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Resilient ranching workshop: field session 3, dry meadow and soil pit

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BEGIN TRANSCRIPTION

00:00:00:11 - 00:00:10:08

Speaker 1

Working on curriculum instead of the side, and they will copy you. So I'm pretty much trying not.

00:00:10:11 - 00:00:11:24

Speaker 2

I'm not gonna feature.

00:00:11:26 - 00:00:23:04

Speaker 1

This that interesting.

00:00:23:06 - 00:00:31:20

Speaker 2

Thing here. If Truman's about. Yeah. Journal from Blake Creek.

00:00:31:23 - 00:00:52:25

Speaker 1

That might be the bindweed. So doing holes like this occasionally is really valuable, especially around water management. So we can take a look at, you know, are we getting good water management in here or are we creating anaerobic zones or encouraging more, sedges and rushes? I see a lot of sedges and rushes on, on people's irrigated ground.

00:00:52:27 - 00:00:57:13

Speaker 1

What's different about a sage in a rush? What can they do that grasses can't?

00:00:57:16 - 00:01:00:29

Speaker 2

I can grow a little bit more oxygen.

00:01:01:02 - 00:01:39:13

Speaker 1

Yeah. So they have the ability to actually pump oxygen down the roots. So that stops it rotting. And you'll see rust. It looks like rust actually forming around the roots. So we can take a look and see, like are we seeing any obvious like, compaction lines. And we're not just really, really cool if something that we kind of wanted to point out because Steve does, I guess, is it considered ultra high stock density here in this pasture, very high density, whatever it's super or whatever you.

00:01:39:15 - 00:01:46:29

Speaker 1

Which is it is remarkable. And it's not usual. Right. You're a freak of nature.

00:01:47:01 - 00:01:48:15

Speaker 2

Yeah.

00:01:48:17 - 00:02:10:19

Speaker 1

Very, very rarely do I find irrigated ground that people aren't causing compaction. So you're doing a good job with whatever you're doing with timing. And so I have some guys that were grazing in winter and then just leaving their yearlings in those fields. And we came back and had a dig and that even though the ground was frozen, that caused compaction.

00:02:10:19 - 00:02:31:12

Speaker 1

And just in that one event and then once you've started to cause compaction, then we limiting root development and water movement through the soil. I dig my first soil trenches like these in winter this year in Colorado. And, up in gypsum. And I've never dug holes and trenches in winter because I was like, oh, the ground will be frozen.

00:02:31:13 - 00:02:50:19

Speaker 1

It'll be boring. So yeah, we Douglas Trench and there were three inches of frozen solid ice like it was know we could barely get the the backhoe through the ground. And I was like, okay, that's what soil here looks like in winter. Then we went to a property where they had similar growth to this, deep rooting systems.

00:02:50:19 - 00:03:09:23

Speaker 1

And that backhoe went through that ground like a knife through butter. There was no ice in the whatsoever. They were ice crystals, but this was all aerated. So this whole thing of like, oh, well, of course, Iowa in Nebraska is going to flood away when we get sudden warming because the ground's frozen is because of poor soil management.

00:03:09:23 - 00:03:34:18

Speaker 1

It's not natural, right. These flash floods are not natural when the ground is frozen. All right. It's, it's a consequence. If you dug in here in winter, you will find you won't have an ice pack, okay? Because

there's aeration in here. These root systems, this structure, there's here's our Rastafarian roots. See? You can't see the root, right?

00:03:34:18 - 00:03:57:27

Speaker 1

And they go pretty deep. Okay, so we're not seeing any limitation. That's a pretty nice. I don't know who's making that. There's some different grasses in here. There isn't. It's not all smooth from. But this is one of the reasons why we wanted to come here is because it's we have a smooth from an intermediate. Oh. And some intermediate.

00:03:57:27 - 00:03:58:21

Speaker 1

Okay.

00:03:58:24 - 00:04:29:26

Speaker 2

And immediately. Yeah. By me and by the last time you build this deep. Oh. Must be 20 years good. Longer. I've known you longer than that, you know. Yeah. It's been a while. So. So what's the reasoning behind, failed behind bailing in or not by not failing? It's all about the dollars and saying.

00:04:29:29 - 00:04:32:25

Speaker 1

You wanted to make money. What kind of rancher are you?

00:04:32:27 - 00:04:58:21

Speaker 2

And so you. So it's better to just graze it instead of. Absolutely. And any any hay I need. I buy. Yeah. So when you, when you, you know, I went to the ranch for private school for the first time in 95 and came home and crunched the numbers and I sold all my equipment that April. Everybody was. You didn't even have a tractor for years.

00:04:58:21 - 00:05:17:16

Speaker 2

Did you know? I'm learning how to farm again. That's the one thing I've in my little journey here is I need to learn how to farm again. So we're doing cover cropping and a little different style, but with different intention, you know, different intention.

00:05:17:18 - 00:05:20:17

Speaker 1

So why are you needing to put cover crop in?

00:05:20:20 - 00:05:22:16

Speaker 2

I want to improve these pastures out there.

00:05:22:16 - 00:05:26:04

Speaker 1

Just those ones up there. And you can do it with the grazing.

00:05:26:06 - 00:05:41:29

Speaker 2

I haven't been able to. Yeah. So what did you do to, did you terminate what you had with the disc or something. Or and then plant, you know I was just wanted there's like a big deal which you know.

00:05:42:01 - 00:05:45:26

Speaker 1

Yeah. We're going to go up there after lunch. Okay. See that.

00:05:45:26 - 00:05:48:15

Speaker 2

Spot. Just a rock.

00:05:48:17 - 00:06:19:03

Speaker 1

So I wouldn't want you to consider there's five different factors in what is a limitation on the success of any operation. So one of them first of all, is your mindset, right. If you think you can't or you're right. Awesome. And if you're not sure about your mindset, ask your wife. She'll tell you all about it. But mindset, like your mindset around money, your mindset around success, your mindset about taking action or what's possible is the number one dragon in ranching, right?

00:06:19:03 - 00:06:35:22

Speaker 1

Then your management. Right. So thinking about what what's appropriate in this landscape, how do I get in sync with nature. How do I work with nature instead of working against it? And a lot of you guys are getting that. You've got that management piece right? Then comes these are my five themes. So mindset management, what's the other three?

00:06:35:22 - 00:06:40:02

Speaker 1

Those of you read books like like microbes, minerals, minerals.

00:06:40:04 - 00:06:41:14

Speaker 2

Matter.

00:06:41:17 - 00:06:59:03

Speaker 1

Organic matter. Right. So the five M's. Right. So when we think about having an area land up there that you've got good management on, you got a good mindset on and it's still not shifting, then we need to look at what's happening minerally and microbial or what's organic matter. Cover crops are going to help address all of that.

00:06:59:05 - 00:07:16:29

Speaker 1

Right. So your cover crops are going to help balance minerally or microbial and lift organic matter. But there's other ways to do it. So some people are like, I've got permanent pasture. I don't want to come in

and upset it by trying to drill. All right. What are those three things that maybe I could take some action on if the management's not happening.

00:07:16:29 - 00:07:30:01

Speaker 1

And that's what I'm seeing missing, is that they're asking the question of what is the limitation here? Why is it that this isn't performing? All right. And there's definitely big biological issues up up there. And the cover crop is going to help you address that.

00:07:30:03 - 00:07:33:20

Speaker 2

That that was our interest in my fungal compost.

00:07:33:24 - 00:07:34:16

Speaker 1

Yes.

00:07:34:19 - 00:07:36:14

Speaker 2

Yes to the application of it.

00:07:36:17 - 00:07:51:22

Speaker 1

Yes. So we'll have a look here. Right. Patrick, do you want to talk about the high fungal compost effort in general? We want to talk about it when we get up there. Okay. Great. We'll do it because because we can see it. And yeah, that would be cool. So are we going up there before lunch? The cheatgrass? Nope.

00:07:51:22 - 00:08:11:28

Speaker 1

Nope. After lunch. Yeah. Okay. Yeah. So you notice a lot of the root architecture and he is quite is probably two types. It's more of a fibrous one and then more of a little tap root that we getting from the bindweed. So getting diversity in here or asking the question of why is it that we can stall out.

00:08:11:28 - 00:08:22:24

Speaker 1

And they might be just two main species in here. So some of you might have what have you got. What's become what have you got. Monocultures of in some places. What are you seeing.

00:08:22:24 - 00:08:25:12

Speaker 2

Oh rangeland blue grandma. And western wheat.

00:08:25:15 - 00:08:48:16

Speaker 1

For grandma and western wheat. Yeah. So starting to go what is it that. Why would that start to become dominant? What? What are the conditions? That's meaning we're not getting germination signal for other species,

you know. So some species are very good at Allopathy. So they send a chemical out that, that, that like so net we will do that a lot of your.

00:08:48:19 - 00:08:55:01

Speaker 1

Yeah. You see it. Don't you see the circle, the grass and then nothing around it. I mean they've got chemicals. They're trying to stop the invasion of other.

00:08:55:05 - 00:08:56:00

Speaker 2

00:08:56:03 - 00:09:00:00

Speaker 1

Crested wheat. Totally. Whose idea was that?

00:09:00:03 - 00:09:08:16

Speaker 2

This one is, Russian wild, right? Yeah, yeah, that's like the grass for milk. So now.

00:09:08:18 - 00:09:25:22

Speaker 1

But you like cheatgrass. You're a funny check. Okay. Yeah. So thinking about what is the germination signal? What is it that I could do to maybe shake things up? So maybe this is a field you always graze at the same time. All right, well, I'm going to change that. I'm going to graze it thin. Or maybe I've always.

00:09:25:29 - 00:09:45:16

Speaker 1

I've always grazed it once a year. All right, shake it up. I'm going to graze it every 18 months, or I'm going to graze it every two years, or I'm going to bring this amount of impact here. And then next time I'm going to have low impact, like just really getting into that adaptive mindset because we're feeding different types of microbiology through the year, like early in the season.

00:09:45:22 - 00:10:05:09

Speaker 1

We're feeding bacteria, right. They like simple, easy to break down green stuff. Right. And then later in the season when it gets all kind of fibrous and cellulose, those are the complex carbons. How did they break down. Now you're feeding fungi right. So if we trample different types of materials at different times we're feeding different types of biology.

00:10:05:10 - 00:10:23:25

Speaker 1

Or if you have a deferred grazing you might have brown more cellulose material in spring. And you're mixing that all up and trampling it. Right. So just shake it up. Right. If we're getting into a monoculture, what's going to be something that's going to interrupt this current flow. So with the cheatgrass we're interrupting that with a fresh hydrology.

00:10:23:27 - 00:10:46:12

Speaker 1

Right. We're putting a phosphorous on. It does not like that does not like carbon based products. All right. So yeah thinking how do I shake up a system in some places like that. Say this out loud. It might be fire, right. We need a fire to shake things up. But what what are the disturbances? What might it been just to give it a really good message and get it rebooted?

00:10:46:12 - 00:10:50:22

Speaker 1

If we're in a monocultural situation, because that monoculture can be really hard to shift.

00:10:50:24 - 00:10:54:05

Speaker 2

How do you feel about a yeoman's well.

00:10:54:08 - 00:11:17:14

Speaker 1

I think I would be looking for what is it that's the missing? And is the yeoman's plow going to help address it? I think in large scale. So that that dilemma that I showed you, they use the yeoman's plow. And so we I've got a couple ranches. We're doing this in Montana. We'll see. I'm not quite sure of the cost return on investment process.

00:11:17:14 - 00:11:37:04

Speaker 1

So asking that kind of question, but if we want to look at how to stop the flow of water, it starts here. Microbial like, that's what's going to slow water down. But when we're in a low organic matter, low ground cover and maybe some swales or something like that, especially if you've got machinery, some of you love just getting in a machine.

00:11:37:06 - 00:11:46:10

Speaker 1

So you yeah, getting in there and just getting some swales just, just as one thing to slow snow, slow the melt, slow the rainfall, capture.

00:11:46:12 - 00:11:47:08

Speaker 2

Like a jump start.

00:11:47:12 - 00:11:50:06

Speaker 1

Just as a jump starts, it starts going.

00:11:50:06 - 00:11:51:18

Speaker 2

Then you can go other direction.

00:11:51:20 - 00:11:52:09

Speaker 1

That's right.

00:11:52:09 - 00:11:54:15

Speaker 2

You don't have to keep them equipment going out.

00:11:54:18 - 00:12:14:21

Speaker 1

No. And so the girl that's got a plow in Montana, she's just renting it out to everybody. So she doesn't need to use it again. But not plowing a whole place. Like just choose some couple of lines on a face and use that. Yeah, we of use them in New Zealand because we have too many fences. So everyone's like, well, I'm not pulling my fences out so that we didn't.

00:12:14:21 - 00:12:35:26

Speaker 1

The Romans never took off in New Zealand at all. I'm not against it. When we use it, I'm dripping food down it. So one of my clients in California, Stemple Creek, we just put a yeoman's plow through, puts biologicals down, like, a little bit of sugar, a little bit of humic. And then he. So to cover crop as he was doing that as well.

00:12:35:26 - 00:12:52:12

Speaker 1

So that systems now not going to have to be repeated. It's open. The roots are going down those zip lines. You can slow water down. But his programs mineral so he's not addressing what's why have I got compaction. Why have I got water repellent soils. Because I got a mineral imbalance.

00:12:52:12 - 00:13:05:12

Speaker 2

That was my problem. I mean, it was just terrible. I could I had a pond a quarter of a mile from the mailbox. I go up there and spit. I got the mail, drive down the pond, watch it. Running the pole, and now I get a three. It's raining. Nothing good.

00:13:05:14 - 00:13:14:15

Speaker 1

That's cool. Yeah. So it starts by building this. This mess in here and building these root systems. Building the sponge.

00:13:14:17 - 00:13:32:04

Speaker 2

So the cold. I've got some ground. There's a lot of it's sub irrigated. And when we first moved on the ranch, Nature Conservancy asked us to build a fence around that and excluded for nesting birds and stuff. And they didn't want any grazing on that at all.

00:13:32:05 - 00:13:33:12

Speaker 1

Yeah.

00:13:33:15 - 00:13:59:16

Speaker 2

So in 2012, that was the only place I had green grass. And so I convinced them to let me graze it. And what we did, we kind of ran a fence line along the riparian area and we grazed. We have densities 500,000 plus. Yeah, for just very short deal. And since that time and they were concerned about us not being regrowth grass for nesting, but that hadn't been a problem.

00:13:59:16 - 00:14:27:18

Speaker 2

So we've been lab grazing it either annually or biannually and stuff. And we've seen some great changes in, the grass species and all that and a lot of positive things. We have had one area that we had giant ragweed, 15ft tall. Yeah, stuff. And now we're seeing, western wheatgrass, switchgrass and things like that.

00:14:27:18 - 00:14:38:21

Speaker 2

Can you. It's always had Canadian thistle this year, with all the rainfall. I'm seeing a lot more Canadian thistle. And I'm just wondering, what is the Canadian thistle telling me out there.

00:14:38:24 - 00:15:00:19

Speaker 1

Yeah. So Canadian thistle that's really cool what you're doing. And I think part of what I'm hearing with what you say is what some people are missing with, with the grazing management is people don't have enough material to push down like you think of what the migratory animals in Africa, those big monsoonal rains, the amount of material that it's been pushed down on.

00:15:00:20 - 00:15:19:16

Speaker 1

If you guys been to see Alejandro Carrillo down in Chihuahua, like, you know, that big monsoonal rain gives you a lot of material to be adding. And what I'm seeing and a lot of and more western areas, we don't necessarily have that material to push down, to trample, to incorporate and start to shift. So it's really cool that you're doing that.

00:15:19:18 - 00:15:39:27

Speaker 1

In this process, we like to said we're adding a lot of potassium and we're also fluctuating and opening a soil up. So these soils are related already. You've got really good mineral balances in here. You've got high, high potassium which causes a lot of growth causes bindweed could cause the soils. But what we see in a lot of soils is you have plates like this.

00:15:40:02 - 00:16:03:17

Speaker 1

The soils are compacted and they're tight, and inside those plates is potassium. When we start to, stimulate biology and get your trampling and getting your root systems in there, that soil opens up or fluctuates. Right. And so what happens when it fluctuates is it releases potassium.

We will see flashes of, Canadian thistle. We'll see flashes of more of these broadleaf weeds.

00:16:03:19 - 00:16:26:15

Speaker 1

I think of it as a healing crisis that the land is going through. And it's like, oh, that's interesting. Just leave it alone. You don't need to spray it or anything like that. It's just part of the healing process. Now, for some properties that already have a huge amount of potassium and you're adding more potassium into that system, we're going to look at is the something else I can do to change it up because the thistles are staying around.

00:16:26:17 - 00:16:50:13

Speaker 1

So the guys in California that that are doing this grazing management now have become thistle dominated. And when we take a look at what's happening is they don't have ground cover in summer and they have very low calcium. You guys have you guys are sitting on a huge bank account of calcium out here. But calcium is key to, nutritious lush grasses, right.

00:16:50:13 - 00:17:02:23

Speaker 1

So the more calcium we can get. But I suspect that's probably what's happening. So that's why digging a hole. You want to take a look? Is that grazing management causing compaction. Then maybe go to look at maybe shaking that up.

00:17:02:25 - 00:17:06:01

Speaker 2

Typical depth for that compaction. 2 to 3in.

00:17:06:03 - 00:17:31:08

Speaker 1

For the cow pen. Yeah. So a see a cow pen just in this top there's top layers. And then we might have a plow pin if they've been plowed further down. And you might have differences in soil types. Right. So we might hit some different type of materials. But yeah, I had, a client rang me recently to complain because what he's seeing now through adaptive grazing management is springs popping up all over the hillsides.

00:17:31:08 - 00:17:57:27

Speaker 1

And it's become a problem because he's trying to move animals in these springs. And I was like, dude, that's a first world problem that's bothering with you. Him too. They got too much water. Yeah. So we start to see seeps. You start to see greening up in patches as, as this soil resource starts to build. And I think you were talking about that starting to see water showing up, which is yeah, really, really interesting.

00:17:58:00 - 00:17:59:01

Speaker 1

00:17:59:03 - 00:18:02:09

Speaker 2

Those, those environments where you lack organic matter.

00:18:02:10 - 00:18:03:14

Speaker 1

Yeah.

00:18:03:16 - 00:18:10:01

Speaker 2

Sort of which what's the starting point to accumulate enough long, long deferral.

00:18:10:03 - 00:18:27:16

Speaker 1

Long deferral with having enough material and getting that? I'm, so seeing people doing the nonselective grazing when you didn't have a lot of stuff there, and then you get a big wind coming through. And I've seen some guys that have been doing HMO for like 30 years and of doing practicing the non deferred grazing and have all these soil blow up against the fence.

00:18:27:18 - 00:18:44:17

Speaker 1

So I want to be really careful in these landscapes to know I've got moisture coming. I can I can graze it hard and know it's going to recover. Because you really run the gantlet by by risking any wind or water erosion. Now, the reason we have wind or water erosion is we don't have active fungi in the system.

00:18:44:17 - 00:19:02:18

Speaker 1

Right. It's fungi that holds on to soil, not roots. So that wind that we're seeing that's telling you that these people don't have active fungi in the soil. No shock. And the first stuff to wash away. So the first stuff to leave is your humus. It's the finest component, right? We've got a lot of sand in here.

00:19:02:20 - 00:19:29:20

Speaker 1

We've got silt and clay. If you had a teaspoon of sand, you stretched it out and measured all the outside of that sand to see, you know, like how much surface area to hold on to water and hold on to nutrients. It's about the surface of a like a square yard of a table. Let's say if you had a teaspoon of clay and you did the same thing with the a little teeny tiny measuring tape and measured the surface area for water and nutrients, a teaspoon of clay is the equivalent of a football field, and it's amazing.

00:19:29:20 - 00:19:53:09

Speaker 1

And a teaspoon, a teaspoon of humus is four football fields. Just incredible surface area to hold on to nutrients in water. So if you have

a look at like guy browns stuff where he's showing like these massive increases in trace elements in minerals, it's because he's increased that humus. That's your organic matter. This is the gold. So how do we how do we really darken up and get this stuff converted?

00:19:53:09 - 00:20:13:02

Speaker 1

So to answer your question and Pat, trampling that stuff, but also checking to see is there a limitation, maybe it is a choice element. Maybe there's something else going on that's stopping this process. Because if you don't have C boron, then we're not going to get the sugars being pumped. We're not gonna get carbon building down here at all.

00:20:13:02 - 00:20:21:18

Speaker 1

So I seeing some guys of 35 years of really great grazing management, they've got diversity. They've got grasses above here and they haven't changed the soil carbon at all.

00:20:21:20 - 00:20:22:11

Speaker 2

Straighten itself.

00:20:22:11 - 00:20:50:27

Speaker 1

Out. It doesn't straighten itself out. And unless you have that catalyst right. So it could just be a single application of boron. And it goes off and you're like, whoa, I was missing that boat. And that's what we're seeing, with Roger and drilling that I'm working with up in, Montana was that single catalyst, lifted relative feed quality so he could actually increase animals to 25% increase in stocking rate on the same amount of ground just by finding that catalyst.

00:20:51:00 - 00:21:09:29

Speaker 1

And what was super interesting, and these guys have got it too, is you have high molybdenum enough so molybdenum will lock up your selenium will lock up your copper in your animals. So we see animal health issues for that. And we drop selenium by 14 fold with the application that we did. So we took the molybdenum out and lifted the boron.

00:21:09:29 - 00:21:23:21

Speaker 1

And that system now hums. And that was a single application. So finding what is it, what is what's the turnkey? What's the little bit of leverage that I need. Right. Is it just my management? Right.

00:21:23:23 - 00:21:28:21

Speaker 2

Michael, how did you figure out how much of something.

00:21:28:24 - 00:21:54:04

Speaker 1

I put on as less as possible. So we're talking about Accelerated Brew. That has probably parts per million that are going on the ground. So very very small amounts. And again I can test it with my refractometer. But less is more. Right. So you could we, we were doing like 10 pounds of soluble which is like 2 pounds of actual boron.

00:21:54:07 - 00:22:18:18

Speaker 1

And now we're doing, it's probably an ounce of boron and getting the same response through chelating it. So, so key chelation means claw like we have a carbon that holds that mineral and then makes it available to the plant. So we key light, we're doing this with herbicides as well, putting a small amount on in carbon and the plants like oh yummy.

00:22:18:18 - 00:22:28:09

Speaker 1

For me very efficient uptake. We can do it with nitrogen as well right. Increase that uptake to the plant okay. Should we go an EV. Get out of the sun.

END TRANSCRIPTION