



## FARMER IMPACTS

### WATER CONSERVATION



*"The mulch cover used under no-till protects the top soil from direct sunlight, and this helps keep the soil moist."*

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## KWAME ANANE

**Crops:** maize, cocoa, cassava, plantain, tomato, cabbage, and pepper

### WATER CONSERVATION

Kwame Anane lives and farms in a hot, frequently drought-impacted climate. For more than a decade, he has utilized conservation agriculture (CA) principles including no-tillage and cover crops to produce yields year-round.

Kwame's fields rely on rain-fed irrigation; this is a system that uses buckets for water collection and manually-dug rivulets that help control water flow. These methods help reduce water and crop loss in an effort to sustain water conservation. "There is no irrigation facility here; we just rely on rain water. The mulch cover protects the topsoil from direct sunlight and helps keep the soil moist. When you take off the mulch, you always see that the surface of the soil is moist."

Conservation agriculture retains moisture at a rate of 45-60% greater than traditional slash and burn practices.\*

Having moist, productive soils provides Kwame with a competitive advantage and a reliable livelihood.

"I can produce crops even in times of drought or harsh conditions when produce is scarce, and there is more need in the market. Due to the mulch, I am able to plant and conserve soil water even before the rains come. I am able to plant early when other farmers in the community are waiting for the rains in order to plant."

Kwame has reinvested his profits from selling goods in the market to diversify his crop choices, increase his land base, and purchase a taxi business as a second stream of income for his family.

\*Based on HGBF | CNTA Data, 2016

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## FARMER IMPACTS

### INCREASED YIELDS



*"Using no-tillage, crops grow very well."*

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## SAMUEL AMPONSAH

**Crops:** cocoa, maize, pepper, cassava, and plantain

### INCREASED YIELDS

Samuel is a minister, community leader, and conservation agriculture (CA) farmer. Like many farmers in his region, he began farming on a small parcel of land, practicing traditional slash and burn cultivation techniques. After seeing the success of the HGBF | CNTA farmers in his community, Samuel began incorporating these practices into his own farming.

"When I used to burn and clear my fields, the soil was swept away by rain and wind. Crops generally do not grow well on bare soil. Using no-tillage, crops grow very well."

Through the adoption of CA practices, Samuel increased his yields to surplus levels beyond the needs of his family and was able to sell more crops in the market. This allowed him to reinvest his profits to buy more farmland.

"Since adopting these practices, the yield from my two acres of land has increased by 60%."

HGBF | CNTA farmers who transition from traditional farming practices to CA typically see a 35% increase in yields over the first two years.\*

Today, his successful no-till farming operation has grown to a level that not only supports his family but also provides additional income to send his children to school.

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## FARMER IMPACTS

### WEED & PEST MANAGEMENT



*"Before my training at the HGBF | CNTA, I spent most of my time on weeding the field, but now it has all reduced and I do less work on the field."*

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## APPIAH JAMES

**Crops:** maize, pepper, plantain, cocoyam, and garden eggs

### WEED & PEST MANAGEMENT

Fields growing under conservation agriculture (CA) practices are more pest and weed resistant due to a combination of practices, including no-tillage and planting cover crops.

Appiah James is a 23-year-old farmer in the tropical region of Amanchia, Ghana. In the tropical climate, weed and pest control are a constant challenge for farmers using traditional practices. James has built a highly productive farm with diversified crops that he sells in the local market. James says, "Currently, I have maize, pepper, plantain, cocoyam, and garden eggs."

James relies on CA practices to reduce the labor required to weed his fields and greatly prevent pest damage. "Before my training at the HGBF | CNTA, I spent most of my time on weeding the field, but now it has all reduced and I do less work on the field."

CA farmers reduce their field labor by an average of 45% over time through improved weed control.\*

The mulch he leaves on the land, which is a central no-till practice, deters the growth of weeds and reduces his labor investment in a significant way. The same mulch acts as a barrier to pests, deterring them from accessing the soil and plant roots.

In addition to running this successful no-till operation, James teaches other farmers in his community about the benefits of CA adoption. "I began teaching others about no-till one day when I saw a car parked in front of my farm, and the driver asked me if I could follow him to his farm to show his guys how I farm. Today, I teach other farmers on my own farm and volunteer my time at the HGBF | CNTA."

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## FARMER IMPACTS

### SUSTAINING ARABLE LAND



*“Some farmers don’t believe you can stay on a particular piece of land for a long time. I will invite them to come and see; I will walk them across my land to see it with their own eyes.”*

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## ALEX MENSAH

**Crops:** maize, plantain, cassava, cocoyam, cabbage, and okra

### SUSTAINING ARABLE LAND

The soil from conservation agriculture (CA) farmers is constantly being restored through healthy decomposition of surface mulch that results in developing essential micro-organisms.

Alex Mensah owns a highly productive conservation agricultural farm in the Ashanti region of Ghana. Alex chose to use no-till practices to build and sustain his nutrient-rich soils in the harsh weather conditions of his region. “The climate has changed, and there is less rainfall with more heat from the sun. Exposing the soil to direct sunlight causes reduction in the water retention capacity of the soil. By not tilling and leaving mulch on the topsoil, every drop of water is conserved.”

To increase the productivity on his land, Alex employs multiple CA strategies, including the use of complementary cover crops. “No-till is good for poor soil because cover crops such as mucuna can be planted under the system to help serve as soil cover to keep the soil moist and conserve water as well as fixing nitrogen in the soil.”

Through CA, a living soil system is created that remains healthy and resilient over time. Alex has been productively farming his land for more than a decade. CA farmers effectively farm on the same land year-over-year, whereas slash and burn farmers land becomes unproductive after an average of two years.\*

“Some farmers don’t believe you can stay on a particular piece of land for a long time. I will invite them to come and see; I will walk them across my land to see it with their own eyes.”

Through carefully nurturing his land over time, Alex has continued to expand his crop diversity. Alex shares, “I have maize, plantain, cassava, cocoyam, cabbage, okra, and many more growing on my field. I cultivate different crops to have the insurance of always having a crop to depend on. If one crop is not successful, I can depend on the other crop for my livelihood.” Through the income from his diverse and marketable crops, Alex is sending his five children to private schools and has opened a profitable agrochemical store that serves the farmers in his region.

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## FARMER IMPACTS

### REDUCED LABOR



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## ADWOA & LINDA FAATI

**Crops:** plantain, maize, and cassava

### REDUCED LABOR

Adwoa is a busy mother and a conservation agriculture (CA) farmer. Adwoa's daughter Linda is a junior high school student.

CA has provided a path for Adwoa to generate a healthy income for her family while also managing the daily responsibilities of caring for her children and household. Since adopting this system two years ago, Adwoa has tripled her maize yield that creates the opportunity for her to sell the surplus in the market increasing her disposable income. It is common in traditional farming families for children to leave school at an early age to support the families livelihood in the field. With CA this need is greatly reduced.

Linda shares "Before, my mother found it hard to pay my school fees; now she never struggles to pay my fees on time."

In the system of no-till farming, many of the highly labor-intensive and time-consuming tasks such as weeding are significantly reduced. Weeding can take days to complete in a traditional

system, but for no-till farmers, it takes hours; the use of mulch cover on fields prevents the growth of weeds. Adwoa explains, "I only come to farm with my daughter on weekends since she goes to school during the week days."

HGBF | CNTA farmers reduce their field labor by an average of 45% over time through improved weed control.\*

\*Based on HGBF | CNTA Data, 2016

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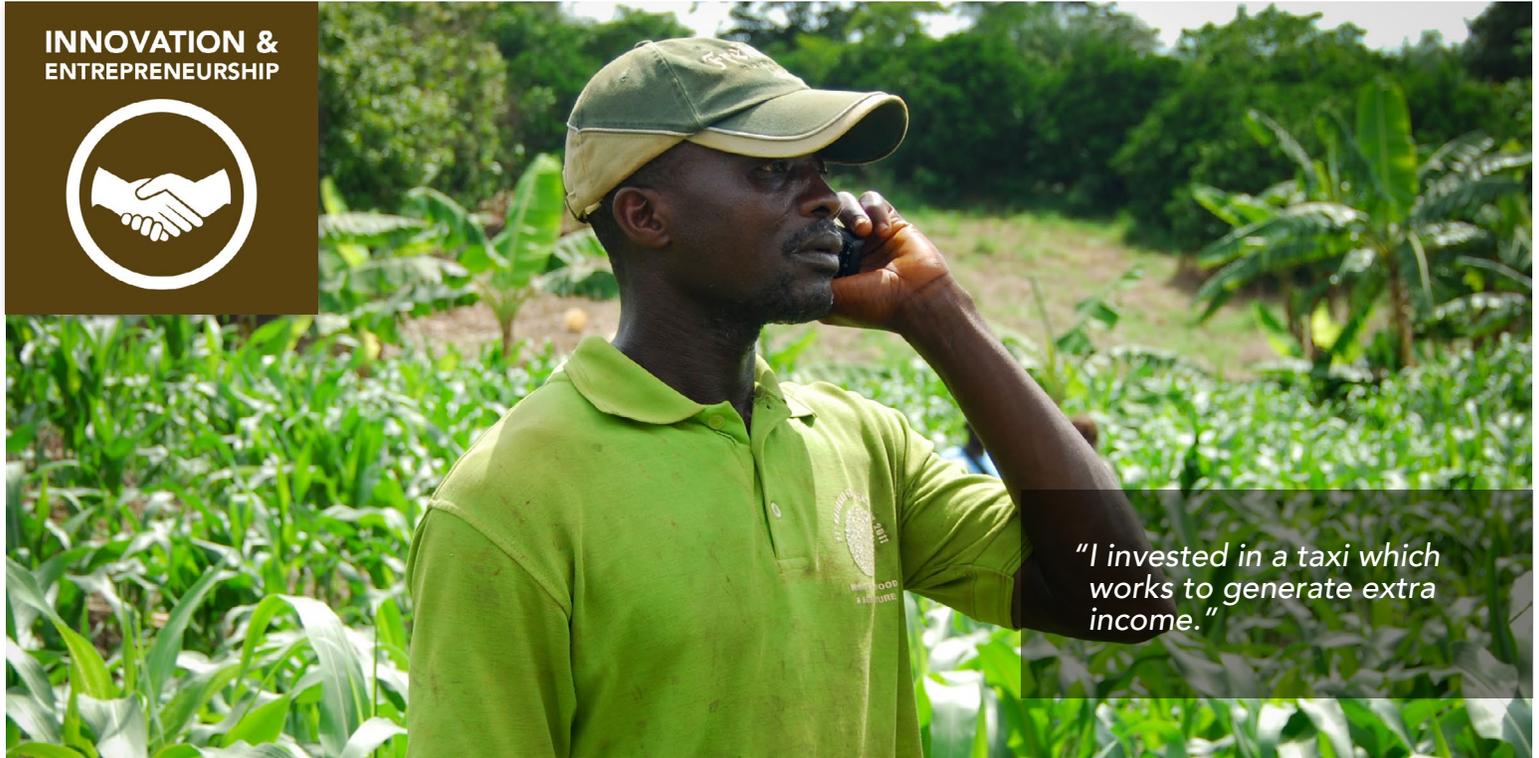
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## FARMER IMPACTS

### INNOVATION & ENTREPRENEURSHIP



*"I invested in a taxi which works to generate extra income."*

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## KWAME ANANE

**Crops:** maize, cocoa, cassava, plantain, tomato, cabbage, and pepper

### INNOVATION & ENTREPRENEURSHIP

Kwame Anane is a conservation agriculture (CA) farmer in Amanchia, Ghana. Kwame began no-till farming on a small parcel of land and quickly expanded his acreage through the reinvestment of profits from his increased harvest. "I got a lot of profit from produce on my no-till field, and I was really happy and proud of the improvement I had made in my farming."

Through CA, Kwame has ambitiously diversified his crops over time providing increased income. "At the end of the cropping season, I realized that the no-till field was more productive and generated more returns than the bigger conventional (slash and burn) field." Kwame grows a variety of crops including maize, cocoa, cassava, plantain, tomato, cabbage, and peppers.

Kwame shares that "Because of the no-till practice, I can produce crops even in times of drought or harsh conditions when produce is scarce. Since produce is scarce, there is more need in the market."

He says, "I am able to dictate the price of the food crops since they are scarce, and I am one of the few farmers who will have crops harvested at such times. This helps in generating more income."

Kwame says, "As a result of the current climate conditions and changes with less rain the best way for a farmer to be productive and earn enough income from his farming activities to sustain himself and his family and to settle his bills is by adopting no-till."

CA farming has created the opportunity for him to invest in a new business. "I invested in a taxi which works to generate extra income." Today, Kwame uses his taxi to profitably drive customers to their destinations throughout the region and to transport his four children to the international private school where he is paying for them to attend.

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# FELICIA YEBOAH

**Crops:** maize, beans, pepper, plantain, cocoyam, and cassava

### ACCESS TO EDUCATION

Felicia Yeboah is a busy mother of eight, the financial head of her household, and a conservation agriculture (CA) farmer.

Felicia has built a highly productive no-till farm and reinvested the profits from her surplus yields to expand the family's acreage.

This farming system has provided a path for Felicia to generate a healthy income for her family while also managing the daily responsibilities of caring for her children and household. "I was not getting enough produce from the slash and burn practice; therefore, there was less for home consumption." Felicia explains that "No-till farming has helped us get enough food to eat and extra foodstuff to sell. This has actually bettered our livelihood."

CA farmers typically increase their disposable income by 25% in the first two years.\*

Felicia's proudest achievement is providing for the education of her children. "I have eight children, four boys and four girls. Two of my

children recently completed senior high school, and I am paying for their education through my farm."

Another positive outcome of CA is a reduction in family labor; that provides the time for children to attend school rather than work on the family farm.

With CA farming, the labor-intensive and time-consuming tasks of traditional farming approaches are significantly reduced; the use of mulch cover reduces weed growth on fields.

Felicia is a focused business woman who is continually diversifying her crops and expanding the opportunities for her family. "I plant different crops such as maize, beans, pepper, plantain, cocoyam, cassava, and a whole lot of other crops so that I can get lots of returns to care for my household. It helps me get different varieties of foodstuff from the farm at all times."

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## FARMER IMPACTS

### FOOD & NUTRITION SECURITY



*"I'm a medical officer and I'm a no-till farmer."*

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## DR. KWAA

**Crops:** plantain, cocoa, yam, cassava, maize, beans, cabbage, and carrots

### FOOD & NUTRITION SECURITY

The HGBF | CNTA educates farmers across Ghana and around the world on the principles of conservation agriculture (CA). A central outcome for farmers who adopt this practice is food security as the result of year-round growing potential and increased yields.

Dr. Kwaa operates a thriving family practice clinic located outside of Kumasi, Ghana. He offers the following description of himself; "I'm a medical officer, and I'm a no-till farmer." He is a strong proponent of CA as a means for families to achieve a nutritionally balanced diet.

"Because of no-till, people have more food now, and they have variety too," explained Dr. Kwaa. "And, they are able to make more money to buy whatever they haven't grown themselves."

Higher disposable incomes create the opportunity for families to access foods such as animal protein, fruits, and vegetables that are rich in micronutrients.

Through his practice, Dr. Kwaa cares for a wide range of patients – from expecting mothers and their infants to the elderly. Dr. Kwaa encourages his patients to eat a healthy diet. "You need a balanced plate of food, cereals, and proteins so the body gets all that's required for growth and proper performance."

Various crops can be successfully grown and sustained in difficult climate conditions using CA principles. Families have access to balanced diets, and farmers can manage their risk and have salable produce year-round. Dr. Kwaa describes this impact, "No-till is important to the community because it reduces the requirement in labor, and also reduces the requirement in water that is necessary for the growth of the plant—and increases yields; that also supports family nutrition."

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