

Storage of Cowpea In Ash



Technical Bulletin 1

Agronomic Research Institute of Cameroon (IRA)
Maroua Research Center
CRSP Cowpea Storage Project

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This research was carried out by IRA and Purdue University scientists as part of the Bean/Cowpea Collaborative Research Support Program (CRSP) project: Preservation of Postharvest Cowpeas by Low-Resource Farmers in Cameroon, U.S. Principal Investigator (P.I.) Larry L. Murdock, U.S. Co. P.I. Richard E. Shade, and Cameroon P.I. Zachée Boli.

The Bean/Cowpea Collaborative Research Support Program is funded by the U.S. Agency for International Development Grant No. DAN-1310-G-SS-6008-00 which is implemented by Michigan State University.

INTRODUCTION

Callosobruchus maculatus, the cowpea weevil or cowpea bruchid, is the principal storage pest of cowpeas in northern Cameroon. Infestations start in the field on pods but population growth accelerates following threshing, when eggs can be laid directly on the seeds.

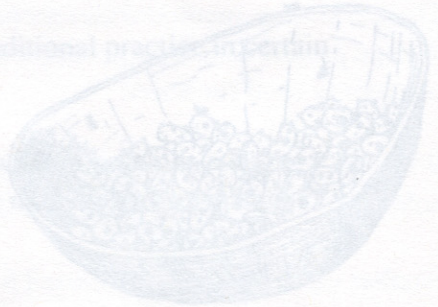
The adults live from 5 - 10 days. Each female lays 40 - 60 eggs which she glues to the cowpea seeds. Bruchid larvae feed and develop inside the seeds and emerge as adults after about 3 - 4 weeks. The adults mate and give rise to another generation in the store. The cycle is repeated again and again.

Since each female lays so many eggs, and there are multiple generations, even minor infestations at harvest can lead to almost total loss of the cowpea store after only a few months of storage.

Adults emerge from the seeds.

Storage of cowpeas is a traditional practice in the regions of northern Cameroon.

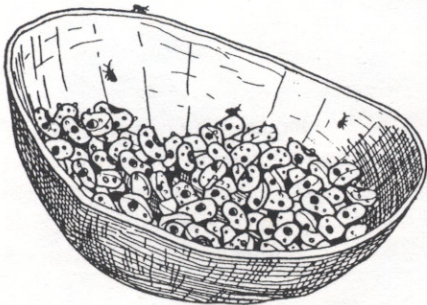
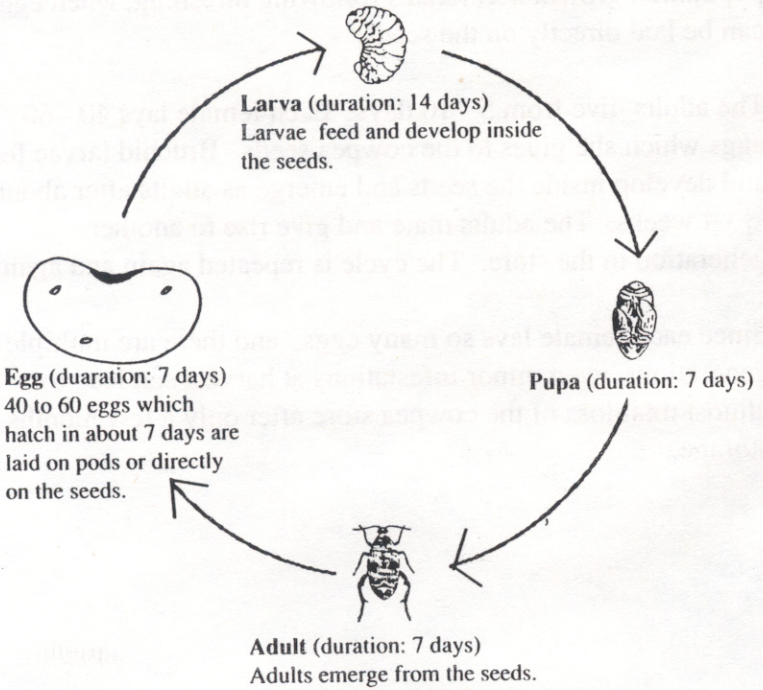
IRA/CRSP researchers have shown that cowpeas can reproduce if cowpeas are stored in large amounts.



Life Cycle of the Cowpea Bruchid

Callosobruchus maculatus

The life cycle of the bruchid is composed of four stages: egg, larva, pupa, and adult. The life cycle is completed in about 5 weeks.





Storage of cowpeas in ash is a traditional practice in certain regions of northern Cameroon.

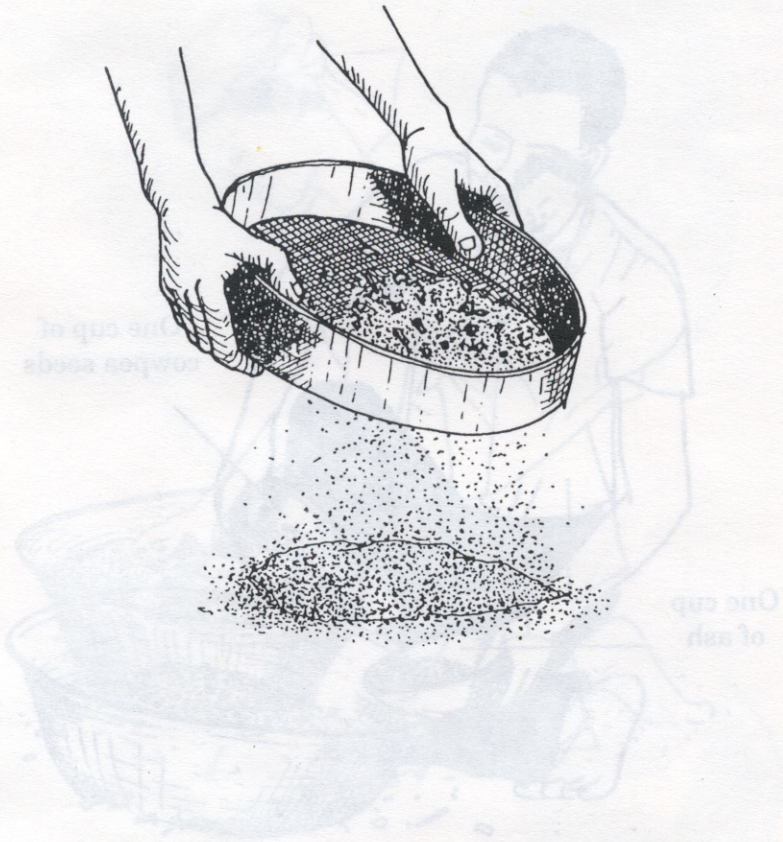
IRA/CRSP researchers have shown that bruchids cannot reproduce if cowpeas and ash are mixed together in equal amounts.



The ash storage method recommended by the IRA/CRSP storage project uses a large canary (guirawal in Fulfulde) commonly used for water.

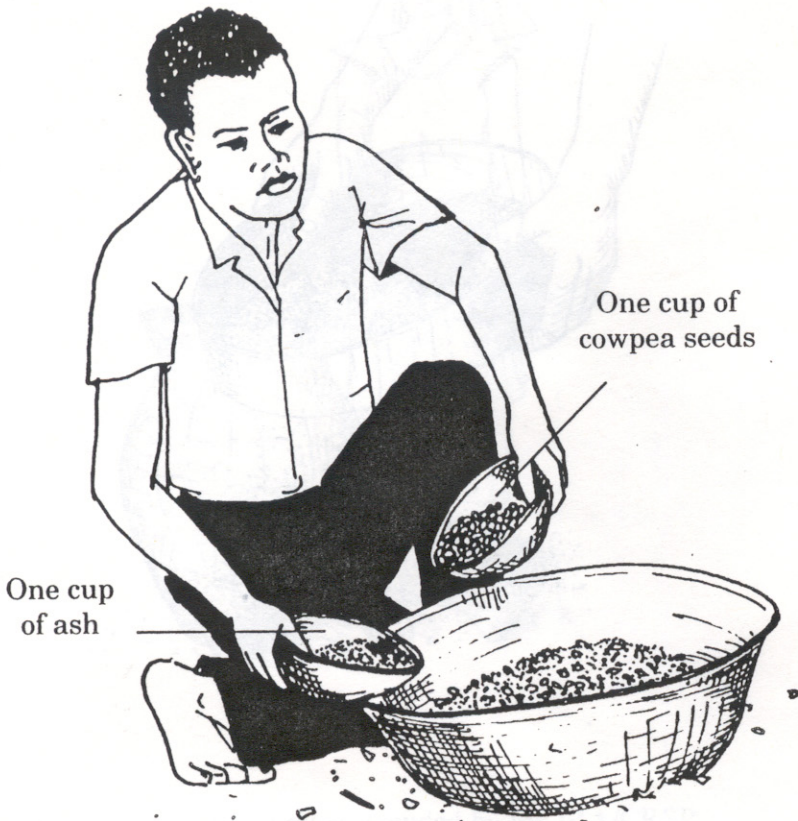
When mixed with an equivalent volume of ash, this canary can hold 35 to 40 kgs of cowpea seeds.

Smaller canaries can also be used for smaller quantities of cowpeas.



Ash to be used should be sifted to eliminate large particles of charcoal.

Research has shown that any wood ash is effective.



One cup of wood ash is thoroughly mixed with one cup of cowpeas in a large mixing bowl.



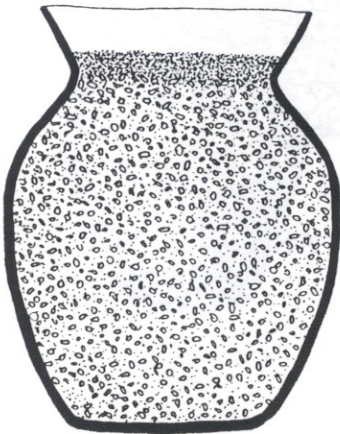
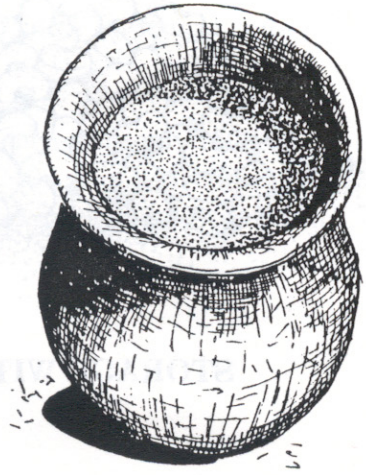
This process is continued until the bowl is full and the cowpeas and ash are well mixed.

The mixture of ash and cowpea is then emptied into the canary. After each addition of ash and cowpeas, the mixture should be compacted with open hands to remove all open spaces.



This procedure is repeated until the canary is filled.

When the canary is full, a 3 cm layer of ash should be used to cover the stored cowpeas.



Each time that cowpeas are removed from the canary the ash cover should be restored.



STORAGE WITH ASH



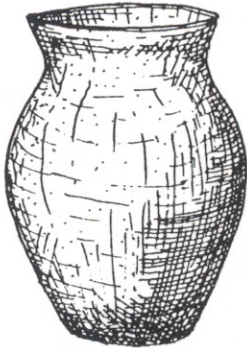
STORAGE WITHOUT ASH

Ash does not kill the larvae which are already feeding inside the seeds, but it prevents their reproduction.

This storage method is applicable to the majority of cowpea producers in northern Cameroon, who typically harvest about 200 kgs of cowpea.

Cowpeas stored in ash can be used either for human consumption or as seed for planting.

Ash storage is economical: the canary costs only 1500 CFA and can be used for several years; 40 kgs of well conserved cowpeas could be sold at 200 CFA/kg leaving a gross profit of 6500 CFA.



40 kgs cowpea x 200 CFA/kg	=	8.000 CFA
Price of canary	=	1.500 CFA
GROSS PROFIT	=	<u>6.500 CFA</u>

Acknowledgements:

Illustrations by John K. Miller.

Work supported in part by the U.S. Agency for International
Development-Yaounde.