The Policy-Soil Interface

NFU convention, Thursday November 26, 2015


Grass is Great!


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PRAIRIE GOLD

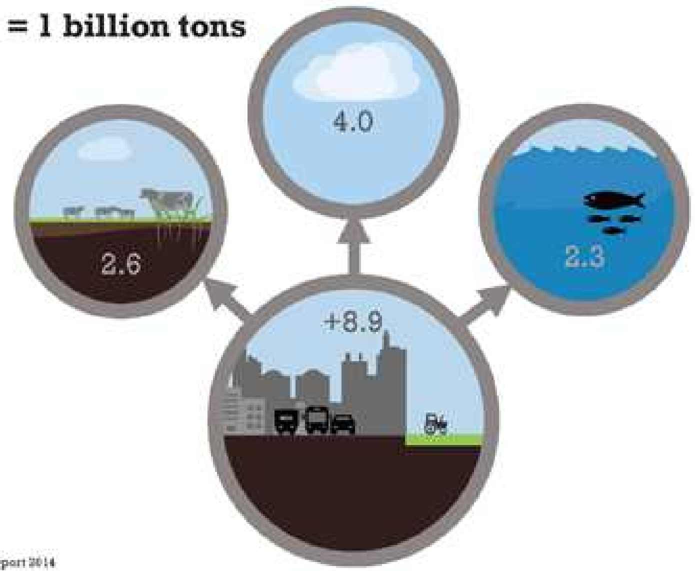
PASTURED MEATS

Broken Carbon Cycle

- Soils have lost half their carbon in the last 200 yrs.
- Up to 20% of airborne carbon originates from soil

Global Carbon Fluxes – Gigatons*/Year

***Gigaton = 1 billion tons**



IPCC Fifth Assessment Report 2014

Every year, human activity emits about 8.9 gigatons of carbon. The oceans absorb 2.3 gigatons, all plants and soils absorb 2.6 gigatons, and the rest, 4.0 gigatons of carbon, is stored in the atmosphere. Up to 1/5 of that airborne carbon originates from soil, via poor agricultural practices dating back hundreds of years. The carbon is just in the wrong place. Degraded soils worldwide are now primed to hold massive amounts of additional carbon.

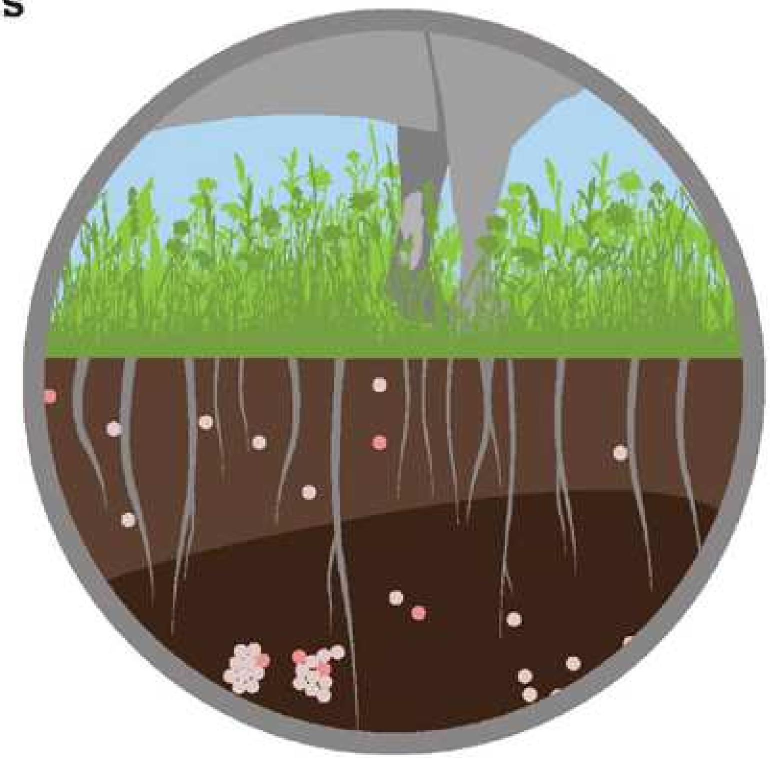

1 Million Metric Tons
(1MMt)
Too much CO_2 in the air? Not a problem.
The soils can use it. The cows will help.

AMP Grazing

A Carbon Sequestration tool.

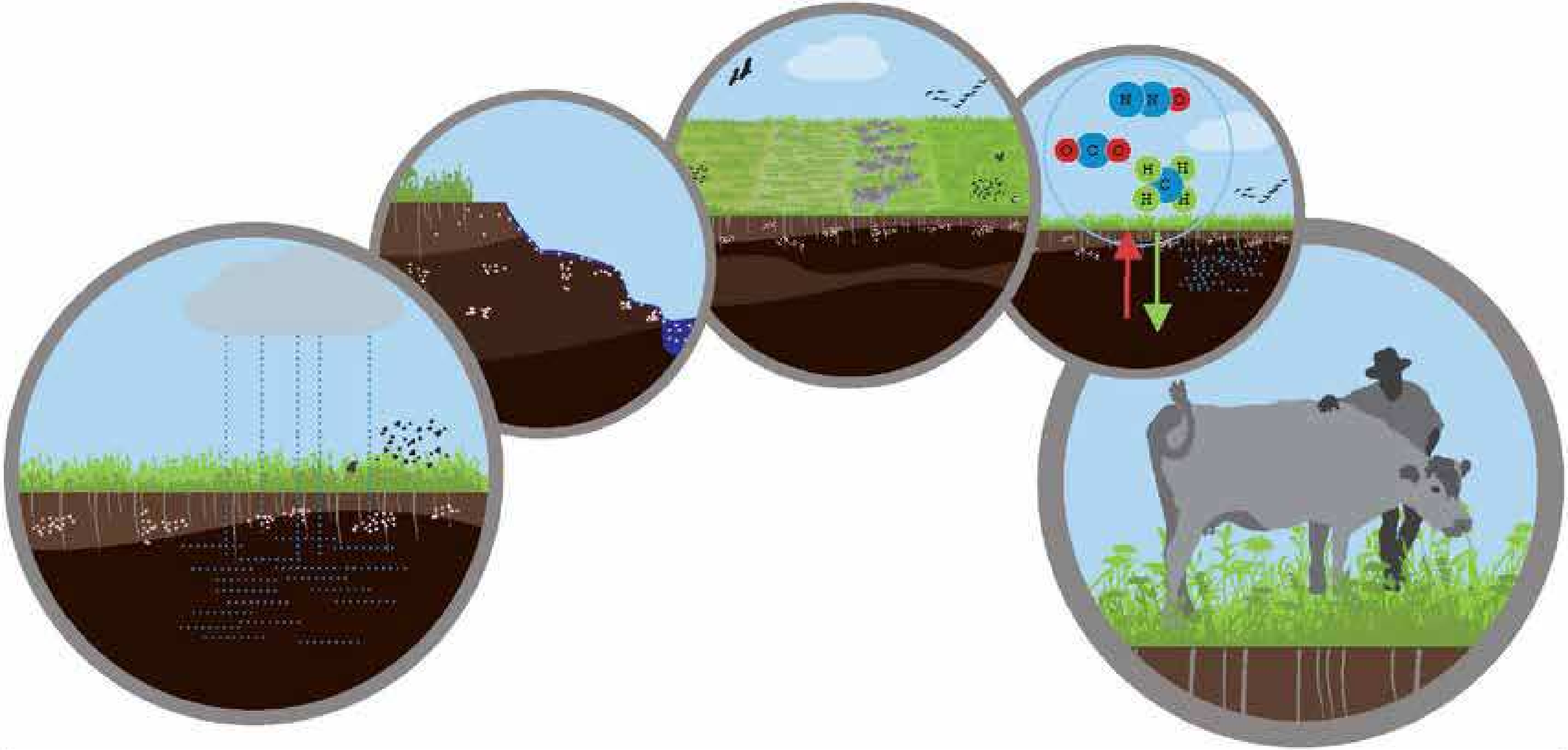
How Does The Carbon Get Into The Ground?

Photosynthesis



When the land rests, photosynthetic activity spikes; the newly fertilized plants grow like mad, sucking down carbon dioxide (CO_2) from the air; exhaling oxygen and sending carbon underground, where it becomes food for the billions of microbes thriving in healthy soils. Today, our soils are chronically low in carbon just as our air is chronically high in CO_2. By stimulating photosynthesis, AMP grazing reverses this imbalance, getting carbon out of the air, and into the soil.

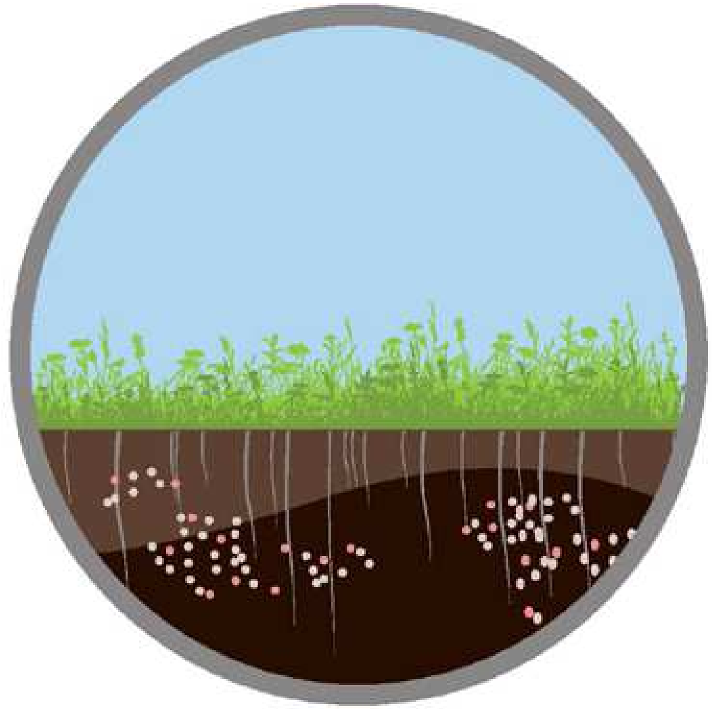
Carbon Is The Currency



Carbon rich soil is healthy soil, which is extremely beneficial for the whole grassland ecosystem: 1) improving water infiltration & retention; 2) preventing soil erosion; 3) increasing biodiversity of fungi, bacteria, plants, insects and wildlife; 4) reducing greenhouse gases (CO_2, nitrous oxide and methane); and 5) raising rancher & animal well-being. We will measure all these data points to find out how and where ranchers can efficiently accrue more carbon.

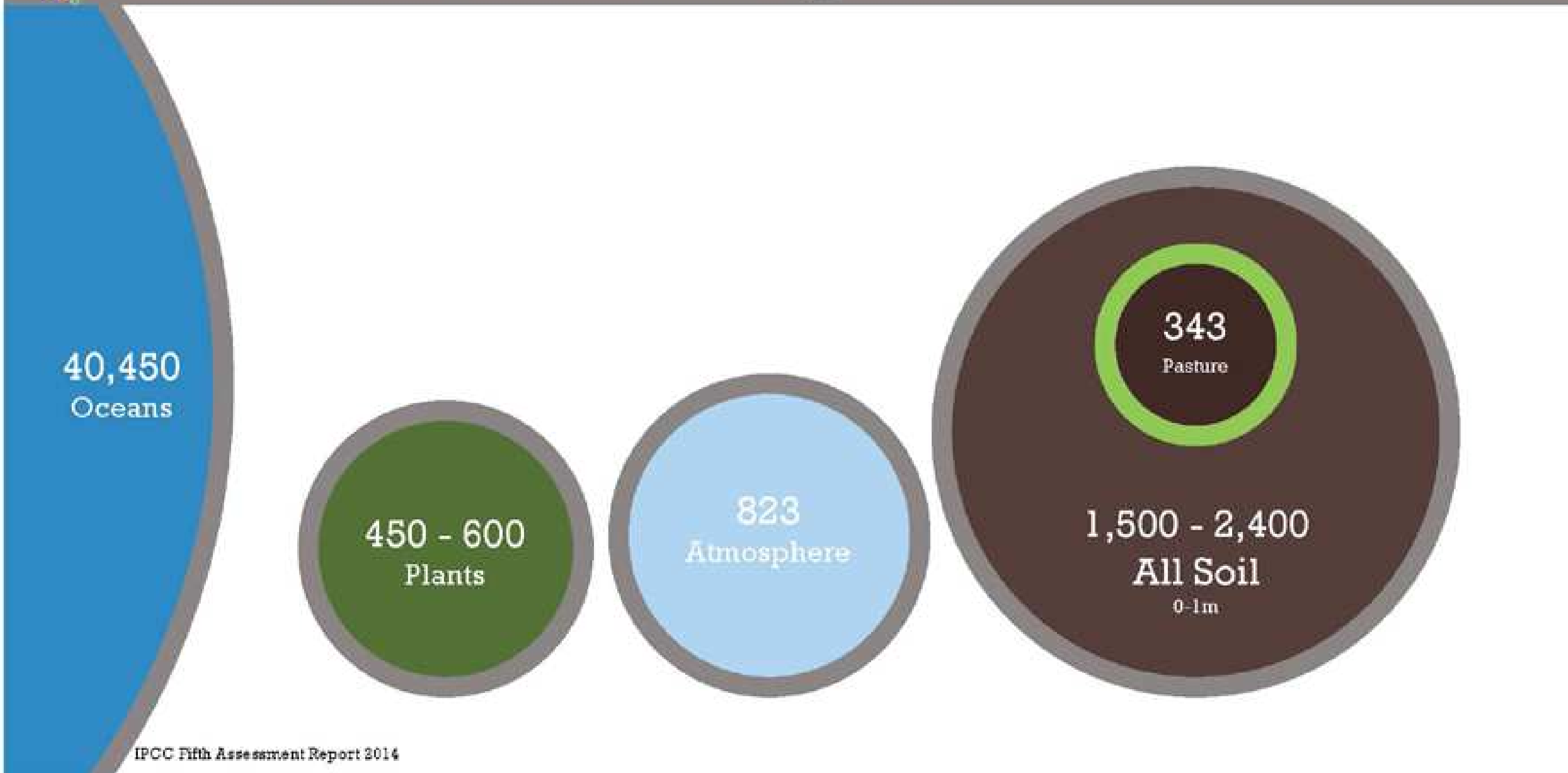
Will The Carbon Stay In The Soil?

Soil Carbon Storage Pools



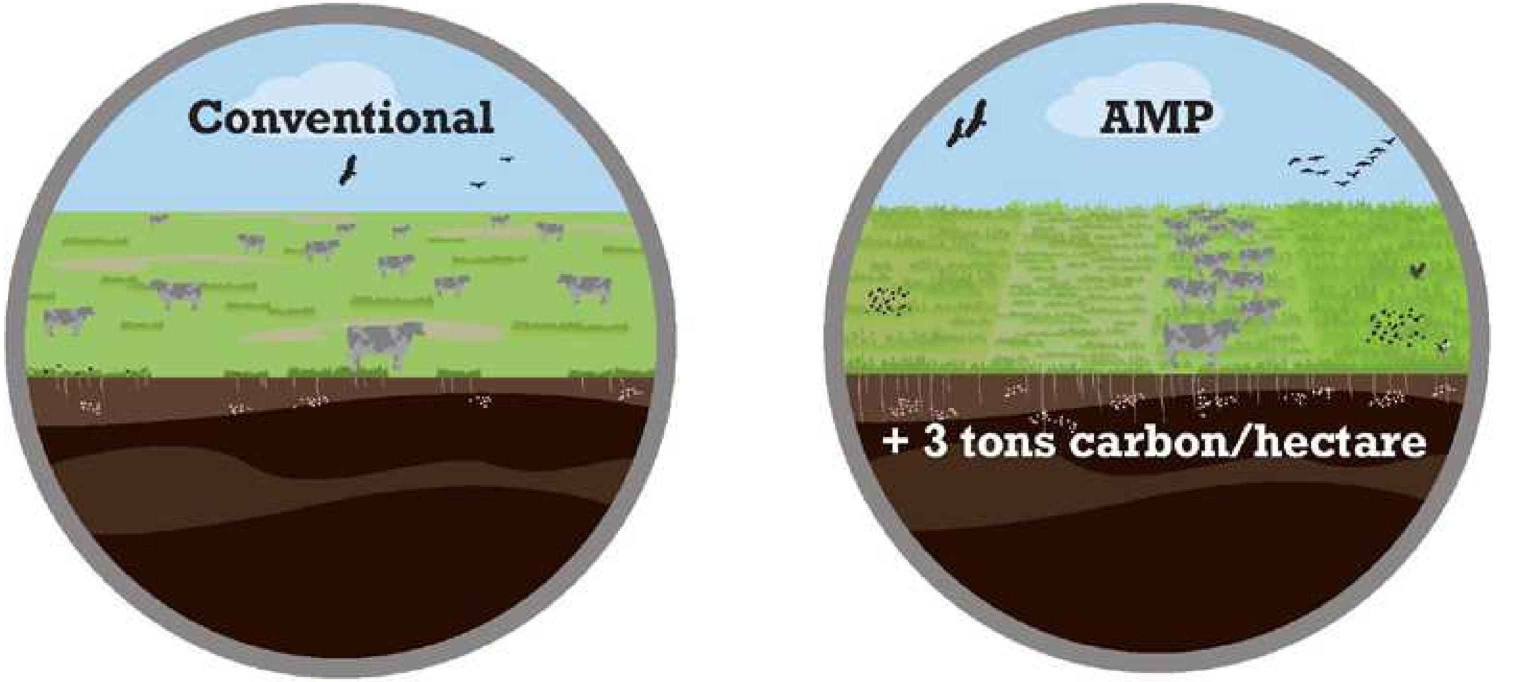
There are basically 3 different pools of carbon storage in soils: **Days**, **Decades** or **Centuries**. Days - microbes exhale, returning carbon to the atmosphere in days; Decades - some carbon embeds in old root systems, staying underground for decades; or, Centuries - some carbon binds into the soil aggregate, keeping it underground for centuries, if not longer. Early data suggests that AMP grazing is putting Days, Decades & especially Centuries carbon into the soil.

Global Carbon Stocks – Gigatons



Most of the fluctuating global carbon stock resides in the oceans. Surprisingly, the next largest carbon stock is the soil, and, specifically, there are 343 gigatons of carbon in the world's pastures - which cover 3.5 billion hectares of Earth. If, on a yearly basis, we were to increase the amount of carbon in all pasture soils by only 1 ton/hectare, we would remove about 3.5 gigatons of carbon from the atmosphere, nearly equaling the 4 gigatons of excess carbon left up there.

Natural Technology Creates Big Opportunities



* Teague et al (2011). Grazing management impacts on vegetation, soil biota and soil chemical, physical and hydrological properties in tall grass prairie.

In a Texas study*, 3 AMP ranchers added **3 tons** more carbon per hectare to their soils annually compared to their conventional ranching neighbors. Although we see AMP ranching success in many different regions, with varying soil types & yearly rainfall amounts, rigorous science comparing AMP to conventional grazing, while promising, is sparse. AMP ranchers have demonstrated results in the field that science needs to better understand.

410 HARVESTING ON M. VIZINA'S FARM HORSE HILLS
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Present

Future?

Future?

Future?

Future?

Future?


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Brandt