

# Indigenous African Leafy Vegetables (ALV) for Enhancing Livelihood Security of Smallholder Farmers in Kenya

**Horticultural CRSP Project Inception Meeting, October 15, 2011. Arusha, Tanzania**

# U.S. Investigators

## Lead PI:

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## Co- PIs

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## Developing Countries Collaborators/Co-PIs

### 1. Kenya:

- (a) **AMPATH:** Pamela Obura, Naman Nyabinda, Naomi Lundman, and Benjamin Andama.
- (b) **Moi University:** Elizabeth Omani, Grace Cheserek, and Julius Ochuodho.
- (c) **KARI:** Christine Ndinya.

### 2. Tanzania

- (a) **AVRDC:** Chris Ojiewo.

# Project Objectives

1. Assessment and enhancement of genetic resources of ALVs
2. Improving ALV seed system availability to stakeholders
3. Development and dissemination of improved horticulture practices and post harvest technologies for ALVs
4. Promote educational programs on ALV's for farmers and other community groups
5. Develop marketing strategies for ALVs

## **Objective 1. Assessment and enhancement of genetic resources of ALVs**

### **a. On station germplasm evaluation**

- ✓ 33 improved ALV germplasm from AVRDC (9 amaranth, 9 nightshade and 15 spiderplant)**
- ✓ Moi and KARI experiments over two cropping cycles**
- ✓ RCBD, three replications**
- ✓ Data collected: germination %; days to 50% flowering; fresh biomass; and seed yield.**

**a. On- farm demonstrations**

- ✓ **Burnt Forest and Eldoret region = 14 lead farmers**
- ✓ **Khunyangu, Busia and Chulaimbo = 10 farmer groups**

**b. Participatory farmer evaluation**

- ✓ **Field days for farmer education at KARI and Moi Research plots**
- ✓ **Morphological and organoleptic trait evaluation**
- ✓ **Farmer and researcher opinions to be incorporated into future research**

# Summary of field days' attendance

Audience	Moi University		KARI Kakamega		Total all sites		Grand Total
	Male	Female	Male	Female	Male	Female	M + F
Farmers	5	7	27	58	32	65	<b>97</b>
Extension and other outreach staff	5	10	6	11	10	14	<b>29</b>
Students	12	3	0	0	12	3	<b>15</b>
Researchers	1	4	2	5	3	9	<b>12</b>
Others	2	0	3	0	5	0	<b>5</b>
<b>Total</b>	<b>25</b>	<b>24</b>	<b>38</b>	<b>74</b>	<b>62</b>	<b>91</b>	<b>153</b>

# Preferred varieties from participatory evaluation

	<u><b>KARI-Kakamega</b></u>	<u><b>Moi University</b></u>
<b>ALV varieties</b>	<b>Western region farmers</b>	<b>Eldoret and Burnt Forest farmers</b>
<b>Amaranth</b>	AC-38, AC-25, AM-01, AC-NL, AH-NL, AM-Kongei & Ex-Zim	AC-38, AC-NL, Ex-zim
<b>Nightshade</b>	BG-16, BG-23, BG-14, BG-18 SS-52, SSO-42, SS-49	SSO-42, Ex-hai, BG-16
<b>Spider plant</b>	“Not evaluated”	MLSF-13, MLSF-14, UGSF-12 & MLSF-3, IP-3



# Response to Field days' survey questions

Question	Moi University		KARI Kakamega		Total all sites		Grand Total
	Yes	NO	Yes	NO	Yes	NO	Yes + No
Is this your first time to attend a field day on Indigenous Vegetables?	22	2	45	5	67 (91%)	7 (9%)	<b>74</b>
Did you know there were so many cultivars/types available?	12	12	38	11	50 (68%)	23 (32%)	<b>73</b>
Will you recommend these activities to other farmers?	24	0	50	0	74 (100%)	0 (0%)	<b>74</b>
Do you intend to incorporate information you gained into your production and/or marketing?	22	0	43	3	65 (96%)	3 (4%)	<b>68</b>

## **Objective 2. Improving ALV seed system availability to stakeholders**

- **Promising germplasm identified during participatory evaluations**
- **Selected AMPATH farmers from each of the five sites given practical training at KARI and Moi University on proper seed agronomy, harvesting, processing and storage /preservation**
- **Used on-farm demonstration plots to collect seeds to be shared with group members and sold to neighbors**
- **Extension personnel supervision**

### **Objective 3. Development and dissemination of improved horticulture practices and post harvest technologies for ALVs**

- ✓ **Acquired training materials on BMPs for ALVs from AVRDC**
- ✓ **Supplemental extension materials used by AMPATH, Moi University and KARI simplified**
- ✓ **Indigenous knowledge Incorporated**
- ✓ **Training team consisted of AMPATH extension staff, KARI and Moi Univ. researchers**
- ✓ **Technical back up provided by US collaborators**

## Objective 4: Promote educational programs on ALV's for farmers and other community groups

- a) Farmer training sessions at group level
- b) Regular field visits by AMPATH extension staff to:
  - Identify weaknesses in production systems
  - Provide relevant technical information
- c) Field days and group meetings

Topics:

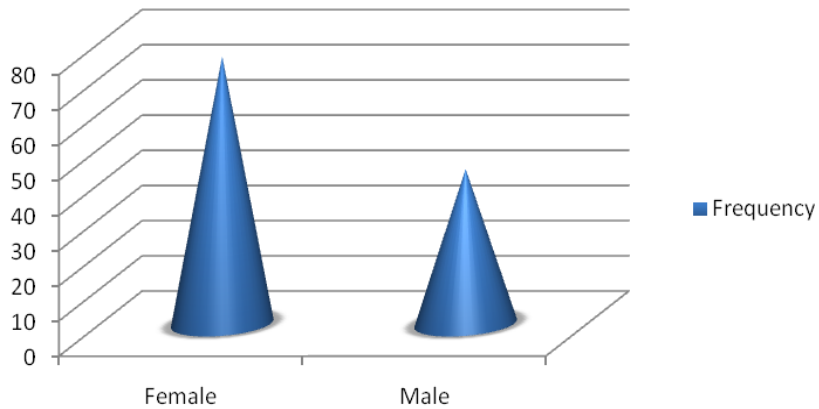
- Land preparation
- Planting methods
- Seeds quality
- General crop management
- Harvesting techniques
- Value-addition and recipes
- Record keeping

## **Objective 5. Develop marketing strategies for ALVs**

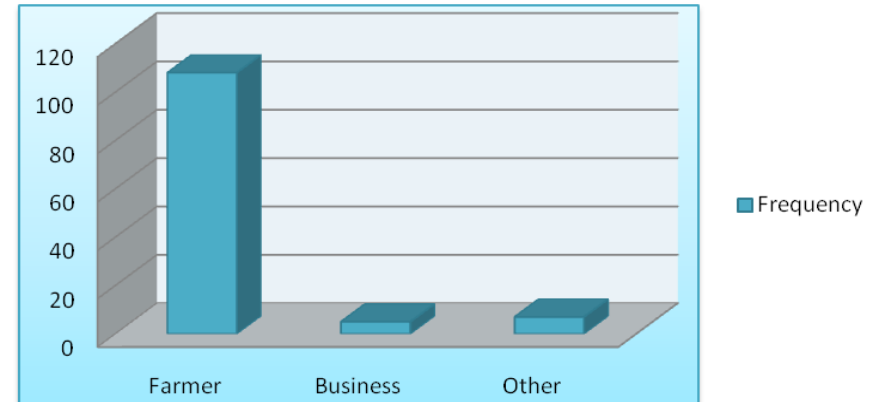
- a) Household and Market surveys in the five sites**
- b) Information generated disseminated to producers on market locations and capacity and required quality**

# Household/producer characteristics

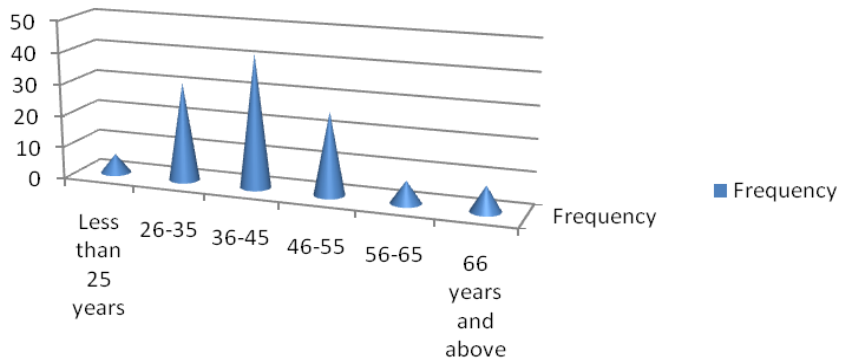
## Respondents gender



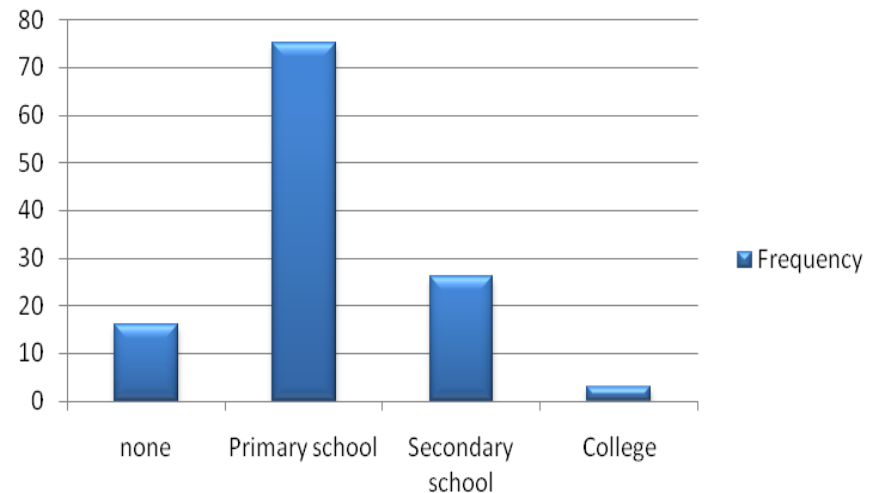
## Occupation of the respondents



## age of the respondents

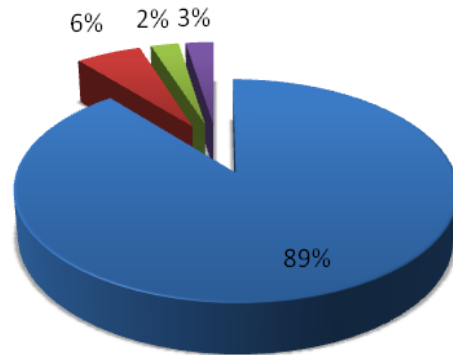


## Education level



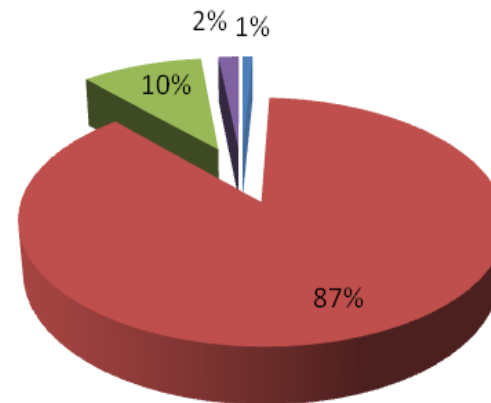
## Main source of income

■ Farm ■ Business ■ Salary ■ Others



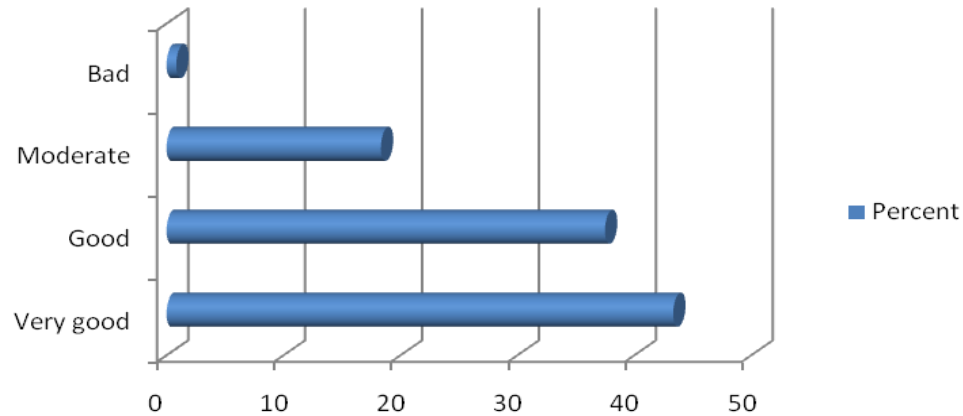
## size of land under Alvs

■ None ■ < 1/4 of an Acre ■ 1/4 - 1/2 Acre ■ 1/2 - 1 Acre

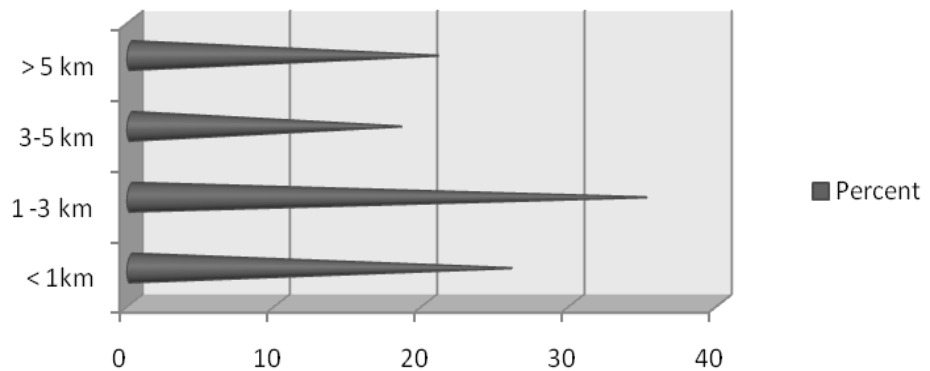


# Summary of Market Survey results

## Regional market acces to ALV market



## Distance from the nearest ALV market





# Popularity of the three ALVs

ALVs	WESTERN		RIFT VALLEY	
	CONSUMPTION	SALES	CONSUMPTION	SALES
African Nightshade	Most consumed	Moderately sold	Most consumed	most sold
Amaranth	sometimes consumed	Moderately sold	sometimes consumed	Moderately sold
Spider Plant	Least consumed	Most sold	Least consumed	Least sold

## c) Peer networking day for producers and vendors

At central locations in each of the five sites

Attendance = 376

Objectives :

- Learn marketing barriers
- Establish producer -vendor relationships and networks

# Market prices for ALV compared to other popular leafy vegetable

Type of vegetable	Price per unit (Bunch or head for cabbage) (KES)		
	(1USD = 100KES TODAY)		
	Dry season	Wet season	Average cost
African Night shade	12.38	7.19	9.78
Amaranth	12.38	7.19	9.78
Spider plant	12.38	7.19	9.18
Kales	10.48	6.43	8.45
Cabbage	16.67	4.29	9.28
Spinach	14.05	11.19	7.38
Cow pea	9.64	18.1	5.71
Pumpkin leaves	8.81	10.95	7.14
Mito	9.05	11.43	7.85

# Project Outcomes and lessons learnt

Availability of improved ALV germplasm

Farmers acquired valuable skills on improved BMPs, post harvest handling and utilization of ALVs indigenous

Enhanced the capacity of local extension staff and farmers in the maintenance of germplasm and sustainable community seed system for their preferred indigenous vegetable

Improved knowledge/ awareness, practices and attitudes, among community members, extension staff with regards to nutritional values of indigenous vegetables.

Integration of agriculture, gender, HIV/AIDS, nutrition and environment components in existing community development programs such as AMPATH

Increased awareness in the community on group dynamics and resource mobilization

# Acknowledgements

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- **Moi University/Teaching and Referral Hospital/AMPATH**
- **Farmers and local traders**