

503 Soil Test Interpretation – Plants Dig Soil Consulting Ltd.

#RealisticRegenAg | Have you struggled with how to interpret a soil test? Do you want to challenge the recommendations that are given? Well, stay tuned. In this episode we're going to cover this.

References in podcast:

Building Soils for Better Crops.

<https://www.sare.org/resources/building-soils-for-better-crops/>

Soil Health Institute Announces Recommended Measurements for Evaluating Soil Health

<https://soilhealthinstitute.org/news-events/soil-health-institute-announces-recommended-measurements-for-evaluating-soil-health>

OFCAF (On-Farm Climate Action Fund) details:

<https://rdar.ca/ofcaf/>

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Have you struggled with how to interpret a soil test? Do you want to challenge the recommendations that are given? Well, stay tuned. In this episode we're going to cover this.

Now my company works with independent minded farmers that want agronomy advice is not tied to product sales. We focus on regenerative practices that are proven and profitable right now. And they also build healthy soil for your future. And further, they'll make the soil healthy for future generations that will take over the land. Now the pricing is set to help any sized farm get the advice they need. So anything from a simple Q&A plan to detailed field planning and crop scouting, so we can work remotely or in person or a combination of the both. You're not tied to long term commitments. You're free to hire another agronomy company to implement what we come up with. You could continue to work with us or you can do it yourself. However, we always love to work with people over the long term. So, let's get into some #RealisticRegenAg.

So when we're looking at soil test, the first thing we have to know is what extractant is used to get the nutrients out. So for example with phosphorus there are many different extractants that are used in different soil types in different regions. So as an example in more of a weathered soil, acidic older geologically, the Bray soil test are the ones that are usually used. Whereas in my area which is in the plains or the prairies, the Olsen is more typically used and it's more adapted to the higher pH, younger geological soils.

In zeroing in even deeper in Alberta, southern Alberta where I work, there's a modified version called the modified Kelowna method, which was developed in Kelowna BC. And it ends up to be working better for our soils than the other extractants. Now why it's important on this is that if you send your soil to another lab that is using a different extract and you won't get as accurate of results, and it makes it a little tougher to compare and figure out what needs to be done.

Which brings up another point, it is good to be using the same lab over the years. Each lab even if they are using the same tests can sometimes come up with different numbers. Labs usually do send off standards or have tests that they send to other labs and they try to cross check each other. But there are still some biases in each lab. And it is important to be using the same lab but it's not impossible. A good agronomist can look at soil tests that are many different labs or different extractants different things and still come up with what can be done. But of course, the more consistent you are the better it is to trust the results.

Now when using a lab in your local area, the other really important thing is that these what they come up with needs to be calibrated to your local area through in-field tests that actually show that the numbers mean what they say. It has taken a long time but it does happen. We get we have fairly good data sets of the how things correlate to lab results. But of course, as we get different genetics like better varieties, newer fertilizers and as the soils change and age this can change what these numbers mean. And unfortunately we're probably due for some new testing, but it doesn't seem to be happening. So it is a limitation but it still does give us it gives us a baseline to start and then we can always do in the field or farmer test. strips just to see how things work.

Every soil test from any lab is going to be different, or at least the report of it. It's displayed differently they give different numbers. The main thing that I'm looking at are NPK and pH and organic matter. Also, a good one on there is salts in my area because we can have salt accumulation in our prairie soils.

Now when you're looking at the test results, you might see it in parts per million or you might see it in pounds per acre. Or you might see both. Now, as long as a sample is six inches deep. You can take parts per million multiply by two and it's pounds per acre. The reason for this is that is assumed that a one acre one acre of soil, six inches deep has 2 million pounds of soil in it. So that's the that is how it's done. Any other depths then, of course you have to do a little bit more complicated math but that's the easy way of doing it.

Now on the soil test, usually it will say the lab will give kind of a rating say like low very high, high medium. And, and that is just. It depends. It could be the labs numbers, or it could be local numbers. So it's a good thing to look on, but you still have to base it against what you see in your local area.

On some soil tests you will see a base saturation ratio and my advice is to ignore that. It is controversial. There are a lot of people that still use it. In my research and in my what I have been taught about soil tests it is not a good way of interpreting how the soil works.

So, a little bit of history. It started out as somebody had the idea that maybe there's a proper ratio of nutrients in the soil, which is a good scientific hypothesis. They did the test and they thought they had come up with the ideal ratio. Now, further testing has not proven not to be the case. But something happened. A conspiracy was developed that this person was pushed out by the scientific community and the followers continue today.

Logically, when I look at it, it makes sense that it does, or it doesn't make sense. Because if you just try to fix ratios and don't care about what's there, you can run into the problems of having very low amounts of nutrients in the perfect ratio. Or you can have a really high soil test or a soil with lots of nutrients in it and you could put massive amounts into trying to adjust ratios when they're totally fine. So that's there and that is one way of doing things the sustainable ag research and extension which is a little more in the alternative side of agriculture has not been able to find it to work multiple universities in the US and even tests in the prairies have not been able to make it work. It usually never hurts anything, though of course it could be hurting the environment if you're building up too much nutrients. The biggest thing that hurts is the pocketbook because it does take a lot of nutrients to build up soils to try to get these ratios.

So how I interpret soil tests and is a fairly standard way of doing it? Is you use local research to find out what the test ranges are where the probabilities of an effect are and you follow that. Now what this usually means is say for example, you have a very low testing soil Well, if you just add a small amount of fertilizer, you're going to get an effect. And a lot of times it's fairly linear. So maybe you spend \$30 on fertilizer and you get \$100 worth more crop well. That's a great investment. Now if you put another \$30 into fertilizer and you get \$50 worth of crop, you're still getting more than you put in but it's diminishing, and you reach a point where you'll put in more fertilizer but you will actually get you won't get as much back in crop.

So, there's a couple ways of doing it. You can keep a soil test at whatever level you want and just fertilize every year to get to try to get your economic yield. But of course the one of the problems and notice that when fertilizer prices are very high then it's going to cost you a lot more now or if the alternative is when crop prices are very low. You're going to have to put in fertilizer you're going to spend a lot on fertilizer to get what you get your crop.

Now if you can, if you can invest in your soil and say in low fertilizer price years and build it. You can get it to a level so that you can have a bit of a buffer there and you can cut back on high fertilizer prices and put more in and low fertilizer price years or with crop prices and adjust from there. It's easier said than done. But it is a way of doing it. It works with most nutrients but nitrogen is the one that it doesn't work so well with because of how leachable and volatile nitrogen is so that's one we can't necessarily do it with.

You might be wondering about soil health tests. I have covered this in a previous podcast a few years ago. To me they're not quite there yet. There is still some work needs to be done on them. Progress is coming there is the Soil Health Institute is I think the closest one. They had a massive observational study where they got 124 long term ag sites that had soil health systems on them versus conventional systems and they were able to do massive amounts of tests on them. They picked up 30 different measurements.

Now a lot of measurements can give the same information or similar information and say if you can get a cheaper one that gives you the same information, you should use that. Though of course the more you know the more tests you can do the better idea have but for practicality they were able to get it down to three different ones that give the best the best indication of soil health Its soil organic carbon concentration carbon mineralization potential and aggregate stability. And if all of those actually aggregate stability is one of the easiest ones to do, just on your own, very simple. And to me, I think actually gives some of the best information.

Now the thing is it's going to take a while for labs to get this going. Soil testing based on chemical took decades, decades of research to get this going. So they have ways for labs to get into it but for me, not quite yet there yet but we'll keep an eye on it.

Now I'm going to talk about fertilizer math. Now I'm a math person, I like doing this. You may not but this is where a lot of the confusion happens in recommendations. So, for example, you might see an NPK recommendation of 80-60-30. Now, you can tell with that because it's less than 100 that it's rates in pounds per acre, not an analysis that the total doesn't add up to 100. But if it didn't, you still wouldn't you would have yourself to do a little bit more work to figure out what it is. But basically that means you're putting 80 pounds of nitrogen down 60 pounds of phosphorus and 30 pounds of potassium.

Now, the analysis of the blend that will make allow you to do that is 26-19-10. So that's percentages of the nutrients and you put that down at 312 pounds per acre and then you'll get those numbers. So if you take 312 times 26 or point two six you'll get at approximately because there is some rounding errors in this I don't have it down to the to the decimal place.

Now there's also products there's urea, MAP, which is monoammonium phosphate, and potash in there. Potash is simple. It's, you put 50 pounds of potash on at 60% you get 30 pounds. Phosphorus 115 you get times point five two you get 60 and nitrogen is a little trickier because there's some nitrogen in the MAP and there's nitrogen in the urea. So, things have to be added up to make that work. Now this is why everything is automated. There's calculators to do this for everybody. But I just want to cover this. Reach out to me if this is if you need more help on this. It can get confusing when you're looking at rates but as long as we follow procedures. As long as you think through it, look what you're actually getting. Then you're going to you're going to you'll do you'll do well on it but it is a source of confusion.

So just to finish off the podcast I want to talk about the OFCAF or On-Farm Climate Action Fund. It's a federal program. Federal Canadian program. There are many delivery agents and that's where it gets confusing. The money is federal, but each province has different ones. There's some cross provinces and some work with different industries so it can get very confusing very fast.

Now I work mostly with the Alberta wide RDAR program. And the main points of this one is that soil testing can be covered. However, it must be a new practice to the field and you must use approved labs and procedures. There'll be a link in the show to find out all the details of the program but that's the main point of it. Now the recommendations have to come from a professional agrologist or a certified crop advisor. I have both designations. And what is really particularly important is that the cost of my recommendations are covered in the funding so there's no better time to start working with me to work with an independent agronomist when the cost is covered in the funding.

So for 2023 We can start putting in applications on February 13. And the sooner you can get them in the sooner you know whether you've got approval. And also if they run out of money, they run out of money. And so you could put an application in and they say the funding is done. You don't get it. So if you're approved, then you will get your money. So don't delay on that. So, thanks for listening and I will talk to you next time.