Grazing with Vence

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we're really excited to have Leo Artis from Malta and the folks from the Vents Corporation with us to tell us about collars and managing cattle using collars and electronics. So with that, Leo, I will turn it over to you and let you get started. Thank you, Chris and Holly and the Western Sustainability Exchange really appreciate the opportunity to talk about.

A product that I'm pretty excited about. The, the Bartham Ranch, my brother and I are the, are the primary managers and our spouses contribute immensely to our success. We're southeast of Malta, Montana, 80 miles from Canada. We're a cow calf operation, run a few stocker animals and run replacement heifers over at the Matador Grass Bank.

And we're, we're primarily grazing operation. We put up a very small amount of hay if we get a big weather event. [00:01:00] And occasionally we get to harvest some grass seed. For, for sale. So I guess, and I've had a quite a long relationship with Vince Corporation. Todd Parker is there. Would you like to introduce yourself quickly, Todd, and we'll move on from there?

Sure. I'm, I'm Todd Parker. I'm Director of Product Development at Vince. I'm an engineer by training, not a cattleman at all. All of my, uh, skin in the game has earned over the past three years or so, and a fair bit of it on Barthel Ranch. So happy to be here. Thank you. All right. Thank you, Todd. Uh, can we go to slide two, please?

Hang on, Leo. I wasn't even on, um, the first one, so hang on. Okay.

Oops. Of course it was up. Well, this technology, it's guaranteed to fail, right? Oh Lord.[00:02:00]

Okay, hang on, let me find ya. So anyway, I can keep talking. My father moved the family here in 1964. My brother and I went to country school on the property and then went to high school in malt. Uh, back in the day we had herford cattle transitioned to Charla. Cattle transition to Red Angus is what we are managing right now.

We cal, we start calv in April 15th to avoid all of the nasty weather, or at least as much of it as we can, and market our calves in November and using video auctions to do most of the marketing. And this year nothing's the same. This year we've no rain or very little rain grasshoppers, so everything is, we're chasing fresh water and adequate grass.

All summer long. Just keep moving cows. And Vince has been very helpful doing that. Are we up [00:03:00] yet, Holly? I have an up. Can everybody see it? No, not yet. Holly. I don't see it. So I'll just read off my number two slide here. We manage about 20,000 acres. Half of its at lease land, federal and state. The other half is private run.

About 700 mother cows retained replacement heifer's, grazed death, the Matador Grass Bank. We're now running a few stalker steers, some carryover animals that we thought we could add value to. The last two years we've not done that. We need, we replaced the lack of sheep on the ranch with stocker skis. We happen to sit in a, in a large flood plain, surrounded by Upland hills, rolling hills, and we.

Half the water in South Phillips County comes north through the property. So we manage four different drainages with some fairly large floodplains. And then, as I said, we take our replacement heifers over to the Matador Grass Bank. It's a TNC owned property. There's 29 [00:04:00] producers over there, and our replacement heifers are part of a 1300 head common replacement herd where we share genetics and, and bulls in common.

It's in fact, they're gonna preg check those heifers tomorrow. The rest of the time the cattle retained on the property. So moving on to, oh, slide number four. So tradi, my family came from wild city, very traditional ranching operation. Had a small number of pastures, put up hay all summer, back in the seventies and eighties, and then didn't move cattle a lot.

Discovered Alan Savory in holistic resource management and started trying to up our game to increase our forage production out on range land. So now in the, in the years since the eighties and studying holistic resource management, we have 38 permanent pastures on the ranch across the [00:05:00] 20,000 acres. And with the Vance product, we've subdivided and subdivided and subdivided and upwards of 80 pastures we've used in the last two years.

So one of the things that piqued our curiosity about Vance, when we found out about it, a little backstory, I have a friend in the wildlife sector conservation community, and she said to me, wouldn't it be nice if we didn't have to have fences? And I said, yeah, it'd be great, but you, and I'll never see it.

Barely. Two years later I find out about Vince and we reached out to Vince through the Rancher Stewardship Alliance. And Todd was my first contact person, and we had, he, we had an interview and a conversation, and the reason we're so excited about the Vents product is we have over 60 miles of barbed wire on the ranch and 15 miles of permanent electric fence.

And the cost of replacing that [00:06:00] infrastructure is gonna be huge, and some of it's 80 years old as we speak. So the, the really pretty colorful map is events, product, the line drawing that's kind of dull. That's my product. So vents in order to manage all of the, created this wonderful little map for me. And so we have 38 permanent pastures, as I said before, and we've had up to 80 pastures last year, the last two years.

So moving on to slide five, please. . So as I was saying, we've got a quarter to half a million dollars worth of aging infrastructure. At some point, it's gonna have to be replaced through the Rancher Stewardship Alliance, a nonprofit that works with stakeholders in the area. Uh, we've become aware of the second largest [00:07:00] wildlife migration pattern.

The antelope migrate from Southern Saskatchewan, Alberta, to Miles City, and they come through Phillips and Valley County primarily to do that. So we are a funnel for wildlife migrations and the less infrastructure we have in place, the better off it'll be for those animals, especially in deep snow. The sage chicken is a threatened SP bird in our region.

We're one of the critical habitat areas for that. The less infrastructure we have for the sage chickens, the less fatalities will have on fences and the barma ranches. You know's. Desired goal is to make a place for more species of animals comfortably. So if we can manage the cows and contribute to positive outcomes for antelope and sage chickens, those are winds for us.

A slide six, please. The Rancher Stewardship Alliance started in 2003, and this is the [00:08:00] membership of the conservation committee that meets every month to distribute grant funding to local ranchers in a three county area of about. 10 million acres to G for water development, for grass, seedings on grass, and for fencing and watering C R P.

And through. Through our working knowledge with the conservation community and these partners, we were able to get GRA funding support to do the vents project. Okay. Slide seven. Todd, are you ready to take over? I am. All right. I'm gonna talk a bit about the technology and give everybody an overview. Why don't we jump down to the next slide and I'll start in there again.

It's for everybody's benefit. I'm an engineer by training, got my graduate degree in electrical engineering from University of Southern California, [00:09:00] and been doing electronics and communications for an awful long time. I won't put a number of years on it, but, so starting off, what is virtual fencing? From an engineering technical point of view, virtual fencing is a way to apply pressure to the cattle based upon their location.

But what it really is, is a tool for, for cattle management, much like fencing, well established technology. We can use the virtual fence to do containment of the animals. Uh, within an area like a paddock, we can use the virtual fence to do exclusion, keep animals outside of an area, perhaps a riparian zone.

The virtual fencing is dynamic and programmable, which is really the heart of the, of the power. And with that, we can do things like moving animals [00:10:00] between different pastures. And where that all kind of wraps up is the ability to implement rotational grazing or ladder grazing or more progressive management of your land.

With virtual fencing, we look to try and aim, increase the productivity of your ranch. We try to implement the techniques that allow for range, land management, conservation, soil health, all of it, basically bringing a new tool to the table. To allow you to optimize your operation across a number of different factors.

So let's, let's go on down to the next slide. We'll get into some of the meat of it. So, at the heart of, of the vent solution is a collar, we call it a, the cattle rider. Contained within the collar is a gps, and with that gp, PS the location of the animal. We use a combination of sound and electronic [00:11:00] pressure to control, uh, where that animal is located and to apply pressure to them again, to stay within a boundary, stay outside of an exclusion area, or even to move the animals and push them along.

Going from one paddock, uh, to the next, a collar implements a virtual fence line. You can think of it a, a lot like a single wire line in some senses as the animals approach that line. At a certain distance, which is settable. From that line, the animals will get a sound stimulus and encourage them to move away from that line.

If they continue to go further to the virtual boundary, they will get a combination of sound and shock to again, apply pressure to those animals to stay away from that boundary. Like other fencing technology, it is possible for the animals to break through, and if they do violate the whole line, they go out of bounds is what [00:12:00] we what we say it.

But one of the other unique factors of the virtual fence, you know, and particular fences, is that the virtual fence line is a one-way gate. The pressure is on the animals to stay within the boundary. If they do happen to. They do not get pressure on the way back in. And because of that, you are allowed to set up things like a ladder grays or rotational grays, and we'll probably go through an example that we did on Leo's property here in a little while.

The collars are designed to operate a broad range of animal sizes. This year we've gone on calves as well as bulls. The vast majority of the animals that that we're on are cows and, you know, adult and young adult cows ranging from 500 to 1300 pounds. Let's go to the next slide. Another part of the solution is a [00:13:00] communications sys.

We have a base station, which is, provides that communication to the callers. What that allows you to do is it provides a communication bridge between the callers and the internet. This communication bridge lets us receive location data from all of the callers. So now you know where the animals have are and have been, and it also lets you program new virtual fence lines down into the collars.

It's important to note that once a caller is programmed with a virtual fence line, it does not need to have communication to the outside world. In order to apply pressure to the animal, it is fully autonomous. And in that regard, you do not have to have perfect communications to the callers all of the time.

In order to manage your cattle and manage your land, the towers themselves, they will provide a broad range of [00:14:00] coverage. We have five towers on Leo's ranch covering his 20,000 acres that he manages, plus a bunch more that goes outside his property, including his neighbors. Each of those towers talks to the internet.

Typically over a cellular phone type of connection. And so the towers will talk to the internet. The callers talk to the towers, so you don't need cell coverage across your entire property. Just typically where we, where we'll put up those communication towers and where we do put those up from a radio point of view, they'll go up typically on a hilltop in order to provide the best coverage to the callers across your property.

Let's go on to the next slide.

Last piece of the technology is, uh, herd Manager. This is a web-based application. What that means is, is you go to herd [00:15:00] manager on your internet browser. Much like you would go to your bank, you know, or Costco or online shopping. It is a webpage. It allows you to visualize your ranch through the use of landmarks.

You can see Leo's Ranch here that we've drawn up on, herd manager identifying all of his physical pastures. We can visualize where the animals are located on the property and look at all of the historical data as to where those animals have been and how they have grazed across, uh, the seasons. This tool also lets you create and manage the herds of animals, create and manage the virtual fences.

And this is a good time to say the callers themselves can contain multiple virtual fences up to 16, which can be programmed entirely independent of one another, and they can be set up on a schedule. . [00:16:00] And so using that, we have done things like create a rotational graze. And in Leo's instance, created a ladder grazing system where we've pre-programmed an entire series of steps in the ladder grays over the course of five or six weeks, I think we did, did on the one earlier in the spring, Leo, and each of those virtual fence lines turned on and off in order to implement, uh, that ladder graze.

So an awful lot of automation to allow you to optimize the labor on your property, in addition to the power of being able to put virtual fence lines wherever you want. Let's go down to the next slide. I'll go over this one, Leo, and then I think we'll be shifting to you. You know, we've done a lot of work with Leo starting in 2019.

We've done two seasons of winter grazing, two seasons of spring grazing. We're, you [00:17:00] know, at the tail end of our spring graze, summer graze for this year right now. Done a lot of work on putting Leo's cattle on grass that they weren't necessarily used to going on. I'm sure Leo will talk about that. And then this year we've done more and more progressive use of the virtual fencing and the flexible nature of being able to schedule things.

We've done a couple of different ladder grazes, for instance, and with that I think we transitioned to, back to you, Leo. Okay, thank you Todd. So we're on slide 13. Alright, thank you. So when we implemented the program in November of 19, caller de Cows, we do a lot of winter grazing here cuz typically we are not heavily covered with a lot of opportunity graze most of the winter.

And what this ranch, in this region of Phillips County, there is a lot of residual crested wheatgrass from the homestead era and the [00:18:00] receding of that program when the homestead failed because of drought and, and the economy. So we have a lot of crested wheat grass on the property. And subsequently, because our pastures were too big and we couldn't achieve stock density, we had a lot of decadent forage and we have a lot of water sources on the ranch, but some of 'em are a mile and a half.

Some of the. Perimeters of the fences are a mile and a half from our water sources. So by grazing in the winter and using snow as a water source, we were able to target the crested wheat grass and supplement the cows at their lowest nutritional point and encourage them to eat old and decadent forage with, with the hopes of increasing the forage quantity and quality the following spring and summer.

So the winter of 19 and 20, we primarily targeted crested wheatgrass and [00:19:00] outlying corners of pastures that normally don't get grazed, and tried to leave the recovered grasses around the water source for the following year. And that worked very well. And all of these red lines all over this ranch was the first year's fence line from.

2019 and 2020. So I don't remember exactly how many, I think Todd referenced 28 kilometers of fence that we built from my computer over a period of time. We subdivided a lot, we monitored the grazing, we tried a number of different strategies and I've been reluctant to really push on the cows. I didn't want them to, to get in a situation where they ignored the fence line.

And then it's a bit uncomfortable for me to go from having some management ability to, the ability to micromanage grazing. That's been an alert curve all of its own. [00:20:00] Can we go on to past 14 please? So this was our initial offering in, in November, 2019. We collared the cows at the little red dot on the left hand side of the screen and then we turned them out And Todd, through herd manager built.

A training fence on the upper part of the screen there and we turned the cows out and that training fence was along a barbed wire fence and the cows wanted to go north, the upper portion of the screen. And as they approached that barbed wire fence, they started to, to capture some of the noise and electronic incentives.

And it only took like two days and we very nearly had them all trade. I mean, by five days we were 95% compliant, seven days. So it worked well. I it despite what we think sometimes with them. Cows, they are very intelligent animals. 15, please. [00:21:00] So with following a successful training of the cow, we, we started building other pastures and part of our economics of winter grading, we wanna harvest grass that's far away from the water sources in the wintertime.

And we wanted to target old decadent forage with, with a protein supplement. It haye expensive all the time. It's extraordinarily expensive this year, as everyone knows. So we're glad we're able to get two years of grazing under our belt before this occurred. So with the utilization of unutilized forage that left more grass available in the spring, closer to water, we figure our costs for grazing a cow on, uh, pasture land at 60 cents a day, and to feed hay at $2 a day, at a hundred dollars a ton.

So the economics are fairly, fairly good for us and maybe for many other ranchers too. Next slide, please. Hey Leo, can I ask a quick question on [00:22:00] that? Please do. Sorry to interrupt you, but is that 60 cents given the cost of moving electric fence or does that include the vents cost and then what is the $2 at?

At a hundred dollars a ton Hay, we figure it costs 60 cents a day to graze our cattle, counting the cost, a supplement and delivering a supplement that isn't even a fence comparison. That's just a feed costs and a reasonable return on our land investment. And the $2 a day is 30 pounds a day at a hundred dollars a ton plus tractor time to go feed 'em.

So you know, there's a pretty substantial differentiation between grazing out and feeding hay. So those are just the rough numbers that we use when we're figuring stuff with a crayon here at home. Okay. Thanks for clarifying. You bet. You bet. So we're on slide 16. Turns out cows have institutional memory.

They wanna be where they wanna be on a certain week of the year, whether it's in November, they wanna [00:23:00] be down along the creek in the riparian areas. So they took some offense at being forced back out into the prairie lands. And so some of those cows really were offended to have to go away from the historical grazing areas.

So that is not something I accounted for when we got into this project, but, but cows have memory and they want to be in certain places and so some of 'em challenged the product, the vents lines, but for the most part, they were well behaved and accomplished what we needed them to. Again, with grazing and using snow as a water source, we were able to target areas of the ranch.

And every ranch has them that I've been on, has areas that never get grayed and it's old and gray and decadent. And so, you know, we can supplement the cows in their first trimester. , maybe second trimester of pregnancy and encourage them to harvest a lot of that old decadent grass and not only do the cows benefit the following year from an [00:24:00] increased nutritional value of regrowth grass, but we've also seen antelope target some of those GRA areas we grazed.

So we work with our institutional memory taught works with us to get us, the pastor changes quickly, but it generally takes so maybe two to 12 hours to get all of the callers program. So we're always trying to think out a week or two weeks out. So it, it has worked and it worked well for us. So moving on to slide 17.

Well, we have found great value in winter grazing. We have noticed in the second year when we came around the following spring, after the first winter, the cows were actually. Grazing further away from water and targeting more grass plants that had previously been old and decadent. And by increasing the stock density, which is, you know, basically the real goal is to increase the dock density.

[00:25:00] We trampled a bunch of that old decadent grass into the ground and broke out very easily in the wintertime. So we put that decadent four H down under the soil so we can improve our soil structure and biology. So you're only increasing your grass harvest for intake by. A percentage, but a, another real benefit is you're also feeding the soil by breaking off that old forage and putting it onto the ground where it can do some good and help retain water and, and shelter.

The, we're already on the second version of collars with the advanced product. Pictured are the original versions that we used and they worked fairly well. We have some retention issues over a period of time we'll lose 10, 15% of the callers will come off, you know, cows get to fighting or they've got a itch and they'll rub on a tree or a cut bank.

So that's an ongoing issue, but Todd's kind enough to give me a map fairly often. And our [00:26:00] GPS is all of the callers that are missing. So we pick 'em up as we're out monitoring and moving cattle. The herd manager initially was a bit of a struggle to work with, but it's getting a lot better now and there's some pretty good videos working with, uh, user group on the internet.

There's some guys that have really dove into. To helping us understand how the herd manager works, and Todd continues to make improvements in that. And the geometry and G P s accuracy are not always intuitive. Once in a while, like in some of the areas on the property, you don't have immediate coverage.

But in our biggest dead zone on the ranch a month ago, Todd was able to program the callers and it only took about eight hours and most of 'em were collared. So even though it says they can't get signal, apparently they do battery life. That is an ongoing challenge. The new version of callers, the batteries are much improved and they're irreplaceable at the ranch [00:27:00] versus.

having to send them away to get 'em re refurbished. It's an ongoing thing. I remember how big the first cell phones were back in the nineties versus what we have now. So I anticipate a lot of improvement in the near future and it's a very functional product now, but there's always room for improvement.

Are you up, Todd? Sure. Alright. I'm gonna click play here on a little little demo. We'll see how well this works for everybody. Depending upon your internet connection, this is an animation of a ladder graze. We did this past spring here the animals are starting off on rotation one in the northern portion of this pasture.

Virtual fencing is not perfect. Not everybody gets contained, but for the most part, animals are contained. And this ladder graze here was, was designed. Fundamentally [00:28:00] around the water available with one pond here up in the northern section. The animals were contained up in that northern section, and then this fence line here was dropped, and then the animals went down up to the fresh grass.

But we're able to go back up for this water. And then the same thing's gonna happen here in just a few minutes where the second rung I is going to drop and then the animals move down to that next section. And what we've got going on here, I'm gonna pause this to talk a bit. And so you can see here, multiple virtual fences.

Call this rotation one line here, rotation two line here, and down here is rotation three. And. The animals started off, they were contained up here in rotation one for several days. And then [00:29:00] the collars were programmed to disable this virtual fence line to allow the animals to go south. And that's what they did.

And the animals were drawn just from the feed pressure. The collars didn't push them, but the animals, once they realized that that virtual fence line was down, they moved down to the fresh grass, as you could see. And then the same thing happened as they went down to rotation three. And you can also see how the animals kind of went back up for water and then came back down to the fresh feed.

And then with that, we were essentially able to set up a ladder graze on this. Western section of this pasture. And then just a little bit more on the story here. We did these first three or four rotations, things were looking pretty good. And then Leo got a hold of me and said the water situation had changed and we had to change the schedule on things and then eventually accelerate and allow these animals to go elsewhere on the [00:30:00] property.

And that was a, a, a very good illustration of the flexibility of this whole system. We were able to make those adjustments on the fly. It does take a little bit of time for the communications to happen. Like Leo had mentioned two to 12 hours type types of numbers to get everything updated. But given what we were trying to do, that was plenty of time to take Leo's, you know, onsite observations as to what was going on with the feed and what was going on with the water to be able to adjust this ladder graze and then complete the rest of the rotations, which you don't necessarily see here.

But we basically kind of jumped all the, all the way down. And that's what I've got to share. And I think we can go to questions. Thank you both. I guess if you want everyone, you could just unmute yourself and jump in. If you want to use the reactions button at the bottom and raise your hand, then we can call on you and unmute you.

I guess we've [00:31:00] got a lot of folks on here, so just be patient and we'll try to get, Hey guys, this is Ty Lore. Chris, do you care if I jump in? I can hear you. Ty, go ahead Leo. These questions are for you. I'd like to know how the callers and this type of management benefited you on a year like this. You know, how has your destocking situation or stockpiled forage looking compared to a, you know, conventional graze, I guess, and then my other question, you know, on a average year of precipitation or whatever that means these days, what, what type of increase in carrying capacity do you think are possible?

Yes. A couple of questions there. So the first thing that occurred this year with the water stress that we're going through reservoirs or water sources that are very low and some that were potentially gonna go dry, we, we inventoried all them and took water samples and then we manage the [00:32:00] grazing around those water sources rather than let the cows graze on a larger pasture.

We were duplicating the ladder gate graze that Todd just illustrated around the critically short waters portions so that we could harvest high quality forage there and leave the grass where there was season long water till later in the year. And we did that and we had pretty good strategy doing that.

We really targeted places that we confine the cows to a very small area around the good water. When I talked. Small area. I mean they weren't going hungry or anything, but, and then we left the outline areas again. So what, hopefully we'll get some snow and can go back out there and graze. We were able to find leases close to the property and half the cows are gone off the property.

So I mean that is gonna carry us through the year without having to buy a lot of hay. So that's one of [00:33:00] the strategies that we're managing the water with the vents product and making sure they graze small areas around those water sources that are viable and leaving, uh, other stuff later or abled to upgrade their nutrition as we change ladder pastures.

I guess, you know, the economics, you kinda referenced that a little bit. There's a lot of people in the grazing RY encourage us to u change season of use on our pastures. and logistically most ranches, that's kind of difficult to do, but with events product we could potentially, and we're implementing that we could potentially graze half of a pasture one year and the second half another year and alternate years now.

And so we can add another tool to our toolbox as far as alternating seasons of use or time of use for [00:34:00] different pastures around the ranch, which, you know, when even with temporary electric fence at the, at the size of the landscape we work in is, is pretty labor intensive even. So I, I guess the Vince product is gonna allow us to go from 38 permanent pastures to, you know, a hundred or more and potentially at some point in time in the future.

we will only be grazing half the ranch. Even though we may be in every pasture every year, we may only graze half those pastures around water sources, depending on quantity and quality of water. Did that help Tyrell? Yeah, that was good. And then my other question was, I'm not holding the gun to your head, but on a, on a more normal precipt year, is it out of the question to say, you know, 20, 30% increase in carry capacity by this type of managed grazing?

I'm not gonna go down to a percentage, but what I see [00:35:00] happening is we, because we have a partner in the federal government on these grazing properties, and we honor their requirements and requests for grazing pressure, I think what we're going to, what's gonna happen and how this is gonna play out is we are going to.

Build a stockpile of forage that will get us another year into a drought that when this occurs, again, we'll graze portions of the ranch every other year. We can put a lot more pressure on our private property with this product, and maybe we will, you know, I, I just anticipated us doing a better job of grazing the private ground in our grazing resources.

So I think it's gonna be a combination of things. I, I know we've grown a lot more grass with a change of our, our sub-dividing our pastures with hard boundaries, and that's part of what's created the definite forage. We have a lot more residual forage than we did when I [00:36:00] grew up in the seventies and eighties.

So I think we're just gonna continue to do that. We're gonna increase the rest periods, gonna increase the stock density, try and shrink the amount of bare ground, incorporate residual cover to the soil. I mean, there's just an untold amount of benefits that are already occurring at the ranch.

So Jim Spinner has a question. He said, what experience in Rough terrain does Vince have? So we are right now actively doing virtual fencing in the Rocky Mountain region outside of, of Veil in Eagle, Colorado. That is probably the hardest terrain we've been in, and we're working with b l M there. And part of part of their story for, for us was, Hey, if you guys can make it work here, you can make it work anywhere.

So we've got Bay station sites. Actually, [00:37:00] my background is in, in the Zoom is a, is a Colorado BLM site that's at probably 8,500 feet. So, It works well in rough terrain. And again, the collars themselves, once they're programmed, they're standalone in nature and they do not have to have communications with the power.

And that's really probably the, the, uh, a key aspect of, of our success in the, in the rough terrain, cuz it's hard to get perfect communication everywhere, but we've got sufficient communication to be able to program those callers and implement virtual fencing, you know, in that area. And hopefully that helps.

Carrie, do you wanna ask your questions? I, I see her questions in the chat. I can just jump in if you like. Go for it. All right. Battery life. So, battery life for the collars varies. The how you use them and the more progressive you wish to graze the [00:38:00] animals, the more power you will consume. And so in a situation where you're doing an intensive rotational grazing situation where you're doing animal, uh, moves, you know, every couple of days the battery life is on the order of three to four months.

In situations where you are less progressive, something closer to what Leo is doing, where we're moving every week or, or or 10 days, battery life is on the order of six to 12 months. And again, depends upon, upon the use cases and how much pressure you're applying to the animals. And we're always enhancing the technology and battery life is definitely key for us.

You know, on the, the last thing to state on that in the broader areas, we do a lot of work in Australia as well. Much larger pastures and different sorts of use cases in terms of how the collar gets used. But we're [00:39:00] targeting 12 to 18 months of battery life and those sorts of situations. And the reason we're doing that is we're trying to match up with how ranch operations work and Australia, again, the extreme example, those animals come in into the corrals, the pa uh, you know, the barn once a year.

And that collar needs to operate for that entire season. In other operations, cow cast like, like a Leo's situation. We have opportunity basically twice a year to be able to, you know, freshen up batteries on his property. Next question from Carrie. Does a hundred percent of the herd need to be collared or is there enough aspect where they stick together?

So we like to target. A hundred percent of the herd, collaring of a hundred percent of the herd because the collars themselves are not yet perfect. Leo had mentioned that we do get some collar loss. You know, the [00:40:00] collars are designed from a safety point of view to break off the animal if they do get hung up on a tree.

And so we use that a hundred percent of, of the herd collaring, basically to leverage again, that herd mentality. Not all of the collars need to be functional in order for the herd to operate, you know, as a unit, but we don't recommend only partially collaring, you know, your herd. And then last question from Carrie was the cost.

You know, our baseline cost right now, the, the collars are off offered as a service, so you don't have to buy the collars themselves. They are $35 per year per animal as a baseline That is, uh, you know, varies depend upon the size of the operation and whatnot. But that's a, that's a number to, to, to start with.

And then the communications towers themselves are also part of the cost right now. Those are generally [00:41:00] purchased either by the rancher or in some cases we have federal entities are subsidizing those. And the cost of the, of the Bay Station is 10 to $12,000, depending upon how much help you want in installing it.

And I'll stop there and let's just solicit the next question. And I can see Simon's got a question as well as Bill. Go ahead Simon, if you wanna ask your question. If not, we can just have him answer it. I think I see the question and, and, and Simon was asking, what is the timeline for, for, for commercialization and wider availability?

You know, we are actually, you know, in, in the midst of our commercial release right now, we've got a number of properties that are doing virtual fencing with us, probably on the order of, I think 15 ranches are working with us right now. And we've got a number of folks that are coming on board in the fall and the spring.

We, [00:42:00] it is early days for events and, you know, the technology is evolving. The technology is becoming more and more available. Like a lot of industries. We are also facing challenges associated with covid. and the so-called supply chain, our ability to buy materials and deliver means, you know, getting back to the heart of the answer, you know, Simon is, is, you know, we're engaging with customers right now for work, potentially to start in the fall, but we're really looking to load up for our next round of customer engagements in the late winter, springtime, springtime timeframe, sticking a while with these costs.

So Todd, looking at the $35 for the callers, and then you mentioned $12,000 for the, the system to operate and obviously scale seems to play an issue here. If I, I think I picked up Leo, were you operating with like 400 plus animals or is there more animals [00:43:00] involved Here? We're running, we, we call it 450 last November or last spring.

So if you're running 400 or or a thousand and that. Baseline stuff to allow us all the electronics to work, that would lower the cost. But my rough numbers showed that you were probably, it's probably costing about 20 cents a day for you to do, looking at the 12,000 and the 35 for the callers. But I could be wrong, but I'm just trying to, I do, I was curious just what the base kind of daily costs, just as we look at all these other things like feed and everything.

So then the other thing and those, those those things that you were seeing improvements or wanting to see improvements in neo, like bare ground and stock density and whatever. So are you formally monitoring those indicators or what indicators are you, uh, most interested in monitoring and how are you monitoring those over time to really make the [00:44:00] case for this practice?

We have a number of transects on the ranch that we're monitoring, have, they've been in place for 10 years, but. , you know, they're bit cumbersome. So I've been actually researching some apps on the internet, listening to some podcasts to find something that was a bit more functional and something we could implement a lot more of, you know, some, some eyeball assessments that would be relevant to the, what's going on out there.

We've only been using the events product and the increased stock densities for two years, but there are some very casual, you know, good news and improvements. I think, you know, we're seeing more material on the ground and a lot less, uh, wolfy plants in the crested wheat grass, residual crested wheat grass.

So, but empirical evidence, I don't have enough. You're aware of the, the range range Land analysis [00:45:00] program with NRC s I mean, that is turning into be. , you know, an excellent tool that doesn't cost you anything and shows trends over time, going back all the way 40 years ago. So even though we do a lot of other monitoring that can really show trend and those things you're talking about without costing you anything that can do it for your entire ranch.

Yeah. Inquiring into the utilization of those products because yeah, to really assess what's going on out there would be more, expand the callers if you know. So we need to need to find some ways to really monitor what's going on because as our range sites change over time, we have to be able to change with it and you know, what's working.

You know, we need to do more of what's working and less of what's not. And without some kind of monitoring protocol, those are difficult decisions to. Yeah, I take, actually you could some, [00:46:00] someone showed you how you could plug into that program and dial in your exact acreage and you could see a trend on bare ground for the last 40 years and it won't cost you a cent, so.

Well that's good. I'm gonna have, you're gonna have come show me how to do that. It's got, it's kind of cool. Yeah. Oh, I guess that's, yeah, just the monitoring. Oh, and the, and what kind of stock density you're actually shooting for, you know, with this. Well, in the ladder garres illustration that Todd demonstrated there, we started out with 450, head on 250 acres and kept 'em there for five days and then we give 'em another 90 acres and kept 'em for two days, gave 'em another 90 acres.

And you know, that wasn't really, well, that was pretty high stock density for us, that was double or triple what we can get with what we have. You know, but there was never any danger of them being out of grass or eating all the grass. But we've, [00:47:00] I've been really reluctant to dial that in because I don't want to consume all the battery and I don't want to elevate their anxiety anymore than I have.

And there has been some aware, increased awareness in the cows themselves and their behaviors. You can see some heightened sense of caution. Mm-hmm. , they aren't wild or anything, but they definitely are looking for that boundary when they're grazing. So we're just, just trying to, we're just kind of easing into it.

Cuz like I said earlier in the presentation, to go from managing three weeks or month at a time, to having the village to manage half days or days, that, that's a lot of responsibility. . That's great. So what actually are your permanent units? How big are they? Anywhere from the largest one is 4,000 acres.

Uh, one's 3000 acres. A lot of 'em are like 1,900, 1700 acres. And, [00:48:00] and there's over 50 water sources, pits and reservoirs scattered across that entire range. So we're just kind of using water as a starting point for that ladder gray system. And so what my intention is, like Todd demonstrated, so we had that 250 acre block, put the cows in there and, and then we give him 90 acres.

90 acres. And then there was another water source to the South. Todd referenced that too. It didn't last as long as we were hoping. So then once we get to a new water source, then we can build a back fence to keep 'em from going back and reg grazing the new growth. So, you know, we're, we're trying a lot of different strategies.

I'm sure you're gonna just like anything else, you'll get better with practice. But you know that, that's interesting when you're talking about 3000, 4,000, thousand acre units, I think scale's a big issue with this tool. You know, when we're looking at our place with [00:49:00] half section units, you know, and it becomes, you know, it, different tools for different places, different situations.

But boy, if I had a place like yours with those kind of sizes, this sounds like a, an excellent tool. One last question, slight, so when you're calving is, do you use this wire calving that was, uh, 750 acre pasture, permanent pasture, and we subdivided it three times and had the cattle in there for 20 days, 15 days, and we just, the vent does not bother the cows.

I mean, we had 20% of the cows calve out inside that, that pasture and, and it didn't bother 'em at all. Cool. I guess just, I guess I had one last, so the, with your goal of like resting half your ranch using this tool, that that's, that's a, that's a great objective. I mean, you're, you're obviously gonna create a lot of stockpiled feed if you can pull that off, that's pretty cool.[00:50:00]

That's what I'm hoping to do is have that stop filed. Ready? Yeah. That's great. Uh, thanks. Thanks for the, thanks for the time for the questions. Go ahead, Terry. I see your hands up. Well, Leo, I, I was curious, are you, is this eventually replacing your traditional fences, your barbed wire and your electrical, or do you, is it running in, in tandem width or?

How are you doing that? Are you completely getting rid of your barbed wire and the electric fences? I will never pull a fence until it's wore out, regardless of whether I need it or not, because maybe the technology won't be available 20 years from now. I don't know that, but as, as these internal fences, age out will probably not replace them.

We'll just pull 'em and leave 'em out. But as long as they're functional, we'll use 'em. And you know, I, I like the technology and I, I believe in the technology, [00:51:00] but I certainly would not depend on it to keep the cows out of an alfalfa field. And, you know, so that could be a bit disastrous or somebody's grain field.

So we're gonna keep those fences in until they're no longer of value, and then we'll pull 'em. I just don't intend to build new fences at all. So this is, this is, this technology is gonna replace a lot of projected. Permanent electric fence that we were looking at and with, with vents technology, we don't have to put that fence in now.

Okay. And you think that, that, as far as you can tell the, the cost of doing so, I mean, you wouldn't be doing it if it wasn't worth it, right? I mean, right. Obviously the technology is gonna be the same amount or less cost than putting that electric fence in. When you, when you figure the cost of the fence and the cost of the maintenance and the infinite adjustability [00:52:00] events one year, you know, I've, I, I have these goals in mind or the vision, the way things should look.

And when after I build events and it didn't look out, work out quite the way I thought it would be, well I can change. It only takes a couple minutes, you know, versus you, you spend a day or two days putting in a mile of, of fence. , you're not gonna pull that out just because you made a mistake. So, you know, the in infinite versatility of the product to change the boundaries, that's a huge deal.

And I don't think I've even begun to recognize how big of a deal that is. That's great, thank you. I see Carrie had another question, and I think you an asked or answered it, but are the collars rechargeable? No, they're not. The batteries are disposable and the, the reason for that is, is essentially the energy density and the [00:53:00] size of the batteries.

If we were to use a rechargeable technology, the batteries would be twice the size and much more complicated to, to manage. And then, you know, thinking on to some of the scale questions, you know, that that kind of came. On Leo's property, 450 callers that had, that would have to be recharged. The logistics of of that sort of process would be very difficult versus replacements.

So that's why we've made that choice. Some of our competition has made other choices on that front, but our batteries are not rechargeable. Are the collars waterproof? They're supposed to be a hundred percent waterproof and we're making them better and better or so, you know, in our early designs, waterproofness was a bit of a challenge and we've made significant strides as we've gone on to our second version of [00:54:00] Caller.

And so I would say we are 99% waterproof right now. But as you know, you know, cows are awfully hard on equipment and our collars take a beating. Is it possible to split. Your fences and have multiple areas on the same property at the same time to utilize different forages. Absolutely. And so the collars themselves are independent and they can have up to 16 virtual fences each, and each animal could actually have its own set of virtual fences and practice.

What you would do for your that situation? Herb would be to set up multiple herds of animals on the property and give them their own sets of virtual fence that manage [00:55:00] one set of animals to operate in one portion of the property, perhaps on one particular, you know, species of plant and set up a separate herd to be able to do something different on a different portion of the property.

Did that help? . Yes. What's a practical distance between Vis in terms of not having that activity on the electronics? Do they need to be 200 yards apart or do they need to be a thousand yards apart? Two, 200 yards. 200 meters is, is a good number. We this, this past, uh, spring, we did a, a fuel break experiment with Oregon State, where we created a 200 meter wide by three kilometer meter long a fuel break as part of a fire prevention experiment.

And 200 meters is, is, is a good [00:56:00] practical number. The technology can, can, can do more precise than that, but going be going much tighter than 200 meters. You'll run into challenges with G P s, accuracy and power consumption on the battery as impacts. Okay, that's reasonable. Is there, do you have any experience on the herd instinct in terms of one group being able to see another group?

How do you have to have a physical separation if you had two groups in different Vincents? I would say, I would say we don't have a ton of experience with that, but I would say that we have managed separate herds and close proximity. The potential challenge on that front from an animal psychology point of view is, you know, is that is the behavior of the animals.

And if you had two [00:57:00] separate, you know, herds of animals and a subgroup within one of the herd really wanted to be with their buddies because that's what they're used to. , that source of pressure, you know, might be difficult for the collars to overcome. And we like to think of the collars as providing a source, a, a, a source of pressure to the animals that you get to control.

But it is one source of pressure that, that the animals face when we think about it, like a pressure budget. And so her draw is one of them. An extreme example of of your case would be trying to keep bulls off of cows, and I'm pretty sure that the callers wouldn't do a great job on that. Okay. Thank you. I don't know if you saw that, Leo.

Okay, go ahead. Tell me the question. Did you have to buy the five towers? Isn't that right? What you asked? Yeah. Okay. [00:58:00] That's what he asked. The tower, the purchase of the tower is the responsibility of the landowner or management program. We bought 'em through grant funding and other people are trying to seek grant funding as well.

But the rancher's responsible for that tower. One comment is that if you look at the map, remember the map on our, we, we cover 30 to 40% of a neighbor's property with the towers we have. So there would be some substantial benefit if, if neighbors could build towers cooperatively, if they all adept. You know, if a, if a group adopted a grazing region, they could share the cost of those towers potentially, cuz there's a lot of overreach for the tower.

I would also add to that too, Leo, that you know, we at vents are considering, you know, the possibility of other business arrangements for the towers and, you [00:59:00] know, Adding, adding, adding a tower lease fee to the collar and, and that is something that could happen in the future as well as, you know, other entities of funding it.

I think at the, at the start of this discussion, I was talking about what B l m and Colorado happen to be doing in that, in that terrain I was talking about. And in that case, b l m is actually purchasing the towers for the area. I see. Another question on, on, on the battery front. We do have a plan in place for, for assisting with recycling of those batteries.

Yes, go ahead Caleb. What experience or how effective are these on bulls? Do they, do they really keep 'em with the herd or it kind of coerces 'em? We don't have a ton of experience with bulls. We do have, most of the work with bulls has actually been done. [01:00:00] On Jorgenson land and cattle in, in South Dakota.

And, you know, I would say that, that we have been, that's the finger in the air, 80% effective on the bulls versus the cows. And we've been on young bulls. Part of the challenge there with, with, with bulls is, is twofold. You know, one, one is the, you know, call it the strength of their personality. And then two is, is the pH physical nature of the bull.

And on the largest, most mature animals, depending upon the time of year, their necks are bigger than their heads. And collar retention on a bull can be a little more difficult than say, a cow. And so the other aspect of it is, is, is trying to figure out what you want to. With the collar, you know, and, and the bulls.

We have done a couple of experiments with trying to keep [01:01:00] bulls in with cows and trying to help keep bulls in separate areas of a pasture from one another and had some success with that. Another thing that we have done with bulls, and this is not necessarily with virtual fencing, but it's using the, the tracking nature of the collar.

Cause with the collar, you do get a G P S location on the animal. It's programmable in nature. Typically it's set for every 30 minutes, but we've done some work in Australia with breeding and been able to reduce essentially DNA n testing by able, by being able to track the bulls relative to the cows and figuring out which bull was on a particular cow or which sub number of bulls were on a particular group of cows to help with dna n a costs testing costs.

Does that help? Yep. Thank you. So Jim Spinner wants to know, uh, about the battery life on the towers themselves. So the, the towers are solar [01:02:00] powered and they're designed to have what's called five days of autonomy. So they have, uh, marine grade batteries in there. Uh, and everything is designed with sufficient size of the solar panel and sufficient size of the battery that if you have a five day storm, everything keeps on running.

The batteries are like, like any other marine-grade battery, that, that they do have a lifespan. Our target is a three to five year lifespan before those batteries need to be replaced. That is gonna be heavily dependent upon the weather environment, particularly the temperature. So the more extreme swing you have in, in the temperature in your environment, the more stress that that's gonna put.

on the battery, and we've been up and running going on past year number two on Leo's property and everything's been working good so far with him, so I'm confident we're gonna hit the three year mark with him and maybe [01:03:00] then some despite the how, how cold it can get in Malta, Montana, though I don't think it's gotten as cold as it can possibly get over the past couple of.

I also had a question from another producer that could make the call, but I know you said tough, tough terrain. You could be, they could be used on, but what about like heavily timbered areas? You know, s same, same answer. It'll, you know, it'll work in, in those heavily timbered areas as well. Again, the collar, you know, will work, you know, without communication to the towers.

We are doing work on forest service property now fairly heavily timbered in Colorado as well as Northern Nevada. I think a G P S accuracy will degrade a little bit with, with heavily forested areas, but not to the point where the virtual fence lines, uh, will not work. So we're good in the trees. So, one other question and then I'll be done.

Can [01:04:00] you, can you transfer them to another cow? Yes. You know, and, and the callers themselves can move around between, between different animals. No problem. The one thing that you might want to pay attention to when doing that is potentially the data associated with the caller and the data associated with the cow.

And so there's a lot of information that, that these callers provide. It can be tied specifically to a particular animal, if you wish to track that data so you have information available to be able to look at how did the virtual fencing work on a particular animal and be able to correlate that after the fact with maybe weight gain or, you know, virility of, of, of artificial insemination or productivity of a bull.

And so that's where moving a collar around might actually give you some grief, so to speak. Cuz now you've kind of [01:05:00] changed the source of the data. But fundamentally from a virtual fencing point of view, yeah, you can move the callers around no problem. And it is just a bookkeeping exercise to make sure you know who's got what and which animals are, and which herd when you're looking at them on Herd Manager, there's a question on data from, from Alex Blake that I can answer.

And so, so the data is, I would, I would say, is co-owned by the Rancher and Vince, we retain a level of ownership in that data in order to improve the efficacy of the callers and the performance, you know, of our solution. The rest of the nature of the data, the specifics are entirely owned by the customer and are secured on a per customer basis.

if a rancher wishes to share that data, you know, with resource research organizations, that is entirely, you know, up to you. And we're actually doing some of that right [01:06:00] now. We've got a number of universities that we're working with who are also working with producers and doing research on their property, you know, with their animals.

And that data there, you know, is being used for research purposes and in our endeavors with some of the federal agencies that, that we are working with right now. As well as, you know, the producers associated with them. Everybody is extremely sensitive with respect to the ownership of the data and what happens to it.

And, and all of the cases so far, the federal agencies don't wanna see what's going on. They don't wanna have direct access to the data. And that has, you know, been, been exactly how the ranchers would like to see this technology kind of be used at this stage of the game. Hopefully that helps. So how small a paddocks can you run with this?

Can they be like, you know, 12 acres if you're doing like really intensive grazing, or can you only go [01:07:00] down so small? We can go down to about 10 acre, uh, paddock size, if that's gonna be very progressive in terms of power consumption and battery use. The other thing to to think about when you look at a, a grazing scenario with a, with a, with a paddock that small, you can think about it in a single wire paradigm where you're kind of taking one slice of 10 acres and then going to the next slice of 10 acres.

And they're very distinct. A better way to potentially use the collars. And that scenario, which would be more power efficient, would be instead of having a square of 10 and a square of 10 and a square of 10, you could have a square of 20 that actually creeps. Over time, and it's not a distinct step. It's actually a creep graze is what it's called.

And you can move those boundaries, you know, 10 meters every four hours [01:08:00] and you just kind of slide it along and you're moving the animals, you know, through the grass. And so I think when you look at a grass utilization and a regrowth point of view, a creep grazing concept is going to be more effective with a virtual fence approach versus call it a hardcore 10 acre cell.

And hopefully that makes sense. There is a YouTube video that we've got out where we did a rotational graze with Oklahoma State that did 25 acre pastures hard sales that rotated through a hundred, uh, acre pasture. And we went through that twice. And so that's, , that's kind of a hardcore, you know, cell-based rotational graze.

And we're starting work right now in more of the, the creep grazing examples. Boy, just thinking about that, Todd, that opens a whole new realm of possibility in terms of grazing management . It's fascinating to think how you could basically, then the fence is [01:09:00] moving it's fence is programmed to move and it's just a, it's just a boundary around the cattle that moves them around wherever you want.

That's . That's really, that's really fascinating. I wanted to go back to the question about data. So at the end of the year, I assume then I, I could see the color, the color chart and the map and how everything looked visually. I assume that you can also get downloadable Excel type files that, and, and be able to.

Multiple years. Can you look at multiple years worth of data on one screen or do you have to swap between years and, uh, what, I guess that would be a whole nother training on the data, the applicability of it, how you can manipulate it, and all those kinds of things. But, sorry, that's a lot of questions, but that's a lot of, lot of questions in there.

So, herd Manager itself is currently set to retain data essent essentially in perpetuity. And so we don't delete anything. We've really only been in, you know, been in business doing, doing this, you know, [01:10:00] for three and a half years. So eventually there will need to be some management and archival of data.

We just haven't hit that, that just yet. And so you can visualize, you know, all of the data. You know, we can go into Herd Manager and look at what Leo last year, you know, if we wanted to, at, at, at that stage it becomes, you know, how do you manage that? And, you know, how do you make it so that you can actually look from year to year in a sensible manner?

And, you know, that to me is a product enhancement that we need to look at is, okay, you know, over the course of a season, what's a good report and how do we generate that report? What information do you need to see so that now you can make adjustments for, you know, the, the coming year? What do you need to say year see, year on year?

And so there's a lot of opportunity for us to add value there, and certainly something that we're looking forward to doing, not something that we're doing today. You know, we're, we're still trying to make the callers better [01:11:00] and, and, and get the basics doing with respect to the data export capability. We do support that today.

We are doing that with the university guys and you, as you can imagine in a research type of scenario, the way they want to slice and dice the data is much more sophisticated than. Herd manager can do and likely much more sophisticated that a typical rancher would like to do. So they're pulling all of that data into GIS analysis tools and now they can layer on top of that satellite imagery with respect to forage layer on top of that data that they might have with respect to soil health layer on top of that data that they might be, might be able to gather with respect to carbon sequestration and, and other things.

And so lots of opportunities there. And, you know, we've got hundreds and hundreds of megabytes of data, you know, on Leo's operation [01:12:00] that I have not dropped into his inbox cause, you know, don't need it just yet. And did I get all of the questions there? Do you see Jim spinners question in there? Can you explain how the creep graze is more power efficient?

So I think the, the, what we would do on that would be to essentially try and manage the animals less tight and more with sound only versus the electronic stimulus. And so we would allow the animals a little more room to move around trying to manage them with sound and trying to m move this cloud along as they, as they creep graze.

And so it's a softer line versus, uh, what we would do in a hard 10 acre paddock. And that is where I believe the power efficiency would come about. That [01:13:00] said, it's a great observation, Jim, and that. We're not gonna make it as power efficient as a 500 acre pasture where the animals are inherently not near management zone nearly all of the time.

And so that is even in, in a creep gray sort of scenario that is on the lower end of the battery life type of situation. So then Hugh has a question, can the towers be made portable? Our, our answer to that six months ago was no. Our answer to that today is yes, and people are doing it. And my answer to that six months from now is I'm gonna make it easier for you.

But right now ranchers are doing it on their own. Forest Service is doing it on their own with our support. I eventually think that we will. Uh, uh, a solution that is more directly applicable. There are some challenges with, with making a, [01:14:00] a portable tower when we talk about it, I, I, I'd like to think of it more as a nomadic tower where it goes from one place to another known place.

Because we like to be able to predict what your radio coverage is going to be so that you know where you're gonna be able to communicate with callers. And we also need to make sure that we have cell phone type of connectivity so that the tower itself can communicate, you know, back to the, to the outside world.

And then the third piece is to make sure that the installation is safe and weatherproof. And so the way the current towers are designed right now is they're designed to withstand hurricane forcement, and they're hard anchored to the ground and designed, you know, to again, Stick to the ground and, and, and suffer through a winter in a fully portable type of type of tower approach, we still wanna make sure that that is [01:15:00] anchored to the ground.

Well, we don't want the wind blowing towers over destroying solar panels and whatnot. And so one of the things we're looking at with the Forest Service in particular, again, is this nomadic concept where we've got a planned site to put the tower at. It goes up there during the grazing allocation, and for the wintertime it comes down and then the next season it goes back to the same spot.

We're potentially leaving earth anchors and security materials at the site. So you bring the power up potentially on a trailer, tie it into the ground on site, and then next time you might move it on. And hopefully that helps. And that's, that's something we're working on. Everybody asks. There's a couple of questions with respect to grant information and related from Kaylee, you know, with respect to, you know, federal funding.

I do think that there are a lot of opportunities, you know, for, for grants. We are [01:16:00] working for, you know, to get conservation innovation grants with the N R C S to improve, you know, habitat restoration. We actually, with Oklahoma State, won a grant with the E P A for riparian area protection. Now, ultimately, I do, you know, it is our hope that virtual fencing becomes part of the toolkit, you know, for use of federal properties.

For improving use of the land, for reducing costs associated with use of the land. We are doing a fair bit of work right now with Forest Service to help deal with grazing allocations in areas that have experienced fire. And you know, fire's a hot topic right now, no pun intended. Sorry about that. You know, with what's going on, and we've got a lot of conversations going on in Colorado and while as to how to use virtual fencing to get grazing allocations back up and running without having to rebuild physical fencing, and that's something that the Forest [01:17:00] Service is interested in.

BLM is working with us in a lot of places to improve, you know, grazing practices, you know, to help with, again, call it conservation of the land. And then, you know, am I comfortable with giving grant information out to the extent that it's public? I have no problem. You know, you know, sharing, sharing things out.

Most things as they become awarded do become public and can facilitate on that. You know, stuff that's pending. I don't think I can quite share, you know, yet. And so, and then I hope, I hope that, you know, we'll be improving, you know, Vince's website, it's a little tired right now and we gotta put some work into it.

But as things get awarded, I do want us to be able to publish that stuff out there and be able to toot our own horn as well as share out information with everybody else.

Thank you guys for doing this for us. We really appreciate it and I'm sure we'll get a lot more interest in the future. [01:18:00] It's, it's a phenomenal idea. So if anybody wishes to follow up with, with Vince directly, a couple of email addresses for you, you know, Todd, vince.io works for me, Josh vince.io works.

Our new business development, uh, manager Josh, Josh Zimmer, and info@atvance.io is kind of a general line end to us, and feel free to reach out and, uh, happy to answer questions and start conversations. Sounds good. Leo, do you have a final word for us? I do. I really appreciate the opportunity to talk and then I wanna put a plug in for the Phillips County Conservation District.

They are hosting the Montana Range Tour, the eighth and ninth of Septe, and the second day, the af part of the day on the ninth, they will, we will be going on site to the ranch and looking at a tower and some grazing results. And [01:19:00] if they're at a cow round, we'll get to see a caller. If not, well, you know, so yeah, I would like to invite everybody to that tour.

There's a lot of people besides me. I've put a lot of effort into making that a good program. We'll get to. On the eighth, we will spend most of the day at Connie and Craig French, who is the Montana recipients out of the Leopold Award this year. So it promises to be an informative two days. Great. Well, I appreciate everybody forting out tonight, and if you want more information, you can probably get ahold of me and I can get you to the right person or the right contact.

So thank you guys very much for tonight.

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