

Editor's note

We must think out of the box

Uganda is gifted by nature. When it comes to agriculture, there is no country as gifted with perfect weather like Uganda. However, the gift is turning into a 'curse' of sorts. Many farmers in Uganda have failed used the good weather to their advantage.

Compared to other countries, Uganda receives rain twice a year, through a period of three months each. The soils are still relatively fertile, in need of a little application of fertilisers to achieve maximum yields.

However, the average farmer still waits for the seasonal rains to start and the seasonal sunshine harvest. Farmers still rely on natural soil fertility to increase yields and still according to experts, use of fertilisers increases yields by over 50%.

Farmers have missed out on the benefits of innovations such as investing water and soil testing and story on page 4).

Therefore, high time that Ugandan farmers fully appreciated the gift of nature, but also further benefit from it by adding value to it. We must start seeing this gift of nature beyond what is obvious.



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Farmers inspecting the crops for banana bacterial wilt disease



A plant affected by the disease

# Bacterial wilt: The HIV-like

By Joshua Kato

In Kabonero village, in Kyotera district, Patrick Bakumpe Makanga walks around his banana plantation with a grin. "Even with the long dry spell, I can harvest bunches with over 12 clusters," he says. However, between the early 1990s and 2000s, it was difficult to harvest such a big bunch in this region.

"My parents told me that the bananas were attacked by the wilt which destroyed the shambas," he said. Makanga, then a young boy, also remembers that it was during the same period when Masaka was destroyed by HIV/AIDS.

"While almost every banana shamba was being ravaged by the banana wilt, almost every family was losing a person to AIDS," Ernest Mutyaba, a resident of Kyotera town recalls. And just like HIV that had no cure, Mutyaba says the banana wilt too did not have any cure.

According to various reports, HIV/AIDS was first reported in Uganda and the then Masaka district in the late 1980s. "Initially, we thought that it was witchcraft meted against us by Tanzanians after some people robbed them," he says.

When the bananas also started suffering ailment similar to HIV, residents again blamed witchcraft. And as HIV/AIDS spread from Rakai to other parts of the country, so did the banana disease.

**What is bacterial banana wilt?** The banana bacterial wilt (BBW) disease spread fastest in districts of south-western Uganda, including the then Masaka and Rakai, before coming to Luwero, Mukono and then back to Bushenyi and Mbarara.

"We thought that we would never grow bananas again," Mutyaba says. According to the health ministry records, at the same time, HIV prevalence in Uganda was as high as 50%. The statistic meant that out of a population of about 16 million people at the time, five million had HIV.

**How the disease is spread** Just like HIV was transmitted through sexual intercourse between a person infected and one who was not, the banana bacterial wilt was transmitted when plants came in contact with farm tools that had been used on infected bananas.

According to Dr Wilberforce Tushemereire, the head of the National Agriculture Research Laboratories (NARL) in Kawanda and an extensive researcher on banana diseases, the disease is caused by a bacteria. However, transmission of the disease is aided through farm tools (pangas, hoes, knives and de-



The fruit ripens before maturing

leafers) used by farmers, traders, livestock, insects, birds and bats that feed on sap from injured banana plants. The contaminated tools and animals transmit the bacteria through injuries on roots and aerial parts of the banana plant (suckers, bunches and fresh leaves).

- Symptoms of the disease**
- Leaves of the affected plants not only wither, but also turn yellow
  - If the plant has got bananas, they stop growing and ripen when still immature
  - Fruits show brown stains when they are cut
  - A yellow liquid oozes from a cut stem and from the male bud after about 10 minutes
  - The plants stop growing and flake away
  - Externally, longitudinal brown strips can be seen on the inner side of the leaf sheaths of the plants

**How to control banana wilt** Just like HIV, banana bacterial wilt is yet to get a cure, however, there are control measures to reduce its spread.

- Some of the measures, such as not using the same farm tools on different bananas are similar to those adopted in the fight against HIV. People are advised not to share sharp body piercing instruments such as razors/blades.
- Use a forked stick to remove the male bud

after the last cluster forms. Within six months, if you do not see disease plants then you can start using tools again.

- Destroy the sick plants by chopping, sun drying, burning and burying the ash.
- Use clean suckers when planting. Clean suckers can either be tissue cultured or suckers got from a clean banana shamba. They should not have any blackish spots around the foot of the stem.
- Disinfect your farm tools before use. The measure involves boiling as well as spraying or dipping the farm tools in a disinfecting solution, which are available on the market. Do not share farm tools. Hoes can spread the disease through injuries caused on the roots. It is advisable to have a set of tools for each block of the farm.
- Animals should be kept from grazing in the infected fields because they can move the disease from plant to plant. If possible, seal off the infected part of the farm.

**The coffee wilt disease**

On his farm in Kingo, Masaka district, Ssebatta Musisi, a coffee farmer walks around his coffee plantation, occasionally gazing at coffee trees, picking a leaf here and there. Ssebatta, one of the farmers certified by the Uganda Coffee Development Authority (UCDA) to supply coffee seedlings to other farmers in the country has been growing coffee for many years. He, however, he says it has not been all plain sailing. "In the 1990s, coffee in this area was attacked by what first appeared as a mysterious coffee disease," he says. At the time, Ssebatta was working at Entebbe Airport. Ssebatta is referring to is the coffee wilt disease. The disease first appeared in areas of Masaka in the early 1990s at the peak of the HIV/AIDS scourge in the same area.

"It is the most deadly coffee disease, attack coffee in Uganda," Edward Lutaakome Sentamu, the UCDA regional manager for central Uganda, says.

Just like the banana wilt, coffee wilt disease was first seen in parts of Masaka, before it spread to other districts including Luwero and Mukono.

**How it is spread** Coffee wilt disease is caused by a fungus (*Fusarium xylarioides*). Previously, the disease only occurred sporadically in Africa, however, in the 1990s it became common, sweeping across almost all coffee growing parts of the country. Affected trees turn yellowish and the crops wither away in a similar manner HIV does to human beings.

According to UCDA, the wilt mainly affects the native, lowland robusta variety. Since 1993, it has destroyed over 13 million plants. Uganda is the largest producer of robusta



Coffee wilt disease causes the beans to dry before maturing and the leaves to become yellow, dry and fall off

# plant diseases

coffee in Africa with export figures rising to over 4.4 million, 60k bags in 2016. However, at the end of the 1990s when the coffee wilt disease was at its peak, production fell from about four million bags in 1994 to just 1.7 million bags. Coffee is an important source of income to the 500,000 smallholder farmers who traditionally inter-crop it with food crops, such as bananas, beans, groundnuts and shade trees. According to UCDA statistics, nearly 10 million people in 104 districts of Uganda depend on coffee for direct and indirect employment.

Just like the case was with HIV, the Ugandan government has intensified efforts towards the containment of the disease through breeding and provision of free, clean planting materials. Coffee wilt disease has no cure, just like HIV, however resistant indigenous varieties are providing hope. According to the managing director of UCDA, Emmanuel Ilyamulemye, there are indigenous robusta trees grown in Kibaale Forest in southwest Uganda that have developed natural resistance to the wilt. The cases are being researched by experts, the same

## Inter-cropping coffee

- Inter-cropping helps the farm earn more from the same piece of land or it provides a shade for young plants.
- Recommended inter-crops are bananas and legumes, for example, soya beans, ground nuts and non-climbing beans;
  - Legumes must be confined within the central two metres of the inter-row leaving a clear 0.5 metre between them and the coffee tree;
  - Bananas are inter-cropped in the ratio of one banana to four coffee trees;
  - Shade trees should be inter-planted at a spacing of 60 feet
  - Shade trees need to be with a wide canopy, leguminous, deep rooted, quick maturing, multi-purpose and without thorns.

**Tips given by UCDA**

- Plant coffee on gently sloping land and avoid very steep slopes to prevent the spread of the disease through soil erosion.
- Select deep, fertile, well-aerated and freely draining soils with and texture and rich in organic matter, because that is what the coffee needs to grow well.
- Clear land of all tree stumps, roots and weeds that could have the disease.
- Mark out the field using pegs at spacing of 3x3 metres for robusta coffee and 2.4 metres for

- way humans who are resistant to HIV are. "For example, established a high technology tissue cultured coffee seedlings production centre with an aim of producing disease free seedlings," Ilyamulemye says. Because there has been no cure for coffee wilt yet, farmers are advised to carry out clean coffee farming to prevent the disease from spreading.
- Practices to combat coffee wilt**
- Plant coffee on gently sloping land and avoid very steep slopes to prevent the spread of the disease through soil erosion.
  - Select deep, fertile, well-aerated and freely draining soils with and texture and rich in organic matter, because that is what the coffee needs to grow well.
  - Clear land of all tree stumps, roots and weeds that could have the disease.
  - Mark out the field using pegs at spacing of 3x3 metres for robusta coffee and 2.4 metres for

arabica coffee or 10x10 feet for robusta coffee or 8x8 feet for arabica coffee between and within rows running parallel to the contour

- Three months before planting, dig holes 60 cm deep by 60 cm long and 60 cm deep for 2 feet wide x 2 feet long x 2 feet deep. The top soil should be placed on the upper side and the sub soil on the lower side.
- Place about 10kg (1 tin) of manure per planting hole;
- Fill back the holes two months before planting by mixing the manure with the top soil and placing the mixture in the hole to fill it.
- Fix a stick in the middle of hole while filling to indicate, where the planter will be placed.
- Procure planting material only from certified clonal coffee nurseries, because these are trained by experts to produce seedlings.

**Planting** Planting should be done at least after four consecutive rainy days of the rain season.

- Water the potted cutting/seedling the day before planting.
- Planting should be done in the evening hours.
- Remove the stick from the planting hole and make a hole large enough size to accommodate the planter.
- Remove the polythene bag by cutting off its base.
- Cut back the tap root and remove the twisted parts of the root system.
- Place the polythene bag in the hole and gently pull up the polythene (now cylinder) out over the top of the plant.
- Caution: The used polythene should be buried or buried in a deep pit after removal, to prevent re-occurrence of the disease.
- The soil is then packed round the plant and gently pressed down around the collar of the plant, making certain that the plant is at the same level in the field soil as it was in the bag. This is to avoid fungal attack that leads to collar rot.
- Water the new plant immediately and every evening for at least four days if no rain available.
- Provide shade to the newly planted planter using bamboo or tree branches.



**PRESS RELEASE**

**COFFEE SEEDLINGS PRODUCTION AND INTENSIFICATION OF COFFEE PLANTING IN COFFEE GROWING DISTRICTS**

The Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) through the Uganda Coffee Development Authority (UCDA) appreciates the interest of the private sector in coffee seedlings' propagation in an effort to achieve the Government's strategic objective of planting 300 million coffee seedlings per year and thereby contribute to attainment of 20 million bags per year target envisioned in the Coffee Roadmap recently launched by His Excellency the President.

Uganda's Robusta coffee production strategy is shifting towards planting the Coffee Wilt Disease Resistant (CWD-R) lines developed by the National Coffee Research Institute (NaCORI).

While the private sector has responded well to the Government's call to increase planting material, many coffee growing districts have not done enough to mobilize and guide the population to take advantage of this intervention which is aimed at increasing incomes and creating wealth at household level. Under Operation Wealth Creation, Government has provided funding for procurement of coffee seedlings for farmers. Therefore, I appeal to the political and civic leaders as well as Extension staff in areas suitable for growing coffee to mobilize the population to engage in coffee enterprise. Coffee has a good price and its global demand is projected to continue increasing in the next few years. Furthermore, coffee is the number one export commodity for Uganda, and individuals with land suitable for coffee growing are encouraged to plant coffee.

In addition, the Government has taken deliberate steps to expand coffee production in non-traditional coffee growing areas of Northern Uganda and West Nile to exploit the untapped potential of fertile and available land.

The Government, in collaboration with development partners, is supporting coffee replanting, rehabilitation and fertilization to improve production and productivity of individuals / farmer groups interested in establishing coffee plantations, are advised to seek technical guidance from UCDA on areas with high potential for coffee production.

There is still a lot of potential for coffee production in the traditional coffee growing areas of Central, Eastern, and South Western Uganda. Furthermore, this is to guide the general public that for long term sustainability of the coffee enterprise,

It has been observed that peri-urban districts of Wakiso and Kampala do not have enough absorption capacity for the coffee seedlings raised therein. Nursery operators in these districts are therefore advised to consult UCDA for guidance on re-located districts with potential for coffee seedlings absorption. UCDA will continue train interested coffee farmers in the new coffee growing regions in good nursery practices to raise quality coffee seedlings. Individuals in Kampala city and its environs who are interested in agriculture, are advised to liaise with KC-guidance on short term high value crops suitable for these areas.

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