



# Contract Farming by Traditional African Leafy Vegetable Seed Producers in Tanzania: Implications for Household Cropping Income

**Srinivasulu Rajendran**

**& Team members**

**AVRDC - The World Vegetable Center**

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**Theme 2: Upgrading value chains of neglected and underutilized species**

## Structure of the Presentation

### Part 1

- Relevance of the Study and Research Questions

### Part II

- Objectives of the Study

### Part III

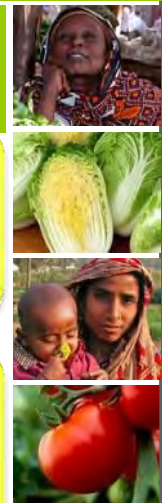
- Data Source and Methodology

### Part IV

- Results

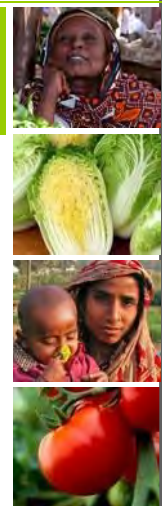
### Part V

- Policy Suggestions



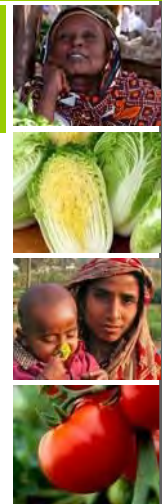
## Relevance of the Study

- The growing malnutrition due to unhealthy and imbalanced diets
- Highly nutritious vegetables and fruits as essential complements to staple-based diets for attainment of several MDGs
- Although demand for traditional African leafy vegetables has increased in recent years
- The vegetable supply currently cannot meet demand due to a lack of quality seed of preferred varieties



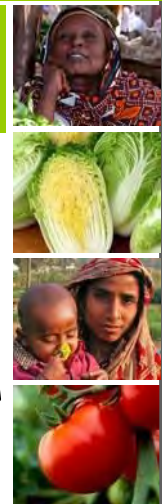
## Research Questions

- What the factors influences farmers to grow more African Traditional Vegetables than other crops?
- Does informal markets and networks that smallholders mostly rely on to obtain traditional African leafy vegetable seeds provide predictable or good quality varieties?
- Does farmers gets better market access for traditional vegetables seeds?
- Contract Farming System can be an Efficient Agribusiness Model for Smallholders?



## The Main Objective of the Study

- To understand the structure of the marketing system for traditional African leafy vegetable seed, and
- To develop strategies to improve the system and livelihood of smallholders who grow traditional African leafy vegetable seeds in Tanzania



## Specific Objectives of the Study

### Objective 1

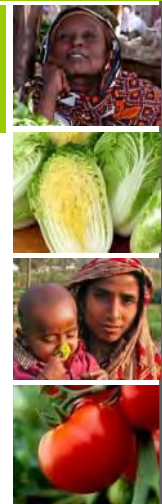
- Examine the factors that influence farmers to grow more traditional vegetables as compared to other crops

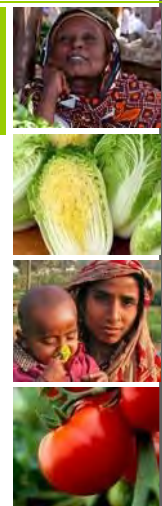
### Objective 2

- Examine the determinants of farmers' participation in formal seed enterprises particularly contract farming

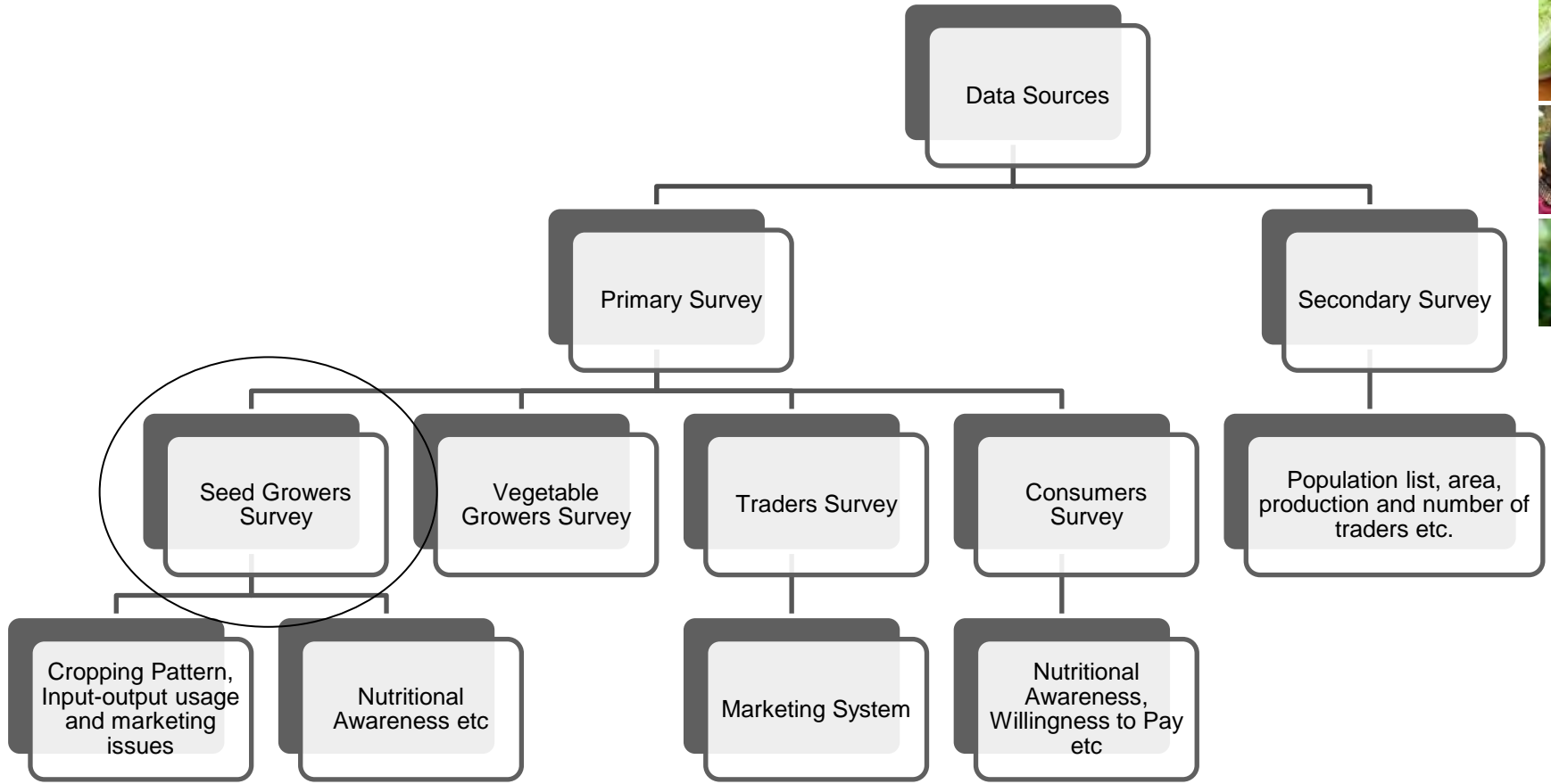
### Objective 3

- To identify the impact of formal seed enterprises particularly contract farming on crop income





# Data Source



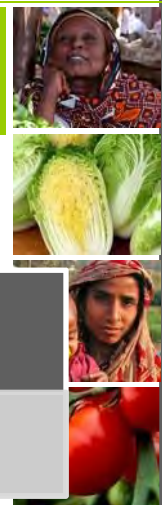


## Study Region



Reasons: Large Area under traditional vegetables and Access to Markets

# Primary Survey Method, Selection of Study Area and Criteria



Chasing of Lot Method (Acharya & Agarwal, 2011).

To trace out the value chain system



Multi-Stage Selection Procedure to select Study Region

There was a meeting with officials in horticulture department in respective study area



Selection Criteria

i. Area under Cultivation & Production

ii. Market Access

# The survey was done in three stages

## Stage 1 - Pre-pilot

- **Key Informant Interview - Jan, 2013**
- Testing questionnaire
- Horticultural officers, extension officers and progressive farmers

## Stage 2 - Pilot Survey

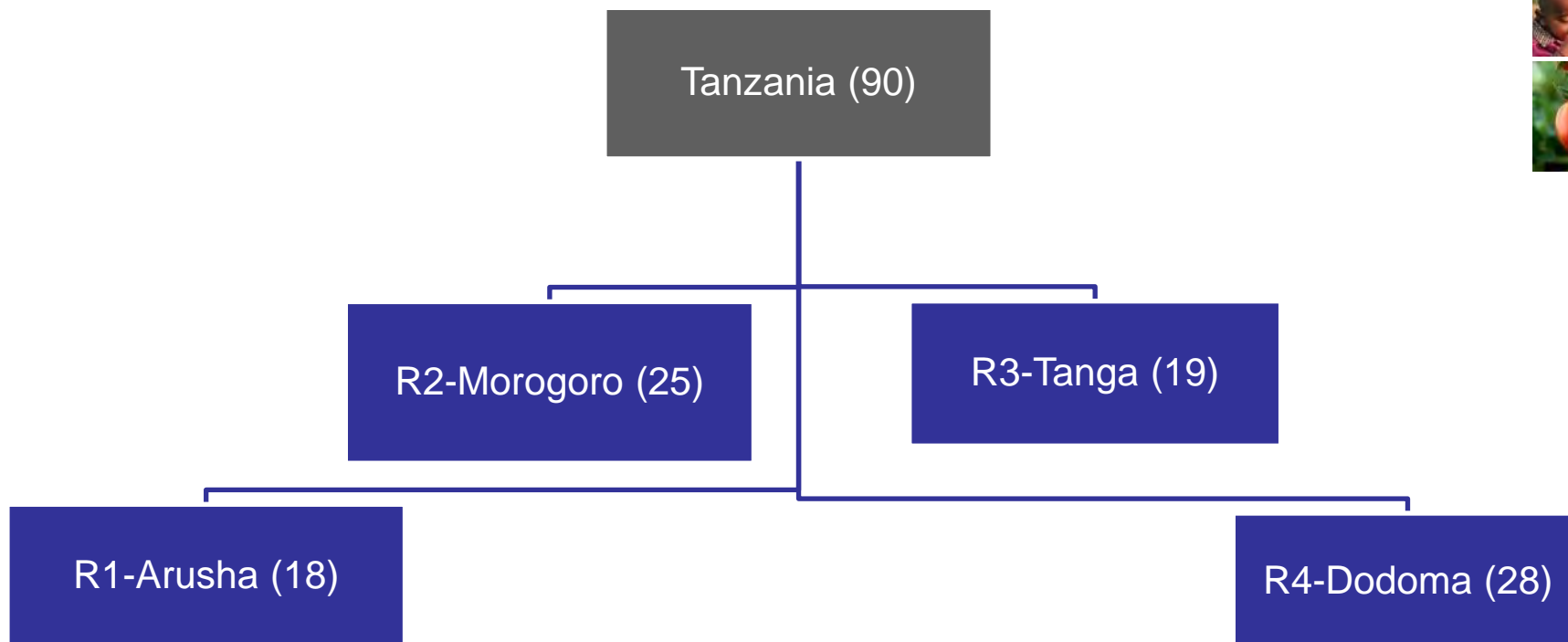
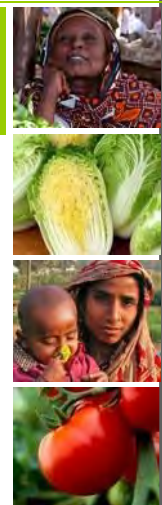
- - **Feb, 2013**
- 2<sup>nd</sup> round testing with all enumerators  
After the Enumerators' Training Program

## Stage 3 - Main Survey

- **Feb, 2013 to May, 2013**



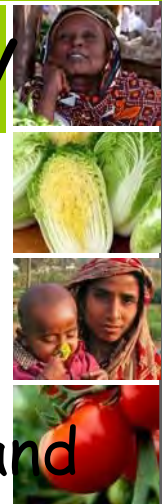
## Sample Size



*Note: In brackets: Sample size*

# Information in the Farm household survey

- Background of the household
  - land use; cropping pattern; demographics
- Access and use of agro-inputs and services
  - i.e. seeds, fertilizers, crop chemicals, credit and extension
- Practices in marketing of agricultural produce
- Self-perception about
  - new technology and vegetable production
  - Nutritional Awareness from traditional vegetables
- Usage of Information and Communication System



# Sampling Technique and Sample Size

## Farmer Survey -

### □ Selection of Household

- *Systematic Random Sampling Technique*

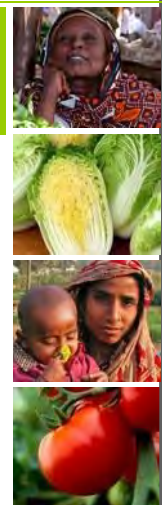
### □ Selection of Sample Size -

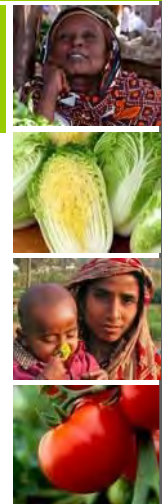
- Level of Error and Confidence Interval 95%

## Trader and Consumer Survey-

### □ Selection of Traders

- *Purposive Sampling Procedure.*

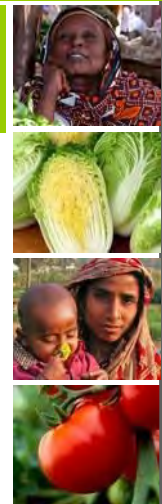




# RESULTS

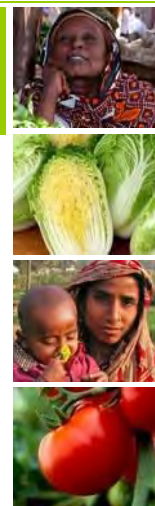
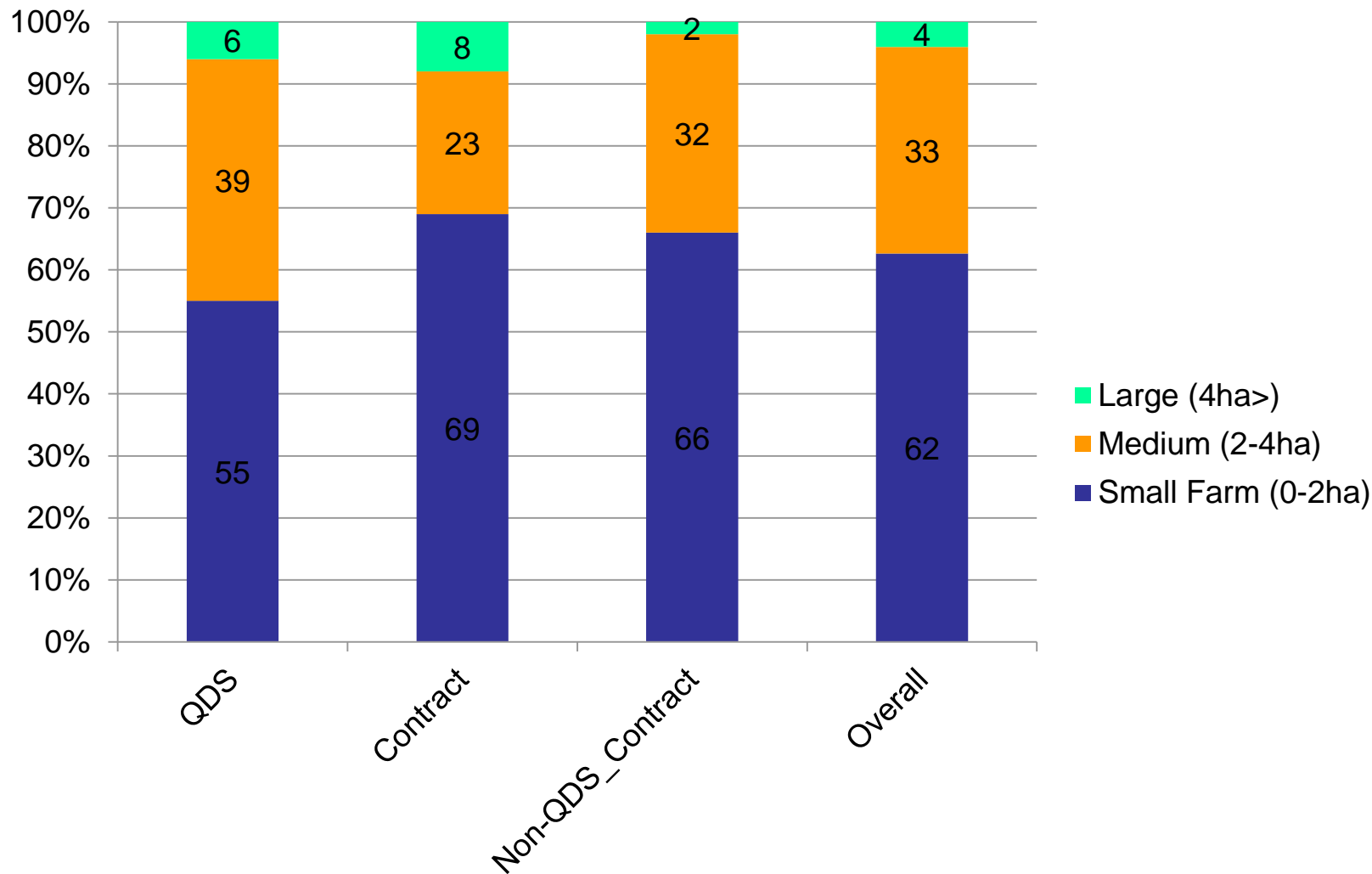
## Seed Growers' Major Crops

- African Eggplant (38%)
- Amaranth (28%)
- Night Shade (19%)
- Ethiopian Mustard (2%)
- Others i.e Okra, cowpea, pumpkin leaves etc (13%)

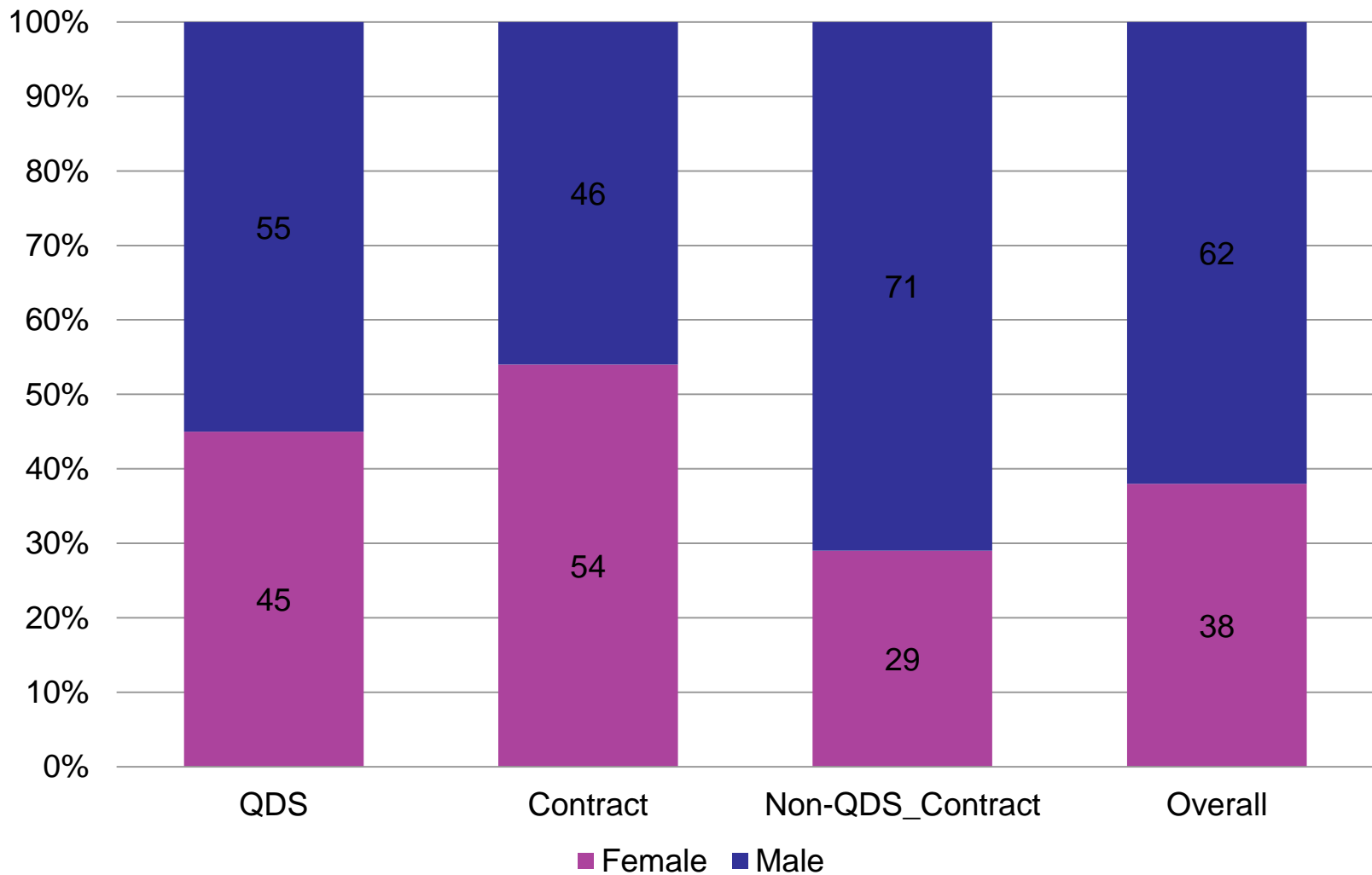




# Farm Size Distribution by Type of Seed Enterprises



# Gender Distribution by Type of Seed Enterprises



## Socioeconomic Indicators and Land Details



Education	QDS	Contract	Non-QDS_Contract	Overall
Number of Years	7	6	7	7
<b>Family Size</b>				
Number of Persons	6	5	6	6
<b>Land Size (Acres)</b>				
Own Area	1.9	1.5	1.6	1.7
NOA	1.9	2.0	1.6	1.7
Irrigated Area	0.4	2.0	0.8	0.8
Area under Seed Cultivation	0.4	1.7	0.6	0.7

## Production, Crop Income and Benefit Ratio



Production & Crop Income per Household	QDS	Contract	Non-QDS_Contract	Overall
Production (Qty - Kg)	103.2	98.9	15.1	57.5
Sales (Qty - Kg)	41.2	97.2	8.2	33.4
Crop Income (USD/HH)	215.3	587	59	186.6
Total Input Cost (USD/HH)	22.2	145	30	44.2
<b>Net Income (per HH)</b>	<b>193.1</b>	<b>442</b>	<b>29</b>	<b>142</b>
Benefit Ratio	9.7	4.0	2.0	4.2
<b>Production &amp; Crop Income per Acre</b>				
Production (Qty - Kg)	54.3	49.5	9.4	33.8
Sales (Qty - Kg)	21.7	48.6	5.1	19.6
Crop Income (USD/Acre)	113.3	293.7	37.0	109.8
Total Input Cost (USD/Acre)	11.7	72.7	18.7	26.0
<b>Net Income (per Acre)</b>	<b>101.6</b>	<b>221.0</b>	<b>18.3</b>	<b>83.8</b>
Benefit Ratio	9.7	4.0	2.0	4.2

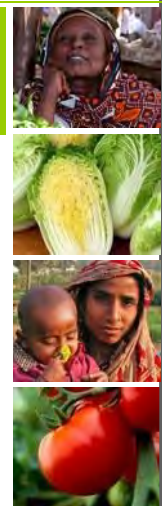
## Psychological Indicators towards Adoption of Technology



Psychological Indicators	QDS	Contract	Non-QDS_Contract	Overall
<b>Attitude</b>				
I consider myself as a progressive farmer	4.1	4.2	3.6	3.8
I like to try new agri tech	4.4	4.7	4.2	4.3
I actively seek info from others	4.4	4.2	4.1	4.2
I like new ideas in general	4.4	4.4	4.2	4.3
	<b>4.3</b>	<b>4.4</b>	<b>4.0</b>	<b>4.2</b>
<b>Social Norms</b>				
Other farmers think I am progressive farmers	4.0	3.7	3.6	3.7
Other farmers ask my opinion	3.9	4.0	3.8	3.8
Other farmers will not object my farming activities	3.9	3.8	3.4	3.6
	<b>3.9</b>	<b>3.8</b>	<b>3.6</b>	<b>3.7</b>
<b>Perceived Control</b>				
It is easier for me to collect info abt tech	3.6	3.4	3.1	3.3
I have good contact with extension officers	4.0	4.3	3.8	3.9
I can adopt new agri tech if it is profitable	4.4	4.5	4.3	4.4
	<b>4.0</b>	<b>4.1</b>	<b>3.7</b>	<b>3.9</b>

# Objective 1

- Examine the factors that influence farmers to grow more traditional vegetables than other crops



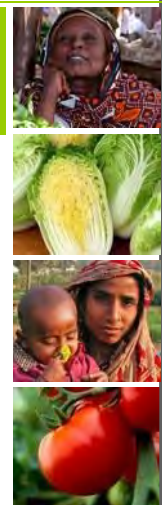
## Econometric Analysis – Multiple Regression Model

+ve: Factors that determine farmers to grow more Traditional vegetables than other crops

- Small farm holders prefer to grow more traditional vegetables
- If farmers aware about nutritional benefits than farmers tend to grow more traditional vegetables with additional size of land for their own consumption NOT for sales

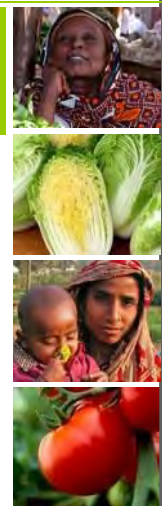
-ve Factors:

- Experienced and educated farmers tend to grow less traditional vegetables as they feel it may not fetch better income as compared to other crops
- Timely availability, Price and Quality of seeds



## Bottom line from Objective 1

- It's not only promoting awareness about nutritional benefits,
  - ✓ It is necessary to increase competitiveness and economic viability of these crops by increasing consumer demand.
  - ✓ Make sure that seeds are available on time with good quality and prices





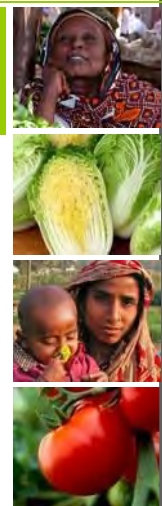
# Can we have Formal Seed Enterprises System in Tanzania

- QDS – Quality Declared Seed System
- Contract Farming System

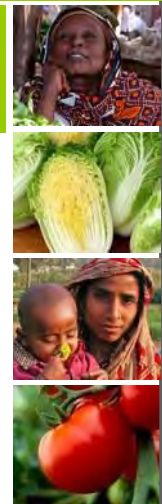


## Objective 2

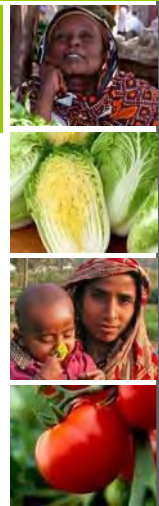
- What are the factors that determine farmers to participate in formal seed enterprises particularly contract farming



- Female farmers' participation in contract farming is higher than male farmers
- It seems to be younger farmer would like to be part of contract farming system as compared to elderly farmers. However, it does not show significant effect
- Each additional acre of land expansion under seed cultivation increases probability of participating in contract farming

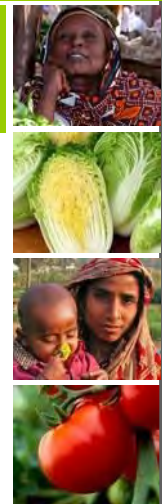


**Being in Contract Farming System, crop income of farmers can increase by 200%, whereas QDS can increase only 100%, but in general formal marketing system can increase crop income**



## Limitations of the Study

- More samples required
- Participation in Contract farming system is time-variant and hence required follow-up survey
- It is necessary to understand views of contractors
- In dept analysis on ICT role is required
- Necessary to understand marketing and pricing efficiency in the value chain system



Suggestions and Comments are Welcome!!!

Thank You!!!

Asante Saana!!!

Acknowledgement: Irish Aid Fund, CABI &  
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Government officials in Study Regions

