

Transcript: Plant Breeding Stories Podcast
S3E1.2 African Seed Systems - Janey Leaky



[Theme music plays]

Hannah Senior: Welcome to season three of the Plant Breeding Stories Podcast, where I talk to leading lights about plant breeding, asking what they do, what makes them tick, and what fascinates them about the world of plants. I'm your host, Hannah Senior of PBS International, world leaders in pollination control. We design and produce specialist pollination bags and tents that are used by plant breeders and seed producers all around the world, and through this, I've been privileged to get a unique perspective on how plant breeding globally affects our diets, our farming systems, and the environment. I'm excited to share a little of this with you as we meet some of the amazing people who make plant breeding their life's work.

Hannah Senior: To kick off this season, we have a special edition - A three-part episode about seed systems in East Africa. Why this topic? Well, because for a new variety to be released and go into cultivation, it needs to be multiplied up and distributed, and so the seed industry has an important role in ensuring that plant breeder's work translates into real-world impact. So I'll be speaking to a seed producer, a seed saver, and a seed systems expert, all of whom have been working on the changing and sometimes challenging frontline of the seed industry in East Africa for many years. Their insights are thought-provoking and relevant to plant breeders across all parts of the world. You can listen to them in any order, and all three represent a different and valuable perspective on how improved varieties influence, or fail to influence what farmers grow and how they do it. We touch on collaborations with international research organizations to get varieties out into the market, the role of maize and how this affects the growing of smaller crops critical for nutritional and agronomic diversity, and how gender dynamics affect how seeds are bought and what species are cultivated. We'll also touch on the unintended consequences and impacts of aid and development efforts and how a seemingly somewhat dry topic like intellectual property rights translates into very real impact on people's lives.

Hannah Senior: In this, the second part of season three, episode one, I'm speaking to agronomic Leakey, the founding director of Leldet Seed Company, based in Kenya. She describes her experience setting up a seed company to address unmet needs of Kenyan farmers and diversify the crops in farmer's rotation. We explore how this diversity helps to protect soils and provide advantages in the face of climate change, as well as why men and women have such different interests when it comes to buying seeds. We discuss how the international research organizations partner with seed companies to ensure that their new varieties actually get into the hands of farmers. Transcripts of this episode and all our podcasts are available at pbsinternational.com/podcast. I hope you enjoy it.

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Hannah Senior: To get things started. Janey, could you just introduce yourself? Tell us a little bit about your background, where you grew up, went to school, etcetera?

Janey Leaky: Thank you very much for inviting me. So, I grew up in Tanzania, Kenya, and also in the UK. When I was in Africa, I was predominantly on tea farms and in the UK, I was on arable farm, and then went back out to Kenya where I met my husband. After we met, we bought a farm in the north of Nakuru and we started farming, doing mixed arable. We had Boran cattle, we did maize and grass, and then we wanted to get into crop rotation and conservation agriculture. Then we found that there were no crops available. So we decided to expand on that and we were then able to go into Nairobi and meet various breeders and people like that to try and now understand how we could do proper rotation on the farm. So, that's where it all sort of started from.

Hannah Senior: So how did you get going? What was your starting point?

Janey Leaky: [She laughs] It was quite tricky! So we started off with Chemeron, which is the farm. Then we went to go and find various crops from what we could find from breeders. So we went to the NARS, which is the National Agricultural Research Stations, and in Kenya it's called KALRO. Then we also went to the CGR centers and

we found that we could get ahold of different varieties of maize, but we really had to work with ICRISAT to get the varieties that we wanted to be able to create the break crops, to bring in the legumes, the cover crops, and everything else. From that, we founded Leldet and Leldet's main emphasis was on the semi-arid crops or orphan crops if you like it. So that's where the idea came from. From starting out, because we thought as farmers that if we can't get access to it, and with all the ability that we have to gather the information, then our neighbors who are smallholder farmers, there's no way they would be able to have access to any of this seed or any of this technology that's sitting in Nairobi basically.

Hannah Senior: You mentioned that you're focused on legumes and cover crops and orphan crops. Could you give us a little bit more detail around what kind of species, what kind of varieties you're talking about there?

Janey Leaky: So pigeon peas, green grams, cow peas, and bush beans, and then sorghum, and millet. Those are the main, predominant ones that we've concentrated on.

Hannah Senior: And, why are these crops being grown? What's the market?

Janey Leaky: For beans, the market is very well established. Your cowpeas, and your pigeon peas, and your green grams, it just fluctuates enormously because it's so difficult for the farmers to be able to sell it into a regular market. So predominantly, those we'll use for domestic use. When I mean domestic markets it's for home use, really. There's no big buyers in it.

Hannah Senior: You mentioned that these are alternatives that diversified the rotation away from maize. So I guess there's a question there about why is it that maize is such a dominant crop, and why is it that there's a lot of seed available for that, but not for other species?

Janey Leaky: I think that's quite a big question! [They both laugh] From the way that I see it, when I'm out there in the market, first of all, maize is considered a crop of affluence, that if you plant maize, then you get respect within the community. It's not,

quote unquote, a poor man's crop. Like some of the other crops are. Because your international seed companies have concentrated on that, there's a lot more money in research and the breeding side of it. So local Kenyans have looked at going into breeding maize because that's where there's more money for them. There's less money in the breeding side for doing your ASL or orphan crops. So because of that, it's pushed much harder and because it's a hybrid, predominantly a hybrid in Kenya, obviously it makes more business sense when you go in as a seed company to promote a hybrid than an OPV, an open pollinated variety.

Hannah Senior: Leldet is a seed company that focuses almost exclusively on small holder farms. You don't deal with large commercial agriculture, you don't deal with NGOs or government aid programs, so why is that?

Janey Leaky: Your larger farmers are quite fickle. They will generally try and beat you down on the price. We set Leldet up to, to support our neighbors who are small holder farmers and the NGO market is again, a very difficult market because one day it's here the next day, it's not. It depends on what the donor money is. By supporting the NGO market, because they give the seed out to the farmers, they've completely missed the loop out in the market, which is our agro dealers. Because the agro dealers don't get a look in and the partnership between the agro dealers, though I have a love-hate relationship with them, they're still very important and they get ignored when you sell to the NGOs. So we don't like to support them at all.

Hannah Senior: I know we'll come back to the agro dealers in a few minutes, but thank you for setting the scene. You described how one of the drivers was wanting to improve and diversify your rotation, and when we spoke previously, you were particularly vocal about the benefits for soil health of doing this. So, perhaps you could also set the scene on why a focus on soils is particularly important in Kenya.

Janey Leaky: Soils in Kenya have been neglected. I think one of the reasons they've been neglected is there's been a real emphasis on what happened in India with the green revolution. So, fertilizer and seed were the big drivers to pull farmers out of

poverty. But the problem is that there's such diversity with the crops that people grow, that it hasn't worked in quite the same way and it's been very detrimental to the soils. So, you have farmers who have put on huge amounts of fertilizer, they have now destroyed their soils, they've become acidic. Because of being on the equator, with climate change, we seem to be getting really heavy rainfalls. So any bare soil is burnt, it's eroded, and there's just no matter left in the soil at all. We, through our conservation agriculture, have been doing it for the last 20 years, have been amazed at the difference in our soils now that we can actually visibly see it and our neighbors and our workforce can actually see the difference in our soils.

Janey Leaky: When we do get these very heavy, concentrated showers of rain, which we never really used to get, we don't get the runoff that our neighbors get. When we go through a dry period, we actually can hold what little moisture we have in our soil. So, therefore that extra week that we don't have the rain, our crop is still able to survive. So when it does rain, we still get a crop. Whereas our neighbors it's all shriveled up and died. I really believe that that is something that farmers can make a big difference on.

Hannah Senior: When you first started you were working with a lot of the international research centers and got some materials from them. To what extent do your incentives align with theirs, and were there any unexpected barriers you faced when turning their research into something that farmers could grow?

Janey Leaky: One of the biggest barriers is to get these breeders, to actually understand what it means to commercialize their variety. It's all well and good having field days and getting the farmers to come and have a look at it. But if the seed company can't produce it to a commercial...well, if it's not commercially viable, then it's just going to sit on their shelf. It doesn't matter how good it is, or how sweet it tastes, or how disease resistant it is. If you can't commercially produce that variety, no seed company in their right mind is going to take it. That was one of the biggest barriers, getting people to look at it as a commercial adventure and not concentrate so much on

“The Farmer”, and what “The Farmer” wants. You know, they concentrate on the seed company. I know what my customers want. I know where I can target it.

Janey Leaky: So they should be looking at the seed companies and with AGRA, with the Bill and Melinda Gates foundation, there's been a massive amount of money poured in to support local seed companies. That's maybe where the emphasis should be. So, all this research money has gone into breeding all these different varieties, but how much of it has actually commercially been released and that's there on a regular basis for the farmers? So, they'll get some money and they'll do a research project, and they will make a fantastic bean, cow pea, pigeon pea variety, whatever you like, but because it's not commercially viable to produce it, because it takes too long or there's some issues with the germination it's too weak or whatever, you just find that the seed companies just don't bother picking it up because they just can't go and produce it on a large scale.

Hannah Senior: Kenya has the Seed and Plant Varieties Act. Can you tell me a little bit about how the plant breeder's rights and the intellectual property protection plays out in Kenya and the royalties that are paid back to the breeders?

Janey Leaky: I mean, they're very well placed in Kenya, and Kenya signs up to all the international protocols and everything else. So that side, this is fine. The royalty side is a little bit more difficult. In example with KALRO, we have to pay them, and it varies whether you've got it on an exclusive basis or on a non-exclusive basis. So, for a maize variety, if you have it on a non-exclusive basis, you'll pay a two and a half percent royalty. If you have it on an exclusive, which means that only you can produce it, you'll pay a seven and a half percent royalty on it. With the CGR centers, there's never really so much of that in the royalty payment side of it. That it's your variety, but where the problem comes in is that if I go to ICRISAT or CIAT, or IITA and I take a variety and then I go and release it, I then commercially own that variety.

Janey Leaky: So ICRISAT or CDL centers cannot now go and give that same variety to anyone else. Nobody else can produce that for profit in Kenya, which creates a little bit

of ambiguity and confusion. I call it the valley of death because the CGR centers do all this amazing research, but they don't release it to a commercial product. They allow the seed company to come and take the variety. So from the CGR centers, you can go and get a commercial line, but then you have to commercialize it or you can go and get other lines that you can then do your own breeding with. For a lot of the domestic homegrown seed companies, or we don't have our own breeders. So we use like the CGR centers as sort of like a bolt-on to do all the breeding for us, but they don't go through the commercialization of the seed with KEPHIS. So we have to do that. So, because it costs us so much money, then that variety then becomes our own variety. I feel that's a real gap, I think they should be able to do that. They should be able to release it.

Hannah Senior: Does that mean there's a lot of competition then between seed companies too, if there's a great variety or something really novel that's been developed, is there a lot of competition or a bidding war to obtain access to those genetics?

Janey Leaky: There will be in time, but not at the moment. No, because there's so few of us, if you like, I mean, if you're talking about maize, then yes. Maybe there is a bidding war with the maize side of it, particularly because we've had the MLND, the maize lethal necrosis disease in Kenya, which wiped out several years of maize crops. When the new varieties that had been bred were resistant to it, then yes, there was a huge sort of bidding war, but for your orphan crops and cover crops and things, no, there's nobody.

Janey Leaky: We actually try and encourage other seed companies to go on a non-exclusive basis. We've actually set up a bean consortium and with QualiBasic, and four other seed companies, we've actually approached CIAT and we're actually doing our trials now, so that all of us can be able to trade amongst ourselves. It also means there's a regular supply for the farmers in the market of a bean variety. So as a seed

company, we don't compete on the breed, we compete on our packaging and our price and our marketing. That's where we do our competing.

Hannah Senior: As a commercial seed producer, being able to verify genetic identity and provide a seed that's been properly treated with the appropriate seed treatments to give the best chance for survival. That's all integral to your operation. Which leads me on to farm saved seeds. I would imagine that for many species, farmers would be more inclined to save seeds and replant them next year, rather than buying more. How does that influence your business and how do you feel about that?

Janey Leaky: Farm saved seed is very complicated and it's a very emotional subject. Talking from experience, if there was a regular, good supply of affordable seed, then I don't think there would be a need for farmers to save their seed. The problem is that there's not a regular supply of seed. I'm not talking about maize. I'm talking about, obviously, the OPVs. So what you tend to find is that farmers get a variety and they really, really like it. So, they will save the seed from that because they don't know next year whether they can go back to the agro dealer and get that variety that they want.

Janey Leaky: For us, because of the areas that we've worked in and we've been able to create a regular supply of seed, is that the farmers may keep it for one or two seasons, but they will always come back in season three and season four to, if you like, quote unquote, replenish their stocks. So my concern is that yes, there are circumstances where farm saved seed works, but to compete with us. No, I don't think there's a market or there's an area for it, and I wouldn't promote it.

Hannah Senior: I'm going to change direction a little bit to focus on gender, and specifically one of the things that comes through very clearly about Leldet is that you work with, and focus on women farmers. So tell me a little bit about that. Why, why is that important?

Janey Leaky: It's important because women are generally the ones that are left behind on the farm. It's the women who are the ones that don't get invested in by the family. So

it's the brother that will leave the home and will go into the cities to get the jobs. So, it's the women who are left at home.

Janey Leaky: For us, dealing with the orphan crops or ASL crops. They're the ones where you're going to get food really quickly. By planting your beans, your cowpeas, and pigeon peas, you're going to get a crop and you're going to get food. They're the ones that will do all the cooking and everything else. So we're not hugging women because it's the fashionable thing to do, we are working with women because they are the farmers that are there on the ground. They are our clients. When we talk about maize and things like that, because maize is a hybrid it is more expensive than your OPV varieties to sell. It's packed in a two kg packet and it's priced at more than a day's wage for a farmer. It will require notes to buy it, whereas with the orphan crops or the ASL crops, we'll sell it in coins. It's the women who will have the coins, they don't have note money. That's why we concentrate a lot on women because the men aren't really that interested in it. They don't see the benefits of it.

Hannah Senior: Then let's talk about the distribution and marketing, because you've been on quite a learning curve about what is the best way of making these seeds available and raising awareness. Tell me a bit about that.

Janey Leaky: Yeah, it's been quite a journey. [She laughs] So, the traditional route is that you go to your local agro dealer and you take your variety there and you ask your agro dealer to buy it, and then to sell it to the local farm. The problem is with the new seed company and with new varieties, you go to an agro dealer and quite rightly, they're going to turn around and say, all right, leave the seed with me and I will see if I can get any of my customers to buy it and come back in a week's time. We found that initially we were concentrating our efforts on the agro dealers, but when we went back to go and collect our money, we found that they'd sold our seed, but they had used the money. Then they told us that they were so sorry that their grandmother had fallen off of a motorbike, or their child got sick, and come back and they'll give us some money.

Janey Leaky: We spent our whole time chasing, and not actually going anywhere. So, we then decided to concentrate directly with the farmer and actually work with the farmers. We found the best way to do it was to go into cattle markets, and just go and meet the farmers in the cattle markets. Then from there, we were able to get the farmers buying our varieties, we then created this market whereby we then have the balance. We could then go to the agro dealers and they were then able to buy it. There's this sort of fine balancing act, you know, traditionally all seed is packed in a two kilo, five kilo, or ten kilo package. In Kenya, a two kilo pack is sold at between four and a half to five US dollars.

Janey Leaky: The average daily wage is about \$3. So when you talk to the men about maize, for them, it's a much easier risk to be able to buy a two kilo packet of maize. Whereas for women, it is a much bigger risk because for them, that's the two days wages you're asking them to invest in you. Equally, when you get the agro dealers to go buy, you'll see cash up front. They don't want to have dead stock sitting in their shelf. You have this sort of fine balancing act between the customer, the agro dealer, and yourself to try and get the cash moving and happy customers.

Hannah Senior: That feels like a great place to leave things. Thank you very much for joining me today. agronomic Leakey from Leldet Seed Company.

Janey Leaky: Thank you very much. Thank you for having me.

[Theme music plays]

Hannah Senior: You've been listening to Plant Breeding Stories by PBS international, and I'm your host, Hannah Senior. This was part two of a three part special edition episode. Next week, we'll be back to the usual format.

Hannah Senior: Plant breeding is a pretty specialist podcast topic, which can make it difficult for people who share our interest in this kind of thing to find it. So, if you've enjoyed the podcast, please recommend it to your friends and colleagues, and help others in the plant science community to find it. I'd love to hear from you if you want to

suggest people you'd like me to interview, and you can contact me on Twitter @PBSInt or on Instagram @PBS_Int. Until next time, stay well.

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