar and place it near fireplace
- After one month of storage gives good quality flavor and color (light brown)

(c) Organic black tea

- Plucking of top three to five leaves early in the morning
- Shade dry for overnight by turning it over 3-4 times
- Next morning grind it in a locally made indigenous grinder made of log wood
- Sieve it with the help of locally made bamboo sieving basket
- Select the fine ones and again grind the coarse leave which is not well grinded
- Put all the material in a clean tarpaulin, close and keep it for 1 hour
- When green color turns to red, roll it tightly manually and dry it under the bright sunlight
- Store it in a plastic jar and place it near fireplace
- After one month of storage it develops good quality flavor and color (Dark red)



Organic produces



Indigenous tools



Wooden spoons



Container

Outcome/ Impact

BC Ratio: 2.57

This technology has been accepted by the farmers. The products have given him a good market resulting encouragement to other farmers. Five farmers have adopted this technology. Off late, many of the consumers have shown their preference to locally made organic tea.

INNOVATIVE EGG LAYING CABIN



Background

Meghalaya in general and East Khasi Hills district in particular has a favorable weather for rearing of poultry birds but, the farmers have the problems in setting up of a well defined and scientific poultry layer farm due to higher cost. In the locally adopted method, the layer birds lay eggs scattered in the open hard floor resulting considerable losses. Such losses included scattered egg laying, spoilage of eggs due to breakage (50% losses) and high mortality of layer birds. Furthermore, most of the laying birds are pecked by other birds which resulted in infections and dying of the birds. To address this problem, Shri Wallamkumar Lyngrah, a progressive farmer from East Khasi Hills district developed an innovative egg laying cabin.

Methodology

The farmer observed that the birds are fond of laying eggs on corners and where there are darker shades. Realizing this, the farmer constructed the laying cabins which attracted the birds for laying their eggs. A specific dimension was maintained in the cabins which allowed the birds to freely lay their eggs without any disturbance from other birds due to low light and lesser height. The floor of the laying cabin was laid with saw dust which prevents breakage of eggs (0% losses due to breakage) during laying and a provision for collecting the eggs were provided in the form of hinged top covers so as to facilitate easier collection of eggs from outside without entering the poultry shed. By adopting this method the farmer could increase the production of eggs from his farm and at the same time could minimize the death of birds.

Farmer's Profile



Name: Shri Wallamkumar Lyngrah

Age: 45 years

Education level: Graduate

Address: Village Mawsiatkhnem

PO- Mawlai Phudmuri

BPO- Mawtawar, Meghalaya-793022

Mobile number: 8787565664

Aadhar No. : 823485036596

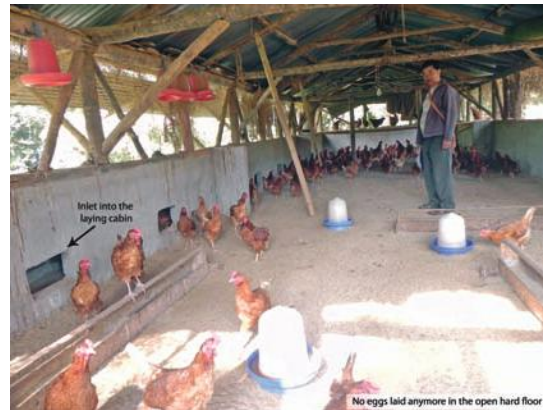
Area: 4.94 acres



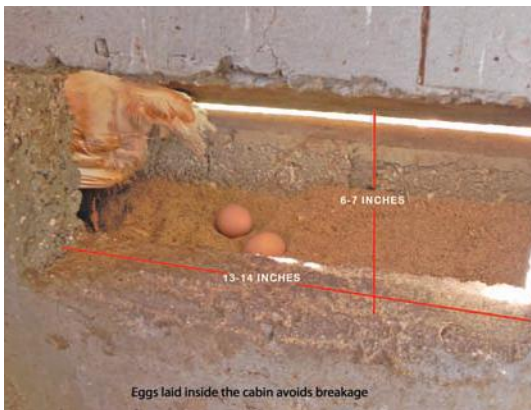
poultry shed



Inside of the wall



Inside of the shed



Entry and Exit



Entry and Exit

Outcome/ Impact

Gross income= ₹8,76,000/-
 Net income = ₹7,09,140/-
 Production cost = ₹1,66,860/-
 B:C ratio= 5.2

The method adopted by the farmer involves low additional investment cost along with high productivity and low mortality rate of the birds, which makes it economically more viable. On an average, the modified technology adopted by the farmer reduced the spoilage or loss of eggs by 90% and thereby increase the productivity upto 80-90%

The new technology developed by the farmer is being practiced by him for the past 3 year and is still performing well. Some fellow farmers who own poultry sheds are attracted by this new innovative idea and have adopted this innovation in his Village and nearby villages of the district.

INNOVATIVE WAY OF MAKING DECORATIVE ITEMS UTILIZING BANANA FIBERS

Farmer's Profile

Name: NOUNE KRO (SHG)

Age: 55 years

Education level: Secondary

Address: Jharnapani Village,
Medziphema Block, Dimapur,
Nagaland

Mobile number: 8732062243

Background

Banana pseudo-stems are generally wasted after harvesting the fruit, which otherwise can be easily utilized for many purposes including extraction of fiber. The fibers so extracted have very good demand in textile industries. Nouné Kro, a Self Help Group from Jharnapani village, Dimapur district of Nagaland came up with an innovative idea of making decorative items utilizing the banana fibers. KVK, Dimapur had helped this group by giving them hands on training on dyeing of the fibers and preparation of various decorative items.

Methodology

The Extraction process involves the below step:

▪ Sheath preparation

The pseudostem should be cut into 4-5 inches breadth having the length of 7-8 feet. The length of pseudostem may vary depending on the need of fiber length. The cut pseudostems should be used within 48 hours after cutting and the cut-open sheaths have to be processed on the same day.

▪ Extraction

The cut pseudostems are divided into pieces and inserted into the machine for fiber extraction. Once the fiber is extracted it needs to be washed thoroughly with clean water to remove the dirt and pieces of pseudostems.

▪ Drying

The fiber has to be dried properly in sunlight/shade after washing.

▪ Raw fiber

The fiber must be bundled out after drying.

From 10 kg of raw pseudostem 250gms of fiber can be extracted. Wild banana fibers are more rough, stronger having thicker thread as compared to the fibers extracted from cultivars like Jahajee, Chini Champa and Malbhog. Wild banana is off-white in color whereas fibers from cultivated banana are more whiter and gives better shine.

▪ Product weaving

The fiber is blended with various materials such as wool or jute fiber for preparation of various products. Banana fiber alone is also weaved for making different handicraft items such as door mat, tea coaster, sling bag etc.

▪ Final products

KVK Dimapur taught the SHG the method of preparation of door-mats, table mats and bags using the banana fiber and blending with different materials. Banana fiber can be refined and used to make fine cushion covers, neck ties, bags, table cloths, curtains etc. Rugs made from banana silk yarn fibers are also very popular world over.

Outcome/ Impact

Four ladies can prepare 12 doormats in one day and likewise, 1 lady can make 10-12 pieces of tea coaster per day. Now the group has started preparing good quality handicraft like decorative flower basket and sunshade hats etc besides doormats, tea coaster, bags etc. The group was recognized as “Best organized SHG Award” during Independence Day celebration (2014) in Dimapur district. The SHG is now earning nearly ₹15000-20000/ month from preparation of fiber products as their leisure time activities.



Extraction



Drying



Product weaving

Various Products



WATER REED (*Scirpus lacustris*) CUM FISH FARMING



Farmer's Profile



Name: Soraisam Dilip Meitei

Age: 51 years

Education level: Secondary

Address: Huikap, Imphal East,
Manipur

Mobile number: 08974663451

Aadhar No. : 5824 2598 8901

Area: 1 ha.

Background

Low production and low net return in low lying paddy cultivated area is the main cause of concern for many farmers of Manipur including Mr. Soraisam Dilip Meite, a progressive farmer from Huikap village of Imphal East District. Therefore, he thought of diversification of his low lying paddy cultivated area so as to increase his net farm income. During the process, he identified water reed, an aquatic weed used for preparation for various household items, along with fish farming as per the advice of KVK, Imphal East.

Methodology

Site Selection

Unproductive low lying paddy fields with good source of water and spacious benches/plots can be brought under this system.

Plot Design

While designing the plot layout, due emphasis is given in the economics of construction, operation and maintenance. The bund (dyke) height should be determined in accordance with the depth of water level. The plot should be designed in such a way that it should meet the requirement of both water reed and fish. Peripheral trenches are constructed in one side or both the side of the field to retain water and also for easy harvesting of the fishes. Strong and stable dykes are constructed around the plot to retain more water and confinement of fish.

Role of fish on water reed and Vice Versa

The culture of fish in water reed fields generally benefits water reed plants due to better aeration of water, greater tilling due to the movement of fish. The excreta of fish increase the fertility of soil. Fish also feed on harmful pest weeds and insect larva, which are harmful

to water reed. Periphytons are the tiny organisms that live on the surfaces of objects under water. Periphytons-based practices have developed independently and are used to catch fish in various parts of the world. When various plankton, microbes, invertebrates and other organisms are colonized which make up the periphyton that finally acts as a good fish feed. Fish can graze on these concentrated forms of food more efficiently as they are able to filter planktonic algae. In this system, water reed plant act as a substrates to enhance food availability via periphyton development and to increase the production of fish. Moreover, due to constant scrapping of the periphyton on the reeds by the fish the lusture and overall quality of the water reeds enhances which could be utilized for further value addition.

Utilization of dyke

The dyke is utilized for growing of banana and king chillies all throughout the year for additional income.

Output/ Impact

By adopting this method/technology the farmer could increase his farm income from ₹40000/ha /year to ₹375000/ha/year with B: C ratio of 3.6. He has now become the role model in his village. The farmers from different parts of Imphal East district as well as from other districts of Manipur have approached him for his help.



BAMBOO BASED DRIP IRRIGATION FOR PRODUCTION OF FRUIT CROP



Background

In Meghalaya particularly in Ri-bhoi district of Meghalaya, there is huge water scarcity during winter months as there is little or no occurrence of rain from November to March. During this period, rainfed Khasi Mandarin orchard suffers the most. To overcome this problem, Mr. Shenbhalang Khongjoh, a progressive farmer from Quinine Nongladew, Ri-bhoi district started this innovation of Bamboo based drip irrigation.

Methodology

The farmer has a Khasi mandarin orchard with 2400 plants on a small hillock. The orchard was established in the year 2003 on seedling rootstock. It is a rainfed orchard with no alternative arrangement for irrigation during winter months. Especially from November to March, the area faces acute shortage of water, which leads to drying of plants. The farmer has devised a method with an objective to give life saving irrigation directly to the root zone of the plants by using bamboo. He selected 3–3.5 feet long, 3–4 inch diameter bamboo and the internodes on top and middle were removed. On the bottom of the node a very small hole was made for dripping of water. Thorn of Khasi mandarin was used to plug the hole to control the flow of water. Each bamboo has a capacity to hold around 2 to 3 litres of water. Each tree was fitted with 1 to 2 bamboos near the base of the plant so that each drop of water released can directly wet root zone. The water is to be refilled 2–3 times in a week. The same piece of bamboo can be used for 3 years if properly stored when not in use. With the intervention of KVK Ri-Bhoi, a Jalkund of size 5x4x2 m with water storage capacity of 40000 litres has been constructed in his orchard for life saving irrigation and higher production of Khasi mandarin.

The innovation has substantially reduced the water stress condition of the orchard which enhances the productivity of the crop. Three liters of water is discharged through the holes made in the bamboo within three days. The water droplets wet the basin of the tree and mulching on the tree basin also helps to retain the soil moisture.

Farmer's Profile



Name: Mr. Shenbhalang Khongjoh

Age: 38 years

Education level: Secondary

Address: Quinine Nongladew,
Ri-Bhoi, Nongpoh,, Meghalaya

Mobile number: 8974984694,
8974999553

Area: 5.5 ha

Outcome/ Impact

- Yield: 45-55 fruits per tree before intervention (13-14 years old tree). 105-115 fruits per tree after starting of intervention in the year 2016 (13-14 years old tree) (*Innovation + fertilizer application + other scientific POP)
- Reduction in labour mandays: 55 mandays per month as compared to 145 mandays before intervention during Nov-March (62% less labour utilized as there were less numbers of labours engaged for manual irrigation)
- Cost of production/year/ha: ₹ 95459.00, Net return ₹ 99230 ha/yr
- B:C Ratio in the first year of innovation intervention: 2.03

The innovation has been in practice by Mr. Shenbhalang Khongjoh for last few years. But as he came in contact with the KVK Ri-Bhoi, the innovation was applied in more organized and systematic manner. Besides irrigation management other management activities supported by scientific POP was applied to enhance yield and the technology was validated by KVK Ri-Bhoi. Farmers' meetings were organized to showcase the benefit of the innovation vis a vis they were shown the importance of water management for successful orchard.





Farmer's Profile



Name: Md. Ayub Ali

Age: 36 years

Education level: High school

Address: Vill- Jubarajnagar,
Dist. – North Tripura, Tripura

Mobile number: 09856424154

Aadhar No. : 329176670756

Area: 7 acres

HOMESTEAD CULTIVATION OF AZOLLA MINIMIZES THE USE OF FYM

Background

Availability of cow dung is going down everywhere and day by day it is becoming very difficult to get the required quantity of cow dung for cultivation of any crop. In view of the above, Md. Ayub Ali, a progressive farmer from Jubarajnagar village of North Tripura district started utilizing azolla as a supplementary to cow dung which is readily available at very low cost. It is extensively used as biofertilizer and green manures for rice cultivation as it fixes 40-60 kg nitrogen/ ha. Moreover, it has been used as feed for pig, duck and fish. It has high content of protein *i.e.*, 20-30% on dry weight basis

Methodology

Homestead cultivation procedure -

1. Prepare pit 2m length, 1m width & 20cm depth
2. Spread polythene sheet (2.6mx1.6m) over the pit
3. Add SSP (10g), MOP (10g), dry cow dung (100g) & Azolla 300 g
4. Mud plaster the surroundings & pour water level (10 cm)
5. Multiply for 15 days. Harvest and repeat the above procedure.



Outcome/ Impact

Economic of normal practice:

Cost of production of paddy : ₹24299/ha

Average production : 3.85 t/ha

Gross return : ₹ 57750/ha

Net return : ₹ 33451.00

B:C ratio : 2.37

Economics/Profitability of innovative practice:

Cost of production : ₹22887/ha

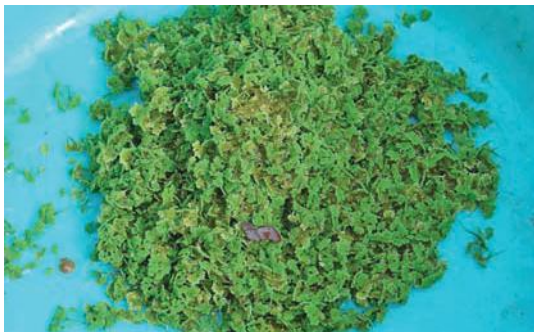
Average production : 5 t/ha

Gross return : ₹ 75000.00

Net return : ₹ 52113.00

B:C ratio : 3.27

This technique is well accepted by the farmers as there is huge shortage of FYM and these days farmers are also aware of their soil health condition and they know very well that it is difficult to increase productivity without organic fertilizers.





Farmer's Profile



Name: Blossom Nongrum

Age: 41 years

Education level: Illiterate

Address: Niriang village, West Jaintia Hills district, Meghalaya

Mobile number: 9615459623

Size of land holding: 17 acres

LANTANA: A POTENTIAL BOTANICAL FOR ORGANIC FARMING

Background

In Organic farming, management of pest and disease is very difficult due to the restriction in the use of chemical substances. In such a situation, one of the progressive farmers, Mrs. Blossom Nongrum of Niriang village from Jaintia Hills district came up with a very good innovative idea of using lantana camara leaves with organic manures for growing of vegetables and crops.

Methodology

1. Lantana camara leaves is used together with organic manure during planting of potato in the field.
2. Lantana leaves are mixed together with organic manure @ 2 kg leaves in 50 kg organic manure. This mixture is applied as a basal dose during planting of potato tubers.
3. Lantana camara leave extract is also sprayed on the leaves of cole crops/salad after soaking the leaves extract in water for a week @ 10ml leave extract/ l of water.

Outcome/ Impact

BC Ratio: 1.5

1. Liming and incorporation of lanata leaves in potato has reduced pest infestation by white grub.
2. Spraying the leaves of cole crops/ salad with leaves extract of Lantana camara repel egg laying of lepidopteran pests.
3. Increase beneficial insect's population.
4. Soil condition is improved due to less use of insecticides

Farmers have accepted this innovation and adopted it. Around 20 farmers have started this practice.



GROWING OF RICE SEEDLINGS IN BAMBOO SPLITS

Background

The rice nursery field is mostly situated far from the farmer's residences and therefore, there is no proper maintenance of the seedlings. Poor nursery management leads to poor seed germination and low crop yield. In order to tackle this problem a progressive farmer from Khanduli village, Shri D Pyrtuh developed an innovative solution by raising rice seedlings in bamboo splits required for SRI with an aim to achieve healthy, vigorous nursery seedlings and better yield.

Farmer's Profile



Name: Shri. D. Pyrtuh

Age: 45 years

Education level: Uneducated

Khanduli Village

West Jaintia Hills District, Meghalaya

Area: 3 ha

Methodology

The stem of a matured bamboo was cut into two halves with a desired length of 30 to 50 cms. The numbers of bamboo splits depend upon the area of paddy to be sown. In the cut stems of bamboos a mixture of cow dung and soil was kept in the hollow stem where soaked seeds of paddy were sown in a line. Thereafter, it was covered with soil and kept nearby the farmer's house for daily care such as watering, protection from birds, rodents, disease and pest infestation.

This technology has the following advantages.

1. It is very convenient to look after the tender seedlings and to protect the seedlings from pests and diseases.
2. It reduces transplanting shock and seedling injury.
3. Economy of land usage (duration in the main field is reduced).
4. Valuable and very small seeds can be raised effectively without any wastage.
5. Uniform crop stand in the main field can be maintained by selecting healthy, uniform and vigorous seedlings in the nursery itself.

Outcome/ Impact

	New technology	Farmers' practice
Yield (q/ha)	52.8	41.6
Gross cost of paddy and other crops (Rs /ha)	38614.5	47072.5
Gross return (₹ /ha)	132000	112320
Net return (₹ /ha)	93385.5	65247.5
BC ratio	3.42	2.39

Looking into the benefit of the technology other farmers of the villages have accepted the technology and use the same for other crops as well.



INNOVATIVE METHOD FOR PACKAGING AND MARKETING OF JAGGERY (GUR)



Farmer's Profile



Name: Chopathung Lotha

Age: 46 years

Education level: Secondary

Address: Longla Village Chukitong
Block, Wokha, Nagaland

Mobile number: 8974433203

Background

Sugarcane cultivation is a profitable venture as a source of income for the farmers. Farmers cultivate sugarcane mainly for Jaggery (Gur) purposes. Since traditional method of jaggery making does not provide the presentable shape and size of the jaggery for marketing and easy transportation, hence, an innovative method was evolved out by Mr. Chopathung Lotha, one of the progressive farmers from Wokha district for packaging and marketing of gur utilizing wild banana sheath.

Methodology

Jaggery is a natural product of sugarcane in unrefined form of sugar. Farmers from Longla village have got keen interest in sugarcane cultivation mainly for jaggery (gur) purpose. About 50 nos of families of the village are engaged in sugarcane cultivation covering an area of 50 ha. Previously the farmers used the manually operated machine for the extraction of juice but, now with the intervention of Agri.& allied department they are extracting the juice using the diesel operated machine. After extraction, the juice is boiled till it meets the end point. Then the final product are kept in a big flat container for cooling but for marketing purposes it's not convenient as such to sale. So, the farmers had innovated a post-harvest method for packaging of jaggery using locally available materials i.e., wild banana sheath which gives a presentable and attractive shape of gur for convenient marketing both by sellers & buyers. Now most of the sugarcane cultivators are adopting his innovative method of jaggery processing and marketing in Wokha district of Nagaland.

Innovative Methods of Jaggery preparation

- Harvesting of sugarcane & cleaning
- Extraction of sugarcane juice & filtering of sugarcane juice.
- Boiling of the juice till it reaches the end point.
- Pouring out the jaggery on wild banana sheath of different size & cooling it.
- Packaging of ready to eat jaggery (gur).

Outcome/ Impact

Gross Income : ₹ 10,8000

Net Income : ₹ 73,000

Cost of cultivation : ₹ 35,000

B:C Ratio : 3.08

Around 31 new sugarcane cultivators from 3 villages have been adopting the method for gur production and packaging.





REDUCING LABOUR COST IN CULTIVATION OF SPINE GOURD AND POINTED GOURD

Farmer's Profile



Name: Shri. Jivan Das

Age: 42 years

Education level: Secondary

Address: Vill Nayanpur, P.O: M.T
Para , Teliamura Khowai , Tripura
Pin: 799205

Mobile number: 09612933475

Aadhar No. : 416460478528

Size of land holding: 0.96 ha

Background

Management of labour is the most important factor in any farming system. Labour management requires patience, command and it is not found in every person. However Mr. Jivan Das, a progressive farmer from Nayanpur village of Khowai has perfectly reduced labour cost by utilizing the technologies available like power tiller with his innovative idea and thereby significantly reduced the labour cost in his spine gourd and pointed gourd fields.



Methodology

In pointed gourd and spine gourd cultivation, normally hoeing & weeding are being done manually with hand spade and the operations consume lot of labour. In order to reduce labour cost, Mr Jivan Das slightly modified row-to-row (78 inches) and plant-to-plant (48 inches) distance for hoeing and weeding with Power Tiller. Earlier, row-to-row and plant-to-plant distance were maintained as 72 inches and 56 inches, respectively. After this modification Mr. Das ran power tiller between the rows, which worked as weeding as well as hoeing. For this operation, 54 man days were required for 0.16 ha area in total for cultivation of pointed and spine gourd. After applying mechanical technique labor requirement reduced to 30 nos. A total of 4-5 hrs power tiller operation is required with total cost between ₹1000-1200 for 0.16ha, thereby minimizing the requirement of man days upto 30 nos from 54.

Outcome/ Impact

- Expenditure incurred for weeding and hoeing of spine gourd / pointed gourd cultivation in 1 ha area was ₹ 84375.00 (337.5 labours @250/day/labor) prior to new method.
- Cost of power tiller operation was ₹ 7812.00 and labour cost was ₹46875.00. Total cost of cultivation was ₹ 54687.00/ ha with the innovative method.
- New methods saved 29,688.00/ ha.

Farmers of Nayanpur village adopted the innovation of Mr. Jivan Das for reduction of labour in weeding and hoeing in spine gourd and pointed gourd. Labour crisis in the village is a serious problem for growing crops and vegetables. Now, most of the farmers of Nayanpur village has started following the innovative technique of Mr. Das for reducing labor cost and saving time.



EARNING LIVELIHOOD THROUGH PIGGERY IN AN INNOVATIVE WAY



Farmer's Profile



Name: Mrs Kuhukhrulu Khamo

Age: 39 Years

Education level: Cl. VIII Passed

Address: Rikuzu Colony, Pfutsero, Phek, Nagaland

Mobile number: 08974100870

Aadhar No. : 228141096100

Background

Nagaland being a tribal state, there is a huge demand of meat and meat products. The amount of meat produced is insufficient to meet the demands of the people. Moreover, the import from the neighboring state like Assam and other states has been banned by youth organization to the District due to unhygienic condition of rearing of the pigs. In order to meet the deficit market, Mrs Kuhukhrulu Khamo, a progressive farmer of Phek district has started an innovative way of piggery farming.



Methodology

Feeding of the pigs with concentrated ration (Ground Maize, Wheat bran, Broken rice & Dry fish) and selective green leaves (Gappa (Plangato major), Bei (Colocasia esculanta), Kikiga (Angiopteris spp.), Gakra (Oenanthe javanica), Gazhie(Polygonum chinenses), Krizhie(Polygonum runcinatum), Thevopruzie(Polygonum hydropiper),Khroci (Impatiens falcifer), Garii (Fagopyrum esculentum),Dzubuo(Alternanthera sessilis), Gathiirii (Clerodendron colebrookianum), Tiikholiimu(Cucurbita spp), Kuwas (Sechium edule) etc.) from jungle in the ratio of 2:1 and has achieved the desired growth rate. With the income generated she has purchased a vehicle to transport quality boar to the cyclic sow to the nearby villages (viz Phuchasadu, Porba, Pfutseromi, Thipuzumi, Rikuzumi) on payment basis (₹1000/- per service excluding the transportation charge). She sells her piglets @ ₹5000/-

Outcome/ Impact

B:C ratio= 2.37

Total income from sale of piglets and boar service is approx 6 lakhs per annum and input expenditure is ₹ 2.53 lakhs that includes feeding, healthcare, depreciation etc.

The innovative method of feeding has reduced the expenditure which account to 70 percent of the investment in pig rearing. Further, the fellow farmers are greatly benefited by the boar service in quick and timely manner that assures impregnation of the sows.



TRADITIONAL WAY OF TREATMENT OF PIGS USING THE LOCALLY AVAILABLE MEDICINAL HERBS

Background

Majority of the farmers in East Khasi Hills follow the unscientific method of rearing animals especially pigs and they let loose the pigs for scavenging in an unhygienic manner. In such condition, there is always high chance of disease occurrence. The cost of medication is very high and the farmers could not afford it. In such cases, farmers run into losses due to high mortality rate of pigs. To overcome this problem, one of the innovators, Mr. Rimiki Suchiang has done an in depth study to find out the locally available medicinal herbs used for treatment of the animals at Mawpran village, pynursla block, East Khasi Hills.

Farmer's Profile



Name: Rimiki Suchiang

Age: 26 years

Education level: Post Graduate

Address: Mawblei, Madanryting, East Khasi Hills district, Meghalaya

Mobile number: 9862871581



Methodology:

Sl NO.	Scientific name	Family	Vernacular name	Parts used	Diseases treated	Method of treatment
1.	<i>Citrus medica</i>	Rutaceae	Soh mat	Fruit	Fever	Juice extracted and rubbed on the forehead or fed orally
2.	<i>Curcuma caesia</i>	Zingiberaceae	Kynbat sheng	Leaves and tuber	Parasitic infestation	Grinded and given orally
3.	<i>Dicrocephala integrifolia</i>	Asteraceae	Kynbat nongrim	Leaves	Wound healing, post-castration	It is grinded and mixed with kerosene and then applied on the infected areas.
4.	<i>Flamingia macrophylla</i>	Fabaceae	Kyrduk	Leaves	Wound healing, proper alignment of sutured area.	Grinded and pasted, Also given orally.
5.	<i>Mimosa pudica</i>	Mimosaceae	Sla khap rip	Leaves	Dental problem and wounds	Grinded and given orally.
6.	<i>Polygonum bistorta</i>	Polygonaceae	Jaboit	Leaves	Fever	Grinded and given orally.
7.	<i>Pteridophyte spp</i>	Pteridophyta	Kynbat kyrwat	Leaves	Wound healing	Grinded and pasted on the affected area
8.	<i>Conyza bonariensis</i>	Asteraceae	Kyn bat nain thireng	Leaves	Deworming	Grinded and given orally
9.	<i>Zingiber zerumbet</i>	Zingiberaceae	Sying blei	Tuber	Skin	Mixed with oil and pasted on the affected parts
10.	<i>Cannabis sativa</i>	Cannabaceae	Kynja	Leaves	Stomach problem	The leaves are fed raw or cooked



Citrus medica (Soh mat)



Dichrocephala integrifolia (Kynbat nongrim)



Curcuma caesia (Kynbat sheng)



Flamingia macrophylla (Kyrduk)



Polygonum bistorta (Jaboit)



Pteridophyte spp (Kynbat kyrwat)



Mimosa pudica (Sla khap rip)



Conyza bonariensis (Kynbat nain thireng)

Outcome/ Impact

This innovation is one of the best findings which have been practiced by the farmers of the state of Meghalaya and it is highly accepted by the farmers as compared to the modern veterinary drugs. It not only cuts the medication cost but it is readily available and considered to be safe and have better acceptance among the farmers as the processing of these medicines are also very simple.

CARDBOARD BOX HATCHERY

Background

Japanese quail farming is gaining popularity in North Eastern region with many farmers taking it as a business venture. Their eggs are also believed to be more nutritious than other birds. Quail require less space for rearing and lays egg at an early age and attains marketable age at just 5 weeks of age. Mr. MC Rokunga from Lunglei district of Mizoram came up with a very good innovative idea of developing a card box hatchery for hatching of quail eggs. Interestingly this was done for the first time in this district. Creation of a hatchery box is always a great challenge as it requires an optimum maintenance of temperature and humidity.



Farmer's Profile



Name: MC Rokunga

Age: 47 years

Education level: Secondary

Address: Chanmari, Hnahthial – 796571,
Lunglei, Mizoram

Mobile number: 8974117909

Aadhar No. : 713660910748

Size of land holding: 3 acres



Methodology

One side of the cardboard/thermocool box measuring 3x2x2 ft was cut opened 1 foot long and 1 foot wide in the middle to allow air circulation. Then 60 watt bulb was placed in the middle to regulate temperature while wet cloth or cotton soaked in water was also placed inside the box to maintain humidity. This simple Cardboard Box Hatchery technique takes only 17 to 18 days for hatching.

Hatching of Japanese quail egg was done successfully for the first time in the district through this cardboard hatchery unit. This idea was disseminated to the farmers who are willing to rear the bird. More than 5 farmers have had their quail eggs hatched successfully using locally designed cardboard boxes.

Thermometer and Humidity recorder was placed within the hatchery.

This technology has encouraged other farmers of the district to take up Japanese quail farming

Outcome/ Impact

B.C.Ratio: 2.8

The hatch quails are sold @ ₹ 20/quail

- This practice really impress the fellow farmers for their own benefit

- The simple technology has spread into the other villages of the district.



Japanese Quails Eggs kept in the Cardboard Hatchery for Hatching



Hatched Japanese Quails

WOODEN TOOL FOR DOUBLE ROW METHOD OF TPS TO TUBERLET POTATO PRODUCTION

Farmer's Profile



Name: Sri Mohan Sarkar

Age: 59 years

Education level: Secondary

Address: Vill- Sulanala Narayanpur, Patcherthal, Unakoti (Un divided North District), Tripura

Mobile number: 09436340729

Aadhar No. : 5969 4359 050

Area: 4.8 acres

Background

Potato tuberlet cultivation by TPS is one of the major source of seed tuber in the district for table potato production in North Tripura. Farmers normally practices Double Row Method of TPS to Tuberlet cultivation where Bed width is 1 m (40 inch), height is 15 cm (6 inch) and length is as per requirement. Spacing of 10 cm X 4 cm X 25 cm is recommended where row to row is 10 cm (4 inch), seed to seed is 4 cm and between two rows to two rows on a bed is 25 cm (10 inch) having seed depth of 0.5 cm (0.20 inch).

But the challenge and problem is difficulty in preparation of rows on beds for TPS sowing with proper seed depth under double row method which need huge farm labour resulting high cost of cultivation. Normally rows making by stick without opening furrows of "V" shapes reduces germination percentage. To overcome this problem, Sri Mohan Sarkar, a progressive farmer from Sulanala Narayanpur village of North Tripura district developed a wooden tool of having two "V" shape for making furrow for double rows on the beds for sowing of TPS.



Sri Sarkar with innovative tool



Field view after sowing

Methodology

Sri Mohan Sarkar S/o late Nilkanta Sarkar of Patcherthal has developed one implement having two V shaped wooden projections for Double Row Method which facilitates easy sowing of true potato seed (TPS) having proper seed depth. Here, he developed the wooden implement (tool) with 12 cm gap instead of 10 cm gap between row to row. The spacing maintained was 12 cm X 5 cm X 25 cm (Row to row – 12 cm, Seed to seed – 5 cm and between two row to two row – 25 cm) instead of recommended Spacing of 10 cm X 4 cm X 25 cm. This 2 cm increase in spacing in row to row in his tool facilitates easy intercultural operations, irrigation and weeding. This tool makes open furrow for seed sowing and these furrows are kept opened till seedling height attains 5 cm. These furrows facilitate accumulation of foggy drops resulted higher germination percentage. This V shaped tool resulted low labour requirement and high germination percentage.

Outcome/ Impact

Economics of normal practice-

Cost of production : Potato Tuberlet- ₹84703/ha, Average production : 22t/ha, Average market price of TPS tuberlet potato: ₹10.00/Kg, Gross return : ₹220000/ha, Net return : 135297/ha, B:C ratio : 2.6

Economics/Profitability of innovative practice-

Cost of production : Potato Tuberlet - ₹64703/ha, Average production : 22t/ha, Average market price of TPS tuberlet potato : ₹10.00/Kg, Gross return : ₹220000/ha, Net return : ₹155297/ha B:C ratio : 3.4

Development of this particular tool with 2cm increase in the spacing between row to row benefited for intercultural operations specially weeding by means of manual or hand weeding. It also helps for earthing up operations in between the rows with no variation in yield and size of tuberlet. Other cultivation practice remains same.

This tool really reduces the cost of cultivation as row making for seed sowing in between rows became easy and required less labour. Farmers adopted this simple technology/ tool which reduces the labour cost upto ₹20,000.00.





Farmer's Profile



Name: Shri.ManhunThabah

Age: 46 years

Education level: Secondary

Address: Nongkasen Village,
Mawthadraishan Block, West
Khasi Hills, Meghalaya

Mobile number: 09856753493

Size of land holding: 7 acres

INDIGENOUS STORAGE METHOD OF POTATO TUBERS

Background

Potato if not stored properly is highly susceptible to pest infestation and the farmer thus incurs a heavy loss from spoilage of these potatoes. To cope with this problem, Shri Manhun Thabah, a progressive farmer from Nongkasen Village of West Khasi Hills came up with an innovative idea of storage of potatoes in a pit with proper space and ventilation.

Methodology

Shri. Manhun Thabah is a progressive farmer from Nongkasen village Mawthadraishan Block, West Khasi Hills district having 7 acres of land growing paddy, potato, maize, vegetables and also sweet potato. For all these years, the farmers in the village used to store potato tubers in a heap inside the room inviting many storage insects like potato tuber moth causing a major loss to the potato growers. Manhun Thabah then developed an innovative idea of storage of potatoes in a pit with proper space and ventilation.

He first dug a pit inside his wooden house with the depth of not more than 5 feet, length of 20 ft and breadth 10 ft or it can vary according to the size and structure of the house. With this size, he could store up to one tonne (approx) of potato tubers. Space (path) is provided in the middle of the pit for easy access during inspection. He took great care for the construction so that it does not affect the stability of the house. It is better to keep the door from inside the house. He suggested that if the texture of the soil is stoney and hard then there is no need to re-enforce the wall of the pit, however, if the texture of the soil is soft, then it is required to re-enforce the wall of the pit with concrete cement. There should not be any hole in the pit to avoid entry of rats. The floor of the pit should not be cemented to avoid accumulation of water. The pit should be in total darkness to prevent the entry of pest. Ventilation is important. Air can enter from the holes in the wooden floor of the house.

A spacing of not more than 6 inches is necessary between the floor of the house and the side wall of the pit (top most). The spacing so created must be closed with metal net to avoid the entry of rats and squirrels.

The pit as mentioned could be dug either under the house or the store house where they store firewood, tools, etc. Care must be taken to prevent entry of water from outside.

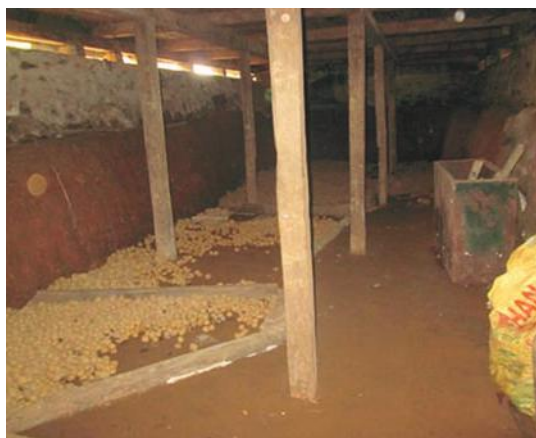
Outcome/ Impact

B.C.Ratio: 1.5

In view of non availability of low cost storage structure in the village, this storage pit of Shri Manhun Thabab is found to be very suitable for storing potato tubers.



Healthy potato tubers inside room



Storage room for potato



Tubers ready for sowing



SOIL CONSERVATION THROUGH INDIGENOUS METHOD

Farmer's Profile



Name: Shri Bojesh Chothe

Age: 28 years

Education level: Graduate

Address: Phaipi village, Chandel district, Manipur

Mobile number: 8730808999

Aadhar No. : 406889767617

Area: 0.25 ha

Background

Degradation of land and water resources is a serious problem in the tribal district of Chandel of Manipur. Fast paced and multi-faceted development and ever increasing population have created tremendous pressure on land to provide basic requirement essential for survival. To meet these requirements, the limited natural resources are being over-exploited resulting in widespread eco-system degradation. The tribal hill regions are highly susceptible to acute soil erosion problems due to its undulating topography and high intensity rainfall. The primitive cultivation practice of *jhum* cultivation further enhances these degenerative trends and rampant deforestation, wild fires, extensive grazing etc. are adversely affecting the overall ecological condition of the region. To address this menace, Shri Bojesh Chothe revived the potential indigenous farming system in the region called *Ihrii ekhang*, which is developed by tribal farmers using their ingenuity and skill.

Methodology

Mr.Chothe observed that the productivity of his field on the hill slope was getting declined with each passing year. There was no soil or water conservation practice adopted in his field. He studied and analysed his practices and discussed with the village elders. Thereafter, he decided to revive the age-old indigenous farming system in the region called *Ihrii ekhang*. This consisted of placing wooden poles or discarded tree trunks horizontally across the slope. These created barriers across the slope which diverted the excess run-off during rain to the waterways and retained the eroded soil. This practice greatly reduced the runoff speed as well as controlled the soil erosion. The productivity of paddy has increased considerably and he now grows vegetables as second crop after paddy.

Outcome/ Impact

BC Ratio: 2.57

This technology has been accepted by the farmers of neighbouring villages. Earlier the system productivity was 2.64 t/ha. The increased productivity (3.96 t/ha) has enhanced his financial status resulting in encouragement to other farmers. This technology is in initial phase and a total of 7 farmers have adopted this technology.



Farmer's field



Farmer's innovative practice



Farmer's Profile



Name: Mr Michael Mercer (64 yrs)

Education: M.Sc (Science), Diploma (Tropical Agriculture), Diploma (Pig Farming)

Address: Sunhlukawn, West Serzawl road, Lengpui, Mizoram -796421

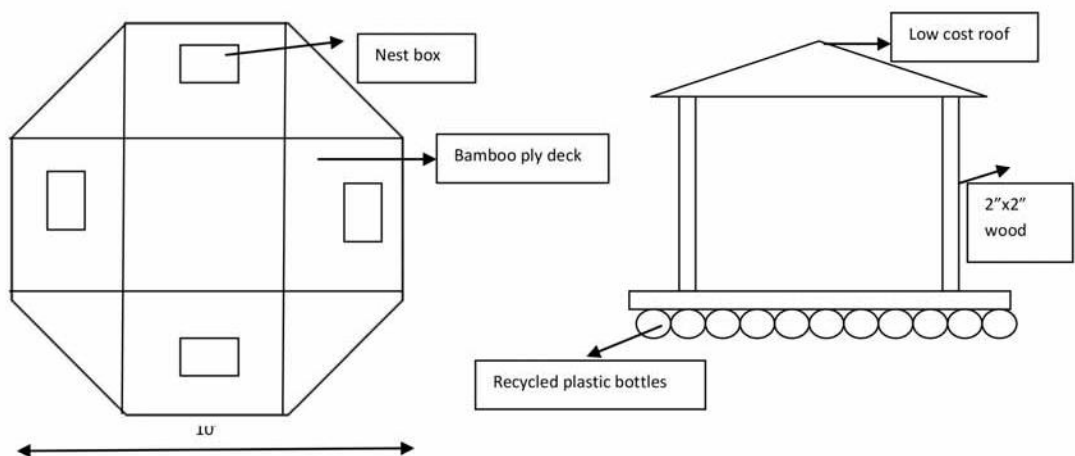
Mobile no: **7085893219**

Size of land – 40 acres

FLOATING DUCKERY UNIT INTEGRATED WITH FISH FARMING

Background

Mr Michael Mercer and Mrs Hmangaihzuali have a farm pond of about 2 acres wherein they rear exotic carps like common carp, grass carp and silver carp. It has come to the notice of KVK, Mamit district that this couple are hard working but the income generated from this pond is minimal. With the consent of the farmer the Kendra came up with the idea of integration with a duckery unit. Few pairs of *khaki Campbell* and *Indian runners* were also provided to them. But eventually, it was found that these ducks were not at all safe from wild animals which intrude from the adjacent forest especially during night hours as the ducks were sheltered at the pond banks. The farmer came up with the idea of constructing floating duckery unit within their pond with a sole reason of protecting their birds from wild animals.



Methodology

1. Construction of duckery unit
 - a. Construction of 10' x 10' octagonal deck with bamboo ply
 - b. Attachment of recycled plastic bottles below the hexagonal deck for floatation
 - c. Construction of 5' x 5' duckery shed upon the floating deck with low cost roofing materials
 - d. Providing nest boxes inside the shed
 - e. Fencing the periphery of the deck with plastic net



Attachment of recycled plastic bottles beneath the deck



Floating duckery unit

Outcome/ Impact

1. Protection from wild predators
2. Free range duck farming
3. Additional income from duckery unit
4. Supplementary feed/ nutrition for fish from duck droppings.
5. Increase of aesthetic value of the pond

The innovation of the floating duckery unit has increased the size of the fish by 0.3-0.4 times as compared to previous years. Besides providing safety for the ducks, the farmer has utilized low cost materials, waste bottles, locally available materials and scraps only for constructing the duckery unit.

Gross income: ₹70,000/-

Net Income: ₹62,000/-

Production cost: ₹8,000/-

B:C ratio: 8.75



EASY WAY OF MAKING HOME MADE NATURAL SOAP

Farmer's Profile



Name : VAU (SHG)

Age : Below 45 years

Address : Bilkhawthlir Dawr Veng,
Kolasib District, Mizoram

Mobile No: 8014226059

Adhaar No: 808335571940

Background

Soap is an important household item and all most all the families in the village buy soap manufactured by different companies. KVK Kolasib gave training of making homemade natural soap to many SHGs. Vau, a Self Help Group of Bilkhawthlir, Kolasib district were given the technology of making natural soap. Thereafter, the SHG started making soap from seasonal fruits and vegetables like papaya, tamarind, neem leaves, tomato, aloe vera etc.

Methodology

1. Ingredients :

- 1) Sodium hydroxide/caustic soda or Iye (Saponifying agent): 100 gms
- 2) Coconut oil/palm oil/sunflower oil :1 lit
- 3) Natural ingredients like papaya, tomato etc: 1 kg
- 4) Glycerin
- 5) Vodka or any perfume (to create scent)
- 6) Liquid or powder colour
- 7) Soap mold

2. Method :

Step 1: Take a plastic bucket and pour in the saponifying agent i.e. caustic soda and grind it into a fine powder.

- Step 2: Add the essential oil into the powder caustic soda and mix them well with a long wooden spatula.
- Step 3: Then, add the natural ingredients after grinding and mixing properly
- Step 4: Add the liquid or powder colour into the mix batter and mix them well until it becomes thick.
- Step 5: Check the batter consistency constantly when it becomes drooping consistency, one can see that the batter is ready to be poured into the soap mold.
- Step 6: When the soap mixture cools down, add the scent of your choice and then mix them and pour out into the soapy mold.
- Step 7: Leave the filled molds in a place where they can cool or rest undisturbed for 2-3 days. Then the soap is ready for use.

Outcome/ Impact

Vau SHG, comprises of 6 female members had started earning through their homemade natural soap from 2016, which they marketed them in the district. The media had also recognized them by airing the interviews. They had participated in the sistrict and state level exhibition, fair and workshop and were awarded many times for their innovative works and performance





INNOVATIVE WAYS OF MAKING VALUE ADDED PRODUCTS FROM UNDERUTILIZED INDIGENOUS MUSHROOM

Background

Mushroom is a nutritious natural vegetable which contains high quality protein, vitamins and fibre. Many mushroom species are found in the hillock of Chandel with the onset of monsoon in almost all types of soils, on decaying organic matters, wooden stumps. These underutilised mushrooms are wildly available in plenty in the month of May to July/August which is highly perishable. Mrs. Harmila realizing its importance started making paknam, bora and mushroom akangba from these wild mushroom and sold to local market. People from neighbouring villagers liked her product very much and demand was increasing day by day. Having attended some training programme on mushroom conducted by KVK, Chandel she started producing new products.

Methodology

The following techniques were followed by Mrs. Harmila for producing different value added products from underutilised indigenous mushroom.

(a) Mushroom Paknam

- Wash and Shred mushroom into small pieces
- Wash green chilli, napakpi leaf and cut into pieces
- Mash coarsely slice green chilli and

Farmer's Profile



Name: Mrs. Th. Harmila

Age: 54 years

Educational level: Class X

Address: Liwa Sarei, Village,
Chandel, Manipur

Mobile no:8730986332



napakpi leaf with properly roasted fermented fish and salt

- Mix with mushroom, besan and little water till the mixture blend well.
- Put the mixture in turmeric leaf and wrap over. Again cover / wrap with banana leaf.
- Pressure-cook the mixture for 15 to 20 minutes.
- Take out from pressure cooker and roast in pan /tawa by upside down in low flame till it cooks properly (another 15 to 20 minutes)
- Remove banana leaf and turmeric leaves

(b) Mushroom Bora

- Wash and cut the mushroom into desired size and shape
- Make batter by mixing besan with water, salt and spices
- Dip the mushroom into the batter and keep for sometime
- Heat oil in a karahi (container) and fry the mushroom pieces till it turns into golden brown
- Remove from fire when bora turns crisp golden brown
- Serve hot with tomato sauce or chilli sauce

(c) Mushroom pickle

- Clean mushroom, cut into small pieces
- Blanch in boiling water for 5 min
- Soak it overnight in vinegar
- Drain out vinegar next day
- Heat oil, Add mushroom & Cook for 5-10 min
- Add spices and salt, Cool it down & Fill and store it in pre-sterilized bottle

(d) Mushroom Akangba

- Select fresh unspoiled mushroom
- Dry it in sunlight for 5 to 7 days by turning upside down 2 to 3 times daily
- Pack the dried mushroom in polyethylene packet and seal properly



Outcome/ Impact

She collects the mushroom from the nearby hillocks without spending anything except the time for collection. She preserves 200 kg mushroom in the form of dry preserve and 50kg mushroom in the form of pickle. She sells the product to Sangai festival, Saras Mela, SHG Mela, ICAR farmers fair, CAU Agri fair and local shop@ ₹ 50 per 250 gm of dry preserve and ₹80 per 250 gm of pickle bottle. Every year she earns more than ₹40,000/-.

BC ratio: 4.61

Her products are in great demand in Chandel district. She is a successful farmer and also a role model for the local folks. She inspires others to work hard and make them economically self-reliant and improve their family income.



Farmer's Profile



Name: Thounaojam Nungshi Devi

Age: 48 years

Educational Status: Graduate

Address: Utlou Mayai Leikai,
Bishnupur, Manipur

Mobile No.: 08118952518

Aadhaar No.918030027048

USE OF NATURAL DYES FOR PREPARATION OF LADY GARMENTS

Background

Natural dyes are biodegradable, non-toxic, aesthetically appealing and may serve a better alternative to generate employment and utilize the wastelands. Natural dye are made out of collected natural plants including flower petal, leaves etc. The use of natural dye is safe, eco friendly and also prevents environmental pollution. Now a days the natural dyes are in demand not only in textile industry but also in cosmetics and food industries. Ms. Nungshi Th. is an energetic and dynamic lady who was in search of the income generating avenue suitable for her. She started practicing and producing different items of organic dye and started selling her product at different occasions after having attended training programme at KVK, Bishnupur.

Methodology

- Dye from flowers are extracted by preparing an aqueous solution of the dried flower (3.3 g in 100 ml distilled water) and the extraction process is carried out at a temperature range at 50 -95^o C for 2 hours. After the extraction procedure is complete, the flowers are taken out from the liquor.
- Degumming of the silk yarn.
- Mordanting is carried out by accurately weighing silk yarn and the same are treated with Potash Alum. The mordant (extracted colour) @ 2% is dissolved in distilled water to make a material to liquor ratio of 1:30. The sample is dipped into the mordant solution and incubated for 45 min to 1 hour at temperature rage of 95^oC. After mordanting the silk yarns are squeezed and dried at room temperature.



Outcome/ Impact

Extraction of colours from natural sources and preparation of various garments are gaining popularity in Bishnupur district due to a small initiative taken by KVK, Bishnupur. Mrs. Nungshi, an ex-trainee of the KVK is doing a very good business. In 10 days long Handloom and handicrafts fair held at Imphal she puts up her stall of organic dye product (silk saree, half saree, dupatta, lower garment) and earns more than ₹1,00,000 with net profit of ₹ 30,000 per year. In addition she is supplying her products to different retailer of Imphal town and getting an average income of ₹ 10,000 per month.





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