

COFFEE:

How to improve arom cup - pocket

By Joshua Kato

Coffee is the backbone of Uganda's agriculture, even as other crops come on board as income earners. At the February 2018 Harvest Money expo, the two coffee trainings had one of the highest attendances, with over 1,500 people. The trainings were conducted by Lurakoome Ssentamu from Uganda Coffee Development Authority (UCDA) as well as Dr Godfrey Kagezi and Dr Pascal Musooli from the National Coffee Research Institute (NACORI). Today, we look at some of the issues discussed at the training.

Background
According to UCDA, coffee supports the livelihood of about eight million people. About 1.7 million households are involved in the production and others along the value chain. It is the biggest foreign exchange earner. The coffee economy is more sustainable and reliable than other crops, because it is easier to manage.

Last year, around 4.6 million bags of 60kg were exported, making Uganda the highest coffee exporting country in Africa.

The national coffee strategy dubbed "Coffee Vision 2020" estimates that \$2.5b will be realised by 2020, if the country exports 20 million bags as planned. With value addition and improved domestic and regional consumption, the revenue generated would be higher.

For example, the US imported green coffee worth \$5.5b and generated about \$68.5b for their coffee industry in 2016 and a lot



A farmer in Mbale district checks his coffee yields

Seed selection

Choosing of good quality planting material begins with the selection of suitable coffee species for the local climate. Arabica coffee does well at high altitudes, while robusta coffee grows better in hot and humid areas, especially at low altitudes.

However, the prevalence of the coffee borer and coffee rust are important indicators as to whether the coffee variety is suitable for the site. In addition to the species,

varieties which are resistant to common diseases such as coffee wilt disease, coffee berry disease or coffee leaf rust, should be selected. These improved varieties can be obtained through local extension offices or coffee research stations, all of which must be certified by UCDA. Farmers are advised to seek the list of certified coffee seedlings distributors from sub-county agriculture officers.

Mityana, Mpigi and Mubende districts and parts of the east Kamuli districts.

In the west, robusta coffee is grown in Bushenyi, Ibanda, Kabarole and Kasese districts. Arabica is grown in highlands, for example in Bugisu region - Mt. Sironko and Bulambuli. It is also grown in Kapchorwa, Bundibugyo and parts of West Nile like Zombo.

The average rainfall requirements are between 1,200mm and 1,500mm. Coffee grows well in deep, well-drained fertile soils with a pH range of 4.5 to 5. To get the right pH for your farm, you must take the soils for a test. The average cost per test is \$h50,000 per acre.

Propagating seeds
In Uganda, coffee is commonly propagated by seed. This is because it is easy and quick to raise seedlings by seed.

However, this coffee takes longer to grow than vegetatively propagated coffee, which is also known as cloning. Vegetative coffee will carry all the qualities of the parent plant. Cuttings are ideally obtained from selected mother gardens of desired varieties.

Coffee plants raised from clonal cuttings bear fruits 24-36 months after transplanting, whereas plants grown from seeds bear fruit.

Right spacing
The right size of holes for robusta coffee should be 2(1L) feetx2 feet (W) x2 feet (D) at a spacing of 10x10ft between rows. The right hole and spacing for arabica

should be 2x2ft at a spacing of 8x8ft. For arabica, it should be 2.44x2.44m, with holes of 2x2ft in diameter and depth. It is advisable that the holes are dug at least three months before planting in order to allow loosening of the soils for better water and root penetration.

It is advisable that when digging the holes, separate the fertile top soil from the redish sub-soil. Refill the holes with top soil a month before planting and for fertility, mix it with a basin of well-decomposed manure per hole.

Plant the seedlings 2-4 weeks after the beginning of the rainy season and water the seedlings immediately after planting.

Mulching
Mulching is important for maintaining moisture of the soils. Mulch with grass or straw, banana leaves or any other dead material to a thickness of around 15cm. This is the length of a set ruler. However, place the mulch 30cm from the crop to avoid rot or attack by ants.

If soil around the roots is caked, break it up by digging it up in order to improve water intake.

Why cap coffee trees?
Capping young coffee trees is when the tips of the middle stem are cut off. This is done to encourage the branches to grow longer because the longer the branches, the better the flowering and the higher the yields.

A coffee tree can be capped at around two years or earlier. Capping or training is done when the crop is at 15-40cm from the ground to encourage two stems.

Alternatively, the multi-stem system can be achieved by bending and pegging down six-months-old plants

WEED MANAGEMENT

Weeds compete with plants for water and nutrients, leading to stunted growth, low yields and poor quality beans. Weeds can also act as hosts for pests and diseases. Common weeds that affect coffee include couch grass, star grass, spear grass, nut grass and annual weeds like black jack.

To control the weeds, use mechanical ways like digging them up using a hoe, uprooting them by hand, or using herbicides to make them wither.

There are many herbicides on the market that can effectively do the job, including Round Up, Weed Master and Touch Down.

Three litres can be used on one-and-a-half acres. A litre costs between \$h30,000 and \$h50,000.

at about 45 degrees along rows. This encourages production of more suckers.

After the suckers have germinated, select the best three from the base of the plant to form the bearing stems. The first selected sucker should be at about 20cm from the ground.

Put pegs to support the stems, but remove them when the stem reaches 30cm, so it can grow upwards.

Is it right to intercrop?
Coffee can be intercropped with bananas at a rate of three coffee trees to one banana plant. It is right to

intercrop coffee with bananas. When you intercrop, you get much more from an acre of land.

For example, at peak yields, an acre of coffee yields around 1,200kg and with each kilogramme going for \$h5,000, you expect at least \$h6m. However, if you intercrop with bananas, they will give you an additional \$h4.5m per season.

A mature acre of bananas produces around 480 bunches every three months, so if you sell each at \$h5,000 to \$h6,000, then you get around \$h4.5m-\$h5m every three months or around \$h15m every year from the bananas alone.

Additionally, bananas provide shade for the coffee trees.

Other crops that can be intercropped with coffee include beans, soya and groundnuts. However, do not intercrop any climbing variety because it may crowd the trees.

Diseases and pests
There are several diseases that affect coffee. However, the most deadly of them are the coffee wilt disease, the twig and berry borers.

Others are coffee bugs, coffee root mealybug, leaf miners and leaf skeletoniser. The most prevalent pest is the coffee twig/berry borer.

The coffee twig borer
The black coffee twig borer is a black shiny beetle about 1mm in length and is barely visible to the naked eye. The beetle multiplies rapidly, since a single female

produces up to 20 offsprings within a period of about one month. It is presently considered the single most important constraint to coffee production in the country.

A survey conducted by National Coffee Research Institute (NACORI) in April 2016 across the country, estimated the damage caused by the twig borer to the annual national coffee production at about 10%. This translates into a loss in export earnings of about \$40m annually, according to NACORI.

Recently, cases were reported in Mukono, Masaka, Rakai and Luwero districts.

The twig borer attacks the most productive berry-bearing primary branches of the coffee branches, leading to eventual low productivity of the affected tree.

The black coffee twig borer mainly attacks coffee, but also more than 50 other plant species in Uganda, including cocoa and tea.

How to manage it
To manage the twig borer and coffee berry borer, some coffee farmers use chemicals and traditional options, which often involve high costs, enormous labour and time. However, there are other farmer-friendly, local initiatives to deal with the pests.

The Ugandan Beetle Trap, a brain-child of NACORI, made from locally-available materials, is offering farmers a relatively cheap and easy-to-manage option to managing the

twig and berry borers. Each trap captures an average of six beetles in two weeks during peak times when the adult female beetles are flying from affected twigs to infest new ones.

Placing a trap for the twig borer should coincide with onset of the rains because it is during this period that the black coffee twig borer adult females emerge and fly out of their tunnels in affected twigs to establish new colonies in new coffee twigs.

About the trap
The kit, code-named "the Ugandan beetle trap", is made using a plastic bottle. The bottle has two wind cut out on two opposite sides to allow easy entry of the beetles the trap.

The trap should strategically placed at the bottom-third of coffee-tree canopy for maxin trapings. About 15 traps sh deployed per hectare - or 10 traps per acre of coffee for max efficiency.

Place the traps in the garden at the onset of th emergence and flight of th twig borer adult female. The trap should not isolation, but in combi other control measure that have evaded ot procedures before t twigs.

Benefits

WHY DRINK COFFEE?

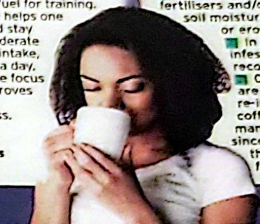
- A typical serving of coffee contains more antioxidants than typical servings of grape juice, blueberries, raspberries and oranges.
- Antioxidants in coffee may dampen inflammation, reducing the risk of disorders related to it, like cardiovascular disease.
- Coffee boosts one's physical performance. Have a cup of black coffee about an hour before workout and your performance can improve by 11-12%.
- Coffee helps one burn fat. Caffeine helps fat cells break down body fat and use it as fuel for training.
- Coffee helps one focus and stay alert. Moderate caffeine intake, 1-6 cups a day, helps one focus and improves mental alertness.

Online sources

Tips

MANAGING THE BLACK COFFEE TWIG BORER

- Do not use infested seedlings. Use materials from certified nurseries only.
- Inspect fields: inspect coffee fields for the black coffee twig borer infestation regularly. In case of infestation, trim and burn all infested plant materials.
- Avoid "business": Plant robusta coffee at recommended spacing of 3m x 3m (10ft by 10ft); do-sucker and prune properly and adequately; and maintain optimum shade tree intensities by pruning and spacing.
- Reduce sources of infestation: Eliminate alternate host plants for black coffee twig borer within and around coffee fields.
- Enhance plant nutrition: Apply fertilisers and/or manures; conserve soil moisture; and minimise soil loss or erosion.
- In case of heavy infestation, spray with recommended chemicals.
- Community-based actions are essential in preventing re-infestation of the black coffee twig borer from non-managed neighbouring farms, since beetles can fly for more than 200 metres in a single flight.



STAY
Next week, we and post-harvest value addition

