

Landscape Crop Assessment Survey (LCAS): Baseline of KERA – Catalyzing transitions to low-emission rice-based systems in Kerala

Informed Consent:

Greetings!!! My name is _____, and we are students from the Kerala Agricultural University. We are conducting the baseline assessment of crops and landscapes for the project "KERA – Catalyzing transitions to low-emission rice-based systems in Kerala" program of Government of Kerala in collaboration with Kerala Agricultural University and International Rice Research Institute IRRI). Thank you for taking time out of your busy schedule to sit with us today. Your participation will help us understand your current cultivation practices and opportunities for improvements in different aspects of cultivation.

This survey may take about 45 minutes. Your participation in the survey is voluntary. There are no direct benefits to you by participating in the survey; neither will there be any penalty/risk imposed if you do not want to participate. However, the insights that we gain from your participation will help us understand the program outcome/ impact and plan it better (if any).

There are no right or wrong answers to the questions asked during the survey. Your viewpoint will be valuable in the survey. Your identity and all the information you provide will be kept confidential, and these will be used for project purposes only.

You are free to ask me any questions now or later regarding this survey. I'll begin the survey only with your permission. May I have your consent?

Yes -----1 (BEGIN THE SURVEY)

No -----2 (TERMINATE)

Identifier information

1.	State	1= Kerala			
2.	District	1= Thrissur 2= Palakkad			
3.	Block	Thrissur		Palakkad	
		1	Anthikkad	7	Alathur
		2	Cherpu	8	Kollengode
		3	Irinjalakuda	9	Kuzhalmannam
		4	Mullasery	10	Malampuzha

		5	Puzhakkal	11	Nenmara	
		6	Vellangallur	12	Palakkad	
4.	Panchayath	Listed in CSPro 1-25 Panchayat belongs to Thrissur District 26-28 belongs to Palakkad District				
5.	Household ID <i>Example: ID PS1H1 represents Padasekharam number 1 and household number 1.</i> <i>Total Padasekharam in the study area is 310 (PS1 to PS310)</i> <i>Six households covered each Padasekharam (H1 to H6)</i>	Household list will be given to enumerators				
6.	Household ID (re-enter)	Household list will be given to enumerators				

Basic information

1.	Consent to participate in the survey?	1= Yes 2= No
2.	Name of Padasekharam	
3.	Location of the plot (distance to field canal) (in meter)	
4.	Name of the respondent <i>(Interview the main decision-maker of the agricultural activities of the household. In the absence of the main decision-maker, the most knowledgeable person in the household (about agricultural activities) can be replaced as the respondent.</i>	
5.	Name of spouse (husband/wife)	
6.	Gender of the household head?	1= Male 2= Female 3= Others

7.	Contact number (<i>10 digit mobile number</i>)	
8.	Date of interview (<i>DD-MM-YYYY</i>)	
9.	Time of starting of interview	
10.	Name of the interviewer	

Section-A: Respondent information

1.	What is your age? (<i>In completed years</i>)	_____
2.	Gender	1= Male 2= Female 3= Others
3.	What is your highest level of education?	1= Not able to read/write 2= Literate but Not Formally Educated 3= Primary School (class 1 - 5) 4= Middle School (class 6 - 8) 5= Secondary School (class 9 - 10) 6= Higher Secondary/ Vocational Higher Secondary (class 11 – 12) 7= Diploma/Certificate (after class 10) 8= Diploma/Certificate (after class 12) 9= Graduate 10= Postgraduate 11= Others
4.	What is your marital status?	1= Single 2= Married 3= Divorced 4= Separated 5= Widowed
5.	For how many years have you been engaged in farming? (<i>In years</i>)	
6.	What is your social category? <i>(Reason: This provides an understanding of the program reaching the marginalized)</i>	1= General 2= OBC 3= SC 4= ST 5= Others

		6= Not willing to disclose
7.	Religion	1= Hindu 2= Christian 3= Muslim 4= Others 5= Not willing to disclose
8.	Do you have a ration card?	1= Yes 2= No
9.	If yes to (8), which type of ration card do you have?	1= Yellow Card (Antyodaya Anna Yojana) 2= Pink Card (Priority Household) 3= Blue Card (Non-priority (Subsidy) Household) 4= White Card (Non-priority (Non-subsidy) Household) 5= Can't remember

Section-B: Household information

	Members (in number)	Male	Female	Others
1.	How many people live in the household? <i>(Households are to be defined as per ration card rostering or number of kitchens, members who live at least 6 months in a year to be considered; the household members currently employed in military/ paramilitary services will be recorded with their household)</i>			
2.	How many adults live in the household (18 years & above)?			
3.	How many children live in the household? (under 5 years)?			
4.	Number of erstwhile members of this household who have migrated outside the state (within India) (study/work) (out for more than 6 months)			
5.	Number of erstwhile members of this household who have migrated outside the country (study/work) (out for more than 6 months)			
6.	What are the different sources of income and their share in the		Is it applicable?	If applicable,

	<p>total annual income for your household?</p> <p><i>(For the interviewer: Interviewer to first select the sources of income and then capture the proportion of contribution to total annual income for each)</i></p>		(1=Yes; 2=No)	what is the share (%) in the total household income?
		Agriculture / Livestock/ Fisheries		
		Non-agriculture labor		
		Agricultural labour		
		Business/Entrepreneur		
		Government service		
		Private sector employment		
		Remittance		
		Pension/ allowances		
		Other (please specify)		
7.	What is your annual household income? <i>(in Indian Rupees)</i>	1= Less than ₹50,000 2= ₹50,000-₹1,00,000 3= ₹1,00,001-₹2,50,000 4= ₹2,50,001-₹5,00,000 5= ₹5,00,001-₹10,00,000 6= ₹10,00,001-₹15,00,000 7= ₹15,00,001-₹20,00,000 8= More than ₹20,00,000		
8.	<p>How much is the household's monthly expenses?</p> <p>Includes: food, health, education, rent, fuel, transportation, electricity, water, clothes, recreation and other amenities</p> <p>Excludes: loan repayment, EMI</p>	1= Less than ₹5,000 2= ₹5,000-₹10,000 3= ₹10,001-₹25,000 4= ₹25,001-₹50,000 5= More than ₹50,000		
9.	Does any member of the household currently have any outstanding loan(s) from a formal or informal source?	1= Yes 2= No		

10.	If yes to (9), what is the source of borrowing for the largest currently outstanding loan?	1= Commercial Bank 2= Cooperative Banks 3= Micro finance institution 4 =Money Lender 5 =Private Financiers 6 = Chit Funds 7 =Friend/Relative 8 =Community Credit Group 9 =Self-Help Groups (SHGs) 10 =Input Dealer 11 =Trader/ Buyer/commission agents 12 =Shopkeeper 13 =Others 14= Don't know/ remember
11.	If yes to (9), what is the purpose of availing loan	1= Agriculture 2= Non-agriculture
12.	If yes to (9), what is the interest rate for your largest current outstanding loan? (in % per year)	

Section-C: Farmland details

1.	What is the Local Land Unit (LLU) name used by you for agricultural land?	1= Acre 2= Cent 3= Hectare 4= Para 5= Others (please specify)
2.	How many LLU is equal to One acre?	
3.	Do you / your family own agricultural land?	1= Yes 2= No
4.	If yes, what is the total land area in LLU?	
5.	Do you / your family leased in land?	1= Yes 2= No
6.	If yes, what is the total leased in land area in LLU?	
7.	Do you / your family leased out land?	1= Yes 2= No
8.	If yes, what is the total leased out land area in LLU?	

9.	Have you kept any of your agricultural land fallow or barren (all seasons)?		1= Yes 2= No												
10.	Please list the crops that you cultivated in the last one year?		<table border="1"> <tr><td>Crop name</td><td>Area in LLU</td></tr> <tr><td>Rice</td><td></td></tr> <tr><td>Vegetables</td><td></td></tr> <tr><td>Coconut</td><td></td></tr> <tr><td>Plantations/orchard</td><td></td></tr> <tr><td>Others (if any)</td><td></td></tr> </table>	Crop name	Area in LLU	Rice		Vegetables		Coconut		Plantations/orchard		Others (if any)	
Crop name	Area in LLU														
Rice															
Vegetables															
Coconut															
Plantations/orchard															
Others (if any)															
11.	How much total land did you cultivate (own + leased in) rice? [Please record this information padasekharam wise if the farmer has rice areas in more than one padasekharam]														
	<table border="1"> <tr><th>Name of Padasekharam</th><th colspan="2">Total rice area (in LLU)</th></tr> <tr><td></td><td>Mundakan 2023-24</td><td>Puncha 2024 (Kole Land) / Virippu 2024 (Palakkad)</td></tr> <tr><td></td><td></td><td></td></tr> </table>		Name of Padasekharam	Total rice area (in LLU)			Mundakan 2023-24	Puncha 2024 (Kole Land) / Virippu 2024 (Palakkad)							
Name of Padasekharam	Total rice area (in LLU)														
	Mundakan 2023-24	Puncha 2024 (Kole Land) / Virippu 2024 (Palakkad)													
12.	Location of your rice field in with respect to the field canal which is used to irrigate the field [tertiary canal]														
	Location	Proportion (%)	Water availability [1= Always sufficient 2= Seasonal shortages 3= Frequently insufficient 4= Unpredictable 5= Excessive]												
	Starting of the tertiary/ secondary canal		Drainage condition [1= Well drained (water drains easily after rain or irrigation) 2= Moderately drained 3= Poorly drained (water remains stagnant for a long time)]												
	Middle part of the tertiary/ secondary canal														
	Tail end of the tertiary/ secondary canal														

SECTION D: Production Information

Enumerators' information: The production information is collected only for rice crop.

- Did you cultivate rice in Mundakan 2023-24? **1=Yes; 2=No**

- 2) Did you cultivate rice in Puncha (Kole) / Virripu (Palakad) 2024? **1=Yes; 2=No**
- 3) What is the average wage of male labour? (Rs/Day) _____
- 4) What is the average wage of female labour? (Rs/Day) _____

D-1: Land preparation

1.	What is the total land size of this rice field? (in LLU)			
2.	Which crop establishment method is followed in this rice field (contiguous area of the field)	1= Manual transplanting (random) 2= Manual transplanting (line) 3= Mechanical transplanting 4= Hand broadcasting 5= Wet direct seeding (drum seeder) 6= Others (please specify)		
3.	What land preparation activities that you follow for this paddy field?	1= Ploughing & Puddling 2= Ploughing & Harrowing 3= Laser leveling 4= Others (please specify)		
4.	If laser levelling to (3), how frequently do you do laser leveling of this paddy field before sowing/transplanting?	1= Every season 2= Every year 3= Once in 2 years 4= Once in 3 years 5= Once in more than 3 years 6= Not done in last 4 or more years		
5.	Do you use any organic amendments (e.g., compost, manure, green manuring) during land preparation?	1= Yes 2= No		
6.	If yes to (5), what is the dosage/ amount of organic amendments that you apply during land preparation?	Manure Farmyard manure Green manure	Quantity (kg/LLU) _____ _____	Total cost (Rs/LLU) _____ _____

		Stubble		
		Vermi compost		
		Others, pls specify		
7.	What kind of labour force do you majorly use for land preparation? (<i>select all that apply</i>)	1= Self/family labour 2= Hired labour 3= Contracting out 4= Animal 5= Hired machinery 6= Own machinery		
8.	If labour by self/family from (7), how many total family labour involved in land preparation operation?	Total number of labour (per day)	Total number of days	Total number of hours (per day)
	Male			
	Female			
9.	If hired labour from (7), how many total hired labour involved in land preparation operation?	Total number of labour (per day)	Total number of days	Total number of hours (per day)
	Male			
	Female			
10.	If contract out from (7), how much total cost incurred for this activity?	_____ Rs/LLU		
11.	If animal from (7), how much total cost incurred for this activity?	_____ Rs/LLU		
12.	If hired machinery from (7), how much total cost incurred for this activity?	1 Duration of machine used for harvesting	_____ in hours/ LLU	
	2 Cost of machine (rental value, even if it is owned)	_____ in INR/hour		

		3	Fuel requirement	_____ in liter/LLU	
13. If own machinery from (7), how much total cost incurred for this activity?	1	Duration of machine used for harvesting	_____ in hours/LLU		
	2	Cost of machine (rental value, even if it is owned)	_____ in INR/hour		
	3	Fuel requirement	_____ in liter/LLU		

D-2: Variety, Seed and Nursery

1.	Variety name cultivated in this rice field?	
2.	Duration of the variety (Days)	
3.	Variety type?	1= Traditional variety 2= Improved HYV 3= Stress-tolerant rice varieties (STRV) 4= Hybrid 5= Premium quality rice (PQR)
4.	Do you prepare your own nursery?	1= Yes 2= No
5.	What is the total amount of seeds used for the field [Seed/ seedling rate] (Kg/LLU)	
6.	Seed/seedling cost (Rs/Kg)	
7.	How many days old seedlings are transplanted in the main field (number of days)	
8.	Date of transplanting (DD-MM-YYYY)	
9.	Do you treat your seed with chemicals/ organic before sowing?	1= Yes 2= No
10.	If yes to (9), what is the cost incurred for seed treatment? (INR/LLU)	

11.	For nursery do you generally choose a field that contains paddy from the previous season?	1= Yes 2= No																														
12.	Did you do a Mat nursery?	1= Yes, prepared own 2= Yes, purchased/contracted out 3= No																														
13.	Could you please provide the details of nutrient management of nursery if prepared by you? (<i>mention the total quantity applied for the nursery area</i>)	<table border="1"> <thead> <tr> <th></th> <th>Fertilizer Type</th> <th>Quantity used (Write Zero if not used)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Urea</td> <td>____ (in kg)</td> </tr> <tr> <td>2</td> <td>DAP</td> <td>____ (in kg)</td> </tr> <tr> <td>3</td> <td>SSP</td> <td>____ (in kg)</td> </tr> <tr> <td>4</td> <td>MOP</td> <td>____ (in kg)</td> </tr> <tr> <td>5</td> <td>Complexes (NPK)</td> <td>____ (in kg)</td> </tr> <tr> <td>6</td> <td>Micronutrients</td> <td>____ (in kg)</td> </tr> <tr> <td>7</td> <td>Biofertilizers</td> <td>____ (in kg)</td> </tr> <tr> <td>8</td> <td>Organic manure</td> <td>____ (in kg)</td> </tr> <tr> <td>9</td> <td>Others</td> <td>____ (in kg)</td> </tr> </tbody> </table>		Fertilizer Type	Quantity used (Write Zero if not used)	1	Urea	____ (in kg)	2	DAP	____ (in kg)	3	SSP	____ (in kg)	4	MOP	____ (in kg)	5	Complexes (NPK)	____ (in kg)	6	Micronutrients	____ (in kg)	7	Biofertilizers	____ (in kg)	8	Organic manure	____ (in kg)	9	Others	____ (in kg)
	Fertilizer Type	Quantity used (Write Zero if not used)																														
1	Urea	____ (in kg)																														
2	DAP	____ (in kg)																														
3	SSP	____ (in kg)																														
4	MOP	____ (in kg)																														
5	Complexes (NPK)	____ (in kg)																														
6	Micronutrients	____ (in kg)																														
7	Biofertilizers	____ (in kg)																														
8	Organic manure	____ (in kg)																														
9	Others	____ (in kg)																														
14.	Once the seedling is ready, do you go for seedling root dip? (<i>Dipping seedling roots for 30 mins in the solution of Pseudomonas</i>)	1= Yes 2= No																														
15.	What is the total cost incurred for nursery? (Rs/LLU)																															

D-3: Irrigation

1.	Do you have irrigation access to your rice fields (canal or groundwater or other)?	1= No 2= Yes, always 3= Yes, only when water is released from the department
2.	If yes to (1), what is the irrigated rice area (in LLU)	
3	Are you following intermittent drying of your rice field (AWD)? [please note this is not because there is no rainfall or canal irrigation is not available, but by draining out field]	1= Yes 2= No
4.	If yes to Q3, are you using paani pipes (AWD) to check water level in your field?	1= Yes 2= No

5.	If yes to (Q4), how many paani pipes (AWD) are in your field?	_____ (in numbers)															
6.	If yes to (Q3), what is the rice area under AWD (in LLU)?																
7.	If yes to (Q3), in which Year did you start practicing AWD? Example: 2024																
8.	If yes to (3), how <i>many days after transplanting do you start the AWD method of irrigation?</i>	1= Within 7 days 2= Between 7 – 10 days 3= Between 11-15 days 4= After 15 days															
9.	If yes to (3), what is the interval between the two irrigations, that you provide as a part of AWD?	1= Less than 5 days 2= 5 to 10 days 3= More than 10 days															
10.	If yes to (3), does this interval remain the same throughout the crop cycle or will it change in different crop stages?	1= Yes, it will remain the same 2= No, it will change in different crop stages															
11.	Before transplanting, how much water did you maintain in the field?	_____ (in centimeter)															
12.	How frequently will your field be flooded throughout the crop cycle? (Water maintenance in the field)	<input type="checkbox"/> Always flooded except before harvest <input type="checkbox"/> Mostly flooded except before harvest <input type="checkbox"/> Sometimes flooded sometimes dry <input type="checkbox"/> Mostly dry															
13.	During the following crop stages, do you keep the field flooded?	<table border="1"> <thead> <tr> <th>Crop stage</th> <th>Flooding condition (1=Yes; 2=No)</th> <th>Level of water (in cm)</th> </tr> </thead> <tbody> <tr> <td>Transplanting</td> <td></td> <td></td> </tr> <tr> <td>Active tillering</td> <td></td> <td></td> </tr> <tr> <td>Panicle initiation/Flowering</td> <td></td> <td></td> </tr> <tr> <td>Grain filling and maturity</td> <td></td> <td></td> </tr> </tbody> </table>	Crop stage	Flooding condition (1=Yes; 2=No)	Level of water (in cm)	Transplanting			Active tillering			Panicle initiation/Flowering			Grain filling and maturity		
Crop stage	Flooding condition (1=Yes; 2=No)	Level of water (in cm)															
Transplanting																	
Active tillering																	
Panicle initiation/Flowering																	
Grain filling and maturity																	
14.	Based on the above selection (13), what are the types of irrigation systems used in rice? (<i>Multiple response</i>)	<table border="1"> <thead> <tr> <th>Irrigation source</th> <th>Rice area irrigated (in LLU)</th> <th>Who owns? [1. Individual, 2. Padasekharam, 3. Water user association, 4. Irrigation Dept, 5.]</th> <th>Who manages? [1. Individual, 2. Padasekharam, 3. Water user association, 4. Irrigation Dept, 5.]</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Irrigation source	Rice area irrigated (in LLU)	Who owns? [1. Individual, 2. Padasekharam, 3. Water user association, 4. Irrigation Dept, 5.]	Who manages? [1. Individual, 2. Padasekharam, 3. Water user association, 4. Irrigation Dept, 5.]											
Irrigation source	Rice area irrigated (in LLU)	Who owns? [1. Individual, 2. Padasekharam, 3. Water user association, 4. Irrigation Dept, 5.]	Who manages? [1. Individual, 2. Padasekharam, 3. Water user association, 4. Irrigation Dept, 5.]														

		Panchayat, 6. KDLC, 7. Other agency]	Panchayat, 6. KDLC, 7. Other agency]																						
Canal																									
River (directly, lift irrigation)																									
Shallow tubewell																									
Bore Well/Deep tubewell																									
Open Wells																									
Lakesstreams/ponds																									
Others																									
15.	If the response to Q14 include canal irrigation, how is the scheduling of canal irrigation, where water supply is managed by the irrigation department?	<table border="1"> <thead> <tr> <th colspan="2">Canal irrigation details</th> </tr> </thead> <tbody> <tr> <td>1) Is the canal irrigation is primary source of irrigation for your crop in this season?</td> <td>1 = Yes 2 = No</td> </tr> <tr> <td>2) How many passes of irrigation your field/padasekharam have received? (Applicable only to Palakkad)</td> <td></td> </tr> <tr> <td>3) What is the duration of each pass of irrigation? [no. of days] (Applicable only to Palakkad)</td> <td></td> </tr> <tr> <td>4) Do you keep this filed continuously flooded?</td> <td>1 = Yes 2 = No</td> </tr> <tr> <td>5) How long it takes you to irrigate your field? [hours]</td> <td></td> </tr> <tr> <td>6) Interval between each irrigation (in days) (in day) (write zero, if continuously flooded)</td> <td></td> </tr> <tr> <td>7) Ideally how many irrigation passes are required for a good rice crop? (Applicable only to Palakkad)</td> <td></td> </tr> <tr> <td>8) Have you received irrigation throughout the crop season</td> <td>1 = Yes 2 = No</td> </tr> <tr> <td>9) If you have faced issues with canal irrigation, which crop growth stage was affected?</td> <td>1 Transplanting 2 Active tillering 3 Panicle initiation & Flowering 4 Grain filling and maturity</td> </tr> <tr> <td>10) Are you able to provide additional irrigation using tubewells/open wells or lift irrigation?</td> <td>1 = Yes 2 = No</td> </tr> </tbody> </table>		Canal irrigation details		1) Is the canal irrigation is primary source of irrigation for your crop in this season?	1 = Yes 2 = No	2) How many passes of irrigation your field/padasekharam have received? (Applicable only to Palakkad)		3) What is the duration of each pass of irrigation? [no. of days] (Applicable only to Palakkad)		4) Do you keep this filed continuously flooded?	1 = Yes 2 = No	5) How long it takes you to irrigate your field? [hours]		6) Interval between each irrigation (in days) (in day) (write zero, if continuously flooded)		7) Ideally how many irrigation passes are required for a good rice crop? (Applicable only to Palakkad)		8) Have you received irrigation throughout the crop season	1 = Yes 2 = No	9) If you have faced issues with canal irrigation, which crop growth stage was affected?	1 Transplanting 2 Active tillering 3 Panicle initiation & Flowering 4 Grain filling and maturity	10) Are you able to provide additional irrigation using tubewells/open wells or lift irrigation?	1 = Yes 2 = No
Canal irrigation details																									
1) Is the canal irrigation is primary source of irrigation for your crop in this season?	1 = Yes 2 = No																								
2) How many passes of irrigation your field/padasekharam have received? (Applicable only to Palakkad)																									
3) What is the duration of each pass of irrigation? [no. of days] (Applicable only to Palakkad)																									
4) Do you keep this filed continuously flooded?	1 = Yes 2 = No																								
5) How long it takes you to irrigate your field? [hours]																									
6) Interval between each irrigation (in days) (in day) (write zero, if continuously flooded)																									
7) Ideally how many irrigation passes are required for a good rice crop? (Applicable only to Palakkad)																									
8) Have you received irrigation throughout the crop season	1 = Yes 2 = No																								
9) If you have faced issues with canal irrigation, which crop growth stage was affected?	1 Transplanting 2 Active tillering 3 Panicle initiation & Flowering 4 Grain filling and maturity																								
10) Are you able to provide additional irrigation using tubewells/open wells or lift irrigation?	1 = Yes 2 = No																								
16.	If the response to question (14) indicates that the source of irrigation is not a canal and is managed or owned by (1) an individual, (2) a Padasekharam, or (3) a Water User Association , how is the irrigation system operated and maintained?	<table border="1"> <thead> <tr> <th colspan="2">Irrigation details</th> </tr> </thead> <tbody> <tr> <td>1) Are you using tubewells/open wells or lift irrigation as primary source of irrigation for your crop in this season?</td> <td>1 = Yes 2 = No</td> </tr> </tbody> </table>		Irrigation details		1) Are you using tubewells/open wells or lift irrigation as primary source of irrigation for your crop in this season?	1 = Yes 2 = No																		
Irrigation details																									
1) Are you using tubewells/open wells or lift irrigation as primary source of irrigation for your crop in this season?	1 = Yes 2 = No																								

	<p>2) At which crop growth stage is this irrigation source most relied upon?</p> <p>3) How long it takes you to irrigate your field? [hours]</p> <p>4) Interval between each irrigation (in days)</p> <p>5) How many irrigations are required from this source for a good rice crop?</p> <p>6) Are you able to irrigate whenever necessary throughout the crop season?</p>	<p>1 Transplanting 2 Active tillering 3 Panicle initiation & Flowering 4 Grain filling and maturity</p> <p>1 = Yes 2 = No</p>																					
17.	Have you considered following criteria to scheduling irrigation?																						
	<table border="1"> <thead> <tr> <th>Criteria</th> <th>considered</th> <th>if yes, is it a primary criteria?</th> </tr> </thead> <tbody> <tr> <td>No standing water in the field</td> <td>1 = Yes 2 = No</td> <td>1 = Yes 2 = No</td> </tr> <tr> <td>Hairline cracks have started appearing in the field.</td> <td>1 = Yes 2 = No</td> <td>1 = Yes 2 = No</td> </tr> <tr> <td>The soil feels dry when squeezed in hand</td> <td>1 = Yes 2 = No</td> <td>1 = Yes 2 = No</td> </tr> <tr> <td>Critical crop growth stages (Active tillering, Panicle initiation & Flowering, Grain filling and maturity)</td> <td>1 = Yes 2 = No</td> <td>1 = Yes 2 = No</td> </tr> <tr> <td>Plant stress symptoms like leaf rolling or curling, leaf color changes, etc.</td> <td>1 = Yes 2 = No</td> <td>1 = Yes 2 = No</td> </tr> <tr> <td>Rainfall prediction</td> <td>1 = Yes 2 = No</td> <td>1 = Yes 2 = No</td> </tr> </tbody> </table>		Criteria	considered	if yes, is it a primary criteria?	No standing water in the field	1 = Yes 2 = No	1 = Yes 2 = No	Hairline cracks have started appearing in the field.	1 = Yes 2 = No	1 = Yes 2 = No	The soil feels dry when squeezed in hand	1 = Yes 2 = No	1 = Yes 2 = No	Critical crop growth stages (Active tillering, Panicle initiation & Flowering, Grain filling and maturity)	1 = Yes 2 = No	1 = Yes 2 = No	Plant stress symptoms like leaf rolling or curling, leaf color changes, etc.	1 = Yes 2 = No	1 = Yes 2 = No	Rainfall prediction	1 = Yes 2 = No	1 = Yes 2 = No
Criteria	considered	if yes, is it a primary criteria?																					
No standing water in the field	1 = Yes 2 = No	1 = Yes 2 = No																					
Hairline cracks have started appearing in the field.	1 = Yes 2 = No	1 = Yes 2 = No																					
The soil feels dry when squeezed in hand	1 = Yes 2 = No	1 = Yes 2 = No																					
Critical crop growth stages (Active tillering, Panicle initiation & Flowering, Grain filling and maturity)	1 = Yes 2 = No	1 = Yes 2 = No																					
Plant stress symptoms like leaf rolling or curling, leaf color changes, etc.	1 = Yes 2 = No	1 = Yes 2 = No																					
Rainfall prediction	1 = Yes 2 = No	1 = Yes 2 = No																					
18.	Do you own irrigation pump? 1=Yes (individually)/ 2=Yes (in a smaller group)/ 3=Yes (as a Padasekharam)/ 4=No																						
19.	If yes (individually/smaller group) to (18), specify the details																						
	<table border="1"> <thead> <tr> <th>Sl.no</th> <th>Type of pump (Code 20a)</th> <th>Purpose (Code 20b)</th> <th>HP</th> <th>Discharge rate (Litres/second)</th> <th>Area covered (in LLU) season wise</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Code 20a. 1= Petty & Para pump; 2= Submersible pump; 3= Propellor pump 4= Turbine pump; 5= Centrifugal pump</p> <p>Code 20b. 1= Dewatering, 2= Pumping from lakes/riversstreams, 3= Well pumps, 4= Moving water from tail water pits, 5= Relifting or boosting water within system (pumps providing additional lift, pressure or lateral movement)</p>		Sl.no	Type of pump (Code 20a)	Purpose (Code 20b)	HP	Discharge rate (Litres/second)	Area covered (in LLU) season wise															
Sl.no	Type of pump (Code 20a)	Purpose (Code 20b)	HP	Discharge rate (Litres/second)	Area covered (in LLU) season wise																		
20.	Did you make any irrigation expenses? 1= Yes; 2= No																						
	If yes to (20) then fill the Irrigation expenses																						

		Did you make any expense on this source with respect to irrigation? (1=Yes 2=No)	Units consumed	Expenses (Rs)	
	Electricity (Unit)				
	CNG (Kg)				
	LPG (Kg)				
	Diesel/Petrol (Liter)				
	Solar (Unit)				
	Water fees (Rs)				
	Labour charges (Rs)				
	Maintenance charges (for infrastructure) (Rs)				
	Canal irrigation fee (Rs)				

D- 4: Nutrient management

1.	Could you please provide the details fertilizers and soil amendments applied for rice (excluding nursery prep)?								
	Sl. No.	Fertilizer	Number of splits	Basal dose	1 st top dressing	2 nd top dressing	3 rd top dressing		
			Amount (kg)	Amount (kg)	DAS ¹	Amount (kg)	DAS ¹	Amount (kg)	DAS ¹
	1	Lime							
	2	Urea							
	3	DAP							
	4	MOP							
	5	SSP							
	5	Complexes (NPK)							
	6	Micro-nutrients							
	7	Bio fertilizer							
	8	Other inputs							

	¹ xDAS – days after transplanting																
2.	What was your soil condition of the field before the application of urea?	1=Flooded 2=Dry 3= Semi-flooded 4= Semi-dry															
3.	Did you apply a foliar spray?	1=Yes 2=No															
4.	If yes to (3), fill in the table.	Name of the fertilizer applied?	Time of application (1= Nursery stage 2= Broadcasting stage 3= Vegetative stage 4= Tillering stage 5= Panicle initiation stage 6= Heading-Flowering stage 7= Maturity stage	Number of applications?													
5.	How did you manage to apply fertilizer in your field?	1= Contracted out 2= Hired labour 3= Family labour 4= Done by padasekharam															
6.	If response to 5, is hired labour, how many labours are used?	<table border="1"> <thead> <tr> <th></th><th>Total number of labour (per day)</th><th>Total number of days</th><th>Total number of hours (per day)</th></tr> </thead> <tbody> <tr> <td>Male</td><td></td><td></td><td></td></tr> <tr> <td>Female</td><td></td><td></td><td></td></tr> </tbody> </table>					Total number of labour (per day)	Total number of days	Total number of hours (per day)	Male				Female			
	Total number of labour (per day)	Total number of days	Total number of hours (per day)														
Male																	
Female																	

7.	What is the total cost of fertilizer applied in your field?) Rs/LLU	
8.	What is the total cost of application of fertilizer in your field? (including labour charge, transportation, equipment charge, fuel cost) Rs/LLU	

D - 5: Pest management

1.	Did you apply pesticide?	1= Yes 2= No															
2.	If yes to (1), types of pesticide used?	<table border="1"> <thead> <tr> <th>Name of the Pesticide</th> <th>Is this a solid (or) liquid form?</th> <th>Total Application (gram/ml/ LLU)</th> </tr> </thead> <tbody> <tr> <td>Listed</td> <td>1= Solid 2= Liquid</td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Name of the Pesticide	Is this a solid (or) liquid form?	Total Application (gram/ml/ LLU)	Listed	1= Solid 2= Liquid										
Name of the Pesticide	Is this a solid (or) liquid form?	Total Application (gram/ml/ LLU)															
Listed	1= Solid 2= Liquid																
3.	How did you manage to apply pesticides in your field?	1= Contracted out 2= Hired labour 3= Family labour 4= Done by padasekharam															
4.	If response to 3, is hired labour, how many labours are used?	<table border="1"> <thead> <tr> <th></th> <th>Total number of labour (per day)</th> <th>Total number of days</th> <th>Total number of hours (per day)</th> </tr> </thead> <tbody> <tr> <td>Male</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Female</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Total number of labour (per day)	Total number of days	Total number of hours (per day)	Male				Female						
	Total number of labour (per day)	Total number of days	Total number of hours (per day)														
Male																	
Female																	
5.	If yes to (1), what is the total cost of pesticide applied in your field in INR/LLU ?																
6.	If yes to (1), what is the total cost of application of pesticid in your field in INR/LLU (including labour charge, transportation, equipment charge, fuel cost)?																

7.	Did you adopt any IPM/biocontrol measures in this paddy field?	1= Yes 2= No
8.	If yes to (4), which IPM measure used?	1= Trichocard 2= Pheromone trap 3= Bird perches 4= Hanging dead frog or poultry 5= Others (specify)

D - 6: Weed Management

1.	Did you follow any weed management practices?	1. Yes 2. No												
2.	How do you manage weeds in paddy fields?	3. Contracted out 4. Hired labour 5. Family labour 6. Done by padasekharam												
3.	If contracted out was selected in question (1), what was the total cost of contracting weed management?	_____ Rs/LLU												
4.	What weed management approach did you follow?	1= Manual weeding 2= Mechanical weeding 3= Chemical spray												
5.	If manual weeding was selected in question (3), how many hired laborers were involved in the weeding operation?	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Total number of labour (per day)</th> <th>Total number of days</th> <th>Total number of hours (per day)</th> </tr> </thead> <tbody> <tr> <td>Male</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Female</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Total number of labour (per day)	Total number of days	Total number of hours (per day)	Male				Female			
	Total number of labour (per day)	Total number of days	Total number of hours (per day)											
Male														
Female														
6.	If mechanical weeding was selected in question (3), what was the total cost incurred for this activity? Rs/LLU													

7.	If chemical spraying was selected in question (3), which herbicide did you use?	Name of the herbicide	Liquid/solid	Quantity used (ml/LLU or gm/LLU)
8.	If chemical spray was selected in question (3), what was the total cost incurred for this activity? Rs/LLU			
9.	What all other costs incurred in weeding operation? Rs/LLU			

D - 7: Harvesting

1.	When did you harvest your rice crop?	DD-MM-YYYY		
2.	Type of harvest?	1= Using combine harvester 2= Using reaper 3= Manual		
3.	What was the rice production from the field? (Quintal/LLU)			
4.	What kind of labour force do you majorly use for harvesting?	1= Labour by self/family 2= Hire labour 3= Contract out 4= Animal 5= Hired machinery 6= Own machinery		
5.	If labour by self/family from (4), how many total family labour involved in entire harvesting operation?	Total number of labour (per day)	Total number of days	Total number of hours (per day)
	Male			
	Female			
6.	If hired labour from (4), how many total hired labour involved in entire harvesting operation? <i>(number of labour x number of days)</i>	Total number of labour (per day)	Total number of days	Total number of hours (per day)
	Male			

		Female			
7.	If contract out from (4), how much total cost incurred for this activity? (Rs/LLU)				
8.	If animal from (4), how much total cost incurred for this activity? (Rs/LLU)				
9.	If hired machinery from (4), how much total cost incurred for this activity?	1	Duration of machine used for harvesting	____ in hours/ LLU	
		2	Cost of machine (rental value, even if it is owned)	____ in INR/ hour	
		3	Fuel requirement	____ in liter/LLU	
10.	If own machinery from (4), how much total cost incurred for this activity?	1	Duration of machine used for harvesting	____ in hours/ LLU	
		2	Cost of machine (rental value, even if it is owned)	____ in INR/ hour	
		3	Fuel requirement	____ in liter/LLU	
11.	If method of harvesting is manual or reaper from (2), how did you thresh the harvested produce?	1= Using thresher 2= Using animal 3= Manual 4= Not applicable			
12.	If using thresher from (11), how much total cost incurred for this activity? (Rs/LLU)				
13.	If animal from (11), how much total cost incurred for this activity? (Rs/LLU)				
14.	If manual from (11), how many total labour (family+own) involved in this activity?		Total number of labour (per day)	Total number of days	Total number of hours

			(per day)
Male			
Female			

D - 8: Post-harvest (residue management)

1.	After harvesting paddy, how much stubble do you estimate you will generate in a season? quintal/LLU	_____
2.	What do you typically do with the stubble generated after harvesting paddy?	1= Use it for mulching 2= Mix it with soil for manuring 3= Use/sell it for bioenergy/biogas/biochar production 4= Sell it for other purposes like fodder, etc. 5= Use as dry fodder for own cattle 6= Burn it 7= Others
3.	If residue management is “mix it with soil for manuring” from (2), was the soil moist?	1= Yes 2= No
4.	If mix it with wet soil for manuring from (3), was there a stagnant water in the field?	1= Yes 2= No
5.	If use it for mulching (2), what portion of the paddy straw/stubble do you use for manuring (mixing/ploughing with soil)?	1= Less than 25% 2= 25-50% 3= 51-75% 4= More than 75%
6.	If (2 to 5) from (4), after mixing stubble with soil, how long do you wait before the next sowing?	1= < 1 week 2= 1 to 2 weeks 3= 2 to 3 weeks 4= 3 to 4 weeks 5= > 4 weeks
7.	If burnt it from (2), what proportion of straw is burnt? (in %)	_____

D - 9: Sales and market

1.	Through which channels did you sell your paddy, also provide the quantity and price of paddy sold in each channel? (<i>Select all that apply</i>)
----	---

	Channel	Is it applicable? 1=Yes; 2=No	Mundakan 2023-24		Puncha 2024 (Kole land) / Virippu 2024 (Palakkad)	
			Quantity sold (quintal)	Price (INR/quintal)	Quantity sold (quintal)	Price (INR/quintal)
	Local markets					
	Cooperative societies					
	Private traders/aggregators					
	Directly to processors/mills					
	Government procurement centers / Supply-Co					
	Others					
2	Paddy produce kept for own consumption?					
			Paddy (quintal)			
	Mundakan 2023-24					
	Puncha 2024 (Kole land) / Virippu 2024 (Palakkad)					
3	Did you store your paddy after harvest?				1 = Yes, 2 = No	
4	If yes to question (2), then how many days you have stored the produce before selling it?				_____ days	
5	Did you have any storage related losses for the virippu or mundakan produce? [write zero if no storage losses]				_____ kg	
6	Did you sell the produce through padasekharam?				1 = Yes, 2 = No	

Section - E: Access to information and extension services

1.	Overall, do you think that you have access to reliable information on rice farming practices?	1=Yes; 2=No
2.	What type of information do you need most on farming practices? (Select all that apply)	1 = Weather forecast (rain, temp, etc.) 2 = Input availability and prices (fertilizer, seeds, pesticides, machinery, etc) 3 = Market information (marketing, Output price) 4 = Low emission rice 5 = How to mitigate crop damage (control weeds, insects, pests, crop disease etc.) 6 = Information about new rice varieties and seeds 7 = Agricultural practices (machines, agronomy, inputs use etc.) 8 = Govt schemes and policies (including subsidies, crop insurance, crop loans, cash transfer, etc.)

		9 = Others
3.	What challenges do you face in accessing/updating information on farming practices? (<i>Select all that apply</i>)	1 = Lack of awareness about information sources 2 = Limited frequency of information 3 = Information not suited to the local context 4 = Limited or no access to mobile phones 5 = Limited literacy/education 6 = Cost of information access 7 = Lack of trust/ authenticity on source of information 8 = No issues/ challenges 9 = Others
4.	How do you think this information has been useful?	1 = Provided with timely advice on Package of Practices 2 = Helped to improve yields 3 = Saved crops from pest and diseases 4 = Helped to adopt improved water management with less water 5 = Helped improve soil quality 6 = Others
5.	What specific areas of rice farming do you feel you need more knowledge on? (<i>Select all that apply</i>)	1 = Nursery establishment 2 = Improved agronomy (crop establishment, weed, fertilizer etc) 3 = Improved irrigation management 4 = Integrated pest & disease management 5 = Soil Health Management 6 = Others

In this section we want to know about the sources and mode of information that your household has received in the recent times. We have listed few information types and various sources from where your households could receive the information. Please answer/ indicate the particulars about this.

1) Information Type	2) Did you accessed this information in the last 12 months (1-YES, 0-NO) [enable the following if YES]	3) The source of information ? (code 1 below)	4) Did you register for this service/information ? (1-YES, 0-NO)	5) How often do you interact/receive information from these sources? (code 2)	6) Communication channel: How do you mostly receive messages communication from them? (code 3)	7) Whether the information was useful (1-YES, 0-NO)	8) Please rate the reliability of the information given on a scale (code 4)
Weather Forecast (rain, temperature, etc)							
Input availability							
Input price (fertilizer, seeds, pesticides, machinery, etc)							
Market information (marketing, Output price)							

Low emission rice							
How to mitigate crop damage (control weeds, insects, pests, crop disease etc.)							
Information about new rice varieties							
Agricultural practices (machines, agronomy, inputs use etc.)							
Govt schemes and policies (including subsidies, crop insurance, crop loans, cash transfer, etc.)							
Others							

Response code

Code1: Information source	Code3: channels of communication
1 = Padasekhara samithi 2 = Water user association 3 = Krishibhavan 4 = Krishi Vigyan Kendra (KVK) 5 = Agriculture university/ Research stations 6 = Irrigation department 7 = Cooperative Society (PACS) 8 = FPO/FPCS 9 = Input dealer 10 = Lead/innovative farmer 11 = Friends	12 = Relatives 13 = Private companies 14 = Mobile phone 15 = Radio 16 = TV 17 = Newspaper 18 = Field demonstration 19 = Leaflets/brochure 20 = Krishi mela 21 = Others (specify) 99 = Don't know
Code 2: Frequency of extension contact	Code4: Reliability
1 = Daily 2 = Weekly 3 = Monthly 4 = Whenever required (on need basis) 5 = Rarely	1 = Very unreliable 2 = Unreliable 3 = Neither unreliable nor Reliable 4 = Reliable 5 = Very Reliable

Section - F: Risk in Rice Production

Production of Rice under rainfed or uncertain canal system is a risk task. In this section we would like to know your perception about types of risks and its effects on the RICE production. We ask some particulars about risk, please answer the following.

MODULE F1: Yield perception

1. Yield of mundakan

1.1 In normal conditions (rainfall and others factors), what is the average yield of rice per acre in your locality during mundakan season? (Qunital /acre)	
1.2 In the mundakan 2023-24 , what do you think is the average yield of your padasekharam? (Qunital /acre)	_____
1.3 In the mundakan 2023-24 , what do you think is the highest yield in your padasekharam? (Qunital /acre)	(write 99 if rice is not cultivated in virippu season and 9999 if the farmer unable to say guess the locality yield per acre)
1.4 In the mundakan 2023-24 , what do you think is the lowest yield in your padasekharam? (Qunital /acre)	
1.5. Reasons for lowest yield in mundakan 2023-24 in your village?	1= Flood condition 2= Drought condition 3= Untimely rain (e.g. during maturity) 4= Issues with canal irrigation 5= Pest and disease infestation 6= Soil fertility issues 7= Post harvest loss 8= Delayed cropping 9= Others
1.6. When is the last time you incurred major RICE yield loss minimum 50% due to climatic risks in mundakan ? [ex: 2020] between 2014 to 2024	_____year
1.7. What do you think is the foremost threat to your rice yield in your locality in mundakan ?	1= Drought 2= Flood 3= Cyclones/Hailstorm 4= Pest and Disease outbreak 5= Post-harvest loss due to unexpected rain and hailstorm etc. 6= Major harvest losses due to animals 7= Low price/price risk 8= Others
2. Yield of puncha / virripu	
2.1 In normal conditions (rainfall and others factors), what is the average yield of rice per acre in your locality during puncha / virripu ? (Qunital /acre)	_____ Quintals/acre
2.2 In the puncha / virripu 2024 , what do you think is the average yield of your village? (Qunital /acre)	(write 99 if rice is not cultivated in mundakan season and 9999 if the farmer unable to say guess the locality yield per acre)
2.3 In the puncha / virripu 2024 , what do you think is the lowest yield in your village? (Qunital /acre)	

MODULE F2: Climate Risk and Adaptation

Say: Every household goes through times of hardship as a result of certain events. Now I will ask you about any such events, one by one. First, I would like to ask you some questions about your experience of climate and environment-related shocks in the **last 2 years** and your coping strategies

Q no.	Q. label	Response
1	Have you experienced any of the following adverse weather events in the last 2 years? [multiple selection]	1 = Delayed Monsoon 2 = Untimely rainfall 3 = Drought 4 = Flood 5 = Heat wave 6 = Heavy wind
2	If delayed monsoon is opted from (1), how severe was the impact on your household economic situation?	1. Not severe 2. Somewhat severe 3. Severe 4. Extremely severe
3	If delayed monsoon is opted from (1), did the delayed monsoon impact your household in any of the following ways [multiple selection]	1= Unable to sow crop 2= Partial or complete crop loss 3= Lower yields 4= Spoiling harvested/stored produce 5= Unable to market produce due to reduced mobility/physical access to the market 6= Livestock disease/mortality 7= Damage to agricultural infrastructure 8= Others 9= None (<i>no impact</i>)
4	What was your immediate coping response to the delayed monsoon (i.e., within the same season)? [multiple selection]	1= Change in the crop choice 2= Claimed crop insurance for crop loss 3= Selling/mortgaging of assets 4= Credit from formal or informal sources 5= Reduce food consumption or change food habits 6= Reduce household expenditures on medical/health needs, children's education/schooling 7= Off-farm livelihood diversification (took on non-farm related work temporarily) 8= Other 9= None (<i>no coping mechanism</i>)
5	Did you change your farming practices because of delayed monsoon in the following seasons / year? [multiple selection]	1= Diversify crops 2= Change in the cropping calendar 3= Change in seed/variety choice, different cropping patterns 4= Invest in irrigation sources (wells, dams, reservoirs, ponds etc.) or soil and water conservation 5= Stop cultivation 6= Renting out or selling of land 7= Borrowing (crop loan) 8= Other 9= None (<i>Did not change farming practice in any way</i>)
6	If untimely rainfall is opted from (1), how severe was the impact on your household economic situation?	1. Not severe 2. Somewhat severe 3. Severe 4. Extremely severe

7	<p>If untimely rainfall is opted from (1), did the untimely rainfall impact your household in any of the following ways</p> <table border="1" data-bbox="290 291 1421 451"> <tr> <td data-bbox="290 291 812 451"> 1= Unable to sow crop 2= Partial or complete crop loss 3= Lower yields 4= Spoiling harvested/stored produce 5= Unable to market produce due to reduced mobility/physical access to the market </td><td data-bbox="812 291 1323 451"> 6= Livestock disease/mortality 7= Damage to agricultural infrastructure 8= Others 9= None (no impact) </td><td data-bbox="1323 291 1421 451"></td></tr> </table>			1= Unable to sow crop 2= Partial or complete crop loss 3= Lower yields 4= Spoiling harvested/stored produce 5= Unable to market produce due to reduced mobility/physical access to the market	6= Livestock disease/mortality 7= Damage to agricultural infrastructure 8= Others 9= None (no impact)	
1= Unable to sow crop 2= Partial or complete crop loss 3= Lower yields 4= Spoiling harvested/stored produce 5= Unable to market produce due to reduced mobility/physical access to the market	6= Livestock disease/mortality 7= Damage to agricultural infrastructure 8= Others 9= None (no impact)					
8	<p>What was your immediate coping response to the untimely rainfall (i.e., within the same season)? [multiple selection]</p> <table border="1" data-bbox="290 544 1367 720"> <tr> <td data-bbox="290 544 812 720"> 1= Change in the crop choice 2= Claimed crop insurance for crop loss 3= Selling/mortgaging of assets 4= Credit from formal or informal sources 5= Reduce food consumption or change food habits </td><td data-bbox="812 544 1367 720"> 6= Reduce household expenditures on medical/health needs, children's education/schooling 7= Off-farm livelihood diversification (took on non-farm related work temporarily) 8= Other 9= None (no coping mechanism) </td><td data-bbox="1367 544 1421 720"></td></tr> </table>			1= Change in the crop choice 2= Claimed crop insurance for crop loss 3= Selling/mortgaging of assets 4= Credit from formal or informal sources 5= Reduce food consumption or change food habits	6= Reduce household expenditures on medical/health needs, children's education/schooling 7= Off-farm livelihood diversification (took on non-farm related work temporarily) 8= Other 9= None (no coping mechanism)	
1= Change in the crop choice 2= Claimed crop insurance for crop loss 3= Selling/mortgaging of assets 4= Credit from formal or informal sources 5= Reduce food consumption or change food habits	6= Reduce household expenditures on medical/health needs, children's education/schooling 7= Off-farm livelihood diversification (took on non-farm related work temporarily) 8= Other 9= None (no coping mechanism)					
9	<p>Did you change your farming practices because of untimely rainfall in the following seasons / year? [multiple selection]</p> <table border="1" data-bbox="290 813 1367 1022"> <tr> <td data-bbox="290 813 812 1022"> 1= Diversify crops 2= Change in the cropping calendar 3= Change in seed/variety choice, different cropping patterns 4= Invest in irrigation sources (wells, dams, reservoirs, ponds etc.) or soil and water conservation </td><td data-bbox="812 813 1367 1022"> 5= Stop cultivation 6= Renting out or selling of land 7= Borrowing (crop loan) 8= Other 9= None (Did not change farming practice in any way) </td><td data-bbox="1367 813 1421 1022"></td></tr> </table>			1= Diversify crops 2= Change in the cropping calendar 3= Change in seed/variety choice, different cropping patterns 4= Invest in irrigation sources (wells, dams, reservoirs, ponds etc.) or soil and water conservation	5= Stop cultivation 6= Renting out or selling of land 7= Borrowing (crop loan) 8= Other 9= None (Did not change farming practice in any way)	
1= Diversify crops 2= Change in the cropping calendar 3= Change in seed/variety choice, different cropping patterns 4= Invest in irrigation sources (wells, dams, reservoirs, ponds etc.) or soil and water conservation	5= Stop cultivation 6= Renting out or selling of land 7= Borrowing (crop loan) 8= Other 9= None (Did not change farming practice in any way)					
10	<p>If drought is opted from (1), how severe was the impact on your household economic situation?</p>		1. Not severe 2. Somewhat severe 3. Severe 4. Extremely severe			
11	<p>If drought is opted from (1), did the drought impact your household in any of the following ways</p> <table border="1" data-bbox="290 1250 1367 1417"> <tr> <td data-bbox="290 1250 812 1417"> 1= Unable to sow crop 2= Partial or complete crop loss 3= Lower yields 4= Spoiling harvested/stored produce 5= Unable to market produce due to reduced mobility/physical access to the market </td><td data-bbox="812 1250 1367 1417"> 6= Livestock disease/mortality 7= Damage to agricultural infrastructure 8= Others 9= None (no impact) </td><td data-bbox="1367 1250 1421 1417"></td></tr> </table>			1= Unable to sow crop 2= Partial or complete crop loss 3= Lower yields 4= Spoiling harvested/stored produce 5= Unable to market produce due to reduced mobility/physical access to the market	6= Livestock disease/mortality 7= Damage to agricultural infrastructure 8= Others 9= None (no impact)	
1= Unable to sow crop 2= Partial or complete crop loss 3= Lower yields 4= Spoiling harvested/stored produce 5= Unable to market produce due to reduced mobility/physical access to the market	6= Livestock disease/mortality 7= Damage to agricultural infrastructure 8= Others 9= None (no impact)					
12	<p>What was your immediate coping response to the drought (i.e., within the same season)? [multiple selection]</p> <table border="1" data-bbox="290 1510 1367 1681"> <tr> <td data-bbox="290 1510 812 1681"> 1= Change in the crop choice 2= Claimed crop insurance for crop loss 3= Selling/mortgaging of assets 4= Credit from formal or informal sources 5= Reduce food consumption or change food habits </td><td data-bbox="812 1510 1367 1681"> 6= Reduce household expenditures on medical/health needs, children's education/schooling 7= Off-farm livelihood diversification (took on non-farm related work temporarily) 8= Other 9= None (no coping mechanism) </td><td data-bbox="1367 1510 1421 1681"></td></tr> </table>			1= Change in the crop choice 2= Claimed crop insurance for crop loss 3= Selling/mortgaging of assets 4= Credit from formal or informal sources 5= Reduce food consumption or change food habits	6= Reduce household expenditures on medical/health needs, children's education/schooling 7= Off-farm livelihood diversification (took on non-farm related work temporarily) 8= Other 9= None (no coping mechanism)	
1= Change in the crop choice 2= Claimed crop insurance for crop loss 3= Selling/mortgaging of assets 4= Credit from formal or informal sources 5= Reduce food consumption or change food habits	6= Reduce household expenditures on medical/health needs, children's education/schooling 7= Off-farm livelihood diversification (took on non-farm related work temporarily) 8= Other 9= None (no coping mechanism)					

13	Did you change your farming practices because of drought in the following seasons / year? [multiple selection]												
	<table border="1"> <tr><td>1= Diversify crops</td><td>5= Stop cultivation</td></tr> <tr><td>2= Change in the cropping calendar</td><td>6= Renting out or selling of land</td></tr> <tr><td>3= Change in seed/variety choice, different cropping patterns</td><td>7= Borrowing (crop loan)</td></tr> <tr><td>4= Invest in irrigation sources (wells, dams, reservoirs, ponds etc.) or soil and water conservation</td><td>8= Other</td></tr> <tr><td></td><td>9= None (Did not change farming practice in any way)</td></tr> </table>			1= Diversify crops	5= Stop cultivation	2= Change in the cropping calendar	6= Renting out or selling of land	3= Change in seed/variety choice, different cropping patterns	7= Borrowing (crop loan)	4= Invest in irrigation sources (wells, dams, reservoirs, ponds etc.) or soil and water conservation	8= Other		9= None (Did not change farming practice in any way)
1= Diversify crops	5= Stop cultivation												
2= Change in the cropping calendar	6= Renting out or selling of land												
3= Change in seed/variety choice, different cropping patterns	7= Borrowing (crop loan)												
4= Invest in irrigation sources (wells, dams, reservoirs, ponds etc.) or soil and water conservation	8= Other												
	9= None (Did not change farming practice in any way)												
14	If flood is opted from (1), how severe was the impact on your household economic situation?												
	<table border="1"> <tr><td>1. Not severe</td></tr> <tr><td>2. Somewhat severe</td></tr> <tr><td>3. Severe</td></tr> <tr><td>4. Extremely severe</td></tr> </table>			1. Not severe	2. Somewhat severe	3. Severe	4. Extremely severe						
1. Not severe													
2. Somewhat severe													
3. Severe													
4. Extremely severe													
15	If flood is opted from (1), did the flood impact your household in any of the following ways												
	<table border="1"> <tr><td>1= Unable to sow crop</td><td>6= Livestock disease/mortality</td></tr> <tr><td>2= Partial or complete crop loss</td><td>7= Damage to agricultural infrastructure</td></tr> <tr><td>3= Lower yields</td><td>8= Others</td></tr> <tr><td>4= Spoiling harvested/stored produce</td><td>9= None (<i>no impact</i>)</td></tr> <tr><td>5= Unable to market produce due to reduced mobility/physical access to the market</td><td></td></tr> </table>			1= Unable to sow crop	6= Livestock disease/mortality	2= Partial or complete crop loss	7= Damage to agricultural infrastructure	3= Lower yields	8= Others	4= Spoiling harvested/stored produce	9= None (<i>no impact</i>)	5= Unable to market produce due to reduced mobility/physical access to the market	
1= Unable to sow crop	6= Livestock disease/mortality												
2= Partial or complete crop loss	7= Damage to agricultural infrastructure												
3= Lower yields	8= Others												
4= Spoiling harvested/stored produce	9= None (<i>no impact</i>)												
5= Unable to market produce due to reduced mobility/physical access to the market													
16	What was your immediate coping response to the flood (i.e., within the same season)? [multiple selection]												
	<table border="1"> <tr><td>1= Change in the crop choice</td><td>6= Reduce household expenditures on medical/health needs, children's education/schooling</td></tr> <tr><td>2= Claimed crop insurance for crop loss</td><td>7= Off-farm livelihood diversification (took on non-farm related work temporarily)</td></tr> <tr><td>3= Selling/mortgaging of assets</td><td>8= Other</td></tr> <tr><td>4= Credit from formal or informal sources</td><td>9= None (<i>no coping mechanism</i>)</td></tr> <tr><td>5= Reduce food consumption or change food habits</td><td></td></tr> </table>			1= Change in the crop choice	6= Reduce household expenditures on medical/health needs, children's education/schooling	2= Claimed crop insurance for crop loss	7= Off-farm livelihood diversification (took on non-farm related work temporarily)	3= Selling/mortgaging of assets	8= Other	4= Credit from formal or informal sources	9= None (<i>no coping mechanism</i>)	5= Reduce food consumption or change food habits	
1= Change in the crop choice	6= Reduce household expenditures on medical/health needs, children's education/schooling												
2= Claimed crop insurance for crop loss	7= Off-farm livelihood diversification (took on non-farm related work temporarily)												
3= Selling/mortgaging of assets	8= Other												
4= Credit from formal or informal sources	9= None (<i>no coping mechanism</i>)												
5= Reduce food consumption or change food habits													
17	Did you change your farming practices because of flood in the following seasons / year? [multiple selection]												
	<table border="1"> <tr><td>1= Diversify crops</td><td>5= Stop cultivation</td></tr> <tr><td>2= Change in the cropping calendar</td><td>6= Renting out or selling of land</td></tr> <tr><td>3= Change in seed/variety choice, different cropping patterns</td><td>7= Borrowing (crop loan)</td></tr> <tr><td>4= Invest in irrigation sources (wells, dams, reservoirs, ponds etc.) or soil and water conservation</td><td>8= Other</td></tr> <tr><td></td><td>9= None (Did not change farming practice in any way)</td></tr> </table>			1= Diversify crops	5= Stop cultivation	2= Change in the cropping calendar	6= Renting out or selling of land	3= Change in seed/variety choice, different cropping patterns	7= Borrowing (crop loan)	4= Invest in irrigation sources (wells, dams, reservoirs, ponds etc.) or soil and water conservation	8= Other		9= None (Did not change farming practice in any way)
1= Diversify crops	5= Stop cultivation												
2= Change in the cropping calendar	6= Renting out or selling of land												
3= Change in seed/variety choice, different cropping patterns	7= Borrowing (crop loan)												
4= Invest in irrigation sources (wells, dams, reservoirs, ponds etc.) or soil and water conservation	8= Other												
	9= None (Did not change farming practice in any way)												
18	If heat wave is opted from (1), how severe was the impact on your household economic situation?												
	<table border="1"> <tr><td>1. Not severe</td></tr> <tr><td>2. Somewhat severe</td></tr> <tr><td>3. Severe</td></tr> <tr><td>4. Extremely severe</td></tr> </table>			1. Not severe	2. Somewhat severe	3. Severe	4. Extremely severe						
1. Not severe													
2. Somewhat severe													
3. Severe													
4. Extremely severe													
19	If heat wave is opted from (1), did the heat wave impact your household in any of the following ways												
	<table border="1"> <tr><td>1= Unable to sow crop</td><td>6= Livestock disease/mortality</td></tr> <tr><td>2= Partial or complete crop loss</td><td>7= Damage to agricultural infrastructure</td></tr> <tr><td>3= Lower yields</td><td>8= Others</td></tr> <tr><td>4= Spoiling harvested/stored produce</td><td>9= None (<i>no impact</i>)</td></tr> <tr><td>5= Unable to market produce due to reduced mobility/physical access to the market</td><td></td></tr> </table>			1= Unable to sow crop	6= Livestock disease/mortality	2= Partial or complete crop loss	7= Damage to agricultural infrastructure	3= Lower yields	8= Others	4= Spoiling harvested/stored produce	9= None (<i>no impact</i>)	5= Unable to market produce due to reduced mobility/physical access to the market	
1= Unable to sow crop	6= Livestock disease/mortality												
2= Partial or complete crop loss	7= Damage to agricultural infrastructure												
3= Lower yields	8= Others												
4= Spoiling harvested/stored produce	9= None (<i>no impact</i>)												
5= Unable to market produce due to reduced mobility/physical access to the market													

20	<p>What was your immediate coping response to the heat wave (i.e., within the same season)? [multiple selection]</p> <table border="1" data-bbox="290 291 1367 449"> <tr> <td data-bbox="290 291 812 449"> 1= Change in the crop choice 2= Claimed crop insurance for crop loss 3= Selling/mortgaging of assets 4= Credit from formal or informal sources 5= Reduce food consumption or change food habits </td><td data-bbox="812 291 1367 449"> 6= Reduce household expenditures on medical/health needs, children's education/schooling 7= Off-farm livelihood diversification (took on non-farm related work temporarily) 8= Other 9= None (no coping mechanism) </td></tr> </table>			1= Change in the crop choice 2= Claimed crop insurance for crop loss 3= Selling/mortgaging of assets 4= Credit from formal or informal sources 5= Reduce food consumption or change food habits	6= Reduce household expenditures on medical/health needs, children's education/schooling 7= Off-farm livelihood diversification (took on non-farm related work temporarily) 8= Other 9= None (no coping mechanism)
1= Change in the crop choice 2= Claimed crop insurance for crop loss 3= Selling/mortgaging of assets 4= Credit from formal or informal sources 5= Reduce food consumption or change food habits	6= Reduce household expenditures on medical/health needs, children's education/schooling 7= Off-farm livelihood diversification (took on non-farm related work temporarily) 8= Other 9= None (no coping mechanism)				
21	<p>Did you change your farming practices because of heat wave in the following seasons / year? [multiple selection]</p> <table border="1" data-bbox="290 555 1367 726"> <tr> <td data-bbox="290 555 812 726"> 1= Diversify crops 2= Change in the cropping calendar 3= Change in seed/variety choice, different cropping patterns 4= Invest in irrigation sources (wells, dams, reservoirs, ponds etc.) or soil and water conservation </td><td data-bbox="812 555 1367 726"> 5= Stop cultivation 6= Renting out or selling of land 7= Borrowing (crop loan) 8= Other 9= None (Did not change farming practice in any way) </td></tr> </table>			1= Diversify crops 2= Change in the cropping calendar 3= Change in seed/variety choice, different cropping patterns 4= Invest in irrigation sources (wells, dams, reservoirs, ponds etc.) or soil and water conservation	5= Stop cultivation 6= Renting out or selling of land 7= Borrowing (crop loan) 8= Other 9= None (Did not change farming practice in any way)
1= Diversify crops 2= Change in the cropping calendar 3= Change in seed/variety choice, different cropping patterns 4= Invest in irrigation sources (wells, dams, reservoirs, ponds etc.) or soil and water conservation	5= Stop cultivation 6= Renting out or selling of land 7= Borrowing (crop loan) 8= Other 9= None (Did not change farming practice in any way)				
22	<p>If heavy wind is opted from (1), how severe was the impact on your household economic situation?</p>		1. Not severe 2. Somewhat severe 3. Severe 4. Extremely severe		
23	<p>If heavy wind is opted from (1), did the heavy wind impact your household in any of the following ways</p> <table border="1" data-bbox="290 963 1334 1136"> <tr> <td data-bbox="290 963 845 1136"> 1= Unable to sow crop 2= Partial or complete crop loss 3= Lower yields 4= Spoiling harvested/stored produce 5= Unable to market produce due to reduced mobility/physical access to the market </td><td data-bbox="845 963 1334 1136"> 6= Livestock disease/mortality 7= Damage to agricultural infrastructure 8= Others 9= None (no impact) </td></tr> </table>			1= Unable to sow crop 2= Partial or complete crop loss 3= Lower yields 4= Spoiling harvested/stored produce 5= Unable to market produce due to reduced mobility/physical access to the market	6= Livestock disease/mortality 7= Damage to agricultural infrastructure 8= Others 9= None (no impact)
1= Unable to sow crop 2= Partial or complete crop loss 3= Lower yields 4= Spoiling harvested/stored produce 5= Unable to market produce due to reduced mobility/physical access to the market	6= Livestock disease/mortality 7= Damage to agricultural infrastructure 8= Others 9= None (no impact)				
24	<p>What was your immediate coping response to the heavy wind (i.e., within the same season)? [multiple selection]</p> <table border="1" data-bbox="290 1231 1367 1402"> <tr> <td data-bbox="290 1231 812 1402"> 1= Change in the crop choice 2= Claimed crop insurance for crop loss 3= Selling/mortgaging of assets 4= Credit from formal or informal sources 5= Reduce food consumption or change food habits </td><td data-bbox="812 1231 1367 1402"> 6= Reduce household expenditures on medical/health needs, children's education/schooling 7= Off-farm livelihood diversification (took on non-farm related work temporarily) 8= Other 9= None (no coping mechanism) </td></tr> </table>			1= Change in the crop choice 2= Claimed crop insurance for crop loss 3= Selling/mortgaging of assets 4= Credit from formal or informal sources 5= Reduce food consumption or change food habits	6= Reduce household expenditures on medical/health needs, children's education/schooling 7= Off-farm livelihood diversification (took on non-farm related work temporarily) 8= Other 9= None (no coping mechanism)
1= Change in the crop choice 2= Claimed crop insurance for crop loss 3= Selling/mortgaging of assets 4= Credit from formal or informal sources 5= Reduce food consumption or change food habits	6= Reduce household expenditures on medical/health needs, children's education/schooling 7= Off-farm livelihood diversification (took on non-farm related work temporarily) 8= Other 9= None (no coping mechanism)				
25	<p>Did you change your farming practices because of heavy wind in the following seasons / year? [multiple selection]</p> <table border="1" data-bbox="290 1497 1367 1664"> <tr> <td data-bbox="290 1497 812 1664"> 1= Diversify crops 2= Change in the cropping calendar 3= Change in seed/variety choice, different cropping patterns 4= Invest in irrigation sources (wells, dams, reservoirs, ponds etc.) or soil and water conservation </td><td data-bbox="812 1497 1367 1664"> 5= Stop cultivation 6= Renting out or selling of land 7= Borrowing (crop loan) 8= Other 9= None (Did not change farming practice in any way) </td></tr> </table>			1= Diversify crops 2= Change in the cropping calendar 3= Change in seed/variety choice, different cropping patterns 4= Invest in irrigation sources (wells, dams, reservoirs, ponds etc.) or soil and water conservation	5= Stop cultivation 6= Renting out or selling of land 7= Borrowing (crop loan) 8= Other 9= None (Did not change farming practice in any way)
1= Diversify crops 2= Change in the cropping calendar 3= Change in seed/variety choice, different cropping patterns 4= Invest in irrigation sources (wells, dams, reservoirs, ponds etc.) or soil and water conservation	5= Stop cultivation 6= Renting out or selling of land 7= Borrowing (crop loan) 8= Other 9= None (Did not change farming practice in any way)				

26	<p>Now, based the severity of impact on household economic situation, which would you consider to be the most severe?</p> <p>1= Delayed monsoon 2= Untimely rainfall 3= Drought 4= Flood 5= Heat wave 6= Heavy wind 7= Not applicable</p>
----	---

MODULE F3: Risk Aversion

Suppose you are offered a way to earn some money. There are 5 Boxes here. Each box has two price, a high price and a low price. These prices differ between the boxes as below.

You can select ONE box from these 5 boxes shown below. Once you select the box, a coin will be tossed. If head comes, you get high price in the box and if tail comes, you get lower price.

Please remember you can only select one box out of 5 boxes. So carefully take a look and choose.

Box 1	Box 2	Box 3	Box 4	Box 5
Rs. 160	Rs. 160	Rs. 240	Rs. 120	Rs. 320
		Rs. 80	Rs. 400	Rs. 40
Box Number? (1= Box 1; 2= Box 2; 3=Box 3; 4= Box 4; 5= Box 5)				
Outcome of the coin? (1= Head; 2= Tail)				

MODULE F4: Cognitive Reflection Test

	Math score [write 9999 if unable to say]	Responses/ Choices
1	How much is $7 + 9$?	_____
2	How much is $88 - 35$?	_____
3	A bat and a ball cost Rs. 225 in total. The bat costs Rs. 200. How much does the ball cost?	Rs. _____
4	If it takes 5 tractors 5 hours to plough 5 acres, how long would it take 100 tractors to make 100 acres?	_____ hours

5	In a lake, there is a patch of African weed (water hyacinth). Every day it grows. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half of the lake? (Days)	_____ days
6	If half an acre of land requires one 15 kg packet of rice seed, how many kilos of seed would a 30 acres plot need?	_____ kg

Section- G: Intention to practice AWD or participate in voluntary carbon markets

	Knowledge	Response
1.	Are you aware about Alternate Wetting and Drying (AWD) method of irrigation in rice?	1 = yes 2 = No
2	If yes to AWD, source of information?	1= Krishibhavan 2= KVKS, Research Institutions & Universities 3= Padasekharanam samithi, FPCs, and Cooperatives 4= NGOs & Development Agencies 5= Private Agri-Input Companies 6= Digital & Social Media 7= Field Demonstrations & Training Programs 8= Irrigation Service Providers 9= Others
3.	Have you heard about voluntary carbon markets (VCM) / payment for eco-system services (PES)?	1 = yes 2 = No
4.	If yes to VCM/PES, source of information?	1= Krishibhavan, Government Programs & Extension Services 2= KVKS, Research Institutions & Universities 3= Parasekhanam Samithi, FPCs, Cooperatives 4= NGOs & Development Agencies 5= Private Agri-Tech & Carbon Credit Companies 6= Mass Media 7= Digital & Social Media 8= Field Demonstrations & Training Workshops 9= Others
5.	Did you know that continuous flooding or water stagnation in rice field emits GHGs and pollute air?	1 = Yes 2 = No
6.	Did you know that intermittent drying can help reduce GHG emissions from rice fields compared to continuous flooding?	3 = Yes 4 = No
7.	Are you willing to try out something new in farming, without knowing the outcomes for other farmers who have tried it?	1 = Yes 2 = No

8.	Are you willing to try out something new in farming, knowing that your friends are also trying it?	1. Yes 2. No
9.	Are you willing to practice improved water management such as AWD in the future?	1. Yes 2. No
10.	Are you willing to explore and participate in voluntary carbon market in the future?	1. Yes 2. No

H: Survey Completion

Q.no	Q. label	Response
1	Completion Status	1. Completed 2. Not completed
2	Enumerator Feedback, if not completed in (Q1)	1. No consent given 2. Left halfway 3. Poor quality data
3	Additional Comments	
4	Survey end time (HH-MM-SS)	