Hot water treatment to control nematodes & weevils on plantain

Recognize the problem
When farmers plant new plantain they often use infected planting material because it is difficult to find clean or pest-free planting material. As a result, farmers can lose over 70% of their plantain through nematode infection which causes the plants to topple or fall over. The main source of nematodes is usually the infested suckers used for planting. Hot water treatment of suckers is a technology that can be used to disinfect plantain suckers of nematodes and banana weevil eggs.

Background
Hot water can completely disinfect peeled plantain suckers corms of nematodes and banana weevil eggs. For the method to be effective, the peeled corms have to be a certain size. If the corms are too small the tissue will be destroyed by the hot water and the plantain will not germinate and grow. If the corms are too big not all of the nematodes or weevil eggs will be destroyed. Ideally sucker corms should weigh between 0.6-0.8 kg to allow successful germination but kill all of the pests. Plantain farms established from hot water treated suckers are known to have a longer plantation life of around 3-5 years.

Management
• Peel the corm of the suckers with a cutlass to remove all of the root, black and brown colouration, banana weevil galleries and larva, and expose the whitish substance of the corm (Photo 1)
• Pack the peeled suckers into a basket made of wire gauze or jute sack (30-50 suckers per treatment depending on the size)
• Fill the hot water treatment tank or a big cooking pot with water and heat the water using LPG gas or firewood (Photo 2)
• To kill the nematodes and the weevil eggs without damaging the suckers the water has to be heated until it reaches the right temperature which is 53-55°C (no hotter than this)
• The temperature can be checked either using a thermometer or a candle
• To use a candle, put a piece of candle into the water while it is heating, when the candle starts to melt, it shows the temperature is in the correct range
• Immerse the packed suckers into the hot water for 20 minutes ONLY and then remove. Do not leave the suckers in the water for longer than 20 minutes.
• Air dry the suckers overnight and plant the next day

The recommendations in this factsheet are relevant to: Ghana

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