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Seedling propagators shift to sowing trays to improve yields



The system has shorter growing season and survival rate, improved crop uniformity and more accurate prediction of harvest date compared to other types of transplants

by Malemba Mkongo
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Many farmers make the mistake of sowing all their seeds outdoors, under full sunlight and directly on the ground. If the seeds are not suitable for this kind of sowing method, there is a danger of such seeds getting washed away, blown away by the wind, getting buried under the soil and not germinating at all.

It is because of this that farmers across the country are moving from the traditional ways of growing their seedlings to the most convenient and reliable methods.

One such type is the use of trays in growing seedlings before transplanting them to the farm, a method that has proved to be efficient.

Seedling trays or seed trays are made up of foldable plastic material. There are cells (holes) throughout the trays, which should be filled with sowing medium, such as soil, cocopeat or sand. Depending on the type of plants, two

to three seeds are sown in each cell. Trays are watered regularly as the seeds germinate. Young seedlings can be kept in these trays safely for three to four weeks under semi-shade until they are ready to be transplanted on the field or in bigger containers.

Stephen Oloo, an assistant at JK Farm in Thika, Kiambu County says the use of seedlings trays ensures 98 per cent germination of the seeds they plant.

One of the advantages of using this tray system is that they can be recycled several times, and the positive outcome is still guaranteed.

"For this system, we use cocopeat in place of soil. Cocopeat is a fiber made out of coconut husks (coconut shell), which once extracted, it becomes a natural growing medium for plantation," says Oloo.

And since the coconut originates from a salty environment in the Coast region, the cocopeat needs cleaning off of the saltiness in it and then dried up, before it is ready for usage in plantation of seeds.

The cocopeat is then placed on the trays before the farmer plants the seeds, where it takes up between five and seven days before it germinates to a seedling.

Depending on the type of plant, only one seed is planted in one hole while some, such as onions, which have weak stems require two or three seedlings in one hole. "One thing about this system, one can monitor the number of seeds that will germinate, which is contrary

Emmanuel Kamanda, a farmer along Mombasa Road shows soil seedlings destroyed by the rains. PD/MALEMBA MKONGO

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Seedlings from a tray have numerous roots compared to soil seedlings, which have one or two roots. With many roots, chances of that seedling picking up and growing are mostly assured

to the traditional methods, such as use of nurseries where seeds are planted directly on the soil, which then makes it impossible to know the number of seeds that have sprouted from the soil. Also, with the tray system, it is almost 100 per cent that the seed will germinate to seedlings," he says.

Also, the resources needed in growing the seedlings are limited compared to using land. The trays can be stacked up in an orderly manner, thereby taking up small spaces. Also, the water used in watering the trays is small compared to watering the normal nursery.

This system is, especially efficient for commercial seed propagators who will be able to maximise the available resources. "With the limited space that we have, we are able to grow several types of seedlings and in large volumes. This system allows us to use whatever space we have to propagate the seeds," he notes.

And while the propagators are already witnessing the benefits of this system, farmers are also anticipating better yields from crops planted from tray seedlings.

Emmanuel Kamanda, a farmer along Mombasa road says the difference between crops from soil seedlings and those from tray seedlings are significantly visible.

Kamanda says the tray seedlings tend to produce more yields compared to soil seedlings, since close to 98 per cent of the transplanted tray seedlings are likely to survive compared to the seedlings taken from the soil. "Seedlings from a tray have numerous roots compared to soil seedlings, which have one or two roots. With many roots, chances

of that seedling picking up and growing are mostly assured. Aside from the roots, the tray seedlings are uprooted with its base soil, making it easy to plant and grow as it has its original nutrients," he says.

Kamanda says the survival rates of tray seedlings are high as they are strong, and free from diseases or pests, since they are grown in a greenhouse, which is a confined environment, while the traditional nurseries in the farm give room for pests and diseases since they are propagated in open spaces and direct to the sun.

Also, the quality of the yield is better for tray seedling crops compared to seedlings propagated directly on the soil because they tend to have strong stems, which can withstand any weather, especially wind, which makes it unlikely to suffer any damages.

And while the piloting phase comes to an end and the project goes into fully implementation, more farmers, including schools are also adopting the innovation in a bid to improve their food production.

The tray seedling propagation project, which is spearheaded by Consortium of International Agricultural Center (CGIAR) in partnership with International Institute of Tropical Agriculture (IITA) under the Resilient Cities research initiative, seeks to harness the dynamism of urban societies and economies to catalyse technological, institutional, and social change.

By enabling agrifood system innovations and investment strategies for inclusive job and business opportunities, the initiative aims to ensure access to healthier diets for all, safeguard human health, and minimise environmental risks.

The initiative generates evidence, technologies, and capacities that help improve urban food systems and secure equitable job and business opportunities, healthy diets for all, human and environmental health, and a reduced carbon footprint.



Seedlings planted in trays at JK farm in Thika. PD/MALEMBA MKONGO

BRIEFLY

New crop diversification initiative to help boost maize production

by Mwangi Mumbo
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The Kenya Agricultural and Livestock Research Organisation (KALRO) in partnership with the International Centre for Tropical Agriculture (CIAT) has launched a crop diversification programme that will help maize farmers boost their yields even with the emerging detrimental effects of climate change.

The initiative, known as Ukama Ustawi is being implemented with

farmers in Nakuru, Embu, Narok, Kakamega and Makueni Counties.

According to researchers, maize-mixed systems cover over 75 per cent of the cropping land in Kenya, with smallholders dominating the farming systems.

Unfortunately, the maize-growing area faces occasional drought stress, resulting in yield losses, in some instances up to 100 per cent. Without alternatives livelihoods, many households have been left at the blink of starvation.

The threat of climate change has generated a deep desire to build resilience to the maize farming systems through crop diversification.

Crop diversification seeks to promote crop diversity by crop rotation, multiple cropping, or intercropping, with the goal of improving productivity, sustainability, and supply of ecological systems.

Diversifying systems entails using varieties and seeds adapted to

local climate and pests, sustainable mechanisation, applying soil and water conservation practices, improve water management and investing in agricultural knowledge application.

Crop diversification has proven beneficial not just because it's an innovative farming technique, but also because it manages to overcome a lot of farming problems caused by changing environment, noted Dr Boaz Waswa, Ukama Ustawi WP 1 Kenya Lead.

Under the initiative, KALRO researchers and farmers have established 76 demonstration plots on lead farmers fields in Embu County, showcasing a set of diverse crop diversification technologies integrating maize and legumes under monocropping, rotation, intercropping and strip cropping systems and complementary technologies include use of manure and fertilizer, furrows, planting pits, mulch and other good agronomic practices.