No-Till Farmer

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Conservation Tillage Guide

Sprayer May Be Your Best Investment

Get Precise With Seed Placement

No-Tillers Best Attachment Tips

A Balanced Diet For No-Till Soils

WHAT I'VE LEARNED FROM NO-TILLING...

Sharing No-Till Benefits Around The Globe

A no-tiller, world-traveler and philanthropist, Howard Buffet takes no-till practices to third-world countries to bring hope to the hungry.

By Howard G. Buffett
as interviewed by Ron Ross

Occasionally I'm asked how I manage to farm 1,400 acres and also travel up to 180,000 miles a year visiting impoverished countries for the HGB Foundation.

The short answer: I choose to do it, because circumstances have provided me the opportunity to address severe hunger in places like Africa and Latin America.

At the same time, I love farming. But without the precision ag technology available today — and the time and labor savings I get with no-till — it would be a lot more difficult to do both.

SHARING A PASSION. Howard Buffett (left) and his son Howard Jr. share interest in no-till practices, photography and the need to meet the food demands of a growing world.

I was a farmer before the HGB Foundation was established in 1999. Following college, I operated a 400-acre eastern Nebraska farm owned by my father. Later, I served on the board of commissioners for Douglas County, Neb., — my home county — and then worked in management for ADM and the GSI Group. In 1992, I bought 740 acres in central Illinois after accepting a job at ADM.

I first started exploring the power of photography while shooting pictures of crops and wildlife on our Nebraska farm and on trips to foreign countries I took as a young man. Over time, and through a lot of trial and error, I advanced my skills and eventually recorded wildlife images around the world. Today, I use photography primarily to demonstrate the harsh reality of world conditions.

EARLY NO-TILL

When I first moved to Illinois, most of my new neighbors used some form of conventional tillage — and most still do. Everything I read indicated no-till was a natural fit for the rolling, clay soils on my farm. Nearly 20 years later, I'm confident turning to no-till was the right decision.

This year, we added another 500 acres of lighter, blacker soil to the operation and have started the transition of this land to no-till as well. Drain tile is among several planned improvements.

Because of Foundation demands, I spend up to 8 months a year out of the country; thus, my farming hours are somewhat limited. But I'm always home for the crucial planting and harvest chores. While I find the quiet comfort of the tractor and combine cabs relaxing — and fun! — there is also a lot at stake during these operations.

Hiring a custom applicator for spraying and fertilizer application frees travel time during the summer. In any case, owning equipment for these jobs doesn't pencil out for our size operation.

A no-till planter is yet another story. The amazing technology available today makes it possible to get over the ground quickly and create a near-perfect seed environment for fast germination and uniform emergence, even in tough residue. This is absolutely critical in no-till systems.

SEEDBED PREP

Directly after harvest, we take our first swing at corn-stalk residue with one pass of an Aerway vertical tillage tool. The Aerway creates a three-way action that preps the field for a better spring seedbed environment.

First, it penetrates the soil, reducing surface compaction. Second, the Aerway breaks up and incorporates a portion of the crop residue. Finally, it aerates the soil and improves water retention.

I don't know how much yield boost, if any, we're getting from the Aerway because I've never done side-by-side comparisons. However, I can report having had few problems maintaining proper seed depth and placement in varying spring field conditions where we ran the machine.

While the use of anhydrous ammonia in some ways goes against the

CHECK THE SPECS...

NAME: Howard G. Buffett (No-till farmer, president of the HBG Foundation, author and photojournalist)

LOCATION: Decatur, Ill.

YEARS NO-TILLING: 19

ACRES NO-TILLED: 1,400 (1,240 crop acres)

CROPS NO-TILLED: Corn, soybeans

NO-TILL SETUP. Row cleaners, fluted no-till coulters, seed firmers, spiked closing wheels and leveling tines make up the no-till planting package on the row units of Howard Buffett's John Deere planter.

concept of "pure no-till," I haven't found a better way of applying nitrogen. I apply 140 pounds of actual nitrogen as anhydrous ammonia and apply another 30 pounds as 28% liquid mixed with a pre-emergence herbicide.

Starter fertilizer paid off on our Nebraska farm, but when I didn't see much, if any, yield advantage in Illinois, I quit using it.

I have a 16-row, split-row planter for soybeans and a new 16-row planter, equipped with several no-till attachments, for corn. I've had good results with Yetter row cleaners, fluted no-till coulters, Keeton seed firmers and Thompson spiked closing wheels.

John Deere's SF2 AutoTrac system is installed in our planting tractors and combines. The 16-row corn planter is equipped with John Deere's new Row Command and Swath Control systems. Individual clutches inside the drive gear boxes allow automatic

I WILL EMBRACE ANYTHING THAT IMPROVES MY USE OF NO-TILL...

engaging and disengaging of seed flow on the go.

A lot of my fields are odd-shaped. With triple-stack corn seed hitting $300 a bag and soybeans nearing $50 a unit, Row Command should pay for itself in a couple seasons by avoiding overplanting in point and end rows.

Not all technology is that easy to justify. It doesn't take long to wrap up $25,000 with the full SF2 system, and if you go RTK, you can easily spend more. I'm the first to admit it was iffy to pencil out some of my initial technology investments when I was farming only 740 acres. But I will embrace anything that improves my use of no-till.

The numbers look better now that we've expanded. For a farmer with 3,000 to 5,000 acres, this technology is almost a no-brainer.

LESSONS LEARNED

I've got no-till fairly well figured out on the clay soils I've farmed for 19 years. Now, I'm anxious to see what happens on the blacker soil as we transition those fields to no-till.

I've learned that my clay can be fairly forgiving, especially after several years of building up a mat of crop residue. While I prefer warm, dry planting conditions, I can plant into the clays when they're still a little wet, if necessary. Although weather really made things difficult last spring, I was still able to get in 2 weeks earlier than some conventional tillers who worked their field two or three times following rains.

In early August, there was a dramatic difference in uniformity and stalk height between the no-till and conventional-till fields. Gaining the extra weeks for early season growth also meant our corn would be tasseled and pollinated before our hottest days.

Gene-stacked hybrids have been a good fit for our tough no-till environments. This year, to get an at-home comparison base for future seed-buying decisions, I split the planter with leading brands with similar genetics on about 120 acres. It will be interesting to see if we measure any significant differences at harvest.

WHY THE HGB FOUNDATION?

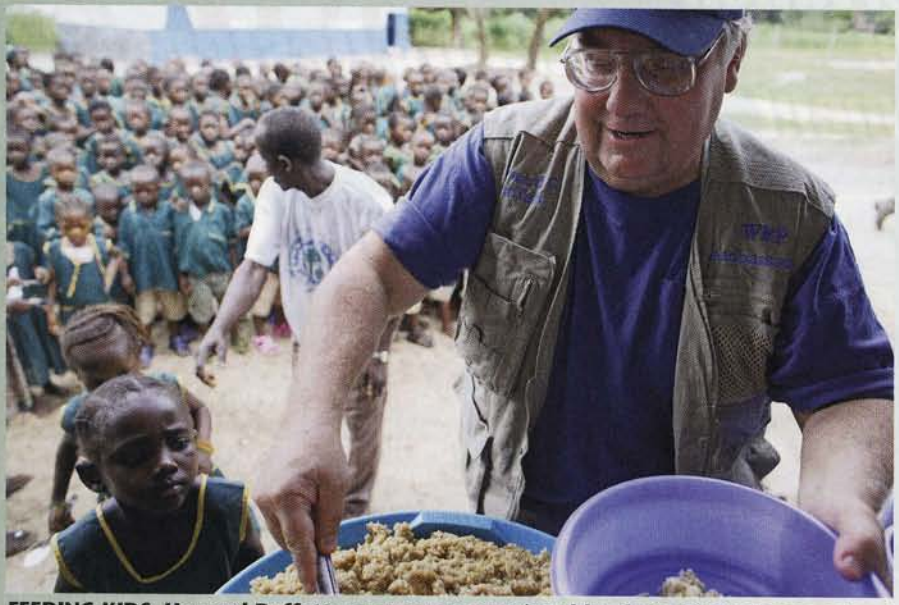
When I climb into the combine at harvest-time, chances are I have just returned from one of the more than 65 countries where HGB has projects. As I look through the cab window at 190- to 200-bushel corn and 50-bushel soybeans, it's very difficult to make the mental shift from where I might have been just hours or days before.

Statistics that are overwhelming keep running through my mind as I steer a machine capable of shelling out as much as 20 acres of corn per hour.

Today, during the hours I harvest thousands of bushels of corn or soybeans, 25,000 people across the world will die of hunger-related causes.

Half of the people in the world live for an entire day on less than I might spend for a Coke and a doughnut at the local café on my way to the field.

Food production will need to



FEEDING KIDS. Howard Buffett scoops up a corn/soy blend at a Sierra Leone school — one of many school feeding projects sponsored by the World Food Program.

increase 65% during the next decade — and unfortunately it can't be done in many African nations (and other third-world areas) with the high-input, high-yield, "two-crop monoculture" system that I myself apply in central Illinois.

Because these events are happening so far away from Illinois or wherever you farm, it's easy to become numb to that reality. But when you see such tragedies and photograph them close up, as I have thousands of times, they stay etched in your mind forever.

An American farmer like you or me, on average, produces enough to feed nearly 150 people for an entire year. But the African farmer I might sit down with is not able to feed his own family; he is a net buyer of food. His greatest hope is that he can somehow put enough food on the table 12 months of the year to provide the minimum calories needed to survive, compared to the only 8 or 9 months worth of food his 1 or 2 acres usually provide.

> IT'S GREAT TO HEAR AFRICAN NO-TILLERS BRAG, "YOU KNOW, MY CROPS ARE BETTER THAN THAT GUY ACROSS THE RIVER WHO WON'T CHANGE...

One of the HGB Foundation's immediate goals is to teach conservation farming, including no-till and cover-cropping systems, that can help eliminate these "hunger periods" now common between crops.

A simple but critical example of the basic needs of our African farmers involves a project HGB funds with two University of Illinois graduate students who are working on ways to improve the jab planter. Used in small-scale agriculture in Africa for many years, farmers simply jab it into the ground, spread the jaws and release a single seed.

Typical jab planters are made of wood and hard to use, resulting in uneven planting and user fatigue. The students' new model is made of sheet metal, holds a predetermined amount of seed, meters the seed and has a retractable tip that easily penetrates through crusted soil or crop residue.

The foundation also hosted Kofi Boa, a no-till expert, to visit the campus and provide advice on the new planter design.

Our goal is to help small-scale farmers mimic the planting precision our no-till farmers get in tough soils with high-tech machines. We'll support initial manufacturing and distribution of the planter.

Of the 65 projects HGB funded in 2008, nearly half were in ag development, with about one-third focused on clean-water projects. Just over half of the projects are in African countries, with about one-third in Central America. (Other monies fund projects in South America, Mexico and the United States.) The Foundation's total spending in 2007 and 2008 averaged about $52 million.

We usually partner with non-governmental organizations (NGOs) on projects that have the most promise of success. We will provide about $20 million through the World Food Program next year with a new program called Purchase for Progress. Our goal is to help farmers in seven African and Central American countries gain access to markets for any surplus crops they manage to produce.

Two years ago, the HGB Foundation pledged a minimum of $14 million a year over 10 years to fund the Global Water Initiative (GWI). Our partners include seven NGOs who will develop rural water and sanitation projects in 13 Central American and African countries.

WHY AFRICA?

Our funding decisions are based on greatest need. Africa has the highest percentage of agricultural population and is the second-highest cultivated area in the world.

However, average cereal yields are the world's lowest, only half of those in Asia or Latin America. Nearly 90% of all African farming is done with manual labor — no machine or animal power. The farmer does not own much of the land, so he has no control over it — thus, little incentive to improve it.

If things don't change, Africa's rainfed crop production will drop 15% during the next 20 years. Adding to the crisis, leadership needed to champion change in Africa is sorely lacking. This is a perfect recipe for continued chronic hunger and conflict.

Nearly three-fourths of African

soils have been degraded. "Slash and burn" is common. As the term implies, natural nutrients are depleted, and because no commercial fertilizer is available to rebuild the soils, farmers move on, clear new ground and continue the cycle of depletion. The result is that 27 million acres of forest are cleared annually.

Poor farmers like these could clearly benefit from more research and technical support. Unfortunately, most global studies have focused on "Green Revolution" high-input and high-yield systems. These are often not applicable and provide little benefit to farmers in many of Africa's 54 countries or resource-poor farmers in Central American nations.

A GLIMMER OF HOPE

In some areas, conditions are slowly improving, with significant thanks to our nation's food relief programs.

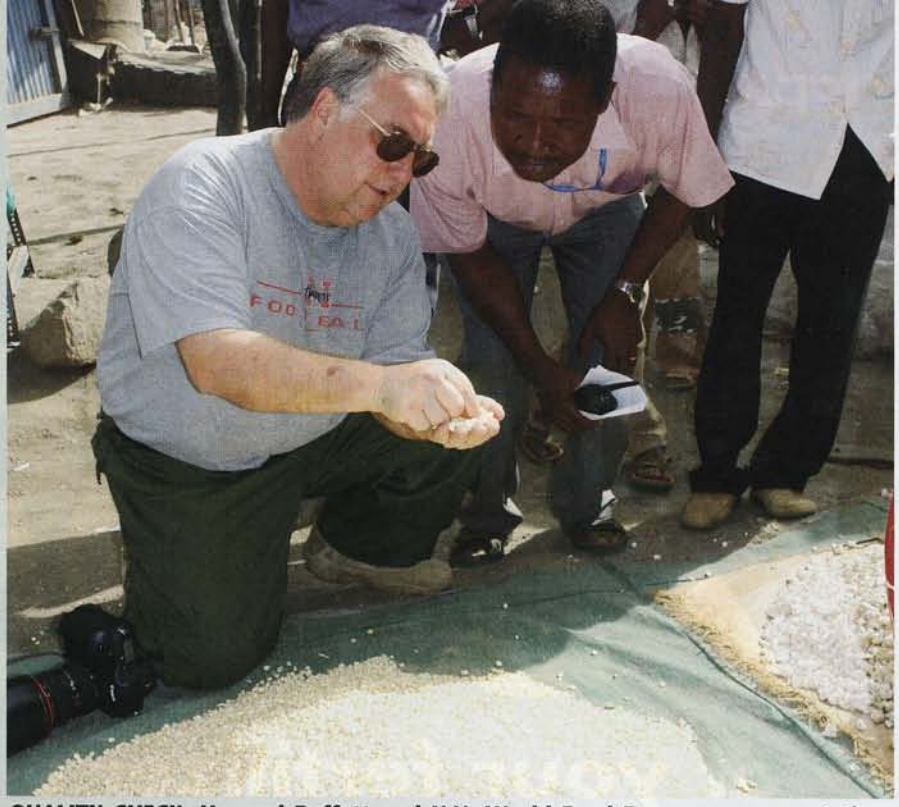
Our Foundation, partnering with organizations like CARE, The U.N.'s World Food Program, the GWI, The International Maize and Wheat Improvement Center (CIMMYT) and Catholic Relief Services can report progress in many countries.

No-Till Farmer readers might have particular interest in the results of no-till methods (called mulching in Africa) to improve yields and income.

What makes no-till and cover cropping good fits in third-world nations is that both are relatively simple to adopt and don't require a lot of high-tech methods. It boils down to minimum disturbance and building soil health through natural processes.

> I'M CONCERNED THAT OUR FARMERS DON'T FULLY APPRECIATE THE IMPORTANCE OF THE ROLE THEY PLAY IN POVERTY DIVERSION AND HUNGER REDUCTION...

Fortunately, no-till offers benefits almost wherever you go, especially if you can get farmers to commit for 3 to 5 years, just like in the United States.



QUALITY CHECK. Howard Buffett and U.N. World Food Program representatives review and discuss the quality of locally produced corn in Sudan.

The HGB Foundation is investing $13.5 million partnering with CARE with a focus on 16 no-till projects located in seven African nations. Improving yields with no-till and cover crops, combined with new seed technology, can boost food production with minimal additional cost to the farmer, a critical key in the early stages of the projects.

Ghana farmers like Kofi, the grower we brought over to review the jab planter project, have used no-till longer than other African nations with dramatic results. In years of average rainfall, no-till increased corn yields 45%. No-till improved soil water retention, kept planting on time and boosted beneficial insect populations.

It's great to hear African no-tillers brag, "You know, my crops are better than that guy across the river who won't change."

Sound familiar?

ON-FARM RESEARCH

To accelerate research studies more adaptable to African soils and weather, the Foundation operates a 6,000-acre farm in South Africa. Penn State University scientists are on the site to conduct critical nutrient uptake research.

Third-world farmers have a critical need for better, adaptable and affordable seed. To further that cause, we fund a seed-improvement project in partnership with CIMMYT. Maize (corn) seed from Zimbabwe is produced under three of the farm's 15 center pivots and distributed to dealers at no profit.

Other seed research at the South African farm and other locations have a goal of developing drought-tolerant corn varieties, which can be provided with no technology fee to small-scale African farmers.

NEW STUDY CENTER

Back in the United States, we were excited to purchase a new Illinois farm for the HGB Foundation. We will incorporate RTK guidance while we attempt to achieve "farm-size" agronomic and economic data.

In one of our first studies, we'll evaluate the effect of various nutrient levels and weed competition on GMO corn hybrids. One 10-acre plot will get full fertilizer rates and weed control. Another will get an herbicide only, and the third — no fertilizer or herbi-

TEACHING TIME. Buffett explains the process of corn pollination to Burundi farmers as part of his visit and demonstration on how to incorporate no-till practices.

cide. How fast will our best hybrids deplete available nutrients and how will yields compare?

We've seen a big push to use genetically stacked, racehorse hybrids in Africa that are designed for high-input systems like we have in the central Corn Belt. If we do, we will face significant problems.

The idea of getting poor African farmers hooked on a fossil-fuel-based system without all the pieces to make it work is a questionable strategy. An alternative is nitrogen-fixing cover crops. We'll be initiating studies on hairy vetch at the Foundation research site. We're looking for a cover crop we don't have to kill with glyphosate to eliminate that expense.

I'll also be evaluating hairy vetch on one of my own no-till fields after we harvest winter wheat next summer. I think U.S. farmers must also be willing to consider ways to reduce their dependency on inorganic nitrogen.

The Rodale Institute has done promising work on rolling and crimping cover crops, including hairy vetch, with a front-mounted roller now manufactured in Pennsylvania. The only problem is that six 30-inch rows is the typical width of available rollers. I need to figure out a way to roll and crimp 12 or more rows at a time.

Hooking a 12- or 16-row roller to the front end of even a large tractor is not feasible in terms of weight and balance. A possible answer is to balance the weight. Rodale has explored the feasibility of mounting one section of roller in front of the tractor with the remainder mounted on the sides of the tractor, or to use a pull-type roller.

This year, we brought one of the Rodale representatives to South Africa to look at starting cover crop work there as well.

U.S. AID IS ESSENTIAL

With all the challenges I see in impoverished countries I visit, I would be remiss not to mention the tremendous assistance millions of people are receiving because of the ability of the American farmer to produce quality food in abundance.

On average, 60% of all food that reaches these hungry nations originates in the United States. In many cases, our food distribution programs are the only reason the poor have any hope at all.

However, I'm concerned that our farmers don't fully appreciate the importance of the role they play in poverty diversion and hunger reduction. The message seems to have gotten lost with all the changes that have occurred in the last decade.

I think if we had a real push from the agricultural industry — including no-tillers like you — we could increase food assistance even more and reach another 20 to 50 million people who need help to survive.

"Ambassador Against Hunger" To Address 2010 NNTC

If you are planning to attend the 2010 National No-Tillage Conference in Des Moines, Jan 13-16, you'll hear a Friday night banquet presentation from Howard G. Buffett. He will relate how the ingenuity and generosity of the American no-tiller plays a big role in offering hope to people who would otherwise have none.

Buffett, a 1,400-acre no-till farmer and philanthropist from Decatur, Ill., is president of the Howard G. Buffett (HGB) Foundation, which funds humanitarian efforts in needy countries.

Buffett was recently appointed by the U.N. to serve as a World Food Program "Ambassador Against Hunger." The HGB Foundation partners with WHP on hunger-diversion projects in Africa, Latin America and other areas.

Buffett serves with a diverse team of ambassadors, which have included Sen. George McGovern and actress Drew Barrymore, to reach out to the public and global leaders.

Buffett is a renowned author and photojournalist, with seven books on conservation, wildlife and human suffering. His most recent, Fragile: The Human Condition, was released in September. The 320-page, hard-cover publication contains 440 photographs and life stories of people who face hunger and conflict in 65 countries. It was published with the support of the National Geographic Missions Program.

Buffett writes, "The book is a way to share my experiences in the hope that knowledge and awareness will lead to change. Change is the only hope some people cling to each day of their lives."

He says the American farmer is the key link in food reaching undernourished people around the globe.

"Because of our successful high-yield agricultural system, millions of acres of forests have been saved and millions of people have not starved."

For more information on "Fragile," go to www.shop.nationalgeographic.com.

To register for the National No-Tillage Conference, go to www.NoTillConference.com or call (866) 839-8455.