Harold Perry

Using Compost to Increase Soil Biology and Nutrients

Getting the Most from Nutrient Management Workshop

Lethbridge College

Perry Family Farm

Grow
Live
Be the Change

Perry Farm by the Numbers

Grow
Live
Be the Change

3 Families

3rd Generation:
Gerald and Birthe Perry

4th Generation:
Harold and Jill Perry – 4 children
Chris and Kyra Perry – 3 children

Employees
12 Full Time,
11 Seasonal (March – November)
17 Harvest Helpers … ***2015 turnover all in 2 new out of 38***

Harold's biology

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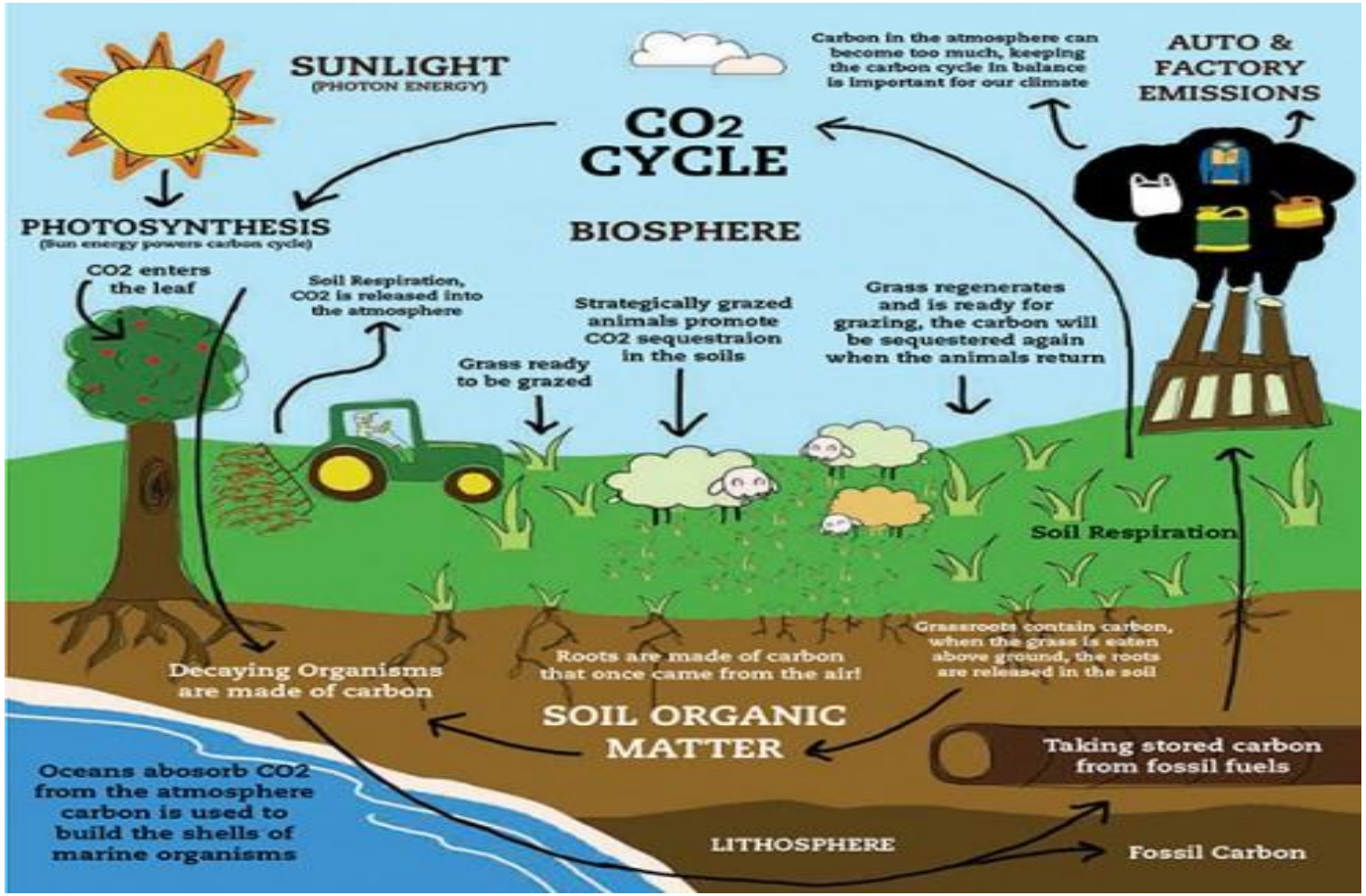
1 % soil organic matter has nearly 10000 pounds of carbon/ac



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Most crop land has lost 1 to 4 % OM
since farming began

There is around 3.5 billion acres of
cropland on earth

1 % increase OM
Equals 17.5 billion tons of CO2

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Carbon is good for the soil

All life is carbon based

(farming is a great way for Sequestering carbon back to the soil)

How does it work

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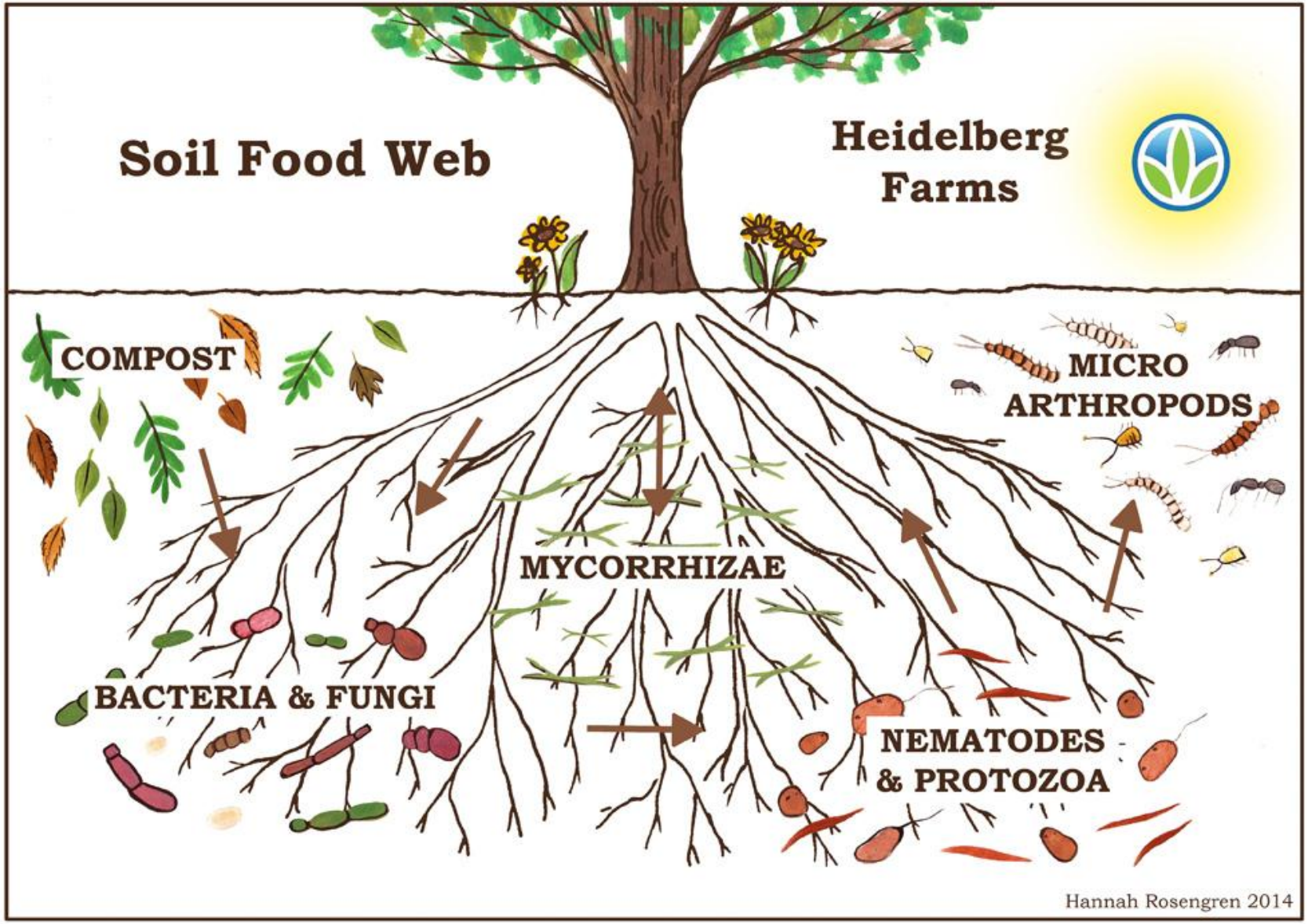

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Balanced soil biology

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Mono cropping, smorgasbord for pests and diseases

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Competition for space

In the soil

On the plant above and below ground

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Assessment of Compost Biology

Perry Farms **9/29/2014**

Microorganisms		
Bacteria µg/g	8256	Excellent
Fungi µg/g	343	Low
Protozoa/g	240,000	Very good
Nematodes/g	600	Above excellent
F:B Ratio	n/a	

-High bacteria, good diversity indicate good nutrient storage.

-Fungi levels low, could add more fungal feed-stocks.

- Good protozoa and very good Bacteria-feeding nematode levels indicate very good nutrient cycling potential.

Turning feedlot manure into compost

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Compost turner

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Nutrient analysis sample of 2016 compost

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					Kg / tonne	Lbs. / tons
Compost, Solid	Moisture	20.6	20.6	%		
	Dry Matter	79.4	79.4	%		
	Ammonium	0.19	0.15	%	1.5	3
	Total Nitrogen	1.67	1.3	%	13	26
	K2O	2.67	2.1	%	21	42
	Potassium	2.23	1.8	%	18	36
	Calcium	3.22	2.6	%	26	52
	Magnesium	0.627	0.5	%	5	10
	Sodium	0.65	0.52	%	5.2	10.4
	Copper	71.4	57	ppm	0.057	0.114
	Iron	5620	4500	ppm	4.5	9
	Manganese	259	210	ppm	0.21	0.42
	Zinc	31.8	25	ppm	0.025	0.05
	P2O5	2.14	1.7	%	17	34
	Phosphorous	0.93	0.74	%	7.4	14.8
	Sulfur	1.29	1	%	10	20
	N-P-K-S		1.3-1.7-2.1-1			

Compost made by perry produce

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Compost and compost tea

Compost program vs non compost program

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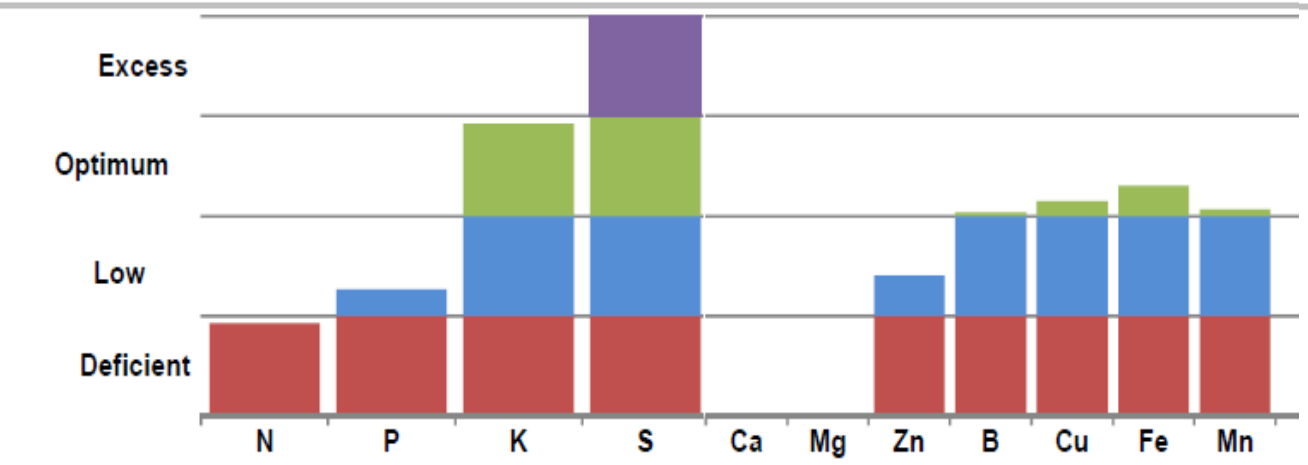
Soil Nutrients

	Macros			Secondary			Micros					
	NO3-N	P	K	SO4-S	Ca	Mg	Zn	B	Cu	Fe	Mn	
Depth	lbs/ac	lbs/ac	lbs/ac	lbs/ac	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
0-12	37	32	576	755			0.7	0.6	1.6	5.8	2.2	
12-24	19			> 800								
Available Total	56	32	576	> 1555			0.7	0.6	1.6	5.8	2.2	

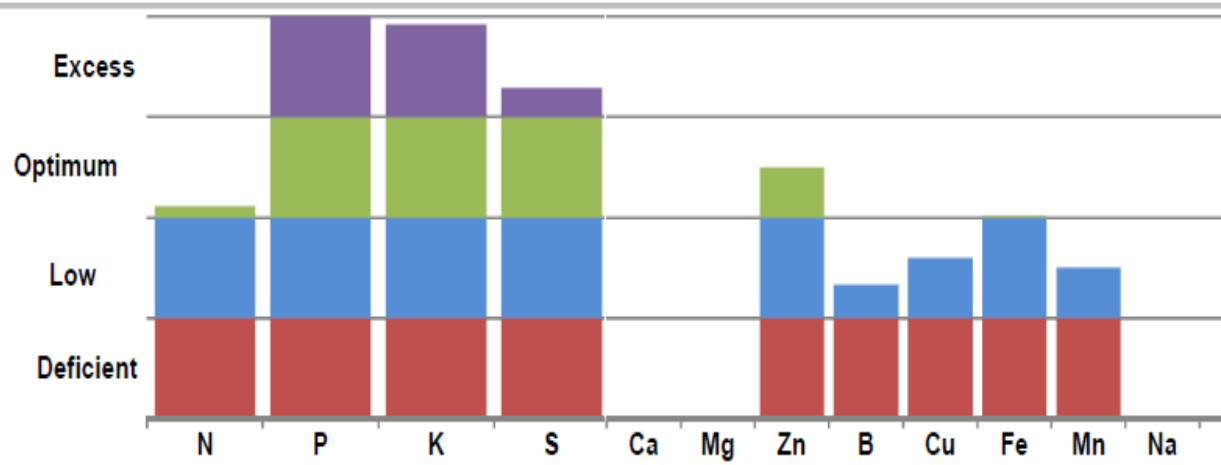


Soil Characteristics

	OM	Estimated N Release	pH 1:1	Sol Salts 1:1	Lime Req.	% Base Saturation				
Depth	%	lbs/ac	-	dS/m	tonne/ha	Ca	K	Mg	Na	H
0-12	2	30	7.8	1						
12-24			8	1.4						

Soil Nutrients

	Macros			Secondary			Micros					
	NO3-N	P	K	SO4-S	Ca	Mg	Zn	B	Cu	Fe	Mn	Na
Depth	lbs/ac	lbs/ac	lbs/ac	lbs/ac	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
0-12	77	272	1427	56			3	0.4	0.8	4.1	1.5	
12-24	48			37								
Available Total	124	272	1427	93			3	0.4	0.8	4.1	1.5	



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Depth	%	lbs/ac	-	dS/m	tonne/ha	Ca	K	Mg	Na	H	Total
0-12	2.7	41	7.6	0.6							
12-24			7.9	0.5							

Compost nutrient analysis	Avg nutrients		total nutrients	Compost	Fertilizer		
	lbs. / ton		lbs. / ton	4 ton / acre	value		
Moisture	22.10%			lbs. / acre			
Dry matter	77.90%					Compost cost	
Ammonium	3.1					cost	$18 / ton
Total Nitrogen	23.2	N	26.3	105.2	$ 54.00	trucking	$5- 10 / ton
K20	36.4					spreading	2 / ton
Potassium	30.4	K	66.8	267.2	$ 89.00	average cost	25- 30 / ton
Calcium	65.6	Ca	65.6	262.4	$ 25.00		
Magnesium	10.9	Mg	10.9	43.6	$ 5.00		
Sodium	7.5	Na	7.5	30	$ -		
Copper	0.1	Cu	0.1	0.4	$ 4.00		
iron	13	Fe	13	52	$ 10.00		
Manganese	0.4	Mn	0.4	1.6	$ 10.00		
Zinc	0.4	Zn	0.4	1.6	$ 5.00		
P205	23.2						
Phosphorous	10.2	P	33.4	133.6	$ 76.00		
Sulfur	10.6	S	10.6	42.4	$ 5.00		
				$100-$120	$ 283.00		

Reasons we use compost

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Be the Change

Proper compost has very little or no weed seeds.

Build soil nutrient level that are in a stable form in the compost.

It is cheaper to truck long distances compared to manure.

Proper compost has built a healthy community of aerobic microbe populations that help inoculate tilled soils.

We are loading our soil with healthy biology that competes for space in the soil (disease suppression)

Questions?

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