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Resilient ranching workshop: field session 1, Kaess meadow

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BEGIN TRANSCRIPTION

00:00:00:04 - 00:00:09:02
Speaker 1
From my crib when? Are you very excited about?

00:00:09:05 - 00:00:16:07
Unknown
Okay.

00:00:16:10 - 00:00:27:17
Unknown
Is this your. Start to think about kind of dirt soil.

00:00:27:18 - 00:00:47:27
Speaker 3
So fast forward, you're fired. And then we're going to go look at kind of an experiment that you did close to here. And then we'll gradually go to the bad. No. Yeah. Not me. So Steve is just going to give you an overview of his management. His management is very different on the lower ground than it is the upper ground.

00:00:47:29 - 00:00:49:21
Speaker 3
And we'll just we'll just let Steve.

00:00:49:23 - 00:01:22:04
Speaker 4
Steve go. I know well, the ranch is divided in half. The county road divides it in half. Some are country work at two different growth road. And so a lot of work that the winter factory looks like this rocky stuff over here. Lots of rocks. Cactus, you name it. We we don't manage. It is intensively down there as we do up here.

00:01:22:07 - 00:01:41:11
Speaker 4
We're moving every day when we're up here. Different pastures. So I was in this pasture for three days here in the spring and just across the

fence there. I haven't been in there yet, but, you know, it's pretty amazing the differences between the two.

00:01:41:13 - 00:01:54:16
Speaker 4
Three days with how many? Pardon me? Three days with how many animals? There were seven here. Two years of engineering. How many acres is this? This is about 40.

00:01:54:19 - 00:02:04:00
Speaker 4
Three. Did you use portable fencing? No, no, it was early spring.

00:02:04:03 - 00:02:08:18
Speaker 5
But we do most the time on.

00:02:08:20 - 00:02:13:17
Speaker 4
It. How long have you all been up here? We moved here 91.

00:02:13:19 - 00:02:18:02
Unknown
And been in manage grazing since then.

00:02:18:04 - 00:02:43:29
Speaker 4
No, we. When we took over the ranch, there were two pastures. Winter, summer. And, we've gone from those two pastures to. We've got about 50 permanent paddocks and we divide that up. We've probably got 250 or more.

00:02:44:01 - 00:02:47:05
Unknown
Intensively maintenance in the summer.

00:02:47:07 - 00:03:22:16
Speaker 4
So we sprayed high up high fungal compost on this thing last year. And it was with tell me that ratio again 16 pounds. The compost to the acre a great that step we got from Dave West. Yeah. Okay. And then I sprayed here again this spring. But it was straight extract. We didn't dilute it. I'm not you know, I'm not seeing any difference here.

00:03:22:18 - 00:03:35:18
Speaker 4
Frankly, from the second application or from from either one. How do you apply that? With a sprayer on the back of an ATV.

00:03:35:20 - 00:03:37:25
Speaker 3
We do have some different up in the upper.

00:03:37:28 - 00:03:59:11
Speaker 4

We do have some different. But there. Yeah, it's just always kind of been somewhat of. What did it look like when you first started? Well it was a lot of bare ground in here. Is this your garden, Steve? Right here. Yep. I see that white clover. I thought, man, if it's in there, you just think you're really kicking it up.

00:03:59:13 - 00:04:09:13
Speaker 4
Do you do soil samples prior to the compost to baseline, and do you do some after already have been seeing things significant. I don't know.

00:04:09:15 - 00:04:11:04
Speaker 3
We haven't done after yet.

00:04:11:07 - 00:04:19:14
Speaker 4
No afters yet. We got no offers yet. Okay. You're not there. No we did I did do a sample here.

00:04:19:17 - 00:04:20:09
Speaker 5
Do we have the results?

00:04:20:10 - 00:04:31:03
Speaker 3
Yeah, we do that. Yeah. There. And of course, I forgot.

00:04:31:06 - 00:04:34:04
Speaker 5
You want me to run? What did you forget.

00:04:34:06 - 00:04:35:01
Speaker 4
The.

00:04:35:03 - 00:04:55:11
Speaker 3
The handout. Oh. This one. But I don't want my ninja. Well, the. Why don't you have it? You shouldn't take over and I'll go get them. The soil samples. Do we need that? We can.

00:04:55:14 - 00:04:57:26
Speaker 1
We can look at it. Going to the Olympics.

00:04:57:29 - 00:05:15:13
Speaker 4
And at me. Yeah. You know, I grew up with a nursery, and so I cannot dig anybody here. We're willing to let you. And, you know, when I bought the shovel. That's not a lie.

00:05:15:15 - 00:05:19:21
Speaker 1

There should be three pieces here.

00:05:19:23 - 00:05:24:10
Speaker 4
Yeah. My dad. He didn't know about this or health. And he went broke, so he started a nursery.

00:05:24:10 - 00:05:26:16
Speaker 1
The one sits on the bottom.

00:05:26:19 - 00:05:42:29
Speaker 4
Yeah. All together? No, no, I seeded this personally, put a mix down, and, it's like, for, like, industrial seven. Yeah, that's him.

00:05:43:02 - 00:05:44:29
Speaker 5
Are we seeing any of that?

00:05:45:02 - 00:05:50:01
Speaker 4
Yeah, we're standing guard garden. Oh, wow. Growing up, I had a lot.

00:05:50:04 - 00:05:50:28
Speaker 1
Of that ready to ruin.

00:05:50:28 - 00:05:53:06
Speaker 5
This one here. And then you got.

00:05:53:08 - 00:05:59:02
Speaker 4
Oh, yeah. Oh. That's cool. Then we got a pair of vice grip things that were kind of.

00:05:59:04 - 00:06:02:25
Speaker 1
Yeah, I'm on to my 15 garlic principles.

00:06:02:28 - 00:06:04:05
Speaker 5
Yeah.

00:06:04:07 - 00:06:30:22
Speaker 4
Yeah. Okay. You come up with a conclusion or why you think it hasn't changed with that strain with his brand? Well, last year, obviously. The drought. Yeah. And and this year, I don't know. Yeah, but I know. Good. Well, you haven't had any irrigation on this come down stream previous to this year for years. Oh two, two years ago.

00:06:30:22 - 00:06:31:05

Speaker 4
Two years.

00:06:31:05 - 00:06:32:08
Speaker 5
Ago. Yeah.

00:06:32:08 - 00:06:41:23
Speaker 4
Depending on which. Did you get a good irrigating over here? Two years ago? Maybe 1 or 2 or. Oh, no. Got a big side with it up there.

00:06:41:25 - 00:06:54:07
Speaker 5
Yeah. So I have a question for Nicole on that. So would this be something like if we sprayed the wrong, ratio that it's just not going to show up right away, or would that be conclusive that it just didn't work?

00:06:54:10 - 00:07:16:13
Speaker 1
Well, that's what you look at the test before and you find that this soil is already fungal dominated, and there's quite a few indicators for that. So that might not have been the right thing. But also we don't just use visual assessments like we use stuff like this and screw that over. Yeah I like how like we're used to seeing things look different, you know, like we want it greener, we want more yield, we want whatever.

00:07:16:16 - 00:07:36:08
Speaker 1
But what the animal is experiencing is the relative feed quality. Like what is the quality of what we're providing. And the forage could look the same, but the experience for the animal is totally different. So you hear people talk about my cows lie down more, they're ruminating for longer. I can run 25, hid 25% more on the same ground.

00:07:36:10 - 00:07:42:03
Speaker 1
But you look at it, it looks the same. So if we just spray something out and then go, didn't work.

00:07:42:05 - 00:07:43:23
Speaker 5
Where we not.

00:07:43:26 - 00:08:02:26
Speaker 1
We're not really taking. Oh, wow. We're not really taking that whole system, thinking about it. Like, I don't want to just see it. Look different. I want to know what's what's the quality of that. So that's why we've got all these tests that we're going to show everybody. But we don't have a leaf test. We just we will what we a leaf test where we spray it and when we don't.

00:08:02:29 - 00:08:04:15

Speaker 4
Pick that one. You ready?

00:08:04:17 - 00:08:05:07
Speaker 1
She's gone.

00:08:05:14 - 00:08:05:22
Speaker 4
Yeah.

00:08:05:22 - 00:08:30:17
Speaker 1
She done a runner. Okay. So, it should have come at the bottom, but I'm at the top, so normally we don't do it and drip it. So this is a refractometer for those of you that don't have one, and not a very expensive piece of equipment that commonly used in horticulture and viticulture to assess when when fruit and beer making and honey, for when things are, ripe.

00:08:30:19 - 00:08:42:24
Speaker 1
Yeah. Tip that issue. Okay, so these are tests. This is an industrial version of the garlic press. As you say, we didn't get enough that.

00:08:42:26 - 00:08:44:05
Speaker 5
The garlic came in.

00:08:44:07 - 00:09:03:21
Speaker 1
Good. Again. So you could use a garlic press in here. And I have some garlic presses. So what might be interesting is if you could grab, like, bind wheat and fill that with bind with like, taste. What is it that's encroaching? What have you got. What what's your favorite part quite like to taste a Timothy? I've got alfalfa in here.

00:09:03:24 - 00:09:37:12
Speaker 1
Actually, that wasn't it. What do you know what the brix of alfalfa should be? Should be 16 or higher. What's really interesting is even conventional, like alfalfa, if we compare that to GMO. So the the Roundup ready alfalfa, we find it run its brix runs at half that of the conventional. Really so weird. So that's why if you let animals in and you gave them the choice of Roundup Ready or non GMO, they'll go for the non-GMO every time they can smell it, they can taste it.

00:09:37:19 - 00:09:51:26
Speaker 1
So this is running a brix of 11 if you want it. Sometimes it's you want it blurry. Turn it on its side and take a look. And you can see the line gets sharp. So we'll try some clover. We'll try some grasses.

00:09:51:29 - 00:09:52:27

Speaker 4
What was that one? You said.

00:09:52:27 - 00:10:13:09
Speaker 1
11. So we're aiming for 16. This is the best alfalfa I've seen on 20 ranches in a row this season. All right, just just putting it out there that I really like the diversity in here. I like, like, we've been everywhere. And you, you put your hands down like this and you shake it, and all you get is alfalfa fully jumping up in your face.

00:10:13:11 - 00:10:25:06
Speaker 1
So take a look and you see there's actually not we're not seeing insect damage in here like we are in a lot of places right now. So it's it's a really, really nice to see. So if you want to try.

00:10:25:07 - 00:10:25:27
Speaker 5
Clover or.

00:10:25:27 - 00:10:27:00
Speaker 1
Something else, if it works.

00:10:27:00 - 00:10:32:22
Speaker 4
In protein or so you're saying 16 brix is that

00:10:32:24 - 00:10:36:09
Speaker 1
At 16 brix will line up with relative feed quality.

00:10:36:11 - 00:10:37:20
Speaker 4
How about the protein?

00:10:37:22 - 00:10:51:23
Speaker 1
Not necessarily, not necessarily, but it's about quality because protein crude protein is crude. So there could be nitrates in that. And you get a high measurement and you go oh it's good. Not necessarily. So if this was us, if we see a measurement.

00:10:51:29 - 00:10:53:29
Speaker 4
We can't get it to show that.

00:10:54:01 - 00:11:03:29
Speaker 1
Oh yeah, good squishy. If we get a brix of three and it's a shop line that's telling you you have nitrates, you need to put a coin. Put a coin in the bottom of it.

00:11:04:02 - 00:11:08:18
Speaker 5
So Greg, there's another refractometer inside that green.

00:11:08:18 - 00:11:30:08
Speaker 1
So I need to say that again. If you have, if you have a Brexit three or below that's telling you have nitrates, don't graze it. You'll lose animal production. You might have dead animals the other way. You might know if you had nitrates is you'll see kosher. You see foxtail barley, you might see, lamb's quarters, red root, pigweed, tumbleweeds.

00:11:30:10 - 00:11:39:07
Speaker 1
What else have you got? Thistles. Russian thistles are all telling you you got nitrates in the system. So we can measure that with a refractometer. And it tells us straight away to not do that.

00:11:39:09 - 00:11:48:29
Speaker 5
Oh, you have it out of there. Yeah. Oh, okay. Where the other one? Somewhere like cruciferous, I don't know. Okay. Well anyway we'll get we've got two now.

00:11:49:01 - 00:11:55:27
Speaker 1
Well yeah. Somewhere as long as you can get stuff that that's really getting squishy.

00:11:55:29 - 00:12:04:14
Speaker 5
Yeah. I suppose we have trouble on our meter when you're just getting the juice out of it. I swear. We just like some broken garlic press.

00:12:04:20 - 00:12:12:02
Speaker 1
Some plants I had, I would actually get, like, a dime and put it in the bottom just so that it doesn't push all that, that material through.

00:12:12:02 - 00:12:13:05
Speaker 4
I'll call.

00:12:13:07 - 00:12:16:04
Speaker 1
This Clover. Clover.

00:12:16:07 - 00:12:17:29
Speaker 5
Yeah. It takes quite a bit of juice.

00:12:18:02 - 00:12:25:10
Speaker 1

Nice. All right. Well, that one's everyone's waking. If anyone is very mechanical and they could make me some of these, I'll pay you.

00:12:25:12 - 00:12:25:27
Speaker 5
Oh, these.

00:12:25:28 - 00:12:34:09
Speaker 1
Yeah. All right, so the clove is running at a brix of four and a half. Clover should be running at 14.

00:12:34:11 - 00:12:35:15
Speaker 1
And it's there.

00:12:35:18 - 00:12:39:09
Speaker 5
Oh, that's where they have heard some about, you know.

00:12:39:12 - 00:12:42:21
Speaker 4
Yes. So expect higher sugar.

00:12:42:23 - 00:13:00:12
Speaker 1
Yeah. So that's why we cut hey like at 2:00 in the afternoon or whatever when you got peak photosynthesis. I'm not sure we still want at above 12 this thing in the morning. And then I want it up at 16 mid afternoon. That would be great. Right. So we just get in the habit of sampling. Don't worry about it.

00:13:00:12 - 00:13:06:10
Speaker 1
Record in a little book. You know this is been 9:00. This is 10:00 will be roasting.

00:13:06:12 - 00:13:07:07
Speaker 4
When you drop this.

00:13:07:13 - 00:13:18:01
Speaker 1
Let's have a look. Have we got a clover plant. And now shovel full for so we could dig up, dig up a clover, or dig up the alfalfa.

00:13:18:03 - 00:13:19:28
Speaker 4
Yeah. There's some.

00:13:20:01 - 00:13:29:11
Speaker 1
Heavy. Heavy. Oh, yeah. Okay. So what I'm seeing is a real lack of nodules everywhere I've been lately.

00:13:29:13 - 00:13:36:01
Unknown
Yeah. So for little shows.

00:13:36:03 - 00:13:51:09
Speaker 1
So it's a good. I mean, what I'm seeing is that people aren't digging enough holes. It's our most valuable resource. We all know some of the health is important and people aren't digging. Look how gorgeous that structure is. Visually, this is quite a sandy soil.

00:13:51:11 - 00:13:53:26
Speaker 4
And some,

00:13:53:29 - 00:14:14:22
Speaker 1
Okay, these are the first nodules I've seen in two months because no one's got nodules at the moment. Okay, so you see that? What color should they be? Pink. Pink. So, everyone can see that there should be some white. They should be. They should be pink or red. It's called leg hemoglobin. The same as our blood.

00:14:14:25 - 00:14:17:08
Speaker 4
You guys. Right.

00:14:17:14 - 00:14:19:14
Speaker 5
So learn how to see this.

00:14:19:19 - 00:14:25:05
Speaker 1
This here is, for me, this one there is a clover, root weevil.

00:14:25:07 - 00:14:25:29
Speaker 4
With that.

00:14:26:02 - 00:14:36:06
Speaker 1
Put that in your hand and got a little bit glassy and glass very nice.

00:14:36:08 - 00:14:42:05
Speaker 1
So it's quite it's quite young. They get quite big. These things. Yes, yes.

00:14:42:07 - 00:14:45:19
Speaker 4
I don't know. So. So what are we looking at in here?

00:14:45:22 - 00:14:53:19

Speaker 1
Can you see the where it gets, where it goes from light to dark. Yeah. And then turn on its.

00:14:53:22 - 00:15:02:11
Speaker 5
Here, please. Just put that dirt in the roots look like from. I've just read your book, so I'm trying to put it to use. Yeah.

00:15:02:13 - 00:15:06:26
Speaker 1
Very good. So, are you guys stop. So breathe in it now I work.

00:15:06:28 - 00:15:07:22
Speaker 5

00:15:07:24 - 00:15:30:03
Speaker 1
I am pleased structure wise. I'd like some, So that kind of crumb structure is what we're looking for. 95% of places that go to a compacted that is have place. Right. So it's saying that the grazing management, he is not causing the cow pen, in part, you know, sit sandy soil helps, but Sandy soils can still compact.

00:15:30:03 - 00:15:35:22
Speaker 1
Well that has different. So, Oh, you did lose my nodule. Yeah.

00:15:35:25 - 00:15:44:16
Speaker 5
Okay. Well, look at that. You should be able to see a green line on the bottom. It kind of comes up to see what? You're not finding any earthworms?

00:15:44:16 - 00:15:45:14
Speaker 1
Yeah. No.

00:15:45:17 - 00:15:46:16
Speaker 4
No. What was this?

00:15:46:19 - 00:15:53:21
Speaker 1
Now, considering how moist it was, is this is that one? That was six use ten. Ten. That's the alfalfa.

00:15:53:23 - 00:15:54:00
Speaker 5
Yeah.

00:15:54:05 - 00:15:55:14
Speaker 4

It's better than it.

00:15:55:17 - 00:15:56:19
Speaker 5
That's that's.

00:15:56:21 - 00:16:05:18
Speaker 1
I notice we're not seeing. Right. We're not seeing the Rastafarian roots, but we're still getting soil sticking to those roots. So that's a good sign.

00:16:05:23 - 00:16:11:16
Speaker 4
I think, you know, we're not. 614 North 11. Tell me why there's no reason.

00:16:11:18 - 00:16:13:05
Speaker 1
Yeah, because.

00:16:13:05 - 00:16:14:10
Speaker 4
The picture that indicates.

00:16:14:12 - 00:16:26:01
Speaker 1
That your Brix flower. So Brix is going to drive that riser sheath that development. We have soil stuck there. I mean it's they're not naked roots.

00:16:26:04 - 00:16:27:00
Speaker 4

00:16:27:02 - 00:16:30:15
Speaker 1
Next time. I can't believe I dropped this. Not just.

00:16:30:15 - 00:16:31:04
Speaker 4
In there.

00:16:31:06 - 00:16:34:15
Speaker 1
That's the. It's the clover weevil.

00:16:34:18 - 00:16:36:07
Speaker 4
He's a he's is what?

00:16:36:11 - 00:16:45:03
Speaker 1

Clover weevil Clover. And you can tell the clover weevil because it puts the notch in the side of a clover or alfalfa leaf. You'll see a notch.

00:16:45:06 - 00:16:47:02
Speaker 4
So he's a parasite.

00:16:47:05 - 00:16:49:11
Speaker 1
He's, herbivore.

00:16:49:13 - 00:16:50:00
Speaker 4
Herbivore?

00:16:50:00 - 00:16:54:13
Speaker 1
Yeah. Not a purse. Yeah. So he's eating your clover? Yeah. He's bad guy.

00:16:54:18 - 00:16:57:08
Speaker 4
Is he bad?

00:16:57:10 - 00:17:18:06
Speaker 1
No, no, no, it doesn't offer any benefit. Oh, he's not just right. So when we pinch them, we want to see that these nodules are blood red. You might need a knife to do this. And so we're going to pinch it. I use my nails. All right. And then you see it's sort of pink I want it blood red though.

00:17:18:12 - 00:17:25:04
Speaker 1
All right. So what that means is we have the reds over here. We have the organism that we need in legumes to fix nitrogen.

00:17:25:07 - 00:17:29:13
Speaker 5
Okay. That. Yeah. Wanting a couple more of those.

00:17:29:15 - 00:17:31:21
Speaker 1
Seeing glasses I think.

00:17:31:22 - 00:17:34:07
Speaker 5
It's zero. So the rows over here is the red.

00:17:34:09 - 00:17:37:20
Speaker 1
Yeah. The reserve is. Oh okay. So you can.

00:17:37:27 - 00:17:39:00
Speaker 5

Any of this okay.

00:17:39:03 - 00:17:40:09
Speaker 4
Yeah.

00:17:40:11 - 00:17:46:14
Speaker 1
If you pass this round you can buy scrips. You can.

00:17:46:17 - 00:17:47:26
Speaker 3

00:17:47:28 - 00:17:49:27
Speaker 1
Yeah. Oh there's another one anyway.

00:17:49:29 - 00:17:54:15
Speaker 4
Yeah. We'll make it.

00:17:54:18 - 00:17:55:07
Speaker 1
Yeah. Okay.

00:17:55:07 - 00:17:57:21
Speaker 4
So what is this going to be a tough job.

00:17:57:23 - 00:18:01:10
Speaker 5
Oh, it doesn't actually have that support. Yeah.

00:18:01:13 - 00:18:06:05
Unknown
You seem to think you just hit that.

00:18:06:07 - 00:18:29:16
Speaker 1
And there are a few nodules on the soil. It is if you can pinch those, or a knife or ship. They should be bigger on clover. So the most common organism in soil is actually a nitrogen fixing organism. And it only happens when we have crumb structure. So you can see nitrogen out here is not a limiting factor because we're not seeing any yellowing.

00:18:29:19 - 00:18:46:15
Speaker 1
We're not seeing the big manure urine differences. You know like the grass out here is pretty even. And so oh really? These ones in, hey, hey, hey, moment of celebration.

00:18:46:18 - 00:18:48:26
Speaker 5

There's one.

00:18:48:29 - 00:18:50:07
Speaker 4
Yeah. There was a whole bunch of worms.

00:18:50:09 - 00:18:56:07
Speaker 5
They were. Oh, cool. All right, we got worms in Colorado.

00:18:56:10 - 00:19:00:29
Speaker 4
Now. There were several. There's quite a bit about worms. You were digging them out. I was watching, yeah.

00:19:01:01 - 00:19:03:08
Speaker 1
Oh, yeah. Yeah.

00:19:03:10 - 00:19:04:17
Speaker 5
Well. We're back.

00:19:04:20 - 00:19:27:24
Speaker 1
So what we need for nitrogen fixation in the nodules is cobalt and molybdenum. There's two trace elements involved in the enzymes to fix nitrogen. If you're Clover's got nodules and they're red, then that fixation process is happening. Which means it's also happening in these crumbs okay. So just like in the clover we have nodules. You'll see nodules in the in these soil crumbs.

00:19:27:24 - 00:19:53:03
Speaker 1
And they are the engine room for nitrogen fixation. All right. So we want to see crumbs right. And so this is this is pretty nice I'd be pretty happy with this one thing I'm really not seeing heaps of worms. We look at how dense of these roots and how deep of these roots going. So if we were to say where is 80% of that root system, what would you say?

00:19:53:05 - 00:19:53:28
Speaker 1
I like to look.

00:19:54:01 - 00:20:04:28
Speaker 4
On the top six inches probably where you have, but there's roots all the way down there. And let me look at this room. Yeah, it's still going down. I broke it off up here at the surface and.

00:20:05:01 - 00:20:05:10
Speaker 1
Yeah.

00:20:05:10 - 00:20:07:04
Speaker 4
So I think that's a bindweed.

00:20:07:06 - 00:20:24:25
Speaker 1
Yeah I think it's bindweed, which is great. You know the bindweed is doing a job. So we say how far can the roots go. And then where is 80%. So there's no limitation to roots here. And when we've got the trenches you'll see those roots can go all the way through. There's no limitation that way. So we haven't got yeah.

00:20:24:28 - 00:20:46:09
Speaker 1
Had pans plow pans alkali layers, acids, alcohol anything like that. There's nothing to stop those roots going down. So that's really great. So we don't have like to. If I was buying a piece of land, I want to dig a hole and see that. Like, because if you have a massive limitation, how long is it going to take you to overcome it?

00:20:46:11 - 00:21:07:20
Speaker 1
On our own ranch, we did that in seven years. We overcame a major, permanent hard pin that was a calcium silicate product. And we got through that just using adaptive grazing. The sprays diversity to break that up and to get roots, to break it open. But I chose it because I knew would be a project like.

00:21:07:20 - 00:21:22:02
Speaker 1
You want to be really clear, do I want to project? And if we if our root systems are not going down, then we have got a project, so if we look at where 80% is.

00:21:22:05 - 00:21:29:15
Unknown
Is yeah, that's should.

00:21:29:17 - 00:21:36:18
Speaker 1
They're not super dense roots of it. That's for me that big. Thanks.

00:21:36:20 - 00:21:43:09
Speaker 1
Like.

00:21:43:11 - 00:22:01:26
Speaker 1
Like there's not a lot of root material in here at all. Yeah. I like, you know. So, yeah, if I was to say it 80%, it's kind of weird. This clod came out, so. So that was four inches. Five inches.

00:22:01:28 - 00:22:03:16
Speaker 4

Yeah. Maybe 3 or 4.

00:22:03:21 - 00:22:26:25
Speaker 1
Maybe three. Yeah. Let me do that. Yeah. So then we'd go out with with three inches from a drought here. Not last place. So zone was half an inch. That's where all their roots were. And then they were really spindly. So we have some root development but they're pretty spindly. And not very deep. And then who's getting deep is the bindweed.

00:22:26:28 - 00:22:29:15
Speaker 1
So that's, you know, that's.

00:22:29:18 - 00:22:31:12
Speaker 4
Well, we pretty good forage.

00:22:31:14 - 00:22:33:08
Speaker 1
Yeah. Yeah. We know that saying bindweed.

00:22:33:08 - 00:22:34:13
Speaker 4
Is your buddy.

00:22:34:15 - 00:22:40:03
Speaker 1
Yeah. Just wondering if we've got different species. Like, we want to see different species of worms as well.

00:22:40:05 - 00:22:43:13
Speaker 4
There was one and only that long a minute ago. Is that a different species.

00:22:43:13 - 00:22:46:16
Speaker 1
Than it could be? Or it could be it's baby.

00:22:46:19 - 00:22:50:05
Speaker 4
So I seen a little red. Some little red ones too.

00:22:50:07 - 00:22:51:11
Speaker 1
Yeah.

00:22:51:14 - 00:22:56:13
Speaker 4
They they're not too maybe they're immature big fat ones, but.

00:22:56:15 - 00:23:05:24
Speaker 1

But if they're little red ones in there probably. They're called the rose worm. So it's a different species. So if it's just quite pink.

00:23:05:27 - 00:23:16:26
Speaker 4
Like red, you know, in my garden, we, we started it on shale and horse manure to start planting the garden. And in 20 years time, we go and plant tomatoes. We. Because it's a no till garden.

00:23:16:26 - 00:23:17:18
Speaker 1
Yeah.

00:23:17:21 - 00:23:23:22
Speaker 4
And we just dig a cubic foot of soil out planted tomatoes. And I always councils worms. I've got as many as 100.

00:23:23:24 - 00:23:29:21
Speaker 1
Oh, that's so caught in a in a cubic foot. Yeah. Yeah. That's so good. That's that's amazing.

00:23:29:23 - 00:23:32:04
Speaker 4
I did, I bought some straw and put on it and killed everything.

00:23:32:11 - 00:23:34:15
Speaker 1
Oh what was in the straw?

00:23:34:15 - 00:23:35:28
Speaker 4
I don't know.

00:23:36:00 - 00:23:37:25
Speaker 1
Yeah. You got to know where his stuff comes from.

00:23:38:02 - 00:23:41:19
Speaker 4
You know, worms love the bindweed.

00:23:41:21 - 00:23:44:09
Speaker 1
Yeah, I nothing but bindweed.

00:23:44:09 - 00:23:51:20
Speaker 4
I'm thinking about nuclear stuff. That's what we have. I just gave up for that biology.

00:23:51:20 - 00:23:52:17
Speaker 1

Oh, cool.

00:23:52:19 - 00:23:53:29
Speaker 3
And then,

00:23:54:01 - 00:23:54:24
Speaker 1
For this field.

00:23:55:00 - 00:24:04:04
Speaker 3
Yes, yes. The caves place. And then we also have a little study for the, the, the tissue test is in this packet as well.

00:24:04:06 - 00:24:24:00
Speaker 1
Just again. So if we. Yeah, if we take a look at this test. So if everyone looks at the biology test and if you don't want to do this with us and you want to. And if you want it. Yeah, just go somewhere else. It's distracting.

00:24:24:02 - 00:24:27:19
Speaker 5
So it's only a few from this family.

00:24:27:21 - 00:24:30:13
Speaker 1
I'm never going to tell off the owner of the land.

00:24:30:16 - 00:24:32:05
Speaker 5

00:24:32:08 - 00:24:52:28
Speaker 1
Okay, so if we take a look at this biology test, so your dry wait, tell. That first part tells you what? Well, was this soil really wet or really dry when it arrived? And, so soil that's above the desired range, that dry weight. It's a dense soil and it's really dry. So this was taken on July 2020.

00:24:53:00 - 00:24:55:14
Speaker 1
So this was really dry.

00:24:55:19 - 00:24:59:27
Speaker 4
Is very dry.

00:25:00:00 - 00:25:21:20
Speaker 1
But it's irrigated. Right. When was this when you saw, with Steve right here. When you sample this, you've been watering or there's no a lot of

water to go on. That's okay. So the active part. So the active fungi, the active biology is a snapshot in time of what were the conditions at that moment. Okay. So the activity can change in 24 hours.

00:25:21:20 - 00:25:39:10
Speaker 1
So the activity could be different yesterday before the rainstorm than it was after the rainstorm than what it is now. So the snapshot is your activity all right. So low activity. And it's going to be because soils are dry. There's a not a lot happening. The totals are the things that we're going to see change over time. All right.

00:25:39:13 - 00:26:04:04
Speaker 1
So we've got really good total fungi and really good. Total bacteria. Right. And we want that range to be about 1 to 1 if not 4 to 1. Right. I want really fungal soils okay. And most, soils that we go and have a look at, ten bacteria to one fungi like super bacterial dominated. So this is great.

00:26:04:04 - 00:26:30:04
Speaker 1
These soils are, relatively balanced. They're saying that, if you see the TF2 TB, that means total fungi, the total bacteria. So they're saying you should be anywhere from 1 to 10. And I said 1 to 4. But here they're saying your .64. So you are more on the bacterial range than the fungal range here.

00:26:30:07 - 00:26:35:08
Speaker 1
Who likes that condition is going to be if we could measure the bindweed.

00:26:35:14 - 00:26:37:28
Speaker 5
Yeah, we're working on it. Do it.

00:26:38:00 - 00:26:58:16
Speaker 1
Then what? You're going to find is wherever that biological community is, the plants that like that community are going to have a higher brix. So if this is more bacterial, we're going to see bindweed and kosha and thistle have a higher brix to so on. When it actually could someone grab Russian thistle. This is a whole pile of it over there.

00:26:58:16 - 00:27:01:17
Speaker 1
Would be interesting to see what it's Fritz's.

00:27:01:19 - 00:27:03:06
Speaker 4
Yeah. Where do you see it?

00:27:03:08 - 00:27:10:00
Speaker 1

And any saw it before the Canadian. Oh, who's going to do that one? Not me. Yeah.

00:27:10:02 - 00:27:11:02
Speaker 4
I got hands, like.

00:27:11:04 - 00:27:32:06
Speaker 1
Just, Russian thistle. There was Russian thistle. A lot of it by the gate. So what we want to see is those totals. That's the stuff that we talk about when we talk about, you bacterial dominated or fungal dominated or balanced. So these soils are bacterial dominated. The next thing down your flagella, it's an amoeba in ciliates.

00:27:32:06 - 00:27:58:09
Speaker 1
That's the amoeba, right? The things that, consuming your bacteria and releasing it to, to drive that nutrient cycle. And what we're seeing is those organisms are really, really low. So how that will show up and it shows up is because we actually have a leaf test in here. I think.

00:27:58:11 - 00:28:02:25
Speaker 1
For any of these tests from this field, there's a test that's.

00:28:02:28 - 00:28:08:07
Speaker 3
Yeah. So we have these two the sweet clover and then the bottom.

00:28:08:09 - 00:28:21:03
Speaker 1
Okay. So if you look right to the bottom there's your brome on, on this test that says plant tissue test.

00:28:21:05 - 00:28:30:25
Speaker 1
And what we will see in here, look.

00:28:30:27 - 00:28:34:04
Speaker 1
There's actually a brome that's in pretty good shape.

00:28:34:06 - 00:28:37:00
Speaker 5
All right.

00:28:37:03 - 00:29:04:10
Speaker 1
The nitrogen. Okay, we can't tell from this. So you need the desired ranges on this, because that probably makes this really hard for you to look at this. But if we were to look at these plant tissue tests, take the, The take the top one. So we've got our green natal grass, and then we're going to look at what's happening with the bindweed.

00:29:04:13 - 00:29:23:09
Speaker 1
So we take our desired species and we sample that grass. And then we sample something that's being that we're seeing encroaching and going why is this encroaching. What's it trying to tell me? And what you see is the bindweed has twice the nitrogen in it. Now, if we can test the bindweed, we want to find out. Is that nitrates or is it healthy nitrogen.

00:29:23:12 - 00:29:44:24
Speaker 1
It's got twice the phosphorus in it. So ever notice that cows really like bindweed. Yeah. So the green natal grass is actually deficient in phosphorus. It should be around .24. And the bindweed is even higher. So this bindweed is actually making phosphorus available. That's fantastic. All right. So we've got deep roots. Yeah.

00:29:44:26 - 00:29:48:24
Speaker 4
It's actually making. So it will eventually poison itself out.

00:29:48:26 - 00:29:51:16
Speaker 1
Yes. Yes it'll actually eventually do itself out of.

00:29:51:16 - 00:29:54:09
Speaker 4
The job for 20 years I'll guarantee you that.

00:29:54:11 - 00:30:20:13
Speaker 1
Now it can take a while. But see, it's got double the potassium in it. It's got double the sulfur in it. It's got three times the calcium, twice the magnesium. It's got less zinc. Twice the manganese, four times the boron. All right. So what it's trying to do is balance the soil right. And balance the soil out.

00:30:20:16 - 00:30:40:05
Speaker 1
And so what we've done is we've actually sampled these plants, and we've made up a brew based on what these plants are high in. And we're going to put that back on the landscape at very, very small amounts. And we're finding this to be incredibly effective. And within 18 months to three years, depending on the crop, we're seeing plants disappear.

00:30:40:07 - 00:30:48:21
Speaker 1
Friend of mine, Betsy Ross, has done this with mesquite down in New Mexico and got rid of mesquite and in an 18 month single, just die. So the.

00:30:48:21 - 00:30:52:28
Speaker 3
More reliable test is to get the tissue test rather than the.

00:30:52:28 - 00:31:13:28
Speaker 1
Soil test. I want both because I want to see is this plant high in it because it's accumulating it like it's making it available, or is it high in it because the soil is high. So bindweed normally we see this is a high potassium indicator of the soils already high in potassium. And this is a trigger for broadleaf weeds.

00:31:14:00 - 00:31:32:02
Speaker 1
Weeds okay. So melon thistles dandelion bindweed all love potassium okay. And these soils should be say 5% potassium. And you've got the test in here as well. And they're sitting at about 10%. So it's a big driver for broadleaf weeds.

00:31:32:04 - 00:31:34:08
Speaker 5
We with.

00:31:34:10 - 00:31:57:28
Speaker 1
Adaptive grazing we're always adding organic material. And this stuff is all concentrated potassium. We might even add this woody materials we're going to look at. It's all adding more and more potassium as we can start to see the prevalence of more broadleaf species for, for better or worse, for whatever. And we're not going to we're not going to change that because we want to keep like having this stuff in here.

00:31:57:28 - 00:32:06:24
Speaker 1
But, these guys are also telling us that there's a boron issue and they, concentrating board and making that available.

00:32:06:26 - 00:32:08:00
Speaker 3
Great. Okay.

00:32:08:02 - 00:32:15:18
Speaker 1
So okay. Very good. So.

00:32:15:21 - 00:32:17:00
Speaker 1
So much to see.

00:32:17:06 - 00:32:18:13
Speaker 3
I am a fan.

00:32:18:13 - 00:32:38:24
Speaker 1
No, no it's good. No because we're going to go to other places. But what I want you to remember when we're looking in here is that we do have more

density of root systems. We do have, crumb structures. We're seeing worms. And I want you to smell it. Okay. So smell that smell because we're going to go to different soils and the soils are going to smell different.

00:32:38:27 - 00:32:48:06
Speaker 1
Okay. So what does it smell like? You're not sniffing. You failed.

00:32:48:08 - 00:32:48:27
Speaker 4
Yeah. No.

00:32:49:00 - 00:33:13:08
Speaker 1
Looks good. Smells good. Yeah. So one way, one way I describe it is when you're driving on a on a hot summer's day and you get a shower right on the road, and you get that smell. Yeah. So it's, it's Koji Osman, which means the odor of the earth. You're literally smelling bacterial sex. Yes. I love that smell.

00:33:13:12 - 00:33:37:13
Speaker 1
All right. But what that smell is, is it's an organism that makes antibiotics. So there's 400 different types of these organisms. Correct. And in my seats, you know them because streptomycin comes from stripped of my seeds. So about 200 different versions of these are made for drugs that we use for antibiotics and human help. But that's the smell.

00:33:37:13 - 00:33:53:24
Speaker 1
It's a natural antibiotic. And it's what's helping build soil health and defend it against your grass. And that's defended against resistance. All right. So the stronger that smell, the better. That's a different, species of worms. So it's two species that I've seen anyway. Okay. Right.

END TRANSCRIPTION