Study proposes new way to save Africa's beleaguered soils

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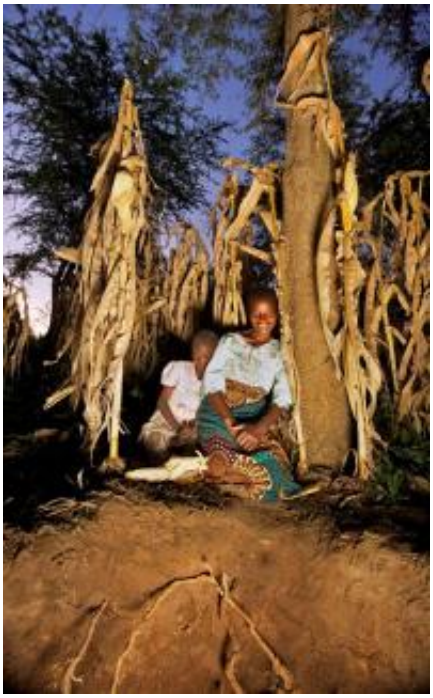

Rhoda Mang'yana of Malawi is one of thousands of African farmers improving their depleted soil by growing trees and annual crops that stay in the ground two years or more. Here she grows maize near "fertilizer trees" to improve her farm's crop yield and soil fertility. Credit: ©Jim Richardson

A Washington State University researcher and colleagues make a case in the journal *Nature* for a new type of agriculture that could restore the beleaguered soils of Africa and help the continent feed itself in the coming decades.

Their system, which they call "perenniation," mixes food crops with trees and perennial plants, which live for two years or more. Thousands of farmers are already trying variations of perenniation, which reduces the need for artificial inputs while improving soil and in some cases dramatically increasing yields. One woman quadrupled her corn crop, letting her raise pigs and goats and sell surplus grain for essentials and her grandchildren's school fees.

John Reganold, a WSU soil scientist, wrote the article with Jerry Glover of the USAID Bureau for Food Security and Cindy Cox of the International Food Policy Research Institute. The article, "Plant perennials to save Africa's soils," appears in the Sept. 20 issue of *Nature*.

Rhoda Mang'yana feeds her pigs maize bran, Gliricidia branches and weeds that grow in the fields. She sells the pigs to pay her grandchildren's school fees. Credit: ©Jim Richardson

The authors argue that perenniation offers a powerful option as the world's growing population poses new challenges for people struggling to eat. Already, one-fourth of the world's undernourished population lives in sub-Saharan Africa, where nutrient-poor soils have yields that are one-tenth of the U.S. Midwest. Farmers often make these lands worse by

adding conventional mineral fertilizers without organic inputs.

"Of the various factors needing urgent attention to increase agricultural productivity, scientists from the region have identified soil quality as a top priority," the researchers write. "We believe that perenniation should be used much more widely to help farmers to meet the challenge of improving soils while increasing food production."

Several efforts to increase perenniation are already underway, including perennial grain research at WSU and millions of plantings across sub-Saharan Africa in the Trees for Food Security project. But the researchers argue for elevating perenniation research to the levels of support given mineral fertilizers and seed development.

The cost could run to tens of millions of dollars.

"Yet such numbers pale in comparison to the losses of nitrogen, phosphorous and potassium from sub-Saharan farm fields each year," the researchers say. Such losses, they add, are the equivalent of billions of dollars of fertilizer.

Provided by Washington State University

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