KENYA AGRICULTURAL RESEARCH INSTITUTE

Launch

RESEARCH AND MANAGEMENT OF NAPIER STUNTING AND SMUT DISEASE PROJECT KENYA

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Better lives through better livestock

Importance of Napier grass

Napier grass is a major livestock feed. It can yield 50-100 tonnes green matter per hectare if recommended agronomic practices are implemented. Other uses of Napier grass include management of stem borers as a trap crop (Push-Pull strategy), conservation of natural enemies of other potential crop pests and prevention of soil erosion. Napier grass and milk can be sold as a source of income. Two major diseases; Napier stunt caused by tiny bacteria (Phytoplasma) and smut caused by smut fungi can cause serious reduction in yields if not managed. Most varieties are susceptible to stunt and smut. Decline in biomass due to either smut, stunt or both will lead to loss of farmers' income from sale of milk because shortage of livestock feeds due to the disease and, high costs of managing the disease will double prices of Napier. Farmers will be forced to sell their diary cows or graze them on sparse communal pastures along road side, thus exposing them to the risk of contracting East Coast fever which will in turn increase the costs of livestock production because the farmers will have to treat their livestock.

Napier stunting disease

Stunting disease was 1st observed in western Kenya in mid 1990s near Bungoma and is now spreading rapidly to other parts of western Kenya mainly in the sugarcane belt. Incidences of the disease in Bungoma, Butere and Mumias is 30-90% of affected plants per field. It has been observed in central Kenya in Kiambu and Murang'a Districts. Symptoms of the disease include yellowing of leaves, tiny leaves, shortening of internodes, stunting, decline of vigour and finally death of plant. It is spread by planting diseased stems and root splits. The bacteria live in grass and in small insects (leaf and plant hoppers) which also transmit the disease as they feed on the diseased plants and move to clean plants; and not in soil. The diseased grass is safe for livestock to eat.

Management of the stunting disease

- Inspect the crop regularly, remove the diseased Napier grass stools and burn all the uprooted diseased materials
- Use clean planting materials from disease free areas
- Improve the health of the Napier grass by applying manure or fertilizer
- A void harvesting same area frequently
- When harvesting, cut Napier leaving a stubble height of 5 to 10 cm a above ground level
- If the area is seriously affected use alternative fodders such as Giant Panicum, Guatemala grass and fodder sorghum because most Napier varieties are susceptible to stunt
- Sensitize neighbours about transmission mechanism and management of the disease

Napier Head smut

Head smut disease was 1st described in 1910 from specimens of Napier Grass collected from Cameroon. The disease appeared in Uganda in 1930, Rwanda in 1963 and Tanzania in 1975. The disease appeared in central Kenya in late 1980s. It is more prevalent in higher areas of Kiambu, Thika, Othaya and Kirinyaga Districts. It is spreads rapidly by wind and infected plant material. Infected stems are smaller, thinner and shorter, with few, small and sometimes distorted leaves. Re-growth of infected plants is slow after cutting. They flower early and the flower head becomes a mass of black spores. The total dry matter is reduced, after 2-3 cuttings, the entire stool dries.

Management of Napier smut disease

- Inspect your crop regularly and remove the diseased parts of plants. Burn the diseased materials.
- All other agronomic practices are similar to those of managing stunt.
- Obtain planting material from areas free from the disease.
- Improve the health of the Napier grass by applying manure and fertiliser.
- Weed your grass after every harvest.
- Plant smut resistant clones such as Kakamega1 and Kakamega II.
- Manure from livestock fed on smut infected plants may spread smut if used; precaution should be taken not to feed livestock with plants infected with smut to avoid spread of the disease.