



FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative

Developing a Peanut Maturity Profile Board for Malawi

D.L. JORDAN and R.L. BRANDENBURG, North Carolina State University; N. PUPPALA, New Mexico State University; G. MACDONALD, University of Florida; J. RHOADS and D. HOISINGTON, University of Georgia; A. EMMOTT, London, UK; J. CHINTU, DARS-Chitedze Research Station; W. MHANGO, LUANAR, Lilongwe

INTRODUCTION

Pod and kernel maturity are important factors in determining peanut yield and economic return. This poster contains an initial maturity profile board used in Malawi in March 2019 during an educational program with field agronomists (Plate 1). The maturity profile board was updated (Plates 2 and 3) for future use. The maturity profile board will be printed on sheets approximately 8.5 by 11 inches on both sides and will be laminated for distribution to farmers in Malawi.



Optimizing Groundnut Yield and Minimizing Aflatoxin Contamination

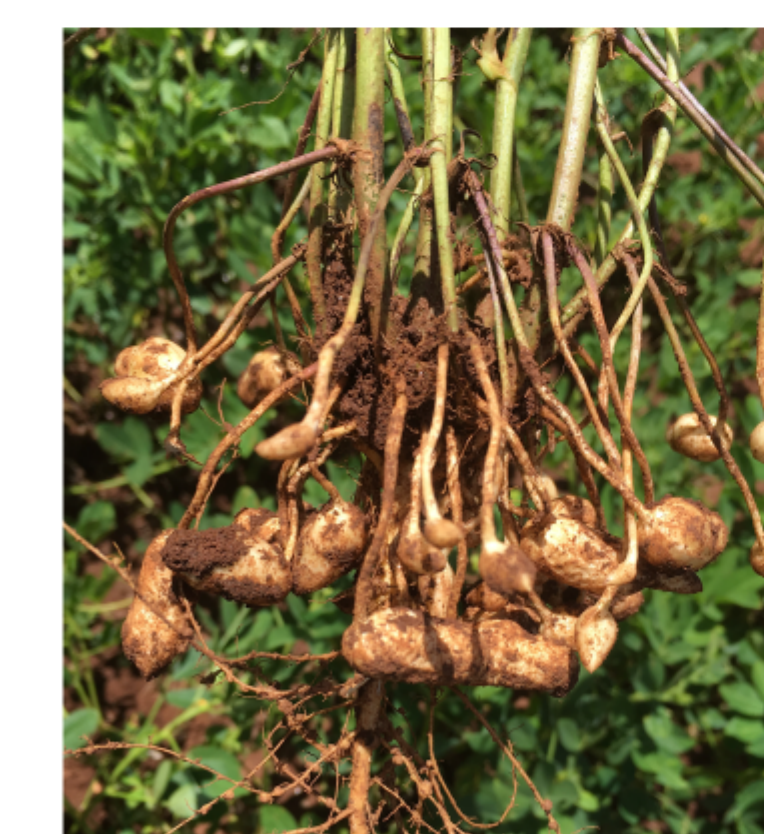
Successfully Producing Groundnut

- Select appropriate land
- Rotate with other crops
- Prepare land effectively
- Plant high quality seed
- Establish optimum plant populations
- Provide adequate fertility
- Protect from pest damage
- Promote plant health
- Lift and dry in a timely manner
- Effectively store and transport



Minimizing Aflatoxin in Groundnut

- Plant when rains begin
- Plant viable seed 8 cm apart
- Establish optimum pH and fertility
- Apply calcium at peak flowering
- Promote plant health
- Protect from pest damage
- Dig or lift 7 days early if drought exists
- Dry pods as quickly as possible
- Store pods optimum moisture content
- Remove damaged pods and kernels



Groundnut Varieties in Malawi

Name	Type	Days to maturity
Chalimbana	Virginia	130-140
CG7	Virginia	130-150
Chitala	Spanish	90-120
Kakoma	Spanish	90-120
Nsinjiro	Virginia	120-149



Plate 2

NC STATE UNIVERSITY **USAID** **FEED THE FUTURE**

Relationship of Timing of Lifting and Groundnut Pod and Kernel Maturity, Yield and Risk of Mold

20 days early **Mold Risk Low**

10 days early **Mold Risk Moderate**

Optimum **Mold Risk Moderate to High**

10 days past optimum **Mold Risk High**

Plate 1

FEED THE FUTURE

Relationship of Timing of Lifting and Pod and Kernel Maturity, Yield and Risk of Mold

Deciding when to dig or lift groundnuts is one of the most important management decisions farmers make. Pod yield and kernel quality and economic value improve as maturity increases. However, at some point pods will naturally shed from the plant or in the case of Spanish varieties seed can sprout. As groundnuts remain in soil after optimum maturity the risk of infection by mould (*Aspergillus flavus* and *A. parasiticus*) and contamination with aflatoxin increases. This chart provides information on how these factors interact and should be considered when deciding when to dig or lift groundnuts. The "shell out" method can be used to reveal color differences for the mesocarp pod layer. A darker mesocarp color indicates advanced maturity. The relationship of yield and distribution of pod mesocarp color for scenarios one might encounter is provided.

21 days early **Mould Risk Low**

14 days early **Mould Risk Low to Moderate**

7 days early **Mould Risk Moderate**

Split maturity Dig Now

Optimum maturity **Mould Risk Moderate to High**

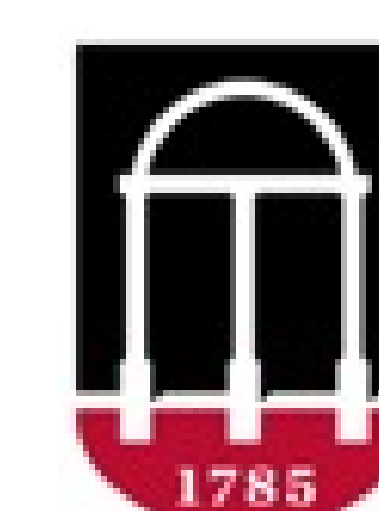
Darker pod color indicates advanced maturity

USAID NC STATE UNIVERSITY NM STATE UNIVERSITY UF IFAS Nutcellars Ltd. Peanut Innovation Lab

Plate 3



Nutcellars Ltd. Bedford, UK



Peanut Innovation Lab
College of Agricultural & Environmental Sciences
UNIVERSITY OF GEORGIA