

## A FEW MINUTES WITH...

# Dick Roosenberg

by Rob Collins

Essentially, Tillers International seeks to experiment with the best tools and techniques used on animal-powered farms in the United States, both historically and currently, then adapt them for use in the developing world. How that approach developed from an idea, to a process, to an organization is best told by the man who did it: Tillers' founder, and now-retired executive director, Dick Roosenberg.

Mr. Roosenberg eschews the spotlight. So it was surprising and exciting when he agreed to sit down for a series of interviews related to animal power, particularly oxen. In this first interview, from the fall of 2016, he tells the story of how Tillers evolved, both in concept and operation.

**Rob Collins:** I thought I might ask you about a couple of things I've heard you talk about before. If it's all right, I'd like to ask you about going to Greenfield Village (Greenfield Village is an indoor and outdoor museum campus in suburban Detroit, MI) and getting the idea that ultimately resulted in Tillers.

**Dick Roosenberg:** I don't know how much of a story is there. I mean, the idea sort of emerged in a couple steps. First, in West Africa, in Benin, where I was, there were a number of people being taken up to Russia (the U.S.S.R at the time) to study veterinary medicine and things and they were coming back with not-terribly-satisfying experiences, but still they were delighted that they got out of Benin and were able to be educated.

**RC:** Were these locals?

**DR:** Yes, they were locals. That was 1971 or so. I didn't know it then but in '74 the government (of Benin) turned Marxist in a coup and this was preparation. I'm not terribly worried about that. I mean the Marxist part doesn't bother me as much as the Communist

dictatorial part, and they didn't do too badly in that regard.

Anyway, in 1971 I realized that we could, perhaps, do a much better job of practical education with hands-on animal-powered farming that would be much more appropriate, and at that point I started to imagine it occurring out of Benin and West Africa, where we were, and that we would just do it as a training institute or something right there.



Dick Roosenberg pauses while driving a team at Tillers International to explain a fine point to Oxen Basics students.





Oxen Basics Class often begins at Tillers' big table, where Mr. Roosenberg stresses the intelligence of oxen.

**RC:** If I could just ask the quick, side question: Was there an “impractical education” happening there?

**DR:** I think the Lumumba Institute in Moscow was fairly impractical. I mean, veterinary medicine can be adapted and you can make it work, but most agricultural engineering wasn't like that. That was directed to tractors and things that most of the farmers had no access to. The reality was: even when I went back in 1986, 14 years later, but still in the Marxist era, the blacksmith came to me - at that point there were 500 pair of oxen in the county, as compared to 0 when I arrived in 1969- and this blacksmith was maintaining all the equipment and he said, “Times are hard here. The economy is difficult. There's no foreign trade here; we're really isolated. But I can make new plow points, this, that, and the other thing. I can maintain all this equipment. Except for plow bolts. Those are kind of hard to make.”

So, that level of practicality, of blacksmithing, of extension agents who would be teaching plow regulators and weeding techniques would have been much more appropriate to that community.

**RC:** Was anybody doing that type of work at that time?

**DR:** Well, the FAO (the Food and Agriculture Organization of the United Nations) was doing it. We were there as American Peace Corps volunteers backstopping or staffing some of the field operations for the UNFAO. But even that was a pretty small effort. It was being done by a Belgian employee of the FAO who saw it as a way to get the sedentary crop farmers to maintain cattle and improve the cattle grazing for better meat production.

In Africa, farming is split between livestock and grain crops. So you have one group, an ethnic group, the Fulani, who move around nomadically with



cattle, historically. They're more cramped every year with growing populations.

**RC:** And this was in Benin?

**DR:** Yes, but the Fulani don't know what a border means. I mean, they will move through the grasslands into Niger, Nigeria, Upper Volta, Burkina Faso, Mali, where the borders are not even marked. They'll walk hundreds of miles with their herds of cattle. A twelve year-old kid will be out there for a month or two without support, with his herd of cattle, particularly in the dry season. Then, they would always come back to the same place. Grandma stayed at the farmstead and they would come back there during the rainy season where they would grow a crop of sorghum and keep their cattle around for manure and food.

The FAO plan was to get people - sedentary farmers - to bring cattle onto their farms and take better care of them by keeping them in the community so they could get veterinary services throughout the year.

And cattle sleeping sickness caused by the Tsetse fly was the main thing that we were able to attack: We provided consistent medications and created enough endurance in the animals - their blood could carry enough oxygen with reduction of the parasites - so that they could work. They wouldn't be falling down from exhaustion in a half hour. They could get out there and work from six in the morning until noon.

And that animal health changed the potential of the farmers, and the farmers saw that pretty quickly.



Though retired from full-time work at Tillers International, Mr. Roosenberg often helps with classes such as Oxen Basics, where a team of calves, such as these Jerseys, is trained to work in a yoke.

I mean in 14 years to have the use of oxen from being exceptional in the beginning- with the first farmers using oxen being made fun of- to the point where 500 farmers were using it as the norm and where young men didn't expect to be out with hand hoes. They wanted oxen. It was quite a revolution.

**RC:** You said 500 pairs in a county. How large was the county?

**DR:** The county had about 20,000 population. There were probably more than four people per family; families probably had eight to ten as the norm. That population was probably 95 percent agricultural. It was way out in the country in a beautiful river valley. Great soil, but I don't think the population had been there for very long. Historically, the valley suffered from river blindness and Tsetse fly. People were pushing into it and creating farmsteads there with modern medicine to backstop them, to a certain extent.

**RC:** So what was the first step?

**DR:** The first step was hearing a BBC report on the Lumumba Institute in Moscow and thinking that we as the western / democratic world could support a much more appropriate system that would provide

technical and practical training and that would do well in West Africa.

Second, the realization that struck me at Greenfield Village was the recognition that a tremendous amount of historical information both exists and is available to feed into practical training in international development; many of the things that our great grandparents knew and did- such as voice commands for oxen, the FAO had no idea of how to do that any more. They had no idea of how we'd implement that. Those skills existed historically and then at Greenfield Village these old guys around for the "harvest party" were still practicing them.

But they were there in 1974 when I took a Sunday off from school. I was at Wayne (State University). I took the afternoon off. I didn't go around and engage these farmers and draw out a lot of information at the moment. I was just surprised at the thought that we could develop an organization to institutionalize this transfer. We could mix these old guys who preserved these skills with international people who would visit with Americans who were interested in making a career in, or a contribution to, international development.

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Dick Roosenberg (far right) and Tillers former farm manager Dulcy Perkins (holding the leads) help students at a 2008 class yoke a new team of Brahma cattle.

**RC:** At that point were you thinking, “I should start a group that does this?” Or was the thought to convince some existing group to take on this task? And was it always your idea to use oxen?

**DR:** My first step was to try to convince a couple other people who had some interest in it. It was 1979 or 1980 before I put together a written plan and started to knock on doors and pull people together here in Kalamazoo.

Coming from the West African experience, we had to have a bridge. Here, most things that were remembered were draft horse technology, but in West Africa most things that are animal powered are oxen or donkey.

Where I was in West Africa, there were a few horses that were maintained by the noble class for warfare. I’ve got one of their old bits out in my car that would

make blood flow out of their horses’ mouths in no time. Just extremely aggressive. Warfare was from horseback. Firebrand arrows shot into thatched roofs allowed this noble class to dominate.

But, to maintain a horse meant, in Tsetse fly territory, that you brought that horse into a hut at night and you threw green grass on the embers of a fire and just smoked the place up like the dickens. I doubt they were able to maintain a horse in that environment for more than two years. So they had to have a flow of horses coming down from the Sahara, from further up in the Sahel where the Tsetse fly was not much of a problem. I mean, there were real challenges to maintaining horses and certainly our large drafts would have no chance. In large part, the mass of the big body just creates so much heat and has such a hard time getting rid of the heat. The same



with our big oxen (Tillers uses Milking Shorthorn oxen. At 2000 plus lbs., they are significantly larger than the African oxen being used).

So having had that African experience, I knew that in order to be really applicable to international work, we had to dig into oxen technology. Yet, for a lot of the farming, the tools didn't seem to be impossible (to adapt). You talk to a draft horse guy and he's going to say, "You can't mow with oxen. They're too slow." Well, have you ever tried it? You look into the early advertisements- around 1850 or 1860- and they will talk about "high gear" mowers being more appropriate for oxen. Ok, somebody was doing it. And our experience showed, when we tried it, we could get the oxen to walk along. You know, walking back the barn, that a team of oxen can walk 4 or 5 miles an hour, and that's plenty to keep a mower going.

We found we might have to make small accommodations. If the cleats were worn off on the wheels of your mower you were going to fail. But you were going to fail with horses, too. Not quite as quickly because they'd have more speed and momentum, but if you rebuilt those cleats, you'd be able to pull your way through with the added torque that the oxen have.


Our basic assumption: We went largely with oxen because we could always call people and get horses

to show up and do a horse driving class or they could demonstrate to international guests what horses could do. We couldn't easily call somebody and get them to come out with a team of oxen. And besides, we had a lot to learn about training oxen and using them.

**RC:** When did Tillers get its first team of oxen?


**DR:** 1981, Nip and Tuck. They were Brown Swiss. They didn't have horns. We started out with crude yokes like we used with FAO in West Africa, which didn't have a dropped hitch point. They had iron bows that opened and latched under the throat. Not having a lowered hitch, point the bows moved forward instead of back into the neck.

After I decided that I needed to initiate this (an institute for rural development, which would become Tillers) with effort on my own, in 1979 I started drawing together antique engine club people and draft horse club people. I joined those two groups: The draft horse group was in Allegan County and there was the Kalamazoo Valley Antique Engine Club. It was meeting in the back of Luke's Universal and Spring repair shop. They were hesitant to have a show because of liability. As a young attorney I



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Dick Roosenberg (center) explains the use of oxen for over-the-row cultivating with a Pioneer Homesteader to Tom Nehil, a member of Tillers Board of Directors.

said, “Let’s incorporate and the corporation will bear much of that legal liability and it won’t be on you as members of the organization directly.” They said yes and we incorporated the group and started working with the Kalamazoo Nature Center to have shows out there.

After we had a couple of shows out at the Nature Center, and I called the director and said, “You’ve got this farm out here. You’re leasing the land out to tractor farmers. You restored the buildings as a bicentennial project to 1858 era, but you’re not able to follow through with active historical farming.” I offered that we would like to create this operation that would do animal powered farming while we relearned animal power by practicing it. “And if we can do some international training at the same time

that we are doing historical interpretation, then we’ll make a deal with you to create historical farming.” It took a half hour and he said, “yes, let’s do it.” Then I had to say, “Whoa... okay.” (laughs)

**RC:** So when you began at the Nature Center site, did you have the oxen right there on-site; and from that point, how soon did you begin to have something like classes?

**DR:** When we first got there, the barn had been historically rebuilt, but it wasn’t really ready for animals. They had another petting-zoo type of operation over by the interpretive center, so the oxen first stayed there. The first night they were there they bounded over the fence... I found them a mile away out in the woods. I had to track them.

We picked up a couple volunteers who were pretty serious, almost full-time interns: Lorraine was a Western (Michigan University) student and Al was a guy who was interested in international development. They helped us go right to work on building fences and creating farm fields at the Delano Homestead (at the Kalamazoo Nature Center).

The oxen were hardly up to plowing that first year. They were young animals. We did a couple of small pieces. We got draft horses in to help us prepare some soil. I think it was in the fall of that year that we did our first draft horse class: Draft Horse Basics. I think it was two days at that point. (Note: Draft Horse Basics is now a full week class at Tillers)

During that first winter we did a logging class which was more of a public demo than anything. Nip and Tuck gave me a real hard time. It was one of those winters where we had about 18 inches of snow with a glaze on top. The audience and everybody could walk on top of the glaze. The oxen could sometimes walk on top of that glaze, but they couldn't reliably walk on top of it and they were pissed. I can't imagine what their shins were feeling. They would frequently come up to a tree, put the yoke up against it as if to say: "Now what are you going to do?"

**RC:** Were you able to, no disrespect, drive cattle at that point? Where had you learned to drive oxen?

**DR:** That was post-Peace Corps so I'd been driving oxen for three years in Peace Corps. We first did some ox training as Peace Corps volunteers in the Virgin Islands. In February. To get a three month vacation in the Virgin Islands as precursor to going to Peace Corps? It was great. (laughs)

The College of the Virgin Islands owned some land that was an old sugar plantation that had been made into a training institute back in the valley, inland in St. Croix. There was an old steer back there that we worked on training.

He wasn't a trained ox. We had nobody to teach us. He dragged us around a few times. One of my buddies wrapped the rope around his hand; He got dragged pretty badly but he was tough enough he never complained about abrasions all up and down his arm. We created this single yoke that allowed us to hook a log behind him and do a little bit of stuff. It really taught us that we didn't know what we were doing.

Peace Corps said, "We will train you in oxen when you get to Africa. The UNFAO has been working in

other provinces in Benin and they have this group of French guys at this little training institute and they will teach you how to drive oxen." We got there and had a two-week training session there. We quickly decided that these guys. . . their fathers may have worked oxen in Europe, but they didn't have very good experience themselves.

They were doing things like: capturing oxen, tying them to hitching posts, lashing a yoke onto their heads at the hitching post, hooking a plow behind, untying them and if they ran they would jam the plow in the ground and stop them. Just what you don't want to do: I mean you're training them that they can't pull- using the load to brake them.

We weren't at that fine level of critique, but we knew that they came up with very mean and wild animals, and within the group of a half dozen of us we had enough Pavlovian psychology that we knew there were ways we could train animals without being that mean. We went back at it with feed buckets at the end of rows and various things, but we also after a while learned that brushing was a better positive reward than feed was. Feed was too cumbersome and with their power, we couldn't control their responses.

**RC:** What happened the first time you tried teaching someone else? It sounds like you'd been doing a good deal of learning to prepare yourself. Did that transfer to success in the field?

**DR:** First, we took the training on as these 20 year-old white guys in Africa. We did receive a couple pair of supposedly trained oxen at my training site from this French group, animals that they had trained. The UN put them in trucks and brought them over to my district and we took them on and used them for demoing.

We were leading them this way (demonstrates standing in front of the team walking with a hand in front of each animal's nose.), with a nose rope off of each halter. You stiff-armed them to their nose behind you. They had horns on them and they ripped several of my shirts. They never . . .they drew a little abrasion blood, but they never tore into the flesh. It was marginal performance, but they worked. The local people were quickly willing to work that way in order to plow.

The demos were a little bit of a circus. Once I received the demo teams of oxen, I'd get on my motorbike and go out and visit an extension agent in



one of the villages about eight miles away and make arrangements that on one of the next market days I would bring the oxen and they would gather a bunch of farmers. And, you know, market day brought a lot of people in. Market day was about every fourth day in most of those villages.

So, I'd get up in the morning, hitch the pair of oxen, hike that eight miles with the ox cart and a plow in the back. A few market ladies would jump in and I'd give them a ride. These were steel-wheeled carts; so they're bouncing (smacks his hand on the table). Everyone was carrying on and the people were delighted. There were probably 50 people walking along behind the cart by the time we got to town.

**RC:** And were you still nose leading the oxen from the front?

**DR:** Yes, but for a longer distance on a road, the oxen acquiesced fairly quickly. Arriving, I tied the oxen up on the edge of the football pitch, the soccer field, and waited a couple of hours for a good audience. The extension agents would line-up farmers to try the plow.

The first ones in line would be the strong guys. They've been out there hand-hoeing eight hours a day. They've got shoulders on them. They grab onto the plow and want to man-handle it. It didn't seem to matter how much the agent and I tried to coach the first couple of them, it didn't work. And when we'd get to the fourth or fifth person in line, there would be a smaller guy who just didn't have the power to do that. Then we'd say, "Relax. Take your time. You can do better than these big guys." And we'd make a show of somebody creating a nice, long furrow. And he wouldn't be the strongest, best hand hoe guy in the community. But it wasn't a bad point: This isn't muscle work; This is control work.

Then, we'd work in follow-up with this community to see who wanted to experiment with using oxen. We usually tried to get a large family. Some families had 10 to 15 adults in them. Grandpa, several uncles and aunts and a bunch of kids, usually some at that mid-teens age, where they're the best plow people. Youth guiding in front of the animals who were 10 or 12, and a switch kid who was like 8! They had to have three people to run a team, but that was far better than working 30 days per hectare to hand-hoe a field. To go from 30 days to 3 days was nice.

In some of these villages, I could be there for several

hours and not see a manufactured item. Maybe a bicycle. But frequently not even a metal wash basin. I would frequently see gourds and calabashes (being used as basins).

**RC:** So the plow was a shop-made item? Were they made by a local blacksmith?

**DR:** At that point, the plows were being made in Senegal. The FAO was bringing them in and we were working with the local blacksmiths to forge replacement plow points and to learn maintenance and repair.

**RC:** If a family said they'd like to sign up to try working with oxen, did they already own cattle? How would they get a plow?

**DR:** The FAO would provide them \$50 credit to buy the plow and they could pay it back over five years. And they paid. It may not sound like much but if you're earning \$100 a year, \$10 is not casual. Several of them bought carts as well. They were supposed to pay cash up-front for the chain and the ox yoke, anything they had to buy: ropes, whatever.

And most of the sedentary farmers had some cattle. Most had a "banking" deal going with a nomadic herdsman for the herdsman to be in their territory and to graze the land between their fields. The nomadic herdsman had to be willing to herd some of the local farmer's cattle that they held as a bank account. So, the local sedentary farmers frequently owned young calves that they confided to the nomadic herdspeople and when they needed cash they could go out to the herdsman, ask for the young bull back and sell it to a merchant who was heading down to the capital. They didn't butcher very many steers in the villages; It's just hard to sell that much meat.

So, through this relationship, these farmers had access to cattle. Yet, they were afraid of the cattle and they personally didn't have the confidence to manage the cattle. The nomadic people did all of that. The nomadic people would bring the cattle in and the circus would begin (laughs.)

**RC:** Did you ever tap into the nomadic people as..

**DR:** As ox drovers? They didn't want to work their cattle. Some of the Maasai (A group of semi-nomadic herders in East Africa) do now and some of the Fulani do now, but at that point they were hesitant. They were quick to ask us for some of the medicines that they



could give to their cattle to take care of Tsetse fly and some of those things.

I thoroughly enjoyed interactions with those nomadic herdspeople. As soon as I gained a little confidence and learned a few local words, I loved to spend time out visiting them. So, if a sedentary farmer said, "I've got some animals." I would say, "I'll go with you and look at them." And we'd go traipsing out in the back woods and we'd have to wait for the cattle to come back in from pasture and we'd look them over.

The challenge quickly became: They would bring two animals in. One from this herd and another from a different herd and one would be a three year-old and another would be a five year-old or something and they didn't match up very well. I started trading with the Fulannis for other animals that I saw in these ventures. Or, a cattle merchant would come through on his way to the capital to sell animals and I'd see a very nice young bull in there. He'd say "eighty bucks," or whatever and I would bargain and buy it. I hired a village drunk to be my herdsman and after a bit I had 20 head of cattle that I could trade. It was usually a very good trade for the farmer who was trading a two year-old for a three year-old, but we could go

right to training and we could get a team matched up.

One time I got in that bind where a farmer had a four year-old steer and a five year-old, and the five year-old just was not cutting it. Fighting. When you get too old of an animal, they don't always want to learn new tricks. It was plowing season and we needed to get this farmer's plow in the ground. He was a good farmer. I went to him and said, "Amadu, don't you have any other animals?"

He said, "Ohhhh, we might have an animal out in..."

"Well, can we go see it?" We went out and it's this beautiful three year-old. "Why didn't you have this animal come in?"

"Oh, I don't know."

Anyway, we brought him in and in three days we were plowing. I mean, it was not at the highest level, but we kept the four year-old in the furrow and put the three year-old beside the furrow even though he was taller. and he just pulled beautifully. I said, "Amadu, let's not castrate this animal. Let's see if we can get him back in the herd sometime. An animal like this should be a breeder." R.F.

*Rob Collins lives in Centreville, Mich.*



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