

## Livestock Production and Management

SI.No	Problem Identified	Specific farming situation for which technology is developed	Crop/Animals etc	Breed/Variety	Specific Technology	Yield
1	Rehabilitation of marshy lands	Marshy/Degraded lands	Fishery, horticultural crops, pig/duck, poultry/cattle	Composite fish culture, Pig (Large Black), Duck (Chera chambli), Poultry Layer (White Leg Horn), Cattle (Holstein freizen)	Integrated Fish Farming	Fish production-21.0-21.8q/ha/yr in control (without integration)
2	Low productivity of fish	None	Fish	IMC, Exotic carps	Composite fish culture species combination-( in lower altitude with warm temperature) Ratio -2 Catla, 2-Rohu, 1.5 Mrigal, 2 Silver carp, 1 Grass carp, 15 Common carp, fingerlings@7,500 numbers/ha	44.83 q/ha
3	Production of smaller native fish	None	Smaller native fish	<i>A.mola</i> <i>N.notopterus</i> <i>Punitus sp</i>	System based composite fish culture	48.74 q/ha
4	Poor socio-economic status of fish farmers	Improving livelihood of fish farmers	Fish	IMC and exotic carps	Watershed management programme	None
5	i. Shortfall in per capita egg and meat availability					

	ii. More population of desi/local birds which having less egg and poor body weight gain capacity compared to improved/exotic birds	For backyard poultry production	Poultry	Gramapriya	Backyard poultry production with improved germplasm	Body weight =1200g at 15 weeks Egg weight = 53-55g No. of eggs = 180-200 at 72 weeks of age
6	Increased demand and supply of meat	Backyard/intensive farming	Rabbit	New Zealand White (NZW) and Soviet Chincilla (SC)	Introduction of micro livestock as a source of meat and its scientific managerial technology in housing, breeding, feeding, health care and other management practices in the climatic condition of Tripura	Average litter size at birth and weaning- 6.16 and 4.25 respectively. Birth and weaning weight-50.80 and 0.874g
7	Huge gap between need and supply of pork due to more population of indigenous pig	For breeding purpose (Fish-pig farming situation)	Pig	Cross breed (Hampshire x Local)	Introduction of improved cross breed having 87.5% of Hampshire blood which were found to be very much suitable for this region due to its body size, high litter bearing and disease resistance capacity	Average litter size at birth-10.44 Average litter size at weaning-8.06
8	High cost of balanced commercial feed for animals	For land owners-Irrigated/rainfed	Feeds and fodders	Locally available different feeds and fodders of high nutritional value	Computation of balanced feed for different categories of animals by replacing the costliest ingredients by locally available feeds and fodders	None

9	Less availability of Green Fodder/Fodder	Agrisilviculture, Silvipastoral	<i>Leucaena leucocephala</i>	K-8, 67, 72	Growing of green fodders	75q of forage/ha at 1.50 years of age with a plant density of 5000 trees/ha
10	Low productivity in local strain of poultry	High rainfall (1600-2000mm) High humidity (70-90%)	Vanaraja birds	Vanaraja	Suitable for deep litter system and backyard system	12 weeks body weight- 1.6kg Egg production- 150-170/yr
11	Insufficient protein supplement	High rainfall (1600-2000cm) High humidity (70-90%)	Birds	Broiler strain	Roasted rice bean grain 40% inclusion in poultry mash	7-8 weeks body weight- 1.4kg
12	Low Productivity due to lack of scientific fish farming	Specifically for valley region	Fish	Indian major carps (IMC) and exotic carps	Composite fish farming	2000kg/ha
13	Fish seed production in terms of quality and quantity	Specifically for valley region	Fish	Indian major carps(IMC) and exotic carps	Induced breeding of carps	None
14	Shortage of animal feed	Livestock based farming system	Poultry, pig, rabbit	None	Developed feed formula based on non-conventional feed	Job's tears ( <i>Coix lachryma Jobi</i> ) and buck wheat ( <i>Fagopyrum esculentum</i> Moench) can be used as sole energy feed source and jack bean ( <i>Canavalia ensiformis</i> ) as protein feed in pig, poultry and rabbit ration.
15	Shortage of animal	Resource based pig growers/pig	Pig	Crossbred	Substitution of costlier conventional feed with	Boiled sweet potato tuber can be fed to

	feed/feeding system	based farming system			sweet potato tuber	crossbred piglet to the level of 40 and 60% of total feed intake during post weaning and grower stage of growth
16	Cost effective feeding system	Commercial pig farming	Pig	Crossbred	Corn soy based rations for commercial scale pork production	Economical at all stages of growth
17	Shortage of animal feed	Rabbit growers/ Rabbit based farming system	Rabbit	NZW/SCH	Substitution of concentrate feed with legume fodder	Economic feeding practices developed by utilizing legume fodders @50% of DM intake
18	Feeding pattern for diary farming	Dairy based farming system	Crossbred cow	Crossbred HF, Jersey	Dry roughage, green fodder and concentrate feed ratio in the ration of crossbred cow should be 30:30:40	To obtain milk yield (15-19kg/day) with milk fat content (2.97-3.25%) in crossbred cows
19	Shortage of animal feed/poor performance on resource based feeding	Resource based pig growers	Pig	Crossbred	Rice polish based feeding system	Rice polish being adulterated with low nutritive value hulls and bran portion that leads to poor performance. Therefore, refinement in technology based on rice polish will be needed considering the availability and quality of different types of rice milling by products
20	Disease	For rapid diagnosis	Animals	All the livestock &	PCR based diagnostic	Timely diagnosis and

	diagnosis	of diseases		poultry	techniques for: <i>Listeria monocytogenes</i> , <i>Campylobacter jejuni</i> , <i>Clostridium perfringens</i> , <i>Pasteurella hemolytica</i> , <i>Bordetella bronchiseptica</i> , <i>Brucella spp</i> , Mesophilic <i>Aeromonas spp</i> , <i>Salmonella spp</i> , <i>Escherichia coli</i> , etc and important virulence genes present in the field isolates	thereby prevention and control of the disease will increase the production of the animals
21	Poor production potential of indigenous poultry germplasm	Backyard poultry production	Chicken varieties developed at Project Directorate on Poultry, Hyderabad.	1. Vanaraja 2. Gramapriya	None	Vanaraja – 120 egg/Laying cycle Gramapriya – 150 eggs/Laying cycle
22	Lack of knowledge about composite fish farming and proper stocking ratio and density	Hill micro situation	IMC and Exotic carps	<i>Catla catla</i> , <i>Labeo rohita</i> , <i>C. mrigala</i> , <i>C. idella</i> , <i>H. molitrix</i> , <i>C. carpio</i>	Composite fish culture	25000kg fish/ha/yr
23	Lack of knowledge about composite fish farming and its integrated approach with special	Hill micro situation	IMC and Exotic carps integrated with cattle, pig, duck and poultry and paddy crop	<b>Fishes</b> <i>Catla catla</i> , <i>Labeo rohita</i> , <i>C. mrigala</i> , <i>C. idella</i> , <i>H. molitrix</i> , <i>C. carpio</i> <b>Cattle</b> Holstein <b>Pig</b>	Composite fish culture integrated with live stock and paddy	Additional profit of 25-30% from all integration

	reference to stocking density			Khasi Local <b>Duck</b> Khaki, Campbell <b>Poultry</b> Rhode Island, Red and white leg horn		
24	Lack of knowledge about running water fish farming	Local small streams and streamlets	Locally available hill stream carps	<i>Cyprinus carpio</i> , <i>C.idella</i> and few <i>Mahseer species</i>	Running water fish culture	4000-5000kg fish/ha/yr
25	Lack of knowledge about cage culture of fishes	Hill micro situation	Common carp	<i>Cyprinus carpio</i>	Cage culture	10-12kg/m <sup>3</sup>
26	Prevailing parasites in NEH region	North Eastern Hill Region	-----	-----	DOT ELISA based diagnostic kit	-----
27	Poor pig productivity	Tribal pig production system	Pig	Hampshire x Khasi local	Improved pig variety	Nearly double body weight gained over a specified time compared to local pigs
28	High housing cost for pigs and altitude specific housing pattern not available	Tribal pig production system	Pig	For all breed of pigs	Suitable low cost housing for different altitudes	-----
29	Need for a small animal to incorporate in the traditional production system	Tribal animal production system	Rabbit	New Zealand white and Soviet Chinchilla	Low-cost rabbit production system	-----

30	Harvesting of <i>Melipona</i> and <i>Trigona</i> bee colonies is difficult due to small colony size	All farming situations	Apiary	-----	Inserting two hollowed bamboos inside to the top of the log hive that can be removed or replaced as and when required facilitate the honey harvesting. The honey is stored in the bamboo hollow and depending upon the storage it is harvested by scooping the honey with a knife.	-----
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