



Groundnuts Postharvest Handling: Harvesting and drying Support to Ugandan Farmers



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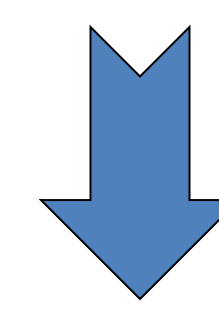
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Introduction

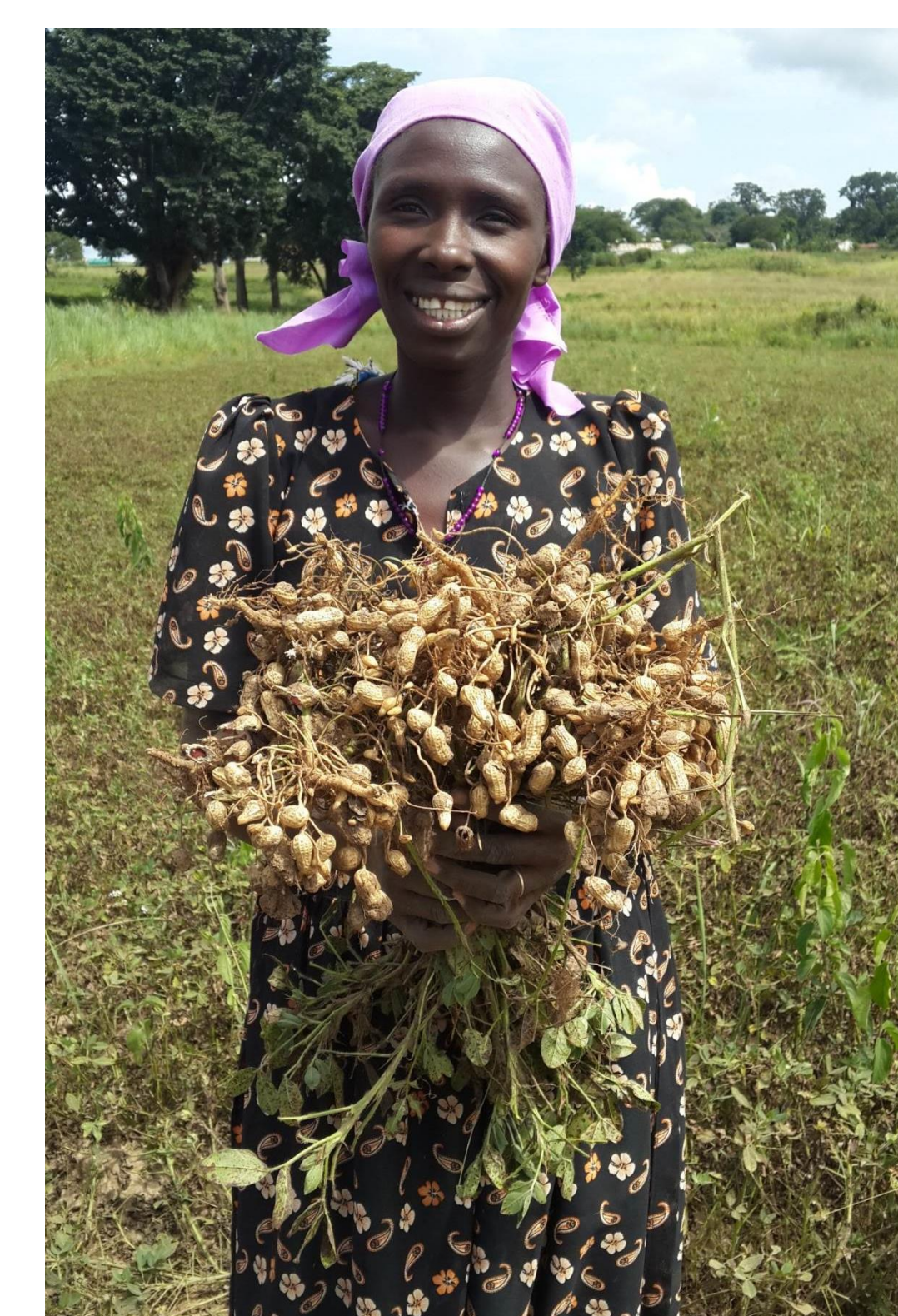
- In Uganda, groundnut (*Arachis hypogaea* L.) is a staple legume fast becoming a cash crop. Groundnut seeds contain 40 – 50% oil, 20 – 50% protein and 10 – 20% carbohydrates depending on the variety (Okello *et al.*, 2010). Groundnut seeds are also rich in Vitamin E, niacin, folic acid, calcium, phosphorus, magnesium, zinc, iron, riboflavin, thiamin and potassium. Groundnut is consumed raw, blanched, as peanut butter, crushed and mixed with traditional dishes or as a cooked paste (Binyebwa). It is also an excellent source of cooking oil and enhances soil fertility. The haulms are used as animal feed. However, farmers in Uganda have limited knowledge and skills in harvesting and drying operation to realise the food benefits from groundnuts. This flyer, therefore provides information that will farmers and processors minimize improve quality at harvest and minimise postharvest losses of their groundnuts produce.

Harvesting

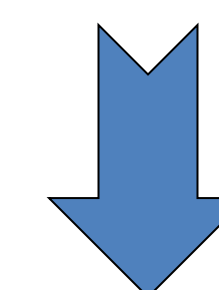
- Harvesting is one of the most critical operations in groundnuts production. Timely harvesting of groundnuts gives the farmer the maximum yield and grade. If you harvest too early, the seeds will shrink when drying which lowers yield, oil content and seed quality. Delays in harvesting results in poor quality seed due to mould infestation leading to aflatoxin contamination. Late harvesting also reduces yield because the pegs become weaker with age and the pods break off and remain in the ground. It is therefore very important to harvest the crop at optimum maturity, as excessive numbers of over-mature or very immature pods at harvest can be reflected in high levels of aflatoxin in the product.
- Leaf fall is not a good indicator of when to harvest. It is recommend that a few plants (3-5) should be pulled up and pods removed and shelled. The inside of the shells should be examined. If 70% and above have dark markings inside the shell and the shells are plump with the correct colour for that variety, then groundnuts are mature and ready for harvest.
- Harvesting by hand is more suitable for the erect varieties in sandy-loam soils.
- Harvesting by hoe digging is more suitable for spreading varieties on heavy soils and during dry conditions.
- Damage to pods at the time of harvest should be avoided as much as possible since this can lead to aflatoxin contamination.
- Remove excessive moisture from the pods after harvesting through shaking.



Ready to harvest pods



Well harvested groundnuts

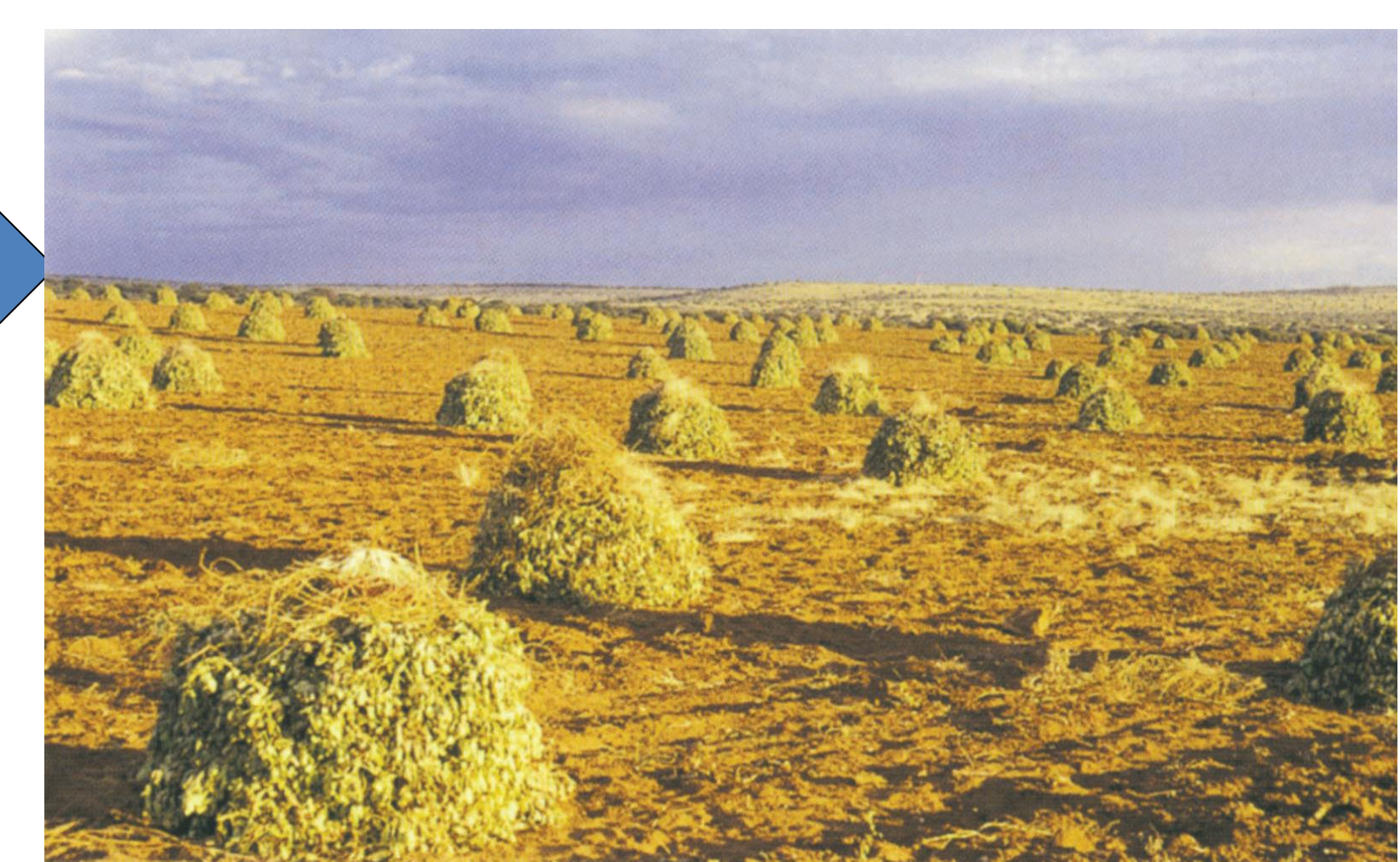


Drying

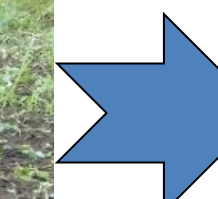
- Drying, together with harvesting, have the greatest influence on groundnuts quality and marketing.
- The goal of drying is to reduce the moisture content of the pods to 6-8% suitable for storage. Farmers can determine the moisture of the groundnuts by shaking the kernels. When the nuts reach the recommended moisture content, shaking will produce a rattling sound. The key to good drying is to dry quickly but steadily
- Do not dry produce in contact with soil. Use clean sheets, for example polythene sheets, or tarpaulin or mats made of papyrus, cemented grounds or raised structures
- Dry groundnuts as soon as possible (in developed countries, drying is within 48 hours)
- Sundry grain to bring down its moisture to 7% or below for proper storage of groundnuts
- Do not dry diseased/infected produce along with health ones



Groundnut drying in windrows



Cocks used for plant/pod drying (Source Page *et al.*, 2002)



Recommended drying methods

a) The Mandela cock : After 2 - 3 days of wilting in the field in windrows, To create a Mandela cock drying system, first build a circular platform of soil about 1-2 meters across and 0.45 meters high. Place the groundnut plants in a circle around the perimeter of the platform, with the pods in the inner part of the circle. Continue to place the plants around the circle, building up the layers and gradually reducing the diameter of the circle until there is only a small opening at the top of the cock. Then cover this opening with peanut plants with the pods turned downwards. The cock can be built to a height of one to one and half meters and it takes 2-4 weeks of drying to reach the recommended moisture content of 6-8%.

a) The A – Frame: The wilted plants are gathered and stacked on an A-frame with the pods facing inwards and away from the soil. A – frames are easy to construct using three thick poles as a base with thin poles attached to either side of the main poles of the A-frame forming shelves on to which the wilted plants can be placed. The lowest shelf should be about 30cm above the ground. Excellent air circulation occurs and, if constructed properly, the drying foliage of the plants protects the pods from rainfall.

b) Cemented floor or Raised platform: If groundnuts must be dried in the field (which is not recommended), it is a good idea to use windrows, where plants are laid in rows to catch the wind and dry more quickly. This should take 3-5 days before plucking or stripping and further drying on mats for 2-5 days.



Drying on concrete floor



Drying on a raised platform

References

Okello, D.K., Biruma, M. And Deom, C.M 2010. Overview of groundnut research in Uganda: Past, present and future. African Journal of Biotechnology Vol. 9(39), pp. 6448-6459.

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