

## LIVESTOCK RESEARCH AND FOOD SECURITY IN KENYA, AFRICA:

### AN IOWAN'S VIEW

by Zachary Vosburg

The World Food Prize was founded in 1986 by Dr. Norman E. Borlaug to recognize and reward people who are making progress in the struggle to improve world supplies of food. Himself a winner of the 1970 Nobel Peace Prize for his work in agriculture, Dr. Borlaug hoped the World Food Prize would inspire ever more participation in research on food production and world food security. The Youth Institute now associated with the World Food Prize is a unique way of making young people aware of this problem and introducing them to the researchers and scientists working on it.

I attended the World Food Prize Youth Institute in 1997 at my agriculture instructor's suggestion. The focus of that year's discussion at the Youth Institute was food security in sub-Saharan Africa. Also at the 1997 World Food Prize Youth Institute a former participant named Travis Frank proposed a unique summer internship program in which young people would spend time working with researchers at international centers. The following year I learned that World Food Prize had sponsored two students to go to international research centers for two-month internships. I was fortunate that, as a participant of the previous year's Youth Institute, I was able to apply for the internship program.

I applied to the World Food Prize Foundation in mid-November, 1998. I was interviewed a few months later. Ten days after the interview I received notice that I had been selected to be an intern in Africa. I began my African internship on June 9, 1999.

During my interview I mentioned that I planned a career working with animals. The International Livestock Research Center (ILRI), located near Nairobi, Kenya, was

explained to me. ILRI maintains two major sites. The headquarters is outside Nairobi, Kenya, and the second facility is located near Addis Ababa, Ethiopia. ILRI was formed in 1995 when two existing research centers merged. ILRAD (International Laboratory for Research On Animal Diseases) had concentrated on the diseases Trypanosomiasis and Theileriosis (also known as East Coast Fever), while ILCA (International Livestock Center for Africa) had concentrated on improving livestock production practices. The two combined in 1995 for practical reasons increasing livestock research mandated by the CGIAR (Consultative Group on International Agricultural Research) to better animal agriculture not only in Africa, but in developing countries worldwide.

The CGIAR is an informal umbrella organization made up of 40 international governments that serve to guide and coordinate the work of ILRI and 15 other international research centers worldwide. The CGIAR was formed in 1971 when the Ford and Rockefeller Foundations sought financial aid for international research centers they had helped to create. The CGIAR is funded by worldwide donations from governments, private organizations and foundations. Its goal is to improve agriculture in developing countries, to conserve natural resources and the environment, and to improve food security throughout the world, with an emphasis on the developing world. The actual strategies and programs to achieve the CGIAR goal are drawn up by each individual research center. Each CGIAR center formulates short, medium, and long term goals. These include project-specific, annual, five year, ten year, and twenty year plans.

When I arrived at ILRI I was assigned to a socioeconomic project dealing with the impact of an improved cattle vaccine for East Coast Fever on small holder dairy systems. There were several reasons I was placed in this project. First, I have a strong background in animal agriculture (through 4-H and FFA activities) which would help

me understand the focus and the basic groundwork of the project. Second, the team working on this project felt that it would be a beneficial experience for me to see both field studies and work being done within the ILRI compound. Besides seeing what it takes to make a research project successful, I also got to see both the "soft"(socioeconomic) and "hard"(vaccine) sciences that make up research at ILRI. Third, I had little technical training that would be helpful for me to assist in laboratory work or other studies, but I was somewhat familiar with the data entry programs being used in this project. As time progressed, I became much more familiar with data entry, with database operation, with data selection and control. By the time I left ILRI, working with computer programs and programmers was second nature to me. In addition, the team at ILRI also felt that by assigning me to a project like this, I would get to see a broader range of ILRI's activities than if I were assigned elsewhere. I got to help with field research, lab research, experimental work with cattle, practical field work such as cattle vaccination, be a data entry technician, and I got to enjoy a variety of cultural experiences.

The mission of the project I was assigned to was to determine the impact of an improved East Coast Fever vaccine. The vaccine is now being tested for effectiveness and rate of challenge in field trials. This project deals with the socioeconomic impacts of the new vaccine. Our work was aimed at answering several questions. Will farmers adopt use of such a vaccine? What are the best channels of distribution? What are the misconceptions of the disease/vaccine use? Will vaccinating cattle be an effective means of control? What are current disease control practices? Are there barriers - cultural, economic, or other - that might restrict the use of such a vaccine?

We interviewed native Kenyan small holder dairymen in rural areas of the country. The data collected from farmers in the Nakuru region of Kenya was entered into a database and used to determine current attitudes toward vaccination programs.



The team of scientists working on this project included nine researchers. I worked most directly with Dr. Tom Randolph, an agricultural economist, Dr. Henry Kiara, a veterinarian, and Leah N'dungu, a PhD candidate who oversaw the administration of the questionnaire. A small support staff, computer programmers, Graphical Information Systems (GIS) technicians, and field questionnaire enumerators were also a part of the team.

I had a variety of responsibilities in this project as an intern at ILRI. I began by reading the work plans and goals of the project. Then I was assigned to read background information on both ILRI and the CGIAR system. I accompanied a team of enumerators and Leah in a field study. There I served as the official camera man/recorder, and my job was to record and shoot photographs of interviews, questionnaires, and discussions for later use in presentations of the project. As I became more familiar with the questionnaire and the Swahili language, I helped the enumerators with the questionnaire. This experience exposed me to the type of agriculture and people this project is aimed at helping. When I returned to ILRI, I reviewed the questionnaires for mistakes, incompletions, "other possible answers" and irregularities. After this process was complete, a fellow intern and I entered the data from these questionnaires into a computer database so that the process of data analysis could begin.

Later I accompanied Dr. Kiara on a field trip to collect ticks from experimental cattle in various stages of development. These ticks were brought back to the ILRI tick facility to assess the challenge rate to cattle in the test project, the number of ticks infected with East Coast Fever, and other variables related to the infection rate and dynamics of the disease. By helping with this project, I had the opportunity to see both the socioeconomic side of research at ILRI and the actual disease research being undertaken in the field. Both sides must work together to form a successful research

project.

Until my internship I didn't know that livestock played such an important role in combating the problems of world hunger. This idea is best expressed by ILRI's basic information sheets.

*"No single component on small holder farms in developing countries has as much potential as ruminant animals to attack simultaneously the inter-related factors of hunger, poverty and environmental decline that prevent people from improving their livelihoods and lives. Cattle, sheep, goats, water buffaloes, and other ruminant animals are life-enhancing and life-supporting in poor countries. Animals feed people and soils. They generate incomes. They are the major capital asset of small farmers. They reproduce themselves under even the harshest conditions. They are highly specialized eaters of grasses and similar vegetation that grow not only on range lands, which make up two-thirds of the earth's agricultural lands, but also on and near crop lands. They convert these organic materials indigestible by people into human food of the highest quality. They are the nutrient (manure production) and financial (dairy income) crank handles of small holder systems, acting as catalysts that jack up the viability and health of those systems as a whole.*

*Most people in poor countries are farmers and pastoralists whose livelihoods and sometimes survival depend on their stock. The views from the feed lots of Chicago and the small holder highlands of eastern Africa or South Asia, like the views of those who eat too much protein and fat and those who eat too little, are very different. We should accommodate those differences when advocating policies that affect developing countries.*

*Increases in milk production reduce hunger, malnutrition and food insecurity in both rural and urban areas and at both household and national levels. The high-quality protein and micro-nutrients of milk and meat benefit most those groups that*

need it most—the women and children in poor households—and further act as a prophylactic against diseases that opportunistically attack those who live in chronic hunger.

Livestock manure and nitrogen-fixing legumes planted to feed livestock increase soil fertility and refine soil structure. Use of manure and forages on crop-and-livestock farms ensures that important nutrients are recycled efficiently and are not lost to the system. Animals that consume the remains of crops after harvesting also make the nutrients of the crop wastes more available to growing crops. The improved soils that are the result of these animal husbandry practices produce greater yields of food crops, which further reduce human hunger and poverty while also helping to sustain higher production over the long term.

Many enterprises based on livestock keeping and sales of milk and animals are conducted by women with substantial help from children, who are often responsible for tending small stock. On small farms in many regions of the developing world, dairying generates more income than any other single enterprise. The regular cash inflow generated by dairying allows millions of families to move out of a subsistence existence and to join the market economy. The money is used to buy cheap nutritious grains, vegetables and fruits that further improve household nutrition. Dairy income pays for implements, disease- and drought-resistant seeds, veterinary care and other inputs that increase farm efficiencies. It pays for primary school fees and for medicines. It covers hospital fees and other emergencies. And it enables rural families to buy cereal grains when drought or floods wipe out a season's food crops."

East Coast Fever is one of the major restraints to successful livestock production throughout sub-Saharan Africa. An improved vaccine against this disease should allow farmers to increase production by increasing numbers of animals, by incorporating improved exotic breeds, and by increasing the productivity of existing



livestock. As a result, available meat and milk supplies will improve, as will the economic status of the farmers. This, in turn, will help ensure food security in sub-Saharan Africa and other places where East Coast Fever affects cattle.

This experience has made me realize that the world is much smaller than we often think. What we do in developed countries has an effect on what happens elsewhere in the world. I have also realized that we as American citizens can not take a half hearted attitude toward the problems of the world just so we can concentrate on those of our own nation. We must work together to solve these problems so the world may benefit from the work of the CGIAR research facilities. By spending time in Africa I have also gained a better sense of international agriculture policy and agriculture in foreign countries. I have further discovered that the work of these international research centers is more complicated than it appears. It isn't simply a matter of finding a cure for a disease, a promising new crop, or a disease-resistant strain of an organism. There are social, economic, environmental, logistical, and political concerns that must be addressed before a project can be successful.

My personal perspectives on many issues and ideas have changed because of this internship experience. I believe I have learned as much about myself as I have about food security or livestock research.

I was exposed to a culture completely different from anything I had known before. Trying to cope with a different language, new foods, and foreign customs was frightening at first, but I quickly became comfortable with it. Africans see things differently. I worked with Kenyans my age and learned that they are not much different from me. Our views of life are colored by the different circumstances we live in.

I now realize what a blessing it is for us in this country to have so much. What I too often take for granted is a dream to some people. Before my African internship, I thought my family's lifestyle was a pretty middle of the road existence. The house I live

in, the car I drive, the college I attend. I didn't think any of it was out of the ordinary. But many of my Kenyan friends can only dream of the abundance I enjoy. I realize now how truly fortunate I am. I knew my views had changed when I returned to this country. One incident brought those changes into perspective.

Shortly after my return in August, I went shopping with my mom for things I was told I would need at college. That shopping trip was most uncomfortable because I realized that I didn't actually need one single thing we bought that day.

Even though my internship revolved around the question of food security, I did not see people starving or dying in Kenya. There were none of the scenes from television coverage of African famines in years past. I saw no bony bodies, no swelled bellies, no glassy eyes.

What I did see was people whose margin of protection from hunger was very thin. They were living from hand to mouth. Many Kenyan farmers have one quarter acre and one cow. If they are well off, they have two acres and two cows. They are growing enough to feed their family, milking the cow and having enough milk for their family's consumption. The extra milk could perhaps be sold, but not always.

The lack of roads in Kenya means many small dairy farmers cannot even get their milk to market. Sometimes farmers have to dump whatever milk they can not consume. For these people, when a drought comes, a flood occurs, or a disease kills the cow, there goes a family's food source. There will be no calves, no milk, no meat. It is most often a complete loss for the farmer. I had trouble grasping that concept. Here in Iowa we are accustomed to hundred-acre fields, thousand-acre farms, and confinements housing thousands of animals in a single building. It is a very big change from such a mechanized, commercialized, high input, high output, agribusiness industry, to go to an agriculture which we would characterize as pre-turn of the century farming. The Kenyan farmers are simply trying to survive. It is not a



question of whether they will make money or lose money on this year's maize crop. It is instead, a question of whether they are going to have enough food this year for their families to live on.

This is their way of life. It is what they do. It is who they are. In most cases they do not necessarily want to live the way they do. It is just that economic resources, the technical support, the education, and needed government support programs are frequently lacking.

Sub-Saharan Africans do not have the abundance of food that we are accustomed to in this country. I learned quickly that you don't leave food or drink when it is served. It simply is not done. In American, food is plentiful and, therefore, not as important a commodity. Many Kenyans know what it is like to be hungry, so food has more significance to them.

Processed food is much more expensive in Africa and is therefore not eaten often. Stew, rice, and boiled maize flour are staples around which most meals are built. In the countryside, food staples such as potatoes and peas were cheaper than in the city. Although this is subsistence farming, if it has been a good season farmers often have a small amount of extra vegetables or grains to sell.

Another lesson I learned was what it feels like to be treated differently simply because of the color of my skin. In Kenya, many times and in many places, I was literally the only Caucasian person in an entire village.

When I got out of the truck the first time at a remote village and was surrounded by native children shouting, "Mzungu! Mzungu!" I realized that I was literally the first white person these young people had ever seen in their lives.

In the countryside I was treated with great respect. Often times the natives would say, "He is an honored guest." I know they did this simply because of the color of my skin. It was very different for me to have that distinction. It was a type of respect that I

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felt I hadn't earned or didn't deserve.

Likewise, I learned that when I was in the city I had to watch out for merchants because they would charge me twice as much as a native Kenyan for the same souvenir simply because the color of my skin meant I must have money.

Before I went to Kenya, I wondered what it would be like to work with international scientists. I found the ILRI researchers to be a unique group of people eager to share their enthusiasm and dedication. They treated me like a welcome addition to their team.

I learned about my own ability to deal with adversity. I learned rudimentary Swahili in 3 days, Kikuyu in two weeks in the field. I ate things I had no idea what they were made of. I also learned to be polite and to conform to the customs of the country I was in.

One of the most memorable experiences I had was playing soccer with the children of the ILRI researchers. It was an early evening game, and there were about a dozen of us that took the field together. I looked around on the playing field and saw Ethiopian and Kenyan youngsters playing with Chileans, orientals, Germans, Belgians, Norwegians, and French. All these children were playing the same game, all had a common goal. I like to think that is the way international research on food security issues should be.

As a result of my African internship I also learned to appreciate a few things about America. A major piece of corruption termed the Goldenberg scandal was made public while I was in Kenya. Basically, the highest officials of that country took one entire year's budget for the whole nation and made it disappear into their pockets. Everyone accused of the crime denies it and no one seems to know where the money has gone. Even with my new view of America, I don't think people in this country would stand for such a scam. In Kenya, the rich seem to get richer and the poor don't have

much chance to advance.

I found Africa to be a land of extremes. I used the internet to communicate with my family in Iowa on a weekly basis. Yet I interviewed native farmers in the field who didn't know what a telephone was. They had never seen one. Neither did they have running water. These people still went to the creek and got 55 gallon drums of water or caught rain water off the roof and boiled it to drink. I remember seeing a Hard Rock cafe in Nairobi. One block from that upscale restaurant I walked through Uthuru park, where some of Nairobi's homeless live. A three hour trip can take you from a major urban center like Nairobi to Mt. Kilimanjaro, where Massai tribesmen still wander with their cattle across the surrounding plains. I met people who had never before seen a Caucasian, and I worked with researchers from several foreign countries. I spoke English at the research center and I communicated in Swahili or Kikuyu when I was sent to the field for a week at a time.

My internship at ILRI was an outstanding experience. The first contact from my training officer, Dr. Ely, and my immediate supervisor, Dr. Randolph, took place several weeks before I left Iowa. Both men greeted me by e-mail and made me feel comfortable about going to Kenya. When I arrived in Nairobi, I was met at the airport and escorted directly to my hostel at ILRI in a manner that is customarily reserved for board members or visiting dignitaries.

The ILRI staff knew I would have some concerns and they addressed those almost before I expressed them. The internship was designed to include a variety of activities from tick collection, cattle vaccination, and field data collection to in-laboratory research and data processing. This was an intentional move by my friends at ILRI to provide me the widest possible variety of experiences at the research center. They wanted me to get the most out of my internship and they said so.

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even though I was halfway around the globe.

Because of the great distances involved, I would recommend that future interns be committed to completing the internship. Future interns should be eager and willing to take part in a variety of experiences. They should likewise be very certain this is what they want to do. A foreign culture, with languages, customs, and foods never experienced before, can be somewhat unsettling. The internship is intended to be a most rewarding experience. I found it to be life-changing and I would go back in a heartbeat. In fact, I am looking for a professional opportunity to return to ILRI.

The people at the World Food Prize do an excellent job in preparing interns, communicating with interns and their families, and in supporting interns before, during, and after the internship. They worked hard to make this experience a success for everyone involved. They were professional, they were helpful, and they were generous. I feel extremely fortunate to have been a World Food Prize intern.

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