Mike Ewing

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GRDC investment, grain industry, farming systems, break crops, whole farm approach, plant adaptation, lupin agronomy, phosphate deficiency, cash flow budgeting, integrated dry land, pasture legumes, nitrogen fixation, microbiology partnership, community engagement, research funding

**SPEAKERS**

Mike Ewing, Oli Le Lievre

**Oli Le Lievre** 00:00

This series is a GRDC investment that takes you behind the scenes as we sit down with some of the people shaping our grain industry, uncovering their journeys, learning more about their passions and the projects that are part of their everyday. We are over in Western Australia. This is now the third part of what has been the GRDC In Conversation Podcast. We’ve covered Southern Australia, we’ve covered the north across NSW and Qld, and now we’ve headed west to meet with all sorts of growers, advisers, researchers and people involved in the Aussie grains industry. Welcome to the next series.

You Well, what I might do? I've got a little intro here. I'll read that to you. But I think, I think Mike, when it comes to the in conversations here, is part of what we're doing with GRDC here, the bit of feedback I got from farmers was, obviously, research is so important. Extension is incredibly important. But just the stories of different people involved in the grains industry is fascinating, and it gives people something to listen to when they're in the tractor or in the car or whatever it might be.

**Mike Ewing** 02:47

It's really that time of year, isn't it? Yes, harvest or whatever. Yeah.

**Oli Le Lievre** 02:52

A great time of year.

**Mike Ewing** 02:53

Yeah.

**Oli Le Lievre** 02:55

And Mike, for you, you've your scientific research career has lasted more than 40 years so far. You're particularly well versed in the fields of farming systems break crops and taking a whole farm approach to profitability. You've served as the deputy chair of the Western Regional panel for GRDC, and you've got a keen interest in the WA broadacre cropping industry. As I did a bit of research on you, there was this love of plants, which continued to come up. And then I started to discover that it's not just agriculture. There's also this love of the coast and plants along the coastlines as well. So Mike, welcome to GRDC in conversation.

**Mike Ewing** 03:32

Thanks. It's a pleasure to chat

**Oli Le Lievre** 03:35

Mate talk to me this love of plants, which people mention. What is it this love?

**Mike Ewing** 03:40

Well, it's a bit more complicated than love. I guess it's recognizing that there are very that we operate, you know, particularly in Western Australia, in a very hostile environment for plants. We've got everything from, you know, low and high rainfall, infertile, largely infertile soils often associated with acidity and other stresses. And so plants that are going to cope with these conditions, both, you know, naturally or as managed plants in farming systems have to have special attributes. And the real challenge and the interest in plants comes from trying to fit those plants into that spectrum of stresses that they're facing and and so and then you, when you start to look, you realize how, how complex plant communities are, and how, when we want to use them in managed systems, that we need to think very carefully about we want, what we want, and then go looking for it. And so through my career, I've sort of I combined the patient looking at the gaps in our system, you know, in our farming systems, and then thought about how and what we might use to fill those gaps. And so that's where the interest in plants comes. It's to do with finding those right ones, particularly those spectacularly right ones that can make a real difference and change the trajectory of, you know, the agricultural system.

**Oli Le Lievre** 05:30

So Mike, it sounds like, as you've as you talk about some of those challenges, it could easily become like, quite overwhelming in terms of the challenges that, especially Western Australian grain farmers, face. What was it that really drew you into it?

**Mike Ewing** 05:46

Well, I guess it all happens incrementally and slowly, so it doesn't feel like it's overwhelming. But, and you know, you had quite a an interesting apprenticeship phase when my first appointment was at Charlton as a as a generalist farm advisor. And I spent five years there, you know, in a community that had a lot of new land farmers who were battling quite hard and and so and they were facing, you know, complex problems, both technically and financially and so and because they were they didn't have many sources of advice they got... They allowed you to have an insight into their businesses, which gave, you, know, a real sense of the holistic nature of farming and the compromises that farmers make on a regular basis to try and make a not only a successful biological system, but a successful economic system. So I got a really strong grounding in the in those issues and along the line, learnt to listen carefully to what farmers were saying, particularly about what they wanted or what they needed, and realized that I was in a position, a privileged position, and a way to think about potential solutions to their problems that they because of their focus on the local weren't necessarily aware of. So it became an opportunity to to think, about solutions in a creative way. And this doesn't, you know, careers don't sit in a vacuum. I, you know, the Department of Agriculture as it was then, had a fantastic array of senior scientists who, you know, took a lot of trouble to to blood junior people like me and to, you know, try and interest you in their in their passions, and so you were able to to tie into some of those ideas and people that you're able to discuss about the science with and so, and I think at that stage through most of the my career, the Department of Agriculture was a fantastic place to to work, to do, to do with The people that it had historically attracted as employees and and the support they gave to that, to that practical science aspect.

**Oli Le Lievre** 08:52

And take me back 1972 when you started there with private agronomy, wasn't really a thing. That was the government agronomist. That was the keeper of knowledge.

**Mike Ewing** 09:02

Yeah. So though there were the private agronomy business was just starting to get going, and the University of Western Australia had sort of in the in the form of their senior economics academic Henry schapper, had been telling farmers that this would be a good thing to do to get private advice that concentrated both on business advice and technical advice, and he had set up a foundation to to start that process. Often, interestingly, they went to recruiting quite a number of people from New Zealand who had mainly got experience from livestock industries and dairy, but had this culture of being private consultants. And a number of them set up practice. And then gradually, some people who. And done their early years in in public sector, moved across to the to complement those those numbers later on, but at the time I started, there were really no in the area that I worked. There were no private consultants and and so and so. The public sector allowed both what one on one work with diamonds, so so that's rare now, to have a one on one contact, but it was common in those times. And then as you gained experience, you tended to work more with groups. But in the early learning stages, it was mostly one on one which gave you deep insights into the into the farm and the business. And I always reckoned that in those times I could, I could sort of monitor how deep my my conversation was by the number of gates open. A lot of gates meant that we really got down to it, and stuff came out, you know, in the in the ute, right around, looking at pretty much everything. And those were kind of formative times. And if you were prepared to spend the time, they were prepared to educate you.

**Oli Le Lievre** 11:23

And riding shotgun in a in a year. And depending on how many gates you open, you could become privy to some pretty well important information, but also some pretty deep conversations in terms of part advice, but also part just ears and counselor.

**Mike Ewing** 11:39

Yeah, well, I mean, I guess I was pretty immature in the sense of being seen as a councilor. But it was important, I think, that to overcome some of that isolation that particularly new land farmers, who often living in pretty rudimentary conditions, and, you know, in the end of a shed, or, you know, often without much infrastructure, spending long hours doing, you know, menial things, to have a chance to talk to someone that was interested in their ideas was, was, I think, helpful?

**Oli Le Lievre** 12:19

Yeah, interesting. So paint -- Can you find a picture for me what the region was like and what the farmers were like? Was it a it was a newly established cropping region was?

**Mike Ewing** 12:28

So was a real mix of old land, which was more the heavy land to the it to the east of the area, but with a lot of relatively recently cleared land in the medium rainfall zone, both well, all in all directions from Geraldton, in a radius of about 100 kilometers, a lot of new land. And it was really difficult, you know, the systems of the time with cultivation and so on, it meant that it was very susceptible to wind erosion. And there were, you know, it wasn't a comfortable time, really, because there weren't at that stage many options to to other than cereal cropping and and so the first big part of the my career was working with Perth based breeders and growers to work out how to get lupins into the into as a new element into the farming system. So the first commercial crops of lupins were growing about the the year I started, about 1972 with with the first varieties, which were uni white lupins, the tall, growing and not completely non shattering variety. And very little known about how to grow them in the in that particularly in that environment. So I spent quite a lot of that early stage doing field based for on farm research experiments on the agronomy of lupins in the as the local practitioner with a with a with a a seat, more senior agronomist somewhere else do it, doing issues of nutrition, you know, rhizobiology, your variety, comparison, sowing rates. All the basic agronomy was done in that period from about 72 to 76 and it was a period of quite good seasons. So it took off. Went from zero to about 30,000 hectares over that period. Subsequently, it fell flat for a period as weed started to come in and there weren't herbicide solutions sorted out at the time, but it was a really interesting phase and and many growers captured the idea that the legging could be incredibly useful to them. So the other alternative was, was a pasture legume, and in many cases, they didn't have the infrastructure for livestock management. So the concept of a crop legume was very attractive.

**Oli Le Lievre** 15:27

And was it at a similar time that legumes were just getting started, that there really was this flatlining of farm productivity as well? Like, were legumes part of that solution, or were they actually right in the midst of it as well? Although there was a new crop, it was still challenged from a productive lens.

**Mike Ewing** 15:42

I think at the start, most, most growers were really thinking more about the productivity so the grain production from lupins. It was only as we started to do some rotational experiments that we came to realize how influential that was. And the other major system issue was that most of those areas were very phosphate deficient. And at that stage, in about 1972 the the bounty on on, phosphate came off. And so the subsidy, and so the price of super phosphate went from $14 a ton to $70 a ton in one year. And so suddenly they, whereas they may have been able to justify high phosphate rates prior to that, in a pasture phase, for instance, that that became much more difficult to find out. And so the idea of being able to justify the first fertilizer inputs at the time that a crop was growing was much more attractive, and that it that turned the economics of nitrous and phosphorus. So up to that point, most farmers had used phosphorus to grow legumes, mainly sub Clover or annual medics, and that was their nitrogen source. When phosphorus became really expensive, it just changed that pretty much in an instant, and it became much more attractive to to either use fertilizer nitrogen, which wasn't then in practice, very much, or to grow something like lupins, which didn't need nitrogen fertilizer. So.

**Oli Le Lievre** 17:38

And with the that cost of production, was it four or five times, like similar and it's something that also my generation here, a lot of at the same time, interest rates were kind of through the roof. What did you notice about, I guess, the mentality of farming back then?

**Mike Ewing** 17:53

The farming mentality there in that stage, was very much more about getting out and doing stuff. So, you know it the you know the scale of the machinery and so on, and the requirements for operations meant that there was a much more protracted period of planting and soil preparation and planting that went from whenever it started to rain without much crop being signed before the middle of June and and then often into late July. A lot of time spent on on tractors. And one of the things we did in that era was, because of the financial pressure that was on people, was we went out and ran workshops on cash flow budgeting, almost no growers had a had a cash flow budget that they worked to. They just worked from one end of financial year to the to the next, informally or formally, getting an overdraft from from the bank, the bank not demanding, you know, the proof of their concept, just going on gut feel, largely. And so it was, it was quite a different, quite a different culture. If, if, if a grower spent half a day in a month in the office, he was questioning himself as to whether he was getting his priorities right. You know, that was the kind of the culture, much. And I mean, they were, they were certainly interested in, in learning more and and they often went to their local and regional field days, the field days at the Research Station were always well attended, and people were thinking, but they were thinking more about productivity and and not so much about about whole farm economics, if you like.

**Oli Le Lievre** 19:56

And to that point, like a part, which I'd say, From the outside really defines you was your approach to risk. And it was going okay, it's, let's, let's manage the business for the bad years and make sure that it doesn't inhibit the good years.

**Mike Ewing** 20:10

Yes, well, I think over over time. I mean, that changed really quickly because of realities and so financial competencies in the farming community lifted very fast, and it was associated with the proliferation of of the next generation of consultants who, who you know, universally, went out there and did a cash flow budget with their clients and and developed a seasonal plan. And so that became, you know, that was, in itself, a risk reduction process. It wasn't till a bit later that where, where more options, I guess, existed technically, that that the the more complex farming systems questions came into into focus.

**Oli Le Lievre** 21:00

And for you, you were really at the early stages, and modeled the dry land agricultural system, or model of integrated dry land agricultural system, MIDLAS. Talk to me about how did that come about?

**Mike Ewing** 21:12

Well, that was a bit later. So between so I went and had a sojourn working overseas from 19 the late 70s for three years working in North Africa on a project that the Department of Ag supported technically, which was a fascinating venture. And - this - about to celebrate the 50th anniversary of that activity, and a lot of WA farmers and and related skill sets, we went so 20 Australian, West Australian personnel there at any one time. And it went for nearly 10 years. So a lot of people. And so I spent three years there as the agronomist supporting of that project. And for one year I was in charge of it, which was a big, a big stress, developing 50,000 hectares of pretty much what you say, virgin cropping country in the coastal North Africa. A big, a big, interesting challenge, but part of it for me was this against this opening up of my eyes about plant plants and their adaptation. So in this low rainfall feeding into semi desert, there was still a great diversity of plants and of leguminous plants present, and I came as a big surprise to me that, you know, you could walk through the semi desert and still find the plants, things like annual medics that we were we were using, you know, in our farming systems and and so I my first venture into plant collection happened there. I was able to partner up with the staff from an FAO project and organize the the Libya wide collection of of annual medics, which ended up being some 2000 selections that we collected and preserved and put into into storage and and subsequently developed varieties suitable for Libya for their very testing environment. And so that was the other aspect of that, was that I was working side by side with a group of very motivated Australian farmers who were again adapting to this system and and so get becoming aware that things that we were doing were were for a reason, and having to understand that in order to explain it to other people was was quite, quite a different experience.

**Oli Le Lievre** 24:09

You've talked about the perspectives of seeing how plants adapt. What is that? Work in Africa, teach you about and show you about the perspective of agriculture people around the world and the role of agriculture in developing countries.

**Mike Ewing** 24:26

Well, I mean, first of all, it showed me that mostly people didn't have any idea what their local resources were. So this, and as I met other scientists working in the area, realized that they didn't have that there were, there were several Australian scientists who were championing that idea. Probably the most notable, from my point of view, was Dr Clive Francis, who was, who was the breeder of subcloud, and he had a. Realized that sub clover existed, you know, in Mediterranean Europe, even though the early selections were were of rise that arrived here accidentally, He then started going out and actively collecting sub clover and making and documenting his collections. And as soon as I started reading his collection reports, I realized that he was looking for sub clover but he was seeing lots of other things, and particularly in places like Sardinia in Italy, where the soils were equally infertile to ours. There was a huge diversity of both sub clovers, but also other other species. And so my mind ran to well, what about these other species? And what you know? What could we? Would they fill some gaps, not only in our in our soil array, but also in our farming systems demands. So we'd grown up with this system around lay agriculture, which is, you know, the cropping phase followed by a pasture phase that's based on legumes. So that's classically what you call the lay farming system, and that was based around the idea that the pasture phase needed to survive through the cropping phase, through with seed reserves, and then come out the other side and keep going without being re sown. And that worked with both sub clovers and medics. But you know, what was that the ideal? Or could? Were there other systems and that slipped sort of where I started from,

**Oli Le Lievre** 26:49

And then, because your work was, as you said before, when at the introduction of lupins was really around, how do you stay ahead of resistances and weed burdens in it? Would you say that was the defining problem of your of your career?

**Mike Ewing** 27:05

No, I mean, I think what, what I learned from that is that is that you know mature systems need to have resilience and and so you you need to have a have an agronomic system that deals with those stresses and hopefully anticipates them. So, you know, you you really need to, and the idea and the concept of agronomic packages, I guess, emerged in that time where, where you didn't think of it as as a simple, one dimensional agronomy, you had to put together the systems. So when I went, came back from working three years in Libya, I went, I I was offered several opportunities, but I chose to go to Merredin, in the low rainfall wheat belt, where there hadn't been any research personnel located on site for forever, basically. And so it was a clean slate. And the systems, I would say, were rudimentary in the sense that they were, were those basically lay systems. And at Merredin and Eastern Merredin, they weren't working all that well, because they really were generated for somewhat higher rainfall areas. So that just seemed to me, there were lots of gaps and opportunities. So the first thing I did when I went to Merredin was to use my experience on with lupins in the Geraldton area, and to try and work out this package for low rainfall wheat belt systems. So and fortunately, I discovered a very, a very forward looking grower who was on the same journey. And so we worked together to share insights into what that package might look like, and then tested it in that area. And so we started that in '81 and by by about '85 the 300,000 hectares of lupins growing in that medium low rainfall wheat belt, it was just a gap that was so obviously needed for a crop legume that could it just, I mean, there was some, also some very good extension on my by my extension colleagues, but essentially, it sold itself and and so, you know that it, it just went, was it was a really.

**Oli Le Lievre** 29:53

So what -- why did it take into that moment, if that, if it was such an obvious problem?

**Mike Ewing** 29:58

By that time, the you. The herbicide elements of that of that package were had been sorted out. So there was a bit of a hiatus from with lupins from 76 to 80 as as researchers caught up, really, with the with what was required. And the package, using Simazine and Atrazine, and, you know, other herbicides became, came to be well and truly understood. And so as soon as that happened, the reinvention of the early efforts became to four and statewide, lupins went from, you know, by the 19, by 1990 they're up to a million hectares or something. So, you know, again, it was a it was a big deal.

**Oli Le Lievre** 30:45

Little bit happening, a little bit of a change. When you look back at your your career, was there a period where you think it was the, either the most defining or the most rapid change in development that you you look at?

**Mike Ewing** 30:57

So probably the thing that the next thing that I got into was probably the thing that was was most, in a way, most impactful for me, and I think for for adoption. So when I looked at those pasture systems, for the for the low rainfall areas, it was very clear that neither sub clove was really not well suited to below 400 millimeter annual rainfall, and the annual medics that were available and were suited were really confined to the heaviest textures soils, which is not a big part of the landscape, but important, but not huge. So my argument then was, well, we need something that has the attributes of the medic, but it can grow on more soils. And so that's when I went back to those collection reports I mentioned and looked at, you know, what was growing with clovers was growing. And I realized that there were some species of medics, not that, not that the trunk, trunk catcher, Medic, which was the variety Cypress, which was very widely run, but there was the species, Medic, cargo, polymorphic, bermatic, that was commonly found. And I it just struck me as odd that no one had picked up on that. And in fact, I subsequently discovered that someone had brought some germ plasm together, and a student had done a PhD looking at that, but they but it hadn't gone anywhere commercial - commercially. So I, I went back into the collections and found, oh, that also decided that we wanted something that wasn't going to cause fault in wolves. So we looked for a spineless version of that. And in doing that, we discovered that was actually quite a useful collection available from genetic resource centers and around Australia. And we put it together and started to test it. And what we found is that it grew extremely well over quite a wide range of sites in the year we we planted it because it was inoculated with the strain of bacteria that was from the use for the trunk medics. But in subsequent years, nitrogen fixation was sub optimal. So again, I went back to the to the ecological logic, and said, If these plants are growing in in Sardinia, maybe they've got a different bug that's adapted to those acid soils. So I arranged for a collection of those bacteria to be made, and we brought them back to Australia and and isolated them and started testing them. And this is where a really important partnership that I formed with microbiologist John House and with his supervisor, Dave Chattel, over the periods from about 83 to about 86 - seven. We then worked out which plant amongst those biomedics was the right one and which strain of bacteria was the right one. Put them together. And it was pretty revolutionary, really. Again, very, very rapid uptake, because that was the wool burn. And so we just got our tools in place at the right time in the in the economic cycle, and it just took off. And between 86, and 89, 90 nearly a million hectares of pastures of that biomedic pasture was established across WA and and, you know, and it did grow extremely well over quite a wide range - range of medium textured soils. A lot of the sand over clay and the like, at a great and it went fantastically for that period, Field Days everywhere across the Southwest with and again, good collaboration with extension research people across the spectrum, and it just took off. But then it hit the wall. The wall down to and investment slowed very, very rapidly. And so it's still a technology that works very well in some circumstances. Some of the original plantings are still going 30 plus years later. But, but it was a really important lesson about about, if you look hard, you can find what you need, you know, and it's just really a matter of resources and logic, and you can probably get get there so that that was a huge confidence boost for for me to see that, and confidence boost in several level levels. One is about the plants being available, but if the other one was about getting the right partnerships. So, you know, getting that, you know, really isn't a unidimensional skill set. You need to have access to partners with wider skills so that you can cross over your skill set. And so that that partnership with the rzobiology team was was very, very successful and a very nice way to do business, I guess.

**Oli Le Lievre** 36:53

Mike, one thing I really did want to ask you about is, Obviously you, your career is so defined in research. When the opportunity came up to become a GRDC Western panel member, you really scaled back and wound back on that that research. Why was that important to you, and why did you make that decision?

**Mike Ewing** 37:12

Well, I mean, I guess it happened earlier than that, really. So I guess there's a phase we haven't talked about. Maybe should step in back to that. But during my period at Merredin, I was looking, you know, through the eyes of farmers at their system. And, you know, I mentioned I thought it was a rather narrow system at the time. And and then, so you then think, well, what can I do to it? And then you have to ask the question, is it going to is it going to work? You know, what? If it works? How benefit, beneficial will it be? And, and, and there was really no methodology to to deal with that in a complex system sense. So and farmers were telling me the same thing. They didn't - they were getting advice based on gross margin budgets of a of a crop in a single packet in a single year. And to them, they recognized that was a naive view of farming economics. And and so we, again looking for outside partnerships, raised this question, both within my you know, research team, but also with with the economics group of that were operating within Department of Agriculture at the time. And very fortunately, one of one of the economists, had recently done a PhD where he looked at the optimized use of water in the southwest of WA and he thought, and he used this technique that involved like complex mathematical formula to compare all the options and come up with the most profitable one, so that it was a profit maximizing process. And we then speculated, well, could we do this for the farming systems of the wheat belt, and we realized that it would be a really a big task. And we there was actually quite a lot of resistance from people who were typically used to a biological only approach to R&D. But eventually we got some support and some funding to explore this opportunity, and over the next two years, we got a lot of researchers to provide us with data sets that gave us the relationships that allowed us to do you know. Profitability functions, inputs versus reels, all that for all of the things we needed. And spent a lot of time trying to visualize at what level the farming system needed to be expressed at to get these insights that would be useful in deciding whether a new thing you put in there would perturb it positively. And so we call this my this model of an integrated dry land ag system. And David Morrison, my economic partner, was, you know, incredibly, ferociously ambitious to do this. And and at the time, there were we, you know, computers basically were not not micro computers, were just macro computers. And the problem we tried to solve was not solvable by any computer in WA so we had to negotiate with CSIRO nationally, and we had to for one run of the model, which was, you know, now would be regarded as a small job. We used to have to produce cards that held the program have the card readers operate at the university's WA computer center, sent overnight by landline to Canberra central computer, one run of the model, and then the results came back in the morning the following day, and and so, and usually what it came back telling you was that you'd done some silly programming error, and so, you know, corrected that and moved on. But we started to build a really good team of economists. So David Morrison and I mentioned that Ross Kingwell as the other incredibly talented economist who was part of the team, and followed by by David Panell, who was a new graduate, and he's now professor of of economics at UWA, and again, an enormous talent. And so, you know, so my, my contribution to that was actually deciding, I think, what level we needed to model the farm at. So we spent time looking at all of our soil maps and saying, Well, what minimum number of soil types that you really need to deal with separately to capture all of this plant by soil interactions? And that's and, you know what? How much, how much do we have to put the information about the fertilizer decisions and all of the other things that go together? And really, the only way you can test these models is if they come up with a believable answer. So we then had to go take those answers, workshop and with with motivated growers, and it went from there. But by about 86 we had a model running, which we thought was actually telling us, you know, giving us insights into how, how we could improve the the farm. And it came up with some really interesting conclusions that were fairly generalizable whatever we did. And one was that there is a certain level of cropping that you needed to do to capture the most of the benefits, and then the marginal cropping that you went so and that was usually 60 or 70% of the farming crop. If you went much more than that, it could marginally improve the profit, or it may reduce it, depends on the soil type mix. But it was the mixed farming system has a lot of inherent risk reducing strengths that, and we shouldn't just throw out livestock, because at the time, it looked like it was a strongly balancing enterprise. So that then led to my main interest was in Pastor leggings into thinking, Well, what do we need to do from then on? And I guess going to your question, I then became more of a team leader than rather than a -

**Oli Le Lievre** 44:39

Sleaves up researcher.

**Mike Ewing** 44:41

Than every day in the field researcher, which I've been up to, mostly up to that point. And so then it becomes, as you start to manage teams things, that the stresses are different, and you've then preoccupied with getting funding for the, for the group and for the, you know, for your strategic initiatives and so on and so, yeah. You you move into a more managerial leadership role, which, well, that's what happened in my case, anyway. So from, you know, the mid from about 1990 almost, that was embedded in research, but with a leadership, managerial emphasis, and that flowed into being a participant in three big national research programs, one the first one on legumes, Center for legumes and Mediterranean agriculture, and then a second one on salinity and a third one on perennial plants and and in the in those three initiatives that ran for the next 15 or nearly 20 years, I was, you know, either a program manager or a a research director of those initiatives. So it became much, much less hands on. And of course, being a national those, those then meant we had to build teams right across the country and integrate a wider set of opportunities really, into our our research approach. So and I decided by about 2013 that that the stress of traveling east 10 or 15 times a year was starting to weigh heavily, and so I was looking for a different way of operating and coming back. So that's when I thought, well, this is an ideal time to get involved with GRDC, bring some of those local and national insights that I've had, and see whether that could be a useful contribution to the to the important, really important decisions about where, how we prioritize. That research resource, research funding resource.

**Oli Le Lievre** 47:25

Yeah, hugely important one, one, probably final area that I do want to ask you about. And maybe it was just more of a passion area, but I guess, yeah, the Cottesloe Coast Care and and being able to grab that knowledge that you've got of, obviously, agriculture and plants, but actually being able to provide it back into your local community, down in the coast and on the fringes of the city.

**Mike Ewing** 47:50

Well, you know, it's got many of the same elements. It's an incredibly challenging environment. We just had a month of, you know, westerly winds at about averaging about 70 knots. And, but, you know, it's infertile, non wetting all of those difficult things and, and it's been completely degraded over, you know, over the last last century, to the point where there weren't hardly any remnant native plants there. So, you know, a community group had formed up, and early on, I was just really there to, mainly, well, chaired the meetings and got the community group together. I'll get them together and feel like on, on focus. But gradually, as I ramped down my physical research, I started doing much more active on ground stuff, and we've, I think, now, worked out a way of doing it much more efficiently than we used to. And lots of other people are interested in what we do. So it's, it's quite similar, really, in many ways, but, but it's nice to have that sense of community as well.

**Oli Le Lievre** 49:06

Yeah, and you love it. Love a challenge, Mark.

**Mike Ewing** 49:08

Yeah. Well, that's, that's true and, and I think it's the human element of of the research. Thing is, you know, incredibly underrated. So in our cooperative research centers, the thing that we spent a lot of time working on was making sure we had the right team leaders to not only get the technical focus right, but also to manage the teams harmoniously in a situation where there were potentially tensions across states and across, you know, organizations and and there is a real a real skill in managing those things and work well, first of all, getting. The right strategy, but then bringing people on board to the strategy, and having them commit their themselves to a common objective is something that's, yeah, not, not not relevant, is relatively difficult and so and now you know, with our research initiatives, almost never are we running with single disciplines, well or locations. You know, team -- teams are the essence of these important initiatives, and so finding the right people to lead teams is really almost as important as anything in the whole spectrum.

**Oli Le Lievre** 50:40

Yeah, and I guess just, I love that last point. But one piece, I'd love to know some advice to me and other young people coming into the industry. What, what would be your advice to us, what are some of the learnings and the wisdom that you've captured that we should really keep front of mind as we go forward?

**Mike Ewing** 50:56

Well, I think that the probably several things. What one is, it's really difficult to to to cap, to get in a complex business like agriculture, I think the first five years is, is critical in getting a breadth of understanding that allows you to to to to express creativity. So it's really difficult to be creative while you while you don't understand the systems and and, of course, you know, seeing five different years in a row, you know, you get insights. You into just the seasonal effects and so on. So you just have to work really hard at accumulating that base experience. But then once you have that, having the confidence to to find your gap and and look hard for those opportunities. And then now we have the methodology, method, methodologies to decide, you know, whether that's really going to work. You know, we have tools that allow us to to be skeptical and analytical about about those things. You know? What? What impact would it have on the economics of a farm? You know? What? What are the barriers to adoption? If they and if the answer is they're too difficult, you just close that opportunity off and move to another. You know you have to be creative but rational about those things and and I think the relationship with growers is incredibly important. So you need to learn to to speak comfortably with growers and and creative listening, I think, is the at the heart of that. So you know you, you're open in a enough, in a discussion with with growers or grower groups, but you're not captured by them, and you, and you then able to bring your scientific knowledge and skills to the fore and add to what they're telling you, not just taking their problem solving or problem senses...

**Oli Le Lievre** 53:15

Their word as gospel.

**Mike Ewing** 53:16

Yeah. I mean, farmers, almost universally know what their problems are, but their ability to establish a range of options for solutions is not as, understandably, not as as wide as others who have a different background. So it's a matter of optimizing those circumstances. And so, yeah, I think having a relationship with with growers, and not not a passive one, going and looking for the people you need to to have that discussion about the opportunities and issues and spending time. I mean, it's the old thing about the opening the gates. You know, you've got to have a situation where you where you're getting at those those things. And obviously that's, there's not so many gates to open these days, so have to work out something else. But I think that the opportunity for getting insights from motivated growers. And the interesting thing is that, from my experience, almost never do you get knocked back if you if you want to have a discussion about such matters, they're very open to to to sharing their insights.

**Oli Le Lievre** 54:46

Absolutely well. Mike, thank you so much for taking the time for for chat with us. And I know there's gonna be lots of people who have come across your work, who have been beneficiaries of the work that you've done over your career, and now they know a little bit more about you. So if. Thank you so much for the time.

**Mike Ewing** 55:00

Pleasure.

**Oli Le Lievre** 55:05

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