

Dusting continued...

For Actellic Gold Dust, use 50 grams for 1 sack of maize. Sprinkle the dust all over the grain and gently mix together using a spade so that all the grain is covered in the chemical powder. Put in sacks ready for storage.

Storage

Maize must be stored in a cool, dry room so that it does not get damaged.

- Do **not** store in a room where people sleep. This causes the maize to get damp which leads to disease
- Store on raised platforms, away from the walls, in rooms with a lot of air flow
- Check the maize often for signs of pest damage
- Re-dust if necessary
- Actellic Gold will protect for 9 months while Actellic Super will protect for 6 months.



Kisasa Jiko

Shamba Shape Up helped Merciana to replace her 3-stone jiko with a built-in Kisasa Jiko. The new Kisasa Jiko has the following advantages:

- It uses less firewood, it cooks faster
- It produces less smoke
- It is made using local materials and can be built in less than 3 hours.



Solar Light

Merciana uses a kerosene lamp in the house and kitchen. Her son also uses a kerosene lamp for studying. An expert from d.light design came to tell them about one of their products, the **d.light S1 model**. The lantern should be put outside in the day time to charge, then at night time they can use the light to study and in the kitchen to cook.



Shamba Shape Up Series 1: Episode 8

Mercianna's Farm – Lirhembe, Kakamega

This leaflet contains information on greenhouse tomatoes (irrigation and diseases), community groups, insurance for cows, soil fertility, storing maize, jikos and solar light.

Greenhouse Tomatoes

Mercianna is part of a community health workers group who grow tomatoes in a greenhouse. The group was given a grant to build an 8m x 15m greenhouse. The group grows tomatoes for sale, but the tomatoes were not doing well. They used to harvest 72kg of tomatoes a week and this fell to only 18kg a week! This was due to not having enough water and too many pests and diseases.

Irrigation

When the greenhouse was built, a drip irrigation system was added but it broke down and watering of the crops had to be done by hand. Shamba Shape Up asked a plumber to come and fix the pipes and make sure the system was set up well.

What is a drip irrigation system?

A drip irrigation system uses water from a storage tank to move water along pipes to the crops. Small holes are made in the pipes just where the plant is. These holes let water slowly drip out to keep the soil at the base of the plant wet.

Pump

Mercianna has a hand pump which took water to the water tank. From the water tank, pipes were attached to take water to the greenhouse. The Shamba Shape Up team brought in a plumber who added a side tap to the pump so that people could take water for domestic use without having to remove the pipe that was taking water to the water tank.

Water tank

Mercianna's water tank was not high enough. This was stopping the water flowing down and moving along the pipes. The storage tank was put higher by making a concrete platform. This allowed more force (pressure) to take water along the pipes to the greenhouse.

Pipes

The pipes from the tank to the greenhouse were broken which is why water had stopped reaching the tomato crops. They were replaced with stronger ones which were buried under ground to protect them from getting damaged.



Produced by Mediae



Watch us on citizen television on
Saturday 1.30 - 2.00pm (English)
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Pests and diseases

Pests

An expert from Syngenta came to check the tomato plants which had mites, white flies and aphids on them.

Dynamec was recommended since it is both an **insecticide** and a **miticide**.

Mix 10ml of Dynamec in 20litres of water. Using a knapsack sprayer, spray onto the plants. This will be enough for all the tomatoes in the greenhouse.

Remember to wear protective clothing when using chemicals!

Diseases

Mercianna's tomatoes had **Blight** and **Anthraco** which are both fungal diseases. Use a fungicide such as **Ridomil** from Syngenta. Mix 50gm in 20litres of water. This will be enough for all the crops in the greenhouse. If the fungus is not too bad and the crop is about to be harvested, use a fungicide that breaks down faster such as **Ortiva** from Syngenta.

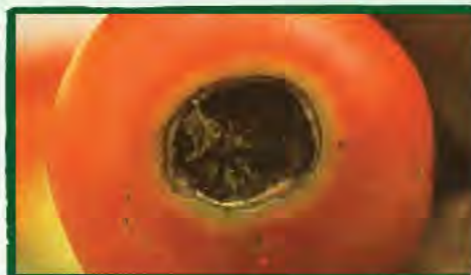


Anthraco on tomato

Harvesting

The tomato plants showed a lack of calcium. This causes **Blossom End Rot**.

Use a Nitrogenous fertiliser such as CAN as a top-dress at the rate of 200kg/ha. (For the greenhouse 1.5 - 2.0kg would be needed). For lack of calcium you can also apply a foliar (leaf) feed fertiliser which contains calcium.



Blossom End Rot on tomato

Membership to grassroots organisations

Mercianna is a member of **Shiseno Community Health Workers Group**, a self-help group. It is made up of 50 ladies and 5 men. As a registered group, it was able to apply for and receive a grant from Njaa Marufuku Kenya (NMK). NMK is a programme in the Ministry of Agriculture working to reduce poverty, hunger and food insecurity. It helps community groups through training and the giving of small grants for improving farming. A grant was given for the tomato greenhouse. The tomato crop was shared between the members and sold. Profits from the sale of tomatoes were partly used to fund a local children's orphanage.

Advantages of being a member of a grassroots organisation

1. Join together to share the cost of fertilisers, water tanks etc.
2. Work together to prepare land and harvest crops
3. Support each other on social matters such as weddings and funerals
4. Members put money together every week or month known as merry-go-rounds which move from one member to another to help members buy or save for what they need
5. Government Departments and NGOs find it easier to work with groups.

Mercianna was also a member of **the One Acre Fund** which supports farmers with seeds, fertiliser, education and market information in exchange for a share of future profits.

Since joining the One Acre Fund Mercianna was able to improve her production of maize from 8 to 16 bags per acre.

Insurance for cows

Mercianna had used all her savings to buy a dairy cow which cost her 60,000 kshs. The cow produces about 15 litres of milk per day. She sells the milk locally for 60 kshs per litre, this is 900 kshs per day. This is a very important source of income in her home. A financial advisor from Financial Sector Deepening (FSD) came to talk to her about insuring her cow so that if anything happened she would get back the value of her cow.

Why it is important

- To protect her investment in the event of theft or death of the cow
- To protect her income from the milk sales and maintain the standard of living of her family

CIC Insurance

CIC Insurance are a leading company in insurance. They looked over the details to see whether Mercianna's cow could be insured. They were able to insure the cow against the following:

1. Death
2. Slaughter as a result of sickness and diseases that cannot be cured
3. Fire
4. Theft

Premium

Payment for insurance is called the premium. For Mercianna, the total was 3,600 kshs for one year. This is 10 kshs a day.

What is needed

1. A letter from a vet saying the cow is healthy.
2. A proposal form to the insurance company.
3. Payment of premium.



Soil Fertility

Mercianna used to produce only 8 bags of maize. Since joining the One Acre Fund and taking their advice she now produces 16 bags of maize. However, her soil still had low fertility so a soil test was done to see what nutrients it needed. An expert from **IFDC** came and told Mercianna that her soil was lacking **Phosphorous, Nitrogen and Potassium**. These nutrients are very important for crop growth.

Example of soil test report

Parameter	Unit	Result	Good/Low	Recommendation
Nitrogen	90	0.15	Low	Use DAP to provide Nitrogen and manure
Phosphorous	*ppm	4	Low	Use DAP to provide Nitrogen and manure
Potassium	*ppm	55	Low	
Calcium	*ppm	531	Low	
Magnesium	*ppm	130	Good	
Manganese	*ppm	291	Good	

Recommended rates

Product	Amount (kg/ ha)
Manure/ compost	20,000
DAP Fertiliser	100

*ppm- Parts per million

Planting.

The **IFDC** expert told Mercianna to use both fertiliser and manure when planting her maize.

- Holes should be dug 25cm apart
- Rows should be 75cms apart
- Spacing is very important so that plants do not compete for sun light, water and soil nutrients
- Add a handful of manure and one bottle top of **DAP** fertiliser to each hole. Mix lightly.
- Cover with a little soil so that the fertiliser does not burn the seed
- Place seed and cover

Mercianna was advised to use seeds that suited her region of Kakamega. **WH 505 from Western Seed Company** is a good seed for her region.

Maize Storage

Once you have a good crop of maize, it is important to harvest, shell and store it properly so that you protect it and can get a better price for it. An expert from **Syngenta** came to give Mercianna some top tips!

Harvesting: Harvest maize when the weather is dry. Dry the maize cobs well and check them for weevils.

Shelling: You can shell your maize using your hands or a simple sheller tool which does not cost much. Do **not** beat the cobs to remove grains as this damages them.

Dusting: This protects maize from weevils and other pests. Make sure you wear protective clothing when dusting as the chemicals are strong. Wear gloves, gum boots, overalls and a face mask (face mask should cover eyes, nose and mouth).

Always read instructions carefully before using chemicals!



Hand sheller for maize



Actellic Gold Dust from Syngenta