



FROM LAB TO MARKET: SUCCESS FACTORS FOR COMMERCIALIZING AGRICULTURAL TECHNOLOGIES

QUESTION AND ANSWER AUDIO TRANSCRIPT

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Julie MacCartee: Wonderful. Thank you, Erin, very much for those salient examples.

[Applause]

And last but not least, we would like to welcome Anna-Marie Ball from HarvestPlus to give further reflection.

Anna-Marie Ball: Thank you very much. Good morning, good afternoon, good evening. As we like to say in Africa, all protocol observed, because my memory is not going to get it all right. So there we go.

Usually I am on the other side, I'm doing this remotely. So it's a real privilege to be here today. And it's also been quite a privilege to read this report and to reflect on it. Because it articulated things that we have been thinking about at HarvestPlus. And so the chance to just be able to talk to you a little bit about some of our experiences framed by this report is really nice. And I have resisted the temptation to take each of the eight success factors and put an example there. But I really would encourage everybody, particularly online and obviously here in the room, that if you haven't really looked at the report, please do. So within that, let me just make a few comments.

First of all, HarvestPlus is involved in the work of biofortification, which is breeding micronutrients into staple crops. So in this I mean vitamin A, zinc, and iron that are bred into the major staple crops such as rice, wheat, maize – or corn – beans, sweet potato, cassava. I think that's where I am at. And there are other crops that are also being biofortified.

First of all, when we talk about the research, we have to know that researchers themselves were really not very interested in breeding for the micronutrients. They've been more interested in breeding for yields and characteristics such as pests and disease, the things that farmers are interested in. And so from the beginning we had to push, cajole, encourage breeders to do this. But once you start doing that, you also have to look at the fact that the only way that this is going to be sustainable is if this is commercialized. Because you must get these varieties into the seed companies so that they can get to the farmers. And then the first question that a farmer asks you about a new variety is, "Can I sell this?" And so is there a market? How is it going to be used?

So what I would like to do is just having said that give you a couple of examples, one from the seed side and the other from the product side or the processing.

So in Zambia we work with the vitamin A orange maize. And for those of you that know maize, you know that this is something that is sold through

see companies. It's a commercialized seed. So imagine trying to convince the local seed companies that they should sell an orange maize when their primary product is white. Now, the yield data shows that the orange maize is fantastic. But it's a really big risk for the seed company.

So what we did was we involved the seed companies from the beginning in the breeding process to bring them along. It went through the release process within Zambia. And then each company was licensed with one variety and they were responsible for using their own networks to market. But it was very clear that some de-risking had to happen. And so the role that HarvestPlus took was to do promotions about the vitamin A orange maize without mentioning the varieties so that people could have a choice of the seed company that they wanted to buy from or that was in their area, but they knew what the benefits were. And this was something beyond what the seed companies could do, this kind of promotion.

So in that way what we were doing was de-risking it for the seed companies by building demand with farmers and with consumers. Now, there's a whole story of the orange maize in Zambia of incentivizing millers and getting it further down the value chain.

So for the crops that can go through seed companies, that's the way to go. For the vegetatively propagated crops, that's a different story, and one that I don't have enough time for.

So let's just talk very briefly about the commercialization of products. And I was really happy that the orange fleshed sweet potato has been mentioned and the really good work that the International Potato Center has done on this. And HarvestPlus also works with the orange fleshed sweet potato. We also work with vitamin A cassava, which has gone from white to yellow.

Now, one of the things that we have seen is that there are companies that want to take this product as a healthy product included into their portfolios, but they need help with processing. Because of course you've got a micronutrient in there and you do not want to destroy that micronutrient through the processing.

So what is the work that has to go on hand-in-hand with those processors so that they can get that great product into the market and still be able to say that it has that micronutrient, whether it's vitamin A or zinc or iron.

I know that my time is going to run out very soon, so let me just wrap up by saying the one thing that we have learned is that indeed the long view is needed here. We have never to my knowledge seen something come

quickly on the commercialization. It is something that you try, you fail, you try again. And eventually you find the right way to go.

And we know in HarvestPlus that once that research is done, for sure the only way for the crops and the products to be sustained and anchored into the system is if they are commercialized.

Let me stop there and say thank you very much. And we will be promoting this report amongst our partners as well. Thank you very much.

[Applause]

Julie MacCartee: Wonderful. Thank you so much. We would love to open it now to some Q&A and discussion. And I would love to invite Aviva up as well if you'd like for our panel here in the room.

First I'm going to actually move our slide back to – we skipped past it quickly. But for those in the room, some top takeaways from the presentation that you may want to peruse during the Q&A.

All right, so we are ready to pass it around. Please feel free to share your experiences or comments if you have them in addition to questions. And also if you would like to address a question to one panelist or all of them, that would be great. And also let us know your name and your organization if that's all right.

Any questions from in the room? Nothing yet. We also have our online audience, and so I would love to throw it back to our online group for the first question if there is one coming in online.

Female: Sure. We've got several here. And by the way, we had about 79 people joining online from all over the world, various time zones, including some who woke up very early, such as Parvati Patel from Seattle, who wanted to know what you all have observed with preventing low-quality copycat products making their way into the market.

Julie MacCartee: Interesting, all right. So low-quality copycat products, how does that play into your recommendations?

Erin McGuire: I mean, I can talk about the DryCard experience if it's open to all of us.

Julie MacCartee: Great. Please go ahead, Erin.

Erin McGuire: So we are pretty new in really pushing out the DryCard. It's been happening maybe for about a year, maybe less now. And we have definitely experienced integrity issues or quality issues with our product.

And I don't want to say that there's bad actors out there trying to copycat us and make money from it since the technology is so cheap anyway. But I think – and I saw this question somewhere. But having a good distribution network and really good training for those on the ground and having distributors on the ground who are really leading the charge truly and really understand the technology and the important ways you present the technology has helped us to quality control more globally where we can't do that from Davis, California. So getting the investment of the distributors, you know, they want to protect their own businesses as well, has been very helpful for us.

Julie MacCartee: Any other comments?

Aviva Kutnick: I would just mention just something that we've come across I think in some partnerships under the Partnering for Innovation activity, is that brand recognition and companies really building that brand and reputation around the quality of the product is really key. So while researchers and others may want to see a proliferation of perhaps different companies taking up a new product or a technology, depending on the pathway once that gets into that hand of the company, it's really important for them to then build that brand and quality around how they distribute it. So that's sort of a key thing as perhaps the research community goes through that transfer and handoff property that they have in mind when they're working with cost that take that up.

Julie MacCartee: All right. Any other questions? One from over here. I'll send the mic back to you.

Participant: Hello, my name is Sarel Cahill and I'm at USAID in the Bureau for Food Security in the research division. One of the factors that I thought was interesting to me was number six, appreciating the motivation of the researcher. And the fact that you highlighted that in many cases it was more a personal motivation that kind of got them to work and to do that extra pass what they were being driven to do as publications, teaching classes and things like that.

I wanted to see, did you see any examples or do you have any comments or insights on how we can enact professional motivations or professional incentives into this process?

Virginia Sopyla: So that's a good question. A number of the researchers mentioned that their institution does offer some other forms of professional recognition, for example, for some institutions patents that a research has obtained, for example, might be considered as part of the tenure process or part of the professional evaluation process. Some institutions may have awards or recognitions for individuals within the institution that have successfully

commercialized research or started spinoffs or obtained patents. In some cases, again, when a research institution owns the intellectual property and is licensing it, in some cases a percentage of the royalty payments may go to the researcher's department to help support further research or in some cases to the researcher personally as income. However, no one mentioned that as their primary motivation. They saw that as something that was nice, a nice sort of extra, but it wasn't the determining factor in why they chose to engage in this.

Julie MacCartee: We'll throw it back to our online audience for a question.

Female: Sure. We had a few different questions from Carol Tyroller, who is calling from Santa Fe, New Mexico around gender and different approaches taken for male versus female farmers, issues like lower level of education of female farmers for example played into commercialization strategies.

Aviva Kutnick: So that was not something that we specifically looked at in this study. I'm not sure if other panelists or perhaps others here in attendance might have some comments on that.

Anna-Marie Ball: Well, I think that what we've seen in commercialization – or let me say the processing of some of the crops for sale, women tend to be involved at the lower production levels. And certainly we have been conscious of providing training that is appropriate so that income generation can happen.

That is not of course to say that women are not involved in businesses. Because at the end of September I was in a meeting in _____ with colleagues from all over Africa that are involved in sweet potato projects and particularly the orange fleshed sweet potato. And some of the companies that were represented there – there were researchers, there were implementers, and businesspeople. Some of the companies from Tanzania, in fact most of them, were actually represented by women who were processing both the orange fleshed sweet potato and the vitamin A orange maize. And their perspective was really very interesting insofar as they were giving very specific feedback to the researchers about the characteristics that they needed and the varieties that they were processing. And they were saying this variety is really good for this, this, and this, that variety, we can't even work with that variety. And sometimes the expression on the researcher's face was priceless because of course they thought the other one was much better because it was say preferred by the smallholders who were growing it and consuming it in the household. So we've seen some very smart entrepreneurs who are taking this up and running with it.

Aviva Kutnick: Just very quickly, USAID consortium of programs, Partnering for Innovation, the Securing Water for Food, as well as Powering Agriculture, these are three programs at USAID that work on the firm level to introduce and scale agricultural technologies, recently put out a report that we call *Missing Markets*. And essentially it's to address this very question on how as we are commercializing technologies, how we can access – if we know that women may have less or fewer opportunities to be purchasing technologies at agro dealers or at other points of sale, how can companies then think about how they can grow their markets and customer bases by going through different, maybe perhaps more creative distribution networks and marketing channels to really grow the market for those products. So I think this is a critical question that I think companies can think about from the perspective of growing their markets, and researchers can also think about it in terms of the comments from HarvestPlus just now on what are the certain traits, varieties, and how we incorporate market information into early stages of that R&D phase cycle.

Julie MacCartee: And Erin, did you want to chime in as well?

Erin McGuire: Yes. I think Aviva was the one talking, and she caught a lot of what I was going to say. But just the importance of thinking about technology development from the gender perspective. Carol, thanks so much for your question because it's a really important one and we work a lot on it because fruits and vegetables are typically women's crops. And so when we design a technology, we really have to think about the end consumer, which is often women. And I know that Cultural Practices and the Project Ingenious have put out a technology assessment tool focusing on gender. So when you're developing a technology and thinking about the ways it will be used, you can use this guide to think through gender considerations. So yes, thanks a lot for the question. It's really important.

Julie MacCartee: Great. And I think we'll try and send out both of those resources that were mentioned with the post-event email along with a recording of this webinar so that anyone can access them.

All right, in-person question. Yes, we have one over there. We'll pass the mic to you.

Participant: Hi there. Thanks for this great discussion. Can you hear me? Okay. Thank you. I am Angie Steen from Palladium. And I just wanted to say that, I mean, I see social marketing being a huge part of the success of this initiative. And I'm just curious to know what you all think about whose responsibility it is. Is it the lab that's responsible for doing the social marketing and bearing the cost of the formative research, the barrier analysis, the ability and willingness to pay studies? Should it be the

company or should it be maybe a donor-funded project? I'm just curious to know your perspective on that.

Anna-Marie Ball:

From the perspective of HarvestPlus, that's a role that we have often taken. We have accompanied all of these crops with a lot of research. There's the breeding research, there's the nutrition research. But beyond there, the willingness to pay studies and then where the social marketing is needed. If the partner can't do that, we see that as our role as the nudge further along so that things can be sustained through that commercialization process. And realizing that some of these small companies simply can't do it. They want to be involved. They want their product to be successful. Obviously they want to make money. But it's something bigger than them. And so we have done massive radio campaigns for example in Uganda working with Farm Radio International. We have done two sets of – like a telenovela type thing, but radio, if you can believe, all about the trials and tribulations of growing orange fleshed sweet potato. Wildly successful. Done in six or seven languages other than English. That's really important. In Rwanda we've had a pop video extolling the virtues of the high iron beans. You can get onto YouTube and see that. And in Nigeria the vitamin A cassava has been featured in four Nollywood movies. So these are things that we would involve ourselves in because we realize it's helping for that long term.

Aviva Kutnick:

And in the case of the Partnering for Innovation projects that we looked at, there was a level of variability there. In some cases marketing was supported by a donor in the past or perhaps as a part of Partnering for Innovation. For example, in the case of BIOFIX and Maya, they originally had some support from the British Council to develop their original marketing strategy and then continued to review some support through Partnering for Innovation for implementing aspects of that.

In the case of Stragway, which was another technology that we looked at, it's being commercialized by a number of smaller companies that individually may or may not have the capacity to do their own marketing campaigns. So they were able to have more of a collective marketing campaign around Stragway that was coordinated through an NGO to get the word out there.

I think there's also an important role for broader agricultural development programs here in that broader programs that are looking at training or capacity building for farmers can play an important role in terms of informing farmers of the value of adopting different technologies, even if they're not referring to a specific brand, for example. Farmers who are generally aware of the value of using improved seed, for example, would then be easier for a seed company to go and market seed to them.

- Julie MacCartee:* Great. Thank you for those examples. All right, we'll throw it back to our online audience for one more question. And we have about 15 or so minutes left for questions and comments, but we'll pass it to our online audience first.
- Female:* Sure. We've got a question from Kristin LeBron, who wanted to know about best practices for creating distribution networks specifically.
- Anna-Marie Ball:* I don't know that I could talk about best practices, but I think that with Harvest Plus we have tried to follow the distribution channels that already exist. So not trying to create something new if there is a system that's already working. So again, from our perspective this is – we would be bringing in new varieties of crops that are already existing and so we would assume that the marketing channels are there.
- Aviva Kutnick:* I had mentioned one strategy that we've seen is a bundling strategy. So as a new technology is coming about and being introduced to the market, thinking about what complementary products or simply other products that those customers and consumers would be buying. If you have a targeted market segment, thinking through where they are purchasing at and then seeing if you can kind of piggyback on those same existing distribution channels and bundling. That's certainly one strategy.
- Erin McGuire:* And I don't have a best practice. But I think one thing we could do differently is really work – and I think this report is really helping us get there – to connect the research entities like the Horticulture Innovation Lab, which is funded by USAID, to much larger value chain projects. So we don't necessarily have those connections, but we think building those connections within value chain projects and making sure to meet with missions so you can connect with those folks is really important. And just this one pipeline that we have, which is USAID, I feel like facilitating and greasing those wheels to the best of our abilities is a network that is already in place.
- Virginia Sopyla:* Partnering for Innovation, the projects that we looked at there, many of the companies chose to work through their existing distribution channels for other complementary product, distribution channels with whom they already had relationships. Although in some cases they did look at developing some more kind of specialized agro dealers that might be more specifically focused on their particular product.
- Some of the other distribution channels that people noted were the value of, again, partnering with broader agricultural development programs. Because these programs are in a sense aggregating larger groups of farmers, potential customers, and they are more informed customers who

perhaps already know the value of using fertilizer or buying improved seed and are just looking for the outlet to purchase that.

Another point that was brought up by some of the companies was for a seed company for example to perhaps look to partner with a food company a bit further down the chain who was ultimately buying the farmer's crop. Because they also have their own networks and connections with farmers and could perhaps help to push a product out that way.

Aviva Kutnick: It's such a great question. And I think we could actually look to larger companies out of the usual suspects of who we think about and partner with as USAID and partners, you know, thinking about the gold standard of distribution like Coca-Cola or other products that do reach the same households that we intend to reach with our improved technologies and thinking about, well, how do they attract new customers and who are the intermediaries along their line. Even transport, logistics, what their ad campaigns are. I mean, really think about perhaps replicating and utilizing some of those maybe nontraditional development strategies that those companies are employing.

Julie MacCartee: Another question from our in-room audience.

Participant: Thank you. Peter Levine with Abt Associates. And it's really a comment to echo what Aviva said, that the challenges we're talking about here are not unique to agriculture. Think about pharma, energy, those places. And I would just urge people to look at those other solutions. And I guess maybe a small shout out to my friends at the Lakta Institute in Southern California who do the Ag Innovations Showcase. But one of the things that they do very well is use a network-centric approach to linking entrepreneurs or researchers to all those other pieces of the puzzle, right? Investors, markets, and obviously there's other examples. The Incubator Lab at I want to say Texas A&M or the University of Texas that uses an accelerator. So I think the challenges we're looking at here are – that culture can be a little unique given some of the environments, but I think we can learn a lot from other places.

And just a comment on the question about women in this process, my friends at HarvestPlus and the Tuboreshe Chakula Project that Apt implemented in Tanzania, which was about micronutrient powders. We found that the women entrepreneurs gathered around the milling process for particular products. And it was just almost organic the way they did that. So sometimes cultural or other norms find their pathways, and you have to look for those as well. Thank you.

Julie MacCartee: Thank you very much. Good perspective and examples. We had another in-person question.

Participant: Hi, again. This is Angie again from Palladium. And I just had a question. So I know that this is a dirty word in the economic growth space, but subsidies. How do you all feel about subsidies to promote some of these new technologies? Especially when you're talking about technologies that are going to change the color of maize, for example, when white maize is just the tradition. How do you feel, what have your experiences been? Is there any way to target them and then gradually remove them, and does that work?

Anna-Marie Ball: Yes, that's quite a question. So ideally for HarvestPlus, we would not want to distort the market. We would look very carefully at what is already being done. And in the case of the maize, it was really very important to get within the government systems and to be recognized. So the government in Zambia for example has a subsidy system on maize. And one can agree or disagree with it. From my perspective that's beyond the control of HarvestPlus. It's a government thing. So what became important was that it was put on equal footing with the white maize so that a farmer could access it without being penalized for example, so they know that they could have a market.

In general I would say that we have not had subsidies for these crops. We have chosen to build the demand through campaigns to promote. And that can be from small things to big things. But working with farmer's groups, having demonstration plots, working with government institutions, having the campaigns at mass media and whatnot. And we've approached it that way as opposed to having the subsidies.

We have employed tactics such as seed swaps where farmers could bring in their regular beans, swap them for the high iron beans, and go and try out high iron beans. We've also had things like a farmer will receive planting material for say the sweet potato. They won't give you cash for those vines, but they are committed to paying forward to two other farmers, and that is tracked. So in that way we've tried to avoid that. But I suspect that in other situations with other technologies it's probably needed.

Aviva Kutnick: So I'll go ahead – and it's a great question. In a convening that USAID, the Markets Partnership and Innovation Office held earlier this year in Senegal, one of my colleagues who is based in Kenya essentially said anything we do in international development in the economic growth space is in part a subsidy. Right? So even if it's not a cash subsidy, making the price of sweet potato vines cheaper. In fact, our promotion work, our work with governments, our work with companies to help them develop marketing strategies in a way is a subsidy. So how do we make these subsidies smart subsidies is the question.

And I would agree that affecting the end price in terms of what the customer or client pays is probably not where we want to intervene because it does distort the market. But if a company – in fact, if that's part of their market introduction strategy to do a two-for-one offer, I mean, we think about our own – you know, how we adopt new technologies in our own lives. This is a common marketing strategy. And so I think if it's embedded and long-term and that company's strategic entry, then we shouldn't shy away from it, but that it's on a cost recovery basis for them in the long run. So I think in terms of where subsidies lie or how things are priced, we really need to work in this area in terms of commercializing products, really need to work with the company in a very strategic way. But it's a great question and one I think we should think about more broadly in all of our sector work.

Julie MacCartee: I think we have time for one more question. I would also like to ask our in-room audience, there are some surveys on all of the tables. And if you wouldn't mind filling those out before you leave, those help us look forward to future events and track what's going on and how we can improve. And you can just leave those on your tables. But I'll give the last question to Bob.

Participant: Thank you. Great presentation. Really enjoyed it. I would say something about subsidies, but I won't. I thought Aviva hit the nail on the head there. Going forward, do you see emerging from this – is there an established or set series of steps that institutions should take in order to get a higher success rate of getting their innovations into the marketplace based on your experience?

Virginia Sopyla: And I think there one of the key elements is engaging with the private sector early on and throughout the process. So it's not just about waiting until you have a product that's ready to be commercialized; it's about actively looking for opportunities to engage with the private sector in a number of levels, whether that's food companies, seed companies, fertilizer, whatever the case may be. And get some of their strategic input into what do they see as some of the key issues facing their industry, what do they see as some of the key issues facing their sector. How can you as a researcher design your work to factor in those needs and look for ways to involve them throughout the process so that when you do get to a place where you are ready to commercialize product, it's something that you already know companies are interested in, there are already companies that have kind of bought into this idea and this process. And I think it facilitates that exchange.

I think it's also important to look at mechanisms to improve some of the communication between researchers and companies throughout the

process. And as I mentioned as one of the conclusions from the report, oftentimes there can be a bit of a communications barrier between researchers and companies. And having entities that help to facilitate that communication and facilitate that process is really important. And we see often within the U.S. university system in particular, we see offices of technology transfer and business accelerators and other entities of that type that offer really valuable services in that area. However, we also see that most of them, their expertise is perhaps more focused on the U.S. market or in some cases specifically their state.

And so looking at how we might be able to support similar types of structures to act in the smallholder market or in the Feed the Future countries could be helpful to facilitate some of that work.

Anna-Marie Ball: I don't think I could have said it better. I think you've really summed that up. And as Virginia has been talking, I've just been sort of clicking through my mind on so many examples. It's not an easy process. Your research is there, your market is there. And having that long view is a tough thing. And I think the ability to be able to pivot and change and adjust is really important. But I think that we can always do it better, and I think that you've really summed that up nicely, Virginia. Thank you.

Aviva Kutnick: I would just add from the USAID perspective. If partners see specific opportunities where we can help facilitate and be the liaison for that dialogue, we would really be open and welcome to those opportunities, whether it's in specific crop areas or other industry engagements. I think that's something that we see as a good smart subsidy role that we can play.

Julie MacCartee: Wonderful. On that note, let's give our panel another round of applause.

[Applause]

Thank you so much to our speakers. On behalf of Agrilinks and Feed the Future, I would just like to say it's an honor to be able to share the work of our partners and highlight that through the Agrilinks webinar series. And most importantly, thank you very much for attending. You are the reason we hold these events. So please keep your eye open for future Agrilinks events and make sure you're on our mailing list. So thank you all and have a great holiday.

[Applause]

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