



Food security: households using water wise backyard gardens to grow vegetables



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It has been said a number of times that South Africa is categorised as a middle-income country with gross inequities in income distribution. A high proportion of the population has low incomes. Despite their low incomes, most households rely mostly on purchased food for survival. Recent Water Research Commission studies have already confirmed that poor households spend as much as 70% of their total income on food, leaving very little for other household needs. Vegetable gardening at the backyard of our homes could help reduce the financial stress while ensuring household healthy diets.

As the world celebrates World Food Day on 16th October, we are reminded of how fast we need to change our mindset as we have to respond to the Sustainable Development Goal of Zero Hunger by 2030.

Growing a vegetable garden has become more urgent for South African households since jobs are scarce, money is scarce, and food is becoming more and more expensive.

The latest report released by Statistics South Africa indicates that the number of persons living in extreme poverty (i.e. persons living below the 2015 Food Poverty Line of R441 per person per month) in South Africa increased by 2,8 million, from 11 million in 2011 to 13,8 million in 2015. This is indeed a course for concern.

Growing up in rural areas, the general observation was that a rainy season encourages households to start planting various crops. However, in most cases no thought process is usually followed in terms of checking what is needed to keep the household food secure for a very long time. In most cases, there is often lack of a thought on key points to consider when planning to grow a vegetable garden such as ensuring a balanced diet as part of the overall planting plan.

Planting with a balanced diet in mind

A balanced diet contains all essential nutrients and energy a person needs to grow, develop and stay healthy. Eating a balanced diet means that individual meals are also balanced, that is, each meal contains a proportion of the nutrients that a person needs every day. There are many interesting ways of combining food crops to make a nutritious meal in a single plate. For example, household backyard gardens can be a good source of basic nutrients such as starch (potatoes and sweet potatoes), protein (legumes, peas, beans and peanuts), fats, vitamins and minerals need to be kept in mind when planning a vegetable garden.



What food can people grow at home?

The easiest way for households who want to start growing their own food gardens, is to use the area around their homes to plant vegetables as a source of nutritious family food. Vegetables grow quickly, if water is available, the household can grow a great variety so that they can harvest fresh food for daily use throughout the year. A Water Research Commission study entitled, "Agricultural Water Use in Homestead Gardening Systems", TT 431/1/09" indicates that most families do not have enough space to plant and harvest maize enough to produce maize meal for the whole year. The study also recommends that households diversify their food gardening by adding fruit trees, poultry, and small livestock in order to ensure there is always something to eat in a household.

Organic food production

Food insecure households can consider using organic food production methods as they make a lot of sense, because it makes it possible to grow a lot of food without having to buy expensive fertilisers and seeds. Organic food production

methods are also good for the environment rather than polluting and eroding it. For example, when fertilizers wash into open watercourses, algae may grow on the water surface due to the oversupply of nutrients in the water. This reduces the oxygen levels in the water and can lead to fish and other life and thus loss of biodiversity. In order to create an organic matter, digging a trench of about 60cm or deeper bed could assist in opening a space to fill up a trench with a mixture of organic matter such as grass, kitchen waste, squashed tins, weeds, bones, some paper, and cardboard. This could be followed by adding layers of topsoil to create a compost heap underground. A trench bed is a way of increasing soil fertility and water holding in your beds and garden. It is an intensive way of providing good soil for vegetables production on a small scale. This method can keep the soil fertile for a very long time. The organic material needs to decompose for about 2-3 months before planting.

Innovative Bag gardens and tower gardens

To allow for easy access to the vegetable garden, the Water Research Commission recommends the use of the Bag and Tower gardening techniques for households' easy access to vegetables. Bag gardens and Tower gardens can be made anywhere conveniently close to a home, for instance outside the kitchen door. This makes it easy to water them with grey water from the kitchen, and makes it possible to pick vegetables even during the cooking process. Anyone can make these gardens, but they are particularly useful for older or vulnerable people as one does not need to walk far, nor bend down a lot. A well-maintained tower garden could yield vegetables in winter and summer for at least 3 years. However, one must ensure that goats and chickens cannot get to the tower garden and destroy it.

A Tower Bag is made by several bags that are sewn together, other suitable cloth like shade-netting is used, if available. The porous core is constructed of flat rocks, Tower gardens can increase in planting space fourfold compared to ground level gardens.

The horizontal or Flat Bag garden is simply an upright 'gunny bag' filled with a fertile soil mixture, with a porous core made down in the centre to ensure even water distribution throughout the soil mass. It is watered by inventing a two-litre plastic cool drink bottle in the centre of the bag. The bottle is left in place for up to a week to supply a slow trickle of water to the bag garden. Up to fifteen spinach plants can be grown in each.

Using greywater to grow vegetables

Greywater refers to water that had already been used for domestic purposes such as washing of dishes and clothes. In many cases, water has to be carried from the nearest stand-

pipe in plastic containers, not for the purpose of gardening, but for cooking and washing. The water can successfully be re-used for growing vegetables. This is a way of saving water, especially as water is very scarce in most areas. It should be noted that vegetables can be grown using soapy water. To reduce soap in grey water, one can spread wood-ash on the water surface in a container overnight to settle before using it for the plants.

Using Rainwater Harvesting for gardening

In a water scarce country such as South Africa, households should capitalise on utilising raw water storage for home food production which captures run-off from the soil surface during rainstorms, storing it for use during dry periods. Water is often stored in underground tanks called Rain Water Harvesting Tanks. Raw water storage assists are ensuring continuous watering of plants during dry season when food production is not possible.

In conclusion, it should be noted that there needs to be a great mindset change for South African households to be food secure. It needs a combination of many factors where wise water use is considered as part of change we need to adopt. Food security simply means that there should be enough food around, in a household or in a country; people can get hold of it when they need it, e.g. can grow it or afford to buy it; people are using the food well, meaning that food does not go to waste due to contamination or loss of nutrients.

