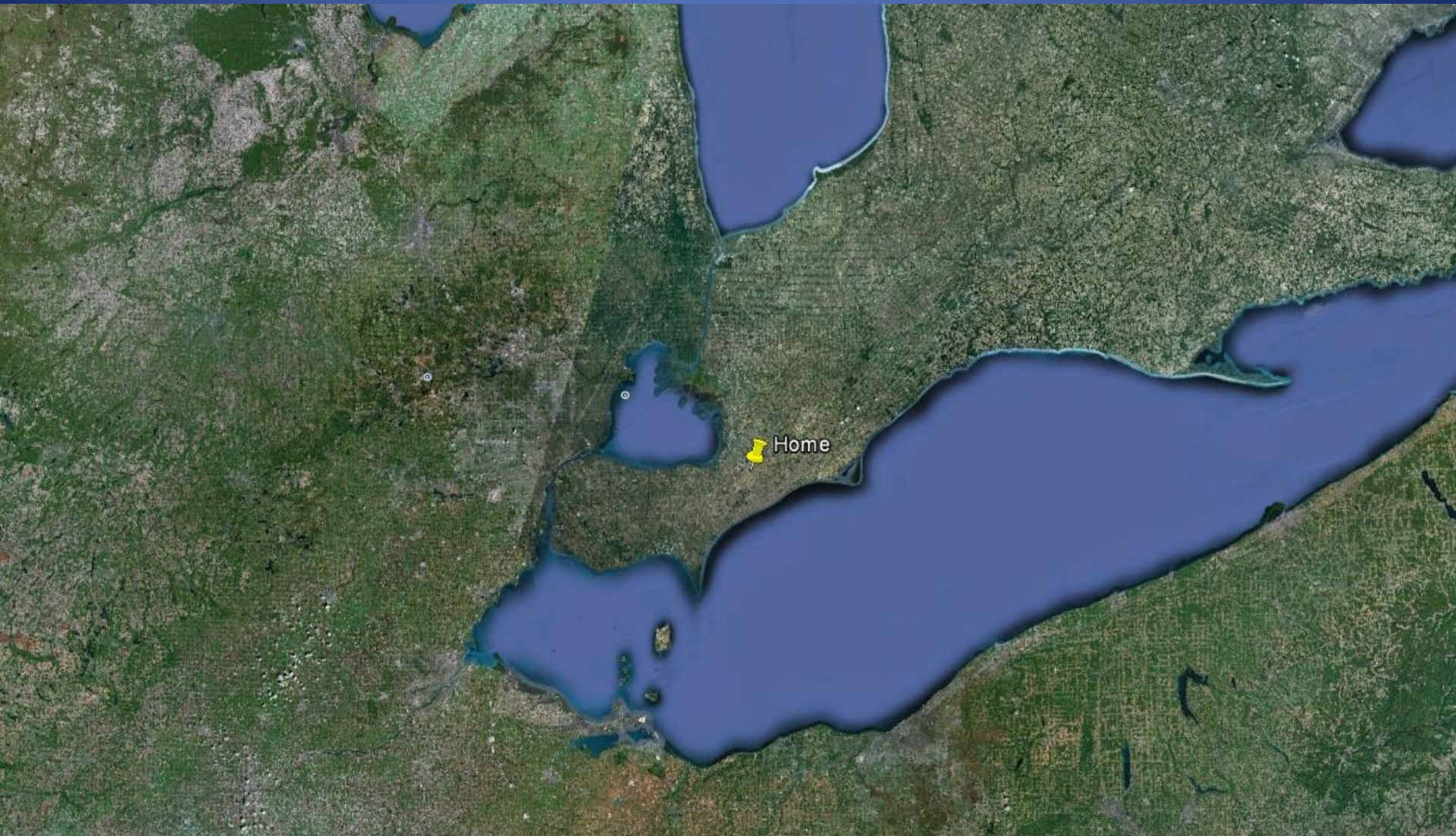


E. Blake Vince
Merlin, ON



#rootsnotiron

Nestled between the Great Lakes



1300 acres

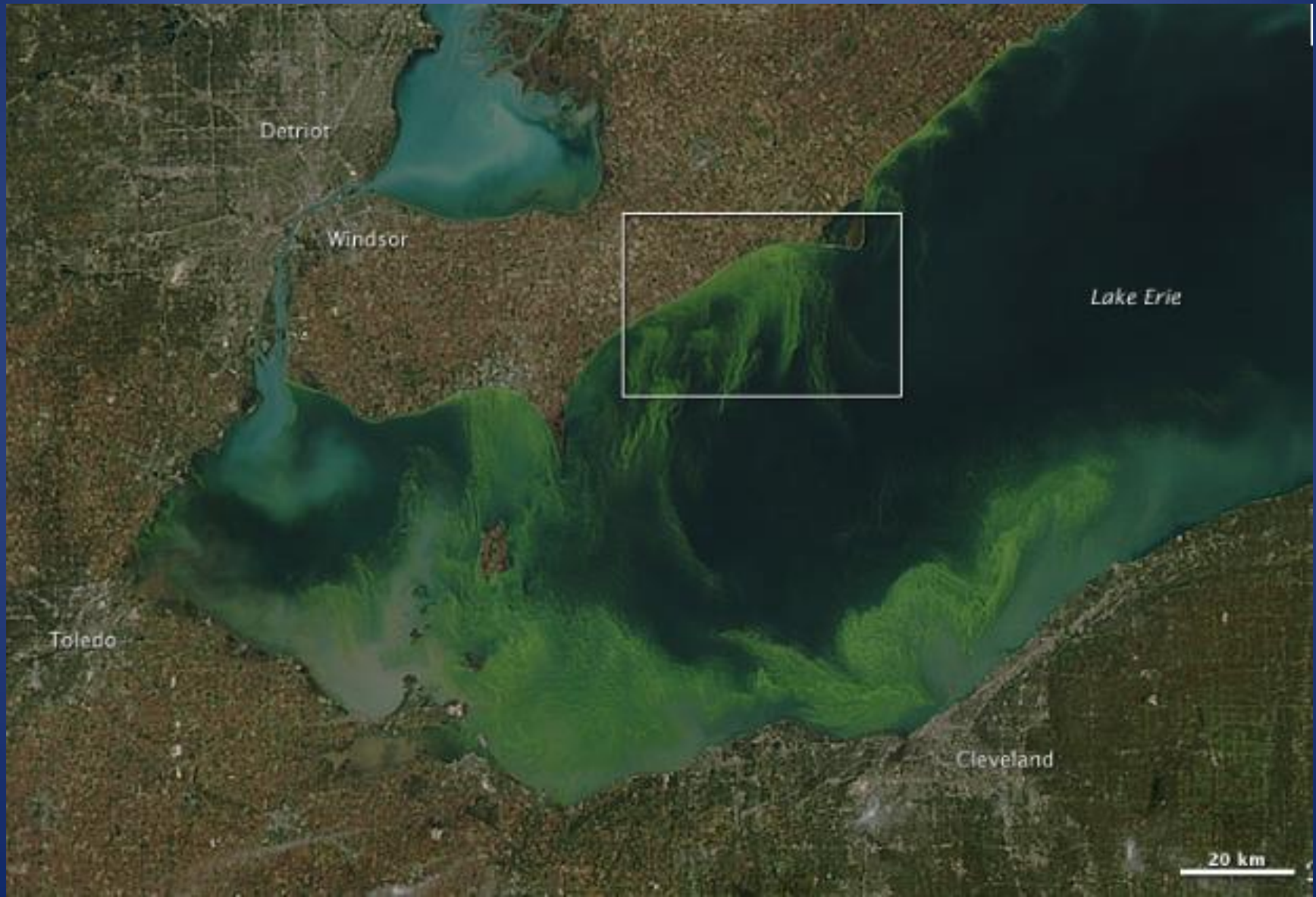
-Corn

-Soyabean

-Winter Wheat



My scholarship's motivation



Conserving Farm Land with Cover Crops and the Importance of Bio Diversity

The new
frontier...





Dr. Christine Jones – “The liquid carbon pathway”

Living Roots capturing photosynthesis, increasing soil organic matter

- Capturing Carbon
- Increasing Soil Tilth
- Fixing Nitrogen
- Evapotranspiration
- Feeding Soil Biology with BioDiversity





Darwin's Tiller of the Soil – the lowly earth worm

Mixed Species Cover Crop – 3 week growth



WANTED: Grazing Partner(s)

~8 weeks' growth





Forage Analysis

Date Received: Dec-31-2014

Date Reported: Jan-06-2015

Sample ID: 1 - Winter Pasture

Feed Type: fresh 2+ cut mixed

Test Type: CPM Forage

Test	Dry Basis	As Is	Test	Dry Basis	As Is
Dry Matter %		37.41	MINERALS		
Moisture %		62.59	Ash %	9.47	3.54
PROTEIN			Calcium (%)	1.14	0.43
Protein % (N x 6.25)	19.25	7.20	Phosphorus (%)	0.25	0.10
Soluble Protein (%)	4.75	1.78	Potassium (%)	1.29	0.48
SP % of CP	24.68		Magnesium (%)	0.21	0.08
ADF-CP % (ADP)	1.77	0.66	Sodium %	0.15	0.06
ADP as % of CP	9.19		Chloride (%)	0.10	0.04
NDF-CP% (NDP)	9.16	3.43	Sulphur(%)	0.30	0.11
NDP as % of CP	47.58		Copper (ppm)	8.94	3.34
UIP Bypass Est. % of CP	37.66		Iron (ppm)	329.71	123.35
FIBRES			Manganese (ppm)	54.67	20.45
Acid Detergent Fibre (%)	29.89	11.18	Zinc(ppm)	26.29	9.84
aNeutral Detergent Fibre (%)	41.02	15.35	ENERGY (ADF Based)		
Lignin %	8.13	3.04	TDN (%)	65.34	24.44
NDF Digestibility (24hr) %	43.17		Net Energy (lac) MCAL/kg	1.48	0.55
NDF Digestibility (30hr) %	47.17		Net Energy (gain) MCAL/kg	0.97	0.36
NDF Digestibility (48hr) %	55.70		Net Energy (maint) MCAL/kg	1.57	0.59
Digestibility Rate (% / HR.)	8.26		ENERGY (OARDC)		
NON-FIBRES			WTDN	72.47	27.11
Fat (%)	2.44	0.91	WNEL	1.64	0.61
Ethanol Soluble CHO (%)	3.24	1.21	WNEG	1.15	0.43
Starch (%)	1.45	0.54	WNEM	1.77	0.66
Starch as % of NFC	3.92		OTHER		
Non Fibre Carbohydrate (%)	36.98	13.83	Relative Feed Value	148.80	
			DCAB	180.83	67.65
			Relative Forage Quality	178.21	



Biological Activity.....Below Freezing





So, how many head do you think I could feed out here? Turnip in flower up to my armpits for frame of reference.

BV

CR

I would guess about 6000 lb/acre dry matter – that's about 4% dry matter/head/day. 40 lbs /head for a 1000 lb animal.

CR

So about 150 head/acre/day at that weight

Planting Green in 2016



Early July - when all hope was lost





September
18, 2016

Crowding the
finish line



- **Less Nitrogen**
- **Zero Tillage**
- **Zero Erosion, wind, water, solar**
- **Increased Biological Activity**
- **Capturing Solar Energy 12 months of the year**
- **Increased Water Infiltration**
- **Increased Water Holding Capacity**
- **Increased "Financial Yield"**



What soil looks
like when left
undisturbed

#soilyourundies



Summary

- Cover Crops around the world are being explored for their tremendous opportunity for soil health
- Where soil health has remained the primary focus around the world, non-biased advocates/extension/support groups have been key to success at the farm level
- The species used need to be appropriate for the geographical region
- Biology, specifically soil biology, is still very much a mystery

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