

Getting Cattle Onto Cover Crops

January 20th, 2018 – Adam Shea(Beef), Adam Bent(Cash Crop)

What is The Cash Cropper Looking for???



What is The Cash Cropper Looking for???

- ▶ #1 Higher yield in overall cropping system
- ▶ #2 Reduce input costs for Fertilizer and Herbicides
- ▶ #3 Protect soil and water in a Long Term Sustainable Manner



The Yield Story –Doesn't Happen Overnight



The Yield Story –Where is the Yield Coming From and Why



Soil Test in Zones

Farm:TOWER RD

705-953-9107

Report Date:2017-09-13 Print Date:2017-09-19

SOIL TEST REPORT

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| Sample Number | Lab Number | Organic Matter | Phosphorus - P ppm | | Potassium K ppm | Magnesium Mg ppm | Calcium Ca ppm | Sodium Na ppm | pH | | CEC meq/100g | Percent Base Saturations | | | | |
|---------------|------------|----------------|--------------------|---------|-----------------|------------------|----------------|---------------|-----|--------|--------------|--------------------------|------|------|-----|------|
| | | | Bicarb | Bray-P1 | | | | | pH | Buffer | | % K | % Mg | % Ca | % H | % Na |
| TN1 | 34272 | 8.0 | 5 VL | 9 VL | 51 L | 125 L | 3560 VH | 15 VL | 7.7 | | 19.0 | 0.7 | 5.5 | 93.6 | | 0.3 |
| TN2 | 34273 | 7.8 | 7 VL | 13 VL | 55 L | 110 VL | 3550 VH | 14 VL | 7.8 | | 18.9 | 0.7 | 4.9 | 94.1 | | 0.3 |
| TN3 | 34274 | 6.4 | 4 VL | 4 VL | 53 L | 90 VL | 3210 VH | 13 VL | 7.7 | | 17.0 | 0.8 | 4.4 | 94.5 | | 0.3 |
| TN4 | 34275 | 3.5 | 7 VL | 9 VL | 51 L | 95 VL | 3170 VH | 13 VL | 7.8 | | 16.8 | 0.8 | 4.7 | 94.2 | | 0.3 |

| Sample Number | Sulfur S ppm | Zinc Zn ppm | Manganese Mn ppm | Iron Fe ppm | Copper Cu ppm | Boron B ppm | Soluble Salts ms/cm | Saturation %P | Aluminum Al ppm | Saturation %Al * | Nitrate Nitrogen NO3-N ppm | K/Mg Ratio | ENR | Field ID | Chloride Cl ppm | Molybdenum Mo ppm |
|---------------|--------------|-------------|------------------|-------------|---------------|-------------|---------------------|---------------|-----------------|------------------|----------------------------|------------|-----|----------|-----------------|-------------------|
| TN1 | | 2.8 L | 55 VH | | | | | 1 VL | 333 | 0.0 G | | 0.13 | 93 | | | |
| TN2 | | 2.9 L | 52 VH | | | | | 1 VL | 459 | 0.0 G | | 0.14 | 91 | | | |
| TN3 | | 1.9 L | 25 M | | | | | | 606 | 0.0 G | | 0.18 | 77 | | | |
| TN4 | | 1.6 L | 58 VH | | | | | 1 VL | 521 | 0.0 G | | 0.17 | 47 | | | |

OE VL = VERY LOW L = LOW M = MEDIUM H = HIGH VH = VERY HIGH * G = GOOD, M = MARGINAL, MT = MODERATE PHYTO-TOXIC, T = PHYTO-TOXIC, ST = SEVERE PHYTO-TOXIC

SOIL FERTILITY GUIDELINES (lbs/ac)

The Yield Story –Where is the Yield Coming From and Why



The Good

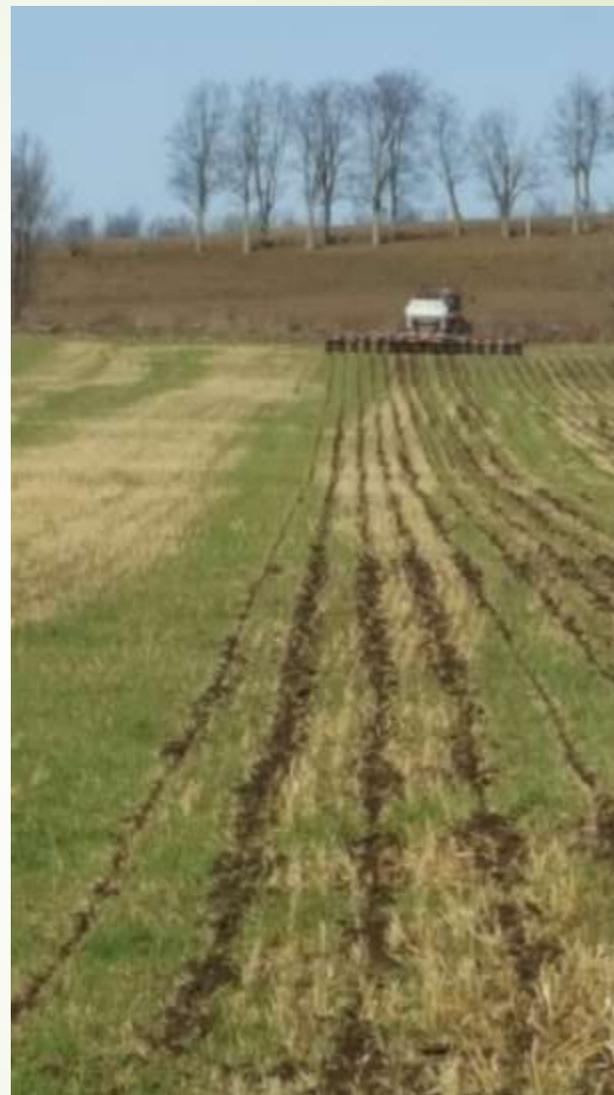
The Bad

The Ugly



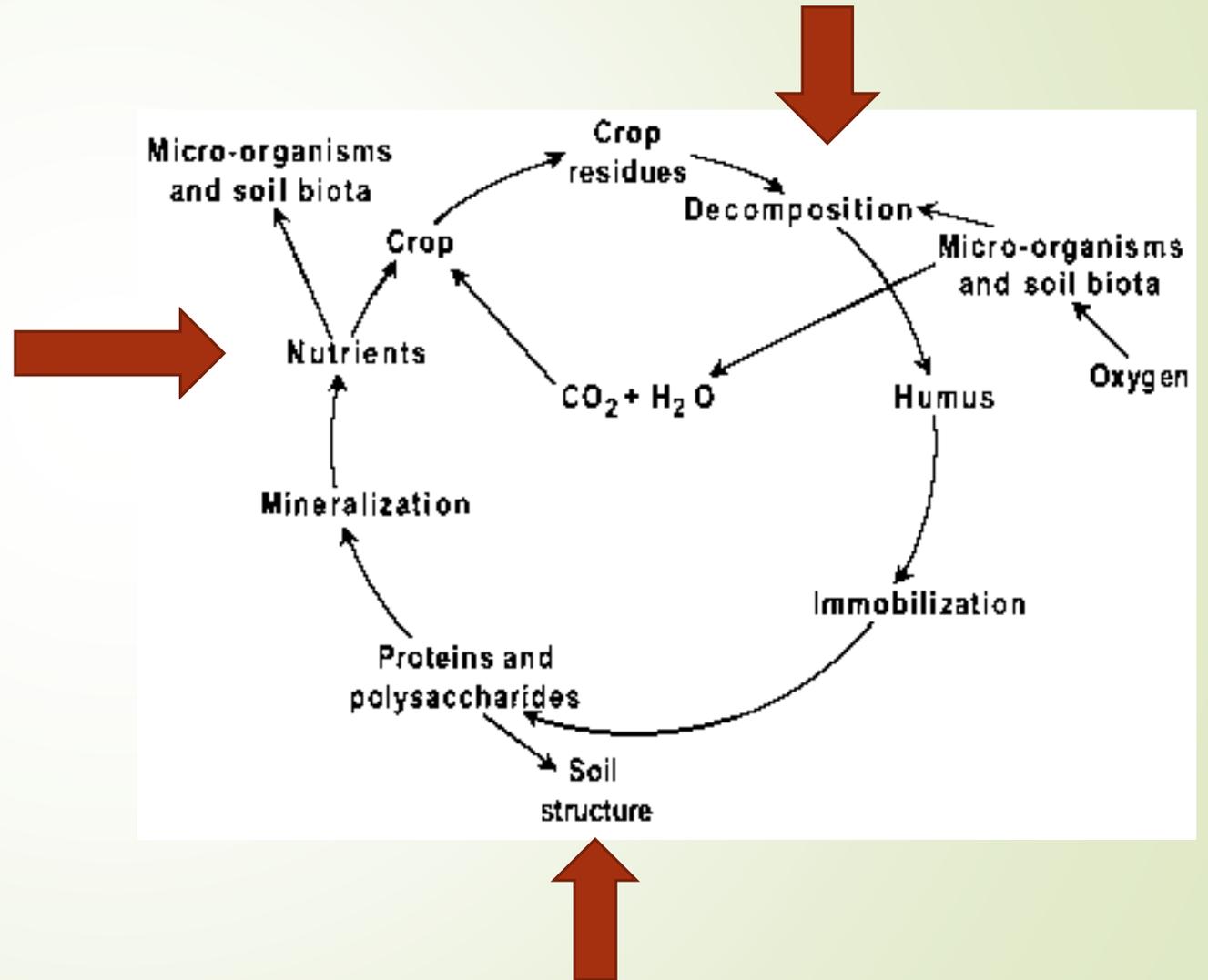
Building Soil Fertility

- ▶ Generally We Have Low Basic Fertility on Phosphorus, Potash (potassium) and Magnesium!!
- ▶ Over the past 5 years we have applied based on Soil Test values to build up soils to Medium Levels....
- ▶ And the soil test values moved only slightly up!!



Building Soil Fertility

So what do we do next?



Building Soil Fertility

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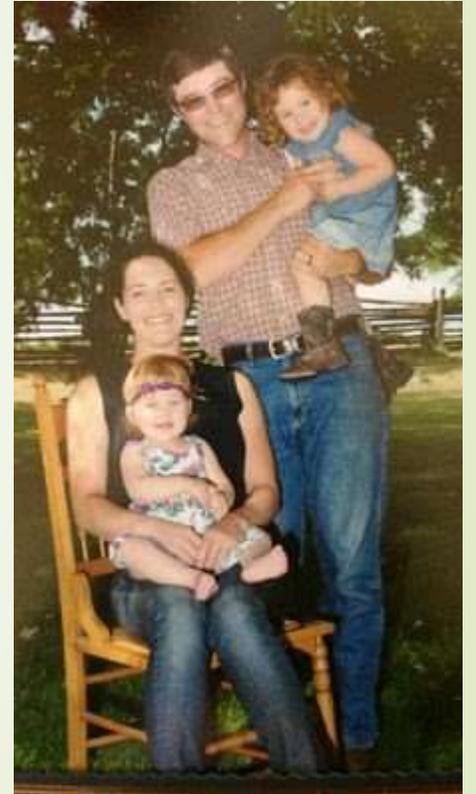


Reduce Weed Pressure

- There may be benefits from ruminant digestive system on seed bank of “some species”
- Certainly a benefit if they never go to seed in the first place!

Shealand Farms

- **Cow-calf, sheep, and cash crop mixed farm**
- **Myself, my wife, mother, father, and uncle are all involved. Marie and I focus on cow-calf beef and sheep. 130 cows and 120 ewes, 2,000 acres**
- **We share equipment and labour.**
- **Our stored forage sources are mostly from Corn Silage, some sort of 'Oatledge', and some dry hay.**
- **We direct sell meat at 3 local farmer's markets and farm gate sales. 80% of our lamb, and 15% of our beef production is sold through these channels.**





Why
grazing
cover
crops with
a cash
cropper?

Experience growing oats after winter wheat and cut, baled, wrapped it for 'oatledge'.

Limited land base on our own operation.

September to December weather is generally good!

Swap stored feed costs for grazing costs or reduce costs

What we did to Adam's field

- Baled wheat straw off, moved the bales out of the way and no-tilled our mix August 16th.
- Heavy steel t-posts in corners with egg shell strainers and single strand 12.5ga high tensile wire with inline tighteners.
- A t-post along fence every so often, with tread-in pigtails/ring posts to hold wire up.
- Pulled t-posts back out of ground and re-rolled the high tensile wire back onto spinning jenny. Pretty well 100% of the wire can be re-used.
- 40 acres total, with some of it only having volunteer wheat and a bit of Double Cut Red Clover in it, so I'm calling it 35 acres.



Grazing Strategies

- Gallagher medium geared reels with turbowire on them to subdivide temporary paddocks with ring posts.
- Used a hub and spoke design.
- Manure distribution. Less around water trough and more in far 'corners' of the paddock
- Move them frequently
- Reduce hoof compaction by moving fence



Species Used

The mix that we used:

- 35% Italian Ryegrass
- ~~15% Pearl Millet~~
- ~~15% Japanese Millet~~
- 15% Purple Top Turnips
- ~~10% Forage Kale~~
- 10% Daikon Radish

Then we drilled this straight mix @ 15 lbs/acre

Also drilled 7 lbs/acre of that mix above + 30 lbs/acre Oats

Volunteer Winter Wheat & 'sporadic' Double Cut Red Clover Throughout

Adam broadcasted some too





Costs of the cover crop seed

Here's a mix that I would go with next year, and a rough cost of each component:

➤ 35 lbs Oats = \$10.00/ac

➤ 2 lbs Turnips = \$7.00/ac

➤ 2 lbs Radish = \$4.50/ac

➤ 3 lbs Berseem Clover = \$9.00/ac (Cash cropper may want to pull this out?)

➤ 7 lbs Italian Ryegrass = \$11.00/ac

= 50 lbs/acre, \$41.50/acre

For grazing cover crops... keep it around \$40/acre or under?



Species Selection



All of these species diversify the mix, have different/complimentary growing habits, and like cool weather.

- Oats –Awesome! Cheap, grow anywhere anytime, winterkills, simple!
- Turnips –Higher protein, digestibility, low fibre brassica, winterkills, 60-70% bulb weight 30-40% leaf weight
- Daikon Radish –Penetrating tap root, low fibre brassica, winterkills
- Berseem/Crimson Clover – Pick a legume to put in the mix for some Nitrogen fixation really for next crop, diversification of species. Need to terminate.
- Italian (Annual) Ryegrass – species diversification(2nd grass), slightly different root structure, highly digestible feed. –Most should winterkill, but still need to terminate likely.

More Costing

What we're looking at in this case:

- \$40/acre seed
- \$25/acre planting
- \$5/acre fencing (Reels, poly wire, ring-posts for perimeter and strip grazing spread out over 10 years)
- \$8/acre in labour (fence setup, take down, rotational grazing)
- \$80/acre in costs = how many days grazing? (next up)

- Nothing set aside for water, corralling costs (in this case, really none)
- Costs that should be added: Nitrogen & Crop Insurance



How many days grazing at what costs?

- No-tilled August 16th
- Grazing started October 15th
- Finished November 8th
- 25 days grazing with 29 cows(1500 lbs), 23 calves(500 lbs) on 35 acres
- ~55,000 lbs of beef grazing
- Hay usage: If I use 35 lbs/day/cow and 13 lbs/day/calf for \$ calculations:
 - 1,300 lbs of hay per day @ \$0.05/lb = \$65/day or at \$0.08/lb=\$104.00/day
 - *"I saved \$1,600 to \$2,600 on feed costs"*
- If we pay Adam the \$40/acre in seed costs, + our fencing and labour costs of \$13/acre = \$53 x 35 acres = \$1,855 my costs as beef producer
- Didn't spread manure or start a tractor



August 30th

Some things to address

- Water –Can we develop a water system for our operation that allows us to remote water?
- Fencing –Need a trailer for 4-wheeler for all materials
- Corral System –Need to build and/or purchase a portable corral system
- Need to vaccinate our stocker calves on pasture now if we want to sell mid-November.





Soapbox Slide

- ▶ On our operation, reducing the need to purchase feed, grow hay, or more corn silage acres allows us to grow a cash crop on those acres, a somewhat intangible that should help with our bottom line.
 - ▶ Gets back to my point on 'swapping' stored feed costs for grazing costs, might allow us to generate more profit somewhere else.
- ▶ Grazing corn stalks that have or have not been inter seeded with cover crops. MASSIVE opportunity in Ontario for this.
- ▶ Put crop insurance on your frost seeded red clover, or grazing cover crop!
- ▶ As dad says –we talked and did this stuff decades ago. –Yes 'we' did, but we need to actually implement them and work with these approaches on our farm.
- ▶ I've certainly focused on making an economic case for exploring this further, but if we collectively as farmers want to leave our soil in similar shape than we inherited it from the previous generation then this is one of the ways to help do it.
 - ▶ Help prime the soil biology
 - ▶ Help reduce soil erosion
 - ▶ Improve soil structure
 - ▶ Better prepare our soils for increased weather extremes



2018.....

We still need Answers to the following:

- **1. Is Soil Compaction an issue in walk ways?**
- **2. Does Cattle Manure “spread” itself.. (Mycorrhizae etc)?**
- **3. Is Weed Seed Predation Equal to or Greater than Non – Grazed area?**



General Observations

- **Definitely need to get another year under our belts to calculate the net benefits**
 - **However I believe concept is great**
 - **Anything that conserves soil and protects water and the environment at zero or minimal cost is just the right thing to do!!**
- 



Some Final Thoughts & Questions

- **Cash cropper has to be interested in gaining from the benefits of Cover Crops to make this come together.**
- **Cash cropper is happy if some or all of cover crop seed is paid by the beef producer?**
- **Beef producer is happy if they replace stored hay costs with grazing cover crops? Sell extra feed stored or stockpile it? I think we will see/show a 'savings' in costs.**
- **Calves gained well, and had a really nice looking condition to them**



Thank you!

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