OFT -1 (Soil Science)

i. **Season:** Kharif 2022
ii. **Title of the OFT: Effect of Soil PH & Soil nutrients & reduces the cost of production of paddy crop (Short Duration) through Resource Conservation Technology (RCT)**
iii. **Thematic Area:** Soil health management
iv. **Problem diagnosed:** Low yield of paddy due to continuing same practice with low production & productivity with declining nutrient status of soil.
v. **Important Cause:** Nutrient deficiency/increasing soil acidity
vi. **Production System:** Resource Conservation practices
vii. **Micro farming system:** Low hill farming situation
viii. **Technology for Testing:** Performance of unpuddle rice production,
ix. **Hypothesis:** Unpuddle transplanting is best for farmers.
x. **Objective(s):** To increase the productivity & Soil health management.
xi. **Treatments:**
Farmers Practice: Puddle transplanting.
Technology option I: Unpuddle transplanting
Technology option II: Direct seeded rice
xii. **Critical Inputs:** Technological supports, critical inputs
xiii. **Unit Size:** 0.03ha
xiv. **Number of Replication: 7** (Seven)
xv. **Unit Cost:** Rs2050/-
xvi. **Total Cost:** Rs. 14,350/-
xvii. **Monitoring Indicator:** PH & Soil Nutrient Status after harvest, Yield, BC Ratio,
xviii. **Source of Technology (ICAR/AICRP/SAU/Other, please specify:** RVKSVV, Gwalior India, (Published Paper, 2017)

OFT – 2 (Soil Science)

i. **Season:** Zaid-Rabi 2022
ii. **Title of the OFT:** Assessment of soil fertility in different cropping system through Resource Conservation Technology (RCT)
iii. **Thematic Area:** Soil Fertility management
iv. **Problem diagnosed:** Low system productivity and declining nutrient status of soil.
v. **Important Cause:** Nutrient deficiency/increasing soil acidity
vi. **Production System:** Rice-vegetables based cropping system
vii. **Micro farming system:** Low hill farming situation
viii. **Technology for Testing:** Introduction of Pulse crop in new cropping system and RCT
ix. **Hypothesis:** New cropping system with Resource Conservation Technology may increase the crops productivity for long term basis.
x. **Objective(s):** To increase sustainability in production and profit.
xi. **Treatments:**
Farmers' Practice: Rice-vegetables (Cauliflower) (Traditional Method)
Tech. Obs. 1: Rice (short duration)-Pea- vegetables (Cauliflower) (conventional methods)
Tech. Obs. 2: Rice (short duration)-Pea-vegetables (Cauliflower) (by Zero Tillage method)
xii. **Critical Inputs:** Seeds, Technological support
xiii. **Unit Size:** 0.033ha
xiv. **Number of Replication: 7** (seven)
xv. **Unit Cost:** Rs. 2160/-
xvi. **Total Cost:** Rs. 15,120/-
xvii. **Monitoring Indicator:** Soil nutrient status (N-P-K), Yield & economics after harvest.
xviii. **Source of Technology (ICAR/AICRP/SAU/Other, please specify:** UBKV

OFT – 3 (Animal Science)

i. **Season:** Throughout the season
ii. **Title of the OFT:** Effect of Tulsileaf derivative as natural growth promoter in poultry bird under backyard system
iii. **Thematic Area:**production performance of backyard poultry
iv. **Problem diagnosed:**poor performance and food safety
v. **Important Cause:**use of no growth promoter
vi. **Production system:** Backyard and small scale
vii. **Micro farming system:**
viii. **Technology for Testing:** Tulsi as naturalgrowth promoter
ix. **Existing Practice:**Use of no growth promoter in backyard chicken
x. **Hypothesis:** Growth promoters are used for maintaining gut health of poultry**.** Antibiotic feed additives have long been used as growth promoters in poultry nutrition. However, concern has been expressed about the potential development of antibiotic resistant bacteria. Hence, herbal source can be good alternative as growth promoter.
xi. **Objective(s):** To increase productivity and feed efficiency through introduction of natural growth promoter in backyardpoultry in the hill climatic condition of Kalimpong.

xii. **Treatments:**

Farmers Practice (FP): without any growth promoter
Technology option-I (TO-I): Supplementation of Tulsi dried leaf powder @ 5gm/kg feed
Technology option-II (TO-II): use of antibiotic growth promoter @ 0.5gm/kg feed

xiii. **Critical Inputs:**Tulsi extract, AGP, feed
xiv. **Unit Size:**7 Units (15-20 birds each)
xv. **No of Replications:** 7
xvi. **Unit Cost:** Rs. 3000
xvii. **Total Cost:** Rs. 21000
xviii. **Monitoring Indicator:** FCR, Mortality, growth, production, B:C ratio
xix. **Source of Technology (ICAR/ AICRP/ SAU/ Other, please specify):** Tamil Nadu Veterinary and Animal Sciences University, Namakkal, Tamil Nadu, India.
https://www.researchgate.net/publication/259639436

OFT – 4 (Animal Science)

Season: Throughout the season

i. **Title of the OFT:** Assessment of Economic Feeding Strategies to Achieve Better Growth performance in Pigs in Kalimpong Hills

ii. **Thematic Area:**production performance of pig

iii. **Problem diagnosed:**poor growth rate and high cost of concentrated feed

iv. **Important Cause:**Traditional feeding with poor nutrition

v. **Production system:** Backyard and small scale piggery

vi. **Micro farming system:**

vii. **Technology for Testing:** Partial replacement of concentrated feed with vegetable waste or kitchen waste and molasses.

viii. **Existing Practice:**Use of no growth promoter in backyard chicken

ix. **Hypothesis:** Supplementing poor quality feed like kitchen or vegetable waste with molasses will improve palatability of feed and increase feed intake as well as to overcome feed scarcity and feed cost.

x. **Objective(s): a)** To evaluate the effect of vegetable or kitchen waste feeding as a partial replacement of concentrate feed on body weight gain, growth rate and feed conversion ratio.**b)**To study the effect of fortified feed from vegetable and kitchen waste on growth performance

xi. **Treatments:a)**Farmers Practice (FP): Feeding with poor quality locally available vegetables and kitchen waste. **b)** Technology option-I (TO-I): Kitchen waste (60%) mixed with standard concentrate mixture (40%) (as per BIS recommendation). **c)** Technology option-II (TO-II): Standard concentrate feed (40%) (as per BIS recommendation) + Kitchen waste (53%) + Molasses (7%)

xii. **Critical Inputs:** feed and molasses

xiii. **Unit Size:** 7 Units (6 pigs each)

xiv. **No of Replications:** 7

xv. **Unit Cost:** Rs. 3100

xvi. **Total Cost:** Rs. 21700

xvii. **Monitoring Indicator:** Growth rate, Feed Conversion Ratio and body weight gain, B:C ratio

xviii. **Source of Technology (ICAR/ AICRP/ SAU/ Other, please specify):** ICAR Research complex for NEH region, Barapani.

OFT – 5 (Horticulture)

01.	Season	April-May
02.	Title of the OFT:	Varietal Assessment of Turmeric *(Curcuma longa)* in Kalimpong Hills
03.	Thematic Area:	Varietal Assessment
04.	Problem diagnosed:	Local variety Gives very low yield.
05	Important Cause:	Non-availability of Good quality planting material.
06.	Production System	Vegetable based production System
07.	Micro farming system	Rain-fed medium to low hills farming situation
08.	Technology for Testing	Performance of different varieties.
09.	Existing Practice:	Use of local planting material for commercial cultivation.
10.	Hypothesis:	Farmers of Kalimpong hills cultivate only local varieties which gives very low yield and small size rhizomes and the crop is also cultivated in a traditional ways Hence, a trial on varietal assessment of different Turmeric varieties is conducted.
11.	Objective(s):	To study the yield performance and other comparative economics .
12.	Treatments:	Farmers' practice - use of local variety with FYM 20 t/ha. Tech. option I: use of with Uttar Rangini (TCP-129) FYM 15 t/ha and N:P:K 60:60:90 kg/ha Tech. option II: use of Suranjana (TCP-2)variety with FYM 15 t/ha and N:P:K 60:60:90 kg/ha Tech. option III: use of Uttar Rupanjana (TCP-64) variety) with FYM 15 t/ha and N:P:K 60:60:90 kg/ha
13.	Critical Inputs:	Planting Materials, Fertilizers and Manures etc.
14.	Unit Size:	0.1 ha
15.	No of Replications:	6
16.	Unit Cost:	15,000/-
17.	Total Cost	90,000/-
18.	Monitoring Indicator:	Average weight of rhizome, Yield (q/ha) and other comparative economics.
19.	Source of Technology	U.B.K.V .

OFT – 6 (Horticulture)

01.	Season	March –April
02.	Title of the OFT:	The effect of mulches on Tomato (*Lycopersiconesculentum)*in Hill climatic condition .
03.	Thematic Area:	Crop production
04.	Problem diagnosed:	Low yield
05	Important Cause:	Traditional method of cultivation gives very low yield
06.	Production System	Vegetable based production System
07.	Micro farming system	Rain-fed medium to low hills farming situation
08.	Technology for Testing	Effect of different types mulches.
09.	Existing Practice:	Cultivation of Tomato without mulching.
10.	Hypothesis:	Farmers of Kalimpong hills cultivate tomato in a traditional ways without mulching which gives very low yield .Hence, a trial on effect different types of mulches in tomato cultivation is conducted.
11.	Objective(s):	To study the yield performance and other comparative economics .
12.	Treatments:	Farmers' practice - Cultivation of Tomato without mulching. Tech option I: leaf mulch. Tech option II: polymulch Tech option III:Strawmulch .
13.	Critical Inputs:	Seed, fertilizer, polymulch ,straw etc.
14.	Unit Size:	0.1 ha
15.	No of Replications:	6
16.	Unit Cost:	9000/-
17.	Total Cost	54,000/-
18.	Monitoring Indicator:	Average weight of rhizome, Yield (q/ha) and other comparative economics.
19.	Source of Technology	University of Calcutta

OFT - 7 (Plant Protection)

i. **Season: 2022**
ii. **Title of the OFT:** Assessment of different biorationals against cabbage borer complex
iii. **Thematic Area:**Integrated Pest Management
iv. **Problem diagnosed:**Regular infestation of Cabbage Semilooper, Cabbage Head Borer and Diamond Back Moth
v. **Important Cause:**Infestation of cabbage head borers decreases marketable yield of cabbage
vi. **Production system:** vegetable based cropping system
vii. **Micro farming system:** Irrigated
viii. **Technology for Testing:** TOI: Application of Neem oil (1500 ppm) @ 3ml/litre water soon after the incidence causes ETL
TOII: Application of Btk @ 1.5 gm/litrewater soon after the incidence causes ETL
TOIII: Application of *Beauveriabassiana* (1 x 10^8 CFU) @ 1.5 gm/litre water soon after the infestation causes ETL
ix. **Existing Practice:**No use of plant protection chemicals
x. **Hypothesis:** Application of Btk @ 1.5 gm/litre water soon after the incidence causes ETL reduces the borer complex of cabbage
xi. **Objective(s):** To increase the productivity of cabbage with the use of biorationals
xii. **Treatments:**
Farmers Practice (FP):
Technology option-I (TO-I):
Technology option-II (TO-II): and so on……
xiii. **Critical Inputs:**PPC
xiv. **Unit Size:**0.06 ha
xv. **No of Replications:** 3
xvi. **Unit Cost:** 1200.00
xvii. **Total Cost:** 11400.00
xviii. **Monitoring Indicator:**Percent infestation, yield, economics
xix. **Source of Technology (ICAR/ AICRP/ SAU/ Other, please specify): Hossain et. al (2020)** Eco friendly management of major Lepidopteran insect pests of summer cabbage by six commonly used botanicals. *J. Biosci. Agric. Res*. 25(**01**): 2060-2068.

OFT - 8 (Plant Protection)

i. **Season:**Rabi2022
ii. **Title of the OFT:**Assessment of IPM modules against tomato leaf miner
iii. **Thematic Area:**Integrated pest management
iv. **Problem diagnosed:***Tuta absoluta* is currently the major limiting factor for tomato production worldwide and without adequate control up to 90% crop loss can occur.
v. **Important Cause:**The leaf blight disease mainly affects foliage and by destroying the effective photosynthetic area, it adversely affects fruit set and capsule weight
vi. **Production system:**Vegetable based
vii. **Micro farming system:**Upland situation
viii. **Technology for Testing:**Technology option-I (TO1): Removal of infested leaves before transplanting in the main field + application of neem cake in beds @ 250 kg/ha at planting and repeat after 25 days + spraying with *Beauveria bassiana* @ 5 gm/litre

Technology option-II (TO2): Removal of infested leaves before transplanting in the main field + Alternate spraying with Btk @ 2gms/litre

Technology option-III (TO3): Removal of infested leaves before transplanting in the main field + Alternate spraying with Azadirachtin 1500 ppm@ 4ml/litre

ix. **Existing Practice:**No use of plant protection chemicals

x. **Hypothesis:**): Removal of infested leaves before transplanting in the main field + application of neem cake in beds @ 250 kg/ha at planting and repeat after 25 days + spraying with *Beauveria bassiana* @ 5 gm/litre will reuduces the tomato leaf minor incidences
xi. **Objective(s):**To increase the productivity by using IPM modules to combat leaf miner infestation.
xii. **Treatments:**Technology option-I (TO1): Removal of infested leaves before transplanting in the main field + application of neem cake in beds @ 250 kg/ha at planting and repeat after 25 days + spraying with *Beauveria bassiana* @ 5 gm/litre

Technology option-II (TO2): Removal of infested leaves before transplanting in the main field + Alternate spraying with Btk @ 2gms/litre

Technology option-III (TO3): Removal of infested leaves before transplanting in the main field + Alternate spraying with Azadirachtin 1500 ppm@ 4ml/litre
xiii. **Critical Inputs:** COC, *Trichoderma harzianum*
xiv. **Unit Size:** 0.03 ha
xv. **No of Replications:**6 (Six)
xvi. **Unit Cost:** Rs. 2500-
xvii. **Total Cost:** Rs. 15,000/-
xviii. **Monitoring Indicator:**Percent infestation, NE population, yield
xix. **Source of Technology (ICAR/ AICRP/ SAU/ Other, please specify):** Deptt. of Entomology, UBKV