



Agriculture Sector Council Day Break Seminar

Applying Peanut CRSP Research to USAID Initiatives

October 19, 2011

Q and A transcript

Participants

Presenter

Jonathan H. 'Tim' Williams
Director, Peanut Collaborative Research Support Program (PCRSP)

Introduction by:

Joyce Turk
Senior Livestock Advisor and Peanut CRSP Manager, USAID

Facilitator

Zachary Baquet
Knowledge Management Specialist, Bureau for Food Security, USAID

Sponsor

United States Agency for International Development: Agriculture Office

Male: Thank you, Tim, for that great talk. Now, we're going to open the floor to questions from both in person and online. I request that you state your name and organization before asking a question. We'll sort of alternate between in person and online. So, with that, questions?

Male: Kurt Weller, USAID. My question is, "What's the difference in incidence of peanut allergies, say, between what you may have in North America versus what you would see in Africa or other parts of Asia? Is there any data that's out there, relative to peanut allergies?"

Male: Peanut allergies is, principally, a developed country phenomenon. A lot of places, when you say, "Do you have peanut allergies?" They say, "What is it?" It is not on the horizon, the radar, of Africa, Latin America, and Asia. It really is specific to our environment, and there's a lot of concern as to why that might be. What is happening?

Because it's not only peanut allergies that are increasing. If you look at the allergy stuff, all of the allergies are increasing exponentially. The issue is – What is happening in our environment that is doing that? Now, the peanut allergy is the one that everyone gets – grabs people's attention, because people die from it. But they also die from shellfish and other things, but somehow peanuts are a lightning rod for that.

It's a lightning rod for aflatoxin as well. The majority of aflatoxin in exposure happens because people eat corn, not peanuts, and that's because all that corn is contaminated less than peanuts. People eat so much more.

Female: We have a question from one of our webinar participants. This is from Bret Raymond at Mana Foods in Kigali, Rwanda. He asks, "Doctor Williams, you stated that peanuts are often an informal industry that often does not receive Ministry of Agriculture attention. How, then, does peanut CRSP support FTF programs, given that Feed the Future typically supports only official government agriculture programs?"

Male:

That is, for us, a challenge. Out of all the Feed the Future countries, only three of them – Zambia, Malawi, Mozambique – identify peanut as something that they want to work to, as a focus for their effort. I think, in a way, it's tragic. When you focus on these other things, the other crops, the big commodities, You actually are largely – You're increasing the challenge to provide benefit for the woman.

This is a critically important crop for women. If you wanted to demonstrate – If you were really serious about achieving the advancement of women, they wouldn't focus on maize, or they would have included peanut with maize. It is really important for women and it's actually very commonly a critical cash crop at the family household economy. The ones that constitute that are sesame, peanut, and sometimes beans. But beans are not so gender-biased. Peanuts are a woman's crop because it takes a lot of digging. It's a lot of hard work. The men would rather go and drink beer or whatever. The women understand the importance of it.

Male:

Thank you, Doctor Williams. My name's Mike McGahee, I'm with the Natural Resource Management Office at USAID. Very rich presentation – thank you very much. You talked about the production potential being much higher than it actually is. You said there are probably three or four key interventions that could be made to increase that productivity. Could you talk a little bit more about those, particularly about some of the soil constraints that might be faced by increasing productivity – particularly in Africa, where you have very old, weathered soils?

Male:

Okay. I started my work in Zimbabwe. There, we were able to achieve yields of 10,000 pounds. The elements of that were that we managed the foliar diseases. We exploited, fully, the season. We actually extended the season just by starting at six weeks before the rains. If you could put some irrigation or you could get the plants up, you could actually get peanuts that would be in the ground for six months. When you did that, you had a huge yield potential.

The elements are to fully utilize the season, with the right choice of variety, to protect against the foliar diseases either with _____cide sprays or with resistances. Now, when you start sowing peanuts at the beginning of the rainy seasons,

instead of six weeks later, you really have a huge impact. The farmer that sows early actually has six weeks advantage relative to the foliar diseases. They start when the rains happen, the first rains. If you stay till six weeks later, there's a lot of spores around as you're plant comes through.

Now, moving on to the soil issues, there are two elements in the soil that peanuts are more susceptible to. One is sulfur. This is something that is a feature of – certainly the weathered granite sands of Southern Africa can be an issue. And, also, you have the same kind of problems for the Swahili sands. The other one is calcium. Those two elements are the major limiting factors, or the most commonly needed inputs. Phosphorous is very effective. It will be actually recovering phosphorous when other crops have stopped. It does this because it's got a very prolific microreusal relationship with fungi.

Then, in terms of nitrogen, it fixes and joins with – It's promiscuous with disodium and it is very effective in disodium. In Zimbabwe, we measured 300 nitrogen fixed in a crop. Now, by the time you take away the seed and the protein, and you take that off the field, you leave behind between 60 and 80 pounds per acre of nitrogen. So, as a rotation, it's a really important part of it. Traditionally, it's come into concern in crops, and that, I don't think, is really a good thing for peanuts, because you never break the cycle of foliar diseases.

Here, in the States, to have profitable production we need to have a rotation cycle which is preferred to be three or four years. That is important, because it breaks that cycle of ___ diseases. Now, if you're gonna grow ___ peanuts, you've got to expect to put a whole lot more chemicals on them. Those are the elements. For West Africa, if you sow it – The tradition is they will sow this ___ maize, whatever they do. They'll wait for six weeks and they'll focus the efforts on weed control in another crop.

Then, they will come in and they will add to that, the peanut. That peanut has to be a short-season variety, so you lose yield potential there. But if you take that peanut, and you sow it at the first rains, you will go up from 800 pounds to 2,400 pounds – just that single intervention. Then, you have to have the ability to ___ when it's raining. Say you've got to have the longer, so you've got to change variety and soil intake simultaneously.

Female: We have a few questions about the binding agents. Joan Jennings from the TOPS program, and Sam Goth from Food for the Hungry both ask about the potential future timeline for use of the binding agents for human consumption or the release for sale to the general public. Bret Raymond from Mana Foods in Rwanda also wanted to ask if you're aware if Codex prohibits any use of binding agents in infant food?

Male: The Codex would apply. Codex also prohibits aflatoxin in the food. That prohibition is generally worth it. It's the truth. Twenty-five percent of the foods in Africa are contaminated, despite Codex. Now when I first went down this road, I wrote to WHO. They said, "Don't worry, we've got Codex." I don't know what you do about it, but Codex is a challenge.

But Europe has changed and has accepted it. This is used. This product – it's an FDA grass substance. We can go and buy it in our health foods and we can add it to our foods without anyone caring about it. It's safe. So the prohibition is because we're using it to bind something that we know is harmful. It defies logic.

Female: Joyce Turk, USAID. What is the timeline for controlling aflatoxins?

Male: I would say that if we get all the governments on board, and there's increasing evidence that they are coming around to recognizing this is something they need to address, I would think between 10 and 20 years is a realistic target. It takes 10 years to breed a variety. You've got to disseminate it. You've got to teach lots of other technologies. You've got to have the ability to measure it. There's a huge infrastructure that goes with this.

While people are looking to do that, I think that, certainly for rural – For urban areas, it's much quicker, much easier. But for rural areas, I would think 10 to 20 years. Now, I'm not saying that the binding agents should replace all that effort. I think it should be an integral part. But binding agents can allow people to be protected now. I think the price of not doing that is enormous. Contemplate

the numbers of children that get aflatoxin through mother's milk. It's in vicinal core blood.

Children born at certain times of the year in West Africa live shorter lives, and the prime candidate for this is aflatoxin, because animal studies show there is this legacy. You expose embryonic tissue to aflatoxin, you have changed immunity out the other side. So you can impact the long-term immune competence by people exposure.

Female:

Freda Wendy, I'm in the Bureau for Food Security. I think one of the – You can hear me? I think one of the reasons for peanuts not being taken seriously, especially in Africa, is because people don't know the uses, the many uses of peanuts. Most people, like in Uganda, where you say they're growing. They use them in cooking with beans and they don't put it on bread, where they know it could be a day snack for a child.

For me, I came from Africa, and I knew peanut butter could be used on bread when I came here. Up to now, people in the villages, they don't know they can roast and crush the peanut and use it on bread and give it for their kids for such a good nutritional food. So, part of what we could do is educate people more in more uses, apart from cooking it with the stews and roasting and eating dry. There are some other uses which could be more beneficial. Are there any efforts into trying to educate people on some extra benefits of peanuts?

Male:

We actually do work and spend as much effort in extending the use of peanuts for food and nutrition as we spend developing the production potential. It is really important. By doing what you're talking about, we had, over many years, we had a program in the Philippines that systematically got worked into that area. The Philippine peanut industry, the peanut butter industry, at one stage, grew 10 percent a year for many years.

That industry is driven by all sorts of entrepreneurial people that are taking out peanut butter. We actually had the good fortune to run a course on manufacturing peanut butter. One of the participants from that set up a little

kitchen factory. In two years, she was entrepreneur of the year for the Philippines. This lady, now, is selling in supermarkets all over the Philippines.

I've actually got a picture of a lady – I'm pretty sure this is from the Keno Facile. She's making peanut butter, and she has got a plank and a bottle. She is rolling the peanut butter to produce it. A great thing about peanuts, is that a lot of the production and the value-adding opportunities are scale independent. You can do it with a little, with a pot on a stove. You can do it with a thousand ton per hour roaster. You get the same product, both ways.

Female:

Thank you very much. Great presentation. Cathleen Curtis from DAI. I work more on the nutrition side, so I really appreciate the attention to the improvements, particularly the child nutritional status. My question is more on the price, though. As the aflatoxin issue goes away, and as the uses of it go up, what do you expect, relative to the price and the supply?

As you know, in nutrition, one of the most important things for weaning foods is that people can afford to add the variety of nutrients that comes from a diversity of foods, including the peanuts. I also think I saw something that the price of peanuts is going up in the US, so it prompted me to wonder about the price, the international price, or the local price, for that matter.

Male:

Well, in a lot of countries, actually, the local price is set by equal or better than the international price. The challenge that we have in that is to balance production with demand. Because it is labor-intensive, if there isn't a reasonable margin on it, people don't like to do it. But having said that, people also tend to underestimate the value of this as a protein, as a source of energy.

It is hugely – it is so energy-dense. It's got twice what maize has got in terms of calories. It's got four times the protein. It's got good levels of folic acid and many of those things in it. In that sense, it's good value food. To some extent, getting people to understand the value of it is important.

Male:

Al Bundik, FHI – Family Health International. Thank you very much for the good presentation. I was wondering a couple things about post-harvest – reduction through better post-harvest techniques. How much contamination is transferred through handling of the shell of the nut?

I've heard that aflatoxin grows on the shell of the peanut, and it can infect through actually handling. Are there any low-cost detection devices which can be applied to sort good or infected, contaminated peanuts from uncontaminated peanuts? And whether contaminated peanuts can be pressed into oil? In fact, I've heard – and I don't know if it's true – that the toxin does not transfer as well into oil as it does into meal.

Male:

Many questions. The toxin is produced by a fungus which grows. The stuff that's in the shell is – the main hazard for that is for people that are actually working in silos or something like that. They can actually get the toxin in a particular form. They can breath it in and absorb it that way. The key to managing this is to stop the fungus growing, so if you keep it dry, you're not going to have that as a problem.

One of the biggest problems is where you actually have humid environments. It'll absorb water out of the atmosphere and get into that half-dry status. In that, that's when this is a competitive fungus. It's not competitive when it's wet, and it's not competitive – it doesn't grow – when it's dry. But it out-competes other fungi in that region between, say, 12 percent moisture and 18 percent moisture. Above that, it's not an issue.

The second part? Detection. It fluoresces, so in theory, you can use dark light and find things. There are lots of things for us, so you can't be sure on that. We spend a lot of time training industries and working with industries, teaching them how to identify what is potentially dangerous and remove it. We have factories that we've worked with for over five years. They have never had anything more than the very lowest levels of detection – one part per billion – as a result of just hand sorting.

If you sort, you can remove it pretty effectively. The most effective sorting comes when you actually blanch it, so if you get the skin off it, then remove any discolor, you've got it. So there's lots of – One of the biggest problems, in terms of when you start sorting it, people will put that aside. Someone else will come and buy what's being sorted out, because they're food-insecure and they figure it's not going to kill you.

It doesn't kill you today, it kills you down the road. So there's no immediate connection between this dangerous practice and a consequence. That is a deferred thing and that is why it is so dangerous.

Female:

Hi, my name is Megan Murphy. I'm with the QED group. Thank you very much for your presentation. I really appreciated the way you spoke to the multi-sectoral benefits and uses of peanuts – from the agricultural, from the health, from the nutrition. As development practitioners, we're often very silo-ed in the way that we approach these problems.

It seems like one of the things the CRSP has been very successful at doing is bridging some of those sectoral gaps in the way you do your work. I wondered if you could speak to this a little bit, and some of the challenges and ways you've overcome them. Maybe some of the lessons you might have for others doing this kind of work.

Male:

Well, lots of frustrations in trying to do this work. To me, it seems really obvious that something that is of potential significance to world health as immune suppression associated with these toxins would be absorbed and become something which multiple parts of USAID and NIH would get around. But when we go out and we try and work with that – we got to NIH or we go to the health ___ here – this is an Ag problem.

In actual fact, our really big breakthrough came when we persuaded the Ag people to allow us to go into that area. From that, we've actually – we realized we had technologies. All of those technologies that I showed, we had those available, but we could never get anyone to adopt it because there was no economic incentive. When you're going to sell your peanuts, whether they're

moldy or not, why do anything different? Why invest time and effort taking out the bad ones?

Because that's loss to you. Coming back, very quickly, you can express oil out of it, you just got to clean it up. There are ways. The majority of peanut oil in the USA comes from lower classes of peanuts that they just take it, squeeze the oil out, and put it through – You can actually use the bentonite technologies just to clean up that oil. You put it in the sunlight and it will destroy it. UV will destroy it. Lots of things will destroy it.

Anyway, coming back now to the challenge of working between the stovepipes. Our real breakthrough came when they said we could go out. We persuaded – Emmy Simmons was in charge here at that time, and Ron Brown. He got to understand what the opportunity was. When I first started into this area, I looked at it, and I said, “We’ve got this product that will absorb it.” I thought it would be an absolute cinch – just add this to the food.

We were going to fix all the cancers. But when I actually realized that it wasn't – Cancer is the least of the issue. Forty-three percent of the burden of disease is modulated by immunity or nutrition. The top seven world health risks are all changed by aflatoxin. Then you start saying, “Wow, this is a huge problem.” That argument was where the USAID Ag Bureau stopped. From that, they actually gave us money that we have used to document, as well as we can, what are the resources we have.

The health consequences of neglecting this. They are huge. A lot of this is correlative, but you can find or you can go to animals and you can duplicate what you see in humans. It's already done for animals. Aflatoxin suppresses immunity, causally, in animals. It's correlated – high aflatoxin, low immunity in humans. Vitamin A, Zinc – there are maternal effects I've shown in animals. You see, on a correlative basis, a cross-sectional study, you'll see the same thing in humans. I think it's really frustrating that people are locked in these stovepipes. It's a stovepipe. It's not a glass tower that they're looking out to see what's out there. They're not looking out.

Male:

Okay. With that, I'd like to thank Tim for joining us today, giving us an excellent talk about the peanut CRSP. I'd like to thank our audience, both in person and online, for joining us. For those in person, there are evaluations that were on your chair. If you could please fill those out and hand them back to us, we greatly appreciate your feedback on how to make these sessions better. For those online, we'll be sending you a link that you can use to fill out an evaluation.

Please send those back to us, too. Again, November 30th will be our next Ag Sector Council, so please join us for that. Also, we'll send all those who RSVP'd a notice when the presentation has been turned into what we call a screencast audio-sync'd with the Power Point. It goes up online so you can refer back to it and send it around to friends and colleagues in your network.

Also, if you go to AgraLinks and go to the events page for our talk today, there's the ability to post comments, so I encourage you to do that if you have questions that come up that you didn't have a chance to get answered here. So, to continue the conversation. With that, please pay attention to AgraLinks. Join AgraLinks. And I look forward to the next session. All right. Thank you very much. Have a good day.

[End of Audio]