

NO-TILL,

African

STYLE.



No-till provides continuous cover to protect the soil, improve soil health, retain moisture and reduce soil erosion.

WRITTEN BY HOWARD G. BUFFETT

In the far-off rainforests and sub-Saharan climates of Africa, smallholder farmers are successfully implementing no-till practices to boost production and save soil. And they are doing it the same way many American farmers have for decades: through trial and error, using practices that make sense based on local conditions and existing customs.

Africa is the epicenter of chronic hunger, but it is also a continent with great potential for substantial gains in productivity. The dream for every humanitarian working on hunger issues is to see Africa feed itself, and to do so using resource-saving sustainable practices is the ultimate achievement.

The African no-till movement is timely, too. Africa's soils are weathered from years of plowing and 'slash-and-burn' farming. Weather changes which have brought heavier, faster rainfalls and hotter, drier conditions will result in winners and losers on farms around the world. Many African farmers live on the edge of subsistence farming; hunger is often around the corner, so they cannot afford to lose this battle. Conservation farming is more important than ever.

African farmers are discovering how no-till allows them to mitigate the risks of weather extremes and produce more food, as they become better guardians of their soils.

Many smallholder farmers use a machete to clear a field by chopping the vegetation into small pieces. He or she then might string out a rope to ensure straight rows for planting. The machete is used to clear a small spot in the mulch, slit open a hole, and plant the seed. Crop canopy is used strategically to shade out weeds and reduce the heat on the soil. In some cases they intercrop vegetables, like tomatoes and peppers, between tree crops like cacao or plantains, until the tree crops grow too shady.

No-till is well suited to the tropics, where cover crop mulch can protect fragile soils and rolling ground from harsh rainfalls. It is also well suited to smallholder farmers who can do much of this with inexpensive hand labor, sometimes small amounts of chemical, a machete or hand hoe, and improved seed.

In these smaller plots, farmers use mulch and cover crops for nutrients, so little commercial fertilizer is used, at least in these early stages. (That may come along later as farming methods intensify and more income can be reinvested in synthetic fertilizer.)

With this approach farmers are building soil organic matter so they can improve degraded lands. This means land that is environmentally sensitive can be spared as production in farm-friendly soils ramps up.

This is not no-till as Americans might broadly define the practice. Frankly, it's better. It's a truly sustainable, systems approach where no resource is wasted, no tillage is used. The ground is consistently covered, and while herbicides and synthetic fertilizer can be applied, we have found less of both is required compared to conventional farming. If done right, the practices immediately double or triple production from the old slash-and-burn methods.

His attitude about farming is different now, too. "After I started no-till it motivated me," he says. "Eventually people will stop slashing and burning," he adds. "This type of farming (no-till) will multiply. This is the future."

That's what 27-year-old David Owusu discovered shortly after he began using no-till on his corn, plantain and cacao farm that he manages for his uncle Akwasi. Before using no-till, he would slash and burn corn residue after harvest. His first year in no-till was not easy; he kept the old crop stalks but found it difficult to plant through them. He learned to chop the stalks into smaller pieces for faster degradation and began planting corn in 40-inch rows.

His crops are sold by 110-kilogram bags (242 pounds), and his yield the first year doubled from two to four bags on a quarter acre plot. Yields jumped to six bags of corn last year. When he got his second no-till crop in the ground last October, he only had to spray once for weeds, so he reduced his weed control costs by about a third.

"No-till gave me more experience and ideas," he says. "With the cover crop mulch and no-till, soils are softer now and hold more nutrients. I don't think I'll need to buy fertilizer because the soil gets nutrients organically through the biomass and mulch."

David has seen higher profits from no-till as well. About five years ago he was making about 60 Cedis (\$16.20) a year from the farm, after costs. *"When crops came I sold them for whatever I could get, but I didn't know if I was making a profit,"* he says. With no-till he invested 150 Cedis (\$40.50) in the farm and profit came to about 400 Cedis (\$108). He's hoping to increase that to 800 Cedis (\$216) this year as he expands. *"With two acres I hope to yield 20 bags, and that will make a profit of 4,000 Cedis (\$1,080),"* he says.

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It is encouraging when you consider the very idea of millions of smallholder farmers doubling and tripling food production as they adopt these methods.

If enough African farmers learn this approach, you can be sure there will be exciting news coming from the world's biggest, most food-insecure continent.

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ABOUT THE AUTHOR

Howard G. Buffett is a farmer and Chairman and CEO of the Howard G. Buffett Foundation. He has farmed for over thirty-five years, and the Foundation has invested over \$150 million in research to improve agriculture and an additional \$350 million in agriculture-related programs globally.



Farmers in Mozambique use a homemade roller crimper to prepare for planting. This technique keeps permanent cover on the fields.