COWPEA LINE SELECTION AND STORAGE OF SEED

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Introduction

Cowpea is consumed as vegetable and grains stew. It offers nutritional security as it is rich in proteins. Quality seed is a challenge facing most African Indigenous Vegetable production. Cowpea is a self-pollinated legume that is only propagated through seed. As it is with most AIVs, farmers carry out selection and preservation of their own seed. Due to a wide range of variation in uses, morphological characteristics and regional preferences, farmers face a challenge in variety selection. The main pest; Cowpea weevil (*Callosobruchus maculatus*) causes great losses in storage posing a challenge to long term storage of cowpea.

Plate1; cowpea foliage and seed variation

This project was carried out to:

- Establish farmers choices and preference for cowpea lines
- Determine appropriate material for cowpea seed storage

Methodology

In focus group discussions, farmers in Machakos and Makueni, evaluated, identified and selected their preferred set of lines and varieties from KALRO and collections made from farmers (Plate 2

Plate 2; characteristics classes of the cowpea lines used in the trial. Cowpea lines a-grey mottled, b-white, c-light red, d- red, e-black, f-creamish brown, g-brown mottled, h-purple and mixed (STD)

Plate 3 a) cowpea in the field, b)Farmers in Machakos making selection of cowpea lines c) farmers in Makueni making selection

Seed from a selected line was used to determine efficacy of cellulose paper bags, polyethylene bags, glass bottles, grain storage bags and gourds. Seed damage was assessed after 3 months in storage under ambient environmental conditions.

Plate 4; storage materials 1 glass bottles 2)grain storage bag 3)polyethylene bag 4) cellulose paper bag 5)gourds

Results

Unique farmer preference of the cowpea lines in Machakos, and Makueni were observed contrary to the breeders choice (Figure 1)

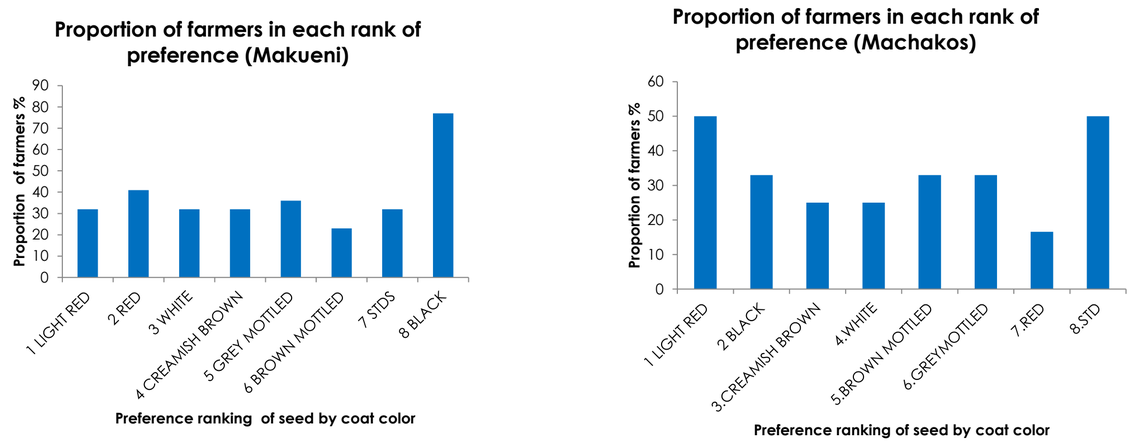

Fig 1 Numbers represent ranking of coat color cluster by farmers in order from most preferred to least

Attainment of hermetic conditions in cellulose paper bags, gourds, hermetic grain storage bags, polyethylene bags and glass bottles was associated with efficacy of the packaging material against cowpea weevil

Table1. Damage of cowpea seed stored for 3 months in different packaging materials

	Experiment 1					Experiment 2				
Packaging material	**Weight Loss**	**Holes /10 seeds**	**Seeds with holes in 100 sample**	**Damage score**	**Eggs present**	**Weight Loss**	**Holes /10 seeds**	**Seeds with holes in 100 sample**	**Damage score**	**Germination percentage P=0.01**	**Eggs present**
Cellulose paper bag	38^{a}	23^{a}	99^{a}	5	yes	17.6^{b}	12^{b}	70^{c}	5	49.3^{b}	Yes
Gourd	30^{a}	25^{a}	66^{a}	4	yes	18.5^{b}	11^{b}	72^{c}	5	40.7^{ab}	Yes
Grain storage bags	3^{b}	1^{b}	14^{b}	2	no	7.5^{a}	5^{a}	41^{b}	2	29.3^{a}	Yes
Polyethylene bag	0.25^{b}	0^{b}	0^{b}	2	yes	7.5^{a}	5^{a} 0.2^{a}	42^{b}	2	51.3^{b}	Yes
Glass bottle	0.01^{b}	0^{b}	0^{b}	1	no	0.04^{a}		2^{a}	1	92.7^{c}	no

Conclusion

- Farmers have unique preferences in selecting cultivars and better storage. Preference is different from region to region
- Long term preservation with minimum damage from cowpea weevil is attained through cowpea preservation under hermetic conditions.

Acknowledgement
The grant for the project was partially funded by Research Production and Extension division of JKUAT and National Research Fund. DAAD awarded the scholarship to the first Author