Crop intensification and organic fertilizers can be a long-term solution to perennial food shortages in Africa

March 18 2014

This is Rose Koech, at her farm in Kembu, Bomet County in Kenya. She grows fodder trees and shrubs. Credit: ICRAF/Sherry Odeyo

Farmers in Africa can increase their food production if they avoid over dependence on chemical fertilizers, pesticides and practice agricultural intensification - growing more food on the same amount of land – using natural and resource-conserving approaches such as agroforestry.

According to scientists at the World Agroforestry Centre (ICRAF), crop production in Africa is seriously hampered by the degradation of soil fertility, water and biodiversity resources. Currently, yields for important cereals such as maize have stagnated at 1 tone per hectare. Climate change and increasing demand for food, animal fodder and fuel is likely to worsen the situation.

To meet the needs of an ever growing population, scientists say farmers can increase production and conserve natural resources by turning to agricultural intensification through agroforestry, an integrated land use management technique that incorporates trees and shrubs with crops and livestock on farms.

This approach brings ecosystems, livelihoods and agriculture together. Replenishing soils, improving biodiversity and lessening agricultural pollution. It also decreases threats to food security and earned farming incomes - according to Sammy Carsan, a tree domestication scientist with ICRAF and lead author of a recent article on agroforestry and agricultural intensification.

In many parts of Asia, intensification has been achieved through the use of greater inputs such as chemical fertilizers, but it has come at a cost – causing soil degradation, loss of biodiversity and pollution which has impacted on food security and income earned from farming.

While growing more food on the same area of land is key to increasing sustainable food production and meeting the needs of an ever-growing population, farmers should avoid intensification that relies on heavy use of chemical fertilizers and pesticides. Chemical fertilizers increase production in the short-term, but with time soils become increasingly degraded and broken down until there is very little organic matter or nutrients left. When soils are in this state, crops are unable to utilize the fertilizer and production is low.

"A long-term solution to intensification in Africa should not purely be based on an imported intensification model but instead consider approaches that can maintain the quality of the available resource base through ensuring nutrient cycling, organic matter build-up, biodiversity improvements and water quality regulation," says Carsan,

Agroforestry practices provide appropriate technologies for maintaining resilient farms and ecosystems that make up the landscapes that provide food and livelihoods across rural Africa.

Provided by World Agroforestry Centre (ICRAF)