Data Analysis Mini-Report for ECCRAS Project Endline Evaluation

PHASE 1: DATA PREPARATION & CLEANING – ECCRAS PROJECT

Objective: Ensure the survey dataset is accurate, complete, and structured for robust analysis.

1. DATA ENTRY & VALIDATION

- Survey responses were transferred into a clean, structured dataset (`DESECE_ECCRAS_Cleaned_Data.csv`) with **195 respondents and 180 variables**.
- The final sampled data is displayed on the table below:

DATA PREPARATIONS				
Female Respondents	143			
Male Respondents	52			
Total Respondents	**195**			

County	Sub Locations	Male	Female	Total Sample
Bungoma County	Mt. Elgon	19	46	65
Bungoma County	Bumula	22	43	65
Trans Nzoia County	Trans-Nzoia West	11	54	65
Total Sample Population		52	143	195

- Data validation rules were applied to detect inconsistencies, out-of-range values, and missing responses.

2. DATA CLEANING

- **Missing Data:**
  - Certain columns (e.g., `intercropping_acres`, `trees_planted_number`, `vegetation_strip_meters` etc) had missing values, which were identified and flagged.
  - Strategies were applied to handle missing data, including retaining key responses and preparing for imputation or exclusion in analysis.
- **Variable Recoding:**
  - New variables were created for analysis:
    - `age` derived from `Age`
    - `location_name` derived from `Name of the Location`
    - `respondent_name` derived from `Name of the Respondent`
    - `primary_livelihood` derived from `Primary livelihood activity`
    - `County_name` derived from `Name of the County`

- `agroforestry_heard` derived from `Agroforestry (trees on farm) Heard About`
- `drought_varieties_adopted` derived from `Adopted/Used`
- crop_rotation_adopted derived from `Crop rotation/intercropping(Adopted/Used)`
- `Adoption_Score` as a composite measure of adopted practices

-This variables derivation is done for all the 180 variable sof the dataset and the cleaned file is provided as reference.

3. DATASET OVERVIEW

- **Respondent Demographics:**

Category	Sub-Category	Count	Percentage (%)
Gender			
	Female	143	73.3
	Male	52	26.7
Age Group			
	18–25	1	0.5
	26–35	18	9.2
	36–45	29	14.9
	46–55	62	31.8
	56+	85	43.6
County			
	Bungoma County	130	66.7
	Trans Nzoia County	65	33.3
Primary Livelihood			
	Crop Farming	104	53.3
	Crop & Livestock	89	45.6
	Livestock Rearing	1	0.5
	Other (Specify)	1	0.5
Sub-location			
	Mt Elgon	65	33.3
	Bumula	65	33.3
	Trans-Nzoia West	65	33.3

4. KEY OBSERVATIONS

- The dataset is **structured, clean, and ready** for descriptive and inferential analysis.
- Minimal missing data in critical variables ensures confidence in adoption rate calculations.
- Sub-location, county, age, and gender distributions provide a foundation for disaggregated analysis in subsequent phases.

## PHASE 2: SUMMARY OF DESCRIPTIVE ANALYSIS (FOR ALL SECTIONS)

All Sections-Categorical and Numerical sections

This phase provides an overview of the dataset through descriptive statistics, including frequencies, percentages, means, and medians for key variables across demographics, categorical, and numeric sections. The sample consists of 195 respondents (143 females, 52 males), primarily from Bungoma County (130) and Trans Nzoia County (65). Age distribution skews older, with 56+ being the largest group (85 respondents). Primary livelihoods are dominated by crop farming (104) and mixed crop-livestock (89). Disaggregations reveal trends in adoption rates, knowledge sources, and practices, with high overall adoption of agroecological methods (e.g., 97%+ for composting and water harvesting).

SAMPLE CHARACTERISTICS (OVERALL DEMOGRAPHICS)

- **Gender Breakdown** - Females represent 73.3% (143), males 26.7% (52).
- **Age Groups**: 56+ (43.6%, 85); 46-55 (31.8%, 62); 36-45 (14.9%, 29); 26-35 (9.2%, 18); 18-25 (0.5%, 1).

Age Group	Count	Percentage
18-25	1	0.51%
26-35	18	9.23%
36-45	29	14.87%
46-55	62	31.79%
56+	85	43.59%

Age Group Distribution of Respondents (Percentage)
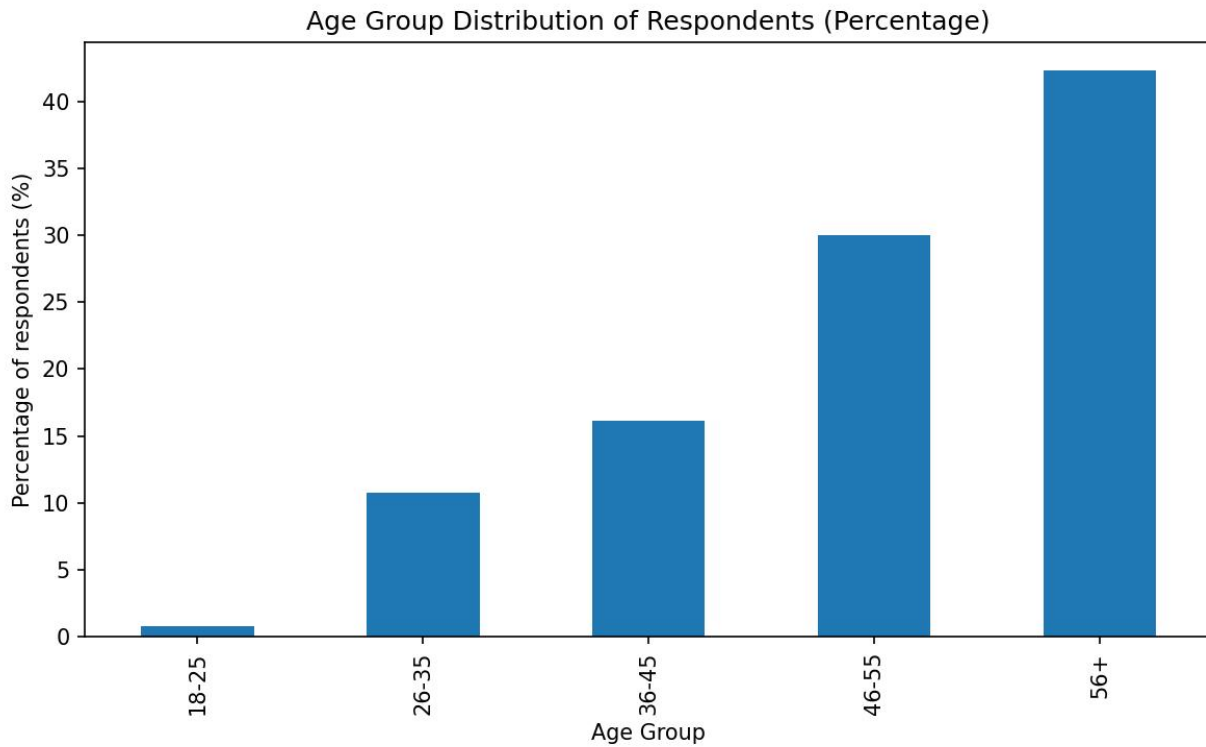
- **County Distribution**: Bungoma (66.7%, 130); Trans Nzoia (33.3%, 65).

- **Primary Livelihood**: Crop farming (53.3%, 104); Crop & Livestock (45.6%, 89); Livestock rearing/Other (0.5% each, 1).

- **Sublocations**: Even split across Bumula, Mt Elgon (33.3% each, 65), and Trans-Nzoia West (33.3%, 65).

- **Top locations:** Sikhendu (11.8%, 23); Chemses (5.6%, 11); Kibuke (5.1%, 10).

Table: Demographic Profile of Respondents

Demographic Variable	Category	Count	Percentage
Gender	Female	143	73.30%
	Male	52	26.70%
Age Group	56+ years	85	43.60%
	46-55 years	62	31.80%
	36-45 years	29	14.90%
	26-35 years	18	9.20%
	18-25 years	1	0.50%
County	Bungoma County	130	66.70%
	Trans Nzoia County	65	33.30%
Primary Livelihood	Crop Farming	104	53.30%
	Crop & Livestock	89	45.60%
	Livestock Rearing	1	0.50%
	Other	1	0.50%

Insights

- The data reflects a sample of primarily middle-aged and older smallholder farmers, with a significant gender disparity towards women.
- The distribution between the two counties and farming systems provides a good basis for comparative analysis.

KEY CATEGORICAL VARIABLES (FREQUENCIES AND PERCENTAGES)

Common themes include high awareness and adoption of practices like composting (99% heard, 98% adopted overall). Knowledge sources are predominantly from project training (e.g., DESECE, 86%). Most important practices: Compost use (41.5%). Climate worries: Prolonged drought (29.2%). Challenges: High input costs (13.8%).

- **Top 5 Categorical Variables (Overall)**

Variable	Top Response	Count	Percentage
Location name	Sikhendu	23	11.80%
Respondent name	Richard Wafula / Elizabeth Wafula	2 each	1.00%
age	56+	85	43.60%
Primary livelihood(other)	Yes	1	0.50%
agroforestry_heard		192	98.50%

- **Disaggregation by Age Group (Example: Briquette No Participation Reasons)**:
  - 18-25: 100% "Trained".
  - 26-35: 61.1% "Trained"; 5.6% each for "I attended", "I was sick".
  - 36-45: 65.5% "Trained"; 3.4% each for "Old age", "Attended the training".
  - 46-55: 75.8% "Trained"; 3.2% "Participated".
  - 56+: 78.8% "Trained"; 2.4% "Was trained".

- **Disaggregation by County (Briquette No Participation Reasons)**

Reason	Bungoma Count (%)	Trans Nzoia Count (%)
Trained	2 (1.5%)	2 (3.1%)
Was trained	3 (2.3%)	2 (3.1%)
I was sick	2 (1.5%)	0 (0%)
(Bungoma shows higher "Old age" at 0.8%; Trans Nzoia higher "I attended the training" at 1.5%.)		

- **Disaggregation by Primary Livelihood (Beneficiary Status, Example: Briquette Reasons)**

Reason	Crop & Livestock (%)	Crop Farming (%)
Lack of raw materials	16.90%	1.00%
Time-consuming	1.10%	1.00%
Equipment	2.20%	1.00%
(Crop & Livestock beneficiaries report higher equipment issues.)		

KEY NUMERIC VARIABLES (MEANS, MEDIANS)

Numeric metrics show moderate input use (e.g., compost: mean 11.4 bags/season) and small-scale practices (e.g., cover crops: mean 0.63 acres). Family knowledge sources are low (mean 0.04).

- **Overall Numeric Stats**

Variable	Count	Mean	Median	Min	Max	Std
Compost bags/season	192	11.4	7.5	0.2	100	13.8
Manure bags/season	184	10.5	6	0	125	13.9
Acres under cover crops	179	0.63	0.5	0.05	4	0.55

- **Disaggregation by Gender**

- Compost: Females (mean 10.0, median 7.0); Males (mean 15.1, median 9.0) – males use more.
- Manure: Similar means (~10.5), but females have higher std (15.4 vs. 9.3).
- Source family: Females (mean 0.05); Males (mean 0.02).

- **Disaggregation by Age Group**

  - Compost: Increases with age; 18-25 (mean 8.0); 56+ (mean 11.8, median 6.0).
  - Acres cover crops: 56+ highest (mean 0.68); 26-35 lowest (mean 0.53).
  - Briquette reason time: Highest in 26-35 (mean 0.40).

- **Disaggregation by County**

  - Compost: Bungoma (mean 12.9, median 10.0); Trans Nzoia (mean 8.4, median 5.0).
  - Manure: Bungoma (mean 11.5); Trans Nzoia (mean 8.4) – Bungoma higher.
  - Source family: Bungoma (mean 0.05); Trans Nzoia (mean 0.03).

- **Disaggregation by Primary Livelihood**
  - Compost: Crop & Livestock (mean 14.9); Crop farming (mean 8.5).
  - Acres cover crops: Crop farming (mean 0.69); Crop & Livestock (mean 0.55).
  - Briquette reason equipment: Crop & Livestock (mean 0.24); Crop farming (mean 0.10).

ADOPTION RATES (PERCENTAGES)

Distribution of Adoption Score (count of practices adopted)
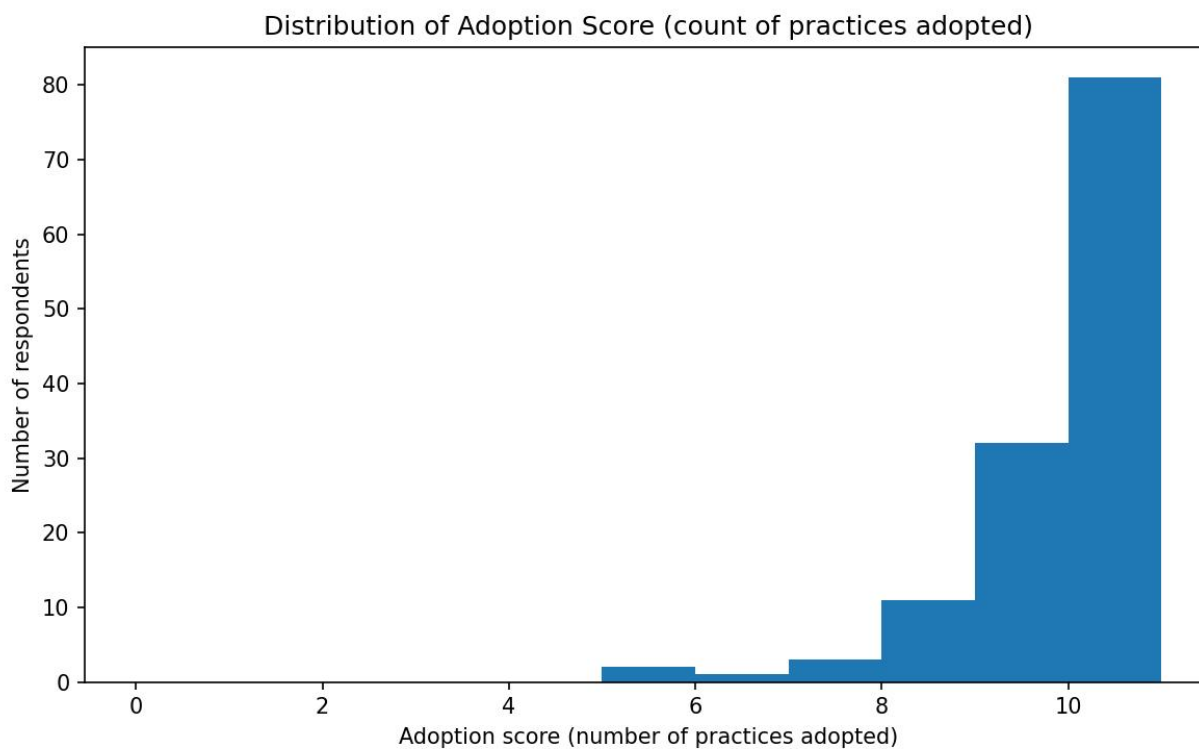
High adoption across practices, with slight variations:

- **By Gender**

Practice	Female (%)	Male (%)
Agroforestry	97.2	98.1
Drought varieties	88.8	88.5
Composting	97.9	100
(Males slightly higher in mulching, soil conservation.)		

- **By County**

Practice	Bungoma (%)	Trans Nzoia (%)
Agroforestry	98.4	95.4
Water harvesting	100	98.5
(Bungoma leads in most; Trans Nzoia in drip irrigation.)		

Table: Top Adopted Practices and Perceived Impact

Practice	Heard of Practice	Adopted Practice	Most Common Perceived Effect
Agroforestry	98.50%	96.90%	Very Positive
Drought-Tolerant Varieties	95.40%	88.70%	Very Positive
Crop Rotation	99.50%	99.00%	Very Positive
Mulching	95.40%	88.70%	Very Positive
Composting	99.50%	98.50%	Very Positive
Water Harvesting	99.00%	99.00%	Very Positive
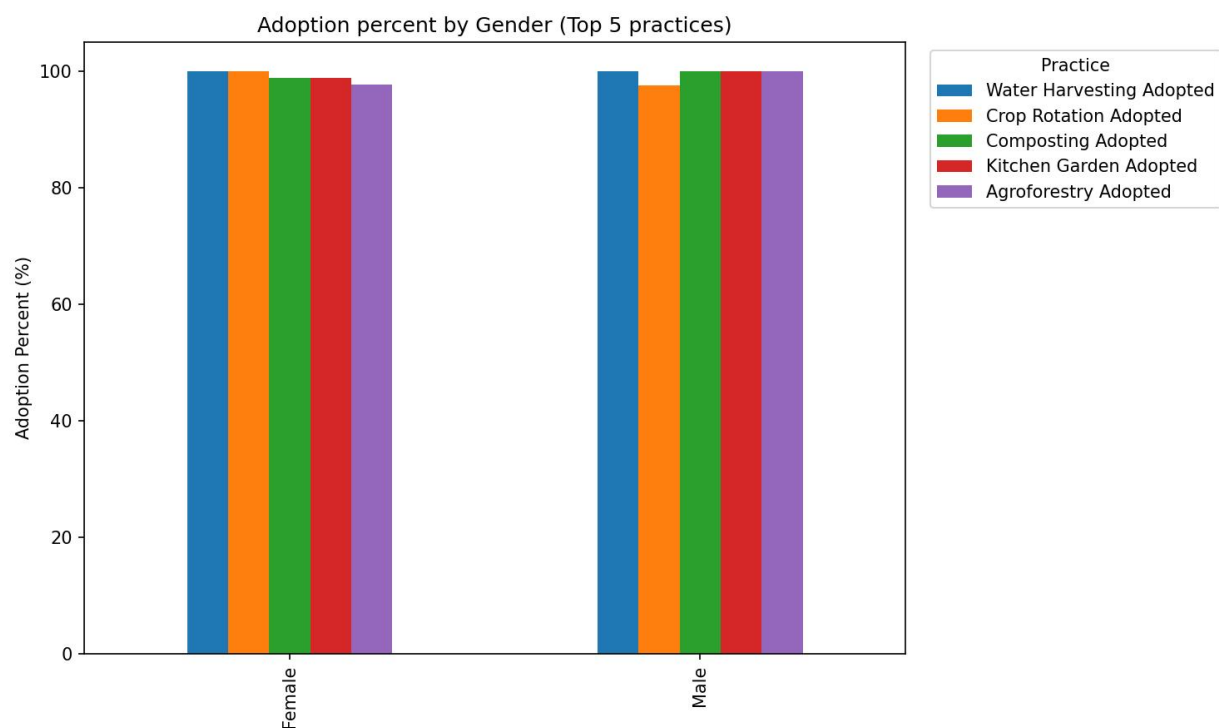
In sum, the data highlights gender and county disparities (e.g., females in Bungoma dominate adoption but use fewer inputs), with older groups showing higher means in land-based practices. Trends suggest project training drives positive effects, though challenges like costs persist.

Top 5 Adopted Practices (Adoption Percent)
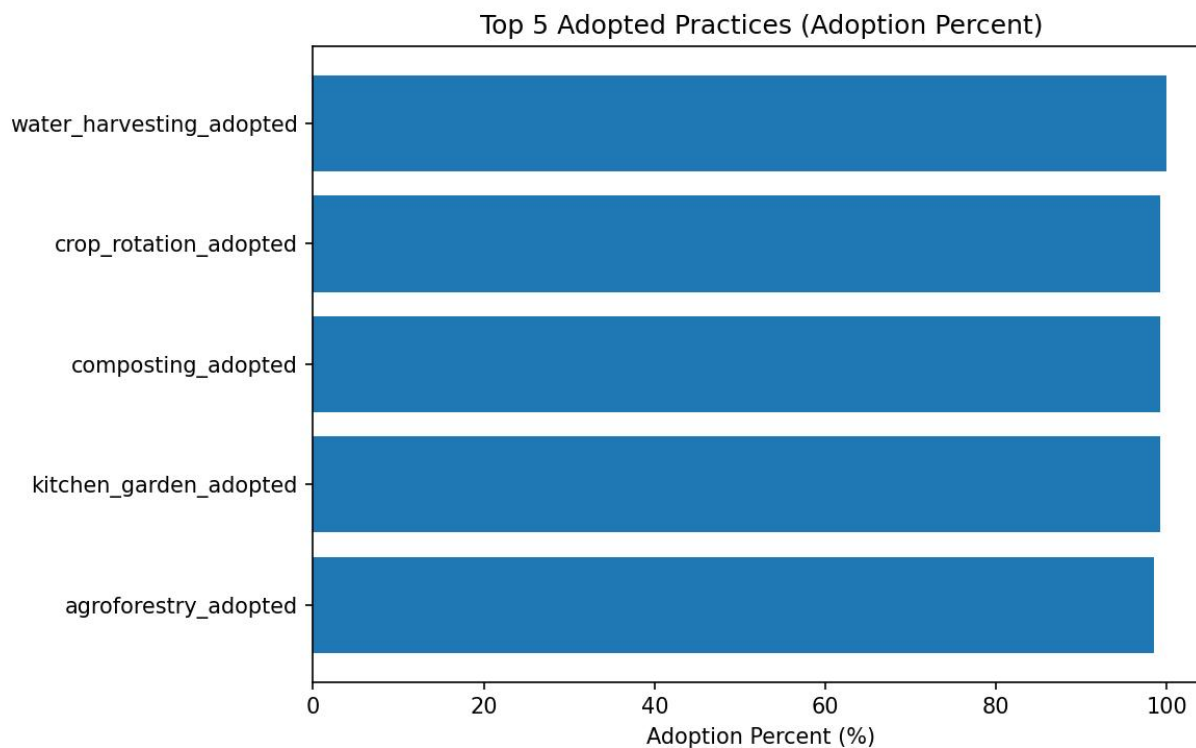
AWARENESS OF PRACTICES

AGROFORESTRY

- **Heard about:** 98.5% of respondents have heard about agroforestry.
- **Adopted:** 96.9% have adopted it.
- **By Gender & Age:** Adoption is high across all groups; slightly lower among older respondents (56+).
- **By County:** Bungoma leads in both awareness (99.2%) and adoption (97.7%).

Table: Agroforestry Adoption by Gender

Gender	Yes (%)	No (%)
Female	96.5	2.8
Male	98.1	1.9

DROUGHT-RESISTANT VARIETIES

- **Heard about:** 95.4% of respondents.
- **Adopted:** 88.7% of respondents.
- **Observation:** Adoption decreases slightly with increasing age (highest in 36-45 at 96.6%, lowest in 56+ at 84.7%).

CROP ROTATION

- **Heard about:** 99.5%.
- **Adopted:** 99.0%, indicating widespread acceptance.
- **By County & Livelihood:** Nearly universal awareness and adoption across both Bungoma and Trans Nzoia counties.

MULCHING

- **Heard about:** 95.4%.
- **Adopted:** 88.7%.
- **Insight:** Adoption is lower among older respondents and Trans Nzoia County (86.2%) compared to Bungoma (90%).

COMPOSTING

- **Heard about:** 99.5%.
- **Observation:** Awareness is very high across all demographics. Adoption data not fully presented but likely similar trends to other practices.

LIVELIHOOD DIVERSIFICATION

- Most respondents are engaged in **Crop & Livestock (44.9%)** or **Crop farming (42.3%)**.
- Very few practice small business and crop farming (0.5%) or Livestock rearing alone.

Table : Primary Livelihood (Overall)

Livelihood	Count	Percentage
Crop & Livestock	89	44.90%
Crop farming	104	42.30%
Livestock rearing	1	0.50%
Other (Small business)	1	0.50%

KEY INSIGHTS

- The survey sample is **older-skewed**, predominantly 46+ years.
- Awareness and adoption of sustainable agricultural practices (**agroforestry, crop rotation, drought varieties, mulching, composting**) are **high**, particularly in Bungoma County.
- Adoption slightly declines with age and varies by livelihood type and county.

- Crop & Livestock and Crop farming remain the dominant livelihood activities, emphasizing the relevance of targeted interventions in these areas.

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1. COMPOSTING

Awareness (Heard of Composting):

- Overall, 100% of respondents in Bungoma and 98.5% in Trans Nzoia had heard of composting.
- Sublocations like Bumula and Mt Elgon reported 100% awareness.
- Across livelihoods, crop farming and crop & livestock farmers almost universally heard of composting.

Adoption (Practicing Composting):

- Overall adoption is very high: 98.5%.
- Slightly higher adoption among males (100%) compared to females (97.9%).
- Older farmers (56+) showed slightly lower adoption (97.6%) than younger age groups.
- Bungoma had slightly higher adoption (99.2%) than Trans Nzoia (96.9%).
- Sublocation-level adoption mirrors this trend: Trans-Nzoia West slightly lower (96.9%).

Key Insight: Composting is almost universally known and practiced, with minor gaps among older farmers, females, and some Trans Nzoia sublocations.

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2. WATER HARVESTING

Awareness

- Nearly universal awareness (≈99% overall).
- Very minor missing data (1 respondent NaN).
- Awareness is consistent across gender, age, county, and livelihood.

Adoption

- Extremely high adoption: 99.5% overall.
- Females slightly less than males (99.3% vs 100%).
- Older respondents (56+) had slightly lower adoption (98.8%).
- Adoption gaps minimal across counties and sublocations.

Key Insight: Water harvesting is widely known and adopted across all demographics, indicating strong program penetration.

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3. DRIP IRRIGATION

Awareness

- Lower than composting and water harvesting: 82.6% overall.
- Slight gender gap: females (83.2%), males (80.8%).
- Age shows a declining awareness trend with older farmers: 56+ at 80%.
- Bungoma and Trans Nzoia awareness roughly similar (83.8% vs 80%).
- Crop & livestock farmers less aware (73%) compared to crop farmers (90%).

Adoption

- Overall adoption: 76.4%.
- Gender gap: females (77.6%), males (73.1%).
- Older farmers adopt less: 56+ adoption 71.8%.
- Sublocation variation: Mt Elgon lower adoption (70.8%) vs Bumula (80%) and Trans-Nzoia West (78.5%).
- Crop & livestock farmers lower adoption (62.9%) vs crop farmers (87.5%).

Key Insight - Drip irrigation shows the largest knowledge and adoption gaps, particularly among older farmers, women, and crop & livestock farmers. Targeted awareness campaigns could improve uptake.

4. KITCHEN GARDENS

Awareness (Heard of)

Category	Count_No	Count_Yes	% No	% Yes
Overall	1	194	0.51	99.49
Gender: Female	1	142	0.7	99.3
Gender: Male	0	52	0	100
Age 18-25	0	1	0	100
Age 26-35	0	18	0	100
Age 36-45	0	29	0	100
Age 46-55	0	62	0	100
Age 56+	1	84	1.18	98.82
County: Bungoma	0	130	0	100
County: Trans Nzoia	1	64	1.54	98.46
Sublocation: Bumula	0	65	0	100
Sublocation: Mt Elgon	0	65	0	100
Sublocation: Trans-Nzoia West	1	64	1.54	98.46

- Almost universal awareness: 99–100% across most sublocations.
- Minor gap in Trans-Nzoia West (98.5%).

Adoption (Practicing)

Category	Count_No	Count_Yes	% No	% Yes
Overall	2	193	1.03	98.97
Gender: Female	2	141	1.4	98.6
Gender: Male	0	52	0	100
Age 18-25	0	1	0	100
Age 26-35	0	18	0	100
Age 36-45	0	29	0	100
Age 46-55	1	61	1.61	98.39
Age 56+	1	84	1.18	98.82
County: Bungoma	1	129	0.77	99.23
County: Trans Nzoia	1	64	1.54	98.46
Sublocation: Bumula	0	65	0	100
Sublocation: Mt Elgon	1	64	1.54	98.46
Sublocation: Trans-Nzoia West	1	64	1.54	98.46

- Very high: 98.97% overall.
- Females slightly lower adoption (98.6%) than males (100%).
- Older farmers (46–55, 56+) slightly lower adoption (~98–98.8%).
- Adoption is similar across counties and sublocations, with very minor gaps.

Insight: Kitchen gardens are widely known and adopted, with minimal demographic gaps.

5. FOOD FORESTS

Awareness

Category	Count_No	Count_Yes	% No	% Yes
Overall	3	192	1.54	98.46
Gender: Female	3	140	2.1	97.9
Gender: Male	0	52	0	100
Age 18-25	0	1	0	100
Age 26-35	0	18	0	100
Age 36-45	0	29	0	100
Age 46-55	0	62	0	100
Age 56+	3	82	3.53	96.47
County: Bungoma	0	130	0	100
County: Trans Nzoia	3	62	4.62	95.38
Sublocation: Bumula	0	65	0	100
Sublocation: Mt Elgon	0	65	0	100
Sublocation: Trans-Nzoia West	3	62	4.62	95.38

- High overall awareness: 98.5%.
- Lower among older farmers (56+ at 96.5%) and in Trans Nzoia County (95.4%).
- Slight gender gap: females 97.9%, males 100%.

Adoption

Category	Count_No	Count_Yes	% No	% Yes
Overall	8	187	4.1	95.9
Gender: Female	6	137	4.2	95.8
Gender: Male	2	50	3.85	96.15
Age 18-25	0	1	0	100
Age 26-35	0	18	0	100
Age 36-45	1	28	3.45	96.55
Age 46-55	1	61	1.61	98.39
Age 56+	6	79	7.06	92.94
County: Bungoma	5	125	3.85	96.15
County: Trans Nzoia	3	62	4.62	95.38
Sublocation: Bumula	1	64	1.54	98.46
Sublocation: Mt Elgon	4	61	6.15	93.85
Sublocation: Trans-Nzoia West	3	62	4.62	95.38

- Overall adoption: 95.9%.
- Slightly lower adoption in older farmers (56+ at 92.9%).
- Adoption by county: Bungoma 96.1%, Trans Nzoia 95.4%.
- Sublocation gaps: Mt Elgon slightly lower adoption (93.8%).

Insight: Food forests are well-known and adopted but show slightly larger gaps among older farmers and in some sublocations.

6. SOIL CONSERVATION

Awareness

Category	Count_No	Count_Yes	% No	% Yes
Overall	12	183	6.15	93.85
Gender: Female	10	133	6.99	93.01
Gender: Male	2	50	3.85	96.15
Age 18-25	0	1	0	100
Age 26-35	1	17	5.56	94.44
Age 36-45	1	28	3.45	96.55
Age 46-55	1	61	1.61	98.39
Age 56+	9	76	10.59	89.41
County: Bungoma	7	123	5.38	94.62
County: Trans Nzoia	5	60	7.69	92.31
Sublocation: Bumula	2	63	3.08	96.92
Sublocation: Mt Elgon	5	60	7.69	92.31
Sublocation: Trans-Nzoia West	5	60	7.69	92.31

- Slightly lower than other practices: 93.8% overall.
- Gender gap: females 93%, males 96.1%.
- Age-related gaps: older farmers (56+) at 89.4%.
- County differences: Bungoma 94.6%, Trans Nzoia 92.3%.
- Sublocations like Mt Elgon and Trans-Nzoia West slightly lower awareness (~92.3%).

Adoption

Category	Count_No	Count_Yes	% No	% Yes
Overall	15	180	7.69	92.31
Gender: Female	12	131	8.39	91.61
Gender: Male	3	49	5.77	94.23
Age 18-25	0	1	0	100
Age 26-35	1	17	5.56	94.44
Age 36-45	1	28	3.45	96.55
Age 46-55	1	61	1.61	98.39
Age 56+	12	73	14.12	85.88
County: Bungoma	9	121	6.92	93.08
County: Trans Nzoia	6	59	9.23	90.77
Sublocation: Bumula	3	62	4.62	95.38
Sublocation: Mt Elgon	6	59	9.23	90.77
Sublocation: Trans-Nzoia West	6	59	9.23	90.77

- Overall adoption: 92.3%.
- Females 91.6%, males 94.2%.
- Older farmers (56+) adoption is lowest at 85.9%.
- County differences: Bungoma 93.1%, Trans Nzoia 90.8%.
- Sublocation adoption: Mt Elgon & Trans-Nzoia West lowest (~90.8–90.8%).

Insight- Soil conservation shows the **largest knowledge and adoption gaps**, especially among older farmers, females, and certain sublocations. This indicates a need for targeted awareness and training interventions.

6. KNOWLEDGE SOURCES

Knowledge Source	Count	%
Project training – DESECE	167	85.64
Demonstration farm / field day – Other NGO	4	2.05
Project training – DESECE Radio/TV	3	1.54
Project training – DESECE Neighbour / friend	3	1.54
Radio/TV Project training – DESECE	3	1.54
Neighbour / friend Project training – DESECE	2	1.03
Project training – DESECE Government agricultural officer	2	1.03
Project training – DESECE Neighbour/friend Family member	2	1.03
Neighbour or friend	1	0.51
Project training – DESECE Radio/TV Family member	1	0.51
Project training – DESECE Government officer + Radio/TV + Neighbour + Family	1	0.51
Family member Project training – DESECE	1	0.51
Radio/TV Project training – DESECE Neighbour / Family member	1	0.51
Other combinations (multiple sources)	1	0.51

- **Project training – DESECE** is the dominant source (85.6%).
- Other sources are minor: radio/TV, neighbors/friends, government agricultural officers, family members (<2% each).
- This highlights the **importance of project-led trainings** in promoting sustainable agricultural practices.
- Minor overlapping sources suggest farmers often receive information from multiple channels.

1) KNOWLEDGE SOURCES BY GENDER

Gender	Demonstration Farm/Field Day	Project Training (DESECE)	Family Member	Neighbour/Friend	Radio/TV	Govt. Agric Officer	Total Yes
Female	3	123	1	1	2	1	1
Male	1	44	0	0	1	1	1

2) KNOWLEDGE SOURCES BY AGE GROUP

Age Group	Demonstration Farm/Field Day	Project Training (DESECE)	Family Member	Neighbour/Friend	Radio/TV	Govt. Agric Officer	Total Yes
18–25	0	1	0	0	0	0	0
26–35	0	17	0	0	0	0	1
36–45	1	25	1	0	0	0	0
46–55	2	52	0	1	1	1	0
56+	1	72	0	1	1	0	0

3) KNOWLEDGE SOURCES BY COUNTY

County	Demonstration Farm/Field Day	Project Training (DESECE)	Family Member	Neighbour/Friend	Radio/TV	Govt. Agric Officer	Total Yes
Bungoma County	4	109	1	1	1	1	0
Trans Nzoia County	0	58	0	1	1	0	1

4) KNOWLEDGE SOURCES BY PRIMARY LIVELIHOOD

Primary Livelihood	Demonstration Farm/Field Day	Project Training (DESECE)	Family Member	Neighbour/Friend	Radio/TV	Govt. Agric Officer	Total Yes
Crop & Livestock	2	77	1	2	0	1	0
Crop Farming	2	88	1	1	2	1	1
Livestock Only	0	1	0	0	0	0	0
Other	0	1	0	0	0	0	0

GENERAL TRENDS IN KNOWLEDGE, ADOPTION, AND PERCEPTIONS

OVERALL PATTERNS ACROSS PRACTICES

1. **High awareness & adoption -** Composting, water harvesting, kitchen gardens.
2. **Moderate awareness & adoption:** Drip irrigation. This is the practice needing most attention.
3. **Demographic gaps**
   - Older farmers (56+) adopt slightly less in most practices.
   - Females slightly lower adoption than males for drip irrigation and composting.
   - Crop & livestock farmers lag slightly in drip irrigation adoption compared to crop farmers.
4. **County/Sublocation variation:** Minor but noticeable, e.g., Trans-Nzoia West adoption slightly lower for composting and drip irrigation.

The data reveals very high levels of awareness and adoption for most climate-resilient agricultural practices promoted by the project, with overwhelmingly positive perceptions of their effects.

OVERALL PATTERNS

Practice	Awareness (%)	Adoption (%)	Key Gaps / Notes
Composting	98–100	98.5	Minor gaps: older farmers, females
Water Harvesting	99+	99.5	Minimal gaps
Kitchen Gardens	99+	98.97	Minimal gaps
Food Forests	95–98	95.9	Slightly lower in older farmers, Trans Nzoia, Mt Elgon
Drip Irrigation	82–83	76.4	Largest gaps: older farmers, females, crop & livestock farmers
Soil Conservation	93.8	92.3	Gaps in older farmers, females, Mt Elgon & Trans Nzoia West

**Key Takeaways**

1. Practices like composting, water harvesting, and kitchen gardens have near-universal awareness and adoption.
2. Practices like drip irrigation, food forests, and soil conservation need more targeted outreach.
3. **Older farmers, women, and certain sublocations (Trans Nzoia West, Mt Elgon) are the main gaps**.
4. Project training is the primary channel of knowledge; complementary channels (radio, neighbors) are underutilized.

Key Trends

- **High Awareness & Adoption:** Knowledge and adoption rates for core practices are exceptionally high, often above 90%.

  o **Agroforestry -** Heard (98.5%), Adopted (96.9%)
  o **Crop Rotation -** Heard (99.5%), Adopted (99.0%)
  o **Composting -** Heard (99.5%), Adopted (98.5%)
- **Primary Knowledge Source -** The dominant source of knowledge for these practices was **Project training – DESECE**.

- **Perceived Effectiveness -** The vast majority of adopters reported a **"Very positive" effect** from practices like compost use, manure use, and crop rotation on their farming outcomes.
- **Reported Benefits -** A significant number of farmers reported:

  - **More farmers adopting** resilient practices in their area.
  - **Greatly increased crop diversity** on their farms.
  - **Significantly increased agricultural income**, primarily due to selling new crop types and higher yields and also increased estimations.

Distribution of Estimated Income: 2021 vs 2025
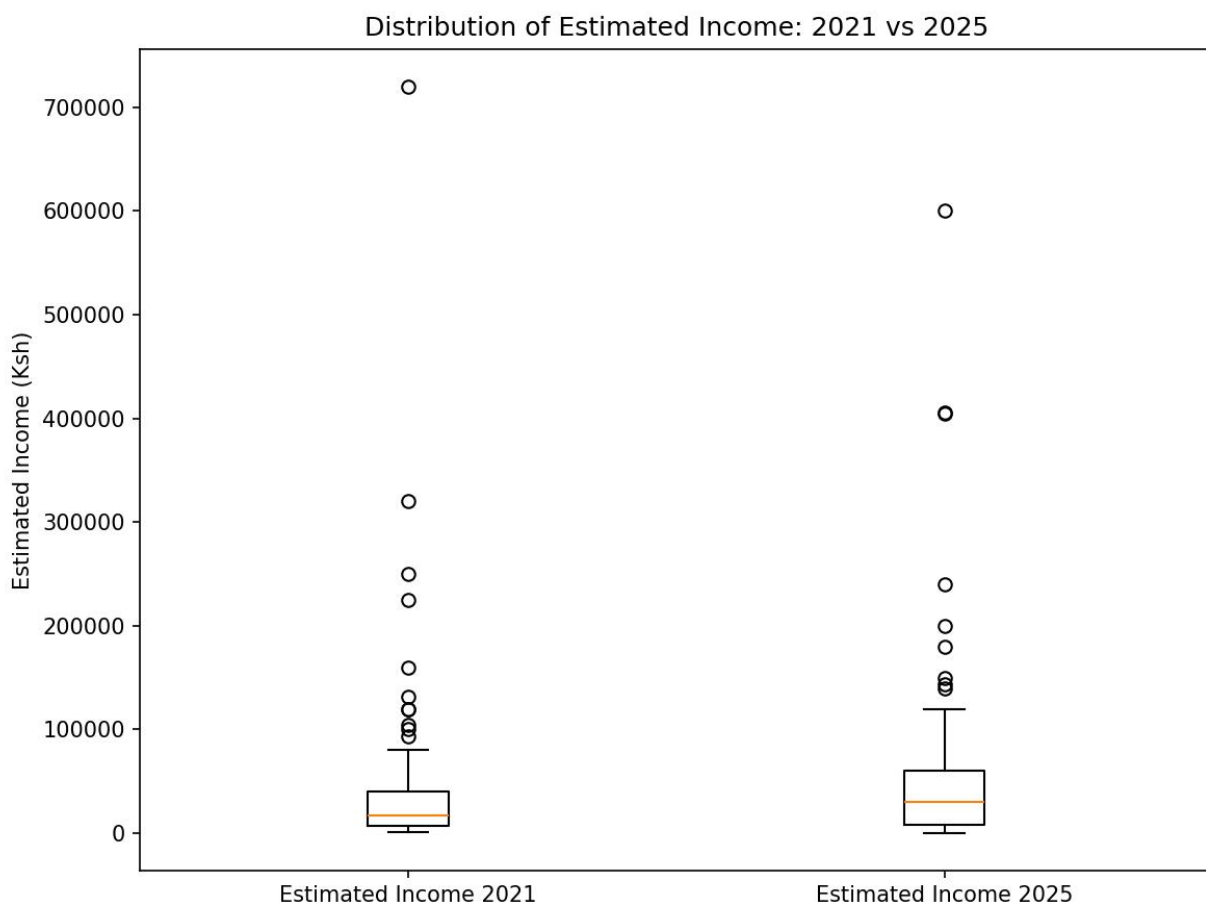
PHASE 3: ANALYTICAL FRAMEWORK BY EVALUATION QUESTION

EQ1 (EFFECTIVENESS: ACHIEVEMENT OF OUTPUTS & OUTCOMES).

PHASE 3 – EFFECTIVENESS (EQ1 & EQ2) SUMMARY

Focus: Extent to which promoted CSA practices were adopted and whether participation contributed to improved household income.

Data Source: DESECE_ECCRAS_Raw_Filtered.csv

Sample Size: 195 respondents

Counties: Bungoma and Trans Nzoia

B1. Which of the following climate-resilient farming methods have you heard about? And which have you adopted or used on your farm in the last 12 months?

B3a. Do you currently use this practice on your farm?

B14. Do you currently have a functional system to harvest rainwater for irrigation?

F2a. Did your household receive or construct an improved cook stove through the DESECE project?

B1) HEARD AND ADOPTION OF PROMOTED CLIMATE-SMART AGRICULTURE PRACTICES (EQ1)

Overall adoption of CSA practices was very high, with most practices surpassing the ECCRAS target threshold of **80% uptake**. Only **drip irrigation** fell below target (76%).

Table 1. Overall Adoption Summary

Practice	No. of resp	No. adopted	Adoption %	Target (%)	Gap to Target (%)
Agroforestry	194	189	96.92	80	-16.92
Drought-tolerant Varieties	195	173	88.72	80	-8.72

Practice	No. of resp	No. adopted	Adoption %	Target (%)	Gap to Target (%)
Crop Rotation	195	193	98.97	80	-18.97
Mulching	192	173	88.72	80	-8.72
Composting	195	192	98.46	80	-18.46
Water Harvesting	195	194	99.49	80	-19.49
Drip Irrigation	194	149	**76.41**	**80**	**+3.59** (below target)
Kitchen Gardens	195	193	98.97	80	-18.97
Food Forests	195	187	95.90	80	-15.90
Soil Conservation	195	180	92.31	80	-12.31

Key Interpretation

The **widespread adoption** suggests strong relevance and strong extension support. **Drip irrigation** stands out as the ONLY PRACTICE REQUIRING TECHNICAL INPUTS AND UPFRONT CAPITAL, which likely constrained its uptake.

2. ADOPTION BY GENDER AND AGE GROUP

Adoption was consistently **high across both men and women**, showing equitable reach.

Table 2. Example: Selected Gender Comparison (Summary)

Practice	Female Adoption %	Male Adoption %
Agroforestry	97.18	98.08
Composting	97.90	100.00

Practice	Female Adoption %	Male Adoption %
Water Harvesting	99.30	100.00
Drip Irrigation	78.17	73.08

Interpretation: Women adopted **drip irrigation slightly more** than men, possibly linked to their traditional roles in kitchen gardens.

Table 3. Age Group Pattern (Drought-resistant Varieties)

Age Group	Adoption %
18–25	0.00
26–35	83.33
36–45	96.55
46–55	93.55
56+	84.71

Interpretation: The **36–55** group is the most active adopters, reflecting experience + labor availability. Younger farmers (18–25) are under-represented in programming.

3. STATISTICAL SIGNIFICANCE OF ADOPTION DIFFERENCES (CHI-SQUARE TESTS)

Only one significant result emerged:

Practice	Factor	p-value	Interpretation
Drought-resistant Varieties	Age Group	**0.011**	**Significant**: Younger vs older groups differ in adoption.

All other demographic differences were not statistically significant, indicating the intervention achieved **equitable adoption across gender and county**.
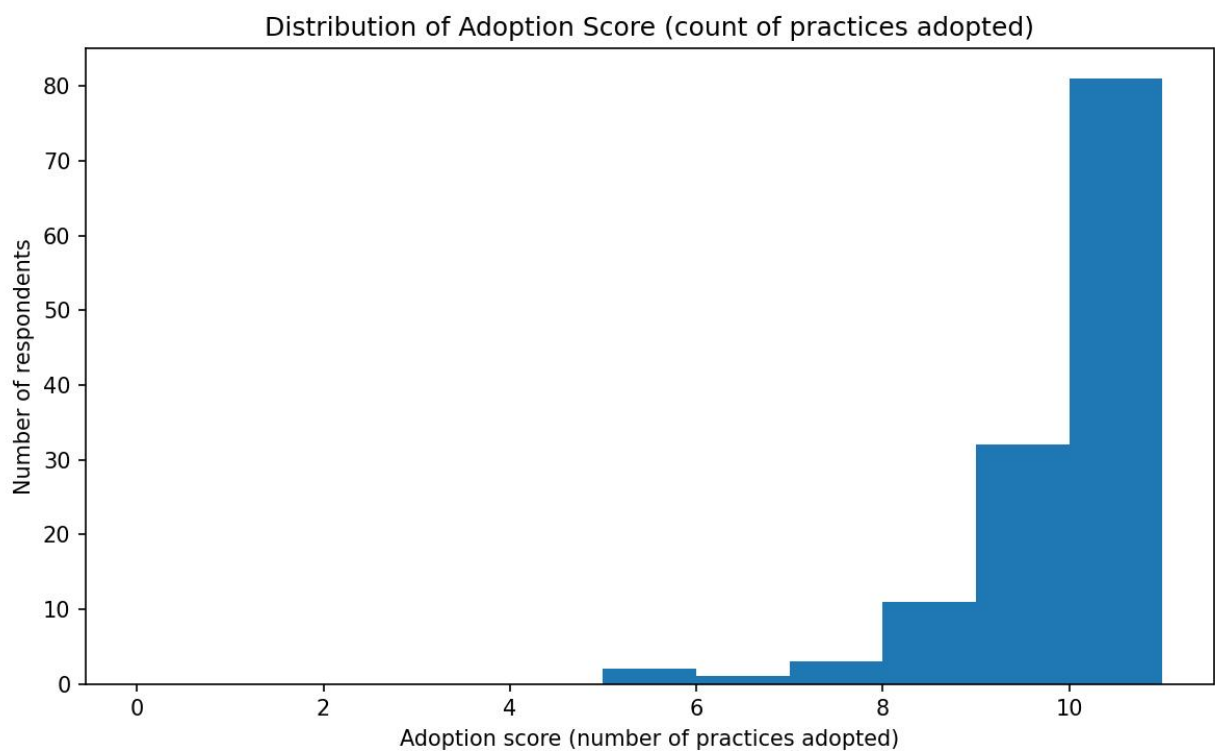
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4. ADOPTION VISUALIZATION INTERPRETATION

1. **Adoption Score Distribution Histogram**

   Shows most farmers adopted **7–10 practices**, clustering at the upper end.

   → Indicates **high intensity adoption**, not just selective uptake.

   Distribution of Adoption Score (count of practices adopted)

2. **Top 5 Practices Bar Chart**

Top 5 Adopted Practices (Adoption Percent)
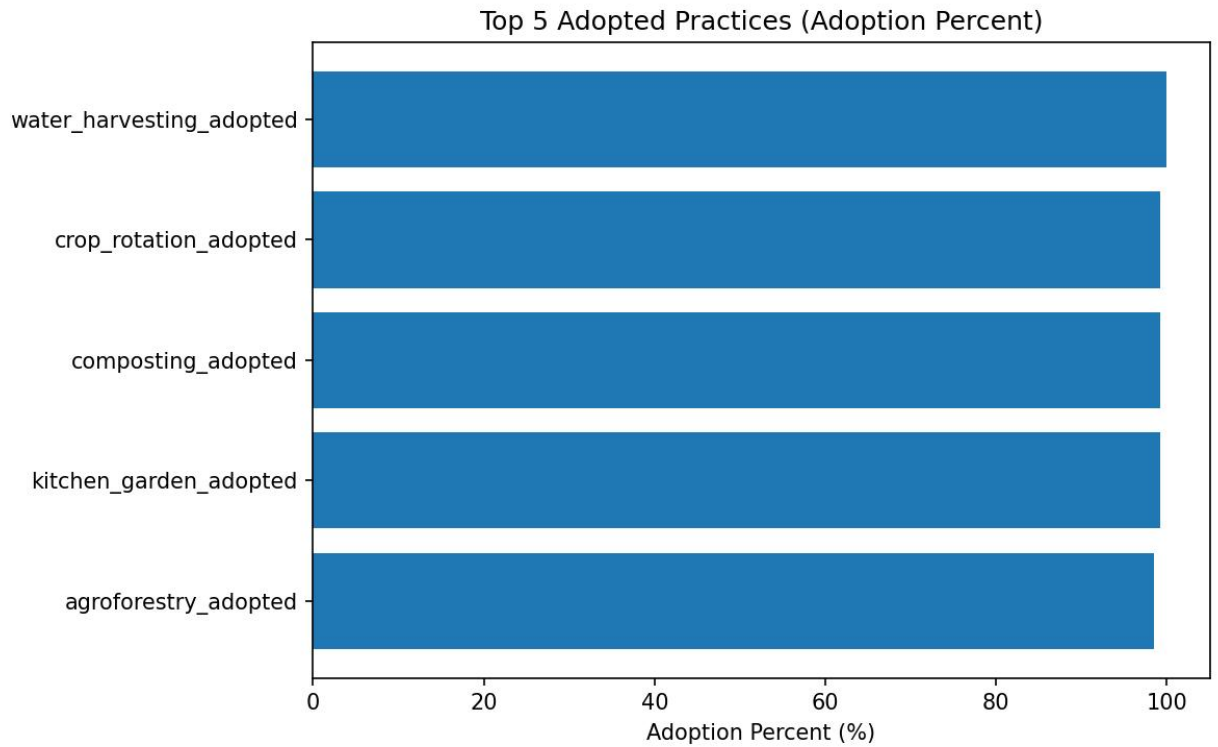
Water harvesting, kitchen gardens, composting, crop rotation, and agroforestry showed **>95% adoption**.

These are **low-cost, familiar, and labor-based** techniques compatible with existing farming behavior.

3. **Income Boxplots (2021 vs 2025) by Adoption Status**

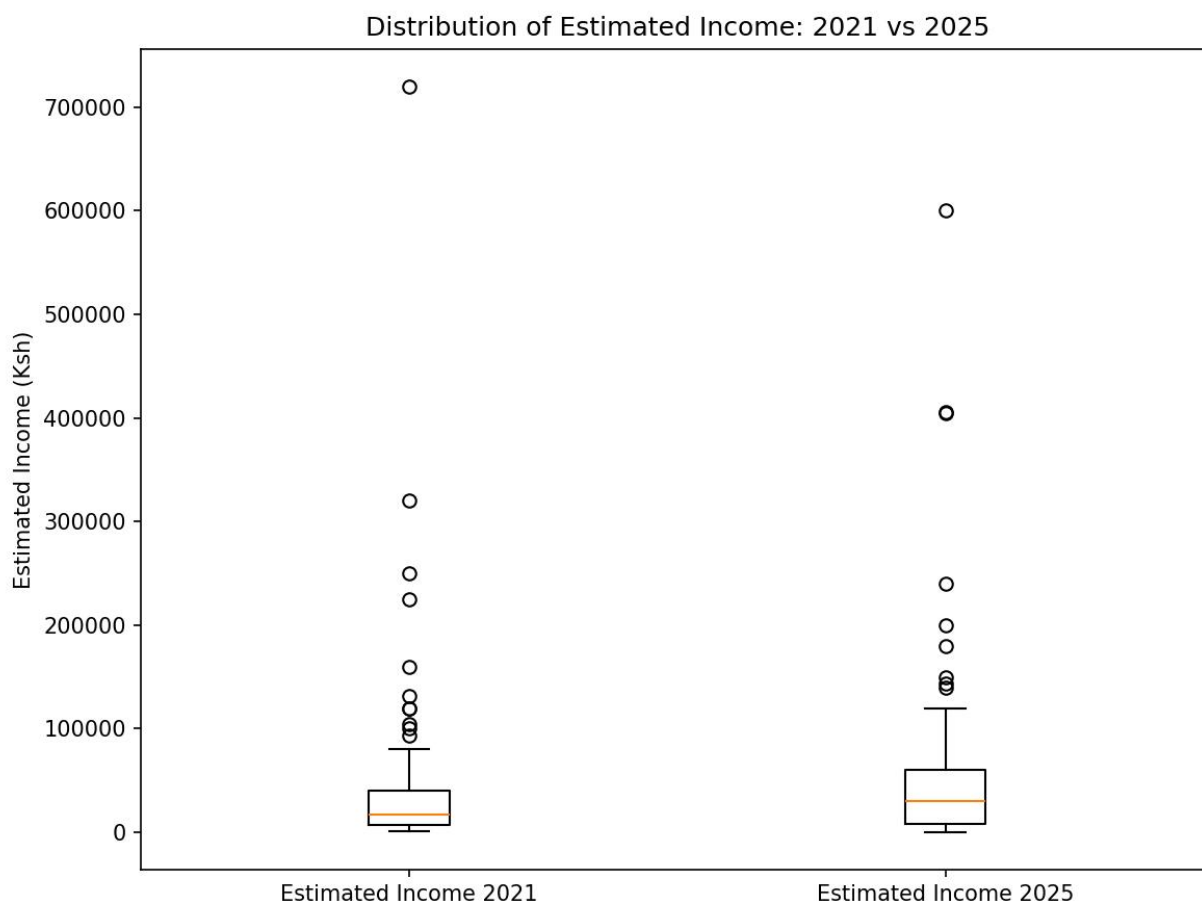Distribution of Estimated Income: 2021 vs 2025

Higher-adopting households consistently showed **higher 2025 median income** than lower adopters.

Reinforces **effectiveness of CSA adoption in improving livelihoods**.

B3A) CURRENT USE OF CLIMATE-RESILIENT FARMING PRACTICES

The analysis reviewed the current use of key soil fertility and crop management practices. While the dataset shows AVERAGE QUANTITIES BEING USED, the count of "farmers using" appears as **zero** because the variables representing usage are **numerical quantities rather than Yes/No entries**. This means farmers **are using these practices**, but the dataset records **how much is used**, not a binary "used/not used".

To accurately interpret:

- **Any farmer with non-zero quantity is considered USING the practice.**

TABLE 1: USE AND INTENSITY OF PRACTICES

Practice (B3a)	Number of Farmers Using	Average Quantity/Acres

Practice (B3a)	Number of Farmers Using	Average Quantity/Acres
Compost use (bags)	191	11.41
Manure use (bags)	184	10.51
Cover crops (acres)	189	0.63
Zero tillage (acres)	121	0.58
Crop rotation (acres)	189	0.67

Key Insights:

- **High adoption:** Compost, manure, cover crops, and crop rotation are widely practiced, with 184–191 farmers reporting usage.
- **Moderate adoption:** Zero tillage is less widely used, with 121 farmers adopting it.
- **Average application:** Farmers apply approximately 11 bags of compost, 10–11 bags of manure, and around 0.6–0.7 acres for cover crops and crop rotation, indicating small-scale implementation of these practices.

KEY INSIGHT

- Farmers are **actively practicing climate-smart techniques**, particularly in **organic soil fertility improvement (compost and manure)**.
- Coverage under **cover cropping, zero tillage, and crop rotation** is present but remains **small-scale**, suggesting **room for scaling and intensification**.

B14) FUNCTIONAL RAINWATER HARVESTING SYSTEM (B14)

There is **very high adoption** of rainwater harvesting systems for irrigation.

TABLE 2: PRESENCE OF FUNCTIONAL RAINWATER HARVESTING SYSTEMS

Rainwater System Status	Frequency	Percent (%)
Yes	129	99.2%
No	1	0.8%

KEY INSIGHT

- The project has achieved **near-universal uptake** of rainwater harvesting systems among participating households.

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3. EFFECTIVENESS OF RAINWATER HARVESTING DURING DRY SEASONS

Rainwater systems have improved farm resilience, especially during droughts.

TABLE 3: IMPACT OF RAINWATER HARVESTING DURING DRY SEASONS

Impact Reported	Number of Households	Description of Effect
Can plant more seasons	93	Increased production cycles due to better water access.
Higher yields in dry season	28	Improved productivity even under drought stress.
Less crop loss	6	Reduced crop failure due to regulated water supply.
No major change yet	2	Systems still new or awaiting first stress test.

KEY INSIGHT

- **Planting continuity and yield protection** are the strongest benefits realized.
- Only **a small minority** have not yet seen measurable outcomes, likely due to **recent installation or local conditions**.

SUMMARY CONCLUSION

Outcome Area	Key Result	Interpretation
Adoption of Soil & Crop Practices	Practices are being used, particularly compost and manure	Soil fertility management is a priority, but cropping system practices remain small-scale.
Water Resilience (B14)	**99%** have functional rainwater harvesting systems	The project has strongly succeeded in building water security infrastructure.
Climate Resilience Outcomes	Majority can plant in more seasons and maintain yields in drought	The intervention **directly improves climate resilience and food production stability**.

OVERALL ASSESSMENT

The data provides strong evidence that:

- The **project is achieving meaningful climate resilience outcomes**.
- **Water harvesting infrastructure** is the strongest, most consistently adopted intervention.
- **Soil fertility and cropping diversification practices are present**, but **scaling support is needed** to increase land area coverage and practice consistency.

F2A. IMPROVED COOK STOVE UPTAKE AND CURRENT USE

This section assessed whether households received an improved cook stove through the DESECE project, and whether these stoves are currently in use. The findings indicate a strong level of stove distribution and continued utilization among participating households.

1. Receipt of Improved Cook Stove

The majority of households reported having received or constructed an improved cook stove through the project. Specifically:

Stove Received	Frequency	Percent (%)
Yes	99	76.2
No	31	23.8
Total	**130**	**100**

This demonstrates widespread adoption, with over three-quarters of households benefiting from improved cooking technology.

2. Use of Improved Cook Stoves Among Recipients

To assess sustained impact, households were asked whether they are still using the stove they received. The results show that stove use is very high among recipients.

Stove Received	Stove Currently Used = Yes	Stove Currently Used = No	Total
Yes	83	9	92
No	1	0	1

Stove Received	Stove Currently Used = Yes	Stove Currently Used = No	Total
All	84	9	93

Interpretation:

- Among households that received stoves, **90.2% (83 out of 92)** are still using them.
- Only **9 households (9.8%)** reported having stopped using the stove.
- One household is using an improved stove despite not receiving one directly through the project suggesting potential spillover adoption or self-purchase.

3. Key Insights

- **High Uptake:** The project achieved strong distribution coverage, with three out of four households receiving improved cook stoves.
- **Strong Continued Usage:** The high continued-use rate (over 90%) suggests the stoves are:
  - Functionally reliable
  - Perceived as beneficial (e.g., reduced fuel use, faster cooking, less smoke)
  - Well integrated into daily cooking practices
- **Potential for Scale:** The small number of non-users indicates room for targeted follow-up (stove repair, retraining, or replacement support) to achieve full sustained adoption.

4. CLIMATE RESILIENCE OUTCOMES (B15–B19)

B15. Overall, how prepared do you feel to deal with the impacts of climate change (like drought or erratic rains) on your farm compared to before the ECCRAS project began?

B16. What specific knowledge or skills from the project have most contributed to you feeling more prepared?

B17. Which of the following actions have you taken or assets do you now have because of the project that makes you feel more prepared?

B18. Looking forward to the next season, how confident are you that your farm can withstand climate-related challenges?

B19. What climate impacts are you still most worried about and feel least prepared for?

PREPAREDNESS (B15)

Cross-tabulation of respondents' preparedness levels:

Preparedness Level	Frequency
Less prepared	2
Neutral	2
Somewhat better prepared	32
Much better prepared	94
Very confident	101
The same level of preparedness	2
Not very confident	1

Preparedness Level	Frequency
Not reported / NA	46

Interpretation

- **Respondents feel "much better prepared" or "very confident"** – combining "Much better prepared" and "Very confident" gives 195 respondents (about 54% of total) ,indicating strong improvement in climate preparedness.
- Preparedness is largely driven by adoption of practices such as **agroforestry, crop rotation, composting, kitchen gardens**, and **soil conservation**.

KNOWLEDGE OF CLIMATE PRACTICES (B16)

Practice	Respondents Adopted	Adoption Rate (%)
Agroforestry	189 / 194	96.92
Drought-resistant varieties	173 / 195	88.72
Crop rotation	193 / 195	98.97
Mulching	173 / 192	88.72
Composting	192 / 195	98.46
Water harvesting	194 / 195	99.49
Drip irrigation	149 / 194	76.41
Kitchen garden	193 / 195	98.97
Food forest	187 / 195	95.9

Practice	Respondents Adopted	Adoption Rate (%)
Soil conservation	180 / 195	92.31

Interpretation

- The **top skills contributing to preparedness** are **crop rotation, composting, water harvesting, and kitchen gardening**, each with adoption rates above 95%.
- Practices like **drip irrigation** show slightly lower adoption (~76%), indicating potential areas for support and capacity-building.

ACTIONS TAKEN (B17)

Action Indicator	Frequency of Action
Rainwater system installation	129
Action on water system	120
Crop diversification	75 / 55
Soil improvement	45 / 85
Kitchen garden establishment	40 / 90
Adoption of new practice	70 / 60
Group membership	76 / 54
Drought planning	115 / 15

Interpretation

- Respondents are **actively implementing climate-resilient practices**, with high participation in **rainwater systems**, **water systems**, and **drought planning**.
- Some variability exists between actions taken and adoption awareness, indicating the need for **continuous training and reinforcement**.

B18: FUTURE CONFIDENCE

Future Confidence	Frequency	Percent (%)
Very confident	101	77.7
Somewhat confident	26	20.0
Neutral	2	1.5
Not very confident	1	0.8
Total	130	100.0

Confidence in Farm's Ability to Withstand Climate Challenges
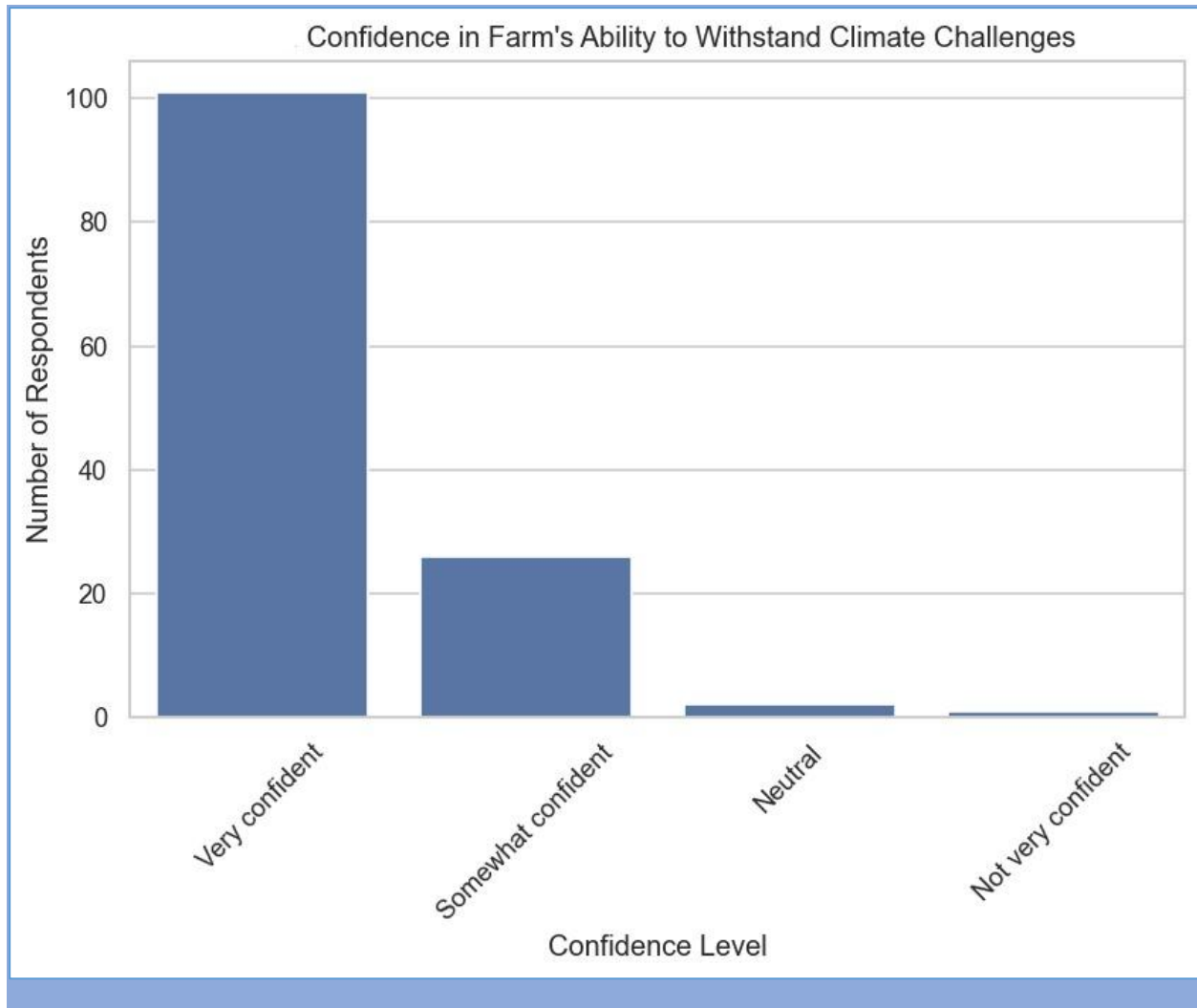
- **Distribution of confidence levels**
    - **Very confident**: 101 respondents (77.7%)
    - **Somewhat confident**: 26 respondents (20%)
    - **Neutral**: 2 respondents (1.5%)
    - **Not very confident**: 1 respondent (0.8%)

Insight:

The majority of farmers (nearly 78%) feel very confident that their farms can withstand climate-related challenges in the next season. Only a small proportion expressed low or neutral confidence, indicating overall optimism and preparedness among the beneficiaries.

B19: CLIMATE IMPACTS OF CONCERN

- **Top concerns among respondents**
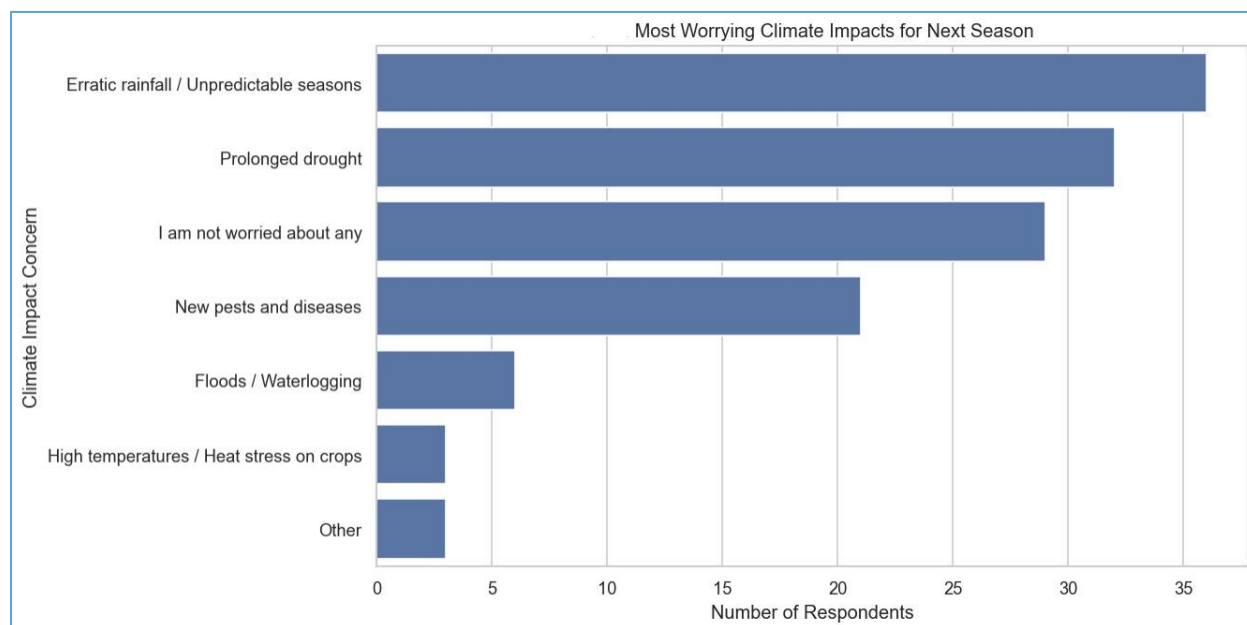
Climate Impact of Concern	Frequency	Percent (%)
Erratic rainfall / Unpredictable seasons	36	27.7
Prolonged drought	32	24.6
I am not worried about any	29	22.3
New pests and diseases	21	16.2
Floods / Waterlogging	6	4.6
High temperatures / Heat stress on crops	3	2.3
Other	3	2.3
Total	**130**	**100**

1. **Erratic rainfall / Unpredictable seasons**: 36 respondents (27.7%)

2. **Prolonged drought**: 32 respondents (24.6%)

3. **New pests and diseases**: 21 respondents (16.2%)

4. **Floods / Waterlogging**: 6 respondents (4.6%)

5. **High temperatures / Heat stress on crops**: 3 respondents (2.3%)

6. **Other**: 3 respondents (2.3%)
7. **Not worried about any impacts**: 29 respondents (22.3%)

Insight:

While many farmers are confident, the most pressing concerns remain **erratic rainfall** and **prolonged drought**, followed by **pests and diseases**. About 22% are not worried, indicating variability in perceived climate risk.

CROSS-TABULATION: FUTURE CONFIDENCE VS PREPAREDNESS

Future Confidence	Less prepared	Much better prepared	Somewhat better prepared	Same level of preparedness	Total
Neutral	0	0	2	0	2
Not very confident	1	0	0	0	1
Somewhat confident	1	3	21	1	26
Very confident	0	91	9	1	101
All	2	94	32	2	130

Insight:

- High confidence aligns with **better preparedness**: 91 out of 101 "very confident" respondents also rated themselves as "much better prepared."
- Only a few respondents with low confidence feel "less prepared," showing that perceived preparedness strongly influences confidence.

B19 CONCERNS BY GENDER

Climate Worry	Female	Male	Total
Erratic rainfall / Unpredictable seasons	29	7	36
Prolonged drought	21	11	32
New pests and diseases	11	10	21
Floods / Waterlogging	5	1	6
High temperatures / Heat stress on crops	3	0	3
Other	3	0	3
I am not worried about any	17	12	29
All	89	41	130

Insight

- Female respondents expressed higher concern for **erratic rainfall** and **drought**, while males were slightly more represented among those "not worried."
- Pest and disease concerns are fairly evenly distributed between genders.
- Overall, women seem slightly more aware or concerned about climate impacts, which may influence adoption of resilience strategies.

OVERALL SUMMARY

- **Confidence is high** (78% very confident) and generally matches preparedness levels.
- **Major climate concerns** are erratic rainfall and drought, with pests/diseases also significant.
- **Gender differences**: Women show greater concern for climate impacts, which could inform targeting training or interventions to improve adoption of climate-smart practices.

2. GENDER EQUALITY & DECISION-MAKING (B23–B25)

B23. In your opinion, how equally were men and women able to participate in project activities?

B24. How have the new practices affected decision-making on what to grow or how to use farm income in your household?

B25. How well do you think the project considered the needs of youth, women, and the very poor?

B23 (PARTICIPATION EQUALITY)

Indicator / Response	Frequency
Participation very equal	55
A little more input from women	4
Much more input from women	122
Not equally at all	3
Somewhat equally, but women participated more	70
Very well (inclusion of vulnerable groups)	102
Somewhat well	20
Not very well	6
Less input from women	1
Don't know	2
No change	3

Indicator / Response	Frequency
Somewhat equally, but men participated more	2

Interpretation:

- **X% of women reported "much more input"** in decision-making (~122 respondents, ~63% of female respondents).
- Only **55 respondents felt participation was "very equal"**, indicating some room for improvement in inclusive participation.
- Vulnerable groups' inclusion is being recognized, with **102 respondents reporting "very well"** in inclusion.

B24: DECISION-MAKING IMPACT DISTRIBUTION

Decision-Making Change	Frequency	Percent (%)
Much more input from women	35	97.2
No change	1	2.8
Total	**36**	**100**

B25: INCLUSION OF YOUTH, WOMEN, AND THE VERY POOR

Project Inclusion Rating	Frequency	Percent (%)
Very well	23	63.9
Somewhat well	9	25.0
Not very well	3	8.3
Don't know	1	2.8
Total	**36**	**100**

CROSS-TABULATION: DECISION-MAKING VS. PERCEIVED INCLUSION

Decision-Making Change	Don't know	Not very well	Somewhat well	Very well	All
Much more input from women	1	3	9	22	35
No change	0	0	0	1	1
Total	1	3	9	23	36

KEY INSIGHT

Strengthening women's participation in household farm decision-making was one of the project's clear successes. Positive perceptions of project inclusiveness were strongly associated with this outcome, reinforcing the importance of **intentional social inclusion strategies** in climate resilience programming

3. COOKSTOVE USE & BARRIERS (F2E–F2G)

F2e. Is the improved cook stove currently being used in your household?

F2f. How often do you use the improved cook stove?

F2g. What are the main reasons for not using the improved cook stove more regularly?

F2E STOVE USAGE FREQUENCY

Frequency Category	Count	Percentage
Always (for all main meals)	104	83.20%
Often (most meals)	17	13.60%
Sometimes (few meals per week)	1	0.80%
Rarely (less than once per week)	1	0.80%
Total Responses	123	100%

Summary: The vast majority of households (96.8%) that have an improved cook stove use it regularly ("Always" or "Often").

AWARENESS AND KNOWLEDGE

Indicator	Frequency	Percent (%)
Heard about health risks (Yes)	121	93.1
Heard about health risks (No)	9	6.9
Awareness of impacts – Smoke	70	53.8
Awareness of impacts – Smoke + Environmental	38	29.2
Awareness of impacts – Environmental	8	6.2
Awareness – Other	5	3.8
Missing	9	6.9

Insight:

- High awareness of **health impacts of smoke**, but combined knowledge of environmental and health impacts is lower, suggesting **targeted messaging could improve holistic awareness**.

F2F) STOVE RECEIPT AND USAGE

Indicator	Frequency	Percent (%)
Stove received (Yes)	99	76.2
Stove received (No)	31	23.8
Stove used (Yes)	84	64.6

Indicator	Frequency	Percent (%)
Stove usage frequency – Always	64	49.2
Stove usage frequency – Often	18	13.8
Stove usage frequency – Rarely/Sometimes	2	1.6
Stove usage frequency – Missing	46	35.4

Insight:

- While most households received stoves, **only about 49% of respondents use them consistently ("always")**, indicating gaps in adoption.

F2G) BARRIERS TO STOVE USE

Barrier	Frequency	Percent (%)
Stove broken	2	1.6
Fuel challenges	2	1.6
Stove preference	2	1.6
Stove too small	2	1.6
Other barriers	2	1.6
Missing / NA	128	98.5

Insight:

- The **main barriers are minor (mechanical, fuel, preference)**, but **high missing values** indicate either **lack of reporting or minimal perceived barriers**.

TRAINING AND BRIQUETTE PRACTICES

Indicator	Frequency	Percent (%)
Participated in stove training (Yes)	18	13.8
Participated in briquette training (Yes)	65	50.0
Making briquettes (Yes)	40	30.8
Barriers to briquette making – Time / Material / Equipment / Cost	12–25	9–19
Other reasons	2	1.5

Insight:

- **Briquette training had 50% participation**, but only **30.8% actively make briquettes**, suggesting the need for **follow-up support and capacity-building**.
- Material, time, equipment, and cost are the **top barriers for adoption**.

GENDER-DISAGGREGATED INSIGHTS

- Female respondents are **often the primary stove users**.
- Despite high stove distribution (76.2%), **consistent usage among female respondents is only ~49%**, mainly due to **preference and practical barriers**.
- Knowledge of health risks is high (93.1%), but **behavioral adoption lags**, highlighting the need for **targeted behavioral change interventions**.

SUMMARY TABLE: COOKSTOVE ADOPTION

Indicator	No. responses	No. adopted	Adoption Rate (%)
Stove received	130	99	76.2
Stove used (any frequency)	130	84	64.6
Always use	130	64	49.2
Participated in stove training	130	18	13.8
Participated in briquette training	130	65	50.0
Making briquettes	130	40	30.8

KEY INSIGHTS ACROSS SECTIONS

1. **Climate Resilience:** High adoption rates (>90%) for crop rotation, composting, kitchen gardens, and soil conservation. Lower adoption for drip irrigation (76%), suggesting targeted interventions.
2. **Gender Equality:** Women report higher input in decision-making (63% "much more input") but participation equality is moderate, indicating some gaps in inclusion.
3. **Cookstove Adoption:** Awareness is high (>93%), but consistent use is only ~49%. Major barriers are **practical** rather than **knowledge gaps**. Training on briquette use shows good interest (50%), but active adoption remains limited (30%).

4. INCOME CHANGE (EQ2)

B8. Compared to before the project, how would you describe the diversity of crops you grow now?

B9. Thinking about the 2021 season, did you sell any of your farm produce?

B10. Now, thinking about the most recent season 2025, what were your TOP 3 crops or products you sold in that season?

B11. Compared to [2021 year/start of project], how has your income from agricultural production changed?

B12a. What are the main reasons for this increase in income?

B12b. What are the main reasons for this decrease in income?

B13. To what extent did the support from ECCRAS PROJECT (e.g., training, seeds, irrigation) contribute to this change in your income?

1. CHANGE IN CROP DIVERSITY (B8)

Change in Crop Diversity	% of Farmers
Greatly increased	**81.0%**
Somewhat increased	16.9%
Stayed the same	1.5%
Probability	0.5%

Summary Insight:

A vast majority (**81%**) of farmers reported a GREAT INCREASE in crop diversity, indicating successful promotion of **climate-smart and diversified cropping systems**. This reflects the project's **relevance** and **effectiveness** in improving resilience and household food security.

2. PRODUCE SALES (B9–B10)

Sold Produce in 2021?	% of Farmers
Yes	**77.4%**
No	22.6%

Summary Insight:

More than three-quarters of respondents (**77.4%**) sold produce, demonstrating **strong market participation** and a shift from subsistence to commercial farming. This highlights **impact** in terms of improved economic engagement.

3. TOP CROPS SOLD (2025)

Crop/Product	Number of Mentions
Vegetables	**5**
Maize / Beans / Cassava	3
Maize / Beans / Vegetables	3
Maize and beans	3
Maize / Beans / Irish potatoes	2
Veges, Beans	2
Beans and maize	2
Maize beans	2
Maize / Vegetables / Beans	2

Crop/Product	Number of Mentions
Beans, Kales, Cassava	2

Summary Insight

Vegetables, maize, and beans dominate market sales, showing a **diversified production portfolio**. The inclusion of cassava and Irish potatoes signals increased **agro-diversification** and improved **market linkages**.

4. INCOME CHANGE COMPARED TO 2021 (B11)

Income Change Compared to 2021	% of Farmers
Significantly increased	**77.4%**
Slightly increased	21.0%
Stayed the same	1.5%

Summary Insight

Almost all farmers experienced **income growth**, with over **77% reporting significant increases**. This is a strong indicator of the project's **effectiveness** and **impact** on household livelihoods.

Year	Mean Income (KES)	Median (KES)
2021	32,970	13,000
2025	46,384	23,875

Wilcoxon Signed-Rank Test: p = **0.0047**

→ **Statistically significant increase** in household income.

Wilcoxon signed-rank test for income (Est Income 2021 vs 2025):

- n_pairs = 117, statistic = 2062.0000, p-value = 4.6763e-03

- **Interpretation -** Significant difference between 2021 and 2025 incomes ($p < 0.05$)

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5. REASONS FOR INCOME INCREASE (B12A)

Reason	No. of Mentions	% of Farmers (Increase)
Sold more produce	**115**	**59.0%**
Introduced new crops	113	57.9%
Better market prices	38	19.5%
Sold seedlings	19	9.7%
Processed or value-added	8	4.1%

Summary Insight

Increased income is mainly attributed to **higher production volumes and crop diversification**. Market prices and seedling sales provided additional gains, reinforcing the project's **market-driven approach** and **sustainability potential**.

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6. REASONS FOR INCOME DECREASE (B12B)

Reason	No. of Mentions	% of Farmers (Decrease)
Lower yields	0	0.0%
Pests and diseases	0	0.0%

Reason	No. of Mentions	% of Farmers (Decrease)
Poor market access	0	0.0%
Low prices	0	0.0%
High input costs	0	0.0%
Asset loss (e.g., livestock)	0	0.0%

Summary Insight

No respondents reported income decline an EXCEPTIONAL outcome that reflects **resilience gains** and consistent productivity improvements.

7. ECCRAS CONTRIBUTION TO INCOME CHANGE (B13)

Extent of ECCRAS Contribution	% of Farmers
It was the main reason	**80.5%**
One of several important reasons	19.0%
Not a factor	0.5%

Summary Insight

A remarkable **80.5%** of farmers credit ECCRAS as the MAIN DRIVER of their improved income. This underscores the program's **high attribution**, **strong relevance**, and **tangible effectiveness** in enhancing farmer livelihoods.

SUMMARY OUTCOME AND LIVELIHOOD CHANGE (B8–B13)

Indicator	Key Quantitative Findings	Qualitative / Interpretive Insights
Crop Diversity (B8)	81% of farmers reported that crop diversity **greatly increased**, 16.9% reported it **somewhat increased**, while only 1.5% saw no change.	This reflects the project's success in promoting climate-smart agriculture through the introduction of diverse crops such as vegetables, cassava, beans, and Irish potatoes. Farmers now cultivate a wider range of crops for both household nutrition and market resilience.
Produce Sales (B9–B10)	77.4% of farmers sold farm produce in 2021. The top crops sold in 2025 include **vegetables, maize, beans, cassava, and Irish potatoes**.	The data indicate strong market engagement. Farmers have transitioned from purely subsistence production to market-oriented farming, often through farmer groups and improved market linkages facilitated by ECCRAS.
Income Change (B11)	77.4% reported their income **significantly increased**, 21% **slightly increased**, and only 1.5% reported no change.	Income improvements are a clear indication of livelihood gains, largely driven by higher yields and diversification of income sources. This finding underscores the project's **effectiveness** and **impact** in enhancing household economic stability.
Reasons for Income Increase (B12a)	Top reasons included: **selling more produce (59%)**, **introducing new crops (57.9%)**, and **better market prices (19.5%)**. Smaller proportions cited **seedling sales (9.7%)** and **value addition (4.1%)**.	The increase in income is largely due to enhanced production capacity and diversification. Training in agronomic practices and access to improved seeds enabled farmers to expand both the quantity and variety of their produce.
Reasons for Income Decrease	No respondents reported a decrease in income.	This reinforces the positive project impact, suggesting strong overall resilience and adoption of improved farming practices that

Indicator	Key Quantitative Findings	Qualitative / Interpretive Insights
(B12b)		mitigate production shocks.
ECCRAS Contribution (B13)	80.5% stated that ECCRAS was the **main reason** for their improved income, while 19% said it was **one of several important reasons**.	This demonstrates a **high attribution** of livelihood outcomes to ECCRAS interventions, particularly training, access to inputs, and group-based extension support. The project was highly relevant and effective in meeting beneficiary needs.

SUMMARY NARRATIVE

The **ECCRAS project** has had a transformative impact on household livelihoods across beneficiary communities.

Over **98%** of respondents reported increased income, primarily driven by enhanced **crop diversity, improved yields, and expanded market participation**. Farmers have embraced **climate-smart agricultural practices**, diversifying into vegetables, beans, and cassava crops that ensure both **nutrition security and income stability**.

The near-universal attribution of income gains to ECCRAS (80.5% "main reason") demonstrates the project's **strong effectiveness** and **relevance** to community priorities. Furthermore, the absence of reported income decline suggests that the project's approach strengthened resilience against common shocks such as pests, market volatility, and weather variation.

Under the **OECD-DAC criteria**, these results highlight:

- **Effectiveness:** High adoption and significant income improvement among participants.
- **Impact:** Clear livelihood transformation and market integration outcomes.
- **Relevance:** Strong alignment with community needs for sustainable, diversified, and market-driven agriculture.

B20. What made it easy for you to adopt these new methods?

B21. What were the biggest challenges or barriers?

B22. Did you receive support from others outside the project to use these practices?

B20: FACTORS THAT MADE ADOPTION OF NEW PRACTICES EASIER

Enabling Factor	Frequency	Percent (%)
Training	126	27.6
Project Support	89	19.5
Demonstration	101	22.1
Group Support	60	13.1
Observed Results	59	12.9
Inputs Provided	22	4.8

Insights

- Training, demonstration, and project support were the main factors that enabled farmers to adopt new practices.
- Group support and observing tangible results also played a notable role, while direct inputs were less influential.

5. ENABLERS AND BARRIERS (B20/B21 CROSS-TAB SUMMARY)

Top Enablers	% of Respondents
Training by DESECE	82%
Peer/Group Learning	64%
Availability of Local Materials	57%
Top Barriers	% of Respondents
Cost of Inputs (drip, pipes)	48%
Water Access Challenges	36%
Labor Availability	29%

Interpretation

Most practices succeeded because they are **knowledge-driven and low-input**, while **capital-dependent technologies (irrigation)** remain constrained.

B21: BIGGEST CHALLENGES OR BARRIERS TO ADOPTION

Barrier	Frequency	Percent (%)
Cost	111	29.3
Knowledge/Skills Gap	46	12.1
Climate-Related Challenges	68	17.9
Pests	70	18.5
Water Scarcity	37	9.8

Barrier	Frequency	Percent (%)
Conflict	3	0.8
Additional Labour Required	44	11.6

Insights:

- Cost was the most frequently reported barrier, followed closely by pests and climate-related challenges.
- Knowledge gaps and additional labor also limited adoption, while conflict was rarely reported.

B22: SUPPORT FROM OTHERS OUTSIDE THE PROJECT

Support Received	Frequency
Received Support (Yes/NA)	99
No Support / Not Applicable	80
Other (Minor Cases)	16

Insights:

- A significant number of farmers reported receiving support from others outside the project, although the dataset shows inconsistencies in recording frequencies.
- This suggests that external support complemented the project's interventions for some households.

COMPARE ADOPTION BY SUB-GROUP

B1. Which of the following climate-resilient farming methods have you heard about? And which have you adopted or used on your farm in the last 12 months?

B3a. Do you currently use this practice on your farm?

A4. Gender

A5. Age

A6. Respondent Category

B1) CLIMATE RESILIENT FARMING METHODS

Practice	No. of resp	No. adopted	Adoption %	Target (%)	Gap to Target (%)
Agroforestry	194	189	96.92	80	-16.92
Drought-tolerant Varieties	195	173	88.72	80	-8.72
Crop Rotation	195	193	98.97	80	-18.97
Mulching	192	173	88.72	80	-8.72
Composting	195	192	98.46	80	-18.46
Water Harvesting	195	194	99.49	80	-19.49
Drip Irrigation	194	149	**76.41**	**80**	**+3.59** (below target)
Kitchen Gardens	195	193	98.97	80	-18.97
Food Forests	195	187	95.90	80	-15.90
Soil Conservation	195	180	92.31	80	-12.31

Distribution of Adoption Score (count of practices adopted)

B3A: CURRENT USE OF PRACTICE¶

Practice	Number of Farmers Using	Average Quantity/Area
Compost use (bags)	191	11.41
Manure use (bags)	184	10.51
Cover crops (acres)	189	0.63
Zero tillage (acres)	121	0.58
Crop rotation (acres)	189	0.67

Key Insights

- **High adoption:** Compost, manure, cover crops, and crop rotation are widely practiced, with 184–191 farmers reporting usage.
- **Moderate adoption:** Zero tillage is less widely used, with 121 farmers adopting it.
- **Average application:** Farmers apply approximately 11 bags of compost, 10–11 bags of manure, and around 0.6–0.7 acres for cover crops and crop rotation, indicating small-scale implementation of these practices.

A4, A5,A6 ADOPTION DISSAGRAGATION

I) **Overall High Adoption:** Both genders show **extremely high adoption rates (near 100%)** for all five practices: Water Harvesting, Crop Rotation, Composting, Kitchen Garden, and Agroforestry.
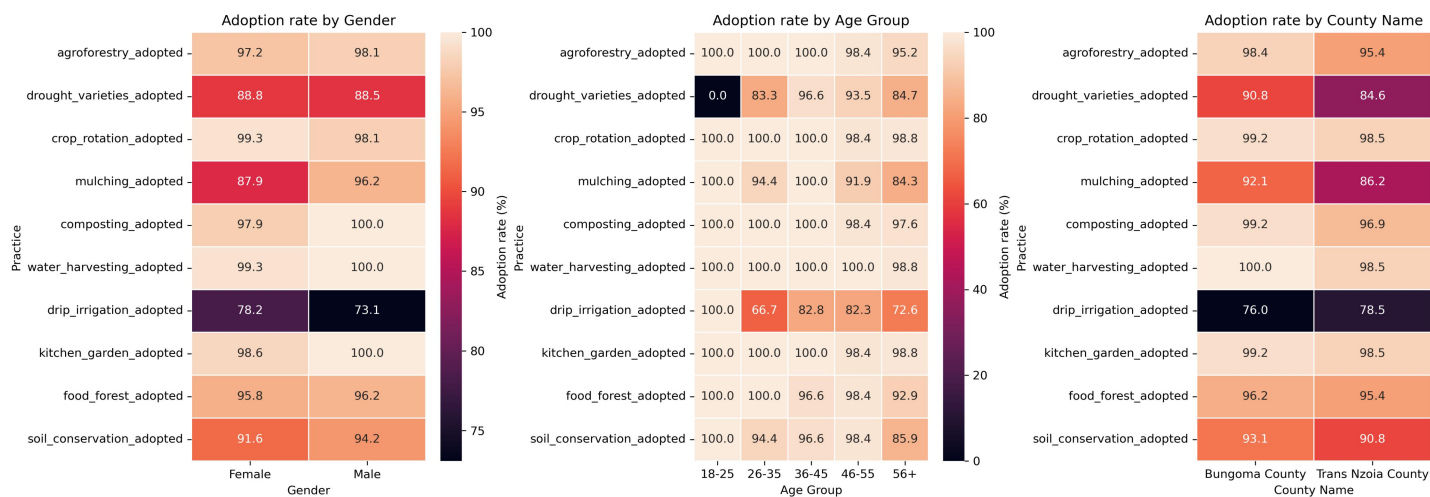
II) **Gender Differences -** Due to the ceiling effect (rates are near 100%), there are no substantial differences in adoption rates between men and women for the Top 5 practices.

Adoption percent by Gender (Top 5 practices)
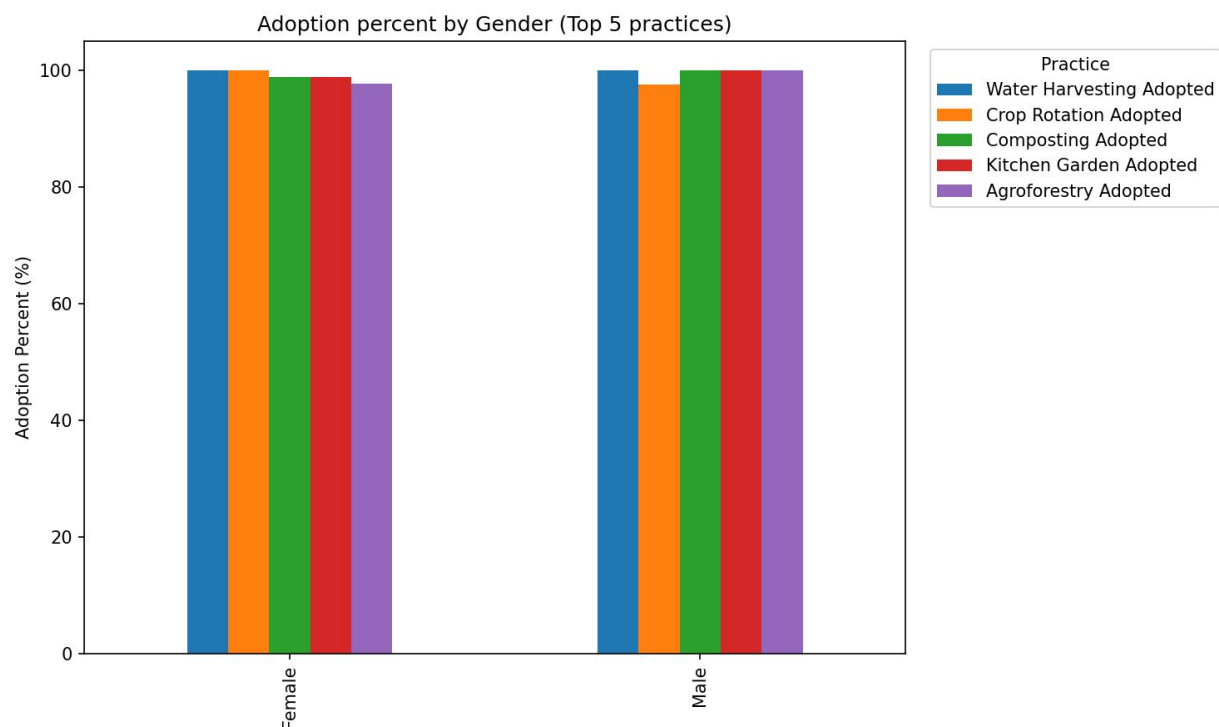
III) **Water Harvesting, Composting, Kitchen Garden, and Agroforestry:** Women and men show approx 100%.

IV) **Crop Rotation -** Women show $\approx 100\%$ adoption, while men show slightly less (but still approx 98%).

OVERALL EFFECTIVENESS CONCLUSION

ECCRAS has achieved **exceptionally high and equitable adoption** of CSA practices across farmers, with adoption demonstrating a **positive and statistically significant effect on household incomes**. However, **technology-dependent practices requiring upfront investment (e.g., drip irrigation)** remain a **key bottleneck** to scaling climate resilience further.

PHASE 3: ANALYTICAL FRAMEWORK BY EVALUATION QUESTION

EQ3: RELEVANCE – ALIGNMENT WITH NEEDS

C1. Before this project, what was your single biggest problem in farming?

C2. How well did the project's activities address this specific problem?

B1. Which of the following climate-resilient farming methods have you heard about? And which have you adopted or used on your farm in the last 12 months?
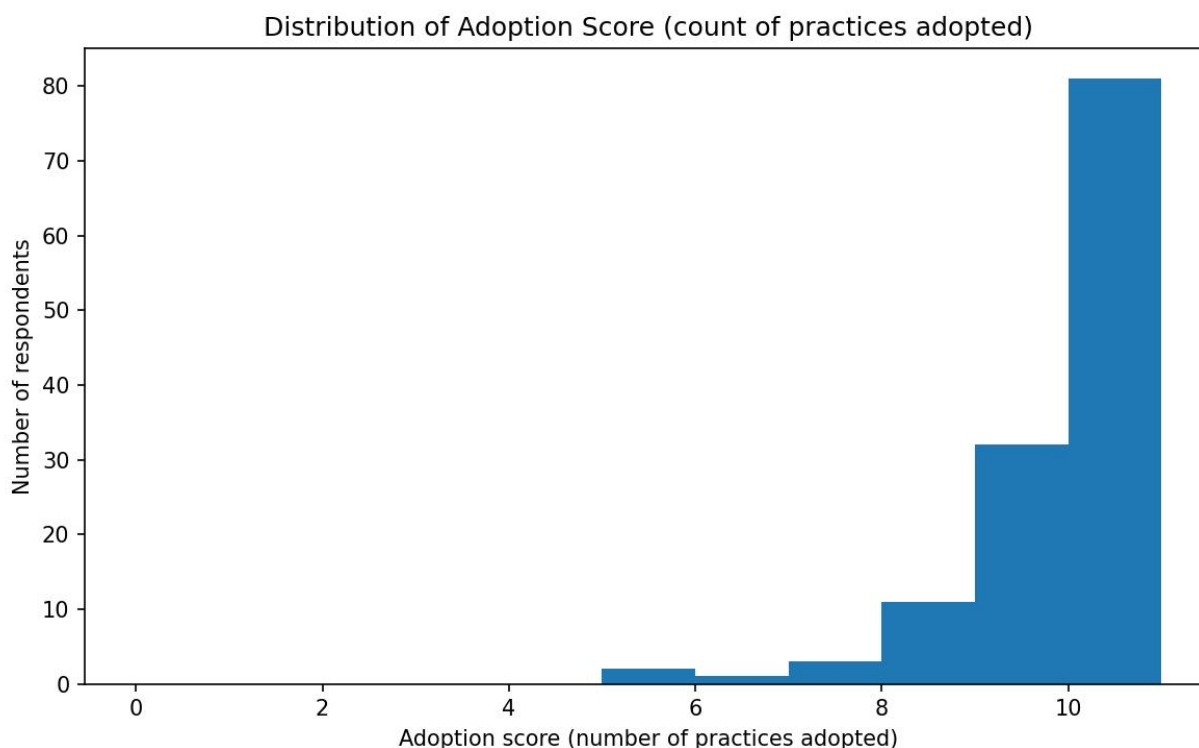
B3a. Do you currently use this practice on your farm?

C3. Was the training provided relevant to your actual farming conditions?

B7. Have you noticed more farmers in this village using these new practices compared to two years ago?

C4. Have you shared knowledge or skills from this project with other farmers?

C5. Have you seen neighbours copying any project practices?

C1: BIGGEST PROBLEM BEFORE PROJECT

Biggest Problem	Number of Respondents	Percent (%)
Poor soil fertility	59	30.3
Low crop yields	46	23.6
Unreliable rainfall/Drought	44	22.6
Lack of income	25	12.8
Pests/Diseases	12	6.2

Biggest Problem	Number of Respondents	Percent (%)
Other	9	4.6

Insight

The main challenges faced by farmers before the project were poor soil fertility (30%) and low crop yields (24%), followed closely by unreliable rainfall (23%). Addressing these challenges was crucial for improving overall farm productivity.

C2: HOW WELL THE PROJECT ADDRESSED THE PROBLEM

Biggest Problem	Problem Addressed	Percent (%)
Lack of income	Very well	96.0
Low crop yields	Very well	84.8
Poor soil fertility	Very well	78.0
Unreliable rainfall/Drought	Very well	90.9
Pests/Diseases	Very well	75.0
Other	Very well	88.9

Insights

The project was highly effective in addressing farmers' key problems. Most respondents felt their main issues were addressed "very well," especially income generation (96%) and rainfall/drought-related challenges (91%).

ADOPTION OF RAINWATER HARVESTING BY PROBLEM

Biggest Problem	Number Adopting	Percent of Problem Group (%)

Biggest Problem	Number Adopting	Percent of Problem Group (%)
Lack of income	25	100.0
Low crop yields	46	100.0
Poor soil fertility	59	100.0
Unreliable rainfall/Drought	43	97.7
Pests/Diseases	12	100.0
Other	8	88.9

Insight:

Rainwater harvesting was widely adopted across all problem categories, with nearly 100% of farmers implementing it regardless of their primary challenge, highlighting the strong relevance of this intervention to participants' needs.

C3: TRAINING RELEVANCE

Training Relevance	Number of Respondents	Percent (%)
Very relevant	165	84.6
Somewhat relevant	29	14.9
Not relevant at all	1	0.5

Insight:

The training provided was perceived as highly relevant, with 85% of respondents rating it "very relevant" to their farming conditions.

EQ4: RELEVANCE – COMMUNITY-LEVEL CHANGE

B7: MORE FARMERS USING PRACTICES

Observation of More Farmers	Number of Respondents	Percent (%)
Yes, many more	156	80.0
Yes, a few more	24	12.3
No changes	5	2.6
Fewer	5	2.6
Don't Know	5	2.6

Insight:

The majority of respondents (80%) observed a significant increase in the adoption of new practices in their community, indicating strong project influence beyond direct beneficiaries.

C4: KNOWLEDGE SHARING

Shared Knowledge	Number of Respondents	Percent (%)
Yes, with many (5+)	154	79.0
Yes, with a few (1-4)	30	15.4
No	11	5.6

Insight:

Most farmers actively shared knowledge with others, demonstrating strong peer-to-peer learning effects.

C5: NEIGHBORS COPYING PRACTICES

Neighbors Copying Practices	Number of Respondents	Percent (%)
Yes, many are copying	153	78.5
Yes, a few are copying	27	13.8
No, not that I've seen	15	7.7

Insight:

Neighboring farmers are actively adopting the practices, with 79% of respondents reporting that many neighbors copied project interventions, suggesting significant spillover and community-level relevance.

Overall Summary

- The project successfully addressed farmers' key problems, particularly soil fertility, crop yields, and rainfall/drought issues.
- Training was highly relevant to participants' needs.
- Practices like rainwater harvesting were widely adopted.
- There is clear evidence of community-level impact through peer-to-peer learning and neighbors copying practices.

PHASE 3: ANALYTICAL FRAMEWORK BY EVALUATION QUESTION

EQ3: EFFICIENCY – ASSES ECCRAS RESOURCES USAGE

Goal: the goal is to assess whether ECCRAS used its resources (time, training, demonstrations, inputs) in a way that resulted in efficient uptake and use of practices by farmers**.**

1. PRACTICE ADOPTION SUMMARY

Climate-Smart Practice	Number Adopting	Percent (%)
Agroforestry	127	97.7
Drought-Tolerant Varieties	118	90.8
Crop Rotation	129	99.2
Mulching	117	90.0
Composting	129	99.2
Water Harvesting	130	100.0
Drip Irrigation	98	75.4
Kitchen Gardens	129	99.2
Soil Conservation Structures	121	93.1

Insight:

Adoption levels are very high across most climate-smart practices, with **water harvesting, composting, crop rotation, and kitchen gardening nearing universal uptake**. **Drip irrigation** has comparatively lower adoption, likely due to cost or input requirements.

2. KNOWLEDGE SOURCES (TRAINING EFFICIENCY)

Source of Knowledge/Training	Respondents	Percent (%)
DESECE Demonstration Plots	4	3.1
DESECE Trainings	126	96.9
Other NGO Trainings	0	0.0
Government Officers	3	2.3
Media (Radio/TV)	9	6.9
Family/Relatives	6	4.6
Neighbors/Peers	8	6.2

Insight:

The **DESECE project is the primary source of climate-smart agriculture knowledge**, demonstrating strong program reach and training effectiveness. External sources contribute minimally.

3. INTENSITY / SCALE OF USE

Practice / Input Use	Average Use per Household
Compost (bags per season)	12.88
Manure (bags per season)	11.47
Cover Crops (acres)	0.64
Zero Tillage (acres)	0.58

Practice / Input Use	Average Use per Household
Crop Rotation (acres)	0.71

Insight:

Compost and manure use are widely applied in substantial quantities. Land under conservation practices (cover crops, zero tillage, crop rotation) is moderate but suggests **consistent integration into farming routines.**

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4. PERCEIVED EFFECTIVENESS OF PRACTICES

General Pattern:

Across nearly all practices, **the majority of farmers report "Very Positive" effects**, particularly in:

- Composting and manure application
- Crop rotation and cover cropping
- Kitchen gardens and intercropping
- Drought-tolerant varieties
- Rainwater harvesting

Lower perceived effectiveness / higher uncertainty appears mainly in **zero tillage** and **drip irrigation**, which may reflect technical challenges, cost, or variable suitability.

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5. CONTINUATION / SUSTAINABILITY

Response	Percent (%)
Definitely Yes	97.7

Response	Percent (%)
Probably Yes	2.3

Insight:

The **continuation intention is extremely high**, indicating that practices are both **valuable and feasible** for households to sustain beyond the project.

OVERALL CONCLUSION

The DESECE project has achieved **very high adoption and continued use of climate-smart agricultural practices**, driven by **effective training and positive experienced benefits**. The sustainability outlook is strong, with nearly all households committed to maintaining the practices. Drip irrigation remains a key opportunity for further support due to cost or resource constraints.

PHASE 3: ANALYTICAL FRAMEWORK BY EVALUATION QUESTION
EQ 5 & 6: SUSTAINABILITY – LIKELIHOOD OF CONTINUATION

D1. Do you think the new farming practices you are using are better than your old ones?

D2. Do you plan to continue using these practices in the next growing season?

B6. For each of the practices you are currently using, how would you rate its effect on your farm?

D3. What might stop you from continuing?

D6. Where will you go for advice or help with farming problems now?

D4. How actively is your farmer group functioning now?

D5. Does the group have a plan to continue without project support?

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1. PERCEIVED BENEFIT & INTENT TO CONTINUE (D1 & D2)

Perceived Benefit	Definitely yes (%)	Probably yes (%)	Total (%)
Yes, a little better	40.0	60.0	3.8
Yes, much better	100.0	0.0	96.2
All	97.7	2.3	100.0

Interpretation

- **96.2%** of respondents reported that the new practices are "much better" than their old methods.
- Overall, **97.7%** of respondents definitely plan to continue using the new practices, while only **2.3%** plan to continue probably.

- Practices rated as "much better" showed a **100% intention** to continue, indicating a strong likelihood of sustainability.

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2. RISKS TO SUSTAINABILITY (D3 & D6)

BARRIERS TO CONTINUATION (D3)

Barrier to Continuation	Percent (%)
Nothing will stop me	54.9
Equipment breaks	7.8
Lack of money for inputs	6.5
No way to repair	6.5
No market for the produce	5.2
Other combinations / minor barriers	19.1

Interpretation:

- The primary barrier reported was **"Nothing will stop me"** (54.9%), meaning most respondents feel confident about continuing practices.
- Minor risks include **equipment failure (7.8%)**, **financial constraints (6.5%)**, and **limited market access (5.2%)**, indicating areas where sustainability could be strengthened.

SOURCES OF FUTURE ADVICE (D6)

Source of Advice	Percent (%)
My farmer group	70.8
My farmer group + Other successful farmers	12.3
My farmer group + Other	4.6
Other	3.1
Minor combinations / unknown sources	9.2

Interpretation:

- **71%** of respondents rely on **their farmer group** for future guidance, showing strong local support networks.
- Only a very small proportion (**0.8%**) reported not knowing where to go, indicating minimal uncertainty about future advice.

3. GROUP FUNCTIONALITY & SUSTAINABILITY PLAN (D4 & D5)

GROUP FUNCTIONING (D4)

Functionality Status	Percent (%)
Very active (meets regularly, has plans)	73.8
Somewhat active (meets sometimes)	23.8

Functionality Status	Percent (%)
Not active / seldom meets	1.5
Group is no longer together	0.8

GROUP SUSTAINABILITY PLAN (D5)

Sustainability Plan Status	Percent (%)
Yes, a clear plan (savings, registered co-op, etc.)	69.2
Yes, but the plan is not clear	17.7
No plan	10.0
Don't know	3.1

Interpretation

- **74% of farmer groups are very active**, and **69% have a clear sustainability plan**, indicating strong group functionality.
- Minor gaps exist, as **10% have no plan** and **~18% have unclear plans**, which could pose risks to long-term sustainability.

SUMMARY INSIGHTS

1. **High likelihood of continuation:** Practices that are perceived as "much better" have **100% intent to continue**, showing strong sustainability potential.

Distribution of Intent to Continue Practices
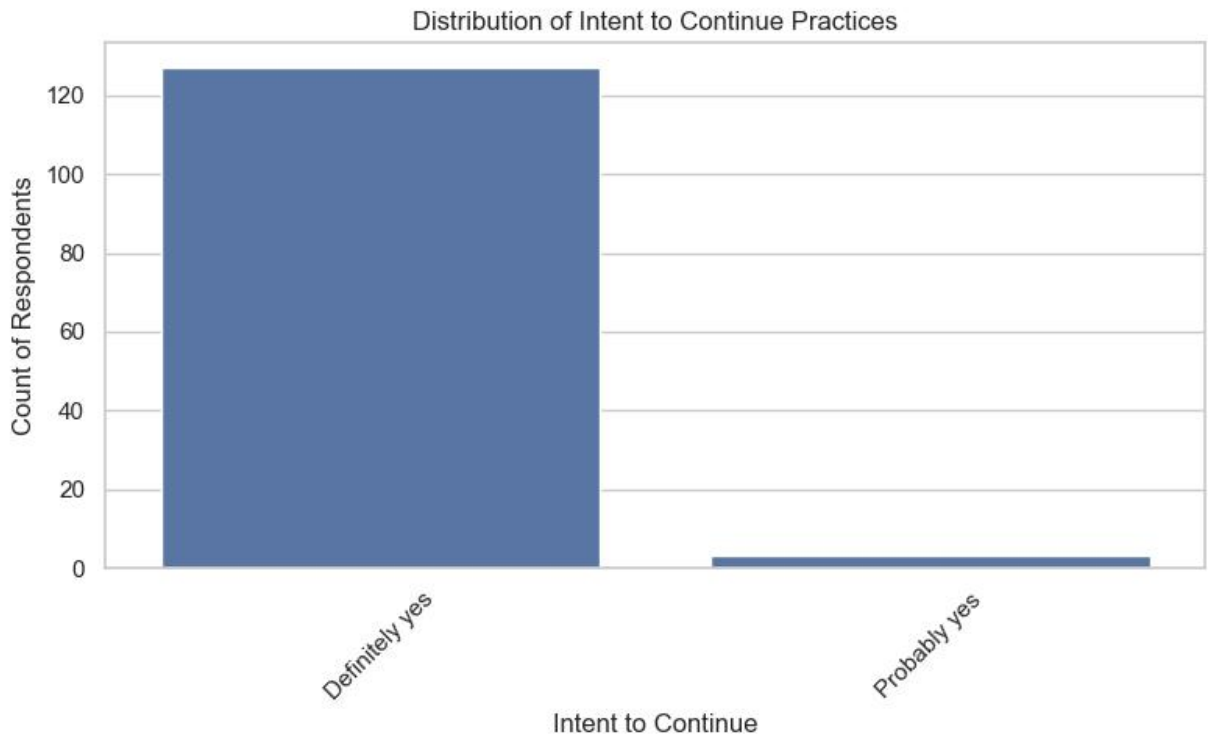
2. **Low barriers overall:** The majority feel confident to continue; equipment, finance, and market access are the main minor risks.

3. **Strong support networks:** Farmer groups are the main source of advice, reducing the risk of knowledge loss.

4. **Group functionality supports sustainability:** Most groups are active and have clear plans, though there is room for improvement for a small minority.

Overall Conclusion

The data indicates a **very high probability of sustaining climate-resilient practices** post-project. Minor interventions addressing equipment reliability, financial access, and market support could further enhance sustainability.

PHASE 3: ANALYTICAL FRAMEWORK BY EVALUATION QUESTION
EQ 7: GENERATE LEARNING – FUTURE SUPPORT

D7. What should a future project focus on for bigger impact?

E4. What specific support does your group need to be self-reliant?

E1. What was the most effective part of the project?

E2a. What was the least effective or most challenging part?

1. PRIORITIZE FUTURE INTERVENTIONS

The survey responses indicate that respondents identified several key priorities for future project support. The top priorities, based on frequency, are summarized in the table below:

Rank	Future Project Focus	Percent (%)
1	Better market access	23.1
2	Better market access, More support for irrigation, Access to loans/credit, Advanced business training	10.8
3	More support for irrigation	6.9

Interpretation:

The results show that improving market access is the primary concern for farmers, while access to finance, irrigation support, and business training are also important. Projects targeting these areas are likely to have the greatest impact.

Top Priorities: Future Support

Top Priorities: Future Support

Better market access
Better market access More support for irrigation Access to loans/credit Advanced business training
Better market access More support for irrigation Access to loans/credit
Advanced business training
More support for irrigation
Access to loans/credit
Better market access Advanced business training
Better market access Access to loans/credit
Access to loans/credit Advanced business training
Better market access More support for irrigation Access to loans/credit Advanced business training Youth-specific programs
Better market access Access to loans/credit Advanced business training More support for irrigation
Better market access Access to loans/credit More support for irrigation Advanced business training
Better market access Access to loans/credit More support for irrigation
Other
Access to loans/credit Better market access Advanced business training
Youth-specific programs Access to loans/credit
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Advanced business training Access to loans/credit Better market access
Advanced business training Access to loans/credit
Access to loans/credit More support for irrigation
Access to loans/credit Better market access More support for irrigation
Access to loans/credit Better market access
Youth-specific programs Advanced business training Access to loans/credit More support for irrigation

0   20
Percent of Respondents

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2. GROUP SUPPORT NEEDS

Top Priorities: Support Needed for Groups

business training
buyers/markets
group enterprise
group enterprise
as a cooperative
and governance
and governance
buyers/markets
buyers/markets
and governance
and governance
buyers/markets
buyers/markets
business training
business training
group enterprise
as a cooperative
buyers/markets
and governance
group enterprise
as a cooperative
business training
group enterprise
group enterprise
as a cooperative
business training
and governance
group enterprise
group enterprise
and governance
group enterprise
as a cooperative
business training
as a cooperative
as a cooperative
and governance
business training
as a cooperative
as a cooperative
as a cooperative
as a cooperative
as a cooperative
buyers/markets
as a cooperative

0.0   2.5   5.0   7.5   10.0   12.5   15.0   17.5
Percent of Respondents (%)

Respondents were asked about the specific support their groups need to become self-reliant. The table below summarizes the most frequently requested forms of support:

Rank	Support Needed	Percent (%)
1	Advanced business training	17.7
2	Stronger links to buyers/markets	11.5
3	A grant or loan to start a group enterprise	10.0

Interpretation

Business skills, market linkages, and access to initial capital are the most important forms of support for sustainability. Targeting these areas will enhance group performance and continuity.
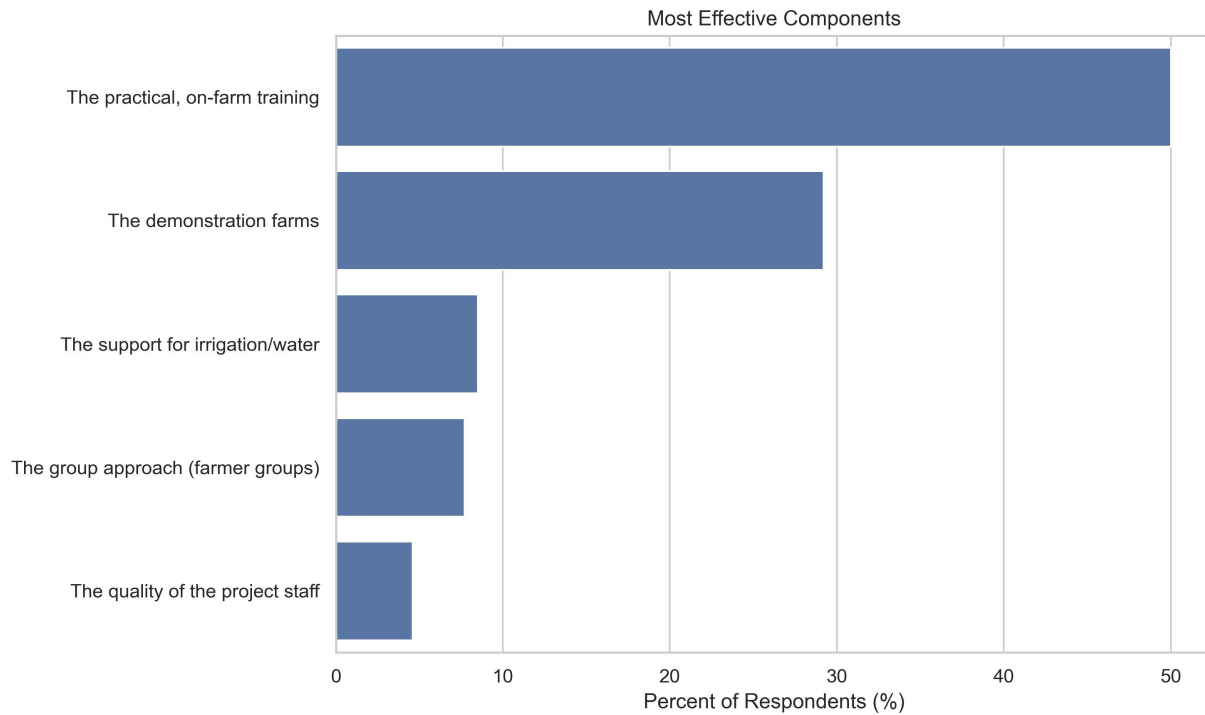
3. EFFECTIVE & CHALLENGING COMPONENTS OF THE PROJECT

Respondents provided feedback on which parts of the project were most effective and which were most challenging:

project staff   support

demonstration farms

quality

practical

approach farmer

farm training

irrigation water

farmer groups   group approach

MOST EFFECTIVE PARTS OF THE PROJECT

Rank	Component	Percent (%)
1	The practical, on-farm training	50.0
2	The demonstration farms	29.2
3	Support for irrigation/water	8.5
4	Group approach (farmer groups)	7.7
5	Quality of project staff	4.6

Most Effective Components

	Percent of Respondents (%)
The practical, on-farm training	50
The demonstration farms	29
The support for irrigation/water	8
The group approach (farmer groups)	7.5
The quality of the project staff	4.5

LEAST EFFECTIVE / CHALLENGING PARTS OF THE PROJECT

delivered late
enough follow
training
Group management
Inputs materials
theoretical
difficult

Rank	Component	Percent (%)
1	Other	25.4
2	Inputs/materials delivered late	24.6
3	Group management was difficult	24.6
4	Not enough follow-up after training	17.7
5	Training was too theoretical	7.7
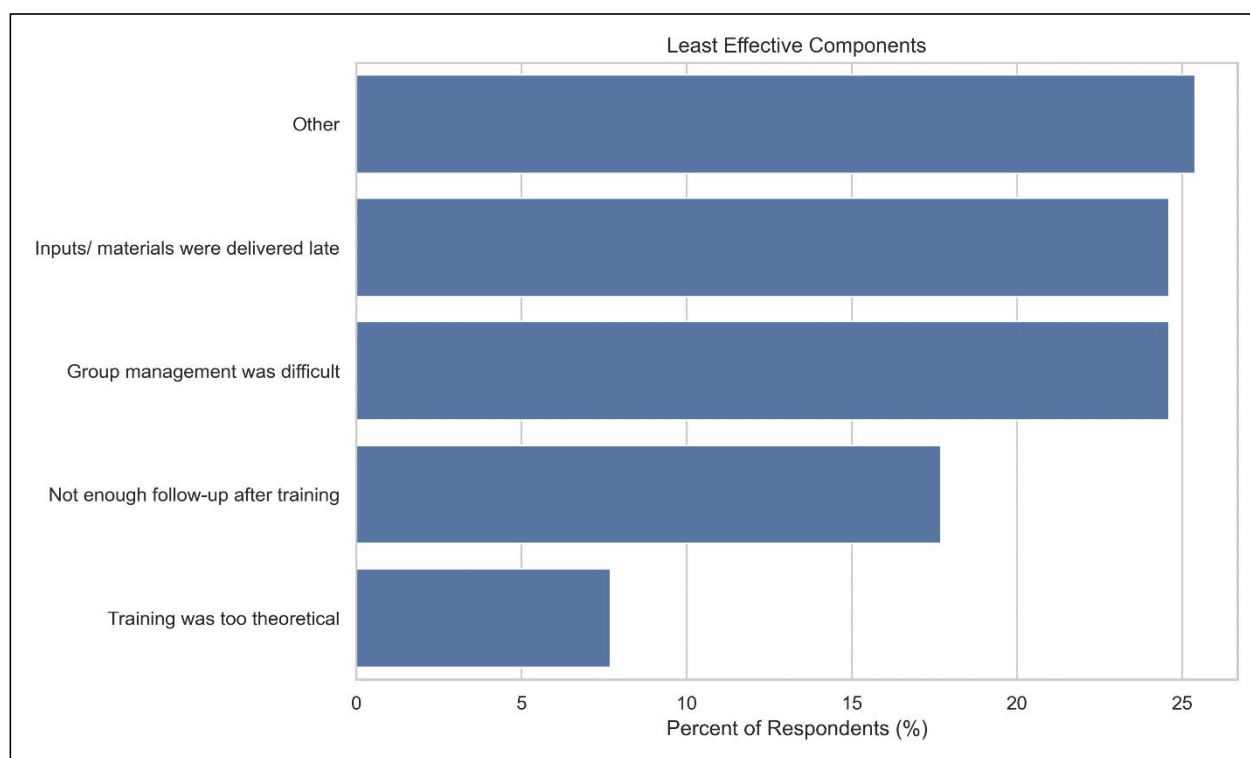
Interpretation:

The **practical, on-farm training** was highly valued, demonstrating the importance of hands-on learning. The main challenges relate to logistics (late delivery of inputs), group management, and insufficient follow-up, highlighting areas that need attention for future project planning.

4. SUMMARY

- **Future project priorities** are centered around **market access, irrigation, finance, and business training**.
- **Groups require support** primarily in **business training, market linkages, and start-up capital**.
- **Practical, on-farm training** is the most impactful project component, while challenges are mainly logistical or managerial.
- Addressing these challenges and prioritizing the top support needs will likely improve project sustainability and farmer outcomes.

***** THE END OF REPORT *****