

The Taproot Podcast

Season 5, Episode 3

Guest: Thelma Madzima

Hosted by Liz Haswell and Ivan Baxter

Transcribed by Jo Stormer

[Theme music]

Liz Haswell: Welcome back to The Taproot podcast, where we dig beneath the surface of a scientific publication to tell the stories behind the science. I'm Liz Haswell.

Ivan Baxter: And I'm Ivan Baxter. To say that the pandemic is stressful is both an understatement and unnecessary. But for many in our community the effects of the pandemic were only added to the stress of being an early career scientist, a person of color, or an immigrant.

Liz: Well, today's guest Thelma Madzima is all three of these. We believe that there's a lot to learn from our frank discussion of the pressure cooker that was 2020. One note before we begin, we recorded these episodes in October and then life intervened. So any references to recent or upcoming events may not match our current situation. With that, on to the episode.

[Theme music]

01:39 **Liz:** Our guest today is Thelma Madzima, an assistant professor of Cell and Molecular Biology at the University of Washington, Bothell. A native of Zimbabwe, she got her bachelor's degree in plant biotechnology and Fort Valley State University in Georgia and then did her PhD with Kevin Folta at the University of Florida. After that, she moved on to the lab of Karen McGinnis to do a post-doc. As one of the very, very, very, very, very few Black faculty in plant molecular biology, Dr Madzima has been active in efforts to improve diversity, equity, and

inclusion of several of these communities and we're very excited to talk to her today about how she's been balancing this critical work with her own research and her teaching, and especially over the past few months. So, Thelma, welcome to The Taproot.

Thelma Madzima: My pleasure, thanks for inviting me.

2:41 **Ivan:** So our paper today is "Epigenetic Regulation of ABA-Induced Transcriptional Responses in Maize", and it came out this year in May in *G3*. Thelma, can you give us a short summary of what this paper is about?

Thelma: Yeah! I was really excited when this paper finally came out. Just a little bit of a backstory, as a post-doc in the McGinnis lab I was involved with several collaborations in which we characterized a specific epigenetic pathway in maize, and we did this using a mutant known as MOP1 that is defective in epigenetic regulation. We were able to identify specific genomic features (including transposons) that induced a specific type of DNA methylation response.

Following up on that, I realized that I was very interested in understanding how these epigenetic mechanisms facilitate plant responses to the environmental stress. To be honest, my motivations behind this were as a result of my own experiences growing up in Zimbabwe where drought hits the country very often and affects maize yield; and maize is a staple crop plant in that country. For this particular study, we aimed to identify the extent of epigenetic regulation on abiotic stress responses in maize and we did this by subjecting this MOP1 mutant to the stress hormone ABA and measured transcriptional responses using RNA-seq [sequencing]. We found that stress-induced transcription was exaggerated in the MOP1 mutant where epigenetic silencing was lost, and many of these mis-expressed genes were transcription factors. We also identified specific classes of transposons that seemed to be playing a role in

these responses.

Liz: I guess the idea is that in the MOC1 mutant, all of these transposons are being expressed? Is that the idea, that normally they're silenced? And so in these maize lines where MOP1 is absent, all of these transposons are getting expressed and that is sort of an inherent baseline of stress? Then you add ABA on top of it?

04:54 **Thelma:** Right? It's transposon being mis-expressed, so those should be silenced. And there's also other genes that are being expressed that should have been silenced.

Liz: So you're getting tons and tons of genes misregulated.

Thelma: Right.

Liz: Do those MOP1 constant look normal, or are they pretty messed up?

Thelma: Oh, no. Those are developmentally messed up.

[Laughter]

The MOP1 phenotype, the mutant is really difficult to work with sometimes. One of the observations that I noticed when I was a grad student (that we all agree on, everybody who works with this mutant), it's really sensitive to changes in the environment. I remember once as a grad student, we just had I think a few rainy days in a field season and those mutants just completely abort mission, stop flowering, so it was really hard to get seeds if the environmental conditions change. But then also too, in any given family when we grow these mutants, we observe a variety of developmental defects.

06:01 **Ivan:** It really just messes everything up there for you.

Thelma: Right, right, but it really emphasizes how important this particular

epigenetic pathway is.

Liz: I think I read on your paper (I've forgotten the number now) 80% of the maize genome is transposons? Is that wrong?

Thelma: No, no, that is correct. Isn't that crazy?

Liz: That's crazy. Cuz then it's like, what even *is* the genome? As I was pondering this, I was just wondering why hasn't maize figured out a way just to cut those out instead of silencing them.

06:46 **Thelma:** [Mock anger] Hey, hey, hey! In the maize community, we've learned to embrace these transposons.

[Laughter]

Who knows, right? There might be advantages that we aren't aware of yet. Only time will tell. Yep, we accept them and we just work.

Ivan: Thelma, you mentioned that the homozygotes are just like scraggly and super responsive to the environment. You ended up doing this experiment by planting seeds from the heterozygote genotyping and then picking the wild type segregates and the homozygote segregations as your comparison.

Thelma: Right.

Ivan: Do you ever regret your life choices and deciding to work with a mutant like that?

[Laughter]

Thelma: I wish he could see my face right now. I'm so used to it now. It would be nice to be able to maintain stocks in the homozygous state, but it actually really works for us in the field of epigenetics because you really want all else to be equal.

Ivan: Your maternal environment, everything has to have been . . .

07:48 **Thelma:** These are very close, genetically-identical siblings. It is frustrating in terms of the effort you have to put into genotyping; and also in the field when you really need like a lot of mutant plants, you just have to plant more.

Liz: I guess that requires you to have more field space than, per experiment.

Thelma: Right.

Liz: I think this is all super interesting before you came on, Thelma, Ivan and I were even talking about this - the way that having one sort of ongoing stress makes the effect of adding another stress (in this case, the ongoing stress of deregulating all these genes through epigenetic mechanisms, then you add another stress - which is the ABA signaling pathway) makes everything worse; the second stress always appears worse.

08:48 It's true in your plant system, but I also feel like it's something that we're feeling right now. The last six months, it feels like the pandemic . . . you know what I mean? The pandemic, you've heard of it?

[Laughter]

It makes it makes everything else worst and brings to light inequity that was already there, but now everything is just thrown into sharper relief.

Thelma: It's as if you're like more susceptible to just more chaos, right?

Liz: So you live in Washington state where the very first COVID cases appeared, I know Seattle. I guess Bothell . . . you're probably insulated from this a little bit, but there were lots of extended

demonstrations probably still happening now against police brutality downtown. And then of course recently all the air pollution from the wildfires. How have you kept that low level of stress from affecting everything in your professional life? Or have you?

Thelma: It's been a struggle; it's been a struggle for sure. And you're right - in many ways, Seattle has been at the center of the knowledge and response to the global COVID-19 pandemic. As the Seattle flu study was the first group to report community spread of COVID-19 in the U.S. I actually live in Kirkland, Washington, so the city that became the first epicenter due to that long-term care facility. I feel like we've been really front and center with all of this.

Liz: You're at like ground zero in the U.S.

10:25 **Thelma:** I'll never forget that first weekend.

Liz: Tell us about it.

Thelma: There was so much uncertainty. We had no idea what to expect and people were rushing to Costco. There was a lot of hoarding, and I remember that weekend just hearing sirens. Kirkland's generally a very, very quiet city (or town) and just hearing sirens in the middle of the night, knowing what was going on. You knew where they were going - taking patients from the long-term care facility to Evergreen Hospital, where at that time a lot of patients were being taken. It was very depressing early on. From a research perspective, I really feel bad for undergraduate students. As I work on a primarily undergraduate campus. UW Bothell is a PUI (primarily undergraduate institution) which is part of the University of Washington system.

11:32 We really try to give our undergrad students a lot of research experiences, but it's really hard to maintain physical distancing while trying to teach an undergrad how to pipette and several other types of molecular techniques. So for the undergrads, lots of research

opportunities were canceled. It's unfortunate because those experiences are really critical for the undergraduate experience and also in terms of our recruitment efforts. Personally, I was able to shift into focusing on things that I could do from home. There was a lot of data analysis and writing. At the beginning (I think between March and April), I was actually able to then to just put out three smallish grant proposals.

Liz: Congratulations.

Thelma: Thanks. Two got accepted, and so that was good. I started off productive and I think that was like a coping mechanism. And other than that, I've also been working on data analysis and writing.

12:32 **Ivan:** But you basically have had to shut down your in-lab research activities, which means that none of your undergrad students have been able to do anything. Is that what happened?

Thelma: Yes. The in-lab activities in essence have been shut down. We are at the level that is only critical personnel. Undergraduate students don't really fall into that category as much, and so I'm the only one who could go in. At that point, I'll be going in maybe a few days a week just to kind of keep things going. But for the most part, things have had to move online. I did have an undergrad student who everything kind of aligned and who was really interested in computational bio and bioinformatics, and so we do have some more RNA-seq data that the student can work on.

13:33 **Ivan:** How long do you feel like that's going to go on in your lab?

Thelma: Oh, man. My opinion, I don't see us back until next summer; I don't see us back until the next June. It's been really hard because it is going to affect productivity. From a junior faculty level, a lot of institutions did give us a year on the tenure clock due to COVID, but I'm not sure it's only going to be a year.

Ivan: Well, it's certainly going to be at least a year, and that assumes that you can actually start back up, like there's a huge amount of momentum. At that point as an undergrad-focus lab, there's a good chance that you've actually literally lost your entire skilled cohort, isn't there?

14:32 **Thelma:** Exactly! Because the undergrads really only start pursuing research opportunities maybe in their junior year, and so a lot of my students would have graduated.

Liz: I think that's the prevalent with this whole . . . I don't think it's bad that people are getting an extra year towards their tenure clock; I just think that's not enough now.

Thelma: No, I agree with you. I think it is going to be like starting a new lab. Granted, we do have everything we need but just the way it takes a while to ramp up, I do think that's what's going to happen. I'm going to have to recruit new students and teach them molecular techniques and I do believe we're still going to be doing this in some sort of social distancing or physical distancing type of setup. So that also then significantly reduces the number of students that I can host in my lab. It is going to affect the undergrad students significantly. I work at a primarily undergraduate institute, and one of the reasons is that I really want to use that as an opportunity for recruitment.

Ivan: Have you considered how many MOP1 homozygotes you could obtain from your backyard?

15:49 **Thelma:** [Laughs] It's really hard to grow corn (or maize) in Seattle.

Liz: Not enough sun.

Thelma: Actually, a lot of our studies we've been doing at the seedling stage.

Ivan: So when you talk about your recruitment and undergrads, I get the

sense that you're talking about really trying to bring people from excluded backgrounds into science. Is that what you were saying, or am I just reading into that?

Thelma: Both. I think it's one of the most critical stages (being able to expose students from underrepresented groups to research and science), but I'm also thinking of it also from a general perspective as well.

Liz: We're talking about this idea that you have one stressor and then you add more on top of it. One thing I would imagine would be an extra stressor for you would be all of the terrible manipulations that the Trump administration has been going through that are affecting immigrants and immigration policy. So how has all of that affected you?

16:53 **Thelma:** As you mentioned earlier, I came to the United States on a student visa (an F1 visa) as an undergraduate. I have gone through so much off the immigration system in the United States. Fortunately, I'm now a naturalized citizen.

Ivan: Yay!

Thelma: I know!

Liz: Does that mean you can vote?

Thelma: I can vote, and this'll be my very first time ever voting for any presidential election in my life. I left Zimbabwe when I wasn't eighteen yet and then I haven't been a citizen for any presidential election here. I've been through the immigration system and I know how frustrating it is, so I really feel sad for people who are on visas or are waiting on visas and the emotional toll that it will take on these individuals. During my whole process, I didn't have to go through anything like this and it was still stressful. I spent so much time and emotional energy always trying to stay legal and making sure that I

have the right documents and I'm following all the rules, and it just feels like not knowing what to expect (again) in this stressful environment just adds to the craziness.

Liz: I've seen this happen in my own lab. What I worry is that we're giving a terrible message to all of our international community about who is welcome in the United States to do science. Do you think people can separate "This is the current U.S. government" versus "this is what American scientists think", or do you think it gets conflated and this is going to have like reverberations?

18:55 **Thelma:** I think there's going to be a point when we're going to miss out, and I think other countries are going to start to be more lucrative. There's only so much people can take, and we also don't know how long this is going to go on for. So I do think that we have to be really careful because at some point it might not be worth it to go through all of this drama just to study or to pursue a research career. There are other places where people can go, and other countries also appearing to be *more* welcoming. I know Canada has a point system where a lot of academics meet the requirements.

There are going to be downstream effects of that, I think.

Ivan: If you were talking to a young woman in Zimbabwe right now (and let's just imagine that you could actually get on a plane and travel to the U.S.), what advice would you give to her if she was gonna try and go to college somewhere other than Zimbabwe?

19:57 **Thelma:** Well, actually it's pretty interesting because I *was* mentoring a student (through the Conviron ASPB program) who was living abroad and was really interested in coming to the United States for graduate school - currently in a master's program but was really interested in coming for a PhD program. I'm not going to lie, we would be so lucky to have this individual working in the United States. I had to have that honest

conversation with this person to say, "That might not even be possible for awhile," because who knows if they're going to be giving new visas anytime soon, and what types of restrictions are going to be added onto the visas that we're currently giving out for F1 students? I would encourage people to still continue to apply for college or graduate programs in the United States but also consider other places as well, which is unfortunate to say.

21:02 **Ivan:** Yeah, I couldn't in good conscience tell someone they should put all their eggs in the United States basket.

Thelma: Because who knows? Things are changing almost every day. Sometimes there's a hold on a specific type of visa category. These are human lives; you're putting people on hold as well.

Liz: Is there anything that we can do? That the scientific community can do? That the plant biology community can do? Immigration issues other than witnessing it and wishing it weren't happening?

Thelma: I think what the community should do, first of all, check in on your immigrant trainees and your immigrant colleagues. One of the hardest things about this whole situation is also how we cannot go home, and that makes it a lot harder. If anything happens in our home countries we have no option of going home, which is a very difficult pill to swallow. But also just checking in and making sure that your trainees and colleagues are just mentally okay. Mental wellness is a big component.

22:16 Again, it comes down to one of the themes that keeps coming up during these times is the important role of allies. It is up to citizens to be knowledgeable about the immigration process (which a lot of American citizens are not really aware of) and then standing up and voicing your opinions whenever you can. It is going to take effort from *everybody* in the scientific community to make it clear to

whatever administration we have that it is not acceptable to target or restrict admission off of the scientists.

Ivan: Amen.

Liz: Not much more to say than that, I think.

Ivan: Aside from the fires and the COVID and the immigration, one of the things that this summer has highlighted is that systemic racism is absolutely pervasive in our society and our policing in our health care and in our science.

23:23 **Liz:** So you're saying science isn't immune.

Ivan: There really is a complete underrepresentation (due to exclusion) of Black scientists from our scientific faculty, our scientific communities, our scientific societies. You have been active in a couple of your communities (ASPB, the maize community) to try and start addressing this. So I wanted to take some time to hear from you what you see as the things that we should be doing *right now* to start fixing this.

Ivan: I think that there's multiple levels of action that needs to take place, and I cannot emphasize enough the importance of recruitment at the K-12 level. That, in my opinion, is where the scientific community is losing a lot of our diverse students. It breaks my heart every time I realized (for example) with the few Black plant molecular biologists, several of us are foreign born, right? So I am pro immigration, but I also am pro making sure that American citizens are also part of the scientific community - so American-born citizens. To me, that's really important, and so K-12 recruitment is absolutely critical.

24:46 And then after that, it is basically retention efforts. I still feel like there is recruitment efforts that can happen at the undergraduate level. If people teach, in my opinion the Intro Biology type courses

are another step in which recruitment is critical and that's a stage when we lose a lot of our diverse students. There's been several studies that show that underrepresented minority students fail Intro Biology courses at a disproportionately higher rate than their majority colleagues. So we have to be aware of how we are being inclusive in the classroom and also offering the students research opportunities in our labs. That's going to take just stepping out of your comfort zone and approaching these students, and just offering them these opportunities.

25:54 **Ivan:** Can I stop you there? Can you go more in depth about when you think about being inclusive in the classroom, what you mean by that?

Thelma: Oh, I don't even know where to start. There's a lot of things; there's so many things that you can do. There's just making sure that you are calling on people equally, identifying trends when students from different demographic groups might be falling behind. I think one thing that I'm noticing in all of my inclusion and diversity efforts is that we have to look at numbers. We have to analyze the data. We have to take a step back and not just be caught up in our daily routines, but actually take a step back to see how everybody is faring in the classroom.

27:01 There's other things that you can do. Using examples in teaching is really important, but making sure to use examples that are culturally inclusive. Again, highlighting research from studies underrepresented groups, from scientists who are themselves also from under represented groups, there's just so much that can be done in the classroom.

Liz: I can see how to add those things to a class so easily, but they're never part of what you do without any training. Those are tiny actions. It's just a matter of being aware and then asking.

Thelma: It doesn't take that much more time. We just have to do it to continue with other efforts that we do, making sure that your graduate students are being offered the exact same opportunities. I think just even if you just have a spreadsheet, for example, and making sure that you take time to reflect to make sure that everybody is being exposed to the same types of opportunities. When you are introducing your trainees to other big scientists at meetings, are you introducing everybody equally? It is going to take a lot of reflection on everybody's part.

28:07 And then the higher up you go, it is really about retention. That is going to require a lot of institutional change. We are functioning in a very broken system and it is a very hostile environment to be in. I am not going to lie, as a graduate student. I think I have seriously considered quitting almost every single year, not because I don't love what I do; I feel like I have my dream job. It is just that it is so hard to function.

Liz: I can only imagine. Do you feel like this year is worse? Or do you feel in some way that members of our community finally reckoning more publicly with these issues and more broadly, they give you hope or does it feel just as draining?

Thelma: It's draining. The way we arrived to where we are right now is extremely unfortunate.

Liz: To say the least.

29:15 **Thelma:** I wish I wish it didn't have to be this way. Speaking from the Black perspective, I think a lot of our Black colleagues we've been saying these things, but nobody is hearing us - or nobody was hearing us. So I think at this time I'm a little bit too vocal for [laughs] what is the norm from junior faculty, but I feel now that people are listening and people are becoming more aware, we have to speak up so that

hopefully there is some sort of institutional and community changes that will happen. While Black Lives Matter is still trending, we just have to keep making voices heard and hopefully that doesn't stop. That's what I'm really worried, that the momentum will die and then we just return back to the status quo.

Ivan: Since George Floyd was killed, have you seen concrete steps in your societies / in your institution that you feel are actually moving in the right direction? Or is it still just talk?

30:27 **Thelma:** You know, I've been involved in some of the conversations about diversity and inclusion for the maize genetics community. I'm not going to lie; I am VERY optimistic. The group of individuals that are leading these efforts are action-driven and things have been going really, really fast, so I've been really impressed by those efforts and I am optimistic. I was always surprised that like the maize genetics community values genetic diversity, but that we're like the *least* diverse in terms of senior scientists. I'm still not sure if I'm the only Black (or one of few Black) maize genetics professors that always keep being a post-doc because it is a culture that minority people don't make it past a certain level. But I have been really optimistic about those efforts. I was serving, but I'm rotating off from the equity, diversity and inclusion committee for ASPB.

31:37 There's a lot of conversation, Liz, that's going on with NAASC [North American *Arabidopsis* Steering Committee] and I am very hopeful about the things that are happening. So in terms of the plant science community, I think we're going to do the right things. I feel that we are being heard and that our colleagues are trying to take action, and I'm not just saying that.

Liz: That's good to hear. Give us an example of what some of the actions that the maize community is doing that you find hopeful.

Thelma: From the last time I've looked at some of the conversations that have been going on in emails, I did have some really good conversations with the committees and everybody is really looking at the multiple ways that they can be inclusive at different academic levels and also the ways that the community . . . I think one of my favorites is that they want to make it part of the norm to have conversations about inclusion at the meetings that are part of the main symposiums, part of the main conference.

32:43 **Ivan:** I mean, that's one of the hallmarks of the maize meeting is that there's no side symposium; there's no concurrence; there's no meetings that are supposed to be going on. Everyone is together in one room the entire meeting, basically.

Thelma: Yes. So making sure that -

Liz: These discussions don't get siloed.

Thelma: Right, they don't get siloed. They're not going to be side conversations. They are going to be added onto the program. I mean, it would be pretty embarrassing if you're that one person who walks out when we stopped talking about science and start talking about inclusion, so I think that's one of my favorite ideas that I've heard.

Ivan: Then you were about to talk about your institution.

33:46 **Thelma:** It's interesting because in general the leadership of the University of Washington and our Bothell campus, they are committed to diversity and inclusion. It doesn't always mean that because your president or your provost is interested in these things, that your chairs are. I think this summer, our Vice Chancellor of Academic Affairs for our campus put out some really definitive ideas in which there were measurable outcomes or that there would be ways of measuring outcomes of success. One program that our campus Vice Chancellor

of Academic Affairs funded for me (with one of my other colleagues) was just to create a community of support for minority faculty. We're focusing on mental wellness, and so we are hiring a psychologist from WellAcademic and we're just going to have weekly group mental wellness check-ins, which are important because while our colleagues are learning to be anti-racist, having these types of conversations is so emotionally draining. So we are creating a safe space for minority colleagues that we can actually just talk and vent

Liz: That sounds really important.

35:06 **Thelma:** Yeah, I think it is critical right now. I think on the institutional level, allies are going to be important as they are on our campus. There's going to be a checks-and-balances type of system; I think (if I understand it correctly) where deans check other deans work to make sure.

Liz: Interesting, peer pressure.

Thelma: Right! So you don't want to be embarrassed, just to make sure that it's not those that underrepresented that are being disproportionately affected. I had to send a really uncomfortable email to my colleagues on my campus when all of this started because a lot of our colleagues (and this is true for the culture of the Pacific Northwest) thought, "These things don't happen on our campus. They happen other places and they happen in South." But I had to give them my own example of how my access to resources and experience has not been the same as my white colleagues.

36:11 **Liz:** Oh my gosh, that's very painful. So I was an undergraduate at University of Washington in Seattle, actually.

Thelma: Oh really?

Liz: Yeah. That characteristic that you mentioned, "Nobody's racist *here*."

Everybody's liberal," is very familiar to me.

Thelma: Being racist doesn't mean just outwardly using the N word. We're using this word now, *anti-racist*; it's actually actively checking your own biases, as well, and that's going to be really important.

Liz: Do you feel comfortable talking about what some of those inequities were? Or is that . . .

Thelma: I'm actually very comfortable talking about it. I had to come to that realization that it was important to talk about it because these things were happening and it's the truth.

Liz: Tell us, what was different between what support you were getting and what your colleagues were doing?

37:18 **Thelma:** I have a classic example. I was hired at the same time, starting with a white male colleague. My white male colleague got adequate lab space, and I had to wait seventeen months to get lab space. So you can imagine that that delayed my research progress, and that comes up at every merit review process - that I am not where I should be, if you're looking at time. I was able to petition for a tenure clock extension, and I was able to get one year; you can't really get seventeen months cuz there's a cycle system that's going on.

Ivan: But given as we *just* talked about with the COVID thing that it takes longer to get things set up, they should have rounded to two.

38:24 **Thelma:** Well, I requested a year because I kind of was told that's probably the most reasonable that I could get out of that. It also was very frustrating when I found out that I was teaching more FTEs than any of other colleagues on the tenure track. So I didn't have ideal research facilities early on (and I got my research lab later on) and then I had a higher teaching load. Know you, there's multiple things that this affects. I now have this delay for going out for tenure, and if

I am successful my white male colleague would have already gotten a promotion and the boost in income rates that comes with that. So I'm always going to be behind.

Liz: I'm so, so angry on your behalf.

Thelma: I don't think that . . . I'm not trying to make excuses, but I don't think that those in power were just taking the time to look at the data. In terms of teaching, I had gotten so frustrated and I couldn't figure out why I was always so busy and had a long line of students outside of my office until I actually had to go and graph the data. I had to graph, so that's a lot of time. I had to go and graph the teaching loads for all tenure track faculty in my division; it was still a relatively full division, but still graph that data. The numbers don't lie.

39:41 **Ivan:** And why do YOU have to do that? Shouldn't that be something the institution is checking itself on?

Thelma: Exactly. There's been examples of where there's two Black females in a school of STEM. At one point, they had just my picture for both of our profiles.

Liz: Oh my god.

Thelma: All of this is just . . . how does that make you feel?

Liz: The things you're describing are like a caricature, they're like something that somebody would make a composite story; that all of those things couldn't happen to one person.

40:40 **Thelma:** Exactly. And I made this point that if these things are happening at a disproportionately higher rate to those that are disproportionately underrepresented, then there is something wrong with the system. There are biases that are happening at every level. So it's not just one person committing these (for lack of better word) offenses; it's

happening at multiple levels.

Ivan: It's a group effort.

Thelma: Right! [Laughs] So I am a little bit vocal about it because it is important to highlight that these things are happening. These things are happening with people who have good intentions, right? These things are happening at institutions that value diversity, that are *trying* to be inclusive. And it's really hard to retain diverse scientists if these are the types of things that we're experiencing.

41:45

And so the community of support that I co-funded at my institution was because so many members of my other Black and minority faculty kept leaving. I was tired of leaving my support unit; I was tired of leaving my cohort, the people that I get to talk to and we get to vent and have these conversations with each other. Fortunately, I'm very grateful that our campus supported this initiative, and then hopefully through this community of support that we can retain myself and my colleagues

Liz: I really want to thank you for coming on and telling your story, which we know is work. We know it's emotional work for you to be here and to tell your story, and to share it with a big community. So I want to thank you for all the work that you've been doing in the maize and the *Arabidopsis* and plant the community. It's all so really important, and also it's work *on top* of all these other things that you're doing that are your actual job. We're grateful, and I know that the listeners are going to be grateful too.

Thelma: Thank you.

43:03

Ivan: I absolutely want to echo what Liz says, and thank you for joining us. If someone wants to give you feedback or if someone wants to get in touch with you, what's the best way to do that, Thelma?

Thelma: I'm also on Twitter, at @Thelma_Madzima.

Ivan: And Liz, how can people reach you?

Liz: They can also reach me on Twitter, at @EHaswell.

Ivan: You can reach me on Twitter, at @BaxterTwi, and you can reach The Taproot on Twitter, at @TaprootPodcast. We also have an email, taproot@plantae.org. And with that, Thelma, thank you so much.

43:40 **Thelma:** Thank you.

[Theme music]

Ivan: The Taproot is produced by the hosts, in collaboration with the Plantae team of Katie Rogers and Mary Williams at the American Society of Plant Biologists. On this episode, we received editing help from Plantae fellow Ananya Mukherjee. Jo Stormer provides our transcripts.

Thanks for listening. And we will return with another episode next week.

[Theme music]