

Africa's NO-TILL REVOLUTION

*Sustainable, integrated
cropping systems
improve food security
and add value
among smallholder
African farmers.*

WRITTEN BY HOWARD G. BUFFETT

In a quiet rural corner of Ghana, near the dusty village of Amanchia, Dr. Kofi Boa goes about revolutionizing African food production one farmer at a time.

“It is my dream that the whole of Africa will know how to sustain the productivity of a piece of land,” he tells a group of seed growers who have flown in from several African countries to learn new farming techniques at the Centre for No-Till Agriculture. Hundreds of African farmers have already adopted his methods, and more learn each day. It is this work that proves without a doubt that no-till is changing lives on the front lines of agriculture, despite the conclusions reached by some who have never farmed themselves.

In Ghana, where agriculture makes up 60 percent of GDP and accounts for over a third of all employment, Dr. Boa is something of a hero. One by one he shows farmers how traditional slash-and-burn methods only exacerbate erosion and degrade soils, keeping yields low and farmers impoverished.

He then demonstrates – in his own test plots - how no-till farming methods, rotation and cover crops can break those cycles. As a result, African farmers are learning to treat their soil like valuable working capital, and that capital is now paying dividends.

In rural Ghana farmers have no safety nets. There is no pension, social security or retirement plan, and there certainly is no federally-subsidized crop insurance. In severe cases, a poor crop can be a matter of life and death for an African family. Many live on the hard edge of hunger at least half of every year.

Smallholder farmers are motivated to succeed, striving for greater profits through higher yields. But they often lack market opportunities, credit and access to improved inputs – things American farmers take for granted. They do enjoy some advantages. Most villages have, at least for now, plenty of inexpensive hand labor available for seasonal farm work.

In farming, we all seek solutions. In Africa the main question is how to raise yields and profitability with limited resources on degraded soils. There seems to be some mystery about smallholder farmers in Africa, but there's no romance in hunger.

To move up the wealth ladder, African farmers, like all of us, are just trying to improve. They're learning what will work on their farms and being patient as they embrace new methods.

African farmers now have a unique opportunity to do something American farmers did not originally embrace: develop agriculture in a conservation-focused way. Africa's "Dust Bowl" is their degraded and weathered soils. However, as African farmers increase production and expand to more mechanization, they can do so with the lessons of American, Argentinian, Brazilian, Australian and other farmers who have pioneered no-till, strip-till and other conservation practices.

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In North America we plowed everything for years because we became conditioned to believe that practice was the foundation for row crop agriculture. It may be one reason why it is difficult to convert U.S. farmers to no-till practices, because change is difficult.

In Africa, no-till is not just an opportunity, it must become a mandate. Africa has a high percentage of degraded soils that must be replenished. Africa will never feed itself without conservation agriculture.



Above: In South Africa, oxen pull a roller crimper designed to kill cover crops or weeds. This process eliminates or reduces the need for chemicals. Insert: After the cover crop dies and lays flat, researchers check areas for weed growth.

Slash-and-burn agriculture is used by upwards of 500 million smallholder farmers worldwide. As a result, the International Fertilizer Development Center (IFDC) estimates Sub-Saharan soils lose around 8 million tons of soil nutrients a year. Over 250 million acres of African land has been degraded to the point of greatly-reduced productivity. We need new solutions.

With no other options, limited agricultural extension and limited available education, many farmers continue doing what they have always done. Until now.

“When we were doing slash-and-burn we didn’t know the land was suffering,” says Ama Adutwumwaa, a 33-year-old farmer who plants corn, cassava, cocoyam, cacao and peppers. She saw corn yields more than quadruple after her first no-till growing season.

“I was very happy when I saw my plants emerge and start growing,” she says. *“Even during the dry season, the plants were still growing. It was because the land is now soft and can hold moisture.”*

Another farmer, Teresa Amankwah, 60, has been farming since she was a child, following traditional slash-and-burn methods most of these past four decades. She has four children to feed and struggled to pay for basic high school education. When she noticed neighboring farms flourishing with no-till, *“I knew I needed to change,”* she says.

With slash and burn methods, Teresa grew cassava, cocoyam, corn, plantain and cacao. Her production costs came to 300 Cedi (\$81) per acre with a net per acre profit of \$54. She’s planting the same crops in no-till with a similar cost structure.

“When I look at the crop I can see I’m going to get higher yields, so I know I will be getting higher profits when I’m finished with harvest,” she says.

What’s her outlook for farming now compared to when she began some four decades ago? *“Because of no-till and the mulch, plants are growing bigger,”* she says. *“I can see this practice is going to really help, compared to the old ways.”*

Thanks to no-till, Teresa now expects to have money to pay for her children’s education. No-till has changed the way she views her profession.

“When I see my plants growing, it makes me happy,” she says. And, at the end of the day, isn’t that how most farmers respond to a great-looking crop? If enough African farmers embrace this system, you can be sure there will be more good news coming from a continent that must succeed in meeting its food demands.

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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.