

# HOW PLANT NUTRITION CAN TRANSFORM AFRICA'S FOOD SYSTEMS

Agriculture is the backbone of Africa's economy and the main source of income for 90% of its rural population. Yet, the UN predicts the region will spend \$110 billion on food imports by 2025.

Africa could be two to three times more productive if the conditions were created to sustainably grow more food. Using fertilizers to make sure crops and soils have enough nutrients is central to achieving this.



**FERTILIZERS CAN HELP AFRICA ACHIEVE FOOD SECURITY BY ENSURING CONSISTENTLY HIGH CROP YIELDS**

**37%** of households in sub-Saharan Africa were food insecure in 2016 where fertilizer use is the lowest in the world

Fertilizers provide crops with the nutrients they need to grow and be healthy, which increases food production. Today, average fertilizer consumption in sub-Saharan Africa is estimated at 17kg of nutrients per hectare of cropland compared to a world average of 135kg/ha. Improving access to fertilizers and teaching farmers how to use them sustainably could help to end to hunger in Africa.



**BIODIVERSITY LOSS AND DEFORESTATION COULD BE LIMITED BY USING FERTILIZERS TO SUSTAINABLY INCREASE PRODUCTIVITY ON AFRICA'S EXISTING FARMLAND**

Increased yields from fertilizers and other agronomic improvements helped preserve **1 billion hectares** of land between 1961-2005

Africa is home to 8 of the world's 34 biodiversity hotspots and an estimated 1/5th of all known mammal, bird and plant species. By providing precise amounts of nutrients to meet crop needs, fertilizers can ensure consistently high crop yields. Using fertilizers to help African farmers sustainably intensify their productivity on existing farmland can forestall the loss of biodiverse and carbon rich forests, peatlands, wetlands and grasslands.



**AFRICAN CROPS CAN BECOME MORE RESILIENT TO CLIMATE CHANGE BY USING FERTILIZERS TO IMPROVE PLANT HEALTH**

By **2050** nearly all of Africa is predicted to experience at least a 2.6 to 3.0 C temperature increase

Shifting rainfall patterns, rising temperatures and more extreme weather events are expected to make crop yields in Africa more volatile. By ensuring that plants receive all the nutrients they need, fertilizers can help crops thrive in a wide variety of circumstances. Healthy soils and plants can better withstand climate stress (extreme heat, cold and drought), pests and diseases than those with nutrient deficiencies.



**MICRONUTRIENT MALNUTRITION CAN BE REDUCED AND HUMAN HEALTH IMPROVED USING FERTILIZERS**

**40%** of children in sub-Saharan Africa are estimated to be affected by stunting caused by malnutrition

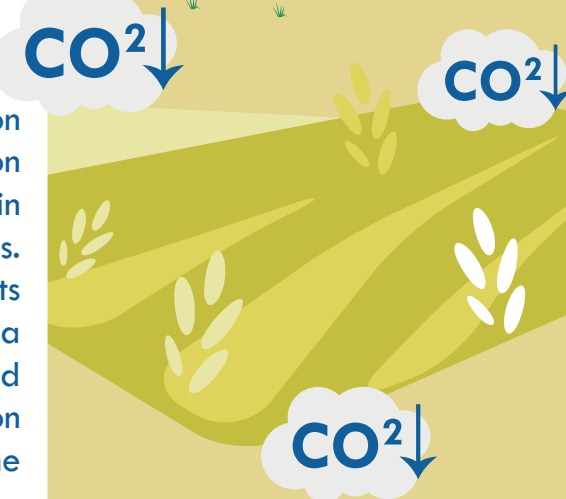
Micronutrient malnutrition is widespread in Africa. Around 73% of Africa's arable soil is zinc deficient with boron, iron, molybdenum and copper deficiencies also common. Fertilizers can help tackle Africa's nutrient deficiencies by growing more nutrient-rich crops as well as biofortifying soils and staple food crops with micronutrients such as zinc, iron, selenium and iodine.



**CARBON SEQUESTRATION ON AFRICA'S FARMLAND CAN BE INCREASED BY USING FERTILIZERS**

Soils represent **47%** of agriculture and grassland's climate change mitigation potential and are the largest terrestrial pool of carbon

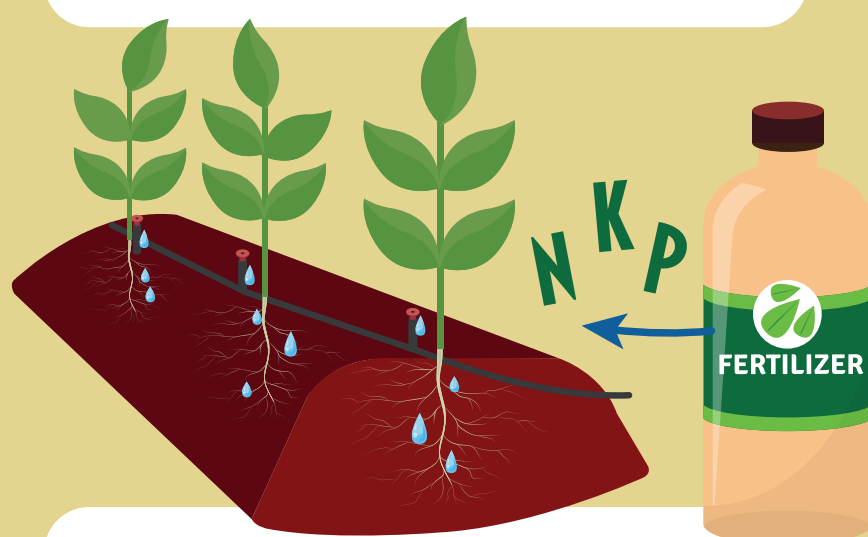
Fertilizers help increase carbon capture on arable land by increasing the amount of carbon rich crop residues which are grown and remain in the soil in the form of plant roots and stems. Using on-farm organic sources of nutrients supplemented with mineral fertilizers in Africa could not only improve soil health and productivity but result in greater carbon sequestration which removes CO<sub>2</sub> from the atmosphere.



**LAND DEGRADATION CAN BE PREVENTED AND SOIL HEALTH RESTORED BY REPLENISHING SOIL NUTRIENT POOLS WITH FERTILIZERS**

Land degradation affects **65%** of Africans with an estimated 75-80% of all cultivated area degraded, with a loss of 30 to 60 kg of nutrients per hectare per year

Degraded soils that lack essential nutrients pose serious risks for food and nutrition security and employment while also creating environmental problems. Continuous soil depletion leads to low yields and the conversion of natural habitats to cropping. It can also trigger desertification. Fertilizers have a key role to play in combatting Africa's degraded soil and desertification as they are essential for restoring and maintaining soil health and fertility.



**MORE FOOD CAN BE GROWN ON A WIDE VARIETY OF LAND WITH SMALL AMOUNTS OF WATER BY USING FERTIGATION**

**1 in every 3** people across Africa are experiencing water scarcity while North Africa is part of the world's most water stressed region

Combining soluble fertilizers with irrigation water, known as fertigation, to provide plants with nutrients and water in a highly efficient way could help turn vast areas of arid and semi-arid land and other marginal soils into farmland in Africa. With up to 90% water and nutrient use efficiency, fertigation can help Africa sustainably grow more food in a changing climate while turning treated wastewater into a resource.

**AFRICA'S SMALLHOLDER FARMERS' LIVES COULD BE TRANSFORMED BY USING FERTILIZERS TO GROW COMMERCIAL CROPS**

For every **1 kg** of nutrient applied farmers obtain 5-30 kg of additional product

Smallholder farmers make up more than 60% of the population of sub-Saharan Africa. Most struggle to live and feed their families on less than \$2 a day. Fertilizers can be a key part of the solution. Within a single cropping season farm productivity can be doubled or tripled by fertilizers, which could allow subsistence farmers to produce a surplus that they can sell to buy additional food for their families, send their children to school and pay for health care.



**GENDER EQUALITY AND FEMALE FARMERS' PRODUCTIVITY CAN BE BOOSTED BY IMPROVING WOMEN'S ACCESS TO FERTILIZER**

**Female farmers'** yields are around 20-30% less than men's due to lack of access to key resources including fertilizer

Although women grow an estimated 70% of Africa's food, their use of fertilizer is significantly lower than men's, in large part due to lack of access to this vital input. Empowering African women farmers by increasing access to fertilizers and training them on their proper use could improve their yields, feed more people and break women's cycle of poverty.

