5. Research Priorities and Strategies for NE India

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5.1 Research Priorities and Strategies for Arunachal Pradesh

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1. Research Priorities and strategies for East Siang

1. Research gaps identified for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research gaps identified
1	Agri-AH-Horti-Fishery	Field crop	No specific proven variety for rice in the district. INM, IPM Package and practices
		Vegetable	No specific proven HYV of vegetable. Lack of package and practices for local vegetable crops Protective cultivation of vegetables.
		Fishery	Lack of Package and practices for indigenous fishes Seed production and feed.
		AH	Feed and breed
2	Horti- Agri-AH	Fruits	Lack of quality planting material of khasi Madarin Commercial cultivation of Khasi mandrin, Banana, Pine apple and Guava. Value addition in ginger Processing and marketing of citrus.
		Paddy	Mechanization and irrigation techniques Integrated Nutrient Management Non availability of Improved variety of rice Possibility of terraced cultivation by managing water from natural cannel.
		AH	Feed and Breed
3	Agri-AH	Field crop	No specific proven variety for rice in the district. INM, IPM Package and practices
		AH	Feed and Breed

2. Research priorities finalized for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research priorities finalised
1	Agri-AH-Horti-Fishery	Field crop	To identify the suitable Rabi season crops. Development of HYV of Rice suitable in the prevailing condition.

			To develop suitable package and practices for field crops
		Vegetable	To develop/identify suitable hybrids/ high yielding varieties of major vegetable crops. To identify suitable exotic vegetables. To develop suitable package and practices of local vegetable crops
		Fishery	Low scale breeding techniques for production of seed of indigenous fishes. Use of locally available ingredients for fish feed.
		AH	Improvement of local races of cattle, pig and poultry
2	Horti- Agri-AH	Fruits	Development of package and practices of citrus and other major fruit crops Post harvest Technology for fruit crops
		Paddy	HYV of Rice suitable in the prevailing condition.
		AH	Feed and Breed
3	Agri-AH	Field crop	Development of HYV of Rice suitable in the prevailing condition. To develop suitable package and practices for field crops
		AH	Improvement of local races of cattle, pig and poultry

3. Research strategy proposed for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research strategy proposed
1	Agri-AH-Horti-Fishery	Field crop	To develop HYV rice for this region through the involvement of Rice Research Centre
		Vegetable	To develop high yielding vegetable varieties through the involvement of AICRP on Vegetable Crops.
		Fishery	Research on fast growing indigenous fishes and development of low cost feed for aquaculture through Fisheries Research Centre
		AH	Upgradation of local breed through cross breeding/artificial insemination

2	Horti- Agri-AH	Fruits	Development of IPM modules for Khasi Mandarin Management of flower and fruit drop in citrus Low scale processing unit for value addition of Khasi Mandarin.
		Paddy	To develop HYV rice suitable for terrace cultivation through involvement of Rice Research Centre
		AH	Upgradation of local bred through cross breeding/artificial insemination
3	Agri-AH	Field crop	To develop HYV rice for this region through the involvement of Rice Research Centre
		AH	Upgradation of local breed through cross breeding/artificial insemination

2. Research Priorities and strategies for Lohit

1. Research gaps identified for each farming system and crop

Sl.No	Farming systems	Crops under the FS	Research gaps identified
1.	Low altitude, Rainfed : FS-1 (AES-I) (Agri.+ Horti.+ Animal Husb) FS-2 (AES-I) (Agri.+ Horti.+ Animal Husb.+ Fishery)	Agri - WRC/ upland paddy, Potato, mustard, maize, soybean, local pulses, tea Horti. – Banana, Pineapple, citrus Vegetables, ginger, chili, betel vine Animal Husb. –Cattle, pig, goat, elephant, duck and poultry Fishery – Fish species Rohu, Catla, Grass Carp, Silver Carp and Common Carp, Local species	Agriculture : 1. Varietal evaluation for direct sown upland paddy 2. Varietal evaluation for transplanted paddy 3. Varietal evaluation for greengram / blackgram 4. Varietal evaluation for rapeseed / mustard 6. INM for upland paddy on hill slope 7. IPM for upland paddy on hill slope 8. Resource management technology 9. Cropping system research Horticulture: 1. Varietal evaluation of fruit and vegetable crops. 2. Poor performance of local var. of fruits and vegetables 3. INM for Fruits and vegetables 4. IPM for upland paddy on hill slope 5. Lack of availability of quality planting material. 6. Lack of standardized propagation technique of fruits crop. 7. Lack of efficient orchard management technology 8. Lack of efficient nutrient mgt. technique. 9. Lack of efficient insect-pest & disease mgt. Fishery 1. Lack of suitable region specific fish farming technology 2. Lack of knowledge about different aspects of scientific fish culture Animal Husbandry 1. Lack ok knowledge on scientific management of livestock 2. Parasitic infection

			3. Poor livestock feed 4. Poor performance of local breed. 5. Improper housing
2.	Mid altitude, Rainfed FS-3 (AES-II) (Agri.+ Horti.+ Animal Husb) FS-4 (AES-II) (Agri.+ Horti.+ Animal Husb.+ Fishery)	Agri - WRC/ upland paddy, Potato, mustard, maize, soybean, local pulses Horti. – Banana, Pineapple, citrus Vegetables, ginger, chili, betel vine Animal Husb. – Cattle, pig, goat, elephant, duck and poultry Fishery – Fish species Rohu, Catla, Grass Carp, Silver Carp and Common Carp, Local species	Agriculture : 1. Varietal evaluation for direct sown upland paddy 2. Varietal evaluation for transplanted paddy 3. Varietal evaluation for greengram / blackgram 4. Varietal evaluation for arhar 5. Varietal evaluation for rapeseed / mustard 6. INM for upland paddy on hill slope 7. IPM for upland paddy on hill slope 8. Resource management technology 9. Cropping system research 10. Varietal evaluation of millet Horticulture: 1. Varietal evaluation of fruit and vegetable crops. 2. Poor performance of local var. of fruits and vegetables 3. INM for Fruits and vegetables 4. IPM for upland paddy on hill slope 5. Lack of availability of quality planting material. 6. Lack of standardized propagation technique of fruits crop. 7. Lack of efficient orchard management technology 8. Lack of efficient nutrient mgt. technique. 9. Lack of efficient insect-pest and disease mgt. Fishery 1. Lack of suitable region specific fish farming technology 2. Lack of knowledge about different aspects of scientific fish culture Animal Husbandry 1. Lack ok knowledge on scientific

			management of livestocks 2. Parasitic infection 3. Poor livestock feed 4. Poor performance of local breed. 5. Improper housing.
3.	High altitude, Rainfed FS-5 (AES-II) (Agri.+ Horti.+ Animal Husb) FS-6 (AES-III) (Agri.+ Horti.+ Animal Husb.+ Fishery)	Agri - Upland paddy, maize, millet, local pulses Horti. – Orange, Tapioca, colocasia, vegetables, ginger, chili, pineapple, banana Animal Husb. – Mithun cattle, pig, goat, elephant, duck and poultry Fishery – Fish species Rohu, Catla, Grass Carp, Silver Carp and Common Carp, Local species	Agriculture : 1. Varietal evaluation for direct sown upland paddy 2. Cropping system research 3. INM for upland paddy on hill slope 4. IPM for upland paddy on hill slope 5. Resource management technology 6. Varietal evaluation of millet Horticulture: 1. Varietal evaluation of fruit and vegetable crops particularly orange. 2. Poor performance of local var. of fruits and vegetables 3. INM for Fruits and vagetables 4. IPM for upland paddy on hill slope 5. Lack of availability of quality planting material. 6. Lack of standardized propagation technique of fruits crop. 7. Lack of efficient orchard management technology 8. Lack of efficient nutrient mgt. technique. 9. Lack of efficient insect-pest & disease mgt. Fishery 1. Lack of suitable region specific fish farming technology 2. Lack of knowledge about different aspects of scientific fish culture Animal Husbandry 1. Lack ok knowledge on scientific management of livestocks 2. Parasitic infection 3. Poor livestock feed 4. Poor performance of local breed. 5. Improper housing.

2. Research priorities finalized for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research priorities finalized
1	Low altitude, Rainfed : FS-1 (AES-I) (Agri.+ Horti.+ Animal Husb) FS-2 (AES-I) (Agri.+ Horti.+ Animal Husb.+ Fishery)	Agri - WRC/ upland paddy, Potato, mustard, maize, soybean, local pulses, tea Horti. – Banana, Pineapple, citrus Vegetables, ginger, chili, betel vine Animal Husb. –Cattle, pig, goat, elephant, duck and poultry Fishery – Fish species Rohu, Catla, Grass Carp, Silver Carp and Common Carp, Local species	Agriculture : 1. Varietal evaluation for direct sown upland paddy 2. Varietal evaluation for transplanted paddy 3. Varietal evaluation for greengram / blackgram 4. Varietal evaluation for rapeseed / mustard 6. INM for upland paddy on hill slope 7. IPM for upland paddy on hill slope Horticulture: 1. Varietal evaluation of fruit and vegetable crops. 2. Introduction of HYV of fruits and vegetables 3. INM and IPM in fruit and vegetable crops 4. Standardization of propagation technique of fruits crop. 7. Lack of efficient orchard management technology 8. Use efficient nutrient mgt. technique. Fishery 1. Use of suitable region specific fish farming technology 2. Scientific fish farming particularly composite fish farming Animal Husbandry 1. Scientific management of livestocks 2. Parasitic infection management 3. Proper feed management 4. AI of different animals 5. Proper housing management
2.	Medium altitude, Rainfed		Agriculture : 1. Varietal evaluation for direct sown

	FS-3 (AES-II) (Agri.+ Horti.+ Animal Husb) FS-4 (AES-II) (Agri.+ Horti.+ Animal Husb.+ Fishery)	Agri - WRC/ upland paddy, Potato, mustard, maize, soybean, local pulses Horti. – Banana, Pineapple, citrus Vegetables, ginger, chili, betel vine Animal Husb. – Cattle, pig, goat, elephant, duck and poultry Fishery – Fish species Rohu, Catla, Grass Carp, Silver Carp and Common Carp, Local species	upland paddy 2. Varietal evaluation for transplanted paddy 3. Varietal evaluation for greengram / blackgram 4. Varietal evaluation for rapeseed / mustard 6. INM for upland paddy on hill slope 7. IPM for upland paddy on hill slope Horticulture: 1. Varietal evaluation of fruit and vegetable crops. 2. Introduction of HYV of fruits and vegetables 3. INM and IPM in fruit and vegetable crops 4. Standardization of propagation technique of fruits crop. 7. Lack of efficient orchard management technology 8. Use efficient nutrient mgt. technique. Fishery 1. Use of suitable region specific fish farming technology 2. Scientific fish farming particularly composite fish farming Animal Husbandry 1. Scientific management of livestocks 2. Parasitic infection management 3. Proper feed management 4. AI of different animals 5. Proper housing management
3.	High altitude, Rainfed FS-5 (AES-II) (Agri.+ Horti.+	Agri - Upland paddy, maize, millet, local pulses Horti. – Orange, Tapioca, colocasia, vegetables, ginger,	Agriculture : 1. Varietal evaluation for direct sown upland paddy 2. Cropping system research 3. INM for upland paddy on hill slope 4. IPM for upland paddy on hill slope 5. Resource management technology

	Animal Husb) FS-6 (AES-III) (Agri.+ Horti.+ Animal Husb.+ Fishery)	chili, pineapple, banana Animal Husb. – Mithun cattle, pig, goat, elephant, duck and poultry Fishery – Fish species Rohu, Catla, Grass Carp, Silver Carp and Common Carp, Local species	Horticulture: 1. Varietal evaluation of Orange fruit and vegetable crops. 2. Introduction of HYV of fruits and vegetables 3. Use efficient nutrient mgt. technique. 4. INM and IPM in fruit and vegetable crops 5. Standardization of propagation technique of fruits crop. 6. Lack of efficient orchard management technology Fishery 1. Use of suitable region specific fish farming technology 2. Scientific fish farming particularly composite fish farming Animal Husbandry 1. Scientific management of livestocks 2. Parasitic infection management 3. Proper feed management 4. AI of different animals 5. Proper housing management

3. Research strategy proposed for each farming system and crop

Sl. No.	Farming system	Crop under the FS	Research strategy proposed
1	Low altitude, Rainfed : FS-1 (AES-I) (Agri.+ Horti.+ Animal husb) FS-2 (AES-I) (Agri.+ Horti.+ Animal husb.+ Fishery)	Agri - WRC/ upland paddy, Potato, mustard, maize, soybean, local pulses, tea Horti. – Banana, Pineapple, citrus Vegetables, ginger, chili, betel vine Animal Husb. –Cattle, pig, goat, elephant, duck and poultry	Agriculture : OFT on 1. Varietal evaluation for direct sown upland paddy 2. Varietal evaluation for transplanted paddy 3. INM for rice, mustard 4. Biocontrol of stemborer and leaf folder in rice 5. Rhizome rot management in Ginger using Biofor-Pf 6. Management of rice hispa

		Fishery – Fish species Rohu, Catla, Grass Carp, Silver Carp and Common Carp, Local species	using mycoinsecticides 5. Varietal evaluation for greengram / blackgram 6. Varietal evaluation for rapeseed / mustard 9. Soil & moisture conservation technology Horticulture: OFT on 1. Short duration tapioca cultivation 2. High density planting of Dwarf Cavendish 3. Weed management in Brinjal 4. Management of micro-nutrient deficiency in Khasi mandarin 5. Varietal evaluation of okra.. 6. Varietal evaluation of brinjal. 7. Performance evaluation of cabbage var. by application of biofertilizer. Animal Husbandry : OFT on 1. Supply of creep ration to the pre-weaned piglets 2. Concentrate feeding of pig 3. Supplementation of minerals mixer to the pig 4. Feeding of balance food 5. Control of piglet anemia by iron supplementation 6. Introduction of suitable tested breed of rabbit 7. Management of Ranikhet disease of poultry 8. Assessment of improved breed of poultry Fishery OFT on 1. Carp fry and fingerling

			rearing 2. Composite fish culture technology for low altitude foot hill
2.	Medium altitude, Rainfed FS-3 (AES-II) (Agri.+ Horti.+ Animal husb) FS-4 (AES-II) (Agri.+ Horti.+ Animal husb.+ Fishery)	Agri - WRC/ upland paddy, Potato, mustard, maize, soybean, local pulses Horti. – Banana, Pineapple, citrus Vegetables, ginger, chili, betel vine Animal Husb. – Cattle, pig, goat, elephant, duck and poultry Fishery – Fish species Rohu, Catla, Grass Carp, Silver Carp and Common Carp, Local species	Agriculture : OFT on 1. Varietal evaluation for direct sown upland paddy 2. Varietal evaluation for transplanted paddy 3. INM for rice, mustard 4. Biocontrol of stemborer and leaf folder in rice 5. Rhizome rot management in Ginger using Biofor-Pf 6. Management of rice hispa using mycoinsecticides 5. Varietal evaluation for greengram / blackgram 6. Varietal evaluation for rapeseed / mustard Horticulture: OFT on 1. Short duration tapioca cultivation 2. High density planting of Dwarf Candish 3. Weed management in Brinjal 4. Management of micro-nutriet deficiency in Khasi mandarin 5. INM in Orange 7. Performance evaluation of cabbage variety Animal Husbandry : OFT on 1. Supply of creep ration to the pre-weaned piglets 2. Concentrate feeding of pig 3. Supplementation of minerals

			mixer to the pig 4. Feeding of balance food 5. Control of piglet anemia by iron supplementation 6. Introduction of suitable tested breed of rabbit Fishery OFT on 1. Carp fry and fingerling rearing 2. Composite fish culture technology for low altitude foot hill
3.	High altitude, Rainfed FS-5 (AES-II) (Agri.+ Horti.+ Animal husb) FS-6 (AES-III) (Agri.+ Horti.+ Animal husb.+ Fishery)	Agri - Upland paddy, maize, millet, local pulses Horti. – Orange, Tapioca, colocasia, vegetables, ginger, chili, pineapple, banana Animal Husb. – Mithun cattle, pig, goat, elephant, duck and poultry Fishery – Fish species Rohu, Catla, Grass Carp, Silver Carp and Common Carp, Local species	Agriculture : OFT on 1. Varietal evaluation for direct sown upland paddy 2. Varietal evaluation for transplanted paddy 3. INM for rice, mustard 4. Biocontrol of stemborer and leaf folder in rice 5. Rhizome rot management in Ginger using Biofor-Pf 6. Management of rice hispa using mycoinsecticides 5. Varietal evaluation for greengram / blackgram 6. Varietal evaluation for rapeseed / mustard Horticulture: OFT on 1. Short duration tapioca cultivation 2. High density planting of Dwarf Candish 3. Weed management in Brinjal 4. Management of micro-nutrient deficiency in Khasi mandarin

			5. INM in Orange 7. Performance evaluation of cabbage variety Animal Husbandry : OFT on 1. Supply of creep ration to the pre-weaned piglets 2. Concentrate feeding of pig 3. Supplementation of minerals mixer to the pig 4. Feeding of balance food 5. Control of piglet anemia by iron supplementation Fishery OFT on 1. Carp fry and fingerling rearing 2. Composite fish culture technology for low altitude foot hill

3. Research Priorities and strategies for Papumpare

1. Research gaps identified for each farming and crop

Sl. No.	Farming System	Crops under the FS	Research gaps identified
1	FS-1 Agri-AH	Rice, Maize, Mustard, Potato, Ginger, Pigs, Mithuns, Poultry	Location specific varietal/breeds trial and technical know how on Paddy, Maize and Pig rearing.
2	FS-2 Agriculture + Horticulture	Rice, Maize, Pineaplle, Orange, Ginger, Chilli, Sugarcane	1. IPM/INM/IWM for Rice, maize, Orange, Pineaplle, Ginger to be developed 2. Location specific packages of practices for Rice, Maize, Orange and Pineapple
3	FS-3 AH-Agri-Horti	Pig, poultry, Mithun, Cattle, Paddy, Maize, Orange, Pineapple, Ginger, Chilli	a. Multiplication and documentation of the identified hybrid/ improved variety of fodder species commonly relished by the Mithun b. Collection and mainetaineance of germplasm of Arunachali Mithun c. Study on productive and reproductive traits of different existing non-descript and crossbred pigs of district d. Location specific varietal/breeds trial and technical know how on Paddy, Maize Pineaplle, ginger and Pig rearing
4	FS-4 Silviculture-Agri-Horti	*Albizzia* sp, Teak, orange, Rice, Maize, Pineapple, Tea	a. Production of Quality planting materials b. Suitable package of practices for local Variety of paddy, maize, orange etc c. Identification and documentation of plant genetic resource available in the areas d. Propagation of rare species of plant species of economic importance in nurseries and demonstration plot

5	FS-5 AH-Fishery- Agri-Horti	Poultry, Cattle, Goat, Pigs, Mithuns, Carp culture (Catla, Rohu, Mrigal, Silver Carp), Paddy, Maize, Pineapple, Ginger etc	a. Research on high productive performance breeds of chicken and pig b. Research on high growth performance species of fishes c. Insect pest resistant variety of major agri. and horti. crops

2. Research prioritizes finalized identified for each farming system and crop

Sl. No.	Farming System	Crops under the FS	Research priorities finalized
1	FS-1	Rice, Maize, Mustard, Potato, Ginger, Pigs, Mithuns, Poultry	a. Evaluation of varietal; trial of Paddy b. Low cost feed ration for pig and poultry
2	FS-2	Rice, Maize, Pineaplle, Orange, Ginger, Chilli, Sugarcane	IPM/INM/IWM for Paddy, Maize, Ginger, Orange and Pineaplle
3	FS-3	Pig, poultry, Mithun, Cattle, Paddy, Maize, Orange, Pineapple, Ginger, Chilli	a. Low cost feed ration for pigs b. Laocation specific varietal trail on paddy
4	FS-4	*Albizzia* sp, Teak, orange, Rice, Maize, Pineapple, Tea	a. Improved cultivation practice and forestry b. Post harvest management of fruits and vegetables c. production of qualities planting materials
5	FS-5	Poultry, Cattle, Goat, Pigs, Mithuns, Carp culture(Catla, Rohu, Mrigal, Silver Carp), Paddy, Maize, Pineapple, Ginger etc	a. Research on fast growing chicken and pig breeds b. Identification of cattle breeds suitable for hilly region c. Integrated Fish farming to be developed for the FS d. Location specific disease and insect pest resistant variety to be developed for the crops

3. Research strategy proposed for each farming system and crop

Sl. No.	Farming System	Crops under the FS	Research Strategy proposed
1	FS-1	Rice, Maize, Mustard, Potato, Ginger, Pigs, Mithuns, Poultry	1. IPM/INM for major crops of local variety 2. Soil fertility analysis 3. Recclamation of acid soils 4. Study on reduction of foul odours in piggery farming to encourage piggery in urban areas 5. Study on productive and reproductive traits of different existing non-descript and crossbred pigs of district
2	FS-2	Rice, Maize, Pineaplle, Orange, Ginger, Chilli, Sugarcane	a. To conduct trial on location specific package of practices of paddy, maize, orange, giinger b. Recclamation of acid soil c. OFT on IPM.INM/IWM of Rice and pineaplle
3	FS-3	Pig, poultry, Mithun, Cattle, Paddy, Maize, Orange, Pineapple, Ginger, Chilli	OFT/Research to be conducted on fast growing livestock breeds and short duration crop variety for paddy, maize, orange, pineapple, chilli suitable for the FS
4	FS-4	*Albizzia* sp, Teak, orange, Rice, Maize, Pineapple, Tea	a. Adoption of IPM/INM/IWM of HYV ythrough OFT b. Introduction of HYV through OFT c. Grading and value addition of the farm produce
5	FS-5	Poultry, Cattle, Goat, Pigs, Mithuns, Carp culture (Catla, Rohu, Mrigal, Silver Carp), Paddy, Maize, Pineapple, Ginger etc	a. Breed up-gradation by selective breeding of cattle b. Reproductive performeance of indigenous non-descript ccattle on present production system c. Breed characterization of indigenous goat d. Genetic Characterization of Arunachalees Mithun e. Short duration of paddy, maize, banana f. Integrated Fish farming in the FS area g. Fish stocking pattern of Fingerlings h. Fish feed formulation based on locally available materials

4. Research Priorities and strategies for Tirap

1. Research gaps identified for each farming system and crop

Sl.No	Farming systems	Crops under the FS	Research gaps identified
1.	Low altitude, Rainfed FS- 1 (Agri.+ Horti.+ Pisciculture+ Animal Husb.+ Forestry) FS-2 (Agri.+ Horti.+ Animal Husb.+ Forestry)	Agriculture : (WRC/ upland paddy, maize, millet, soyabean, mustard, local pulses, tea) Horticulture: (Tapioca, colocasia, sweet potato, vegetables(cucurbits, solanacea,cruciferae,okra) ginger, chili, black pepper, betelvine, arecanut ,citrus,(pummelo, lemon, limes) pineapple, banana, papaya, litchi, plum, jackfruit guava, mango) Pisciculture - Fish species (Rohu, Catla, Grass Carp, Silver Carp and Common Carp) Animal Husbandry. – (Cattle, Pig, Goat and Poultry)	Agriculture : 1. Varietal evaluation for direct sown upland paddy 2. Varietal evaluation for transplanted paddy 3. Varietal evaluation for greengram / blackgram 4. Varietal evaluation for arhar 5. Varietal evaluation for rapeseed / mustard 6. INM for upland paddy on hill slope 7. IPM for upland paddy on hill slope 8. Resource management technology 9. Cropping system research 10. Varietal evaluation of millet 11. Varietal evaluation of soybean Horticulture: 1. Poor performance of local and undescript var.of fruits and Vegs. 2. Lack of availability of quality planting material. 3. Lack of standardized propagation technique of fruits crop. 4. Lack of efficient orchard management technology 5. Lack of nursery raising technique in vegs. 6. Lack of efficient nutrient mgt. technique. 7. Lack of efficient insect-pest & disease mgt. technique Pisciculture 1. Lack of suitable region specific fish farming technology for low altitude regions of Tirap district 2. Lack of knowledge about different aspects of scientific fish culture

			Animal Husbandry 1. Parasitic infection 2. Poor livestock feed 3. Poor performance of local breed.
2.	Mid altitude, Rainfed FS- 3 (Agri.+ Horti.+ Pisciculture+ Animal husb.+ Forestry) FS- 4 (Agri.+ Horti.+ Animal husb.+ Forestry)	Agriculture : (WRC/ upland paddy, maize, millet, soybean, local pulses & oilseed , tea) Horticulture **:** (Tapioca, colocasia, sweet potato, vegetables(cucurbits, solanacea,cruciferae,okra) ginger, chili, betel vine, citrus(mandarin) pineapple, banana, kiwi) Animal Husbandry **: (**Cattle, Pig, Goat and Poultry) Pisciculture - Fish species (Rohu, Catla, Grass Carp, Silver Carp and Common Carp)	Agriculture : 1. Varietal evaluation for direct sown upland paddy 2. Varietal evaluation for transplanted paddy 3. Varietal evaluation for greengram / blackgram 4. Varietal evaluation for arhar 5. Varietal evaluation for rapeseed / mustard 6. INM for upland paddy on hill slope 7. IPM for upland paddy on hill slope 8. Resource management technology 9. Cropping system research 10. Varietal evaluation of millet 11. Varietal evaluation of soybean. Animal Husbandry : 1. Parasitic infection 2. Poor livestock feed 3. Poor performance of local breed. Horticulture**:** 1. Poor performance of local and undescript var.of fruits and Vegs. 2. Lack of availability of quality planting material. 3. Lack of standardized propagation technique of fruits crop. 4. Lack of efficient orchard management technology. 5. Lack of nursery raising technique in vegs. 6. Lack of efficient nutrient mgt. technique. 7. Lack of efficient insect-pest & disease mgt. technique. Pisciculture 1. Lack of suitable region specific fish

			farming technology for mid altitude regions of Tirap district 2. Lack of knowledge about different aspects of scientific fish culture
3.	High altitude, Rainfed FS- 5 (Agri.+ Horti.+ Pisciculture+ Animal husb.+ Forestry) FS- 6 (Agri.+ Horti.+ Animal husb.+ Forestry)	Agriculture : (Upland paddy, maize, millet, soyabean, local pulses) Horticulture : (Tapioca, colocasia, sweet potato, vegetables(cucurbits, solanacea,cruciferae,okra) ginger, chili, betel vine, citrus(mandarin) pineapple, banana, kiwi) Pisciculture - Fish species (Rohu, Catla, Grass Carp, Silver Carp and Common Carp) Animal Husbandry : (Cattle, Pig, Goat and Poultry)	Agriculture : 1. Varietal evaluation for direct sown upland paddy 2. Cropping system research 3. INM for upland paddy on hill slope 4. IPM for upland paddy on hill slope 5. Resource management technology 6. Varietal evaluation of millet Animal Husbandry : 1. Parasitic infection 2. Poor livestock feed 3. Poor performance of local breed. Horticulture: 1. Poor performance of local and undescript var.of fruits and Vegs. 2. Lack of availability of quality planting material. 3. Lack of standardized propagation technique of fruits crop 4. Lack of efficient orchard management technology. 5. Lack of nursery raising technique in vegs. 6. Lack of efficient nutrient mgt. technique. 7. Lack of efficient insect-pest & disease mgt. technique. Pisciculture 1. Lack of suitable region specific cold water fish culture technology for high altitude regions of Tirap district 2. Lack of knowledge about different aspects of scientific fish culture

2. Research priorities finalized for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research priorities finalized
1	Low altitude, Rainfed FS- 1 (Agri.+ Horti.+ Pisciculture+ Animal husb.+ Forestry) FS-2 (Agri.+ Horti.+ Animal husb.+ Forestry)	Agriculture : (WRC/ upland paddy, maize, millet, soyabean, mustard, local pulses, tea) Horticulture: (Tapioca, colocasia, sweet potato, vegetables(cucurbits, solanacea,cruciferae,okra) ginger, chili, black pepper, betelvine, arecanut ,citrus,(pummelo, lemon, limes) pineapple, banana, papaya, litchi, plum, jackfruit guava, mango) Pisciculture - Fish species (Rohu, Catla, Grass Carp, Silver Carp and Common Carp) Animal Husbandry. – (Cattle, Pig, Goat and Poultry)	Agriculture : 1. Varietal evaluation for direct sown upland paddy 2. Varietal evaluation for transplanted paddy 3. Cropping system research 4. INM for upland paddy on hill slope 5. IPM for upland paddy on hill slope 6. Varietal evaluation for greengram / blackgram 7. Varietal evaluation for rapeseed / mustard 8. Resource management technology 9. Varietal evaluation for arhar Horticulture: 1. Use of high yielding var. to increase the yield. 2. Use of quality planting material & disease free seeds 3. Use of technology like high density planting to increase the crop production & crop productivity 4. Nursery management technique in vegs. 5. Scientific nutrient management in fruits & vegs. 6. Scientific insect-pest mgt. in fruits & vegs. Animal Husbandry : 1. Parasitic disease management 2. Feed management. 3. Upgradation of local breed Pisciculture 1. Suitable region specific composite fish culture technology for low altitude regions of Tirap district 2. Development of low cost fish husbandry practices specially for hilly regions using locally available materials.

2.	Mid altitude, Rainfed FS- 3 (Agri.+ Horti.+ Pisciculture+ Animal husb.+ Forestry) FS- 4 (Agri.+ Horti.+ Animal husb.+ Forestry)	Agriculture : (WRC/ upland paddy, maize, millet, soyabean, local pulses & oilseeds, tea) Horticulture : (Tapioca, colocasia, sweet potato, vegetables, gimger, chili, betel vine, ,citrus, pineapple, banana) Pisciculture - Fish species (Rohu, Catla, Grass Carp, Silver Carp and Common Carp) Animal Husbandry : (Cattle, Pig, Goat and Poultry)	Agriculture : 1. Varietal evaluation for direct sown upland paddy 2. Varietal evaluation for transplanted paddy 3. Cropping system research 4. INM for upland paddy on hill slope 5. IPM for upland paddy on hill slope 6. Varietal evaluation for greengram / blackgram 7. Varietal evaluation for rapeseed / mustard 8. Resource management technology 9. Varietal evaluation for arhar 10. Varietal evaluation of millet Horticulture: 1. Use of high yielding var. to increase the yield. 2. Use of quality planting material & disease free seeds. 3. Use of technology like high density planting to increase the crop production & crop productivity. 4. Nursery management technique in vegs. 5. Scientific nutrient management in fruits & vegs. 6. Scientific insect-pest mgt. in fruits & vegs. Animal Husbandry : 1. Parasitic disease management 2. Feed management. 3. Upgradation of local breed Pisciculture 1. Suitable region specific composite fish culture technology for mid altitude regions of Tirap district 2. Development of low cost fish husbandry practices specially for hilly regions using locally available materials.

3.	High altitude, Rainfed FS- 5 (Agri.+ Horti.+ Pisciculture+ Animal husb.+ Forestry) FS- 6 (Agri.+ Horti.+ Animal husb.+ Forestry)	Agriculture : (Upland paddy, maize, millet, soyabean, local pulses) Horticulture : (Tapioca, colocasia, sweet potato, vegetables, gimger, chili, betel vine, ,citrus, pineapple, banana) Pisciculture - Fish species (Rohu, Catla, Grass Carp, Silver Carp and Common Carp) Animal Husbandry : (Cattle, Pig, Goat and Poultry)	Agriculture : 1. Varietal evaluation for direct sown upland paddy 2. Cropping system research 3. INM for upland paddy on hill slope 4. IPM for upland paddy on hill slope 5. Resource management technology 6. Varietal evaluation of millet Horticulture: 1. Use of high yielding var. to increase the yield. 2. Use of quality planting material & disease free seeds. 3. Use of technology like high density planting to increase the crop production & crop productivity. 4. Nursery management technique in vegs. 5. Scientific nutrient management in fruits & vegs. 6. Scientific insect-pest mgt. in fruits & vegs. Pisciculture 1. Suitable region specific coldwater fish culture technology for high altitude regions of Tirap district 2. Development of low cost fish husbandry practices specially for hilly regions using locally available materials. Animal Husbandry : 1. Parasitic disease management 2. Feed management. 3. Upgradation of local breed

3. Research strategy proposed for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research strategy proposed
		Agriculture :	Agriculture :

1.	Low altitude, Rainfed FS- 1 (Agri.+ Horti.+ Pisciculture+ Animal husb.+ Forestry) FS-2 (Agri.+ Horti.+ Animal husb.+ Forestry)	(WRC/ upland paddy, maize, millet, soyabean, mustard, local pulses, tea) Horticulture: (Tapioca, colocasia, sweet potato, vegetables(cucurbits, solanacea,cruciferae,okra) ginger, chili, black pepper, betelvine, arecanut ,citrus,(pummelo, lemon, limes) pineapple, banana, papaya, litchi, plum, jackfruit guava, mango) Pisciculture – Catla, Rohu, Mrigal, Silver Carp, Grass Carp and Common Carp Animal Husbandry. – (Cattle, Pig, Goat and Poultry)	OFT on 1. Varietal evaluation for direct sown upland paddy 2. Varietal evaluation for transplanted paddy 3. Rice based cropping system 4. Maize based cropping system 5. INM for upland paddy on hill slope 6. IPM for upland paddy on hill slope 7. Varietal evaluation for greengram / blackgram 8. Varietal evaluation for rapeseed / mustard 9. Soil & moisture conservation technology 10. Resource management technology 11. Varietal evaluation for arhar 12. Assessment of bio-fertilizers on the yield of direct-seeded rice. 13. INM for transplanted rice. Horticulture: OFT on 1. Varietal evaluation of okra.. 2. Varietal evaluation of brinjal. 3. Performance evaluation of cabbage var. by application of biofertilizer. 4. Varietal evaluation of chilli Var Animal Husbandry : OFT on 1. Management of Ranikhet disease of poultry 2. Feed management of pig 3. Assessment of improved breed of poultry Pisciculture: OFT on 1. Composite fish culture technology for low altitude foot hill (upto 2500 feet msl) regions of Tirap district.
2.	Mid altitude, Rainfed FS- 3	Agriculture : (WRC/ upland paddy, maize, millet, soyabean, local pulses & oilseeds, tea)	Agriculture : OFT on 1. Varietal evaluation for direct sown upland paddy 2. Varietal evaluation for transplanted paddy

	(Agri.+ Horti.+ Pisciculture+ Animal husb.+ Forestry) FS- 4 (Agri.+ Horti.+ Animal husb.+ Forestry)	Horticulture : (Tapioca, colocasia, sweet potato, vegetables, gimger, chili, betel vine, ,citrus, pineapple, banana) Pisciculture - Catla, Rohu, Mrigal, Silver Carp, Grass Carp and Common Carp Animal Husbandry : (Cattle, Pig, Goat and Poultry)	3. Rice based cropping system 4. Maize based cropping system 5. INM for upland paddy on hill slope 6. IPM for upland paddy on hill slope 7. Varietal evaluation for greengram / blackgram 8. Varietal evaluation millet 9. Soil & moisture conservation technology 10. Resource management technology 11. Varietal evaluation for arhar 12. Assessment of bio-fertilizers on the yield of direct-seeded rice. 13. INM for transplanted rice. Horticulture: OFT on 1. Varietal evaluation of okra.. 2. Varietal evaluation of brinjal. 3. Performance evaluation of cabbage var. by application of biofertilizer. 4. Varietal evaluation of chilli Var Animal Husbandry : OFT on 1. Management of Ranikhet disease of poultry 2. Feed management of pig 3. Assessment of improved breed of poultry Pisciculture: OFT on 1. Composite fish culture technology for mid altitude(upto 3500 feet msl) hilly regions of Tirap district.
3.	High altitude, Rainfed FS- 5 (Agri.+ Horti.+	Agriculture : (Upland paddy, maize, millet, soyabean, local pulses) Horticulture : (Tapioca, colocasia, sweet potato, vegetables, gimger, chili, betel vine, ,citrus,	Agriculture : OFT on 1. Varietal evaluation for direct sown upland paddy 2. Rice based cropping system 3. Maize based cropping system 4. INM for upland paddy on hill slope 5. IPM for upland paddy on hill slope 6. Resource management technology

	Pisciculture+ Animal husb.+ Forestry) FS- 6 (Agri.+ Horti.+ Animal husb.+ Forestry)	pineapple, banana) Pisciculture - Silver Carp, Grass Carp and Common Carp Animal Husbandry : (Cattle, Pig, Goat and Poultry)	7. Assessment of bio-fertilizers on the yield of direct-seeded rice. 8. Varietal evaluation of millet Horticulture: OFT on 1. Varietal evaluation of okra.. 2. Varietal evaluation of brinjal. 3. Performance evaluation of cabbage var. by application of biofertilizer. 4. Varietal evaluation of chilli Var Animal Husbandry : OFT on 1. Management of Ranikhet disease of poultry 2. Feed management of pig 3. Assessment of improved breed of poultry Pisciculture: OFT on 1. Composite fish culture technology for high altitude(above 3500 feet msl) regions of Tirap district.

5. Research Priorities and strategies for West Kameng

1. Research gaps identified for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research gaps identified
1.	Agri-Horti	Maize, Paddy, soybean, potato, cabbage, Apple, Kiwi, Orange, Walnut, livestock	Location specific improved variety/ breed, suitable package of practices for increase productivity, improved post harvest technology and storage, lack of improved farm implements for hill areas, proper breeding programme suitable for hilly tract, lack of proper soil and water conservation practices.
2.	Horti-Agri-AH	Potato, buckwheat, yak and sheep	Location specific improved variety/ breed, suitable package of practices for increase productivity, improved post harvest technology and storage, lack of improved farm implements for hill areas, proper breeding programme suitable for hilly tract.

2. Research priorities finalized for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research priorities finalized
1.	Agri-Horti	Maize, Paddy, soybean, potato, cabbage, Apple, Kiwi, Orange, Walnut, livestock	Intensification of existing production pattern, location specific HYV/planting materials/ breeds, production and protection technology, soil and water conservation practices, diversification of agriculture.
2	Horti-Agri-AH	Potato, buckwheat, yak and sheep	Intensification of existing production pattern, location specific HYV/planting materials/ breeds, production and protection technology, soil and water conservation practices, diversification of agriculture.

3. Research strategy proposed for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research strategy proposed
1.	Agri-Horti	Maize, Paddy, soybean, potato, cabbage, Apple, Kiwi, Orange, Walnut, livestock	Soil and water conservation, IPM and INM with focus on organic farming, production system based research, development of suitable tools, implements and packaging materials, Human resource development and management, custom hiring of agricultural machinery to be

			expanded to benefit of small and marginal farmers, promotion of appropriate post harvest technology.
2.	Horti-Agri-AH	Potato, buckwheat, yak and sheep	Soil and water conservation, production system based research, development of suitable tools, implements and packaging materials, Human resource development and management, promotion of appropriate post harvest technology.

6. Research Priorities and strategies for West Siang

1. Research gaps identified for each farming system and crop

Sl. No	Farming System	Crops under the FS	Research gaps identified
1.	FS-1 Agri-Fishery	Fish: Catla, Rohu, Mrigal, Grass carp, Silver carp, Common carp Agricultural crop: Paddy	Standardization of package of practice for this region
2.	FS-2 Agri	Rice, cole crops and vegetables	1. Identification of common pest and diseases. 2. Identification of suitable variety. 3. Research on yield potential of different varieties of paddy.
3.	FS-3 Horticulture	Banana, Khasi mandarin, Ginger, turmeric,tomato, cabbage etc.	Factors affecting citrus decline. Identification of aromatic and medicinal plants. Identification of native horticulture crop
4.	FS-4 AH	Fodder grasses & Animals	Identify productive breeds for farmers Research on animal housing system according to socio-economic conditions and thus maintaining hygiene and better animal health.

2. Research priorities finalized for each farming system and crop

Sl. No	Farming System	Crops under the FS	Research priorities finalized
1.	FS-1	Fish: Common carp Agricultural crop: Paddy	Not yet finalized
2.	FS-2	Rice, cole crops and vegetables	-do-
3.	FS-3	Banana, khasi mandarin, Ginger, turmeric, tomato, cabbage etc.	-do-
4.	FS-4	Fodder grasses	-do-

3. Research Strategy proposed for each farming system and crop

Sl. No	Farming System	Crops under the FS	Research strategy proposed
1.	FS-1	Fish: Catla, Rohu, Mrigal, Grass carp, Silver carp, Common carp Agricultural crop: Paddy	Standardization of package of practice for this region
2.	FS-2	Rice, cole crops and vegetables	1. Identification of common pest and diseases. 2. Identification of suitable variety. 3. Research on yield potential of different varieties of paddy.
3.	FS-3	Banana, Khasi mandarin, Ginger, turmeric, tomato, cabbage etc.	Factors affecting on citrus decline. Identification of aromatic and medicinal plants. Identification of native horticulture crop
4.	FS-4	Fodder grasses	Identify productive breeds for farmers Research on animal housing system according to socio-economic conditions and thus maintaining hygiene and better animal health.

7. Research Priorities and strategies for Lower Dibang Valley

1. Research gaps identified for each farming and crop

Sl. NO.	Farming System	Crops under the FS	Research gaps identified
1	Agriculture + Horticulture	Rice, orange, Maize, Mustard, Potato, Ginger,	Location specific varietal trial and technical know how on improved method of cultivation on Paddy, orange, Maize Mustard, Potato and Ginger.
2	Agriculture + Fishery	Rice, Maize, Tapioca, IMC and Exotic carp.	1. IPM/INM/IWM / HYM implementation of ITK riverine fish for table purposes. Lack of knowledge on scientific farming of fish.
3	AH+Agriculture + Horticulture	Pig, poultry, Mithun, Cattle, Paddy, Maize, Orange, Pineapple, Ginger, Chilli	a. Multiplication and documentation of the identified hybrid/ improved variety of fodder and forage crops b. Collection and maintenance of germplasm of Arunachal Mithun c. Study on productive and reproductive traits of different existing non-descript and crossbred pigs of district d. Location specific varietal/breeds trial and technical know how on Paddy, Orange, Maize Pineapple, Ginger and Pig rearing.
4	Silviculture + Agri + Horti	*Albizzia* sp, Teak, Orange, Rice, Maize, Pineapple, Tea	a. Production of Quality planting materials b. Suitable package of practices for local Variety of Paddy, Maize, Orange etc c. Identification and documentation of plant genetic resource available in the areas d. Propagation of rare species of plant species of economic importance in nurseries and demonstration plot
5	Livestock farming + Fisheries + Agriculture + Horticulture + Sericulture	Poultry, Cattle, Goat, Pigs, Mithuns, Carp culture(Catla, Rohu, Mrigal, Silver Carp), Paddy, Maize, Pineapple, Ginger etc	a. Research on high productive performance breeds of chicken and pig b. Research on high growth performance species of fishes c. Insect pest resistant variety of major agri. and horti. crops

2. Research prioritizes finalized identified for each farming system and crop

Sl. No.	Farming System	Crops under the FS	Research priorities finalized
1	Agriculture + Horticulture	Rice, Maize, orange, pineapple, ginger, mustard, kiwi and banana etc.	a. Evaluation and varietal; trial of Paddy/maize/mustard/zinger b. training on entrepreneurship development based on marketing. C. training and demonstration on improved packages and practices on horticulture crops.
2	Agriculture+ Livestock	Rice, Maize, Ginger, Sugarcane	IPM/INM/IWM for Paddy, Maize, Ginger, mustard and Low cost feed ration for pig and poultry.
3	AH + Agri + Horti	Pig, poultry, Mithun, Cattle, Paddy, Maize, Orange, Pineapple, Ginger, kiwi	a. Low cost feed ration for pigs b. Location specific varietal trail on paddy, maize, zinger, mustard c. post harvest management of horticulture crops.
4	Silviculture + Agri + Horti	*Albizzia* sp, Teak, orange, Rice, Maize, Pineapple, Tea, Kiwi, Pineapple.	a. create awareness and training on importance of forest and its ecosystem. b. Post harvest management of fruits and vegetables c. production of qualities planting materials creating avenues for proper disposal of farm produce
5	Livestock farming + Fisheries + Agriculture + Horticulture+ Sericulture	Poultry, Cattle, Goat, Pigs, Mithuns, IMC and Exotic carps.(Paddy, Maize, Pineapple, Ginger, muga silk worms etc.	a. Research on fast growing chicken and pig breeds b. Identification of cattle breeds suitable for hilly region c. Integrated Fish farming to be developed for the FS d. Location specific disease and insect pest resistant variety to be developed for the crops. introduction of new varieties of silkworm along with proper management practices.

3. Research strategy proposed for each farming system and crop

Sl. No.	Farming System	Crops under the FS	Research Strategy proposed
1	Agriculture + Horticulture	Rice, orange pears, Maize, Mustard, Potato, Ginger.	1. IPM/INM for major crops of local variety 2. Soil fertility analysis 3 Reclamation of acid soils 4. Conducting trials on location specific packages and practices. Introduction of improved verities based on these trials.
2	Agriculture+ Livestock	Rice, Maize, ginger, Napier grass, genie grass, pigs ,poultry, mithun, goats, etc.	a. Study on reduction of foul odors in pig farming to encourage piggery in urban areas b. Study on productive and reproductive traits of different existing non-descript and crossbred pigs of district. Proper vaccination schedule to be maintained. Introduction of improved varieties of fodder and forage crops c. OFT on Rice, Maize and other important commercial crops grown in the district. IPM.INM/IWM of Rice/maize/mustard /Ginger
3	AH + Agri + Horti	Rice , maize ,orange, zinger, pears mustard, pigs , poultry, cattles, mithuns IMC and exotic carps etc	a. Encourage mixed farming b. Maximum utilization of available land. c. Create better marketing channels.
4	Silviculture + Agri + Horti	*Albizzia* sp, Teak, orange, Rice, Maize, Pineapple, Tea	a. Adoption of IPM/INM/IWM of HYV ythrough OFT b. Introduction of HYV through OFT c. Grading and value addition of the farm produce d. Screening of different species of silkworm for its suitability to local conditions.
5	Livestock farming + Fisheries + Agriculture + Horticulture + Sericulture	Poultry, Cattle, Goat, Pigs, Mithuns, IMC and Exotic carps , Paddy, Maize, Pineapple, Ginger ,	a. Breed up-gradation by selective breeding of cattle b. Reproductive performance of indigenous non-descript cattle on present production system

		orange pine apple, kiwi banana etc.	c. Breed characterization of indigenous goat d. Genetic Characterization of Arunachal Mithun e. Short duration of paddy, maize, banana f. Integrated fish farming in the FS area g. Fish fingerlings stocking pattern. h. On farm fish feed formulation based on locally available materials I. Training and demonstration on method of propagation of horticultural crops.

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5.2 Research Priorities and Strategies for Assam

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1. Research Priorities and strategies for Barpeta

1. Research gaps identified for each farming system and crop

Sl No	Farming system	Crops under the FS	Research gaps identified
1.	*Agri-Horti-AH-Seri*	Rice, Mustard, Potato, vegetables, Coconut, Arecanut, Eri, Som, Mulberry	i) Location specific package for hybrid vegetables & organic vegetable culture ii) INM package for vegetable cultivation iii) Suitable varieties & hybrids of crops iv) Grain quality of rice v) Technology for overcoming barren nut production in coconut vi) Wilt resistant variety of Brinjal & tomato vii) Yellowing of rice
2.	*Agri-AH-Horti*	Rice, Vegetables, Coconut, Arecanut , Banana	(i-iv) above and v) Management of Panama wilt in banana vi) Technology for overcoming barren nut production in coconut v) wilt resistant variety of Brinjal & tomato vi) Pre matured nut fall vii) Yellowing of rice
3.	*Agri-AH*	Rice, Potato, Mustard	i) Suitable varieties & hybrids of crops ii) Grain quality of rice iii) Descriptor for high yielding intruder variety of rice iv) Sterility or formation of false grain v) Lack of HYV deep water rice vi) Late blight potato resistant variety vii) Yellowing of rice
4.	*Agri-AH-Fish*	Rice, Jute, Pulse, Mustard, Wheat	i) Suitable varieties & hybrids of crops ii) Grain quality of rice iii) Short duration HYV of wheat iii) Descriptor for high yielding intruder variety of rice iv) Sterility or formation of false grain v) Lack of HYV deep water rice vi) Late sown drought resistant cultivar vii) Wheat seed storage technique viii) Yellowing of rice
5.	*Agri-Horti-Fish*	Rice, Pulse, Mustard, Coconut, Arecanut	i) Suitable varieties & hybrids of crops ii) Grain quality of rice

			iii) Technology for overcoming barren nut production in coconut iii) Descriptor for high yielding intruder variety of rice iv) Sterility or formation of false grain v) Lack of HYV deep water rice vi) Pre matured nut fall vii) Yellowing of rice

2. Research Priorities and strategies for Cachar

1. Research gaps identified for each farming system and crop

Sl. No	Farming system	Crops under the, FS	Research gaps identified
1	Agriculture- Animal Husbandry-Fishery	Rice, Vegetable, cow, buffalo, sheep, goat, pig, poultry, fish	Improved breed , INM, pest & diseases, Quality fish seed, Irrigation, planting material, fodder problem
2	Agriculture- Animal Husbandry	Rice, Vegetable, cow, buffalo, , sheep, goat, pig, poultry	Planting material, pest & disease, Irrigation fodder problem
3	Horticulture- Animal Husbandry	Coconut, Arecanut, Banana, Pineapple, Orange, Jackfruit, cow, buffalo, , sheep, goat, pig, poultry	Planting material, pest & diseases, Improved breed, fodder problem
4	Animal Husbandry	cow, buffalo, , sheep, goat, pig, poultry	Improved breed, fodder problem, Artificial Insemination
5	Dairy	Milk	Improved breed, fodder problem
6	Fishery- agriculture	Fish, rice, vegetable, mustard	Quality fish seed ,pest & diseases, quality planting material, irrigation
7	Horticulture	Coconut, Arecanut, Banana, Pineapple, Orange, Jackfruit	Planting material, pest & diseases, INM
8	Horticulture- Animal Husbandry - Sericulture	Coconut, Arecanut, Banana, Pineapple, Orange, Jackfruit, cow, buffalo, sheep, goat, pig, poultry, fish, Eri silk, muga	Host plants , pest and disease, Planting material, INM

2. Research priorities finalized for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research priorities finalised
1	Agriculture- Animal Husbandry-Fishery	Rice, Vegetable, cow, buffalo, sheep, goat, pig, poultry, fish	Planting material / Quality fish seed Pest & diseases Improved breed Fodder Irrigation
2	Agriculture- Animal Husbandry	Rice, Vegetable, cow, buffalo, , sheep, goat, pig, poultry	Planting material Pest & diseases Improved breed Fodder Irrigation

3	Horticulture- Animal Husbandry	Coconut, Arecanut, Banana, Pineapple, Orange, Jackfruit, cow, buffalo, sheep, goat, pig, poultry	Planting material Pest & diseases Improved breed Fodder Irrigation
4	Animal Husbandry	cow, buffalo, sheep, goat, pig, poultry	Improved breed Fodder Artificial Insemination Diseases
5	Dairy	Milk	Improved breed Fodder Artificial Insemination Diseases
6	Fishery- Agriculture	Fish, rice, vegetable, mustard	Planting material / Quality fish seed Pest & diseases Irrigation
7	Horticulture	Coconut, Arecanut, Banana, Pineapple, Orange, Jackfruit	Planting material Pest & diseases Irrigation
8	Horticulture- Animal Husbandry - Sericulture	Coconut, Arecanut, Banana, Pineapple, Orange, Jackfruit, cow, buffalo, sheep, goat, pig, poultry, fish, Eri silk, muga	Planting material Pest & diseases Improved breed Fodder Irrigation Artificial Insemination Diseases Host plant for sericulture

3. Research strategy proposed for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research strategy proposed
1	Agriculture- Animal Husbandry-Fishery	Rice, Vegetable, cow, buffalo, sheep, goat, pig, poultry, fish	On Farm Testing (Technology assessment and technology refinement), Front Line Demonstration on possible technological solutions for the identified research gaps.
2	Agriculture- Animal Husbandry	Rice, Vegetable, cow, buffalo, sheep, goat, pig, poultry	
3	Horticulture- Animal Husbandry	Coconut, Arecanut, Banana, Pineapple, Orange, Jackfruit,	

		cow, buffalo, sheep, goat, pig, poultry	
4	Animal Husbandry	cow, buffalo, sheep, goat, pig, poultry	
5	Dairy	Milk	
6	Fishery- agriculture	Fish, rice, vegetable, mustard	
7	Horticulture	Coconut, Arecanut, Banana, Pineapple, Orange, Jackfruit	
8	Horticulture- Animal Husbandry - Sericulture	Coconut, Arecanut, Banana, Pineapple, Orange, Jackfruit, cow, buffalo, sheep, goat, pig, poultry, fish, Eri silk, muga	

3. Research Priorities and strategies for Darrang

1. Research gaps identified for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research gaps identified
1	Agriculture	Paddy	Non-availabilty of disease and insect pest resistance variety
2		Pulses	Non-availabilty of HYV
3		Oilseeds	Non-availabilty of HYV
4		Jute	Non-availabilty of HYV
5	Horticulture	Summer/winter vegetables	Non-availabilty of HYV
6	Animal Husbandry	Livestock/poultry	Non-availabilty of improved variety of livestock anad poultry, Non-availabilty of feed ingredient and fodder
7	Fishery	Fish	Non-availabilty of balanced diet from conventional source, lack of quality fish seed

2. Research priorities finalized for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research priorities finalised
1	Agriculture	Paddy	Introduction of disease and insect pest resistance variety
2		Pulses	Introduction of HYV
3		Oilseeds	Introduction of HYV
4		Jute	Introduction of HYV
5	Horticulture	Summer/winter vegetables	Introduction of HYV
6	Animal Husbandry	Livestock	Cross breeding of cattle/pig/ goat/duck, selective breeding of buffalo, goat and birds, formulation of low cost feed ration
7	Fishery	Fish	Development and designing of low cost feed formulation, selective breeding for progeny development

3. Research strategy proposed for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research strategy proposed
1	Agriculture	Paddy	Introduction of disease and insect pest resistance variety
2		Pulses	Introduction of HYV
3		Oilseeds	Introduction of HYV

4		Jute	Introduction of HYV
5	Horticulture	Summer/winter vegetables	Introduction of HYV
6	Animal Husbandry	Livestock	Cross breeding of cattle/pig/ goat/duck, selective breeding of buffalo, goat and birds, formulation of low cost feed ration
7	Fishery	Fish	Development and designing of low cost feed formulation, selective breeding for progeny development

4. Research Priorities and strategies for Jorhat

1. Research gaps identified for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research gaps identified
1	Agri-Horti-Ani Hus-Fishery	Paddy	1. Short duration variety with fine grain quality 2. Weed management 3. Non availability of submergence tolerance variety 4. Location specific fertilizer management
2	Agri-Horti-Ani Hus	Rapessed	Location specific fertilizer management
3	Agri-Ani Hus	Boro rice	Nonavailability of early maturing and cold tolerance variety
		Rapeseed	Location specific fertilizer management
4	Agri-Horti	Potato	1. High incidences of late blight 2. Low cost improve storage method
5	Agri-Horti –Fishery	Boro rice	Non availability of early maturing and cold tolerance variety
		Rapeseed	Location specific fertilizer management
6	Agri-Horti-Ani Hus- Seri-Fishery	*Sali* paddy	Drought tolerant high yielding variety
7	Agri-Horti-Ani Hus- Seri	*Sali* paddy	Drought tolerant high yielding variety
8	Agri-Ani Hus- Seri	*Sali* paddy	Drought tolerant high yielding variety

2. Research priorities finalized for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research priorities finalised
1	Agri-Horti-Ani Hus-Fishery	Paddy	1. Development of submergence tolerance variety for flood affected areas 2. Development of short duration variety with fine grain quality 3. Development of Agro ecological situation wise fertilizer management package

			4 Development of Integrated weed management package
2	Agri-Horti-Ani Hus	Rapeseed	Development of Agro ecological situation wise fertilizer management package
3	Agri-Ani Hus	Boro rice	Development of early maturing and cold tolerance variety
		Rapeseed	Development of Agro ecological situation wise fertilizer management package
4	Agri-Horti	Potato	1. Development of low cost improve storage method 2. Development of blight resistance var.
5	Agri-Horti –Fishery	Boro rice	Development of early maturing and cold tolerance variety
		Rapeseed	Development of Agro ecological situation wise fertilizer management package
6	Agri-Horti-Ani Hus-Seri-Fishery	*Sali* paddy	Development of drought tolerant high yielding variety
7	Agri-Horti-Ani Hus-Seri	*Sali* paddy	Development of drought tolerant high yielding variety
8	Agri-Ani Hus- Seri	*Sali* paddy	Development of drought tolerant high yielding variety

3. Research strategy proposed for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research strategy proposed
1	Agri-Horti-Ani Hus-Fishery	Paddy	1. Station research for flood tolerant variety for flood affected areas 2. Station research for short duration variety with fine grain quality 3. On farm research for development of Agro ecological situation wise fertilizer management package 4. On farm research for development of Integrated weed management package in different agro ecological situation.

2	Agri-Horti-Ani Hus	Rapeseed	On farm research for development fertilizer management package in different Agro ecological situation.
3	Agri-Ani Hus	Boro rice	On station research for development of early maturing and cold tolerance variety
		Rapeseed	On farm research for Agro ecological situation wise fertilizer management package
4	Agri-Horti	Potato	1. On station as well as on farm research for low cost improve storage method 2. On station research for blight resistance variety.
5	Agri-Horti –Fishery	Boro rice	On station research for development of early maturing and cold tolerance variety
		Rapeseed	On farm research for fertilizer management package in different Agro ecological situation.
6	Agri-Horti-Ani Hus-Seri-Fishery	*Sali* paddy	On station research for development of drought tolerant high yielding variety
7	Agri-Horti-Ani Hus-Seri	*Sali* paddy	On station research for development of drought tolerant high yielding variety
8	Agri-Ani Hus- Seri	*Sali* paddy	On station research for development of drought tolerant high yielding variety

5. Research Priorities and strategies for Kamrup

1. Research gaps identified for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research gaps identified
1	Agri - Horti	Rice, rapeseed, pulses, fruits, vegetables, tuber crops	Non availability of HYV rice at per with hybrid rice. Aphid tolerant rapeseed variety for late sown. Yellow vein mosaic virus and aphid tolerant pulse variety, improved variety in case of Horti crops
2	Agri – Horti – AH	Rice, rapeseed, pulses, fruits, vegetables, tubercrops and AH	Non availability of HYV rice at per with hybrid rice. Aphid tolerant rapeseed variety for late sown. Yellow vein mosaic virus and aphid tolerant pulse variety, improved variety incase of Horti crops, non- availability of localized improved breeds
3	Agri – Horti – AH – Fishery	Rice, rapeseed, pulses, fruits, vegetables, tuber crops, AH and Fishery	Non availability of HYV rice at per with hybrid rice. Aphid tolerant rapeseed variety for late sown. Yellow vein mosaic virus and aphid tolerant pulse variety, improved variety incase of Horti crops and non availibilty of localized improved breeds and non availability of improved finger lings
4	Horti – AH – Fishery	Fruits, vegetables, tuber crops. AH and Fishery	Non availability of improved variety of horti crops, non availability of localized improved breeds, non availability of improved finger lings
5	Horti – Sericulture	Fruits, vegetables, tuber crops spices, flowers, plants for sericulture	Non availability of improved variety of horti crops, Non availability of improved tools and technology for sericulture

2. Research priorities finalized for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research priorities finalised
1	Agri - Horti	Rice, rapeseed, pulses, fruits, vegetables, tubercrops	Development of HYV rice at per with hybrid rice. Development of aphid tolerant rapeseed variety for late sown condition. Development of yellow vein mosaic virus tolerant pulse varieties. Development of improved planting materials for horticultural crops.
2	Agri – Horti – AH	Rice, rapeseed, pulses, fruits, vegetables, tuber crops and AH	Development of HYV rice at per with a hybrid rice. Development of aphid tolerant rapeseed variety for late sown condition. Development of yellow vein mosaic virus tolerant pulse varieties. Development of improved planting materials for horticultural crops. Development of improved livestock breeds adaptable to local conditions.
3	Agri – Horti – AH – Fishery	Rice, rapeseed, pulses, fruits, vegetables, tuber crops, AH and Fishery	Development of HYV rice at per with a hybrid rice. Development of aphid tolerant rapeseed variety for late sown condition. Development of yellow vein mosaic virus tolerant pulse varieties. Development of improved planting materials for horticultural crops. Development of improved livestock breeds adaptable to local conditions. Development of improved fingerlings adaptable to local conditions.
4	Horti – AH – Fishery	Fruits, vegetables, tubercrops. AH and Fishery	Development of improved planting materials for horticultural crops. Development of improved livestock breeds. Development of improved fingerlings.

5	Horti – Sericulture	Fruits, vegetables, tubercrops spices, flowers, plants for sericulture	Development of improved planting materials for horticultural crops. Development of improved tools and techniques for sericulture.

3. Research strategy proposed for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research strategy proposed
1	Agri - Horti	Rice, rapeseed, pulses, fruits, vegetables, tubercrops	Self sufficiency in breeders seed at par with hybrid rice. Increased availability of breeders seed of rapeseed variety tolerant to aphid under late sown condition. Production of yellow vein mosaic virus tolerant pulse varieties. Generation of improved planting material of horticultural crops.
2	Agri – Horti – AH	Rice, rapeseed, pulses, fruits, vegetables, tubercrops and AH	Self sufficiency in breeders seed at par with hybrid rice. Increasing availability of breeders seed of rapeseed variety, tolerant to aphid under late sown condition. Production of yellow vein mosaic virus tolerant pulse varieties. Generation of improved planting material of horticultural crops. Making availability of improved breeds of livestock.
3	Agri – Horti – AH – Fishery	Rice, rapeseed, pulses, fruits, vegetables, tubercrops, AH and Fishery	Self sufficiency in breeders seed at par with hybrid rice. Increasing availability of breeders seed of rapeseed variety tolerant to aphid under late sown condition. Production of yellow vein mosaic virus tolerant pulse varieties. Generation of improved planting material of horticultural crops. Making availability of improved breeds of livestock. Ensure timely availability of fingerlings.

4	Horti – AH – Fishery	Fruits, vegetables, tubercrops. AH and Fishery	Generation of improved planting material of horticultural crops. Making availability of improved breeds of livestock. Ensure timely availability of fingerlings.
5	Horti – Sericulture	Fruits, vegetables, tubercrops spices, flowers, plants for sericulture	Generation of improved planting material of horticultural crops. Making availability of improved tools and techniques for sericulture enterprise.

6. Research Priorities and strategies for Karimganj

1. Research gaps identified for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research gaps identified
1.	Agri. + Hort. + Fishery	Rice (*sali*, *ahu* & asra), sugarcane, vegetables, french bean (as pulse crop), toria, betelvine	1. Situation specific rice varieties 2. Situation specific quality planting materials 3. Improved technology-farmer's situation oriented
2.	Agri. + Hort. + Animal Husbandry	Rice (*sali*, *ahu* & asra), *boro* rice, pre flood summer vegetables, post flood *rabi* vegetables, potato, pulses (black gram, french bean), rapeseed, amaranthas and lady's finger	1. Rice variety for flood affected areas 2. Short duration rice varieties 3. Disease & pest resistant varieties of rice and vegetables
3.	Agri. + Fishery	*Boro* rice, winter vegetables, asra rice, toria	1. Boro rice varieties suitable for rice + fish culture 2. Cold tolerant and early maturing *boro* rice varieties 3. Situation specific suitable boro rice varieties. 2. Economicaly viable fish production technology.
4.	Agri. + Hort.	Coconut, arecanut, tea, fruit crops (pineapple, banana, litchi jackfruit), vegetables (summer & winter), pulses, sugarcane, oilseed (toria), potato and spices	1. Situation specific production technology for plantation crops 2. Scientific utilization of tillah land for cultivation 3. Arecanut/ coconut based HDMSCS models
5.	Agri.	Fruit trees (myrobalans, jam, kul, orange, lemon, jackfruit), spices (turmeric, ginger & bay leaf), vegetables (gourds, sweet potato, country bean), tea, rubber, sugarcane, pineapple, betelvine and arecanut	1. Improved methods of mixed cropping 2. Soil & water conservation measures 3. Scientific utilization of tillah and sloppy land for cultivation

2. Research priorities finalized for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research priorities finalized
1.	Agri. + Hort. + Fishery	Rice (*sali*, *ahu* & asra), sugarcane, vegetables, french bean (as pulse crop), toria, betelvine	1. Situation specific rice varieties 2. Quality planting materials in time
2.	Agri. + Hort. + Animal Husbandry	Rice (*sali*, *ahu* & asra), *boro* rice, pre flood summer vegetables, post flood *rabi* vegetables, potato, pulses (black gram, french bean), rapeseed, amaranthas and lady's finger	1. Rice variety for flood affected areas 2. Short duration rice varieties 3. Quality planting materials in time 4. Availability of improved breeds.
3.	Agri. + Fishery	*Boro* rice, winter vegetables, asra rice, toria	1. Cold tolerant and early maturing *boro* rice varieties 2. Situation specific suitable boro rice varieties
4.	Agri. + Hort.	Coconut, arecanut, tea, fruit crops (pineapple, banana, jackfruit, litchi), vegetables (summer & winter), pulses, sugarcane, oilseed (toria), potato and spices	1. Situation specific production technology for plantation crops (i) making fingerling available in time.
5.	Agri.	Fruit trees (myrobalans, jam, kul, orange, lemon, jackfruit), spices (turmeric, ginger & bay leaf), vegetables (gourds, sweet potato, country bean), tea, rubber, sugarcane, pineapple, betelvine and arecanut	1. Improved methods of mixed cropping 2. Soil & water conservation measures

3. Research strategy proposed for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research strategy proposed
1.	Agri. + Hort. + Fishery	Rice (*sali*, *ahu* & asra), sugarcane, vegetables, french bean (as pulse crop), toria, betelvine	Research projects on development ofsituation specific rice varieties, development of quality planting materials for timely availability may be submitted to the concerned State Agril.University, ICAR, DST,DBT etc.

2.	Agri. + Hort. + Animal Husbandry	Rice (*sali*, *ahu* & asra), *boro* rice, pre flood summer vegetables, post flood *rabi* vegetables, potato, pulses (black gram, french bean), rapeseed, amaranthas and lady's finger	Research projects on development of rice varieties for flood affected areas, short duration rice varieties and disease & pest resistant varieties of rice & vegetables, may be submitted to the concerned State Agril.University, ICAR, DST,DBT etc.
3.	Agri. + Fishery	*Boro* rice, winter vegetables, asra rice, toria	Research projects on development of suitable boro rice varieties for rice + fish culture , Cold tolerant and early maturing *boro* rice varieties may be submitted to the concerned State Agril.University, ICAR, DST,DBT etc.
4.	Agri. + Hort.	Coconut, arecanut, tea, fruit crops (pineapple, banana, jackfruit, litchi), vegetables (summer & winter), pulses, sugarcane, oilseed (toria), potato and spices	Research projects on development of situation specific production technology for plantation crops , scientific utilization of tillah land for cultivation & Arecanut/ coconut based HDMSCS models may be submitted to the concerned State Agril.University, ICAR, DST,DBT etc.
5.	Agri.	Fruit trees (myrobalans, jam, kul, orange, lemon, jackfruit), spices (turmeric, ginger & bay leaf), vegetables (gourds, sweet potato, country bean), tea, rubber, sugarcane, pineapple, betelvine and arecanut	Research projects on development of improved methods of mixed cropping , soil & water conservation measures & scientific utilization of tillah and sloppy land for cultivation, may be submitted to the concerned State Agril.University, ICAR, DST,DBT etc.

7. Research Priorities and strategies for Kokrajhar

1. Research gaps identified for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research gaps identified
1.	FS-1: Agri - AH	Paddy, rapessed & mustard, maize, blackgram, nizer, sessamum etc	Lack of location specific and socio-economic based technology
2.	FS-2: Agri – AH – Fishery	Paddy, banana, Assam lemon Areacanut, betevine, vegetables	Lack of market led technology Lack of value addition / processing technology
3.	FS-3: Agri – Hort – AH – Forestry	Paddy, vegetables (pumkin, pointed gourd, ridge gourd, bottle gourd etc.)	Lack of ITK based technology
4.	FS-4: Agri – Hort - AH	Paddy, banana, Assam lemon, Areacanut, betelvine, vegetables etc.	Lack of improved breeds of Goat, Milch cattle, poultry.
5.	FS-5: Agri – Hort – AH - Fishery	Paddy, vegetables (potato, cabbage, brinjal, tomato, cauliflower etc.)	Lack of quality planting materials

2. Research priorities finalized for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research priorities finalized
1.	FS-1	Paddy, rapessed & mustard, maize, blackgram, nizer, sessamum etc	Development of quality planting material
2.	FS-2	Paddy, banana, Assam lemon Areacanut, betevine, vegetables	Development of suitable crop varieties with the climatic change
3.	FS-3	Paddy, vegetables (pumkin, pointed gourd, ridge gourd, bottle gourd etc.)	Identification and conservation for local species to safe gourd them
4.	FS-4	Paddy, banana, Assam lemon, Areacanut, betelvine, vegetables etc.	Validation of ITK having scientific basis Orchard management packages to support production and maximize yield for different fruit and plantation crops for different areas.

5.	FS-5	Paddy, vegetables (potato, cabbage, brinjal, tomato, cauliflower etc.)	Reclamation of acid soils by liming and bio-reclamation of degraded land using local nitrogen fixing, fruit and forest plant species.

3. Research strategy proposed for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research strategy proposed
1.	FS-1	Paddy, rapessed & mustard, maize, blackgram, nizer, sessamum etc	Screening of suitable varieties for under stress condition
2.	FS-2	Paddy, banana, Assam lemon Areacanut, betevine, vegetables	Integrated farming system to minimize the loss of income due to natural disaster.
3.	FS-3	Paddy, vegetables (pumkin, pointed gourd, ridge gourd, bottle gourd etc.)	Adaptive trial suitable for local climate Water harvesting and groundwater recharge for availability of irrigation and drinking water during winter and summer season
4.	FS-4	Paddy, banana, Assam lemon, Areacanut, betelvine, vegetables etc.	Technology for production of vermin-compost, bio-compost, bio-pesticides, etc. for Organic Farming and Integrated Nutrient & Pest Management.
5.	FS-5	Paddy, vegetables (potato, cabbage, brinjal, tomato, cauliflower etc.)	Watershed Management technology to address water and soil conservation measures. Diversified agriculture with fruits, vegetables, milk, eggs, fishes, etc. provide required nutrition to the people.

8. Research Priorities and strategies for Nagaon

1. Research gaps identified for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research gaps identified
1	Agriculture	Summer paddy, Jute, Pulses, Pulses, Rapeseed, Vegetables,	Lack of short duration high yielding varieties in major field crops. Lack of late sown high yielding varieties. Lack of drought, cold and acid tolerant varieties of different field crops. Development of low input, cost effective INM, IPM & IDM practices. Development of INM practices with micronutrients.
2	Agri-Horti-AH	Summer paddy, Jute, Pulses, Pulses, Rapeseed, Vegetables, Cattle, Buffalo, Pig, Goat, Sheep, Poultry	Lack of short duration high yielding varieties in major field crops. Lack of late sown high yielding varieties. Lack of drought, cold and acid tolerant varieties of different field crops. Development of low input cost effective INM, IPM & IDM practice. Development of INM with micronutrients. Development of low long duration cooling material for protecting vaccine for livestock & Poultry. Exploitation of the pharmacological constituents of the locally available medicinal plants for treatment of diseases. Proximate analysis of the locally available feed materials and percentage of incorporation in ration. Further research is needed for physiological disorders developed due to imbalance application of fertilizers. Further research for controlling wilt of Brinjal and rhizome rot of ginger. Research on high value low volume crop like spices etc.

3	Agri-Horti-AH Fishery	Summer paddy, Jute, Pulses, Pulses, Rapeseed, Vegetables, Cattle, Buffalo, Pig, Goat, Sheep, Poultry, Fish	Lack of short duration high yielding varieties in major field crops. Lack of late sown high yielding varieties. Lack of drought, cold and acid tolerant varieties of different field crops. Development of low input, cost effective INM, IPM & IDM practices. Development of INM practices with micronutrients. Further research is needed for physiological disorders developed due to imbalance application of fertilizers. Further research for controlling wilt of Brinjal and rhizome rot of ginger. Exploitation of the pharmacological constituents of the locally available medicinal plants for treatment of diseases. Proximate analysis of the locally available feed materials and percentage of incorporation in ration. Research on high value low volume crop like spices etc. Lack of multiple stock and multiple harvesting technique. Lack of suitable package & practice for char and char like areas. Low cost fish feed using locally available ingredients. Non availabilibility of seeds and rearing technology of high demand local species.
4	Agri-AH Fishery	Summer paddy, Jute, Pulses, Pulses, Rapeseed, Vegetables, Cattle, Buffalo, Pig, Goat, Sheep, Poultry, Fish	Lack of short duration high yielding varieties in major field crops. Lack of late sown high yielding varieties. Lack of drought, cold and acid tolerant varieties of different field crops.

			Development of low input, cost effective INM, IPM & IDM practices. Development of INM practices with micronutrients. Exploitation of the pharmacological constituents of the locally available medicinal plants for treatment of diseases. Proximate analysis of the locally available feed materials and percentage of incorporation in ration. Lack of multiple stock and multiple harvesting technique. Lack of suitable package & practice for char and char like areas. Low cost fish feed
5	Agri-Horti-AH-Seri	Summer paddy, Jute, Pulses, Pulses, Rapeseed, Vegetables, Cattle, Buffalo, Pig, Goat, Sheep, Poultry, Fish	Lack of short duration high yielding varieties in major field crops. Lack of late sown high yielding varieties. Lack of drought, cold and acid tolerant varieties of different field crops. Development of low input, cost effective INM, IPM & IDM practices. Development of INM practices with micronutrients. Further research is needed for physiological disorders developed due to imbalance application of fertilizers. Further research for controlling wilt of Brinjal and rhizome rot of ginger. Exploitation of the pharmacological constituents of the locally available medicinal plants for treatment of diseases. Proximate analysis of the locally available feed materials and percentage of incorporation in ration. Research on high value low volume

			crops like spices etc. Lack of multiple stock and multiple harvesting technique. Lack of suitable package & practice for char and char like areas. Low cost fish feed using locally available ingredients. Non availabilibility of seeds and rearing technology of high demand local species. Lack of technology for domestication of Muga worm. Lack of technology for rearing of muga worm on artificial diet.
6	Agri-Horti	Summer paddy, Jute, Pulses, Pulses, Rapeseed, Vegetables,	Lack of short duration high yielding varieties in major field crops. Lack of late sown high yielding varieties. Lack of drought, cold and acid tolerant varieties of different field crops. Development of low input, cost effective INM, IPM & IDM practices. Development of INM practices with micronutrients. Further research is needed for physiological disorders developed due to imbalance application of fertilizers. Further research for controlling wilt of Brinjal and rhizome rot of ginger.
7	Agri-AH	Summer paddy, Jute, Pulses, Pulses, Rapeseed, Vegetables, Cattle, Buffalo, Pig, Goat, Sheep, Poultry	Lack of short duration high yielding varieties in major field crops. Lack of latesown high yielding varieties. Lack of drought, cold and acid tolerant varieties of different field crops. Development of low input, cost effective INM, IPM & IDM practices. Exploitation of the pharmacological constituents of the locally available

			medicinal plants for treatment of diseases. Proximate analysis of the locally available feed materials and percentage of incorporation in ration.
8	Agri-Fishery	Summer paddy, Jute, Pulses, Pulses, Rapeseed, Vegetables, Fish	Lack of short duration high yielding varieties in major field crops. Lack of late sown high yielding varieties. Lack of drought, cold and acid tolerant varieties of different field crops. Development of low input, cost effective INM, IPM & IDM practices. Lack of multiple stock and multiple harvesting technique. Lack of suitable package & practice for char and char like areas. Low cost fish feed
9	Agri-Seri-Beekping	Summer paddy, Jute, Pulses, Pulses, Rapeseed, Vegetables, Bee, Muga	Lack of short duration high yielding varieties in major field crops. Lack of late sown high yielding varieties. Lack of drought, cold and acid tolerant varieties of different field crops. Development of low input, cost effective INM, IPM & IDM practices. Lack of technology for domestication of Muga worm. Lack of technology for rearing of muga worm on artificial diet. Domestication of Bee

2. Research priorities finalized for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research priorities finalised
1	Agriculture	Summer paddy, Jute, Pulses, Pulses, Rapeseed, Vegetables,	Varietal performances of various crops. INM, IPM & IDM Practices. Research on high value low volume crop like spices etc. INM with micronutrients and IDM.
2	Agri-Horti-AH	Summer paddy, Jute, Pulses, Pulses, Rapeseed, Vegetables, Cattle, Buffalo, Pig, Goat, Sheep, Poultry, Fish	Varietal performances of various crops. INM, IPM & IDM Practices. Research on high value low volume crop like spices etc. INM with micronutrients and IDM. Exploitation of the pharmacological constituents of the locally available medicinal plants. Proximate analysis of the locally available feed materials. Physiological disorders developed due to imbalance application of fertilizers. Controlling wilt of Brinjal and rhizome rot of ginger.
3	Agri-Horti-AH Fishery	Summer paddy, Jute, Pulses, Pulses, Rapeseed, Vegetables, Cattle, Buffalo, Pig, Goat, Sheep, Poultry, Fish	Varietal performances of various crops. INM, IPM & IDM Practices. Research on high value low volume crop like spices etc. INM with micronutrients and IDM. Exploitation of the pharmacological constituents of the locally available medicinal plants. Proximate analysis of the locally available feed

			materials. Physiological disorders developed due to imbalance application of fertilizers. Controlling wilt of Brinjal and rhizome rot of ginger. Harvesting technique. Low cost fish feed
4	Agri-AH- Fishery	Summer paddy, Jute, Pulses, Pulses, Rapeseed, Vegetables, Cattle, Buffalo, Pig, Goat, Sheep, Poultry, Fish	Varietal performances of various crops. INM, IPM & IDM Practices. Research on high value low volume crop like spices etc. INM with micronutrients and IDM. Exploitation of the pharmacological constituents of the locally available medicinal plants. Proximate analysis of the locally available feed materials. Harvesting technique. Low cost fish feed
5	Agri-Horti	Summer paddy, Jute, Pulses, Pulses, Rapeseed, Vegetables	Varietal performances of various crops. INM, IPM & IDM Practices. Research on high value low volume crop like spices etc. INM with micronutrients and IDM. Physiological disorders developed due to imbalance application of fertilizers. Controlling wilt of Brinjal and rhizome rot of ginger.
6	Agri-AH	Summer paddy, Jute, Pulses, Pulses, Rapeseed, Vegetables, Cattle, Buffalo, Pig, Goat,	Varietal performances of various crops. INM, IPM & IDM Practices. Research on high value low

		Sheep, Poultry	volume crop like spices etc. INM with micronutrients and IDM. Exploitation of the pharmacological constituents of the locally available medicinal plants. Proximate analysis of the locally available feed materials.
7	Agri-Fishery	Summer paddy, Jute, Pulses, Pulses, Rapeseed, Vegetables, Fish	Varietal performances of various crops. INM, IPM & IDM Practices. Research on high value low volume crop like spices etc. INM with micronutrients and IDM. Harvesting technique. Low cost fish feed
8	Agri-Seri- Beekping	Summer paddy, Jute, Pulses, Pulses, Rapeseed, Vegetables, Bee, Muga	Varietal performances of various crops. INM, IPM & IDM Practices. Domestication of Muga worm. Rearing of muga worm on artificial diet. Domestication of Bee.

3. Research strategy proposed for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research strategy proposed
1	Agriculture	Summer paddy, Jute, Pulses, Pulses, Rapeseed, Vegetables,	Development of short duration late sown high yielding varieties. Development of INM practices with micronutrient. Development of IPM & IDM practices.
2	Agri-Horti-AH	Summer paddy, Jute, Pulses, Pulses, Rapeseed,	Varietal performances of various crops.

		Vegetables, Cattle, Buffalo, Pig, Goat, Sheep, Poultry	INM, IPM & IDM Practices. Development of INM with micronutrient for physiological disorders of horticultural crops. Development of IDM practices in Brinjal & ginger. Exploitation of the pharmacological constituents of the locally available medicinal plants. Proximate analysis of the locally available feed materials. Physiological disorders developed due to imbalance application of fertilizers. Controlling wilt of Brinjal and rhizome rot of ginger.
3	Agri-Horti-AH Fishery	Summer paddy, Jute, Pulses, Pulses, Rapeseed, Vegetables, Cattle, Buffalo, Pig, Goat, Sheep, Poultry, Fish	Varietal performances of various crops. INM, IPM & IDM Practices. Development of INM with micronutrient for physiological disorders of horticultural crops. Development of IDM practices in Brinjal & ginger. Exploitation of the pharmacological constituents of the locally available medicinal plants. Proximate analysis of the locally available feed materials. Physiological disorders developed due to imbalance application of fertilizers. Controlling wilt of Brinjal and rhizome rot of ginger. Harvesting technique.

			Low cost fish feed
4	Agri-AH- Fishery	Summer paddy, Jute, Pulses, Pulses, Rapeseed, Vegetables, Cattle, Buffalo, Pig, Goat, Sheep, Poultry, fish	Varietal performances of various crops. INM, IPM & IDM Practices. Development of INM with micronutrient for physiological disorders of horticultural crops. Exploitation of the pharmacological constituents of the locally available medicinal plants. Proximate analysis of the locally available feed materials. Physiological disorders developed due to imbalance application of fertilizers. Controlling wilt of Brinjal and rhizome rot of ginger. Harvesting technique. Low cost fish feed
5	Agri-Horti	Summer paddy, Jute, Pulses, Pulses, Rapeseed, Vegetables,	Varietal performances of various crops. INM, IPM & IDM Practices. Development of INM with micronutrient for physiological disorders of horticultural crops. Physiological disorders developed due to imbalance application of fertilizers. Controlling wilt of Brinjal and rhizome rot of ginger.
6	Agri-AH	Summer paddy, Jute, Pulses, Pulses, Rapeseed, Vegetables, Cattle, Buffalo, Pig, Goat,	Varietal performances of various crops. INM, IPM & IDM Practices. Exploitation of the

		Sheep, Poultry	pharmacological constituents of the locally available medicinal plants. Proximate analysis of the locally available feed materials.
7	Agri-Fishery	Summer paddy, Jute, Pulses, Pulses, Rapeseed, Vegetables, Fish	Varietal performances of various crops. INM, IPM & IDM Practices. Harvesting technique. Low cost fish feed
8	Agri-Seri- Beekping	Summer paddy, Jute, Pulses, Pulses, Rapeseed, Vegetables, Muga, Bee	Varietal performances of various crops. INM, IPM & IDM Practices. Domestication of Muga worm. Rearing of muga worm on artificial diet. Domestication of Bee.

9. Research Priorities and strategies for Nalbari

1. Research gaps identified for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research gaps identified
1	Agri-Hort-AH-Fish	Rice, Toria, Pulses, Jute, Sugarcane, Potato, Kharif and Rabi vegetables, Assam lemon, Banana, Coconut, Arecanut, Poultry & Duck-Indigenous, Improved, Cow-indigenous, Cross breed, Local buffalo, indigenous & exotic fish	• Technologies for appropriate farming/cropping system for flood prone and for char area. • Technologies for sand/silt deposited areas. • Technologies for aberrant weather conditions/periodical droughts. • Wilt tolerant varieties of potato, tomato & brinjal. • Modern varieties of jute with high quality fibre. • Direct seeded drought tolerant Ahu rice varieties. • Modern arecanut and banana varieties with disease resistance. • Development of cold tolerant, early maturing Boro rice varieties.. • Breeding techniques for indigenous and endangered fish species. • Effective management techniques for FMD. • Effective management practices/technology for preventing premature death of Jersey calves.
2	Agri-Hort-AH	Rice, Toria, Pulses, Jute, Sugarcane, Potato, Kharif and Rabi vegetables, Assam lemon, Banana, Coconut, Arecanut, Poultry & Duck-Indigenous, Improved, Cow-indigenous, Cross breed, Local buffalo	• Technologies for appropriate farming/cropping system for flood prone and for char area. • Technologies for sand/silt deposited areas. • Technologies for aberrant weather conditions/periodical droughts. • Wilt tolerant varieties of potato, tomato & brinjal.

			• Modern varieties of jute with high quality fibre. • Direct seeded drought tolerant Ahu rice varieties. • Modern arecanut and banana varieties with disease resistance. • Development of cold tolerant, early maturing Boro rice varieties.. • Effective management techniques for FMD. • Effective management practices/technology for preventing premature death of Jersey calves.
3	Agri-Hort-Fish	Rice, Toria, Pulses, Jute, Kharif and Rabi vegetables, Assam lemon, Banana, Coconut, Arecanut, indigenous & exotic fish	• Technologies for appropriate farming/cropping system for flood prone and for char area. • Technologies for sand/silt deposited areas. • Technologies for aberrant weather conditions/periodical droughts. • Wilt tolerant varieties of potato, tomato & brinjal. • Modern varieties of jute with high quality fibre. • Direct seeded drought tolerant Ahu rice varieties. • Modern arecanut and banana varieties with disease resistance. • Development of cold tolerant, early maturing Boro rice varieties.. • Breeding techniques for indigenous and endangered fish species.
4	Hort-AH	Kharif and Rabi vegetables, Assam lemon, Banana, Coconut, Arecanut, indigenous & exotic fish	• Technologies for appropriate farming/cropping system for flood prone and for char area. • Technologies for sand/silt deposited areas. • Technologies for aberrant weather conditions/periodical droughts.

			• Wilt tolerant varieties of potato, tomato & brinjal. • Modern arecanut and banana varieties with disease resistance. • Breeding techniques for indigenous and endangered fish species. • Effective management techniques for FMD. • Effective management practices/technology for preventing premature death of Jersey calves.

2. Research priorities finalized for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research priorities finalised
1.	Agri-Hort-AH-Fish	Rice, Toria, Pulses, Jute, Sugarcane, Potato, Kharif and Rabi vegetables, Assam lemon, Banana, Coconut, Arecanut, Poultry & Duck-Indigenous, Improved, Cow-indigenous, Cross breed, Local buffalo, indigenous & exotic fish	• High yielding, short duration, cold tolerant boro rice variety. • Wilt tolerant brinjal/ tomato varieties. • HYV of Jute with high quality fibre. • Drought tolerant, short duration, high yielding Ahu rice variety with good cooking quality. • Panama and bunchy top resistant banana variety. • Preparation of low cost, balanced fish feed with locally available raw materials. • Breeding techniques for indigenous and endangered fish species. • Effective management techniques for FMD. • Effective management practices/technology for preventing premature death of Jersey calves.
2.	Agri-Hort-AH	Rice, Toria, Pulses, Jute, Sugarcane, Potato, Kharif	• High yielding, short duration, cold tolerant boro rice variety.

		and Rabi vegetables, Assam lemon, Banana, Coconut, Arecanut, Poultry & Duck-Indigenous, Improved, Cow-indigenous, Cross breed, Local buffalo	• Char area specific fertility management for early ahu rice • Technology for appropriate farming/ cropping in flood prone area. • Technology for sand/silt deposited and periodically drought prone area. • Wilt tolerant brinjal/ tomato varieties. • HYV of Jute with high quality fibre. • Drought tolerant, short duration, high yielding Ahu rice variety with good cooking quality. • Panama and bunchy top resistant banana variety. • Effective management techniques for FMD. • Effective management practices/technology for preventing premature death of Jersey calves.
3.	Agri-Hort-Fish	Rice, Toria, Pulses, Jute, Kharif and Rabi vegetables, Assam lemon, Banana, Coconut, Arecanut, indigenous & exotic fish	• High yielding, short duration, cold tolerant boro rice variety. • Technology for appropriate farming/ cropping in flood prone area. • Technology for sand/silt deposited and periodically drought prone area. • Wilt tolerant brinjal/ tomato varieties. • HYV of Jute with high quality fibre. • Drought tolerant, short duration, high yielding Ahu rice variety with good cooking quality. • Panama and bunchy top resistant banana variety. • Preparation of low cost, balanced

			fish feed with locally available raw materials. • Breeding techniques for indigenous and endangered fish species.
4.	Hort-AH	Kharif and Rabi vegetables, Assam lemon, Banana, Coconut, Arecanut, indigenous & exotic fish	• Wilt tolerant brinjal/ tomato varieties. • Panama and bunchy top resistant banana variety. • Effective management techniques for FMD. • Effective management practices/technology for preventing premature death of Jersey calves.

3. Research strategy proposed for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research strategy proposed
1.	Agri-Hort-AH-Fish	Rice, Toria, Pulses, Jute, Sugarcane, Potato, Kharif and Rabi vegetables, Assam lemon, Banana, Coconut, Arecanut, Poultry & Duck-Indigenous, Improved, Cow-indigenous, Cross breed, Local buffalo, indigenous & exotic fish	• Development and testing of component technologies in the existing farming systems perspective. • Evolving location and system specific scientific interventions for rainfed situations.
2.	Agri-Hort-AH	Rice, Toria, Pulses, Jute, Sugarcane, Potato, Kharif and Rabi vegetables, Assam lemon, Banana, Coconut, Arecanut, Poultry & Duck-Indigenous, Improved, Cow-indigenous, Cross breed, Local buffalo	• Development and testing of component technologies in the existing farming systems perspective. • Evolving location and system specific scientific interventions for rainfed situations.
3.	Agri-Hort-Fish	Rice, Toria, Pulses, Jute, Kharif and Rabi vegetables, Assam lemon, Banana, Coconut,	• Development and testing of component technologies in the existing farming systems perspective.

		Arecanut, indigenous & exotic fish	• Evolving location and system specific scientific interventions for rainfed situations.
4.	Hort-AH	Kharif and Rabi vegetables, Assam lemon, Banana, Coconut, Arecanut, indigenous & exotic fish	• Development and testing of component technologies in the existing farming systems perspective. • Evolving location and system specific scientific interventions for rainfed situations.

10. Research Priorities and strategies for Sivasagar

1. Research gaps identified for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research gaps identified
1	AES I (Alluvial flood free) 1. Agri-Horti-AH-Fishery 2.Agri-Horti-AH 3.Horti-Agri-Seri-AH	Rice, Sugarcane, Vegetables, Tea, Coconut	1. High incidence of pest & disease 2. Selection & Standardization of efficient and profitable farming system for each AES 3. Development rain water harvest and storage technology 4. Formulation of suitable agronomic practices for Sasi crop. 5. Development of farm implements. 6. Development of techniques to increase shelf life of horticultural crops.
2	AES II AH-Horti-Agri AH-Horti-Fish-Agri	Rice, Mustard, Vegetables, Potatos	1. Development of technology for double cropping. 2. Development of rain water harvest and storage technology

11. Research Priorities and strategies for Tinsukia

1. Research gaps identified for each farming system and crop

Sl. No.	Farming system	Crops under FS	Research gap identified
1	Agri - Horti	Paddy, mustard, blackgram, pea, potato etc. Vegetables, fruit and other crops	Gap in yield of crops like paddy, mustard, blackgram, pea, potato etc. Low profitability from Agril. crops due to rise in production costs, unorganized marketing and lack of minimum support price. Gap in yield of vegetable crops due to lack of knowledge and skills in nutrient management, non-adoption of IPM/INM, low use of organic manures Low yield in spices due to lack of knowledge in improved technology, non replacement of seed materials, non adoption of INM practices. Poor productivity of fruit crops due to inadequate care and maintenance of crop
2	Agri – Horti - Fishery	Paddy, mustard, blackgram, pea, potato etc. Vegetable, Citrus and other crops	--Do— & Technological gap of fish production technology
3	Agri - Horti -	Paddy, mustard, blackgram, pea, potato etc. Vegetable, Citrus and other crops	--Do— & Low productivity of milch cattle, problems in pig rearing, poultry etc
4	Agri – Horti – Silviculture	Paddy, mustard, blackgram, pea, potato etc. Vegetable, Citrus and other crops	--Do-- & Low expansion of sericulture programmes is due to pesticidal affect on Eri, Muga and silk worms.

2. Research priorities finalized for each farming system and crop

Sl. No.	Farming system	Crops under FS	Research priorities finalized
1.	Agri - Horti	Paddy, mustard, blackgram, pea, potato etc. Vegetables, fruit and other crops	Scientific management technologies to bridge the gap in yield Replacement of mono cropping with multiple cropping

2.	Agri – Horti - Fishery	Paddy, mustard, blackgram, pea, potato etc. Vegetable, Citrus and other crops	Diversification of crop from paddy to non-paddy in rain-fed highlands Management and maintenance of fish tanks
3.	Agri - Horti -Animal Husbandry	Paddy, mustard, blackgram, pea, potato etc. Vegetable, Citrus and other crops	Scientific management technologies to bridge the gap in yield Replacement of mono cropping with multiple cropping Green fodder cultivation in the raised boundary Cow and buffalo rearers and formation of milk producer cooperative society.
4.	Agri – Horti – Silviculture	Paddy, mustard, blackgram, pea, potato etc. Vegetable, Citrus and other crops	Diversification of crop from paddy to non-paddy in rain-fed highlands Scientific and intensive cultivation of Eri and silkworm with organizational support

3. Research strategy proposed for each farming system and crop

Sl. No.	Farming system	Crops under FS	Research strategy proposed
1.	Agri - Horti	Paddy, mustard, blackgram, pea, potato etc. Vegetables, fruit and other crops	Scientific management technologies to bridge the gap in yield Replacement of mono cropping with multiple cropping
2.	Agri – Horti - Fishery	Paddy, mustard, blackgram, pea, potato etc. Vegetable, Citrus and other crops	Diversification of crop from paddy to non-paddy in rain-fed highlands Management and maintenance of fish tanks
3.	Agri - Horti -Animal Husbandry	Paddy, mustard, blackgram, pea, potato etc. Vegetable, Citrus and other crops	Scientific management technologies to bridge the gap in yield Replacement of mono cropping with multiple cropping Green fodder cultivation in the raised boundary Cow and buffalo rearers and formation of milk producer cooperative society.

4.	Agri – Horti – Silviculture	Paddy, mustard, blackgram, pea, potato etc. Vegetable, Citrus and other crops	Diversification of crop from paddy to non-paddy in rain-fed highlands Scientific and intensive cultivation of Eri and silkworm with organizational support

5.3 Research Priorities and Strategies for Manipur

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1. Research Priorities and strategies for Bishnupur

1. Research gaps identified for each farming system and crop

Sl. No.	Farming system	Crops under the FS	Research gaps identified
1	Agriculture base system	Rice-potato/mustard/pea/blackgram Rice-soyabean Maize+soyabean	Lack of improved technology, slow adoption of the technology and unavailability of required crop inputs including good seeds, OFT.
2	Horticulture base system	Banana+turmeric/ginger Tree bean + turmeric/ginger Guava + turmeric/ginger Pineapple + Guava + turmeric/ginger	Lack of disease management on Tree bean , banana and soil borne disease management on turmeric/ginger, OFT.
3	Agri-Hort.	Maize+banana +alocasia Rice+Rice bean Sugarcane+Mustard +Onion Tree bean+ginger/ Turmeric+guava	Lack of improved technology, slow adoption of the technology and unavailability of required crop inputs including good seeds, OFT.
4	Agri + Horticulture + Livestock	Maize+banana +alocasia+pig (Hampshire)	Lack of improved technology, slow adoption of the technology and unavailability of required crop inputs including good seeds, OFT.
5	Agri + Fishery	Rice+magur+IMC	Lack of improved technology, slow adoption of the technology and unavailability of required crop inputs including good seeds, OFT.

2. Research priorities finalized for each farming system and crop

Sl. No.	Farming system	Crops under the FS	Research priorities finalized
1	Agriculture base system	Rice-potato/mustard/pea/blackgram Rice-soyabean Maize+soyabean	Improved technology and OFT
2	Horticulture base system	Banana+turmeric/ginger Tree bean + turmeric/ginger Guava + turmeric/ginger Pineapple + Guava + turmeric/ginger	Improved technology and OFT

3	Agri-Hort.	Maize+banana +alocasia Rice+Rice bean Sugarcane+Mustard +Onion Tree bean+ginger/ Turmeric+guava	Improved technology and OFT
4	Agri + Horticulture + Livestock	Maize+banana +alocasia+pig (Hampshire)	Improved technology and OFT
5	Agri + Fishery	Rice+magur+IMC	Improved technology and OFT

3. Research strategy proposed for each farming system and crop

Sl. No.	Farming system	Crops under the FS	Research strategy proposed
1	Agriculture base system	Rice-potato/mustard/pea/blackgram Rice-soyabean Maize+soyabean	OFT
2	Horticulture base system	Banana+turmeric/ginger Tree bean + turmeric/ginger Guava + turmeric/ginger Pineapple + Guava + turmeric/ ginger	OFT
3	Agri-Hort.	Maize+banana + alocasia Rice +Rice bean Sugarcane + Mustard +Onion Tree bean+ginger/ Turmeric+guava	OFT
4	Agri + Horticulture + Livestock	Maize+banana +alocasia+pig (Hampshire)	OFT
5	Agri + Fishery	Rice+magur+IMC	OFT

2. Research Priorities and strategies for Churachandpur

1. Research gaps identified for each farming system and crop

Sl. No.	Farming system	Crops under the FS	Research gaps identified
1	Agriculture base system	Rice-potato/mustard/pea/blackgram Rice-soyabean Maize + soyabean	Lack of improved production technology, slow adoption of the technology and unavailability of required crop inputs including good seeds, OFT.
2	Horticulture base system	Banana + turmeric/ginger Tree bean + turmeric/ginger Tomato + Mustard + Onion Guava + turmeric/ginger+ Papaya Pineapple + Guava + turmeric/ginger	Lack of disease management on Tree bean, banana and Rhizome rot or soft rot management in turmeric/ginger, OFT.
3	Agri - Hort.	Maize+banana + Colocasia Rice + Rice bean Sugarcane + Mustard +Onion Tree bean + ginger/ Turmeric + guava	Lack of improved production technology, slow adoption of the technology and unavailability of required crop inputs including good seeds, OFT.
4	Agri + Horticulture + Livestock	Maize + banana + Colocasia + pig (Hampshire)	Lack of improved technology, slow adoption of the technology and unavailability of required crop inputs including good seeds, OFT.
5	Agri + Fishery	Rice + magur	Lack of improved technology, slow adoption of the technology and unavailability of required crop inputs including good seeds, OFT.

2. Research priorities finalized for each farming system and crop

Sl. No.	Farming system	Crops under the FS	Research priorities finalized
1	Agriculture base system	Rice-potato/mustard/pea/blackgram Rice-soyabean Maize + soyabean	Improved production technology and OFT
2	Horticulture base system	Banana + turmeric/ginger Tree bean + turmeric/ginger Tomato + Mustard + Onion	Improved production technology and OFT

		Guava + turmeric/ginger + Papaya Pineapple + Guava + turmeric/ginger	
3	Agri - Hort.	Maize + banana + Colocasia Rice + Rice bean Sugarcane + Mustard +Onion Tree bean + ginger/ Turmeric + guava + Papaya	Improved production technology and OFT
4	Agri + Horticulture + Livestock	Maize + banana + Colocasia + pig (Hampshire)	Improved production technology and OFT
5	Agri + Fishery	Rice + magur	Improved production technology and OFT

3. Research strategy proposed for each farming system and crop

Sl. No.	Farming system	Crops under the FS	Research strategy proposed
1	Agriculture base system	Rice-potato/mustard/pea/blackgram Rice - soyabean Maize+soyabean	OFT of selection technologies
2	Horticulture base system	Banana + turmeric/ginger Tomato + Mustard + Onion Tree bean + turmeric/ginger Guava + turmeric/ginger + Papaya Pineapple + Guava + turmeric/ginger	OFT of selection technologies
3	Agri - Hort.	Maize + banana + Colocasia Rice + Rice bean Sugarcane + Mustard +Onion Tree bean + ginger/ Turmeric + guava + Papaya	OFT of selection technologies
4	Agri + Horticulture + Livestock	Maize + banana + Colocasia + pig (Hampshire)	OFT of selection technologies
5	Agri + Fishery	Rice + magur	OFT of selection technologies

3. Research Priorities and strategies for Senapati

1. Research gaps identified for each farming system and crop

Sl. No.	Farming system	Crops under the FS	Research gaps identified
1	Agriculture (Mono culture)	Paddy (both terrace & upland rice)	Lack of crop intensification
2	Agriculture (mixed culture)	Maize, pulses, calocasia, tapioca etc.	Lack of suitable post harvest technology and crop combination.
3	Livestock + Agriculture	Maize, bean, calocasia, Piggery & poultry	Low efficiency of the farming system.
4	Agro-forestry	Forest tree species, Passion fruit, Cabbage Potato, pea etc.	Lack of appropriate cropping pattern under the farming system.
5	Agri+Horti+Livestock	Maize, Passion fruit, Potato, piggery, cattle, peach, plum etc.	Low efficiency of the system.

2. Research priorities finalized for each farming system and crop

Sl. No.	Farming system	Crops under the FS	Research priorities finalized
1	Agriculture (Mono culture)	Paddy (both terrace & upland rice)	Crop diversification and intensification.
2	Agriculture (mixed culture)	Maize ,pulses, calocasia, tapioca etc.	Identification of suitable crop combination under system.
3	Livestock + Agriculture	Maize, bean, calocasia, Piggery & poultry	Study on economics of different combination of the component of farming system.
4	Agro-forestry	Forest tree species, Passion fruit, Cabbage Potato, pea etc.	- do -
5	Agri+Horti+Livestock	Maize, Passion fruit, Potato, piggery, cattle, peach, plum etc.	On farm research.

3. Research strategy proposed for each farming system and cop

Sl. No.	Farming system	Crops under the FS	Research strategy proposed
1	Agriculture (Mono culture)	Paddy (both terrace & upland rice)	Crop diversification & intensification with pulses & oilseed under zero tillage condition.

2	Agriculture (mixed culture)	Maize ,pulses, calocasia, tapioca etc.	Identification of suitable crop combination – Maize + Pulses, Calocasia + Tapioca.
3	Livestock + Agriculture	Maize, bean, calocasia, Piggery & poultry	Testing the recommendation of the option overtime.
4	Agro-forestry	Forest tree species, Passion fruit, Cabbage Potato, pea etc.	Introduction of suitable tier system
5	Agri+Horti+Livestock	Maize, Passion fruit, Potato, piggery, cattle, peach, plum etc.	Identification of market opportunity for different component of the system.

4. Research Priorities and strategies for Ukhrul

1. Research gaps identified for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research gaps identified
1.	Agri Based system	Rice+Bean/mustard	To find suitable variety of upland rice
2.	Horti. Based system	Potato + Maize/Bean	To find suitable variety of potato & maize

2. Research priorities finalized for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research priorities finalised
1.	Agri. Based system	Rice + Bean / mustard	To include suitable variety of upland rice.
2.	Horti. Based system	Potato + Bean /mustard	To include suitable variety of potato and maize

3. Research strategy proposed for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research strategy proposed
1.	Agri. Based system	Rice + Bean/ mustard	Indigenous varieties replace by HYV
2.	Hort. Based system	Potato + bean /mustard	Indigenous varieties replace by HYV of potato &maize

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5.4 Research Priorities and Strategies for Meghalaya

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1. Research Priorities and strategies for Ri-Bhoi

1. Research gaps identified for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research gaps identified
1.	There are three Agro ecological situations .They are AES I, AES II& AES III.Under AES I there are two Existing farming system viz,EFS I &EFS II. EFS I Comprises of Agri+Horti+A.H+Fishery ,EFS II comprises of Agri+Horti+A.H+Fishery	Paddy	i) Untimely occurrence of monsoon ii) Unpredictable weather conditions iii) High pest attack and Milking stage iv) Problems with fertilizer v) Non availability of irrigation fertilizers.
2.	In AES II,there are two existing farming systems.They are EFS I- Agri+Horti+AH+Sericulture, EFS II- Horti+Agri+AH+Fishery In AES III,there are two existing farming systems.They are EFSI:- Agri+Horti+AH+Bee keeping, EFS II : Horti+Agri+AH+Fishery	Maize	i) No market for Surplus
3.		Betelnut	i) Soakage problems ii) No good transportation
4.		Pineapple	i) Lack of market ii) Lack of awareness regarding Agro processing centre
5.		Tomato	i) Glut in Tomato production during early summer ii) Non existence of cold storage unit
6.		Ginger	i) Problem of marketing ii) Non availability of Godown and non existence of processing unit

2. Research priorities finalized for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research priorities finalised
1.	There are three Agro ecological situations .They are AES I,AES II& AES III.Under AES I there are two Existing farming system viz,EFS I &EFS II. EFS I Comprises of Agri+Horti+A.H+Fishery ,EFS II comprises of Agri+Horti+A.H+Fishery	Paddy	a) Screening suitable varieties for late planting and resistant to blast b) Resistant varieties required and Gandhi bug
2.		Maize	a) Popularization of package of practices b) Popularization of inter-cropping system

3.	In AES II,there are two existing farming systems.They are EFS I- Agri+Horti+AH+Sericulture, EFS II- Horti+Agri+AH+Fishery	Soybean	a) Popularization of package of practices b) Value addition c) As a intro privacy crop
4.	In AES III,there are two existing farming systems.They are EFSI:- Agri+Horti+AH+Bee keeping, EFS II : Horti+Agri+AH+Fishery	Groundnut	Popularization of groundnut cultivation as high nutritional value oilseed crop

3. Research strategy proposed for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research strategy proposed
1.	There are three Agro ecological situations .They are AES I,AES II& AES III.Under AES I there are two Existing farming system viz,EFS I &EFS II. EFS I Comprises of Agri+Horti+A.H+Fishery ,EFS II comprises of Agri+Horti+A.H+Fishery In AES II,there are two existing farming systems.They are EFS I- Agri+Horti+AH+Sericulture, EFS II- Horti+Agri+AH+Fishery In AES III,there are two existing farming systems.They are EFSI:- Agri+Horti+AH+Bee keeping, EFS II : Horti+Agri+AH+Fishery	Paddy	1) To develop suitable varieties for late planting
2.		Maize & Soybean	1) Strengthen, extension variety of late planting 2) Motivate the farmers in multiplication of compositae maize seeds tolerant to Downy mildew
3.		Groundnut	1) Popularization of groundnut cultivation and groundnut as high nutritional value oilseed crop

5.5 Research Priorities and Strategies for Mizoram

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1. Research Priorities and strategies for Aizawl

1. Research gaps identified for each farming system and crop.

Sl. No.	Farming system	Crops under the FS	Research gaps identified
1	Agri-Hort	Rice, Maize, Pulses, Orange, Banana, Passion fruits, Vegetables, Flowers.	- Traditional cultural practices. - Non availability of suitable HYVs. - Pest and diseases problem. - Lack of awareness and knowledge. - Non availability of recommended plant protection chemicals for horticulture disease and pest management. - Improper spacing and weeding problem. - Use of local variety. - Overall poor management. - Lack of knowledge regarding Breed up gradation. - Lack of awareness regarding General health care& management. - Lack of awareness regarding feed management. - Lack of proper markets.
2	Agro forestry -Sericulture - Fishery	- Bamboo - Maize - Pulses - Mulberry - Muga - Eri - Tasar - Silvipsture - Indian major carps - Exotic carps	- Lack of improved planting material. - Non availability of desired fingerlings in due time. - Non availability of required sapling.

3.	Agri + Animal Husbandry-Fishery	Rice, Maize,pulses, oilseeds, sugarcane,cattle, piggery,poultry, goat, Crops.	- Traditional practices. - Local breeds of pig and poultry. - Traditional management practices. - Lack of improved variety seeds.

2. Research priorities finalized for each farming system and crop.

Sl. No	Farming system	Crops under the FS	Research gaps identified
1	Agri - Hort	Rice, Maize, Pulses, Orange, Banana, Passion fruits, Vegetables, Flowers.	- Development and making availability of suitable HYVs. - Pest and disease management. -Weed management. -Soil and water conservation. - Post harvest technology. - Disease resistance and drought prone varieties.
2	Agri – AH - Fishery.	Rice, Maize, Pulses, Oilseeds, Sugarcane, Crossed Bred Cows, Croiler, piggery, Indian major carp, exotic carp.	- To create awareness among the local farmers. -Varieties and breeds for hilly region. - Proper nursery management. - Identify suitable local varieties.

3. Research strategy proposed for each farming system and crop.

Sl. No.	Farming system	Crops under the FS	Research gaps identified
1	Agri - Hort	Rice, Maize, Pulses, Orange, Banana, Passion fruits, Vegetables, Flowers.	- To test suitable HYVs through OFT & FLDs. - To develop insect, pest and disease resistant varieties. - Introducing new varieties suited to local condition.
2	Agri - Animal Husbandry – Fishery.	Crossed Bred Cows, Croiler, piggery, Indian major carp and exotic carp.	- Conducting meeting with the farmers and surveying for need based programme.

2. Research Priorities and strategies for Kolasib

1. Research gaps identified for each farming system and crop:

Sl.No.	Farming system.	Crops under the FS	Research gaps identified
1.	FS-1	Paddy,Ginger,Maize.	Permanent Jhum
2.	FS-2	Paddy,Maize,Banana,Orange Chillies,Hatkora.	-do-
3.	FS-3	Paddy,Maize,Arecanut,Hatkora,Oil Palm.	Identification of improved tools implements and inputs.
4.	FS-4	Paddy,Maize,Pineapple,Oilseeds,Pulses,Oil Palm.	-do-

2. Research priorities finalized for each farming system and crop.

Sl.No.	Farming system.	Crop under the FS	Research priorities finalised
1.	FS-1	Paddy,Ginger,Maize.	Soil & Water conservation.
2.	FS-2	Paddy,Maize,Banana,Orange,Chillies ,Hatkora.	-do-
3.	FS-3	Paddy,Maize,arecanut,Htkora,Oil Palm.	Appropriate tools and implements,suitable variety of crops.
4.	FS-4	Paddy,Maize,Pineapple,Oilseeds,Pulses,Oil Palm.	-do-

3. Research strategy proposed for each farming system and crops.

Sl.No.	Farming system.	Crops under the FS	Research strategy proposed.
1.	FS-1	Paddy,Ginger,Maize.	SALT technology and rain water harvesting; nutrients and pest management.
2.	FS-2	Paddy,Maize,Banana,Orange,Chillies ,Hatkora.	-do-
3.	FS-3	Paddy,Maize,Arecanut,Hatkora,Oil Palm.	Farm mechanisation,identification of suitable variety of crops,nutrients and pest management.
4.	FS-4	Paddy,Maize,Pineapple,Oilseeds, Pulses,Oil Palm.	-do-

3. Research Priorities and strategies for Lawngtlai

1. Research gaps identified for each farming system and crop

Sl. No	Farming System	Crops under the FS	Research gaps identified
1.	Agri - Hort	Rice, Cole crops and vegetables	1. Effect of organic manures on growth and yield. 2. Identification of major pest and diseases. 3. Identification of suitable variety. 4. Research on yield potential of different varieties of paddy. 5. Standardization of package of practice for this region.
2.	Horticulture	Banana, Citrus, Ginger, Turmeric, French bean, Cabbage, Chilli, etc.	Identification of aromatic and medicinal plants. Identification of value-added horticultural crops.
3.	AH	Fodder grasses	Research on zoonosis Identify productive breeds for farmers Research on animal housing system according to socio-economic conditions and thus maintaining hygiene and better animal health.

2. Research priorities finalized for each farming system and crop

Sl. No	Farming System	Crops under the FS	Research priorities finalized
1.	Agri - Hort	Rice, Cole crops and vegetables	As above
2.	Horticulture	Banana, Citrus, Ginger, Turmeric, French bean, Cabbage, Chilli, etc.	-do-
3.	AH	Fodder grasses	-do-

3. Research Strategy proposed for each farming system and crop

Sl. No	Farming System	Crops under the FS	Research strategy proposed
1.	Agri - Hort	Rice, Cole crops and vegetables	1. Effect of organic manures on growth and yield. 2. Identification of major pest and diseases. 3. Identification of suitable variety. 4. Research on yield potential of different varieties of paddy. 5. Standardization of package of practice for this region.
2.	Horticulture	Banana, Citrus, Ginger, Turmeric, French bean, Cabbage, Chilli, etc.	Factors affecting citrus decline. Identification of aromatic and medicinal plants. Identification of value-added horticultural crops.
3.	AH	Fodder grasses	Identification of quality fodder grasses. Identify productive breeds for farmers Research on animal housing system.

4. Research Priorities and strategies for Lunglei

1. Research gaps identified for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research gaps identified
1.	Agriculture	Paddy, Vegetables, Cole crops	Nursery management practices for high yield of paddy
2.	Agriculture + Fishery	Paddy, Maize, Fish culture	Suitable high yielding varieties, effect of liming on crop yield
3.	Agriculture + A.H.	Paddy, Maize, Poultry, Piggery	Identification of productive breeds
4.	Agriculture + Horticulture	Paddy, Maize, Orange, Lemon	Identification of pests & diseases

2. Research priorities finalized for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research priorities finalised
1.	Agriculture	Paddy, Vegetables, Cole crops	Yet to be finalised
2.	Agriculture+ Fishery	Paddy, Maize, Fish Culture	Effect of liming on crop yield study
3.	Agriculture + A.H.	Paddy, Maize, Poultry, Piggery	Yet to be finalised
4.	Agriculture+ Horticulture	Paddy, Maize, Orange, Lemon	Identification of the different pest and diseases of crops of the region

3. Research strategy proposed for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research strategy proposed
1.	Agriculture	Paddy, Vegetables, Cole crops	Study on System of Rice Intensification
2.	Agriculture+ Fishery	Paddy, Maize, Fish Culture	Study of effect of lime application on crop yield
3.	Agriculture+ A.H.	Paddy, Maize, Poultry, Piggery	Identification of productive breeds
4.	Agriculture+ Horticulture	Paddy, Maize, Orange, Lemon	Identification of different pests& diseases of major crops

5. Research Priorities and strategies for Mamit

1. Research gaps identified for each farming system and crop

Sl. No	Farming System	Crops under the FS	Research gaps identified
1.	Agri - Fishery	**Fish crops:** Catla, Rohu, Mrigal, Grass carp, Silver carp, Common carp **Agricultural crop:** Paddy	Standardization of package of practice for this region
2.	Agri - Hort	Rice, cole crops and vegetables	1. Identification of common pest and diseases. 2. Identification of suitable variety. 3. Research on yield potential of different varieties of paddy.
3.	Horticulture	Banana, hatkora, khasi mandarin, Ginger, turmeric, oil palm, tomato, cabbage etc.	Factors affecting citrus decline. Identification of aromatic and medicinal plants. Identification of native horticulture crop
4.	Animal Husbandry	Fodder grasses	Research on zoonosis Identify productive breeds for farmers Research on animal housing system according to socio-economic conditions and thus maintaining hygiene and better animal health.

2. Research priorities finalized for each farming system and crop

Sly. No	Farming System	Crops under the FS	Research priorities finalized
1.	Agri - Fishery	**Fish crops:** Catla, Rohu, Mrigal, Grass carp, Silver carp, Common carp **Agricultural crop:** Paddy	Not yet finalised
2.	Agri - Hort	Rice, cole crops and vegetables	-do-

3.	Horticulture	Banana, hatkora, khasi mandarin, Ginger, turmeric, oil palm, tomato, cabbage etc.	-do-
4.	A.H.	Fodder grasses	-do-

3. Research Strategy proposed for each farming system and crop

Sly. No	Farming System	Crops under the FS	Research strategy proposed
1.	Agri - Fishery	**Fish crops:** Catla, Rohu, Mrigal, Grass carp, Silver carp, Common carp **Agricultural crop:** Paddy	Standardization of package of practice for this region
2.	Agri - Hort	Rice, cole crops and vegetables	1. Identification of common pest and diseases. 2. Identification of suitable variety. 3. Research on yield potential of different varieties of paddy.
3.	Horticulture	Banana, hatkora, khasi mandarin, Ginger, turmeric, oil palm, tomato, cabbage etc.	Factors affecting on citrus decline. Identification of aromatic and medicinal plants. Identification of native horticulture crop
4.	Animal Husbandry	Fodder grasses	Research on zoonosis Identify productive breeds for farmers Research on animal housing system according to socio-economic conditions and thus maintaining hygiene and better animal health.

6. Research Priorities and strategies for Saiha

1. Research gaps identified for each farming system and crop

Sl. No	Farming System	Crops under the FS	Research gaps identified
1.	Agri - Hort	Rice, Cabbage, Gingerm Maize, Vegetables	1. How to improve farming system. 2. Effect of organic Manures on growth and yield. 3. Identification and prevention of major pests and diseases.
2.	Horticulture	Banana, Mandarin orange, Orange, Citrus, Ginger, Turmeric, French Beans, Cabbage, chilli etc.	How to prevent citrus decline. Identification of medicinal plants.

2. Research priorities finalized for each farming system and crop

Sl. No	Farming System	Crops under the FS	Research priorities finalized
1.	Agri - Hort	Rice, cabbage, ginger	As above
2.	Horticulture	Banana, orange, citrus, Mandarin orange	-do-

3. Research Strategy proposed for each farming system and crop

Sl. No	Farming System	Crops under the FS	Research strategy proposed
1.	Agri - Hort	Rice, cabbage, ginger, Cole crops and other vegetables	How to improve farming system. Effect of organic Manures on growth and yield. Identification and prevention of major pests and diseases.
	Horticulture	Banana, Citrus, Ginger, Turmeric, French bean, Cabbage, Chilli, etc.	How to prevent from citrus decline. Identification of medicinal plants.

7. Research Priorities and strategies for Serchhip

1. Research gaps identified for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research gaps identified
1.	Agriculture: (W.R.C Jhuming)	Rice, Maize, Sugarcane, Soybean, Rapeseed and Mustard	Lack of High Yielding Variety. Lack of proper irrigation facilities. Pest and disease management. No proper Soil and water Conservation Practices (in Jhum).
2.	Horticulture	Citrus (Orange), Banana, Passion fruit, Cabbage, Potato, French Bean, Bird's Eye Chilies, Ginger, Turmeric	Lack of knowledge for Value addition for higher income, Lack of IPM & INM, Lack of Water harvesting structures, Lack of disease resistant or tolerant & high yielding varieties.
3.	Animal Husbandry	**Pig:** Local, Hamshire cross, Large white yorkshire cross **Poultry:** Local, Vencob, Hubberd **Cattle:** Local, HF & Jersey cross	Poor Scientific management and disease control, Insufficient Fodder production, Lack of Quality breeds.
4.	Fishery	Common Carp, Silver Carp, Grass carp, Magur	Poor knowledge on value addition for higher income, Lack of quality seeds, Unavailability of timely seed supply, lack of knowledge on use of production enhancing inputs like manures and supplementary feeds.
5.	Sericulture	Muga & Eri silk	Lack of scientific management technique and improved variety of mulberry, No proper marketing channel.

2. Research priorities finalized for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research priorities finalized
1.	Agriculture: (W.R.C & Jhuming)	Rice(WRC & Jhum), Maize, Sugarcane, Soy bean, Rapeseed and Mustard	Proper irrigation facilities, Pest and disease management, Soil and water Conservation Practices in Jhum, High Yielding Variety.

2.	Horticulture	Citrus (Orange), Banana, Passion fruit, Cabbage, Potato, French Bean, Bird's Eye Chilies, Ginger, Turmeric	IPM & INM, Disease resistant or tolerant & high yielding varieties, Water harvesting structures, Post harvest management and value addition for higher income.
3.	Animal Husbandry	**Pig:** Local, Hampshire cross, Large white Yorkshire cross **Poultry:** Local, Vencob, Hubberd **Cattle:** Local, HF & Jersey cross	Increase Fodder production, Scientific management and disease control, Quality breeds.
4.	Fishery	Common Carp, Silver Carp, Grass carp, Magur	Knowledge on use of production enhancing inputs like manures and supplementary feeds, Unavailability of timely supply of quality seeds, Poor knowledge on value addition for higher income.
5.	Sericulture	Muga & Eri silk	Introduction of improved variety of mulberry & scientific management techniques, To create linkage with important silk industries.

3. Research strategy proposed for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research strategy proposed
1.	Agriculture: (W.R.C & Jhuming)	Rice, Maize, Sugarcane, Soybean, Rapeseed and Mustard	Trials on Pest and disease management incorporating biological & locally available plant extracts, Identification and Introduction of tolerant/resistant crop varieties, Soil and water Conservation Practices in Jhum, Introduction of High Yielding Variety.
2.	Horticulture	Citrus (Orange), Banana, Passion fruit, Cabbage, Potato, French Bean, Bird's Eye Chilies, Ginger, Turmeric	IPM & INM, Identification and Introduction of tolerant/resistant/high yielding crop varieties,

			Water harvesting structures, Identification & development of traditional methods of preparations and preservation for value addition and higher income.
3.	Animal Husbandry	**Pig:** Local, Hamshire cross, Large white yorkshire cross **Poultry:** Local, Vencob, Hubberd **Cattle:** Local, HF & Jersey cross	Identification and development of locally available fodder and herbs, Scientific management and disease control, Implementation of cross breeding programmes for upgradation of local breeds.
4.	Fishery	Common Carp, Silver Carp, Grass carp, Magur	Enhancement of inputs like manures and supplementary feeds, Implementation of breeding programmes for self sufficiency in seed supply, Research on value addition for higher income.
5.	Sericulture	Muga & Eri silk	Introduction of improved variety of mulberry & scientific management techniques, To create linkage with important silk industries.

5.6 Research Priorities and Strategies for Nagaland

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1. Research Priorities and strategies for Dimapur

1. Research gaps identified for each farming system and crop

Sl. No.	Farming system	Crops under the FS	Research gaps identified
1.	Mono-cropping (Agri – Hort)	Paddy, Maize, ginger Banana, Pineapple, Vegetables.	a) Lack of awareness about improved production technology of agri-horti crops b) Lack of irrigation facilities c) Lack of fertility in soil d) Lack of plant protection measures e) Lack of veterinary services and infrastructure f) Lack of quality seeds / planting materials/ breeds of animals g) Lack of knowledge about on going schemes of government h) Lack of processing units and cold storage
2.	Mixed/ double cropping (Agri – Hort)	Paddy, Maize, Mustard, Banana, Pineapple, Vegetables.	a) Lack of awareness about improved production technology of agri-horti crops b) Lack of irrigation facilities c) Lack of fertility in soil d) Lack of plant protection measures e) Lack of veterinary services and infrastructure f) Lack of quality seeds / planting materials/ breeds of animals g) Lack of knowledge about on going schemes of government h) Lack of processing units and cold storage

2. Research priorities finalized for each farming system and crop

Sl. No.	Farming system	Crops under the FS	Research priorities finalized
1.	Mono-cropping (Agri – Hort)	Paddy, Maize, Mustard, Banana, Pineapple, Vegetables.	a) location specific varieties for agri and horti crops resistant for insect and diseases, b) up gradation of local breeds of animals, c) fertilizer recommendations on the basis of soil test,
2.	Mixed/ double cropping (Agri – Hort)	Paddy, Maize, Mustard, Banana, Pineapple, Vegetables.	a) location specific varieties for agri and horti crops resistant for insect and diseases, b) up gradation of local breeds of animals, c) fertilizer recommendations on the basis of soil test,

3. Research strategy proposed for each farming system and crop

Sl. No.	Farming system	Crops under the FS	Research strategy proposed
1.	Mono-cropping (Agri – Hort)	Paddy, Maize, ginger, Banana, Pineapple.	To conduct training and demonstrations for capacity building of farmers Rain water harvesting for pisiculture and lifesaving irrigation To conduct training on plant protection measures Strengthening the veterinary services by organizing health camps and vaccinations Production of quality planting materials (Turmeric, Assam lemon, black pepper) Green manuring and use of bio-fertilizers and bio control measures Value addition and post harvest management
2.	Mixed / double cropping (Agri – Hort)	Paddy, Maize, Mustard, Banana, Pineapple, Vegetables.	To conduct training and demonstrations for capacity building of farmers Rain water harvesting for pisiculture and lifesaving irrigation To conduct training on plant protection measures Strengthening the veterinary services by organizing health camps and vaccinations Production of quality planting materials (Turmeric, Assam lemon, black pepper) Green manuring and use of biofertilizers and bio control measures Value addition and post harvest management

2. Research Priorities and strategies for Kohima

1. Research gaps identified for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research gaps identified
AES-I	EFS-1 Agri - Animal Husbandry	Paddy (TRC) Piggery	Poor irrigation facilities Diseases and Pest
	EFS-2 Agri - Horticulture	Paddy (Jhum), Potato Colocassia+ chilly+Maize	Drough condition Diseases and Pest Low Yield
	EFS-3 Agri – Animal Husbandry - Fishery	Cow fishery	Financial problems Lack of seedlings/fingerlings
AES-II	EFS-1 Agri - Animal Husbandry	Paddy (TRC) (Jhum) Colocassia+ chilly+Maize Piggery	Drough condition Low Yield Swine fever
	EFS-2 Hort - Apiculture	Passion fruits & Orange	Drough condition
	EFS-3 Agri - Fishery	Paddy (TRC) fishery	Drough condition Lack of seedlings/fingerlings

2. Research priorities finalized for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research priorities finalized
AES-I	EFS-1 Agri - Animal Husbandry	Paddy (TRC) Piggery	Irrigation & FC department initiative vaccine & trainings
	EFS-2 Agri - Horticulture	Paddy (Jhum), Potato Colocassia+ chilly+Maize	Quality seeds & training Improve seeds & IPM Quality seeds and training
	EFS-3 Agri – Animal Husbandry - Fishery	Cow fishery	Subsidized loan Quality seeds and training
AES-II	EFS-1 Agri - Animal Husbandry	Paddy (TRC) (Jhum) Colocassia+ chilly+Maize Piggery	Quality seeds and training Support by Vety &AH department
	EFS-2 Hort - Apiculture	Passion fruits & Orange	Quality seeds and training
	EFS-3 Agri - Fishery	Paddy (TRC) fishery	Quality seeds and training

3. Research strategy proposed for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research strategy proposed
AES-I	EFS-1 Agri - Animal Husbandry	Paddy (TRC) Piggery	Intensification from local varieties to quality seeds Crossbreeding

	EFS-2 Agri - Horticulture	Paddy (Jhum), Maize & passion fruits	Intensification from local varieties to quality seeds Trailing system with GI wire
	EFS-3 Agri - Animal Husbandry - Fishery	Paddy (TRC) Potato Cow,Pig, Fishery	Intensification from local varieties to quality seeds Diversification & Organic Market intensification Crossbreeding Provide better quality of fingerlings
	EFS-4 Agri - Others	Paddy & Stone quarry	Intensification from local varieties to quality seeds, Subsidized loan
AES-II	EFS-1 Agri - Animal Husbandry	Paddy (Jhum) Collocassia+ chilly+Maize Piggery	Replace local variety with HYV Proper packages and practices Introduce exotic varieties of pigs
	EFS-2 Hort - Apiculture	Passion fruits Orange Bee keeping/Box	Physical Support Provide better quality of Seedlings Technical support.
	EFS-3 Agri - Fishery	Paddy (TRC) Fishery	Replace local variety with HYV Provide better quality of fingerlings

3. Research Priorities and strategies for Mokokchung

1. Research gaps identified for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research gaps identified
1.	Agri + Hort	Paddy, Tapioca, Maize, Passion fruit, Ginger, Orange, Banana	IPM, INM, HYV, poor implementation of ITK
2.	Agri + AH	Paddy, Tapioca, Maize, Local cross bred	IPM, INM, HYV, poor implementation of ITK ,economic losses due to major disease in Livestock & Poultry, infertility in dairy cattle, low productivity of local animals, lack of information on the nutritive value of locally available fodder
3.	Agri+ Fishery	Paddy, Tapioca, Maize, IMC & exotic carp	IPM, INM, HYV, poor implementation of ITK, Riverine fish for table purpose and lack of technology on propagation, Low adoption of paddy cum fish culture production technology
4.	Agri + Horti + AH + Fishery	Paddy, Tapioca, Maize, Passion fruit, Ginger, Orange, Banana, Local cross bred, IMC & exotic carp, indigenous MAP, silkworm	IPM, INM, HYV, poor implementation of ITK, economic losses due to major disease in Livestock & Poultry and suitable breeds for up gradation of non-descriptive local animals, Riverine fish for table purposes and lack of technology on propagation, Refinement of paddy cum fish culture production technology, non exploitation of indigenous MAP, lack of information on the nutritive value of locally available fodder, non availability of suitable host plant for silkworms

2. Research priorities finalized for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research priorities finalized
1.	Agri + Hort	Paddy, Tapioca, Maize, Passion fruit, Ginger, Orange, Banana	IPM & INM in Paddy, Tapioca, passion fruit and Banana
2.	Agri + AH	Paddy, Tapioca, Maize, Local cross bred	IPM & INM in Paddy and Tapioca, Identification of major diseases in Livestock & Poultry, improvement fertility rate in dairy cattle, locally available fodder
3.	Agri+ Fishery	Paddy, Tapioca, Maize, IMC & exotic carp	IPM & INM in Paddy and Tapioca, identification of Riverine/ ornamental fish, popularization of paddy cum fish culture
4.	Agri + Hort + AH + Fishery	Paddy, Tapioca, Maize, Passion fruit, Ginger, Orange, Banana, Local cross bred, IMC & exotic carp, indigenous MAP, silkworm	IPM & INM in Paddy, Tapioca, passion fruit and Banana, identification of major diseases and management in Livestock & Poultry, identification of Riverine/ ornamental fish , Identification and assessment of indigenous MAP

3. Research strategy proposed for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research strategy proposed
1.	Agri + Hort	Paddy, Tapioca, Maize, Passion fruit, Ginger, Orange, Banana	-Development of suitable varieties resistant to disease and pest - Refinement and assessment of bio agents and bio fertilizers -Development of high yielding local cultivars -Identification of suitable irrigated & Jhum varieties of paddy -Maintenance of germplasm. -Identification, assessment and refinement of ITK on disease, pest & weed management
2.	Agri + AH	Paddy, Tapioca, Maize, Local cross bred	-Development of suitable varieties resistant to diseases and pests - Refinement and assessment of bio agents -Development of high yielding local cultivars -Identification of suitable irrigated & Jhum varieties of paddy -Maintenance of germplasm. -Identification, assessment and refinement of

			ITK on disease, pest & weed management -Increasing the fertility rate in cows (Local as well as upgraded breed) - Identifying suitable breeds for up gradation of non-descriptive local animals -Identification of major disease in Livestock & Poultry - Assessment of nutritive value of locally available fodders
3.	Agri+ Fishery	Paddy, Tapioca, Maize, IMC & exotic carp	-Development of suitable varieties resistant to disease and pest -Development of high yielding local cultivars -Identification and introduction of suitable irrigated & Jhum varieties of paddy and assessment on method of system of rice intensification. -Maintenance of germplasm. -Identification of local techniques on disease, pest & weed management -Identification of Riverine fishes for ornamental purpose -Refinement of paddy cum fish culture production technology
4.	Agri + Hort + AH + Fishery	Paddy, Tapioca, Maize, Passion fruit, Ginger, Orange, Banana, Local cross bred, IMC & exotic carp, indigenous MAP, silkworm	Refinement and assessment of bio agents and bio fertilizers, Assessment of nutritive value of locally available fodders, Refinement of paddy cum fish culture production technology, Identification of indigenous MAP, development of suitable host plant for silkworms

4. Research Priorities and strategies for Phek

1. Research gaps identified for each farming system and crop.

Sl.No	Farming system	Crops under the FS	Research gaps identified
1	Zabo system (Integrated Farming system)	Paddy, Maize Beans, Pea, Cowpea, Arahar, Nagadal, Cabbage Banana, Pear, Peach, Plum, Garlic, Potato, Buffalo, Cattle and Fish	Low yield of paddy under TRC Incompatible crop combination Lack of suitable organic /biological control agent against insect, pest and diseases of cereal crops, pulses, fruits and vegetables Lack of superior varieties of banana, peach, plum, pear at varying altitude. Lack of suitable agro techniques for hybrid passion fruit cultivation. Lack of organic /biological control agent against red ant infestation in potato Poor milk producing ability in local breed of cattle. Unawareness about Physico- Chemical parameters of soil and water for fishponds. Improper Pre stocking measures
2	Agrisilvihorti-pastural	Forest trees like Ficus spp, Bauhinia spp., Legistroma. Fodder grasses like Broom grass, Napier etc. Maize, Millets, Banana, Pear, Peach, Plum, Mithun, Cattle	Lack of high yielding varieties of fodder suitable for hill. Unsystematic plantation of crops. Low yield in banana, peach, plum, pear at varying altitude. Lack of proper curative measure for leech infestation in Mithun. Poor milk producing ability in local breed of cattle Inconsistency in character expression
3	Alder based farming	Maize, Millets, Jobstears, Beans, Cowpea, Pea, Garlic, Potato Banana, Pear, Peach, Plum, Mandarin, Papaya, Large cardamom Tea,	Inconsistent performance of locally available maize germplasm Low yield of millets Lack of organic /biological control agent against red ant infestation in potato High mortality in Large cardamom plants before onset of monsoon Lack of organic pesticides for insect pest and disease management. Lack of disease resistant varieties of large cardamom Lack of suitable agro techniques for Tea cultivation on temperate hills.

4	Jhum	Jhoom Paddy, Maize, Banana, Papaya, Beans, Cowpea, Pea, Garlic, Potato, Cabbage	Lack of suitable organic /biological control agent against insect, pest and diseases of cereal crops, pulses, fruits and vegetables Poor yield in papaya Low yield in banana Low yield of cereals, pulses and vegetables.
5	Pani-kheti System	Paddy, Pea, Summer vegetables, Fish	Low yield of paddy under TRC High mortality of fingerlings Unawareness about Physico- Chemical parameters of soil and water of fishponds. Improper Pre stocking measures

2. Research priorities finalized for each farming system and crop.

Sl.No	Farming system	Crops under the FS	Research priority finalized
1	Zabo system (Integrated Farming system)	Paddy, Maize Beans, Pea, Cowpea, Arahar, Nagadal, Cabbage Banana, Pear, Peach, Plum, Garlic, Potato, Buffalo, Cattle and Fish	Identification of suitable variety of paddy under TRC Testing of best suited crop combination among the crops cultivated under this system or any other suitable crop. Identification/development of suitable organic amendments and biological agents to control diseases and pests. Screening of better varieties of banana, peach, plum, pear at varying altitude. Screening, selection and developing breeding strategy to up grade local breed of cattle. Developing suitable technology for proper Pre stocking management of fingerlings.
2	Agrisilvihorti-pastural	Forest trees like Ficus spp, Bauhinia spp., Legistroma. Fodder grasses like Broom grass, Napier etc. Maize, Millets, Banana, Pear, Peach, Plum, Mithun, Cattle	Screening of high yielding varieties of fodder suitable for hills. Developing multistoried cropping system model Screening of banana, peach, plum, pear varieties suitable for varying altitude. Identification/development of suitable amendments against leech infestation in Mithun. Screening, selection and developing breeding strategy to up grade local breed of cattle. Screening, selection and developing breeding strategy for Mithun.
3	Alder based	Maize, Millets,	Screening locally available maize germplasm and

	farming	Jobstears, Beans, Cowpea, Pea, Garlic, Potato Banana, Pear, Peach, Plum, Mandarin, Papaya, Large cardamom Tea,	developing suitable variety using local germplasm Screening of high yielding/hybrid varieties of millets Identification/development of suitable organic amendments and biological agents to control of red ant Varietal screening and/or finding out suitable, biological/botanicals/organic amendments to check mortality in large cardamom Standardizing appropriate agro- techniques for Tea cultivation on temperate hills.
4	Jhum	Jhoom Paddy, Maize, Banana, Papaya, Beans, Cowpea, Pea, Garlic, Potato, Cabbage	Identification/development of suitable organic amendments and biological agents to control diseases and pests of cereal crops, pulses, fruits and vegetables Screening of suitable varieties of papaya for temperate hills. Screening of banana varieties suitable for temperate hills.
5	Pani-kheti System	Paddy, Pea, Summer vegetables, Fish	Identification of suitable variety of paddy under TRC. Developing suitable technology for proper Pre stocking management of fingerlings under panikheti farming system

3. Research strategy proposed for each farming system and crop

Sl.No	Farming system	Crops under the FS	Research strategy proposed
1	Zabo system (Integrated Farming system)	Paddy, Maize Beans, Pea, Cowpea, Arahar, Nagadal, Cabbage Banana, Pear, Peach, Plum, Garlic, Potato, Buffalo, Cattle and Fish	Development of suitable varieties of paddy Conducting trial to screen suitable crop combination. Screening of botanicals and biological agents suitable to control diseases and pests of fruits and vegetables. Screening of better varieties of banana, peach, plum, pear at varying altitude. Screening, selection and developing breeding strategy to up grade local breed of cattle. Testing of proper Pre stocking density of fingerlings under temperate hills.
2	Agrisilvihorti-pastural	Forest trees like Ficus spp,	Testing of suitable fodder crops for hills. Developing multistoried cropping system model

		Bauhinia spp., Legistroma. Fodder grasses like Broom grass, Napier etc. Maize, Millets, Banana, Pear, Peach, Plum, Mithun, Cattle	Evaluation of suitable varieties of banana, peach, plum, pear. Finding out suitable botanicals/chemicals to control leech infestation in Mithun. Screening, selection and developing breeding strategy to up grade local breed of cattle. Screening, selection and developing breeding strategy for Mithun.
3	Alder based farming	Maize, Millets, Jobstears, Beans, Cowpea, Pea, Garlic, Potato Banana, Pear, Peach, Plum, Mandarin, Papaya, Large cardamom Tea,	Developing suitable variety of maize for temperate hills using local germplasm Testing of high yielding/hybrid varieties of millets Screening of botanicals and biological agents suitable to control red ant infestation in potato. Varietal screening of Large cardamom to find out disease resistant germplasm. Finding out suitable biological/botanicals/ organic amendments to control mortality in large cardamom Standardizing appropriate agro- techniques for Tea cultivation on temperate hills.
4	Jhum	Jhoom Paddy, Maize, Banana, Papaya, Beans, Cowpea, Pea, Garlic, Potato, Cabbage	Identification/development of suitable organic amendments and biological agents to control diseases and pests of cereal crops, pulses, fruits and vegetables Screening of suitable varieties of papaya for temperate hills. Screening of banana varieties suitable for temperate hills.
5	Pani-kheti System	Paddy, Pea, Summer vegetables, Fish	Identification of suitable variety of paddy under TRC. Developing suitable technology for proper Pre stocking management of fingerlings under panikheti farming system

5. Research Priorities and strategies for Tuensang

1. Research gaps identified for each Farming System and crop:

Sl.No	Farming System	Crop Under the FS	Research Gaps Identified
1	Agri + Hort	Cereals, Potato, Veg., Garlic, Chillies, Rajmah/ Beans, Mustard, Ginger, Groundnut, Colocasia, Topioca, Banana, Mango, Guava, Pears, Passion fruit, Peach, Pine apple, Apple etc.	Technology Assessment, Refinement through On Farm Trials/On Station Trials/ On Location Specific Trials on the Gaps/ constraints identified: 1. Cultivation Systems 2. Resources management. 3. Pests, diseases, Weeds and Nutrient/soil Management/soil conservation. 4. Location specific Improved Inputs/ Seeds etc. 5. Cropping System. 6. Production Technology for rops. 7. Seed Production &Post harvest 8. Packages of practices/ technology for better production. 9. Agricultural Tools and implements for hill agriculture 10. Livestock's production. 11. Improved breed/Exotic breeds. 12. Stocking density. 13. Farming System.
2	Agri + Hort + A.H	Cereals, Potato, Veg., Cole-crops, Rajmah / Beans, Soyabean, Rice bean, Ginger, Soyabean, Groundnut, Mustard, Pea, Colocasia,Topioca, Banana, Apple, Plum, Guava, Mango, Passion fruit, Peach, Poultry, Goatry, Diary, Piggery (mainly Indigenous & Mix breeds) etc.	
3	Agri + Hort + A.H + Fishery	Cereals, potato, W. Veg., Garlic, Chillies, Rajmah/Beans, Ginger, Soyabean, Groundnut, Mustard, Pea, Colocasia, Tapioca, Banana, Mango, Guava, Pears, Passion Fruit, Peach, Pine apple etc, Poultry, Goatry, Diary, Piggery (mainly Indigenous & Mix breeds) and Fishery.	
4	Agri + Hort + A.H + Sericulture	Cereals, Potato, Winter veg., Garlic, Chillies, Rajmah/ Beans, Ginger, Groundnut, Colocasia Tapioca, Banana, Mango, Guava, Pears, Passion fruit, Peach, Pine apple, Poultry, Goatry, Diary, Piggery (mainly Indigenous & Mix breeds) and Sericulture (Iri & Muga)	

2. Research priorities finalized for each farming system and crop.

Sl.No	Farming System	Crop Under the FS	Research Priorities finalized
1	Agri + Hort	Cereals, Potato, Veg., Garlic, Chillies, Rajmah/ Beans, Mustard, Ginger, Groundnut, Colocasia, Topioca, Banana, Mango, Guava, Pears, Passion fruit, Peach, Pine apple, Apple etc.	1. Cultivation Systems 2. Resources management. 3. Pests, diseases, Weeds and Nutrient/soil Management/soil conservation. 4. Location specific Improved Inputs/ Seeds etc. 5. Cropping System. 6. Production Technology for crops. 7. Seed Production &Post harvest 8. Packages of practices/ technology for better production. 9. Agricultural Tools and implements for hill agriculture 10. Livestock's production. 11. Improved breed/Exotic breeds. 12. Stocking density. 13. Farming System.
2	Agri + Hort + A.H	Cereals, Potato, Veg., Cole-crops, Rajmah / Beans, Soyabean, Rice bean, Ginger, Groundnut, Mustard, Pea, Colocasia, Topioca, Banana, Apple, Plum, Guava, Mango, Fruit, Peach, Poultry, Goatry, Diary, Piggry (mainly Indigenious & Mix breeds) etc.	
3	Agri + Hort + A.H + Fishery	Cereals,potato,With veg.,garlic,chillies, Rajmah/beans, Ginger, Soyabean, Groundnut, Mustard, Pea, Colocasia, Tapioca, Banana, Mango, guava, pears, p.fruit, peach, p.apple etc, Poultry, goatry, diary,piggry (mainly Indigenious & Mix breeds) and fishery.	
4	Agri + Hort + A.H + Sericulture	Cereals,potato, W.veg., Garlic, Chillies, Rajmah/Beans, Ginger, Groundnut, Colocasia Tapioca, Banana, Mango, Guava, Pears, Peach, Pineapple, Poultry, Goatry, Diary, Piggry (mainly Indigenious & Mix breeds) and Sericulture (Iri & Muga)	

3. Research strategy proposed for each farming system and crop.

Sl.No	Farming System	Crop Under the FS	Research strategy Proposed
1	Agri + Hort	Cereals, Potato, Veg., Garlic, Chillies, Rajmah/ Beans, Mustard, Ginger, Groundnut, Colocasia, Topioca, Banana, Mango, Guava, Pears, Passion Fruit, Peach, Pineapple, Apple etc.	To increase the Production and Productivity (Production technologies). Identification of location specific improved varieties/Breeds etc. Development of suitable agro techniques. To reduce post- harvest
	Agri + Hort + A.H	Cereals, Potato, Ceg., Cole-crops, Rajmah / Beans,	

		Soyabean, Rice bean, Ginger, Groundnut, Mustard, Pea, Colocasia,Topioca, Banana, Apple, Plum, Guava, Mango, Passion fruit, Peach, Poultry, Goatry, Diary, Piggery (mainly Indigenous & Mix breeds) etc.	losses Identification of suitable breeds for up gradation of non-descript local animals. Identification and determining the nutritive value of locally available fodders crops. Development of suitable hybrids for host plant and silk-worms. To standardize the cropping system of Maize and Kholar. Soil Analysis and classification.
3	Agri + Hort + A.H + Fishery	Cereals, Potato, Winter.veg., Garlic, Chillies, Rajmah/Beans, Ginger, Soyabean, Groundnut, Mustard, Pea, Colocasia, Tapioca, Banana, Mango, Guava, Pears, Passion fruit, Peach, Pine apple etc, Poultry, Goatry, Diary, Piggery (mainly Indigenous & Mix breeds) and Fishery.	
4	Agri + Hort + A.H + Sericulture	Cereals, Potato, Winter. Veg., Garlic, Chillies, Rajmah/ Beans, Ginger, Groundnut, Colocasia Tapioca, Banana, Mango, Guava, Pears, Passion fruit, Peach, Pineapple, Poultry, Goatry, Diary, Piggery (mainly Indigenous & Mix breeds) and Sericulture (Iri & Muga)	

6. Research Priorities and strategies for Wokha

1. Research gaps identified for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research gaps identified
1	Agriculture	Rice, Maize	Low production in Jhum Soil Declining Health Severe deforestation leading to land degradation Lack of quality planting materials of important Agri-Horti Crops Low Productive performance of indigenous livestock and poultry Insect-pest incidence in important Agri-Horti Crops Lack of farm Mechanization Lack of Awareness for improved Agri. and allied activities
2	Agri + Hort	Rice, Maize, Sugarcane, Passion fruit	
3	Agri + Fishery	Rice, Maize, Common carp, Grass carp etc…	
4	Agri + Hort + Fishery	Rice, Maize, Banana, Jackfruit, Pineapple, Common carp, Grass carp etc…	
5	Agri + Horti + Animal Husbandary	Rice, Maize, Banana, Jackfruit, Pineapple, Pig, Poultry, Cattle etc…	
6	Agri + Animal Husbandary	Rice, Maize, Pig, Poultry, Cattle	

2. Research priorities finalized for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research priorities finalised
1	Agriculture	Rice, Maize	Jhum Improvement for sustained Production in Wokha district Identification and validation of promising indigenous farming systems of Wokha district Improvement of productive performance in pig and poultry birds Post harvest processing and value addition in important agri-horti commodities Farm mechanization to reduce drudgery in hill agriculture
2	Agri + Hort	Rice, Maize, Sugarcane, Passion fruit	
3	Agri + Fishery	Rice, Maize, Common Carp, Grass carp etc…	
4	Agri + Hort + Fishery	Rice, Maize, Banana, Jackfruit, Pineapple, Common carp, Grass carp etc…	
5	Agri + Hort + Animal Husbandary	Rice, Maize, banana, Jackfruit, Pineapple, Pig, Poultry, Cattle etc…	
6	Agri + Animal Husbandary	Rice, Maize, Pig, Poultry, Cattle	

3. Research strategy proposed for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research strategy proposed
1	Agriculture	Rice, Maize	Trials on HYV crop varieties Trials on improved breeds of livestock and poultry birds Trials on resistant crop variety Integrated Nutrient management Trials on water harvesting structures Trials on fish production in paddy cum fish culture Trials on post harvest management of horticultural crops Trials on value addition of different Agri and Horti crops
2	Agri + Hort	Rice, Maize, Sugarcane, Passion fruit	
3	Agri + Fishery	Rice, Maize, Common Carp, Grass carp etc…	
4	Agri + Hort + Fishery	Rice, Maize, Banana, Jackfruit, Pineapple, Common carp, Grass carp etc…	
5	Agri + Hort + Animal Husbandry	Rice, Maize, Banana, Jackfruit, Pineapple, Pig, Poultry, Cattle etc…	
6	Agri + Animal Husbandry	Rice, Maize, Pig, Poultry, Cattle	

7. Research Priorities and strategies for Zunheboto

1. Research gaps identified for each Farming system and crop

Sl.No.	Farming system	Crop under the FS	Research gaps identified
1	FS- I	Rice, Soybean & Maize	Lack of HYV seeds and breeds, Lack of improved technology & Lack of lab to land technology
2	FS- II	Rice, Maize	Lack of HYV seeds and breeds, Lack of improved technology & Lack of lab to land technology
3	FS- III	Rice, Maize & Kholar	Lack of HYV seeds and breeds, Lack of improved technology & Lack of lab to land technology

2. Research priorities finalized for each Farming system and crop

Sl.No.	Farming system	Crop under the FS	Research priorities finalized
1	FS- I	Rice, Soybean & Maize	Introduction of HYV seeds and breeds, introduction of improved technology & introduction of lab to land technology
2	FS- II	Rice, Maize	Introduction of HYV seeds and breeds, introduction of improved technology & introduction of lab to land technology
3	FS- III	Rice, Maize & Kholar	Introduction of HYV seeds and breeds, introduction of improved technology & introduction of lab to land technology

3. Research strategy proposed for each Farming system and crop

Sl.No.	Farming system	Crop under the FS	Research strategy proposed
1	FS- I	Rice, Soybean & Maize	OFT, FLD, Result demonstration & comparative study
2	FS- II	Rice, Maize	OFT, FLD, Result demonstration & comparative study
3	FS- III	Rice, Maize & Kholar	OFT, FLD, Result demonstration & comparative study

4. Research gaps identified for each Farming system and crop

Sl.No.	Farming system	Crop under the FS	Research gaps identified
1	FS- I	Rice, Soybean & Maize	Lack of HYV seeds and breeds, Lack of improved technology & Lack of lab to land technology
2	FS- II	Rice, Maize	Lack of HYV seeds and breeds, Lack of improved technology & Lack of lab to land technology
3	FS- III	Rice, Maize & Kholar	Lack of HYV seeds and breeds, Lack of improved technology & Lack of lab to land technology

5. Research priorities finalized for each Farming system and crop

Sl.No.	Farming system	Crop under the FS	Research priorities finalized
1	FS- I	Rice, Soybean & Maize	Introduction of HYV seeds and breeds, introduction of improved technology & introduction of lab to land technology
2	FS- II	Rice, Maize	Introduction of HYV seeds and breeds, introduction of improved technology & introduction of lab to land technology
3	FS- III	Rice, Maize & Kholar	Introduction of HYV seeds and breeds, introduction of improved technology & introduction of lab to land technology

6. Research strategy proposed for each Farming system and crop

Sl.No.	Farming system	Crop under the FS	Research strategy proposed
1	FS- I	Rice, Soybean & Maize	OFT, FLD, Result demonstration & comparative study
2	FS- II	Rice, Maize	OFT, FLD, Result demonstration & comparative study
3	FS- III	Rice, Maize & Kholar	OFT, FLD, Result demonstration & comparative study

5.7 Research Priorities and Strategies for Sikkim

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1. Research Priorities and strategies for North Sikkim

Sl. No.	Farming System	Crops under the FS	Research gaps identified
1.	Agriculture+ Horticulture + Animal Husbandry	Maize, Paddy, Wheat, Soybean, Orange, Cardamom.	- Old Variety dependence - Low seed replacement - Imbalance fertilizer Management - Severe Pest Infestation - Lack of proper orchard management, pest and disease problem and poor planting material. - Non use of micro-nutrients, pest and disease problems. - Lack of proper planting material

2. Research priorities finalized for each farming system and crop:

Sl. No.	Farming System	Crops under the FS	Research priorities finalized
1.	Agriculture+ Horticulture + Animal Husbandry	Maize, Paddy, Wheat, Soybean, Orange, Cardamom.	- Seed treatment, balance use of organic fertilizers, IPM and IDM. - Scientific crop production & resource conservation. - Seed Production, IPM and Varietal Evaluation. - Disease and pest management. - Proper IPM and INM packages with proper planting material.

3. Research strategy proposed for each farming system and crop:

Sl. No.	Farming System	Crops under the FS	Research strategy proposed
1.	Agriculture+ Horticulture + Animal Husbandry	Maize, Paddy, Wheat, Soybean, Orange, Cardamom.	As above

2. Research Priorities and strategies for West Sikkim

Proposed Research Strategies

There are many available technologies available but the feasibility of the technology at the farmer's field is questionable. The research strategies should be to refine and validate the recommended technology at the farmer's field. The Research strategies proposed for agriculture technology refinement, Validation and assessment by conducting Validation trial, On farm trials and front line demonstrations at farmers field for adoption and its fine tuning for final adoption by farmers with existing agro-eco situations to make it more situation specific.

Research strategies are to be carried out as on station research and on farm research depending upon the research priorities of the issues identified in the SREP of the district. The research issues are to be tackled by the KVK scientist as per the research need, requirement and infrastructure. Proposed Research Strategies and related activities are given below.

SUMMARY

A. Farmers participatory on farm research (Short term)

SN	Participatory research issues	Relevent to different AES		
		AES-I	AES-II	AES-III
1	Development of standards package of practices for organic production of food grain crops and horticulture crop	Y	Y	Y
2	Development of the technology for the quality planting material in cardamom	Y	Y	-
3	Refinement of existing package of practices for paddy to make it more specific to local situations	-	Y	Y
4	Refinement of existing package of practices for maize to make it more specific to local situations	Y	Y	Y
5	Undertaking refinement of package of practices for control of stem borer in rice	-	Y	Y
6	Refinement of technology for Pest and disease management in cardamom	Y	Y	-
7	Refinement of technology for Pest and disease management in Sikkim Mandarin	-	Y	Y
8	Refinement of technology for Pest and disease management in Ginzer	-	Y	Y
9	To undertake validation and refinement of research technology for local specific mineral mixture of milch animals.	Y	Y	Y
10	Validation and refinement of balance feeding of milch animals.	Y	Y	Y
11	Undertaking refinement and assessment of research technology for heat detection.	Y	Y	Y
12	Refinement of dewormers	Y	Y	Y

13	Development of sound marketing system and milk processing units for marketing of milk and milk products	Y	Y	Y
14	To undertake validation of research technology for newly introduced crops like brocollii, strawbery	Y	Y	Y
15	Evaluation of Plant extract for control of Pest and Diseases	Y	Y	Y
16	Refinement on ITK	Y	Y	Y
17	Improvise the production technology of Cymbidium and lilium	Y	-	-
18	Validation of EM technology in nutrient, pest and management technology	Y	Y	Y
19	Standarizarion of vermicompost and EM compost for important crops	Y	Y	Y

Detail of research stratagies

SN	Identified Problems/Issues	Proposed Research Strategies	Proposed Research Activities
1	Lack of standardized recommended package of practices for organic production of food grain crops	Development of standards package of practices for organic production of food grain crops	OFT/FLD by KVK.
2	No authentic control of Ginger Rhizome rot and Bacterial wilt control	Validation of Ginger Rhizome rot and Bacterial wilt control	Conducting OFT/FLD and farmers-Scientist Interaction by KVK.
3	Non refinement of technological package for Organic nutrient management in rice, wheat and Maize	Developing improved and refined technological package for organic nutrient management in rice, wheat and Maize	Conducting OFT and farmers-Scientist Interaction by KVK.
4	Non-Refinement of technology for Pest and disease management in cardamom	Refinement of technology for Pest and disease management in cardamom and Sikkim mandarin	OFT and on station trial by KVK
5	Non refinement of existing package of practices for paddy to make it more specific to local situations	Refinement of existing package of practices for paddy to make it more specific to local situations	Organizing FLD/OFT and farmers-Scientist Interaction by KVK

6	Lack of improved technology for production of disease free planting material in cardamom and Sikkim mandarin	Developing improved technique for disease free planting material production in cardamom and Sikkim mandarin	Organizing FLD/OFT
7	Non refinement of package of practices for control of stem borer in rice	Undertaking refinement of package of practices for control of stem borer in rice	Organizing FLDs and Validation trials by KVK
8	No refinement of local specific mineral mixture for milch animal	To undertake validation and refinement of research technology for local specific mineral mixture for milch animal	Organizing OFT and farmers-Scientist Interaction by KVK and AH dept.
9	Repeat breeding due to no refinement of balance feeding for milch animals	Validation and refinement of balance feeding for milch animals	Conducting OFT/FLD and farmers-Scientist Interaction by KVK and AH Dept.
10	Anoustrous in dairy animals due to unrefinement of oastrous cycle research	Undertaking refinement and assessment of research technology for heat detection.	Conducting OFT,FLDs and farmers-Scientist Interaction by KVK.
11	No promotion of backyard poultry system	Refinement of backyard poultry system	Developing backyard poultry model and conducting FLD/OFT by KVK & AH Dept.
12	High mortality in calves due to unrefinement of dewormers	Refinement of dewormers	OFT/FLD, Animal camp and farmers-Scientist Interaction by KVK & AH Dept.
13	Lack of sound marketing system and milk processing units for marketing of milk and milk products	Development of sound marketing system and milk processing units for marketing of milk and milk products	Farmers-Scientist Interaction and establishment of milk processing model by KVK or AH Department
14	No research technology available for fertigation schedule of vegetable cultivation in poly houses	To undertake validation of research technology for fertigation schedule of	Undertaing research programme for validation and Farmers-Scientist Interaction by SAU/KVK

		vegetable cultivation in poly houses	
15	No assessment of sowing time of different vegetable at altitudinal gradient for offseason production	Validation of Sowing time of vegetable at different AES for off season production	OFT for validation and Farmers-Scientist Interaction by KVK
16	No refinement of nutritional kitchen gardening technology for improving health status.	To undertake refinement on kitchen garden models for improving health status.	Organizing OFT/FLD by KVK.
17	No standardization of precision farming package for different field and fruit crops	To standardization of precision farming package for different field and fruit crops	Conducting On farm testing by KVK
18	No availability of economic viable integrated farming module	Developing and assessment of economic viable integrated farming module	OFT on development of economic viable integrated farming module and farmers-scientist interaction by KVK
19	Non-Validation of EM technology in nutrient, pest and management technology	Validation of EM technology in nutrient, pest and management technology	OFT and FLD by KVK
20	Non-Standarizarion of vermicompost and EM compost for important crops	Standarizarion of vermicompost and EM compost for important crops	OFT &FLD by KVK
21	Selection of suitable AES is vague for cultivation of pear, peach, plum	Validation on feasibility of growing Peach, plum and pear at altitudinal difference	OFT by KVK

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5.8 Research Priorities and Strategies for Tripura

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1. Research Priorities and strategies for West Tripura

1. Research gaps identified for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research gaps identified
1	Agri – Hort – Pisci - Livestock	Paddy, summer & winter vegetables, oilseeds, pulses, Indian major & minor carps, poultry birds, milch cattle, goat, pig duck etc.	Lack of suitable HYV and improved breeds for this region, Absence of Super intensive fish farming followed by unavailability of improved quality planting materials.
2	Hort - Agri-Livestock	Paddy, summer & winter vegetables, oilseeds, pulses, poultry birds,	Lack of suitable HYV and improved breeds for this region, Unavailability of improved quality planting materials
3	Agriculture	Paddy (2 crops)	Lack of short duration HYV and better crop management practices
4	Livestock	Poultry birds and pig	Lack of improved breeds, low cross breeding programme, locally available feed ingredients are not explored
5	Hort – Pisci - Agri	Paddy, summer & winter vegetables, Indian major & minor carps	Lack of suitable HYV and improved breeds for this region, absence of super intensive fish farming followed by unavailability of improved quality planting materials
6	Livestock - Agri-Hort	Pig, goat, poultry birds, paddy, mustard, maize, colocasia, banana, pine apple	Lack of suitable HYV and improved breeds for this region and unavailability improved quality planting materials
7	Agri – Hort – Silvi - Pastoral-Livestock	Rubber, pineapple, banana, teak, karoi, bamboo, citrus	Lack of suitable HYV and improved breeds for this region, lack of scientific models for shifting cultivation, less number of programmes for identification and domestication of wild aromatic and medicinal plants, pasture development and management
8	Plantation based (Rubber)	Rubber and tea	Lack of scientific models for shifting cultivation, less number of programmes for identification and domestication of wild aromatic and medicinal plants.

9	Plantation – Pisci - Livestock	Rubber, pig, poultry bird.	Lack of suitable HYV and improved breeds for this region, lack of scientific models for shifting cultivation, less number of programmes for pasture development and management, absence super intensive fish farming,
10	Horticulture based	Summer and winter vegetables	Lack of suitable planting materials, lack of low volume high value off-season crop variety,

2. Research priorities finalized for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research priorities finalised
1	Agri – Hort – Pisci - Livestock	Paddy, summer & winter vegetables, oilseeds, pulses, Indian major & minor carps, poultry birds, milch cattle, goat, pig duck etc.	(a). Importance on traditional practices in formulation of need based improved technologies for specific FS. (b). Scientific evaluation of ITK with respect to social beliefs and values. (c). Development of farm machineries for small and marginal land holdings. (d). Cross breeding programme to upgrade and update the traditional breeds. (e). Establishment of feed mixing plants to utilize and/or explore locally available ingredients.
2	Hort – Agri - Livestock	Paddy, summer & winter vegetables, oilseeds, pulses, poultry birds,	
3	Agriculture based	Paddy (2 crops)	
4	Livestock based	Poultry birds and pig	
5	Hort – Pisci - Agri	Paddy, summer & winter vegetables, Indian major & minor carps	
6	Livestock – Agri – Hort	Pig, goat, poultry birds, paddy, mustard, maize, colocasia, banana, pine apple	
7	Agri – Hort – Silvi – Pastoral - Livestock	Rubber, pineapple, banana, teak, karoi, bamboo, citrus	
8	Plantation based (Rubber)	Rubber and tea	
9	Plantation – Pisci - Livestock	Rubber, pig, poultry bird.	
10	Horticulture based	Summer and winter vegetables	

3. Research strategy proposed for each farming system and crop

Sl. No	Farming system	Crops under the FS	Research strategy proposed
1	Agri – Hort – Pisci - Livestock	Paddy, summer & winter vegetables, oilseeds, pulses, Indian major & minor carps, poultry birds, milch cattle, goat, pig duck etc.	(a).Importance of traditional practices for development of new technologies.

2	Hort – Agri - Livestock	Paddy, summer & winter vegetables, oilseeds, pulses, poultry birds,	(b).Scientific evaluation of ITKs for better farm management. (c).Modernization of specific tool with respect to different FS to increase the productivity
3	Agriculture based	Paddy (2 crops)	
4	Livestock based	Poultry birds and pig	
5	Horti – Pisci - Agri	Paddy, summer & winter vegetables, Indian major & minor carps	
6	Livestock – Agri - Hort	Pig, goat, poultry birds, paddy, mustard, maize, colocasia, banana, pine apple	
7	Agri – Hort – Silvi–Pastoral-Livestock	Rubber, pineapple, banana, teak, karoi, bamboo, citrus	
8	Plantation based Rubber)	Rubber and tea	
9	Plantation - Pisci-Livestock based	Rubber, pig, poultry bird.	
10	Horticulture based	Summer and winter vegetables	

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