Bull Session Feb 27, 2023

[00:00:00]

welcome everyone. I'm Chris Mehus with Western Sustainability Exchange and if you were expecting to see Holly, I'm sorry to disappoint you. She is under the weather and working in the background tonight, so you have to put up with me again. My apologies. . Just to give you a little bit of, information about W S E, we're a nonprofit organization and we hold these monthly bull sessions.

They are rancher led and so I want you all to know that we welcome your. Feedback and questions and comments.

With that welcome and thank you all for coming in your interest. I will introduce Tim DelCurto of Montana State University, and we're excited to have him here tonight to tell us about some of his research and a lot of practical information about winter grazing on Rangelands. Tim, take it away.

Very good. First of all, I'd like to thank Chris and Holly for, inviting me to talk tonight. Any [00:01:00] chance we get to talk about our research and some of the things we're doing here at Montana State we always jump at that opportunity. Also Dr. Sam Wyffels is joining us tonight and, Sam works with me very closely on, on a lot of the projects and concepts that I'm gonna discuss tonight.

What I'm gonna talk about tonight is basically just beef production strategies. To optimize the use of fall and winter rangelands. And, to be honest for tonight's conversation, I wanted to keep it fairly high elevation perspective of why I think this is important to Montana and why it could fit in a lot of your production scenarios specific projects or specific questions.

Invite us back and, we'd be happy to to talk about that. Also, as Chris said feel free to stop us and I'll try to check the, chat motor. If you got a question [00:02:00] jump in and ask those.

When I was hired by Montana State University, their position. One of the, things they asked me to do is, create a research program that's relevant to producers in Montana and in the West. And, when I think about the Western us I think first of all I, spent 27 years at Oregon State managing and arranged livestock research centers, and then the last six here at Montana State.

And when I think about our beef production systems one of the things that jumps out at me is, here in this topography map basically everything in brown there is, greater than a thousand meters in elevation. If you look at the western US there, there are a few spots that you know are fairly low elevation.

The Central Valley of California, LA Valley, and Oregon, the Columbia Basin, the [00:03:00] Snake River Plateau. But those regions really aren't big cattle regions. Everything in brown as cattle regions. Everything in lower elevations quite, frankly, is mostly crops. So our, western US industry is dominated in part by high elevation range lands.

And so you probably go what's that mean? It means rugged topography, a lot of lands that are not suitable for farming, and in many cases, relatively short growing seasons. In other words, that's basically last killing frost in the spring for the first killing frost in the fall. I started my career in Burns, Oregon, and joke and Burns Oregon as yet a 90 day growing season.

It's just too bad those days weren't consecutive. Okay. And so that was only funny. But and, Montana's really not a lot different. We have a 90 to 120 day growing season, but what's misleading about that is, is quite [00:04:00] often drought will cause plants to neste long before the end of that growing season.

And so the window that we are, allowed to graze actively growing plants just fill it relatively short. To make matters worse when you throw a precip map over the Western us, what is the majority of the state or majority of the Western US is below 20 inches, and the majority is between 10 and 15 inches.

Helena here is the reference with 11 inch annual precipt which makes it challenging. Now these areas don't have limited production are, more likely to have weather extremes, droughts and things like that. And, we've seen that in the last few years. So when you think about land and forage resources in Western us a lot of things jump out at you.

I, know this group talks about a number of things and I'm, gonna throw out some things just to think about the first [00:05:00] one that comes to mind is, we have to select cattle that fit this environment. In other words, our production expectations with these cows need to be within the realm of possibility of the forage resources we're working with.

And even though we have lots of forages a lot of it looks like this. This is actually sage brush step rangelands in the northern great basin composed of, Idaho Fcu and Bluemont wheat grass primarily. But as a reference, those are the two dominant species we have at our Red Bluff Research Ranch outside of Norse.

So very common for each species across the Western us particularly the upper latitudes of, the Western us. These systems are challenging. And optimal production is, really not something we aim for. Instead we, tend to try to optimize production with this forage resource.

So something to think about, something to balance [00:06:00] as, you think about materials we're gonna talk about. What, I, when I was hired I, think I told you they said design research is relevant and important to this state. And so that was roughly a little bit over six years ago.

And so when I started writing up my five year research plan one of the things that I wanted to look at and I had a lot of encouragement from, ranchers and things across the state, was I wanted to look at the increased use of fall in winter forages particularly rangelands in some cases stockpiled forages and pastures.

Because I really think these kinds of efforts are going to increase and for a number of reasons. First is whether we like it or not, or regardless of our political belief we're gonna see a decreased reliance on fossil fuels in the future. Just the cost [00:07:00] alone in our production is gonna make it more and more difficult.

And, we have to acknowledge that our production systems have depended on cheap fossil fuels really for the last 50 years. And so let's look at alternatives or production models that, that might require less fossil fuels. And one of the realities that we've had in agriculture, but it's really true today, is labor is a challenge.

And I think with Covid and all the things we've seen in the last few years LA labor is a real challenge for, beef cattle ranches. So how do we create management systems that require less labor? And part of that, and you guys I'm sure talk about this all the time, is let's, make the cows work for us rather than us work for the cows.

Let's keep 'em grazing. And which is gonna require less time spent haying and less time spent feeding that hay in the winter period. So all part of our overall objectives of why we're, doing all [00:08:00] this winter grazing research. I honestly think when you look at current forage markets, stockpiling, forage and grazing, it is, a very viable economic alternative to harvested forages.

You guys are all aware of the cost right now of, hay, whether it be grass, hay alfalfa hay or even, straw. Have, been outrageous really in the last two or three years. What you're probably not aware of though, is our hay stocks throughout the west have been declining for two decades now.

And and some of you may remember used to be very common for ranchers to have at least a 50 to 75% surplus of hey stored every winter, just in case you had that winter. And we don't have that anymore. So, think about these alternatives. My favorite supplement I'm gonna talk about a little later has always been alfalfa hay.

The exception might be last couple years cause Alfalfa Hayes getting really spendy. [00:09:00] And there's certainly other kinds of supplements you might be able to look at. I think another thing, and this is probably more ecologically based, but whenever we start using our, resources, particularly our native range lands, Outside the acting growing season, I think we're having a sparing effect on some of these bunch grasses that quite frankly don't particularly tolerate herbivory that while it's actively growing.

And however, when you graze it in the late fall winter period generally it's believed, although we need more research on this, that it has minimal impact on those plants and their ability to expand their root mass and grow and compete with other, species. So I think ecologically moving the use to more of a fall winter can be very beneficial, particularly for rangelands that are in poor condition.

I also think that when you extend the grazing season and you decrease the period of [00:10:00] time that cattle are in confinement you may actually have positive physiological effects on, your cows. There's been a number of studies that, that, that have suggested that keeping cattle grazing right up to calving, enduring calving actually decreases dystocia difficulties at birth.

And those cattle are, healthier. And I'd equate this almost to humans. The, more active you are, the more you exercise, the more you do, the more you're physically active and work the better shape you're gonna be in and the healthier you're gonna be. I don't know if it's really any different cattle.

Now the last thing the context here, and the thing I want you to remember is, however, whenever you're talking about fall, winter rangeland, you're typically talking about beef production systems that have to figure out how to use high fiber, low quality forages. And in many cases, the protein content of these forages are below the requirements of, what those the cattle need.

Particularly at, various stages.[00:11:00] There is a need for supplemental inputs and, we'll spending quite a bit of time talking about that tonight. I think when you think about winter grazing and things like that, one of the first things I'd tell you I'm not gonna spend a lot of time on this, the cattle will need to be selected to fit your environment.

16, 1700 pound cows that, produce 30 pounds of milk a day and weigh 800 pound calves probably are, not gonna be ideal for winter grazing. A more moderate size cow with a little lower milk expectations will, be a better fit for this limited nutrition environment for your management.

And lastly and, like I said, tonight, we're not gonna talk a lot about this, but Dr. Wyffels and I have, at least in the last six years, have used a lot of new kinds of technologies into assisting us in our research GPS cars activity monitors and, weather [00:12:00] stations automated feeding stations.

I'll talk a little bit about this that, that really allow us to ask questions that, quite frankly, in the past, we weren't able, and I'll touch on that a little bit tonight in my presentation, but not, very much. I think, first of all, I probably don't even need to tell anyone this group for me doing beef cattle research is, a privilege.

I, think these animals are remarked for as much as we get beat up by the popular press about sustainability and, things like that. Boy, I I think these cattle are, unique. I grew up in a cattle family, and my family still has a ranch in northeastern Oregon. My wife grew up in a cattle family as well.

Her family's got a ranch in, southwestern Oregon. But, anyway I, think these, animals are remarked and the thing that makes 'em remarkable is their ability to, use low quality, high fiber feeds. One of the things I hear is, people make the comment [00:13:00] that boy b production systems contribute to climate change.

And, I think the, concern here is methane and things like that. But I think it's a really short-sided statement. And it, and I, and the thing I want you to realize is that the most dominant carbohydrate on this planet, cellulose and cellulose is a fancy term. For plant fiber and so plant fiber really is everywhere.

You think of vegetation, any structural component of a plant typically has probably a 60 to 80% cellulose composition. And what makes room that's really unique in the scenario is they have evolved over hundreds of millions of years to utilize the cellulose. So it's really a unique niche.

They're the only animals that can do that. And quite frankly, if ruminents don't consume the cellulose I think what I'd ask people to do is think about what's the fate of cellulose? It's either gonna break down [00:14:00] by bacteria on the surface of soil or it's gonna burn. And I would contend that, either one of those, Alternative processes is really not a lot different than ruminant animals consuming the cellulose.

So something to think about. Obviously, the relationship with microbes is the key to optimize production systems based on forage based systems. So when I talk about supplementation in it, I'm really talking about optimizing microbial populations and their ability to use low quality forages, quite frankly.

I would counter most popular press articles that are negative about beef cattle systems and tell you that ruminent systems are probably the most efficient on the planet. They're the only animals that can use cellulose, and they're the only ones that have this sort of coexistence with microbial population.

So for me, ruminents in, in the, as an animal protein system it is should, be [00:15:00] very positive however, as I mentioned before, I think when we look to the future, we're be looking at these systems that, rely less on harvested forage. The challenge is how, much can we reduce the reliance on harvested forage, which depends a bit on, on your, environment and your ability to have open range lands in the winter period.

For me, and I'm not gonna spend a lot of time talking about this graph to, to me I'm obviously, I'm a ruminant nutritionist and I'm fascinated by all the different. Ruminate species. And if you look at this list here that I have in this figure, they go from very selective ruminant grazers like goats and whitetail, deer mule deer even moose fits that category that have very selective diets to what I refer to as bulk graze.

That might be bison and, cattle bulk grazer is, what I want you to realize is have diets that are predominantly grass-based and in fact they will preferentially [00:16:00] graze grass rather than forbs and shrubs. As long as they have that opportunity. They tend to eat whole plants, enough parts of plants and their body weight and will consist anywhere from 20 to 30% of those first two chambers of the ruminant stomach, the ruminant and reticulum and the contents.

And so when you think about. You compare these animals to, the other ones. You see some very large differences in terms of physiology and, how they use forages. These bulk grazers typically have two to three grazing bouts a day. They spend a high amount of the day ruminating. And in fact, there's a rule of thumb think about cattle as they're gonna spend eight hours grazing, eight hours ruminating, and eight hours resting in a given day that the amount of fiber and the coarseness of fiber will actually increase grazing time and increase ruminating.

Although I think they can rest and ruminate at the same time. Just, my observations. These animals have [00:17:00] a high tolerance to fiber. And typically the length of time from the time they consume a plant until it exits is anywhere from 36 to 96 hours, which is way longer than, these other species.

So very unique species very adapted to this, low quality, high fiber production kind of system. When you think about managing cattle in the winter times I'm gonna spend the remainder of this talk, talking about supplementation, and I'm gonna start with the goal. The first goal is, don't supplement.

One of my pet peeves is is, ranchers going well? I don't know if they really need it, so I just went out and fed 'em 10 pounds. I think that's probably a great waste of alfal. Okay. Know when your animals need supplement and try to design systems. Supplement 'em when they need it, and, but don't supplement 'em when they don't need it.

And, that's a bit tricky. I think it's called understanding your forages understand the quality of [00:18:00] vegetation. So you can use vegetation keys degree of greenness how much of the range forage of went reproductive stages. A good example is last year we had a pretty severe drought here in Western Montana.

But we got some really significant precip events in late August and like early September. In fact, we had two rainstorms that were between a half an inch and an inch, depending on where you're at. That stimulated growth of all these range forages in September and October. And so it grew, we got about three to five inches of growth and then it, it stopped due to killing frost and lack of moisture.

We, we actually had a really high quality forage base last year during the drought year this year. We had a great precipt in, the spring, in, in May and June. And we had a lot of forage actually go to advanced stages of maturity. We have lots of [00:19:00] forage right now for fall and winter grazing, but it's not very good quality.

So understand these differences understand just color differences and, some people use fecal pad types the old joke does it spread out or does it stack up? And, those kinds of things can tell you a little bit about whether or not you need to provide a supplement.

The other thing I think when you think about supplementation is think about your beef cattle requirements. This is just a, an old graph that I pulled out of an old nutrition textbook. That looks at beef cattle, nutrient requirements, and this could be energy or protein or whatever you want to be.

And when you think about requirements for mature beef cattle in, your herds they have a static maintenance energy requirement or maintenance nutrient needs. And on top of that, they have gestational requirements. So here at the start of gestational requirements, you can see [00:20:00] it incrementally increasing as you go through the 284 day gestation period, but understand that 60% of the fetal growth of that calf is the last trimester for the last three months.

Nutritional needs of the cow dramatically increases at ca and, so when you think about nutritional management, supplemental needs really calving is, the key. You would like your cows and a body condition score five at calving and you would like to at least meet their needs cuz one of the challenges of beef cattle is we need to breed 'em for the next calf to keep 'em on a 365 day interval.

At peak lactation, I listed requirements here for, cow with moderate milk, 20 pounds per day versus one with low milk production might, be 10 pounds per head per day. And the point here is milk production of your cow herd has a huge effect on nutrient requirements. And [00:21:00] so just something to think about.

Lastly when you think about just understanding beef cow requirements and how that affects your winter nutrition program, one of the most effective tools we have to manage nutrient needs are a cow herds. weaning and, a lot of ranchers really don't think about that much and I always feel like a hypocrite.

Just tell you the truth, my family weans the Monday after Thanksgiving, they've done it every year. That's the, that's their culture. That's the history. But the reality is, if you have cows that are getting thin you're getting late summer, early fall period. And if you want to put condition back on those cows, wean the calf, it's a lot more efficient to feed the, calf directly.

And when you put dry cows out on Rangelands, you drop their requirements down here where my, bar is on this chart. So just something to think about. It's management tool that manages a condition and, hopefully could be used in our [00:22:00] production environments.

Hey, Tim?

Yeah, sorry about that.

Quick question. Can you back up real quick to that last slide? Sure, I just wanted to make sure I w this was clear on the left, left axises as energy or protein. That's correct. So what is the 10 pounds referred to? Energy or protein or just supplement or, dry matter? Nope. No, that is Chris. That's 10 pounds of fluid milk a day versus Oh, that's what the milk.

Okay. Yeah. Yep. And so that's, just looking at, milk production.

And, I will, I'll be really honest, occasionally I get some pretty serious arguments. Some of our genetics folks because there's a few of 'em, particularly semen dealers and stuff like that, that will tell you that all milk production doesn't have any impact on beef cattle requirements.

And the reality is that's, just not true. And, some of you've probably seen that with, your herd okay. Anyway, did that [00:23:00] answer your question, Chris? Yeah, I just, so 20 pounds. Of, milk per day as a high producing cow, and 10 would be a lower producing then that's just a comparison. Yeah.

Yeah. And, I would characterize this, that this low milk could be like a herford cow that's gonna wean Yeah. 500 pound calf. This might be an Angus or Angus cross. It's gonna wean. Okay. That was pretty much where I, what I was going for there. Thank you. Yep I'm not gonna bore you guys to depth with research projects, but I'm gonna show you a couple that, that sort of illustrates why I focus on protein when I talk about winter management, Al and if you're wondering why this guy looks old and has white hairs, because I'm actually starting to get that way.

This was actually research for my PhD down at Kansas State University. Using stockpile tall grass forage, and I'll be really honest tall grass forage is warm, season grasses very low protein, very high fiber, [00:24:00] and pretty easy to see a huge effect with supplementation. But for this study we just did a digestion study with, cows.

We had a control group of cows that got no supplement, a group that got a 13% crude protein supplement, fed at 0.5% of body weight. A group that got 26% fed at the same quantity, and a group that got 39%. And just so you understand what we're trying to do with the study grain and soybean meal have actually the exact same chlor against it.

Almost identical. The difference is grain sorghums roughly about 10% crude protein and soybean mills about 50. So by just adjusting the ratio, of one ingredient to the other, We could easily come up with three fairly dramatic differences in terms of protein offered but the same exact amount of energy.

Okay. So that's the thought. And then our goal here is to see [00:25:00] how these supplements then in turn related back to how well the cattle were able use this tallgrass prairie forage. And if you wanna get strange looks go out in December with a swath or out on native range lands in the tall grass prairie and swath this hay and put it up.

I think people thought we were crazy and they probably still talk about it today, but I'm not gonna show you a lot of this study. You can sometimes condense a hundred pages of a PhD dissertation to, a couple of slides. And so that's what I'm gonna do. But the control animals that just, the only thing they had was tall grass prairie forage.

Consume about 1.5% of their body weight. And just so you guys can convert that's really the equivalent of saying a thousand pound cow gonna eat about 15 pounds of dry matter forage. The truth is this cow overtime starve. That's just simply not enough to meet her nutritional needs.

[00:26:00] When we fed the 13% supplement that was predominantly sorgum we actually saw a slight depressing effect on the forage they might have ate. However, the additional of the supplement brought 'em up to about 1.9% of body weight. This is pretty typical when you feed a grain to animal on low quality forage, you depress mal forage that eat, you might get a little benefit because the supplement itself is, much more digestible than the forage.

However, here's the point I want you to, really see. When you add a protein supplement, though 26% crude protein or higher, we stimulate intake of this Dora Forage from 1.5 all the way to 2% or slightly above 2%. Then you add the forage on top of that, or the supplement on top of that. We have intakes now 2.6%.

So again, if you use that thousand pound cow, that'd be 2.6% of the body weight or 26 pounds of dry [00:27:00] matter. When you adjust for as fed basis, things like that, you're really looking at 30 plus pounds. These two groups of cows will do fine if talk about mature cows in a winter scenario. So this sort of shows you the importance of protein.

Probably even a, more telling study is one I did when I was at Oregon State University and a fairly simple approach to this study. Again, we had a negative control group or a group of cattle that got no supplement, and then we fed one and a half, three and four and a half kilograms of, alfalfa hay per day to cattle grazing Northern Gray basin.

Rangelands, you can tell this was something that I would think of when I was quite a bit younger. This, we we gathered cattle on 2000 acre pastures. We sorted 'em into individual pins. Each day we had weigh up the animal's amount of hay, and then we'd individually feed 'em, then turn 'em out.

The first year we did 112 head of [00:28:00] cows for 112 days. Every day we'd, weigh up these. Free labor intensive, a lot of work. And just so you know, when you first try to train range beef cows to individual feeding the, first week or two is a real rodeo. But after a while, they know they're gonna get rewarded, so they'll, work with you a little bit where all of our research what we, what I've done in the past and what we're doing here at Montana State we always do two years.

And the reason why is quite frankly, there's no such thing as a normal year. Every year is different, and it's important to us to make sure that whatever we do is something that's gonna be repeated over the years.

Hey Tim. Yeah. I see we have a question here before you move on to something else.

Yeah. Can you speak to speak at all to using spent

grain wet around 75% water as a winter supplement on stockpiled pasture? Yeah, I'm actually gonna touch on that in a bit, Chris but, honestly, as long as [00:29:00] you meet their protein needs Yeah, they should work. And Brewers grains actually makes a actually a quite good protein supplement.

So, yeah, I think that'll work. Think one way to look at this is if you're cattle out grazing native rangelands in that forage base is roughly about 6% crude protein, which you could go out and clip some plots and, estimate that, you can probably assume that those cows are gonna eat about 2% of body weight.

For a third trimester beef cow, she's gonna require roughly about 2.1 to 2.3 pounds of protein. If that 1200 pound cows eating 2% of her body weight she's gonna get about 1.4 pounds from that basal forage, which means you're gonna have to come up with somewhere between 0.6 and, 0.8 pounds of supplemental protein.

If it's alfalfa, it means three to four pounds alfalfa, if it's brewers [00:30:00] waste. It's actually actually a little higher than alfalfa on a dry weight basis, and so you might get by with two or three pounds. So just something to think about here for this alfalfa study, just so you know one of the things we did is we wanted to assess actual diets that, that the cattle are eating.

And so we use the soft gel steers, which have a surgical hole in their neck, and we pull out the cannula or the plug. We put essentially a bag around it, and we collect what they eat for 20 minute grazing belts. It's, a fairly accurate way to assess what animals are eating and range kind of conditions in year one.

On this study on Northern Gray Basin Range. Cow started the the winter period grazing roughly almost about 7% crude protein that dropped to six point two six in January. And by February dropped to less than five and a half. That's really not surprising when you think about [00:31:00] just what happens to winter forages as the season progresses.

And cattle like, all of us will eat the best stuff first and, leave the worst for last. That, that's just the nature of the base. Relatively high fiber in year two. We, see very different diets. And you'll understand here shortly why we didn't take a February sample, but they're quite a bit lower in Crew Protein, both in December and January.

And keep in mind, these were from the same pastures. That we used here in year one. So this, notion that winter forage was all gonna be the same, it's not true. The difference between year one and year two is year one was a very mild winter. I remember outside Burns, Oregon people were golfing. Over the Christmas break.

Year two we had two or three three week arctic events that basically lows around minus 30 and highs about zero. It's pretty common [00:32:00] here in Montana.

And those, animals steers were out grazing. Yep, They're out grazing, they're adapted to this environment. The actual initial weights in body conditioning, these cows, you can see they're actually kinda range cows. So they're relatively small, a little bit over a thousand pounds. And body condition score between five point Two six and 5.39.

So a decent condition, I wouldn't say great in, in a relatively small range kinda cow. In year one we had very very favorable winter environment. Those controlled cows over 112 day period lost 66 pounds of body weight and over 1.21 units of body condition. A lot of people go, yeah, I can live with that.

I'm not sure if, I would ever recommend them. And, my rationale is this was the last trimester of gestation when in all honesty, in order for that cow to maintain body weight, she should be gaining between one half and one pound a [00:33:00] day because of the growing fetus. So whenever you see these really negative turns in body weight and body condition means she's probably in a pretty negative balance that last trimester, which will have effect on birth weights and calf viability

low here. Gained 12 pounds, lost a quarter of a unit body condition. And I think the thing I want you to look at it here is going from non supplement cows to just three and a third, one and a half kilograms, the equivalent of three a third pounds. We saw a 78 pound weight unit manage that kind of equates to almost a three to one feed conversion of pu keeping body weight on that cow.

It's a pretty good investment when you go from low to moderate. For this first year we only see a 28 day advantage and going from moderate to high, only a 15 pound advantage, which suggests to us that really limited benefits, particularly above the moderate level where probably the [00:34:00] alfalfa just replaced the, range forage.

There might have been. Here's the problem. When you repeat a study , we started out with the same cows and you can see pretty much the same condition. Little bit over a thou thousand pounds and moderate kind of body condition going into the winter period. Here's what I want you to point out.

In a 70 day winter period, those control cows lost 138 pounds while same cows, same range. The difference was winter environment when you go from and they also lost two units of body condition. To be honest, we terminated this study at 70 days. We're concerned about these control cows that was just too big of a loss.

When you go, when you just add the three a third pounds of supplemental alfalfa, about a 90 pound weight gain advantage, and over a unit, a body condition. And in this case, when you went from low to moderate, you see another 55 pound weight gain advantage and close to the full body condition.

Again, [00:35:00] moderate here appears to be the ideal, and you go from moderate to high. Certainly diminishing returns on that supplemental input, but I think both these studies in both years clearly show that that supplemental protein's really important in this case, just alfalfa hay had a pretty profound impact on how these cows did.

Some other things I want you to think about and maybe it'll give us stuff to talk about here for the remainder of our time. There's a whole bunch of, other things I think you need to think about. One of them's just frequency of feeding. A number of researchers have found that by going to three times a week feeding, or twice a week that, they actually get better responses from their cow herd because instead of feeding just one pound or two pounds of the supplemental protein on a daily basis, now you can go to.

Four or five pounds on a twice weekly or three times weekly basis. And by doing so you [00:36:00] spread the consumption that supplement over the cow herd more uniformly. In other words less frequent feeding. Some of the younger cows and older cows get their share of the supplement know, better.

In that scenario, we're gonna hear all kinds of things about physical form of supplemental protein and, it could be discussions about well hays better than oil seed cakes soybean meal better than cotton seed. And I will tell you that basically price out supplemental protein sources and find the one that's available that's the cheapest and the easiest for you to feed.

And I think I already told you I like alfalfa because I can feed it off a flatbed pickup. Okay. Cod seed cakes, cubes, stuff like that, you have to be set up to do that. But those work as well. This past year or two, in all honesty, here in Montana, canola and, wheated mins have actually now our cheapest source of protein because alfalfa got really expensive.

So meat, their [00:37:00] protein needs figure out what your cows need on a daily basis and then formulate a supplement program over a weekly basis that will meet that daily need, and you don't have to feed it daily. In fact, I would encourage you to feed it less frequently, daily. A lot of work that's out there in respect to timing of supplementation.

Don Adams for instance, at the, at Wild City Fort Keo station showed years ago. When you supplement cattle in grazing or rangeland scenarios, try to do it when they're not actively grazing. And, what's, what that really means is don't go out first thing in the morning and don't go out late afternoon, early evening.

Those are two peak periods of grazing. Try to hit midday and and you'll, have less disruption to the cows and what they're doing. Sam and I could probably spend the entire bull session talking about the virtues of hand feeding [00:38:00] versus self feeding supplements. And the hand feeding, if you're not familiar with those terms, is just a hand throwing feet on the back of your truck and going out three times a week and flaking it off or throwing the cubes out to your cows, cell fed supplements or things like tubs protein blocks salt limited, where, you know, they might put 25% salt in a supplement.

And like I said if you have questions about that, feel free, to, to ask. We've actually done several projects here at Montana State. I can tell you though that, a lot of our research has actually suggested that perhaps self fed supplements are better than what academia has, led ranchers to believe.

And maybe just something to consider. One thing I would tell you, up until this year, I always recommended people to not be afraid of, NPN or urea supplements. The caveat is urea should never exceed [00:39:00] 3% of the supplement composition. And that may seem like a very minor amount, but on a crude protein basis, urea is roughly 287% crude protein.

So you can have up to close to 9% of the crude protein value of your supplement come from urea. And, you admit this, caveat. But, anyway these kinds of things are, potentially useful. Just so you know just how urea works. This is a molecule of urea, which is two of means attached to a oxyl group.

When urea hits water it immediately converts to ammonia and co2. It, this is an exothermic reaction. And it's rapid. And the reason why I, put this up there is not to impress you with chemical structures or anything like that, but the only downside to using in urea would be like lick tanks and things like that.

And my concern is if you get into a really cold snap the water source [00:40:00] becomes either frozen or things like that. I have seen cows. Go to these leak tanks and consume that supplement as a source of water and, oftentimes results in ammonia toxicity. So something to be concerned with particularly if, you're looking back on feed.

However, urea in a dry supplement formulation in all honesty in most cases is economically viable. The exception you guys are gonna get tired of me saying this, the exception is this year fertilizer costs have tripled and urea is a byproduct of the fertilizer industry. And this product is actually only borderline, I think economical and supplement.

But I I think it will go down at least I'd like to believe. And I'm seeing a, lot more Biuret of applications with supplements and, we actually have some studies planned in the future with Biuret. I'm not gonna talk a lot about our research, but I, did [00:41:00] wanna just show you what our Montana state research model is.

Basically we often refer to as strategic supplementation, but our goal here is to look at optimal nutrient delivery systems. And, essentially what this is saying is we wanna get the right amount of feed or supplement into the right cow at the right time. And and so that's a bit challenging when most of our ranchers honestly feed most of their cattle in one contemporary group.

And that could range from two years of age to 12 or 14. And so trying to understand a variation of, intake is, challenging with these large, diverse. Part of this goal also is how do we optimize the use of low quality forages. This is one of our Smart Feed pro supplement trailers. This is at the Factory ranch.

Outside of Haver, and this is what at the Rough Rescue Rangeland looks like in January [00:42:00] or December or January,

there's a lot of forage here, but it's pretty low quality. So our goal is how do we provide the right amount of supplement to optimize the use of this low quality forage? The last thing we've, done with a lot of our research projects over the last six years is we also wanna optimize the use of range land

and the way we're doing that if, you look at this cow right here in the picture, that cow's got a G P s collar on it. And the GPS collar also has an activity monitor. That activity monitor is nothing is similar to the Fitbit in your cell phone, which tells us when the cow's grazing, when it's resting.

And so we get fixes roughly every five to 10 minutes that tells us where the cow is at the landscape. The activity monitors tell us what the cow is doing for every fix. And then when that cow comes, the supplement feeders, it sticks its head in these feeders. And it tells us exactly when it [00:43:00] consumes the supplement, how much it eats.

And so we can get a, complete picture of how cattle use a free choice supplement in this environment. And, we did this. I think for six years. I've at our Northern Ag Research Center at the factory Ranch in Haver in the last four years at our Redmont Research Center. So we have a lot of data, a lot of interesting things that we're, certainly welcome to share.

I think also I mentioned, I wrapped this up. One of our goals with our research is honestly to acknowledge that, ranchers feed cattle in big groups. And that one of the things they can they may go out and provide the supplement, but how effective are all the cows in getting their share of that supplement?

So we're looking at a lot of variation studies that, that measure variation of individual animal intake. And like I mentioned earlier, we're finding out that the intake's actually more consistent than perhaps previous literature suggested. The other thing we're finding out, or [00:44:00] maybe I'm, finding out, and I probably shouldn't tell you guys this, But this is my seventh year here, and in my seven years at Montana State, we've had two 100 year winter events and two 100 year drought events.

So that's, greater than 50%. Envi environmental challenges. But our winter environment, quite frankly, is challenging. And these two winters were eye-opening and we were doing winter grazing projects. One of the things we have for every single one of our projects, we have a weather station out there with the cows.

And so we correlate weather extremes and cow intake, grazing behavior and performance. The other thing that we're hopeful for, to be really honest, the effect of, the environment on nutrient requirements of domestic animals. The last time the National Research Council even changed models.

N our beef nrc and what where we make recommendations to ranchers. It was 1981 and [00:45:00] tell you the truth. Yeah I, was an undergraduate at Oregon State University, didn't even really know I was gonna, I'm going be where I'm at today. So I guess what I'm saying is this, information needs to be updated.

Most of the models are based on home publication. Almost all of 'em are focused on energy, and you guys have probably heard some of the recommendations. And one of the classics is for every degree below 32 degrees you have to increase energy intake by 1% with your cal herd. Trust me, when you get a call from a producer in Glasgow that says it's, minus 37 degrees with sustained winds of 30 miles an hour for a wind chill minus 60 and, you use this kind of information, you go.

Your best response is, I don't know how to feed your cows when it's that cold. And the reality is they'll lose a lot of body weight and shape. And we've seen that these, hard winters, there's no mention of proteins, minerals, and vitamins. And our biggest [00:46:00] problems with scours, we cast syndrome and all that have occurred after these hard winters

so something I want you to think about and be aware of. Most of the models to date relate to temperature and hair coat, but they're really limited in respect to precipitation or wind chill one of the things we, both Sam and Dr. Wyffels and I prefer is wind chill rather than absolute temperature. And, we use our own experience for that.

I don't mind Montana winters when it's minus 20 and no wind, but when it's minus 20 and 20 mile an hour winds, it becomes a bit challenging. So wind chill equipment's pretty important. I it wrapped us up and allowed you guys to ask questions. Some of the things I want you to think about is beef cattle are, uniquely designed and they've evolved u utilized low quality feed subs, high fiber hazes, low quality hazes, low quality range forages.

And coming up with [00:47:00] direction systems that, that really focus on that is that really is doable. And, I think a lot of people are making this work in my mind, supplemental inputs or essential and, you can get in arguments with producers about how much supplement do I find when do I not?

And, my response to that is I've also been in involved with interpretation of, bison research and, Rocky Mountain Elk Research and those herds with absolutely no management. Know, one of the, metrics for how well they're doing is do they have 30% calf crops or not? If they have 30% calf crops or higher, those herds are, doing quite well.

If they have less they're probably gonna go in decline. I guess the point I'm making is our expectation for beef cattle herds are way higher than now. And supplement inputs are needed. But the challenge is only feed when you need that and find cows that fit your environment. And think of ways to optimize forage [00:48:00] useage

so that, Chris I, think I'll wrap it up and, encourage people to ask questions and, maybe even have Dr. Wyffel jump in if he's got something.

Yeah. Thank you Tim. Really appreciate it. And really great information, Tim. Thank you. But we really get a lot of good discussion and feedback going usually around now, so feel free to jump in everyone.

Oh, here's a question from, Brian. Thank you. Can you talk about optimal frequency of su supplementing protein every day versus three days versus once a week, et cetera? Basically it's a good question. I I really appreciate it. All, three are effective. Just, so everyone knows, if you wanna go out every day and, you have access to cows by all means, if they, if that fits your system, I would encourage people to look at two times a week or three times a week as probably the optimal way.

And mostly because you more than[00:49:00] you more than doubled the amount of supplement providing, which allows the young cows and the old cows to get their fair share. One times, once weekly feeding also works. Just so everyone knows that ed Houston down in Texas and a number of people have shown that, that it is effective.

Cows are amazing at retaining nitrogen. So when you feed excess protein, one day they will recycle that nitrogen, return it to the rumen, and on days that you're not feeding the protein so it keeps those animals going. You will see a performance depression that's once weekly. . But the benefit is compared to not, supplementary is way better.

Way better. Okay. And I think there's another one here and, Hey Tim. Yeah. Really quick building on that question. I did want to go back to your, the study that you mentioned. And you were talking about low, moderate, and high levels of supplementation. I remember you saying that low [00:50:00] was 3.3 pounds, but what were the moderate and the high levels, just for context to these questions?

, I always get in trouble cuz I never know, depending on which audience this metric or pounds. But basically that is one and a half, three and four and a half kilograms, which is the equivalent of three and a third, six and two thirds and 10 pounds. Ok. And so if you think about that study with alfalfa, honestly, regardless of the year, the 10 pounds is what we're feeding.

And the. Three and a third was okay in the mild year, but the six and two thirds was, probably the ideal amount for that, that more severe year. And so I understand the environment's having a big effect. The other thing I might just mention about alfalfa, and a lot of people don't really think about this, but when you look at legumes, alfalfas, and clovers and compare 'em to grasses, and one of the things you notice is that legumes typically compliment grasses really well both in terms of [00:51:00] protein, but also in terms of minerals.

Part of that is, is related to what portions of the soil profile that legumes occupy. Alfalfas are deep-rooted perennials that in some cases will go 10, 12 feet in the soil profile if the depth of the soil allows for that to happen. Whereas most of our grasses and all honesty, is the top 12.

To 18 inches soil profile. So those two four inch species have very different mineral compositions and you combine them typically you do a better job of meeting those cows. Needs a good trace mineral program. Also also helpful.

So I think the question, there's another question. Have you ever used stock water to deliver urea? And I, guess my best answer to that is no. I have seen people though, put urea in trace metal salts to meat mild protein needs for, cattle like in fall grazing periods, but [00:52:00] haven't seen it done in stock water.

And, then Tim another, yeah, go ahead. How often should you test your pasture forage? How much does it vary from, say, December to February from year to year? Yeah. Really, good question. Yeah, I I, recommended that you monitor continuously. To me I'm, forever looking at a number of things.

And, I have to tell a story on myself. When I was young, I first started at Oregon State Univers. I did basically a soft geo collection, characterized range forage for four straight years, every month for two days. And when I finally summarized all that data and all the nutritional things, I went to a national range meeting and presented the data and kind of one of my heroes was a range of calls from, a Colorado state.

His name was Larry Rittenhouse. And Larry walked up to my poster and nodded and said, wow, you spent a lot of [00:53:00] time doing all this work. And and he goes, this is really impressive. I haven't seen anyone do this before. And then he goes he said, when you get to be my age, he said, you try to simplify life.

He said so, what do you mean? And he goes if it's green, it's good, and if it's brown, it's bad. And it actually, to be honest, I was I, was furious. He really made me mad. But as I've aged and I've thought about his comments, it's there's, some truth to that. So look at your forages, look at the color.

Look at the amount of vegetative leaf material versus steam. Look at the condition of the cows. Although I always tell people, by the time you see your cows losing condition, it's probably too late. Also look at the cow pads. The cow pies. And when they start stacking up and getting tall physically see fiber in there you probably need to up your supplemental input seven.

This is, I dunno if that [00:54:00] answers your question, but a number of things you can look at. You can clip forages, but always remember when you clip forages you're always gonna underestimate what the cows actually. Okay. They're, better at selecting their diet than what you can ever do with a pair of clippers.

We try to, we'll do what we call botanical composition, where we'll watch the cows, we'll actually count every bite they've taken, and we try to simulate bites. And even then we always tend to underestimate the quality of the cow diets. But most are arranged conditions and studies we've done here both at Haver as well as our Red Bluff Research Center.

Very definitely shows a really strong protein response to our cow. Okay, so another question. Yeah. Yeah, thanks Tim. Nice presentation. Yeah, I'm a rancher out here in Central Montana and I pretty much concur with everything you've shared. Except the thing like alfalfa. I've always felt strongly about alfalfa too, but it's really got up a lot in the [00:55:00] last two, three years and yes, it has have a bio protein supplement seems to help during be sufficient during the main part of the winter, but we're still using alfal in the last part of the last trimester.

Yeah. Don't you know, this whole notion or this whole this idea of using grass throughout the whole winter period assumes that you're managing for grass to be available . Correct. And a lot of us have been, spend a lot of time thinking about how we do a better job stockpiling feed.

And I'm just curious, working with your fellow research people this topic coincides with how do you graze so that you actually can. graze stockpiled feed over an entire year. And then along with that, you were talking about how protein goes down. If animals are in one pasture for a particularly long time, they pick the best and it gets worse.

And a number of [00:56:00] us are moving cattle actually pretty often in the winter to keep that protein level pretty even. So I'd be curious your thoughts on yeah, moving cattle in the winter and also creating forge in the winter, because that's a real long-term kind of strategy versus a year to year.

Yeah. Great, comments, bill. And, actually, I totally agree with you. I, think you do need to rotate pastures in the wintertime because if you don't, if you graze them for, a long period of time they'll eat the best stuff first. And, what you have as those cows get closer and closer to the calving doesn't meet their needs.

So it creates problems for, you. The other thing and, I think you, you hit on it is, there's a lot of things you can do here. In addition to just providing optimal supplements complimentary forages in a winter grazing scenario, I think are very something you should think about.

The one that comes to mind that I've seen used very effectively is things like [00:57:00] forage Kosha and things like that, that in all honesty will hold protein levels between 12 and 15% throughout the winter period. The challenges with Kosha though, is it's hard to get established but once you do, it seems to be pretty tolerant of grazing and, provides an alternative to, necessarily a supplement per se.

I don't know if that sort of answered your question, but yeah, I think you can ratchet up your management quite a bit and multiple pastures, rotating those cows around, complimentary forages. All those things I think are important. One thing I will tell you though, just to think about is when you start doing things, you start stockpiling forages and doing things to manage the forage quality for late season winter periods.

Don't be surprised if you don't start creating elk pumps. Elk are, interesting animals that that when you do things good for cattle, late season approach, [00:58:00] a lot of times you encourage. Yes. And so just be aware of that. Also the risk go up when you stockpile forages. I've seen years where people stockpiled pastures and the grasshopper ate it, or the rabbits ate or something like that.

So, be aware the risk go up, but I think the benefits and long-term sustainability of these systems are, enhanced. As reduce your reliance on harvested Hayes. That can answer your question, bill. No, that's all good. I guess just on the forage Kosha and I know there's some people on the call I think who use this more, certainly we don't have it in our range.

Marty you're suggesting and, maybe someone else on, on the call here could respond to this. Can you actually get Forage Kosha to get established in a, fairly well managed range land . Oh yeah. Honestly, it's tricky. I've, seen people do it and be very effective and I've seen [00:59:00] people try for years and have a really hard time to get established.

Probably the best place I would encourage you to go to is the Eastern Oregon Ag Research Center outside of Burns that they have a U S D A scientist, that's what he specializes in. And he has some really, good recommendations on how to get forage kosha as well as some other complimentary species established.

Yeah, so I've referred to those people. My observations are no different than yours, bill. It's hard to get us we have seen an increase of. I think for management, winter fat and even gardener Saltbush. And I always love seeing these places that have piles of gardener Saltbush, and I see these little islands and wondering, see if there's an island here.

It could be everywhere, but it's like, how do I make it everywhere? And so any thoughts on success of without just natural expansion on its [01:00:00] own, getting more of those two semi shrubs because they're just such a dessert for cattle and, it's such a complicated effort because the more efforts you put into complimentary forages, things like legumes and things like that kosher saltbush things you talked about actually the more desirable you make for deer and elk populations.

And I've seen people that. Will spend a lot of work doing this, but they end up track attracting a lot of deer, elk, which is sometimes and let's be honest, dryland alfalfa, which is, which pretty cool. And you can get that established, gets grazed out by deer and elk almost immediately, and the persistence, some of those things on native rangelands or, private rangelands are not very good. Very good. Thank, you. Thank others. You got some questions for you, so I'll, get outta okay. Okay. So Tim, there's another one in the chat here.

Besides alfalfa [01:01:00] hay or pellets, are there any protein supplements that would meet grassfed protocols? Good question. I'm not sure just what the caveats are on, grassfed protocols, but No grain, no urea, no grain, no urea. Okay. How about screenings, ums screenings, like weed, mids, things like that?

Would that be I'm not po I'm not positive on that. Sorry, I'm trying to start my video so you can see my face. Yeah, actually I think Pete weed mids would be one here in Montana that's actually reasonably priced. And, that's just, honestly, it's just the, that might be cereal grains, it would be the, it'd be the seed coverings the screenings that go into that.

Yep. Now one thing to think about, and I did research when I was with Oregon State and then Don Claton did this when he was in Nebraska. We just looked at some high quality hay second cutting grass [01:02:00] hay that we put up and used this and it worked fine again, as long as you feed to a certain protein level.

Yeah, that, that's really all you need to do to, utilize these low quality forages. In our case, we just put up Meadow Haze that were fairly vegetated and, immature and worked pretty good. What we did for our study that Oregon State is we just grazed it hard all the way into June, irrigated it and let it grow for about three weeks and then, or month, and then hayed it again.

And then used that as a supplement for low quality straw that we're feeding. It worked fine. So did that answer your question, Pete? Yeah, no, that does. One other a comment I can't help myself cuz I, I ranch in Paradise Valley and I stock, I stockpile quite a bit of grass and try and graze all winter on that.

I've noticed that the elk don't bother my stockpile, but they bother my neighbor's. Hay hayfield [01:03:00] residue. Yeah. Pretty bad as well as their haystacks. Yeah. But while I got you, and I don't wanna dominate, cuz I know Steve's got a question. Bill hit on it. Some of us are moving once every three days.

Some of us are moving once a day. Yeah. Some, folks are moving twice a day in the winter as a forged declines. And I've always attributed it to what I call keeping the cows on a level field of declining nutrition. Yeah. Yeah. And it seems to be that I don't have to supplement that much and I maintain pretty good body condition and I'm even putting weight on yearlings and calves throughout Not much, but I'm not losing anywhere.

So is what's, that? What's going on? I, agree and I I think probably the answer to your question, remember the graph we had that showed the beef cattle requirements and that increasing gestational requirements. As that cow approaches calving. And I think by rotating, you guys are [01:04:00] keeping that level of nutrition fairly, consistent.

Whereas if you just have 'em in a big pasture for the 60 day or 90 day winter period, they're gonna eat the highest quality first. And so they're the, quality of forage they're eating is gonna decline over that 60 to 90 day period when in fact their nutritional needs are, increasing.

So in your case, you guys were just doing a better job of matching that cow up with the forage. The other thing you're doing by rotating pretty quickly, you get more uniform use of the entire forage base, which you guys know that from your own system. And so I think it's pretty important.

But we on native Rangeland it's a little tough to do just cuz we're, such a big extensive area, but. Some of the things that Dr. Wes and I are excited about is things like virtual fencing and the ability to perhaps use some of that technology to do exactly what you're doing, Pete just [01:05:00] move them.

Fairly consistency and fairly often across landscapes and that kinda technology is actually getting pretty good. So thanks.

Steve, go ahead. Yeah, so I just wanted to comment on the forage Kosher. So I've been trying to establish forage kosher for a, long time and run, into that viability of the seed. But where I've really got some success that's interesting is in prairie dog towns and really the, longest one I've had.

Is the peri dogs try to eat it down to, to keep they don't like it growing up. And then it almost turns into a, ground cover. And then it's, not in huge areas, but I have some areas that are basically completely covered by forage kostia. And it's, a win-win in a prairie dog town and [01:06:00] and, I, it does make it very attractive to wildlife.

But yes, at some point I got enough it's mainly antelope where this is and, I finally got enough forage kostia where the cows, it's still, there's still some there by the time the cows get there. But yeah, I just think, it's very interesting. And if if we could figure out how to make prairie dog towns Productive.

It's pretty cool. The, other thing I've been reading a book by a guy from Canada, I can't remember his name right now, is the book is called ranching like a 12 year old. But anyway, what he, on his grazing, he tries to, to not let his grass get beyond stage two. And so, he maintains the, he can really up the quality [01:07:00] of his stockpiled forage by doing that and Yeah.

Yeah. So I just thought I'd get your comment on that or if you'd heard of that. Yeah. You I, think what he is, what he's implying and, he's exactly right, is if, you graze it at the right time, Allow it to regrow that, and then it senesses either due to lack of moisture or the end of the growing season then you can have a higher quality vegetation as compared to not using it at, at all.

The challenge is that's tricky and, most of us here in Montana know we don't know for sure when our forage base is gonna dry out and, we've seen those summers where we're actually going along pretty good and we get into July and then all of a sudden we have a week of plus a hundred degrees and.

It's almost like it, it's just totally. And, those windy days just take that moisture out soil and stock growth. And but he's, exactly right. If you can manage the phenology and keep the plant itself in a, in more [01:08:00] vegetative state, then that stockpile vegetation for later use, it's gonna be higher quality.

But but the downside is, I think elk will not bother stock palm forage if it's fairly low quality. They will bother stock if it's good quality. So thank you. Hey Tim, backing up really quick Brian Mannox asked for a clarification about those supplementation levels again. Oh yeah. Chat that it was 3.3, 6.5, and 10 pounds per head per day.

Is that right? That is correct. Yep. Okay. Yep. And again, to repeat the 303rd was actually the ideal amount in the moderate in the the relatively mild winter and the six and two thirds was probably the best approach in the hard winter. Just in terms of body weight and condition loss.

Just so you know those control cows for both those years they had calf crops that were almost 10 [01:09:00] pounds lighter, then the supplement of treatments, and they weighed 30 to 40 pound lighter calves than the supplement treats. Everyone go as well. But did it impact, we also had lower conception in those control cows that all supplemented groups were in the 90% plus conception range.

Those control cows dropped down to high seventies, low eighties in terms of, Conceiving to AI and Coverables and . A lot of things there to that I didn't cover, but you probably should think about. And those are March calvers, just like the first study you documented? Yeah, March ca Calver. Interestingly enough with our MSU beef cattle herd here on campus those cows as, mature cows go out to Red Bluff, which is pretty close to Norris. That herd is, May calving cow herd. And, we moved to May two or three years ago. And our rationale and, [01:10:00] I'm sure you guys talk about this, is we really want to focus on low input systems where we match the cattle as close as we can to the environment.

Our, other rationale for, moving our calving dig was haver is a march calving cow herd. The Bear Ranch is a march calving cow herd. And the U s d A a r s facility at Miles City is March calving . So we thought let's move ours to, a different date. So, we can give ranchers in this state balanced, look at, different approaches.

But with that we, graze our cattle at, Red Bluff. Honestly, last year we fed no hay and this year we're gonna feed no hay. But we do supplement 'em, we do try to meet their nutritional needs. The, research herd at Haver, it's the Northern Ag Research Center, we will graze all the way into the middle of January and we bring him home in January from the factory ranch to the base property.[01:11:00]

And they will start calving typically right about now. Actually they've already started calving, so about the 20th of, February ons when they'll cab, we bring 'em home about a month early cuz it's a 15 mile drive. And and experience tells us that you don't wanna get too close to cab drive cows, 15 miles, you could have a disaster.

So, that's what we do if both of those herds and it fits kinda our conversation today. And then Pete asked on the supplementation six and 2006 and two thirds pound per head, per day at what protein content is that supplement, that alpha, hay For this study, Chris was hay that we produced ourself.

It was pretty close to 20% protein, so it was an early bloom alfalfa hay. And so you know, one way look at that, three and a third pounds you'd be adding about. A little bit over 0.6 pounds of supplemental protein six and two-thirds would be [01:12:00] 1.2 and, you see why now that 10 pounds totally exceeded their protein.

Okay, good. And then Dan, I guess you're up and you, are on mute, so unmute. There you go. All right, thank you. Regarding the frequency that you mentioned that two, three times per week I just wanna verify, is that include up to and through calving yes. Keep in mind once yeah, that goes up to calving once they calve those protein needs increase quite a bit as, as well as digestible.

And and like with alfalfa hay, we always tell people that you can get by with really three to six pounds up to calving. After that you might wanna feed supplemental inputs that might replace this low quality hay to a degree just to meet the overall needs of the cow.

Just something to think about. But always keep in mind, these cows are pretty remarkable ed [01:13:00] Houston at Tex a and m was the one who did the first studies where he did once weekly feeding, and it was pretty interesting stuff because he would feed three pounds of cotton seed cake daily versus 21 pounds once a week.

And he got really similar results a little bit of depression with the once a week group, but you think about three pounds daily, 21 pounds of cotton seed cakes, a lot. Supplemental need for one day. But, it seemed to work pretty well. They repeated that across multiple locations.

They've got Texas a and m research effort. Pretty cool stuff. Pretty interesting. Great. And then I just wondered if you had any thoughts on that subject in relation to bail grazing, if you guys have done any of that, and if, and any thoughts on how that could could you repeat that question?

BA grazing something? Oh, bail grazing, ba grazing. Oh, okay. So how that might correlate to, to that really [01:14:00] really, good question. When I was with Oregon State University both research stations did we did some swath grazing and, we also did what we called rake bunch.

And rake bunch is where you guys have seen seen 'em, the old rake, the bunch rakes. Which is lawn art for most of us. But we used that to make little piles. And we, did it several years of the, of this kind of approach particularly at our burn station and all the way up to about three feet of snow.

Those cows were able to find those bunches and dig into those bunches and, graze that. We did find that the best way to use swath grazing in, this bunch grazing, was to strip graze it because otherwise they'd, waste a whole pasture they'd go in and high grade it. So we had just moved electric fence roughly once, or twice a week in a, allow 'em access to, new bunches, and it worked pretty good.

Bale grazing, I don't [01:15:00] have a lot of experience with that. It appears to work well. People in Alberta and a place like that use a lot and seem to be pretty pleased, but,

. Does anybody have any more questions or any follow up comments on, yeah, I got covered, I got one on the bunch Grazing versus the swath grazing. Did you find that it, that bunch grazing held up better to the elements than the swath grazing like the wind? Did you have much issue with wind blowing around or we've, experienced just some freezing within the windrows, both to itself and to the grounds sore.

Wondering if the bunch grazing would hold up. We would lose the less forage in the bunch grazing, but the wind is a question. Yeah. So I just wondering if you could speak a little bit more specifically on the bunch grazing versus the swath grazing. First of all, Brian, those are really good questions and, very accurate comments.

To be [01:16:00] honest, we did most of our work with this at our Burns research location. And the reason why is the wind didn't blow very much there, , actual bunches. We had grad students go in and actually sample that over the entire winter period. And, surprisingly enough, the quality held up pretty well.

The actual swath, depending on how wet it was and how cold it was didn't hold up as well. We saw some of that forage molding and, breaking down. Prior to use. So, the bunches were better than swaths. We tried this at our research station at outside of La Grande, Oregon, which in all honesty is comparable to Livingston in terms of wind.

And I can tell you that that, that, bunch creating these bunches or leaving hay in the windrow your neighbors thank you because your hay all close to your neighbors and it's really hard to manage. And so yeah, in [01:17:00] areas where there's really high wind the bunches, once they settle, will stay there.

Swaths have a tendency to blow away, particularly in that first 30 to 15 to 30 days before they, they settle down and, stay there. I don't know if that answered your question thoroughly. The think about, and I think the bunches are preferable too, just the swaths,

but it's funny. We've, talked about and I think all things we're talking about are really economic alternatives to traditional systems. But always remember risk go up and we, did a couple of, we did three years of research when I was at the research station outside of Union Oregon in the Grand Lawn Valley.

And we basically winter cattle on a barley baur combination and about 30% barley base supplement, 30% crude protein. We fed three pounds per cal per day, the equivalent we actually fed [01:18:00] three times. Weekly and, winter cattle on stockpile tall fescue pastures. And in all honesty, the first year, I think my crew thought I was nuts.

And and after we got through the first year, they thought I was brilliant. And so the first two years it worked great. I think we had 30 bucks in the winter in these gals. And then the third year came, and I'll tell you the scenario we had, but we had a real, real wet, heavy Chinook storm come through.

And, dropped really about eight to 12 inches of really wet snow onto the stock bomb tall grass or tall fes forage. Immediately following that snow load, it all melted, it smashed everything down to the ground, and then it all melted. And then we had an arctic system down behind that come in that went to 30 below.

And that was followed by Highland winds. And what it did, it sheered that entire field. It sheered all the vegetation off the crown on those plants, [01:19:00] and we had to go out and buy hay for the rest of that winter. And so for two years I was brilliant. And for one year not so much. But it's just the risk you take when you start looking at the alternative forages.

So in your experience, you the, after the 15 to 30 days, those bunches actually held up better in the wind than the swaths, which would've been lower to the ground. Yeah. And, part of that, the bunches you, actually get a, fairly substantial amount of, hay together in one bunch.

And, so it tended to stay there better. The swaths would, honestly would lift up. And and so we found a bunch just to be a little bit more reliable, than swathes. And once you got past that initial 15 to 30 days it, it would settle and, stay put better. But in all honesty, that approach didn't work very well in our research location.

It had significant and sustained [01:20:00] winds, but just something to think about. And then, did they did you have any experience with the swathes or the bunches in crusty snow where you get that cap on top? Did the bunches hold up? I would imagine they'd do better because it's more of a mound unless they grow. Yes.

Yeah, it's interesting. The beauty of Montana, everyone goes how does Montana differ for you as compared to Oregon? I, love Montana for a number of reasons, but or Oregon, Eastern Oregon got roughly 60 to 65% of their precipt during the winter months and, here in Montana.

We don't, we get 60, 65% of our precept from, April through October. And the ability for the stock pole forages and the ability to do things like swath grazing and bunch is, actually better here than Oregon because we don't have as much precept. Also, we're colder.

And, you can [01:21:00] you can argue that the benefits of that however you want. But once you freeze and you stay frozen you know that hay and those punches maintain their quality better than continue freeze thaw and, being wet. And so just, things to think about for your area, for your specific environment.

And when were you guys harvesting that hay in the bunches? Yeah we would put, the swath grazing in the bunches at the same time that you might put up hay that you take to the barn and then feed it in the winter. And so we would we would put those up in, in many cases honestly late June through throughout a good chunk of July.

And, then just leave that there and, come in with that post weaning into the calves in the fall and then graze it. In all honesty we, looked at beef production systems where we grazed the cattle throughout the winter period [01:22:00] on swaths and, butches. Now we actually had a study that looked at winter grazing native rangelands versus bunch, grazing versus conventional feeding.

And we did that for, a number of years. Looking at those management systems. And were you harvesting it that early for quality instead of letting it go a little longer, trying to get more quantity or trying to capture a higher quality product there? Is that? Yeah, I think, yeah, I think that was the idea is try to cut it the same time you'd cut your hay just to keep that quality there.

Depending on the research center where we did most of this research actually had quite a bit of meadow foxtail and, also some sedges and rushes. And trying to harvest the amount of time where they still maintain decent enough quality was, always a bit of a challenge.

And by the way, I'm gonna look up this ranching like a 12 year old. The one thing I've found out with, working with the ranching industry is [01:23:00] you're never too old to learn. And and I'm always surprised at what I don't know. So I'll have to look that up. Yeah. Thank you for that. Stephen, for those of you that didn't notice or didn't see it, I put it in the chat there.

There's a link, but the author is Tom Krak, K R A W I E C. So in case you didn't see it. Yeah, Al how about any other questions or discussion? Got some time left if people want to hang on and keep talking. We've had a great great conversation.

Yeah. There's one thing I thought I would just add to Tim's conversation and maybe it touches on the gentleman's comment about how to prepare or stockpile, forage or get things going and, it might actually be a plug for another full session later maybe. But we're actually looking at work and incorporating or integrating like a crop systems and livestock systems where we can maybe produce some either crop rotations or, crop forage [01:24:00] systems that provide grazing forage for cattle in the spring where you can start stockpiling some of that range forage for later use and extend that grazing season as well.

I'm not sure I have a, ton of information on that right now, but that is definitely a, direction that we're looking at moving forward on with some of our research programs.

Yeah. Thank you, Sam. I really appreciate you sitting in on this too. And thanks, Tim, for your time. Leslie has a question. Go ahead, Leslie. Sure. Th this is maybe a little bit off the wall, but I was wondering if anyone has done any attempts at having a, like a standing forage that they use as a protein supplement.

Like you have a stand of alfalfa and you basically rotate through it, but not not have the cattle on it exclusively, just give 'em a little bit at a time, similar to the way you would strip graze windrows or something like that, but then also having access to the lower quality forage.

Is that something anyone has looked at [01:25:00] or would that be feasible to try?

Yeah, I actually I, think it is feasible and, in some ways when we go out with celled supplements, we may go out with a a product that we've used a lot here, Montana State's a canola base supplement that's, comprised of 25% salt. And so we just place it out in the pasture with the low quality forages and we allow the cows to free choice, eat the supplement, as well as eat the the, low quality forage base.

There's actually some research going on with Utah State where I, think their goal is to do exactly what you described, Leslie. They are they're, planting little islands of, high quality legumes and things like that to provide. For range livestock production, both sheep and, cattle.

And also take pressure off some of the native grasses that, that project just started, I think it was approved about a year ago. So I'd be [01:26:00] curious to follow that and, relay that information back to you cause I'm not sure how it's gonna work. Very cool. Yeah, I'd be interested to know how that pans out cuz at least you can cut some of your cost of buying Hay

Sam, you know who that guy is at Utah State? What's his name?

I, believe his name was Juan Viba. Yeah, VIBA. Viba, yeah. Yeah. Pretty interesting concept and, almost exactly what you just described, Leslie. Hey Pete, I was gonna ask you for some input on that real quick. I think being, as you guys are trying to keep, put weight on and, finish your cattle grass fed year round you addressed that some in your comments.

Maybe you could expand on that too. Yeah, I was just gonna say, sometimes what we'll do is we'll have a better, pasture. And we'll graze that for a day, just strip graze it for a day and then bump back to our less lower quality pastures. And then every three days or so just give 'em a strip of that good, [01:27:00] grass or good higher quality forage.

So that's one strategy to use. Yeah. Yeah. And you guys are, that would be on your pivots Pete? Those are hay fields that you're grazing. Yep. So we'd maybe take some of our areas that are dry land as we're grazing those and then bump back to the irrigated pivots and. generally, most of those were stockpiling.

Sometimes we try to hit about the middle of July. That way we have some pretty good quality. Graze it once and let it grow back up and then start stockpiling at mid-July. But you're not hanging those fields anymore? No, we're not haying 'em. Yeah, just Chris had hayed, sorry, my better half, my smarter half just had to remind me what we do.

did you have some more to add to that question, Leslie? I think you started Oh, sorry. No, I, I didn't realize I was still on mute, no, I appreciate the information. That's seems like a really cool idea until it snows and ices over like we talked and then it's a [01:28:00] little scarier, but potentially some good savings there.

I think so. Thank you. Yep. Absolutely.

Very good. Anybody have anything further? Oh, go ahead. Do we have a question there? Yeah. Are them just grass or are they legume pastures that he's going back into? Yeah, that's Pete, are you talking to me? Yeah, go ahead Pete. Yeah they're a mixture. Legumes, they're not as much, much as we'd like to have 'em about 30%.

Every year we're frost seeding, throwing red clover and alfalfa seed in the mineral, and so they're getting better with time, but yeah. So there's a percentage of legumes in there. The alfalfa and the red clover really doesn't stock by all that great. But I think it contributes to the overall value of the forage.

Yeah.

Yeah, and the research going on Utah states actually for native range land. And that is primarily legumes that they're putting in these islands to benefit [01:29:00] both domestic livestock and wildlife in those areas.

Well, Chris, thank you for having us come. I've enjoyed it. So yeah, thank you very much Tim. And Sam, thanks to you as well. Appreciate you. I don't know if you're pulled off along the road somewhere, talking on your phone, but really appreciate you taking the time to be here. And we will plan on having a follow up follow up call on, cover crops and maybe some.

Along the lines of the things that you mentioned earlier. Okay. Thanks everyone for joining and really appreciate everyone's time. We'll talk to you next month.

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