



Pioneers of the Planet

Episode 7: Cary Fowler

Merim Tenev - I'm Merim Tenev, on today's programme I have a person who can talk a lot about banks but not the financial ones. So, don't be afraid we're not going to discuss the world's financial and economical crisis! We're going to talk about gene banks and the need to preserve valuable seeds that could be extinguished in the near future for the generations ahead. Here with me is Cary Fowler; he is an Executive Director of the Global Diversity Crop Trust that is an independent international organisation to make over 1,500 gene banks all over the world, Cary Fowler is originally from West Tennessee, where he was a small farmer's advocate. He has dedicated much of his life to saving agricultural diversity and food security for coming generations. Rumour has it he's one of the few people to be banned from a UN agency, the Food and Agriculture Organisation. Hello Cary and welcome.

Cary Fowler – Thank you very much, it's nice to be here.

Merim Tenev – Were you really banned from the Food and Agriculture Organisation of the UN?

Cary Fowler – Well not really. I did in fact work for FAO in Rome during the mid-90's but before that, not everything I was saying about work in this field of crop diversity and saving seeds was very popular, so I'm not sure that they always welcomed me.

Merim Tenev – Let's talk about these gene banks, can you explain what a gene bank is?

Cary Fowler – Sure, a gene bank is really just a fancy word for a freezer with seeds in it. If you want to save crop diversity and in particular for plant breeding and you want to save the genes which give you the traits of drought, tolerance or disease resistance or whatever, you save them in the form of seeds and at one level it's pretty easy to do. You dry the seeds to a fairly low moisture content and you freeze them. So a gene bank can be a big room like a walk in freezer with packages of seeds but also there are gene banks around the world that are made up of

collections of small freezers, exactly like the kind of freezer you might have in your kitchen.

Merim Tenev – And why do we need these gene banks?

Cary Fowler – Well you need the gene banks because you need to conserve diversity and the reason that you want to conserve diversity is that it's the raw material for plant breeding, for evolution and agriculture so if you want the crops to be more productive in the future and you want them to keep up with the next pest or disease or climate change. Then how do you do that? These are domesticated crops and their development is in our hands, so you need the raw material you need this diversity of traits that are found in the seeds and that are found in the gene banks and that's why you need the gene banks.

Merim Tenev – And tell me how you became involved in this work?

Cary Fowler – Well that's probably a long story, maybe there's a short answer and a long answer but the emotional answer is that I used to spend summers on my grandmother's farm and so I was very interested in agriculture. My family always thought that being in agriculture was a form of public service and so I wanted to grow up and do something in agriculture but I didn't exactly want to be a farmer. I also grew up in the time of the civil rights movement in the American South so I was interested in issues of development and justice. And when I started to work in the mid-70's with a little organisation putting out a magazine, we did an issue on agriculture and I came across this particular issue of crop diversity and it just felt so good I decided to stick with it. I thought at the time that I would end up working on this particular subject for a couple of months. That was a little over 30 years ago.

Merim Tenev – Did you find it hard to get political acceptance for gene banks?

Cary Fowler – Oh sure, gene banks are not very sexy. Politicians don't visit them; you don't see them on the front page of the newspaper. This is where societies store the most valuable natural resources on earth. The central bank in any country is a famous place and the vaults there are really famous, in many countries they hold gold. But the seed banks hold something more precious than gold. They hold the biological foundation of agriculture and without that, all the gold in the world is worthless.

Merim Tenev – And where can gene banks be found?

Cary Fowler – Everywhere. There are over 1,000 in the world. I think that every country has one or more. But the problem is, since they're not politically very visible, then you don't have a huge public outcry, forcing politicians to fund them correctly, then many of these facilities operate in a sub-standard way. So there might be many of these facilities but you shouldn't feel very confident or reassured by the fact that there are a lot of seed banks because many of them are in very poor condition.

Merim Tenev – And where are the best seed banks in fact?

Cary Fowler – Well, as you might expect, some of the best gene banks are in developed countries but there is a system of about 10 gene banks, international gene banks that are located in developing countries but are international in their structure. In Peru, in Colombia, in Nigeria, in Syria, in the Philippines, in Mexico and in Ethiopia. These are some very large international seed banks, and India is another location, and they are the primary facilities that supply these biological materials to plant readers and researchers and they're great gene banks run properly. And then we have a back up facility and insurance policy near the North Pole.

Merim Tenev – And can you explain how we preserve the seeds and everything that is in the gene banks? What do we need to have a gene bank in fact?

Cary Fowler – You need a secure facility, so it has to have some physical security, a decent staff who really know what they're doing. They need to have a minimum amount of equipment so they can dry the seeds and freeze them. The problem very often is keeping the seeds frozen to the proper temperature; the best temperature is around -18 to -20 Celsius. And that is not a temperature that comes easily in many developing countries or warm countries for example and you really need to do that quite consistently; so that's the problem that we have in a number of gene banks. And one of the reasons that we started this global seed vault near the North Pole was to provide a backup plan, an insurance policy for the other seed banks around the world.

Merim Tenev – I see and what is the link to climate change and you said that politicians are not interested but if there is a link, why are they not interested in these gene banks?

Cary Fowler – Well that's a good question and the link with climate change is direct. Let me put it to you this way, if agriculture doesn't adapt to climate change, then neither will human beings. But how does agriculture adapt? If crops don't adapt to climate change, agriculture can't adapt. And the mechanism for adaptation is this diversity that we find in our crops. In other words, if we're going to need crops in the future that are more heat resistant because of global warming, or more able to produce large quantities of food with less water, because there are going to be water shortage. How do we get crops like that into the hands of the farmers and into the fields? We do it by breeding new varieties and they don't come from the sky. They come from using materials, the diversity in our seed banks to form new varieties. So we think that the seed banks are absolutely essential to helping us adapt to climate change. And if we don't have that diversity, we're not going to make it.

Merim Tenev – And are other countries interested? Do they need some seeds now? Have they asked for some seeds from these gene banks? What is the procedure?

Cary Fowler – Sure, they ask all the time and so this is a common occurrence, all the time. Some countries have organised themselves in a very rational way. The Nordic countries for example have a community gene bank, made up of all of the Nordic countries and have been co-operating. They have really been at the forefront frankly, in cooperating between the Nordic countries, the Global Crop Diversity Trust in Norway, in building this facility near the North Pole. So when I say that the politicians haven't been paying a lot of attention, I suppose the exception would be the Nordic Countries but we still have some room for improvement around the world.

Merim Tenev – And can you tell me some more about your role as the Executive Director of the Global Crop Diversity Trust?

Cary Fowler – Well, this is a really small, international organisation and we're focused on trying to preserve the genetic diversity of agricultural crops and do it forever, which is a fairly big mandate. So part of my role is to fundraise, we're structured as an endowment and if we build a large enough endowment we can put ourselves out of the fundraising business and use the income from that endowment to finance the conservation of diversity forever. So part of my job is fundraising, but a big part of my job is also trying to work with scientists and partner institutions to construct this global system, which is not easy. We're dealing with 180 countries,

probably 1,000 different gene banks and we have to get everybody... it's like a symphony orchestra; everybody really needs to be playing the same song if it's going to sound very good.

Merim Tenev – And what is the most impressive thing?

Cary Fowler – Well, I think the most impressive, is that we are making progress and what really makes me feel good is to know that yesterday there was a lot of diversity which was threatened with extinction. Which literally may have died out and we'd never see a particular variety of weed or rice again, which today is safe. And that's a great feeling for my staff and myself.

Merim Tenev – And what is the difference between the United States and Europe about tackling the issues of gene banks? You told me that nowadays you live in Europe.

Cary Fowler – The differences are not great between the United States and Europe; Europe is, for the most part, the countries there have joined an international treaty on plant genetic resources which the United States hasn't. But the United States has been very generous; its government, in terms of making its seeds available to plant researchers and breeders all over the world. And Europe has been as well.

Merim Tenev – And what is the biggest challenge to you as a person?

Cary Fowler – I think the biggest challenge is that you have to stay focused; you can't in the job I have, I'm sorry to say you have to figure out pretty early on that you can't make everyone happy. And you have to be committed to what your big goal is and you have to pursue that with great intensity. So that of course is a challenge.

Merim Tenev – And where is the fun in your life? Tell me a funny story that is connected to the gene banks and to the work that you do.

Cary Fowler – Well we get a lot of stories and a lot of questions about our seed vault near the North Pole, and we get people writing in and asking where they're going to find the key after a nuclear war and various things like that. And we always tell them 'don't worry, you won't need to find us, we'll find you.' Even though the seed vault is not really built for that particular purpose but I think the fun part is hearing how enthusiastic people are about it. The other day we got a letter a fourth grade class

here in New York City, sending us a cheque for three hundred dollars because the children really thought that what we were doing was important. And so they'd saved money and held a bake sale and wanted to help us out and I'm not sure if you would say that that was funny, it almost brought some tears to our eyes but it's these kinds of interactions with normal people that support our work, that sometimes just keep us going.

Merim Tenev – So that's really important to you, obviously, interaction with the people. Why are you doing this in fact? Is it for the people? Is it for the future? Is it for the next generations?

Cary Fowler – Well, yes. I mean I have children and of course it's for them but I've been working in this field for thirty years and I won't officially have a job that much longer, I'm closer to the end of my career than I am towards the beginning. So I have a sense that we have a short period of time in which to protect the biological foundation for agriculture and everything that agriculture could or should be in the future, really depends on how much we collect and conserve today and that gives a real sense of urgency to what we do. And that's what gets us up in the morning.

Merim Tenev – Conserve today to have a future, that's the main point obviously. Thank you for having us with you Cary Fowler. You have been listening to Pioneers of the Planet.