

The effect of the disease on stunting of the grass score 5 and 3

Napier Stunt Disease control strategies

(a) Uproot and burn affected plants,

(b) Plant disease free cuttings or splits,

(c) Follow recommended agronomic practices,

- (i) Remove all weeds.
- (ii) Apply fertilizers/manure.
- (iii) Plants should be harvested at most 1 inch above the ground

(d) Consult your nearest extension staff or the National Livestock Resources Institute (NALIRRI) Tororo. The Institute has screened and identified a number of Napier grass varieties that are **moderately resistant** to Napier stunt disease. The varieties will be multiplied in major agro-ecological zones of Uganda.

Acknowledgements

This leaflet is an output from a Dairy research component project "**Enhancing adoption of Napier grass varieties tolerant to stunt disease for increased feed availability in smallholder farming systems in Eastern and Central Africa**". The Project is funded under the Eastern Africa Agricultural Productivity Project (EAAPP) and implemented in Uganda, Kenya, Tanzania and Ethiopia. We acknowledge financial and technical support from the Director, National Livestock Resources Research Institute (NaLIRRI).

For more details, please contact:

1. Dr. Jolly Kabirizi, National Livestock Resources Research Institute, P.O. Box 96, Tororo, Uganda; Email: jmkabirizi@gmail.com
2. Mr. Geoffrey Kawube, National Crops Resources Research Institute, P.O. Box 7084, Kampala E-mail: kawgeoff@gmail.com
3. Dr. Swidiq Mugerwa, National Livestoc Resources Research Institute, P.O. Box 96, Tororo, Uganda; E-mail: swidiqk@yahoo.com.
5. Ms. Clementine Namazzi, National Livestock Resources Research Institute, P.O. Box 96, Tororo, Uganda; E-mail: csserubiri@yahoo.com
6. Director, National Livestock Resources Research Institute, P.O. Box 96, Tororo, Uganda; E-mail: nalirri@gmail.com

March 2013

Eastern Africa Agricultural Productivity Project (EAAPP)

Napier Stunt Disease Management Strategies for Increased Feed Availability in Smallholder Farming Systems in East and Central Africa





Healthy Napier grass plants *Napier stunt disease symptoms*

Introduction

Napier grass commonly known as Elephant grass *(Pennisetum purpureum)* constitutes between 40 to 80% of the forages used by smallholder dairy farmers in Eastern and Central Africa region (ECA). The productivity of Napier grass is threatened by Napier stunt disease causing yield reduction of up to 100%. The disease is caused by *Candidatus Phytoplasama oryzae* and transmitted by leafhoppers, plant hoppers and psyllids.

Symptoms of Napier stunt disease

(a) Affected plants remain stunted; have short internodes, increased number of stems, bunchy appearance and leaves grow thin with yellow and or purple streaks, and have very low biomass yield.



Purple leaves



Bunchy appearance of the plants

(b) Twisting/curling along the mid-rib starting at leaf tips, leaves are reduced to short sword like stubs.



Twisting/curling of the leaves



Short thick stems

(c) Plants may lose all the leaves leaving a short thick stem

(d) Eventually the stool may be completely destroyed especial y during the dry season and in poorly managed fields



Plants may be completely destroyed

How is the disease spread?

(a) Specific phloem-feeding leafhoppers, plant hoppers and psyllids

(b) Use of infected cuttings

(c) Movement of infected planting materials or fodder from affected areas.





Leaf hoppers

(d) Ignorance on symptoms and mode of transmission



Movement of planting materials spreads disease

Field assessment of Napier stunt disease

In the field Napier stunt disease is assessed basing on observations using a scale of 1 – 5; where: 1 = no symptoms, 2 = very mild symptoms, 3 = medium mild symptoms, 4 = severe symptoms and 5 = very severe symptoms.



The first plant on the left can be scored as 1 while plant on the left can be given a score of 2.



The plant in the foreground can be scored as 4



The plant in the foreground can be scored as 5