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# Package 96, Item 4

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# Farmer uses a water pump to triple his maize yields \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### **Notes to broadcaster**

In Mali, about 70% of the people live in rural areas and depend on growing crops, raising animals, and fishing. But farmers are facing challenges, including infertile soils. To tackle this problem, Siriman Camara, a farmer from the village of Tiendo in central Mali, chose to make compost. Thanks to a water pump he bought, he almost tripled his yield.

When he first came to the village, Mr. Camara rented a cart and two oxen to plough his five-hectare piece of land. Back then, he did not know how to make good quality compost. Over the years, he requested information from extension workers, who advised him to dig a compost pit and water it well. It is this technique that has, according to the farmer, tripled his yield.

But he had a labour problem. His three wives, his twelve children and he would spend hours watering the pit. This challenge led Siriman to limit himself to a single pit. Three years after he arrived in the village, after saving money from selling part of his crop, Siriman bought a motorized water pump for 150,000 CFA francs (about $300 US) in Bamako.

Unlike other farmers who use that machine to water their vegetable gardens, Siriman saw in this machine another possibility: using it only to water his compost pit. This is how from one single pit, this old farmer has dug three, and has almost tripled his yield.

This script is based on actual interviews. You could use this script as inspiration to research and write a script on farmers who use agricultural equipment. You might choose to produce this script as part of your regular farmer program, using voice actors to represent the speakers. If so, please make sure to tell your audience at the beginning of the program that the voices are those of actors, not the original people involved in the interviews.

The farmer in this script grows maize on a continual basis, without rotating to other crops. It’s important to know that any crop grown continuously can lead to a build-up of pests and weeds, and can deplete the soil of some nutrients. For these reasons, it’s always best to rotate crops.

Are there small-scale farmers in your area who use agricultural equipment that has increased their yields and improved their lives? You could interview these farmers on-air and ask listeners to call or text-in to discuss the usefulness of various kinds of farming equipment – including tractors, water pumps of various sorts, solar dryers, etc. Make sure the discussion includes the costs, the benefits and the challenges of each piece of equipment, and the specific conditions under which each might be appropriate for different types of farmers, different crops and different conditions.

*Signature tune up and fade under presenter’s voice*

**Presenter:** Welcome, listeners.Today, we will hear an interview with a farmer who tripled his yields of maize! How, you ask? By buying and using a water pump to keep his compost moist and fertile. Stay tuned as our reporter Mariam Koné interviews farmer Siriman Camara.

*Signature tune up then out.*

**Mariam Koné:** Good evening, dear listeners. We are today in Tiendo, a village located 100 kilometres west of Bamako, Mali, in the rural municipality of Markakungo. Here, people live mostly by growing crops and raising livestock. Today, we will talk to a farmer who tripled his maize yield by using a mechanical water pump!

*Pause and sound effects of travelling by car. Fade under voice.*

**Mariam Koné:** It is late afternoon and our car rolls through fields of millet and sorghum. About a hundred metres in front of us, a path leads to the family yard of Siriman Camara. He is surrounded by his whole family. An old frail man with a long white beard walks towards us and indicates a special parking area in the shadow of the big mango tree right in front of the yard. This is Siriman Camara. He is married and the father of 16 children. Siriman welcomes us.

Our conversation mixes with the sound of hens and guinea fowls, and the bleats of little goats and sheep. The sound of pestles striking mortars comes from neighbouring yards. The edges of the yard are invaded by mango and shea trees. A few metres away, three compost pits catch our attention.

Without further ado, we explained the goal of our visit to our host and proposed that we interview him while walking. Siriman led us towards the compost pits, two of which were damp. He explained that he had just watered them. The third pit was waiting to be watered. A motorized water pump, a little blue machine in the shape of a power generator, is set up next to a traditionally dug well. A hose links the machine to the bottom of the well. Let's follow Siriman while he waters the third pit.

**Mariam Koné:** Greetings, Siriman. Why do you have so many pits? And can you tell me what the dimensions of these pits are?

**Siriman:** Greetings. I have three compost pits because I am able to water this many pits with no problem. With the pump, I can water them in a very short time. My pits are three metres by two metres. And they are two and a half metres deep. I filled them with maize stalks, millet stalks, household wastes, dead leaves, cattle and poultry manure.

**Mariam Koné:** How often do you water your compost pits?

**Siriman:** I water my pits every five days. I usually water them in the evening.

**Mariam Koné:** How long does watering take you?

**Siriman:** Very little time! I spend an hour and thirty minutes, thirty minutes for each pit. In the past, the whole family and I used to spend an entire morning watering a single compost pit. Back then, we were ten persons watering the pit. The big difficulty was getting enough people to help. Because at watering time, no-one in the family could do anything else.

I'm telling you, it was hard. We had to draw the water by hand from this well that is three metres deep. Then we had to carry the water 50 metres from the well. That chore used to take us a lot of time.

And to top it off, despite everybody's good will, the compost was not the best quality. Because, in my opinion, in order to have good compost, you need not only to water it, but to water it frequently. But this was not possible for us because we had other chores to do. We used to water the pit twice a week, because it was very hard work. After each watering session, we had to rest because we were tired.

**Mariam Koné:** Siriman, I see that you focus a lot on compost as a fertilizer. Why did you make this choice?

**Siriman:** This answer is very simple. Seven years ago, when I came to this village, the soils were poor. I planted five hectares of maize the first year. I was very disappointed with the result. Imagine – from five hectares, I harvested only seven tonnes and a few kilograms!

I had a lot of difficulty getting by that year because I couldn't sell any of my harvest to meet family expenses.

But I didn't give up. I approached the extension worker Sidibé and explained to him the problem. He noticed that I was producing organic manure of very poor quality. He advised me to dig a compost pit. Which I did.

**Mariam Koné:** How did the idea of a water pump come up?

**Siriman:** The part of my field where I had used compost yielded very well. I had put compost on three hectares and that area yielded nine tonnes – three tonnes per hectare. The two hectares without compost yielded only three tonnes between them.

As I didn't have enough money to make more pits, I managed with a single pit. At every harvest, I was able to sell part of my production. Three years after, I told myself that, since watering is the critical element of making compost, I must look for a machine to speed the compost making in order to earn more. Hence the purchase of this machine in 2009.

**Mariam Koné:** So in the beginning you had one single compost pit. Why did you dig three?

**Siriman:** Because I don't need to water the pits by hand any longer. Better, I have time to do other things.

**Mariam Koné:** Can we talk about the pump in question?

**Siriman:** (*Joking*) Yes, let me introduce to you my fourth wife.

**Mariam Koné:** I don't understand …

**Siriman:** You know that wives are a source of labour in the Bambara culture.

**Mariam Koné:** That’s true. (*The interview is interrupted by a chorus of laughter from Siriman and Mariam*)

**Siriman:** So the water pump is my last wife. I even gave her the name of Niélény. (*Editor’s note: A legendary producer in the Bambara culture.*) Since I didn't go to the white people’s school, I cannot name it in French. Besides, in this area, everybody calls it “the water machine” or Niélény.

**Mariam Koné:** (*To audience*) Sirimanshowed us a machine soiled with dust and grease. A sign in large letters on the right side of the pump said "Koshin." On the lower left, one could read black writing on a yellow square: "Honda Motor Co. Ltd, Made in Japan.” The pump is made of an engine, a gas tank, a water tank and a four-metre long hose between the pump and the well.

**Siriman:** Here is Niélény, four years old and the mother of 200 tonnes of corn. Since I have had this machine, I have increased my planting area to ten hectares because I can fertilize all that area with my compost. My ten hectares have yielded me 50 tonnes of maize every year for four years. It is a four-horsepower machine. I cannot estimate the amount of water that it draws, but it waters my three pits well.

**Mariam Koné:** How did you buy this machine?

**Siriman:** I bought it at the Didiba market (*Editor’s note: This is a "black market" in Bamako where people buy and sell almost everything*). I paid 150,000 CFA francs (about $300 US).

**Mariam Koné:** Have you been trained to use this motorized water pump?

**Siriman:** Yes, of course. The trader explained to me how to turn it on. Sidibé the extension worker taught me many things about its proper operation. For example, how to drain it and replace the engine oil, at what moment one must add some water, and other things. In any case, since I bought it, I have had no problem making it work. I will now water the third pit. You will see.

**Note:** *Use appropriate sound effects for the rest of the script to indicate the sound of the crank handle and the operations of the pump.*

**Mariam Koné:** (*To audience*) He pulls a crank handle to start the engine of the little machine. The noise of the engine gives a rhythm to our conversation. The hose is in the bottom of the well and swells up slowly. The air pressure from the pump propels the water out of the well into the hose. Then the water comes up inside the other hose that links the machine to the compost pit. After three minutes, like a serpent, this hose unfolds, starts swelling, straightens up, and the water spouts with force into the packed compost pit. With all that water in the pit, I could only see the maize stalks and a few cowpats floating at the surface of the pit. The hose is sprinkled with little holes through which the water spurts.

**Mariam Koné:** The hose has too many holes …

**Siriman:** This is on purpose. With these holes, all the compost is watered at the same time.

**Mariam Koné:** Siriman, is there a difference between compost that is mechanically watered like this and compost that is watered by hand?

**Siriman:** The difference is huge! In the past, we used to water one single pit. However, there wasn’t enough water to see it near the surface of the pit. We simply stopped as soon as we judged that the compost was well-watered. Now, there is enough water so that it often spills over a bit onto the surrounding area.

A mechanically watered pit gives a better yield than that watered by hand. The proof? Instead of three tonnes per hectare as before, thanks to my very moist compost, I harvest five tonnes per hectare.

It's clear that mechanically-made compost keeps more humidity in the field. What’s even better is that I used to buy a little chemical fertilizer to supplement the compost I made. But with this machine, I don’t need to buy fertilizer and I save that money for other things. Also, with the machine, it takes less time to make finished compost.

**Mariam Koné:** About how long?

**Siriman:** Three months maximum. Without the water pump, one must wait up to four months. With the machine, each pit produces compost three times before we use the compost in the fields.

**Mariam Koné:** This means that you must empty each pit in order to make new compost. Where do you keep the finished compost?

**Siriman:** In the field, under the trees.

**Mariam Koné:** Are you sure that it is well kept over there?

**Siriman:** I cover the compost with palm leaves and tarps, and it is in the shade.

**Mariam Koné:** How much did you use to spend to buy fertilizers?

**Siriman:** About 50,000 CFA francs per year (about $100 US), which amounts to the price of four 50-kilogram sacks. Now I'm using that money to buy inputs for my cotton field.

**Mariam Koné:** Let's get back to your maize field. You said that for the past four years, you have been harvesting 50 tonnes each year. Do you consume all this yourself?

**Siriman:** No. I consume five tonnes and I sell the rest. I earn 2,000,000 CFA francs. So that is 8,000,000 CFA francs in the four years since Niélény's arrival ($4000 and $16000 US, respectively). Remember, I have 27 persons to feed.

**Mariam Koné:** Wow! Siriman, can you tell me how you use that money? Do you deposit it in the bank or do you do other farming activities with it?

**Siriman:** With that money, I bought 32 cows – eight cows each year. Even better, I bought two carts and two donkeys for transporting maize to the market. The living conditions of my family even improved. I have a television and two motorbikes and other little things.

**Mariam Koné:** What is the cost of operating your machine?

**Siriman:** I spend very little. For every watering session, I spend 3,000 CFA francs to buy four litres of gas for the pump (about $6 US).

**Mariam Koné:** Siriman, do you face challenges in operating the pump?

**Siriman:** No, not that much. If I feel that the noise of the engine is not ok, I change the engine oil.Another challenge is that, after four years, I notice that the machine gets weaker from time to time. In the past, I could water the three pits without stopping the machine. But for the past few months, we have had to turn it off after watering each pit. Otherwise, the water doesn't come out with the same force. While you were coming, I had put it on standby to prepare for watering the third pit.

**Mariam Koné:** What solution do you recommend for this problem? Is there a mechanic in the area who could detect the real problem?

**Siriman:** For that, I need to take it to Bamako. But I'm going to buy another pump. Since my wives have compost pits in their garden, they can get by with the old one.

**Mariam Koné:** So every four years, you're going to buy a new machine?

**Siriman:** Yes. Since I've made 8,000,000 CFA francs in the last four years, 150,000 is not a lot.

**Mariam Koné:** Any other challenges?

**Siriman:** The other challenge is of the natural kind. Last year, the unpredictability of the rain got us a bit weary. The only well that we have to water the compost quickly dried up. I had to buy 30 metres of hose in order to draw water from the family well. And my wives had to fetch water elsewhere.

**Mariam Kone:** How did you manage?

**Siriman:** With God's grace, I still managed to succeed. Because my compost was top quality. I also have an equipment issue. My children and I carry the compost to the field in two carts. Each pit requires 120 trips with the big carts. That task takes us two to four days.

If I had a tractor, it would make this chore much easier. The tractor, with a big shovel on the front that picks materials up and carries them, costs about 6,000,000 (about $12,000 US). I did everything to get a loan, but in vain. It is those little challenges that make my sauce a bit too salty (*laughter*). Otherwise, everything's going well.

**Mariam Koné:** Do you have any last words to farmers?

**Siriman:** I'll very simply tell other farmers that compost is the only way for a small-scale farmer to get by. Instead of cultivating tens of hectares with a poor yield, it’s better to produce good compost and focus on a maximum of 10 hectares. The result will be beyond all your expectations.

*Fade up farm sounds for a few seconds, then fade under presenter*

**Presenter:** We’ll take a short break from our interview to underline some important messages about using compost. In addition to the valuable information in this interview, there are three other things that farmers need to know. First, in order to make good compost, you need to turn and stir the compost through the whole pit. Make sure that the materials in the inner part of the pit come to the outside, and the materials in the outer part of the pit come to the inside. This will improve the compost and shorten the time needed to make good compost. Second, compost should be moist but never waterlogged. And third, always dig compost into your soil. If you simply leave it on the surface of the soil, the nutrients in the compost will be lost. (*Pause*) And now back to the interview.

*Fade up farm sounds for a few seconds, then fade under host*

**Mariam Koné:** Next, we'll make a stop at Amadou Sidibé's, the extension worker of the village, whose advice served our farmer very well.

*Fade out farm sounds*

**Mariam Koné:** Greetings, Mr. Sidibé. During his interview, Siriman Camara talked about you. Can you tell us about the usefulness of the water pump for compost production?

**Sidibé:** Greetings, Mariam. First, this machine is adapted for Africa. Speaking of Siriman, I recommended the dimensions of a compost pit to him, as well as the materials that go into it. He followed my advice and you have seen the result.

**Mariam Koné:** Is it you who advised him to change the oil when he hears that the engine noise changes?

**Sidibé**: No! I advised him to change the oil every month. But farmers don’t listen to everything the extension worker advises them to do. They also have their experiences and their calculations with regard to our advice. They are capable of thinking things over and drawing their own conclusions.

**Mariam Koné:** Any advice to farmers?

**Sidibé:** I advise them to set up plots for which they have the capacity. It is better to take care of one hectare and produce a good quality harvest than cultivate 10 hectares that are not well taken care of. If our farmers can understand this rule, they’ll get by.

**Mariam Koné:** Thank you, Mr. Sidibé.

**Presenter:** And thank you for joining us today. You’ve heard the story of how farmer Siriman Camara nearly tripled his maize yield by using a water pump to keep his compost moist.

I want to remind you of one important message from the interview. It’s absolutely vital with an expensive piece of equipment such as this water pump to maintain it carefully. That way, it will last you much longer!

Thank you for your kind attention. I hope that you spent some excellent moments following this exchange. Until the next time, bye!

**Acknowledgement**

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**Sources of information**

Interviews with:

Siriman Camara

Amadou Sidibé, extension worker, agriculture service in the Markakungo zone

Interviews conducted on January 18, 2013.

The websites of the Ministry of Agriculture in Mali: [www.maliagriculture.org](http://www.maliagriculture.org), and the Ministry of Employment and Professional Training: [www.mefp.gov.ml/](http://www.mefp.gov.ml/)

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