

# Bringing innovation into mushroom farming

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6 Oct 2017

The emergence of technology solutions and methods has given agriculture a different facet. Systems have over recent years been invented to ease the prediction processes, moving production close to 100 percent efficiency.



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Increased seed hybridisation has been a core element of modernised farming, known as smart farming. Mushroom production has benefited immensely from these streamlined methods. A Zimbabwean entrepreneur John-Mark Kajese has been championing innovation in mushroom production.

## Revolutionising mushroom production

Through his agribusiness, non-profit organisation Sustainable Ecosystems Development Research Institute, he is trying to find solutions to the challenges affecting mushroom production. Instead of the traditional way, Kajese is working on a system that will lessen work by ten times. He is optimistic that his system, named the Multi-Barrel Mushroom Cultivation Flood and Drain system will revolutionise mushroom production in Zimbabwe.

"I felt that we need to develop our own agricultural systems that suit our climate conditions instead of following models that were not specifically crafted for Zimbabwe," Kajese said.

## Information gap on technical aspects of mushroom production

He says there is an information gap on the technical aspects of mushroom production in Zimbabwe which focuses on the basic element, barely giving farmers the minute details of how to grow their crop.

"I have been to mushroom training courses, they impart knowledge on the generic elements involved in mushroom production, rarely do they impart the technical know-how. This is when you find a farmer who knows what needs to be done but cannot set up the equipment needed," he said.

With this in mind, the Rhodes Business School graduate took three years to develop a system he believes will sort the technical deficiency in Zimbabwean mushroom farming. "I have been working on this project for three years, I feel I am at a point where I can embark on skills transfer. My main targets are women and the youth," said Kajese.

## **How it works**

The way the system works challenges conventional mushroom production methods.

"Most people in Zimbabwe are still being taught manual methods. If we want to produce large scale it is not viable. This is why current producers are struggling to meet local mushroom demand," Kajese said. But, how will his proposed magic bullet work its magic in Zimbabwean mushroom production?

"There are a few steps that a farmer will have to go through as they use the flood and drain system which starts with the pre-wetting state which is where we introduce moisture to the raw materials. It is in this state that we introduce heat treatment to the raw materials, to kill contaminants with boiling water. The water is kept at a certain temperature and later the seed is introduced to raw materials when the conditions are right. The seeds are later placed in plastic bag packaging for six weeks, then the harvesting begins," said Kajese.

Kajese's method has some aspects found in conventional methods of mushroom farming but he maintains that he created a better system for serious growers. "This system reduces chances of contamination of the seed and this consequently lessens the risk factor of production, cushioning farmers more," he said.

He added: "There is a high chance of achieving 100 percent biological efficiency. This is when every seed invested grows to its expected potential. Once we achieve that level of efficiency regularly, then we can meet the local mushroom demand," said Kajese.

The cost of assembly for a single unit depending on size ranges from \$1,000 to \$2,000 including installation. Biological efficiency is at 100 percent when 1 kilogramme of raw materials produce an equal amount of fresh mushroom. In some cases of good practice, a farmer may even achieve 200 percent biological efficiency or more.

"In terms of assembly, the system is relatively easy to set up and it can be done with accessible materials which are used in day to day farm life, like drums and pipes. It is not complicated," Kajese said.

## **Developing the system**

Acknowledging his output which saw him supply retail giants in Harare with mushroom, people used to ask Kajese for training on his craft but he could not agree before he knew that his idea was refined.

"Mushrooms have the potential to promote the country's food security and create opportunities for people. People need to take their production seriously," he said.

A longstanding interest in mushroom production drove Kajese to come up with his new idea. "After completing my ordinary level in 2006, I went on a gap year and signed up for a mushroom farming course. That is when I took an interest in the

trade, I have not looked back since," he said. After completing his Development Studies degree at Rhodes he proceeded to the Rhodes Business School where his entrepreneurial project was focused on mushroom beneficiation.

"Zimbabwe needs smart agricultural systems which are scientifically proven to be able to help the country. We have a problem that when people talk of technological development, the first impression is that it means importing the latest technology," Kajese said.

He is ready to partner with institutions of higher learning in developing the system and improving it further. "I am looking forward to working with universities like NUST, University of Zimbabwe, MSU and other institutions so that we explore ideas." Kajese expressed interest to further subject his ideas to conventional scrutiny.

## **Focusing on mushroom production to improve livelihoods**

The most appropriate seed for this system is the oyster mushroom, although it accommodates other varieties. Mushroom farming and horticulture, in general, are being encouraged by the government and experts as a way households can get extra income. Recently, Deputy Minister of Agriculture, Mechanisation and Irrigation Development Deputy Minister Paddy Zhanda was quoted in the Herald saying mushroom production has transformed lives of many.

Min Zhanda urged farmers to consider focusing on mushroom production to improve their livelihoods as some families are earning \$500 monthly from mushroom farming. With the emergence of modernised farming methods, there is hope that mushroom farming grows at a profitable rate. Its minimal reliance on climatic conditions makes it a better pick for risk-averse farmers who want to cut losses.

*The Herald*

## **ABOUT THE AUTHOR**

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