



ASSESSING THE EFFECTS OF STORAGE OF SHEA SEEDS ON GERMINATION AND SEEDLING GROWTH IN THE NORTHERN REGION OF GHANA



Introduction

The commercialization of shea products represents an important source of income at different parts of the community chain, from rural children and women who gather and process nuts, to town dwellers as well as the entire country. Shea tree provides fruits, medicine, construction materials, fuel wood and carving wood. Because of these characteristics, shea butter is used as a base for cosmetic and pharmaceutical preparations for the treatment of dry hair and skin, burns, and multiple skin ailments. It is the only source of cooking fat for many rural communities throughout the year. Despite its great contribution to the local economies, shea tree remains undomesticated probably because of lack of traditional knowledge to plant local tree species. This trend suggests the need to use artificial (improved) regeneration methods to promote this species in farmer's fields.

Objectives

The main objective of this study was to assess the potentials of establishing shea nut tree by seed.

The specific objectives of the study were to;

- assess the influence of storage of seeds after collection on germination
- determine the influence of the period of storage on germination and
- determine whether percentage germination and seedling growth vary with geographical locations

Materials and Methods

A nested sampling procedure was used. Three locations, Yipala, Tuya and Nabogu were chosen. At all the three locations two stands separated by a distance of 2-5 km were selected. At these locations, fruits were collected from five trees. In the nursery, depulped seeds were sown in polypots filled with ordinary black soil. The polypots were labeled and completely randomized on a shaded nursery bed. Seeds were sown on the day of harvest and every other day till the eighth day after harvest. A nested analysis of variance was used to analyze percentage emergence of radical and plumule after 30 days and seedling height.

Results and Interpretation

- ◆ High percentage emergence (98 %) was observed in the seeds that were sown without storage (zero day) but declines rapidly with increase in storage period. The lowest percentage emergence (18 %) was recorded in the seeds that were stored eight days before sowing (see figure 1).
- ◆ Emergence of radical showed no significant difference among the locations, between stands and within locations among families (trees) within stands and within locations (see figure 2).
- ◆ No significant difference among the locations was observed on the number of days to root swelling and plumule emergence from seed
- ◆ Growth in height of shea seedlings measured at two weeks interval showed significant differences among locations (figure 3).
- ◆ Seedlings from Nabogu were significantly taller than seedlings from Yipala and Tuya which were not significantly different from each other

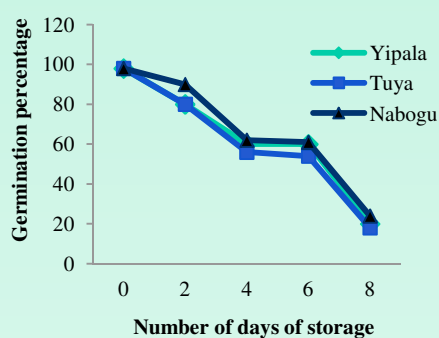


Figure 1: Percentage germination with time

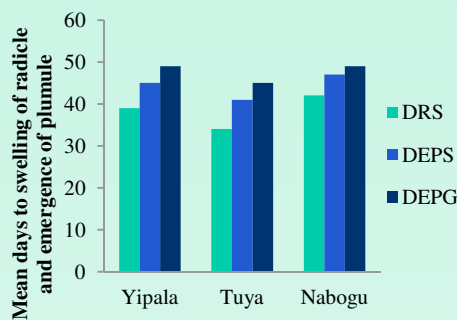


Figure 2: Time of radical and plumule emergence against location

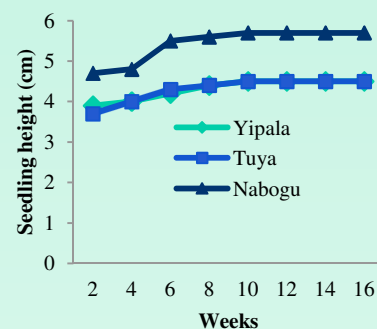
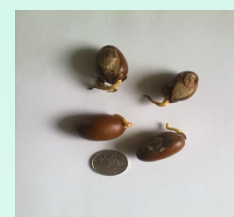


Figure 3: Level of seedling growth with time

Conclusions and Recommendation

- It is concluded that shea trees from different locations showed similar patterns of germination
- percentage germination was observed to be influenced by the period of storage of shea seeds before sowing
- the study showed that seedlings from Nabogu grew faster and were taller than those from Tuya and Yipala.
- It is recommended that for high percentage germination shea seeds harvested should be sown as soon as possible preferably within four days after harvesting



Germinating seeds