

### Crop Production and Mangement

Sl.No	Problem Identified	Specific farming situation for which technology is developed	Crop/ Animals etc	Breed/Variety	Specific Technology	Yield
1	Recycling of within farm renewable resources	Rainfedupland ecosystem	Crop residue, weeds and other herbaceous vegetation and earthworm	<i>E. foetida</i>	Vermi compost preparation	40.0 kg/sq.m. of bed/yr.
2	Low cropping intensity	Low and mid hills of Sikkim	Maize, coriander, black gram, cabbage	None	To increase the cropping intensity to 300% by identifying sustainable and profitable cropping systems Maize- Blackgram- Coriander Maize- Blackgram- Cabbage	None
3	Optimum dose of nutrients for rice, maize, wheat, soybean, finger millet and mustard	Low and mid hills of Sikkim	Rice, wheat, maize, soybean, finger millet and mustard	None	Balanced fertilization for getting higher grain yields	None
4	Ideal planting time and spacing of maize for getting high yield	Low and mid hills of Sikkim	Maize	None	First week of March with spacing of 60 cm x 25 cm	None
5	Ideal planting time and spacing of rice for getting	Low and mid hills of Sikkim	Rice	None	Second week of June Spacing-20cmx20cm with 4 seedlings/hill	None

	higher yield					
6	Ideal planting time and spacing of wheat for getting higher yield	Low and mid hills of Sikkim	Wheat	None	Between 3 <sup>rd</sup> & 4 <sup>th</sup> week of October Spacing-15-20cm	Nil
7	Ideal planting time and spacing of rapeseed-mustard for getting higher yield	Low and mid hills of Sikkim	Rapeseed-Mustard	Nil	First week of October Spacing: 30-45cmx15cm	Nil
8	Identification of profitable cropping systems	Low and mid hills of Sikkim	Cereal, Pulses, Oilseeds, Vegetables	Nil	Maize + Soybean- Mustard Maize + Soybean- Wheat	Nil
9	Optimal dose of fertilizers for buckwheat	Low and mid hills of Sikkim	Buckwheat	VL Ugal-7 & Local Mithe	Optimal dose of fertilizers realizing maximum yield in buckwheat is 40:80:40 kg NPK/ha	8 to 11
10	The effect of dolomite on grain yield of soybean and residual effect of soybean on mustard	Low and mid hills of Sikkim	Soybean	PK 472	The conjunctive application of FYM @10t/ha and 4t/ha dolomite performed the best in terms of grain yield. The yield trends of mustard on residual nutrients was similar to that of soybean	18.00
11	Standardized methods for making low cost compost using locally available plant materials	Low and mid hills of Sikkim	Nil	Nil	Local weeds ( <i>Artemisia vulgaris</i> , <i>Eupatorium sp</i> ) = 10 parts. Leaves of utis ( <i>Alnus nepalensis</i> ), Chilaune( <i>Schima wallichii</i> ) = 4 parts cow dung and soil=0.5 parts gives compost with better nutritive value(2.25%, 1.06% and 1.68% NPK) in a span of 2.5 to 3 months	Nil

12	Low performance of various substrates for production of <i>Pleurotus sajocaju</i>	In house condition	Mushroom	<i>Zanthoxylum</i> , <i>Limonella</i> (bajana), Pea Haulms	Cultivation of improved variety of mushroom	553g/1.5kg substrate ,694g/1.5kg substrate
13	Low yield of mushroom	In house condition	Milky mushroom	<i>Calocybe indica</i>	Introduction of <i>Calocybe indica</i>	1055g fruit/1kg dry substrate obtained in Gane
14	Low yield of elephant foot yam	Rainfed	Elephant foot yam	Tripura Local	Optimum spacing 75x75cm	122.50t/ha
15	Low yield of rice	Irrigated	Paddy	HYV	System of rice intensification (SRI) to increase the production	8.0t/ha
16	Low yield of rice	Irrigated	Paddy	HYV TRC-87-251	Improved cultural practices with recommended dose of chemical weed control	21.38q/ha
17	Low yield of crops	Upland situation	Rice	TRC-87-251	Cultural management practices with recommended fertilizer dose and chemical weed control measures	21.28q/ha
18	Proper utilization of the land	Upland condition	Rice, Cabbage	TRC-87-251	Integrated nutrient management in the cropping system of rice/cabbage	19.46q/ha (Rice)
19	High cost of sowing	Rainfed	Groundnut	ICGV-86590	Introduction of seed drill	16.70q/ha
20	To raise the nursery, farmers incur an expenditure of about 4000/- per ha.	Rainfed	Paddy	Paddy Row Seeder HYV	By the introduction of paddy seeder, the nursery raising is exempted and transplantation cost is replaced by seeding which is lesser costly.	6.40t/ha (0.05ha/hr)

	Transplanting cost also adds to the problem besides labour scarcity. The cost of manual transplantation is Rs.2000/- as against 400/- by paddy seeder					
21	Soil erosion and weed infestation	Rainfed	Groundnut, Sesamum	None	Introduction of woven jute, agro textile (JAT)	1.43t/ha 0.47t/ha (12.5% reduction in soil loss and 14.5% increase in yield of groundnut)
22	Unavailability of quick return in MPTS	Rainfed	Groundnut Sesamum	HYV	Growing of groundnut, Sesamum as intercrop upto 3 to 4 years	Upto 11.40q/ha/ Upto 7.4q/ha
23	Coincidence of harvesting of onion with rain	Rice fallows	Onion	Nasik Red	Transplanting of 45-50 days old seedlings during 15 <sup>th</sup> November to 7 <sup>th</sup> December	250-300
24	Close planting without making pits	Hill farming	<i>Citrus reticulata</i>	Khasi mandarin	Spacing – 5m x 5m Pit size – 75 x 75 x 75 cm	300.00 q/ha the age of 10 years

25	Loss during grain/seed storage	Low cost bin for poor farmers	Any seed	RC- seed bin (Charcoal desiccated)	2 years (Safe Storage)	None
26	Seed purity	Lowland holdings	Maize/mustard	None	Time isolation/rabi	None
27	Lack of suitable strain.	Jan – March (mid altitude).	Mushroom	<i>P. flabellatus</i> .	<i>P. flabellatus</i> (B) was found best during Jan – March grown crops.	Average yield of 890g per kg of dry paddy straw.
28	Low yield.	Mid altitude.	Mushroom	<i>P. sapidus</i> .	Application of rice bran @ 50g/kg of dry paddy straw.	Increased 27% yield.
29	Lack of suitable strains/species for cultivation during winter season.	Mid altitude season Dec – Jan.	Mushroom	<i>P. cornucopae</i> , <i>P. florida</i> , <i>P. ostreatus</i> X and <i>P. ostreatus</i> A.	Winter season cultivation of Oyster mushroom	Average yield of 1227-1746g / block of 6 kg wet paddy straw
30	Non-availability of wheat grain at cheaper rate in NE Region	Rice growing areas	Mushroom spawn	<i>Pleurotus spp.</i>	Paddy grain based spawn production technology has been developed.	None