Planting Green

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One of the founding fathers of cover crop choice

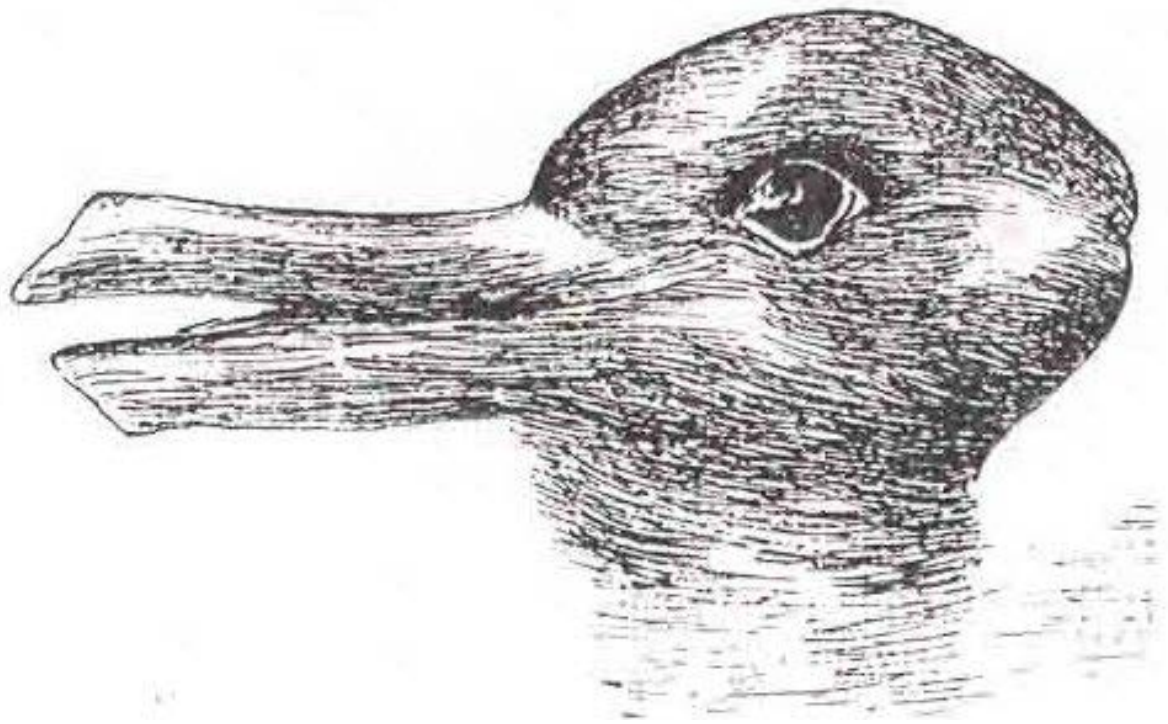
Our Team taking a day off scouting at MT Rushmore

Required vocabulary before we begin.

Paradigm shift: A paradigm shift is a change in the basic assumptions, or paradigms, within the ruling theory of science.

Dogma is a principle or set of principles laid down by an authority as incontrovertibly true.

A paradigm shift is occurring in the science of agriculture and must occur in order for agriculture to meet the human need for food, fuel, and fiber on an ever shrinking land base without destroying the planet in the process.



Cover crops capture more Sunlight, Carbon and Water…95% of what you ultimately sell to make or break your business


Livestock Farm

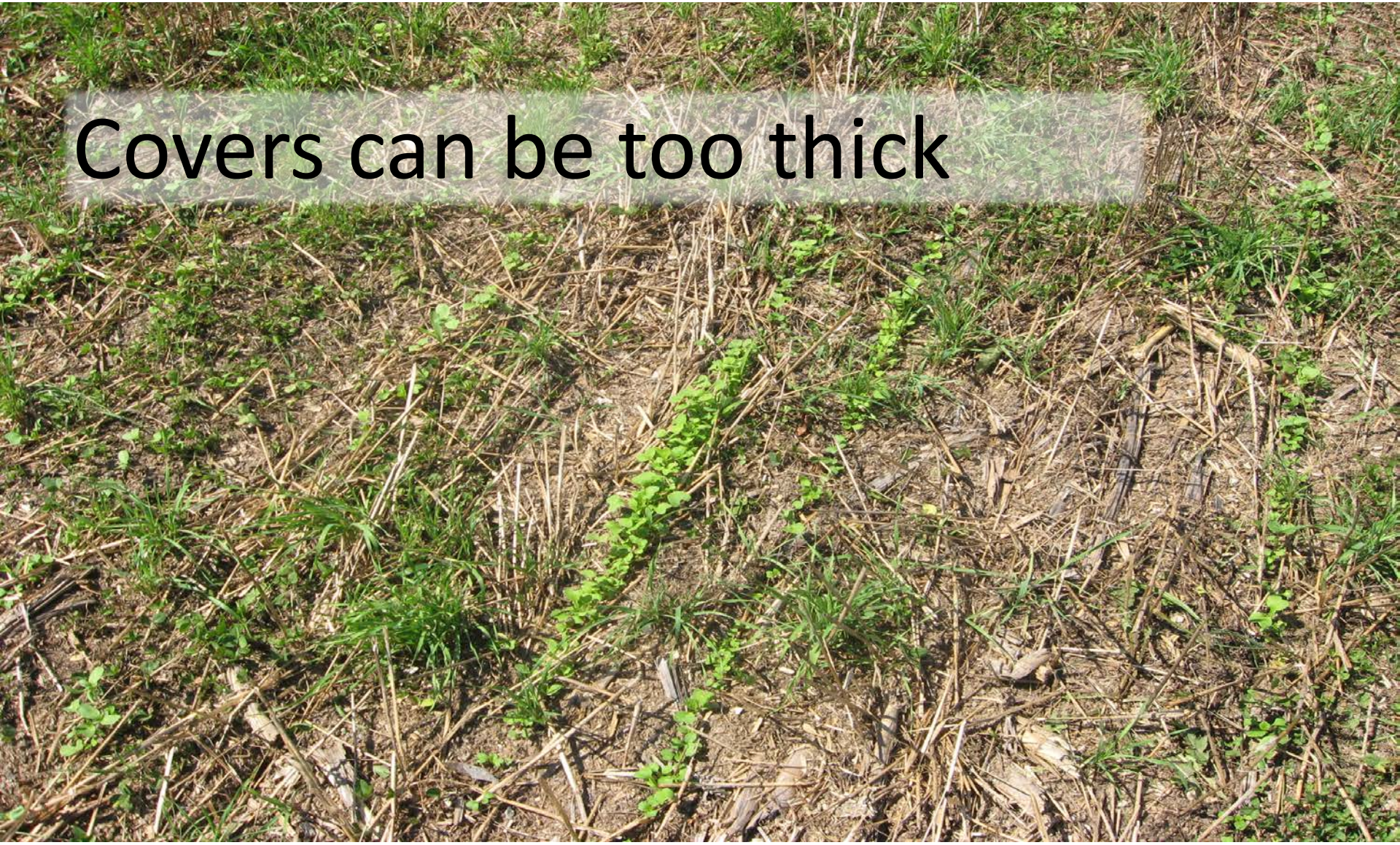

Christmas Day
Growing vigorously in late December
sunshine even in cool soils

Old Dogma … kill 20 days ahead of planting

New Paradigm … kill after planting to maximize cover benefits


USMC


Cover crops need not be terminated in advance of crop seeding date…this maximizes the cover crop advantages.


Covers can be too thick

Four Principals of Soil Health Improvement

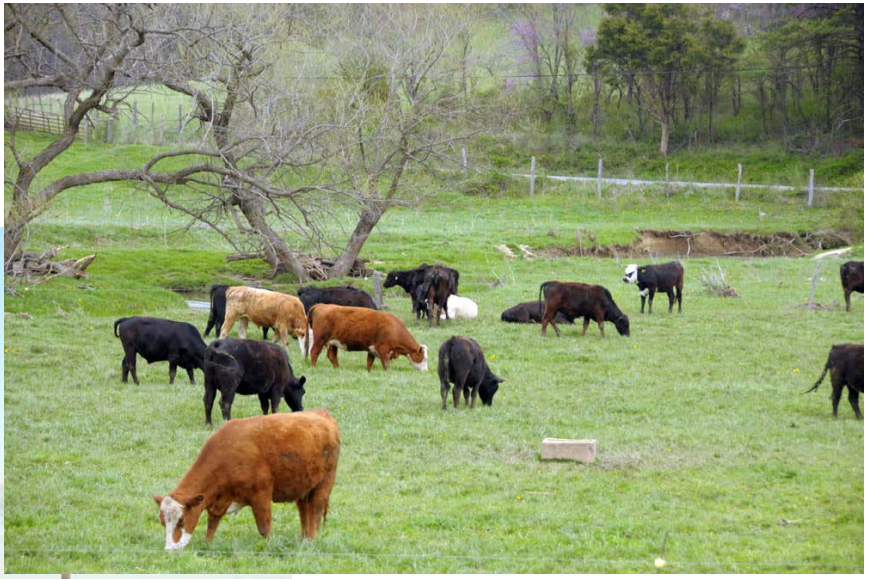
1. Continuous Crop Growth
   - Rapid rotations and cover crops
2. Reduce Soil Disturbance
   - Less fertilizer, herbicides and pesticides
3. Increase Diversity
   - More crops in sequence, more species in covers
4. Integrate Livestock
   - Crops and livestock can improve soils or degrade them depending upon management

Integrate Livestock an Eastern Challenge

- Degraded soils and poor pasture and herd management make us very leery!
- Winter weather is generally damp and cool
- Animal Confinement is generally the norm
- Big, Bigger, BIGGEST mentality
- Consider IMITATING pasture lands until your production model is ready.

Pasture Management Paradigm

Put cows out immediately following or even during winter on basically no pasture



Cattle forced to compete on mature grass then moved frequently

Manure Handling Paradigm

Manure spread on dead crop residues at highest rate allowed between annual cropping

Manure spread thinly and frequently on green covers to promote growth and soil health

Less is the new More!

- Applying small amounts over larger acreage more frequently maximizes manure value
- Applying small amounts to green crops increases soil life and nutrient availability!
- Why would I say such a thing and what evidence do I have to support such a statement?

Dairy Slurry at 20 to 60K gallons per year spring and fall on corn stubble. Rotation is continuous corn silage

SOIL HEALTH TOOL RESULTS

Performed with USDA-ARS ***H3A Extraction Method***

For:

Gerard Troisi
Upper Susquehanna Crop Management Assoc
176 Libby Road
Millmont, PA 17845

Lab ID: 8944.0 **Acct No:** 2759
Sample: Soil: Wole's-EastN
Sample Received: 5/5/2014
Report Date: 5/9/2014
Crop Intended: Corn-200
QAQC: CeB

	Tested Factors		UNITS	Level Found	Rating
*	Nitrate-N	NO_3-N	lb/a §	8.5	VL
*	Ammonium-N	NH_4-N	lb/a	5.1	L
*	WEOC		C-ppm	315	M
*	WEON		N-ppm	18.4	VL
	SLAN *Amino-N*		N-ppm	118	ML
*	Phosphate (P^-)	P	lb/a	48	MH
*	Potassium	K+	lb/a	259	H
*	Calcium	Ca++	lb/a	588	VL
*	Iron	Fe++	ppm	177	M
*	Aluminum	Al 3+	ppm	184	L

	Test Interpretations		Rating
*	Soil Health Score	7.5	L
*	Organic C:N Ratio	17.1	MH
*	Solvita CO_2-Burst ppm	43.5	M
*	Microbially Active Carbon- "MAC"	14%	L
	Micro Aggregate Stability	16%	L

Dairy Slurry at 6 to 18k gallons per year 3 times a year. Rotation is Continuous corn silage with continuous cover crop

SOIL HEALTH TOOL RESULTS

Performed with USDA-ARS ***H3A Extraction Method***

For:

Gerard Troisi
Upper Susquehanna Crop Management Assoc
176 Libby Road
Millmont, PA 17845

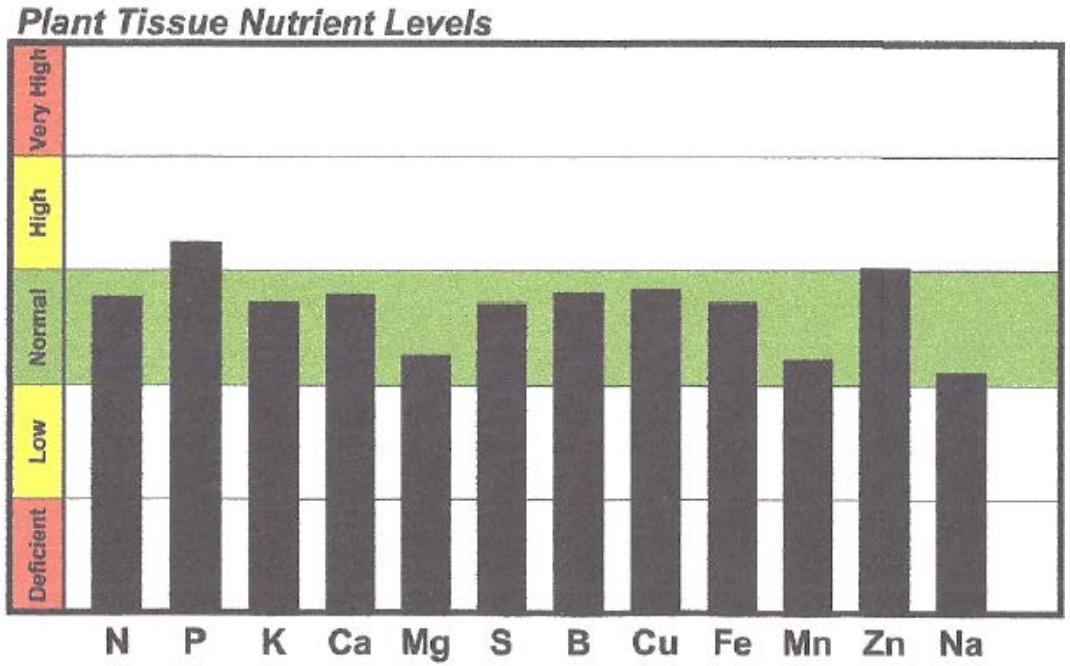
Lab ID: 8944.6 **Acct No:** 2759
Sample: Soil: Schrack_HSP
Sample Received: 5/5/2014
Report Date: 5/9/2014
Crop Intended: Corn-200
QAQC: CeB

	Tested Factors		UNITS	Level Found	Rating
*	Nitrate-N	NO_3-N	lb/a §	198.2	VH
*	Ammonium-N	NH_4-N	lb/a	5.3	L
*	WEOC		C-ppm	410	M
*	WEON		N-ppm	66.7	M
	SLAN *Amino-N*		N-ppm	168	ML
*	Phosphate (P^-)	P	lb/a	152	VH
*	Potassium	K+	lb/a	781	H
*	Calcium	Ca++	lb/a	1102	L
*	Iron	Fe++	ppm	131	M
*	Aluminum	Al 3+	ppm	307	MH

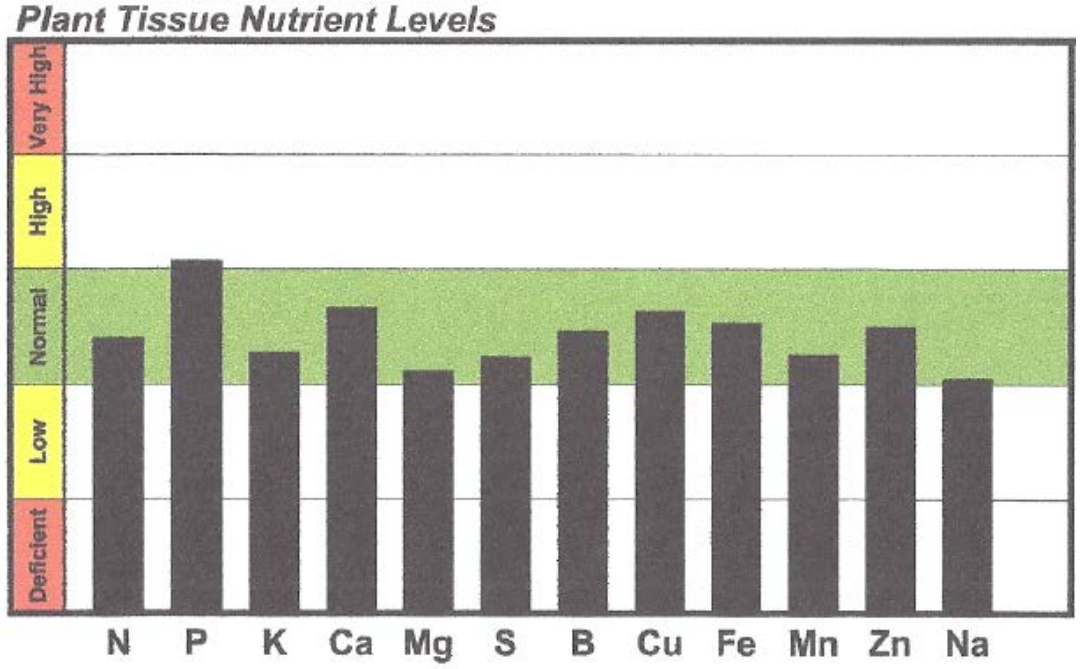
	Test Interpretations		Rating
*	Soil Health Score	28.3	H
*	Organic C:N Ratio	6.1	ML
*	Solvita CO_2-Burst ppm	108.0	MH
*	Microbially Active Carbon- "MAC"	26%	M
	Micro Aggregate Stability	42%	MH

Healthy Soil that Soil Health Tool Reports need Zero Nitrogen

Regular Program with 90#/Acre of Nitrogen applied as UAN w/ 4# Zinc at Planting



Check Program with zero applied at Planting



Take Home Messages from Gerard

- Current Paradigm must change … soils are not dead in nature and they don't have to be on our farms…soils function optimally when they are alive and plants keep them alive…embrace the change and be the first to benefit
- Covers build soils and soils build big crops but watch seeding rates and dates
- Big diverse covers can be managed and they provide greater benefits
- Big covers can be planted green easier than dead covers and provide more benefit to farmers
- Watch planting depth! You can plant deeper into healthy soil that won't crust
- Watch for Armyworm especially in unseasonably warm winters