KVK NEWSLETTER

KRISHI VIGYAN KENDRA, RI-BHOI
ICAR RESEARCH COMPLEX FOR NEH REGION
UMROI ROAD, UMIAM – 793103 (MEGHALAYA)
Tel Fax: +91364-2570011 e-mail: pckvkribhoi@gmail.com ; www.kvkribhoi.nic.in

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From the Editor's Desk

The agricultural productivity in rain fed areas of NE is not matching with population growth in spite of its abundant natural resources. The agricultural development of the farmers as well as other stakeholders basically depends on proper capacity building for enhancement of competency, knowledge and skills.

This issue of KVK Newsletter is to provide the highlights of the work done by KVK Ri-Bhoi in the form of On Farm Trials, Frontline Demonstrations, Trainings, Awareness programmes and Seed and planting material production of paddy, maize, Pea, spices (like ginger and turmeric), etc. Various special Prime Ministers Flagship programme like Soil Health Card (SHC) ,Sankalp Se Siddhi, World Hone Bee Day, Swachhata Hi Seva etc were also organised.

Agriculture across the world and especially in NE Region of India is challenged by multiple factors including soil health, climate stresses, resource constraints, market and socio-economic dynamics. Traditional agricultural management is falling short to meet these challenges, particularly in the changing climate. Hence, KVK Ri-Bhoi is also working on scientific integrated externally funded projects on " National Innovations on Climate Resilient Agriculture" with the technology demonstrations on deep litter housing of pigs, pig cum fish IFS, Backyard poultry farming with Vanaraja birds, Soil conservation with mulching, micro irrigation Jalkund, polyhouse technology, mushroom production, vermicomposting etc specifically for doubling farmers income by 2022 in Ri-Bhoi district. The authors would like to express their sincere gratitude to farming community who is working under KVK Ri-Bhoi and all the staff of KVK, Ri Bhoi who have directly or indirectly contributed to the successful compilation of this edition of KVK Newsletter.

We would like to dedicate this publication to the farming community of Ri Bhoi District and we hope that KVKs works will help for improving the livelihood of farming community in the district.

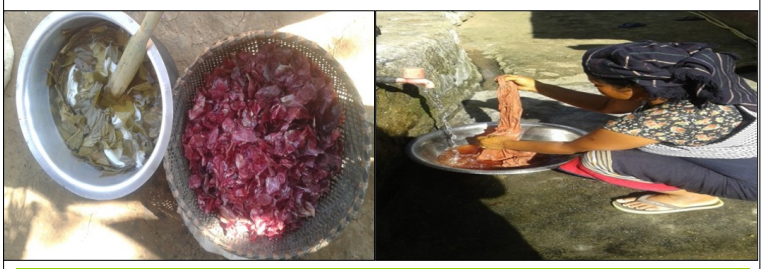
Dr. M. Mokidul Islam
Senior Scientist & Head
ICAR- KVK Ri-Bhoi

CONTENTS

ON FARM TESTING (OFT)

Evaluation of Natural Dyes for higher Income

An intervention was undertaken during Kharif 2017 on evaluation of Natural Dyes for higher Income amongst the 10 numbers of local weavers of Nongrim Village of Ri-Bhoi District. The Trial was undertaken in order to reduce the dying cost spent in purchasing expensive chemical dyes. The trial is still ongoing.



Evaluation of natural Dye

Vertical Farming for rural farm women

An intervention was undertaken during Kharif 2017 on Vertical Farming for Rural Farm Women at Mawblang Village of Ri-Bhoi District. The Trial was undertaken in order to help landless farm women to have their own nutritional kitchen garden. The trial is still ongoing

Vertical farming

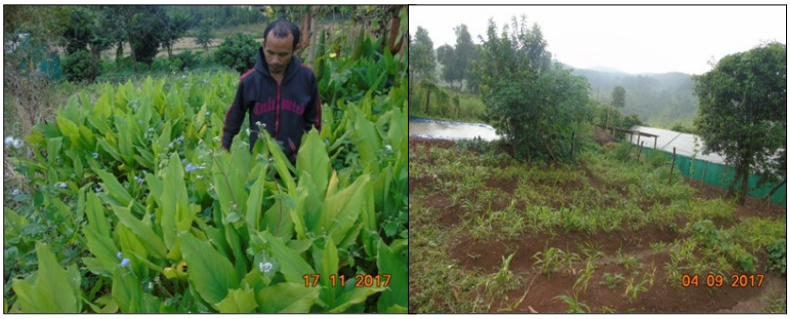
ON FARM TESTING (OFT)

Performance of Single bud transplanting technique of ginger & turmeric for reduction of seed

An intervention was undertaken on single bud transplanting of Ginger and Turmeric for reduction of seed cost amongst the 18 number of farmers of Umeit Village of Ri Bhoi District covering an area of 1 hectare. The trial was undertaken in order to reduce the higher seed cost due to high seed rate. The trial was done in comparison to the conventional method using ginger variety Nadia and turmeric variety Megha Turmeric-1. In this technology single bud cutting (5-6 gram) transplanting @ 5-6 q/ha. The result in relation to turmeric shows that the yield production is 290.2 q/ha compared to the conventional method that is 187.6 q/ha, B.C.ratio of 5.82 as compared to conventional method of 2.44 and the seed cost saving by 71.55%. The result in relation to ginger shows that the yield production is 255.45 q/ha compared to the conventional method that is 205.50 q/ha, B.C.ratio of 5.43 as compared to conventional method of 2.27 and the seed cost saving by 55.80%.

Single bud transplanting of turmeric Var. MT1

Single bud transplanting of Ginger Var. Nadia



Conventional Methods

ON FARM TESTING (OFT)

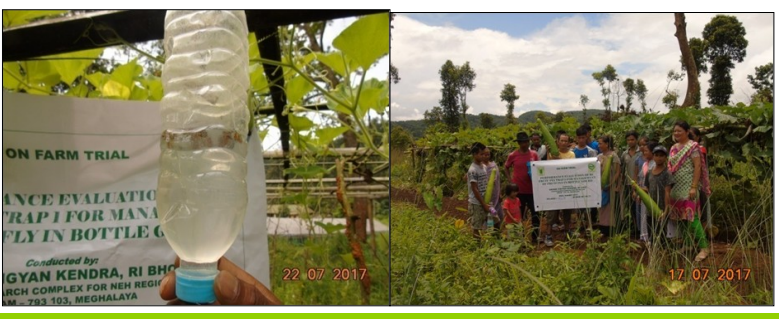
Performance Evaluation of Okra Varieties

An intervention on performance of okra varieties (Var.1 Arka Anamika, Var. 2 Pusa A4, Var. 3 local) in order to check the problem of low productivity of existing cultivar. During the trial, demonstrations were conducted with 30 numbers of farmers of Nonglakhiat village of Ri Bhoi District covering an area of 5 ha. The findings showed that in Okra Var. Arka Anamika, the yield was 188.6 q/ha with a B.C. ratio of 2.58. In Okra Var. Pusa A4, the yield was 135.5 q/ha. With a B.C. ratio of 2.19 in comparison to the farmers' local variety that yield 102.5 q/ha. With a B.C. ratio of 1.69. The trial also showed that there was severe infestation by blister beetle in Okra Var. Pusa A4 and less infestation in Okra Var. Arka Anamika.

Performance Evaluation of Okra Varieties

Performance Evaluation of RC Fruit Fly Trap 1 for Management of fruit fly in bottle gourd

An intervention on performance evaluation of RC fruit fly trap1 (Methyl Eugenol) or management of fruit fly in bottle gourd in order to check the problem of low productivity due to fruit fly attack. During the trial, 5 numbers of demonstrations were conducted with 30 numbers of farmers of Umeit village of Ri Bhoi District covering an area of 0.2 ha. The findings showed that by attaching the trap, the crop yield was recorded 270 q/ha with a B.C. ratio of 2.10 in comparison to the crop without traps that yield 120 q/ha with a B.C. ratio of 1.40. The trial also showed that about 4-5% insects was trapped per trap.



RC fruit fly trap1 for management of fruit fly in bottle gourd

FRONTLINE DEMONSTRATION (FLD)

Sl. No	Details of Technology	Venue	No. of Demo	Area (ha) / unit	Beneficiaries
1	Popularization Maize var. RCM 75, RCM 76, RCM 1-3		11	5	57
2	Popularization of bottle gourd var. Sharda	Madan Non-glakhiat	5	0.5	35
3	Popularization of Nutrition Garden	Umraleng	5	0.10	20
4	Popularization of *Jalkund*		5	5	5
5	Organic manure for crop cultivation through vermi-		1	5	5
6	Low cost vermicompost		1	3	21
7	Vegetables production under Low cost polyhouse	Umeit Madan Non-	5	700 m^2	66
8	Popularization of Banana var. Grand Naine	Lad Umpih Umkon	2	0.15	40
9	Popularization of colocasia var. Mukta Kashi	Madan Non-glakhiat	5	1	50
10	Promotion of community Vegetable nursery under protected condition	Umeit Thadnongiaw	2	200 m^2	41
11	Cultivation of Gerber under low cost polyhouse	Umeit Umkon Thadnongiaw	4	400 m^2	40
12	Popularization of HYV of groundnut (Var. ICGS 76)		21	20	57
13	Promotion of Biofertilizer in paddy for higher productiv-		10	5	25
14	Promotion of Paddy (var. RCM-10)- pea (var. Vikash) cropping system		35	10	79
15	Popularization of Rajmah var. Tripura sel-1	Pahamskhain thadnongiaw	8	10	44

Front Line Demonstration

THEMATIC AREA WISE TRAINING PROGRAMME ORGANISED

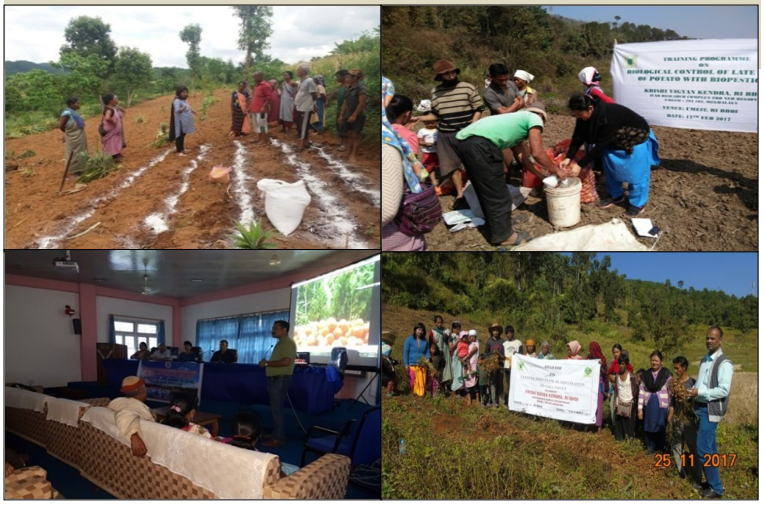
Thematic Area	No. of courses	Beneficiaries		
		Male	Female	Total
Vegetable production	3	39	29	68
Flower cultivation	1	9	6	15
Production Technology	3	5	51	56
Mushroom Cultivation	2	8	42	50
Biological Control	4	13	36	49
Nutritional security	1	3	7	10
IDM	1	10	10	20
INM	4	26	83	109
Organic input production	2	16	36	52
Resource conservation	1	8	12	20
Crop Diversification	3	21	6	27
Nursery management	1	7	3	10
Orchard management	4	5	24	29
Soil health	1	15	16	31
Vermi composting	2	9	32	41
Value addition	4	6	81	87
Food Processing	2	0	40	40
Drudgery reduction	1	12	9	21
Total	40	212	523	735

SPONSORED TRAINING PROGRAMME

Title of the training	Thematic area	Category	Duration	Beneficiaries	Sponsoring agency
Protected cultivation of flower, vegetables as well as nursery raising under low cost polyhouse	Nursery management	RY	9	6	NCUI Shillong
Growing horticultural crops for income generation	Income generation	RY	16	9	TISS guwahati

DISCIPLINE WISE TRAINING PROGRAMME

Discipline	No. of courses	Beneficiaries		
		Male	Female	Total
Agronomy	2	11	6	17
Soil Science	7	35	131	166
Horticulture	6	55	58	113
Plant Protection	6	31	53	84
Home Science	7	21	147	168
Total	28	153	395	548



Training cum Demonstration programmes conducted

CELEBRATION OF THE 15TH FOUNDATION DAY OF KVK– RI-BHOI

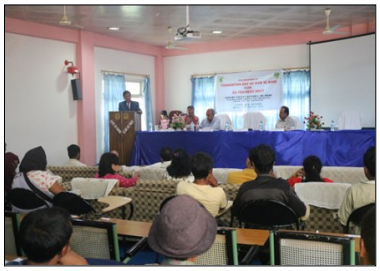
The KVK Ri Bhoi had celebrated the 5th foundation day on the 3rd August 2017, as a part of the celebrated an ex trainees meet was also organized during the programme. A total of 43 numbers of ex trainees gathered during the occasion. The programme was attended by The Director, ICAR RC NEH, Umiam, who is the chief guest of the programme, Director, ATARI zone -VII and Dr. Arnab Sen, Principal Scientist & head division of Animal Science, and Nodal Officer of KVK's and all the KVK—Ri Bhoi staffs were present during the occasion. As a part of the programme 15 kids (young goats) were distributed among 15 ex trainees.

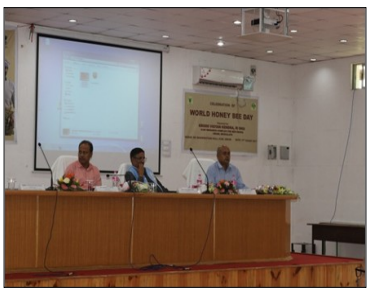
CELEBRATION OF WORLD HONEY BEE DAY

On the 19th of August 2017 the KVK Ri Bhoi celebrated the World Honey Bee Day in the presence of 300 farmers from different nearby villages for creating awareness on beekeeping for employment generation. A presentation on Bee Keeping was delivered by Mr. Kynshew Dapsuk Kharkrang, one of the progressive farmer of Ri -Bhoi district. The programme was graced by Mr. Vincent Pala, Hounrable M.P. Shillong Constituency. On this occasion the Director ATARI-VI, Director ATARI-VII and Dr. Arnab Sen, PS and Nodal Officer of KVK's were present.

CELEBRATION OF *SANKALP SE SIDDHI* PROGRAMME

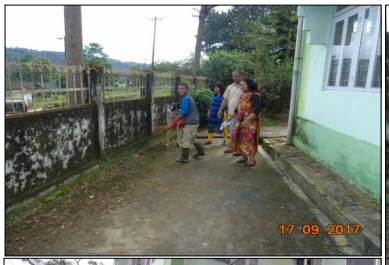
The The KVK Ri Bhoi had organized and celebrated Sankalp se siddhi programme on the 19th of August 2017. The programme was graced by Mr. Vincent Pala, Hounrable M.P. Shillong Constituency. On this occasion the Director ATARI-VI, Director ATARI-VII and Dr. Arnab Sen, PS and Nodal Officer of KVK's were present. during the programme 300 numbers of farmers from different villages of Ri Bhoi District were presence of 300 farmers from different nearby villages. On this occasion 200 vanaraja birds were distributed among 20 participants of the village Umralang, which has been adopted by the KVK under "Doubling Farmers Income by 2022".

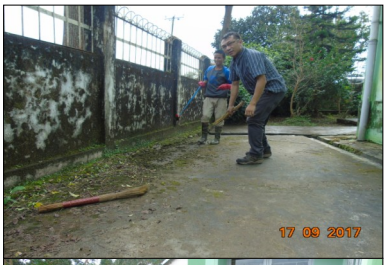


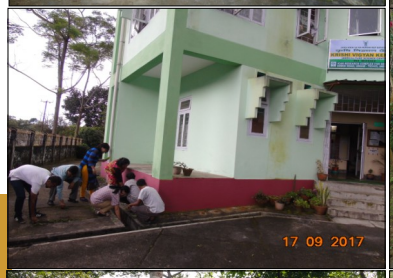


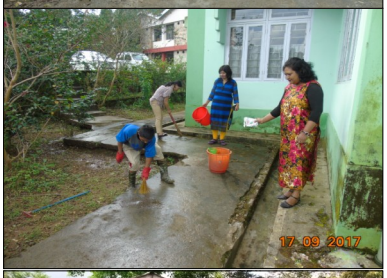
CELEBRATION OF *SWACHHTA HI SEVA*

The KVK Ri-Bhoi successfully organized fortnight campaign on "Swachhta Hi Sewa"from 15th September to 2nd October, 2017. During the programme, awareness and cleanliness drives in the KVK Ri-Bhoi office campus, villages, schools and in public places like the Umiam view point was organised and conducted. For tee– shirts were sponsored by Dalmia Cement, shillong and Star Cement Shillong. During the programme, awareness on cleanliness and its importance and benefits and importance of compost pit was imparted to villagers and school students. A compost pit was also made in the school compound.











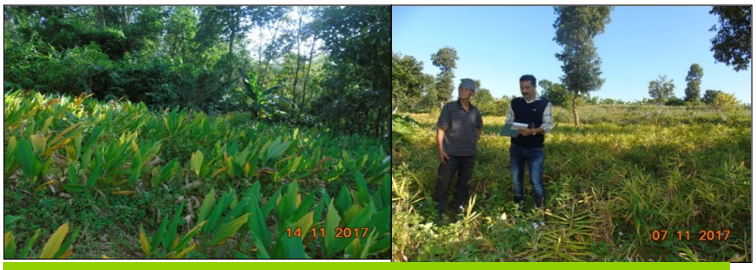





Special & Awareness programmes conducted

Mulching in Ginger & Turmeric on Raised Bunds across the Slope

An intervention was made to introduce mulching in ginger and turmeric on raised bunds across the slope in order to conserves the soil and water runoff of faulty planting material at the NICRA adopted village. A total of 35 numbers of beneficiaries have developed mulching in ginger and a total of 22 numbers of beneficiaries have developed mulching in turmeric.



Mulching in ginger and turmeric

Nutrition Garden for Health Improvement of Farm Families

An intervention was undertaken under nutritional garden for health improvement of farm families to overcome the poor nutritional status of farm families.

Nutritional garden

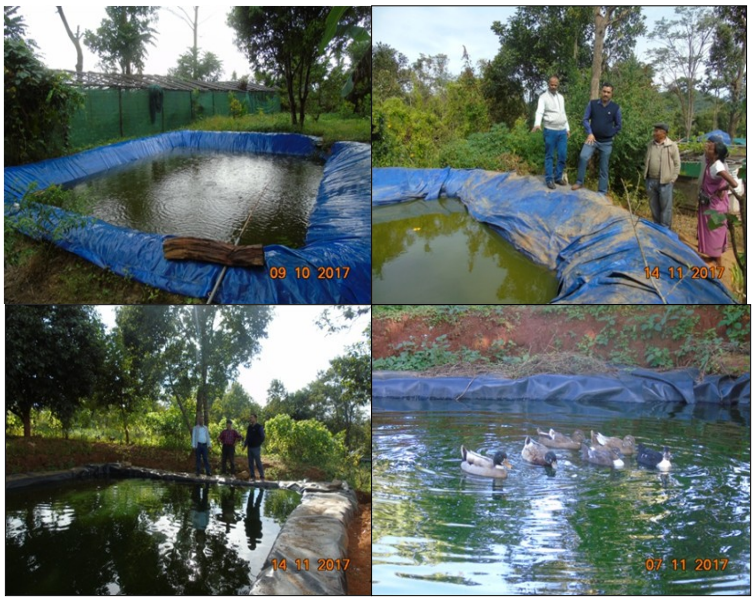
Soil Fertility Management by Organic Source of Nutrients (Vermi Composting)

The intervention was undertaken on soil fertility management through vermicomposting of 40 % of unused weed biomass and 60 % of agricultural waste. A total of 3 numbers of vermicomposting units were developed in the NICRA adopted village to supplement the organic manure for vegetables production for women empowerment through employment generation.

Vermi composting

Rain Water Harvesting through Jalkund for Multi-purpose use

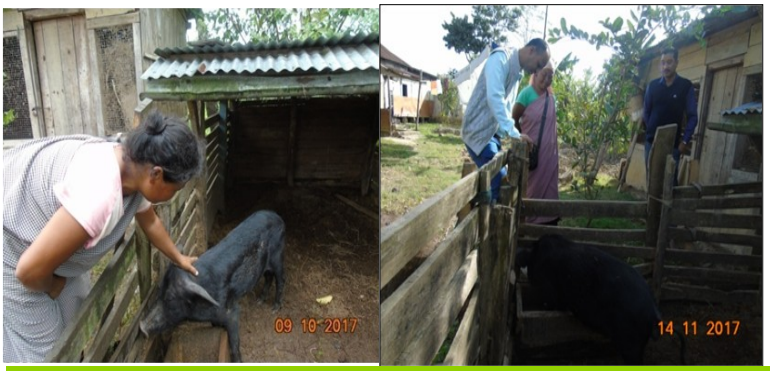
An intervention on rain water harvesting through Jalkund for multipurpose use was demonstrated to 4 numbers of beneficiaries. Repairing of old jalkunds was also carried out in the NICRA adopted village of the district. The technology was taken up in order to help the farmers during water scarcity in winter season for vegetables cultivation. The farmers are utilizing the water from the Jalkund for vegetable cultivation, for low cost poly house nursery, for nutrition garden, etc.



Jalkund a low cost water harvesting structure

Deep Litter Housing of Pigs

An intervention on deep litter housing of pigs was undertaken as Improper housing system can cause reduction in body growth rate and increases mortality rate due to heat (high temp &RH) & cold stress (hailstorm& frost). This has resulted in good increase of body growth rate of pigs. Artificial insemination of pigs for breed Upgradation with improved male germplasm was also inculcate in collaboration with mobile AI van (ICAR). A total of 3 beneficiaries have adopted this technology.

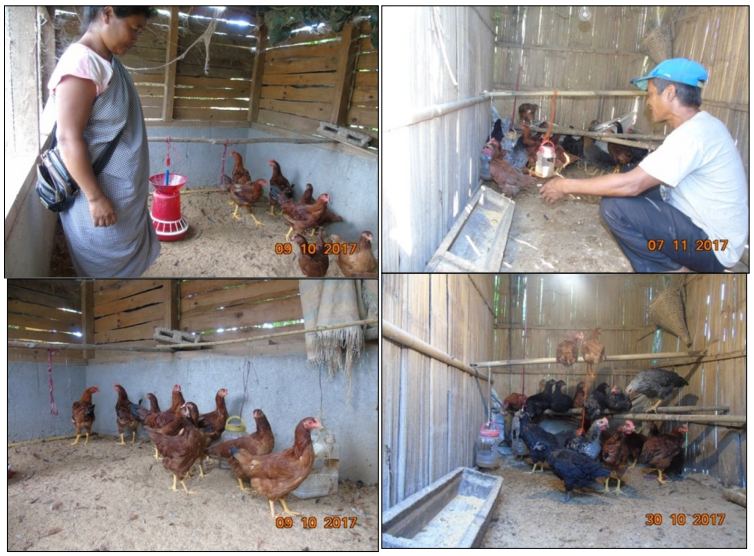


Deep Litter housing of pigs

National Innovation on Climate Resilient Agriculture (NICRA)

Backyard Poultry Farming through Vanaraja Birds

An intervention on backyard Poultry farming through vanaraja birds was demonstrated in 3 numbers of beneficiaries to overcome the problem of poor production performance of local poultry resulting in less income.



Backyard Poultry Farming

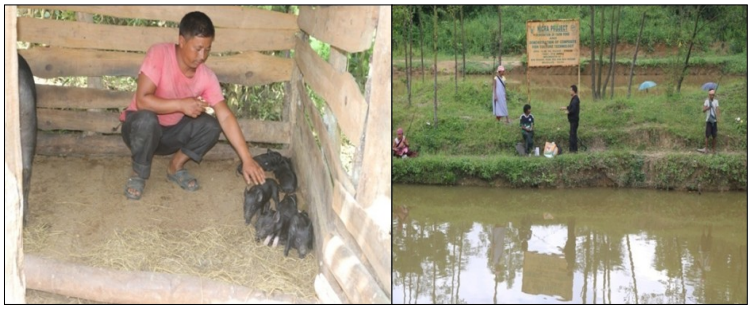
Low Cost Polyhouse Technology for Multiple Cropping

An intervention was made on low cost polyhouse technology for multiple cropping as high intensity rainfall, frost and cold wave caused damage to crops during summer and winter season respectively. A total of 8 numbers of beneficiaries are benefitted from this programme.

Low Cost Polyhouse Technology for Multiple Cropping

Pig-Cum-Fish Integrated Farming System

An intervention of encouraging the farmers to adopt pig cum fish Integrated Farming System to overcome the low output from individual farming system. Two numbers of IFS model were developed at the adopted NICRA village.



Pig Cum Fish Integrated Farming System

Hanging Rope Practice of Oyster Mushroom Cultivation for Women Empowerment

An intervention on hanging rope practice of oyster mushroom cultivation for women empowerment. Was undertaken in order to lessen the risk of crop failure due to climate aberration through the three tier system for higher production of oyster mushroom. Three SHGs' group have adopted this technology. Under this programme demonstration and spawn distribution was conducted by the KVK in the adopted NICRA village.

Hanging Rope Practice for Oyster Mushroom Production

KVK—Ri Bhoi Farm Production

Types of produce	Crop	Quantity
Seedling production	Tomato	1790 Nos.
Planting Material	Ginger Var. Nadia	30 kg
Planting Material	Turmeric Var. MT-1	50 kg
Seed production	Maize Var. DA 61A	70 Kg
Vegetable production	Bottle Gourd	14 Kg
Vegetable production	Potato	30 Kg
Vegetable production	Capsicum	13kg
Vegetable production	Cucumber	13 Kg
Vegetable production	Dhania leave	53 kg
Vegetable production	French beans	190 Kg
Value added product	Turmeric Powder Var. MT-1	22 kg
Total Revenue Generated was Rs 19, 357/-		

Farm Activities

PUBLICATIONS:

Research papers:

Burhan U. Choudhury, Akbar Malang , Richard Webster , Kamal P. Mohapatra , Bibhash C. Verma , Manoj Kumar , Anup Das, Mokidul Islam, Samarendra Hazarika (2017): Acid drainage from coal mining: Effect on paddy soil and productivity of rice. *Science of the Total Environment,* 583 (2017) 344–351.

S.K. Das. S, T Amajdar, Amit Das and M. Islam (2017):Farmer participatory pond based cage aquaculture for raising fish seed in South Garo Hills, Meghalaya, India. *Indian J. Fish.,* 64(2): 122-126, 2017 DOI: 10.21077/ijf.2017.64.2.61278-19.

Biplab Mitra, Tanmay Samajdar, Mokidul Islam (2017): Effect of Weed Control Measures in Jute Under Terai Zone of West Bengal, India. *Environment & Ecology* 35 (1), 84—87.

Technical Bulletin

Utpal Barua, Mokidul Islam, G Nongtdu & AK Tripathi(2017): Protection of plant varieties and farmers rights- a perspective of Ribhoi district of Meghalaya. Published by KVK Ri-Bhoi Pp.1-36.

Utpal Barua, Mokidul Islam and Jessica D(2017): Production to Processing of Ginger and Turmeric in Ri-Bhoi district of Meghalaya. Published by KVK Ri-Bhoi Pp.1-38.

Mokidul Islam, Utpal Barua, Meghna Sarma, Mousumi G. Das, Eliza C. Syiemlieh, , Sharmila Rai, Genialda Nongtdu, P. Bordoloi and A. K. Tripathi (2017): Success Stories on Technology Demonstrations in Ri –Bhoi District of Meghalaya. Pp.1-51.

Technical/popular articles :

Mokidul Islam (2017): Prospects of Quality Protein Maize (QPM) Production for Food and Nutritional Security-An Overview. *Transient - A Journal of Natural Sciences and Allied Subjects* Vol. VI-2017:64—80.

Book chapters/technical bulletins/manuals

Utpal Barua, Mokidul Islam, G Nongtdu & AK Tripathi(2017): Protection of plant varieties and farmers rights- a perspective of Ribhoi district of Meghalaya. Published by KVK Ri-Bhoi Pp.1-36.

Utpal Barua, Mokidul Islam and Jessica D(2017): Production to Processing of Ginger and Turmeric in Ri-Bhoi district of Meghalaya. Published by KVK Ri-Bhoi Pp.1-38.

Mokidul Islam, Utpal Barua, Meghna Sarma, Mousumi G. Das, Eliza C. Syiemlieh, , Sharmila Rai, Genialda Nongtdu, P. Bordoloi and A. K. Tripathi (2017): Success Stories on Technology Demonstrations in Ri –Bhoi District of Meghalaya. Pp.1-51.

Working/concept papers/policy paper

BC Deka, M Islam, A.K. Singha, R. Bordoloi and R Suchiang (2017): Doubling farmers income in Meghalaya by 2022. Pp 1-36

Scientific/teaching reviews

Integrated use of manure and chemical fertilizer on soil properties and cocoyam production. International Journal of Plant & Soil Science. Ms_IJPSS_37369

OTHER EXTENSION ACTIVITIES

Name of Activity	No. of programmes (Achieved)	Beneficiaries		
		Total		Total
		M	F	
Diagnostic visit	29	132	121	253
Scientist visit to farmer`s field	55	293	304	597
Farmers visit to KVK	91	150	141	291
Exhibition	1	6	9	25
Advisory /helpline service	58	123		250
Method demonstration	44	109	123	232
Exposure visit	2	25	15	40
Group discussion/farmers scientist interaction	1	26	17	43
Field Days	2	10	31	41
Film show	4	27	28	55
Soil health card	-	663	472	1135
News paper coverage / E-publication	3	-	-	-
Grand Total	**291**	**1564**	**1398**	**2962**

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