

God needed a Caretaker SO...



Background

- ▶ We had tilled our ground from 1874-2015 (141 years)
- ▶ We planted our first Cover Crop in 1998 (27 years)
- ▶ We started doing Strip-Till 2013 and No-Till in 2015. My Covers have made my reduced tillage work better!
- ▶ First Organic field in 2017. 40% of my acres are Organic and 60% No-Till.
- ▶ We have a 50 cow/calf and 50-100 grass finished feeders that can graze every acre of our 800ac Farm before or after our cash crop.(dual income)
- ▶ We did all of our drainage ourselves, so I have spent a lot of time looking at our soils from below.



Cash Crops: 1995-2010

Conventional: Full tillage and Chemical

- ▶ Corn
- ▶ Soybeans
- ▶ Sweetcorn(one field)
- ▶ Little bit of Alfalfa.
- ▶ Plant one field of Winter Rye a year.
- ▶ Cattle: 500 head feedlot.

Cash Crops: 2010-2025

- ▶ **60% No-Till:** Corn, Soybeans, Sweet Corn, Canning Peas, Sunflowers, Cereal Rye, Alfalfa and Cover Crops with Cattle Grazing or Forage.
- ▶ **40% Organic:** Corn, Soybeans, Sweet Corn, Sunflowers, Oats, Buckwheat, Hemp-Grain/Fiber and Cover Crops with Cattle Grazing or Forage.
- ▶ Grass Finished Cattle / Pigs / Chickens.
- ▶ All fields planted with Cover Crops.

The True Potential of Soil Health:

Good or Bad

It depends on You!

What is the definition of “True”

- ▶ Adjectives: If something is true, it is based on facts rather than being invented or imagined.

Accurate Correct Verifiable Factual

- ▶ Adverbs: You use true to emphasize that a person or thing is sincere or genuine, often in contrast to something that is pretended or hidden.

Honestly Sincerely Faithfully Candidly

What is the definition of “Potential”

- ▶ Adjective: 1) Having or showing the capacity to become or develop into something in the future.
- ▶ Noun: 1) Something that can develop or become actual.



What is the Definition of
Soil Health?

Soil Health

Soil health, also referred to as soil quality, is defined as the continued capacity of soil to function as a vital living ecosystem that sustains plants, animals and humans.

But I am a FARMER...

Soil Health

Soil health, also referred to as soil quality, is defined as the continued capacity of soil to function as a vital living ecosystem that sustains plants, animals and humans.

I am a CARETAKER!



Sleepy Bison Acres



I Use My Five Senses

What are they?

- 1) Sight
- 2) Smell
- 3) Touch
- 4) Taste
- 5) Hearing

Is there a Sixth Sense?

- 1) Spiritual
- 2) Instinct
- 3) Faith
- 4) Becoming one with Nature
- 5) Native Indians had It!
- 6) Can You?
- 7) I Can, just ask my Daughter!





It's Held me
Accountable
for MY
Actions



What's the True Potential of our current Farming Practices?

Good or Bad

Conventional Farming



Chronic
Physical and Chemical
Disturbance


Wind Erosion



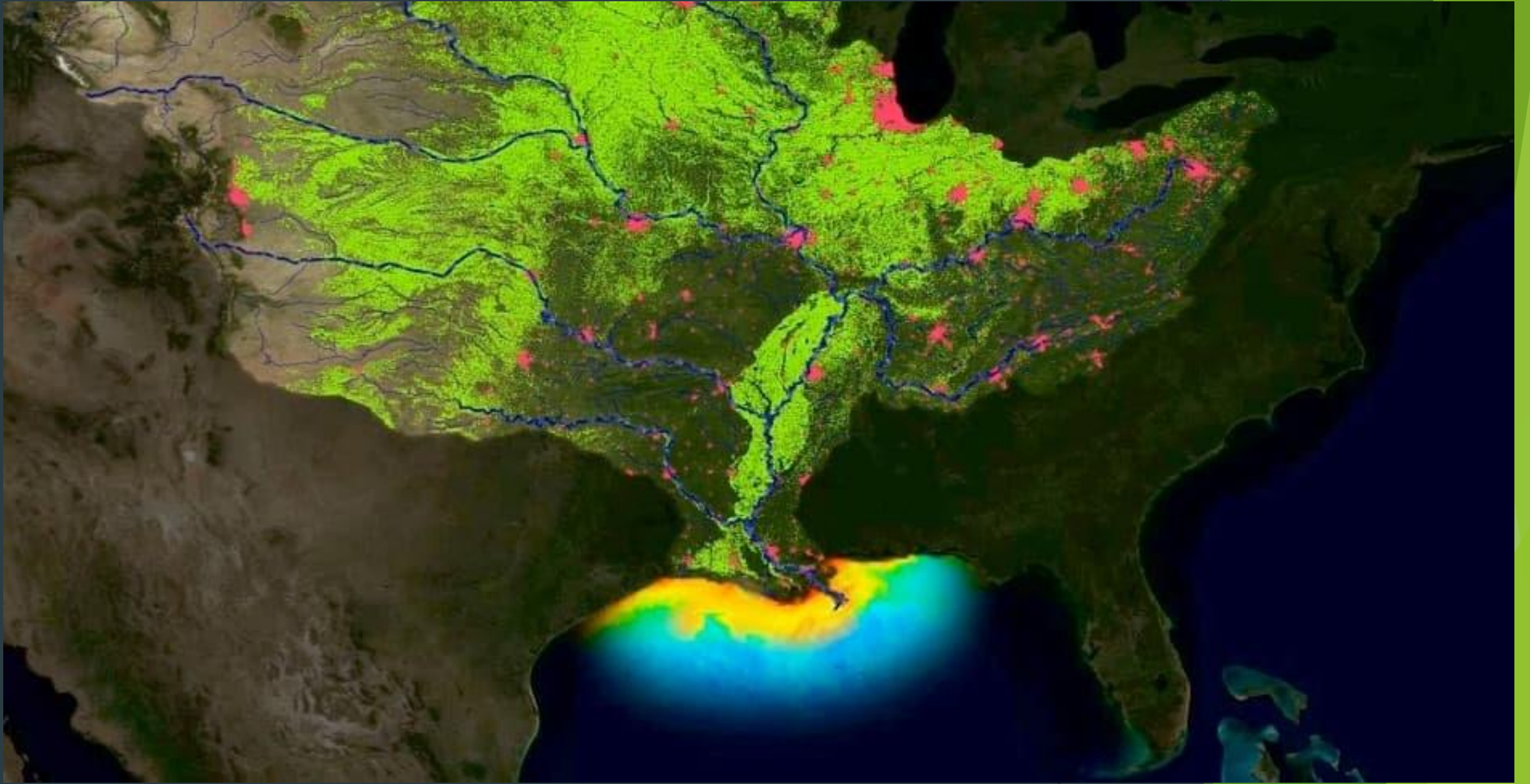




Water Erosion

The image depicts a landscape where water erosion has significantly altered the terrain. A dark, muddy stream flows through a field of dark, eroded soil, with several small pools of water scattered throughout. The background shows a flat field with patches of snow and a line of trees under a cloudy sky.









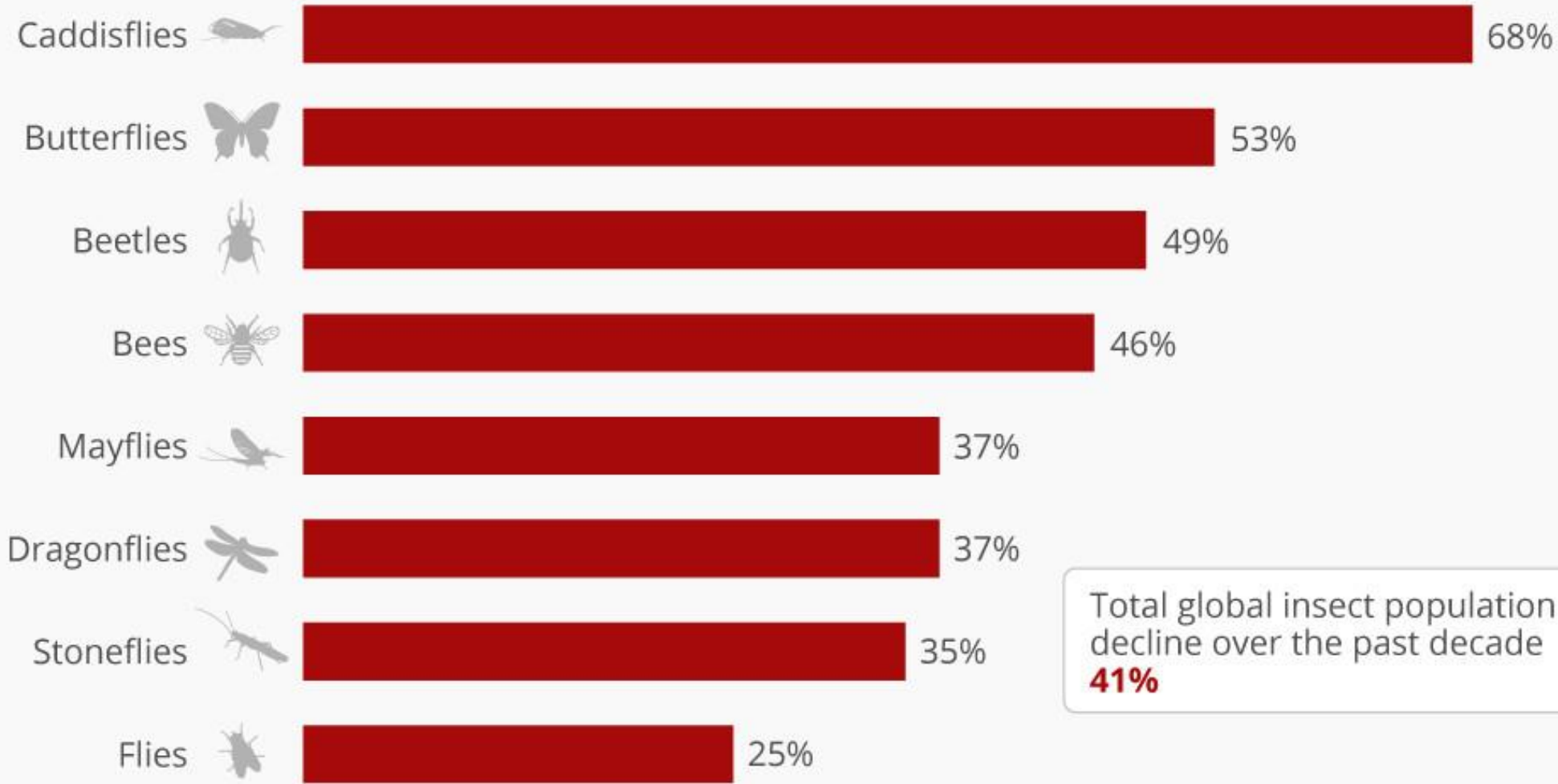
No-Till Farming

No Physical,
but still high
Chemical Disturbance.



Massive Insect Decline Threatens Collapse Of Nature

Percentage decline in selected global insect populations over the past decade

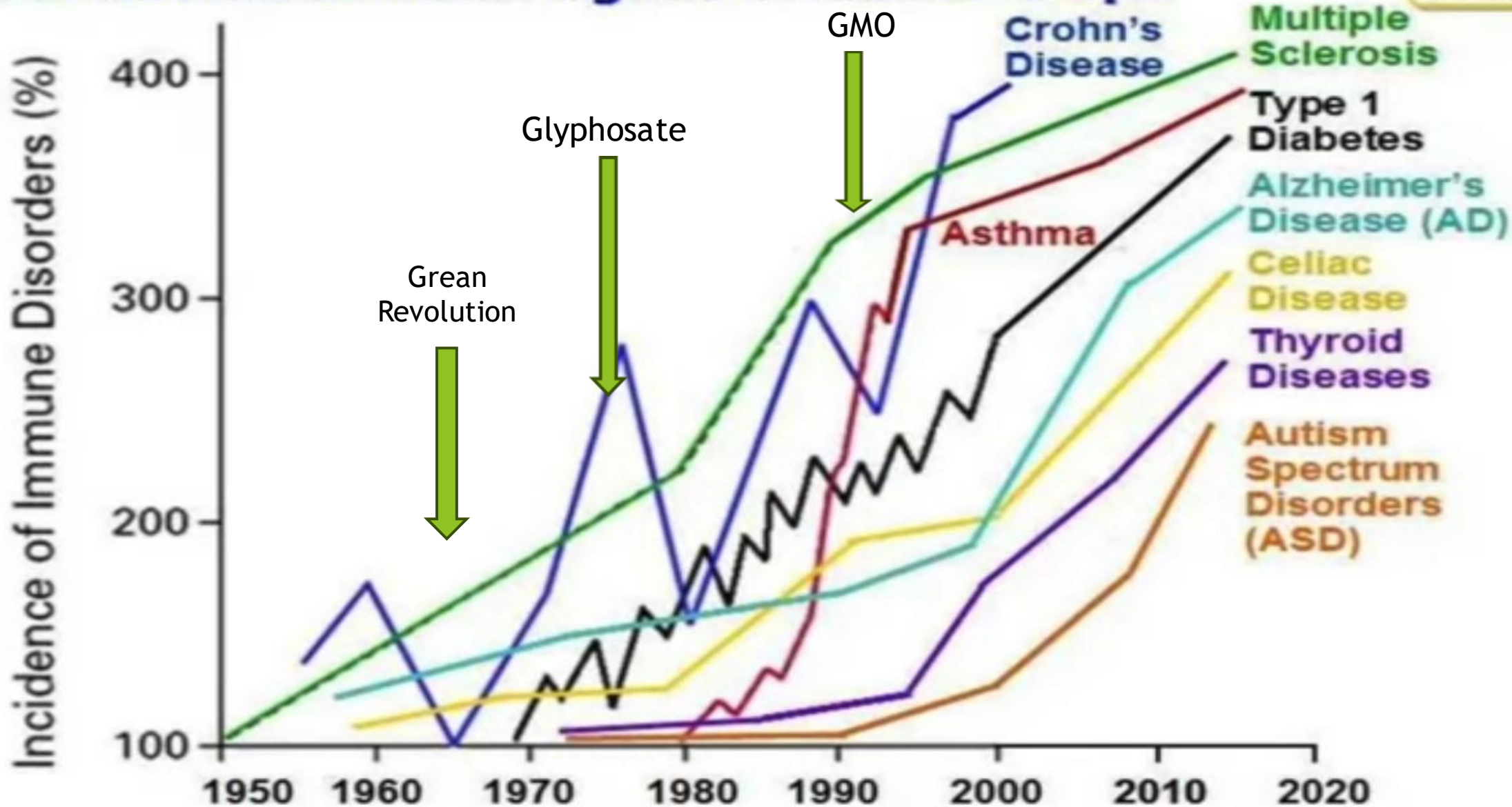


@StatistaCharts

Source: Sánchez-Bayo & Wyckhuys, Biological Conservation, 2019

Autoimmune & Neurological Diseases Graph

Death to Diabetes



Reference: American Autoimmune Related Diseases Association (AARDA)



City People (Land Owners)
Grass is the third largest
Plant species grown



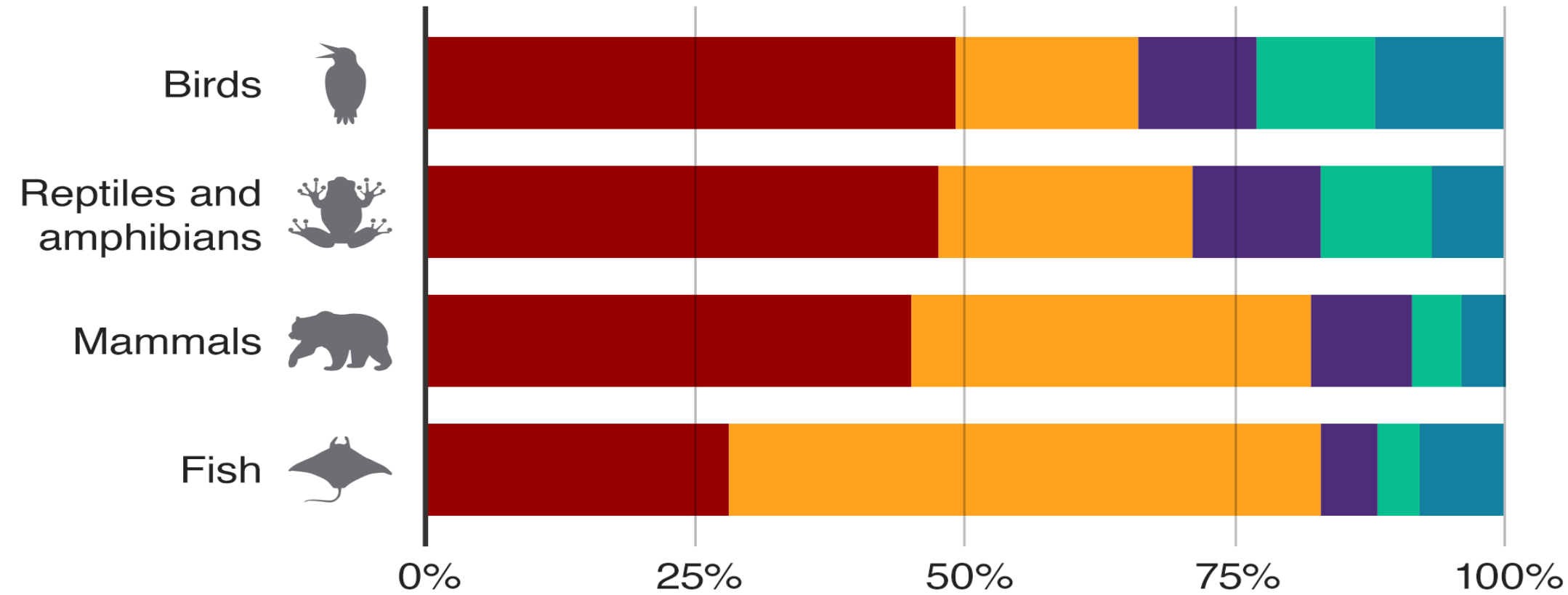
Zero Infiltration



Habitat loss is a major threat to biodiversity

The Living Planet Report assesses key drivers of species loss

■ Habitat degradation ■ Exploitation ■ Invasive species and disease
■ Pollution ■ Climate change



Note: A sample of 3,789 populations evaluated by the Living Planet Index

Source: WWF, Living Planet Report 2018

BBC

Organic Farming

No chemicals or synthetic fertilizers.
More diversity from rotations.
Very High Physical Disturbance





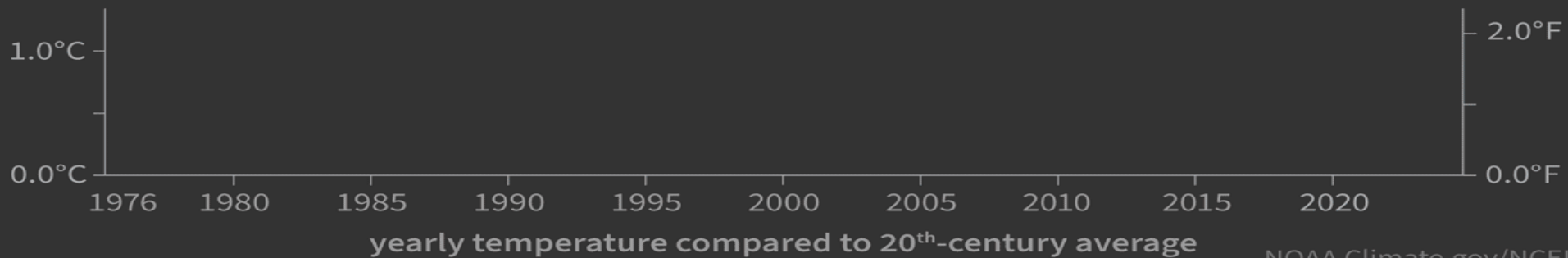
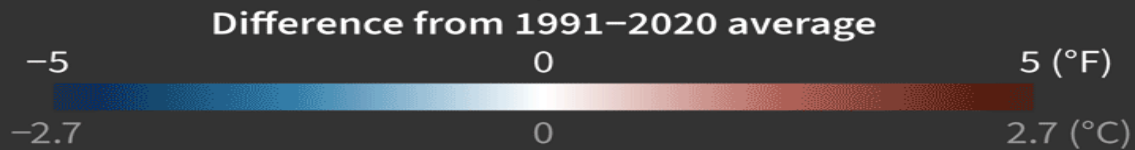
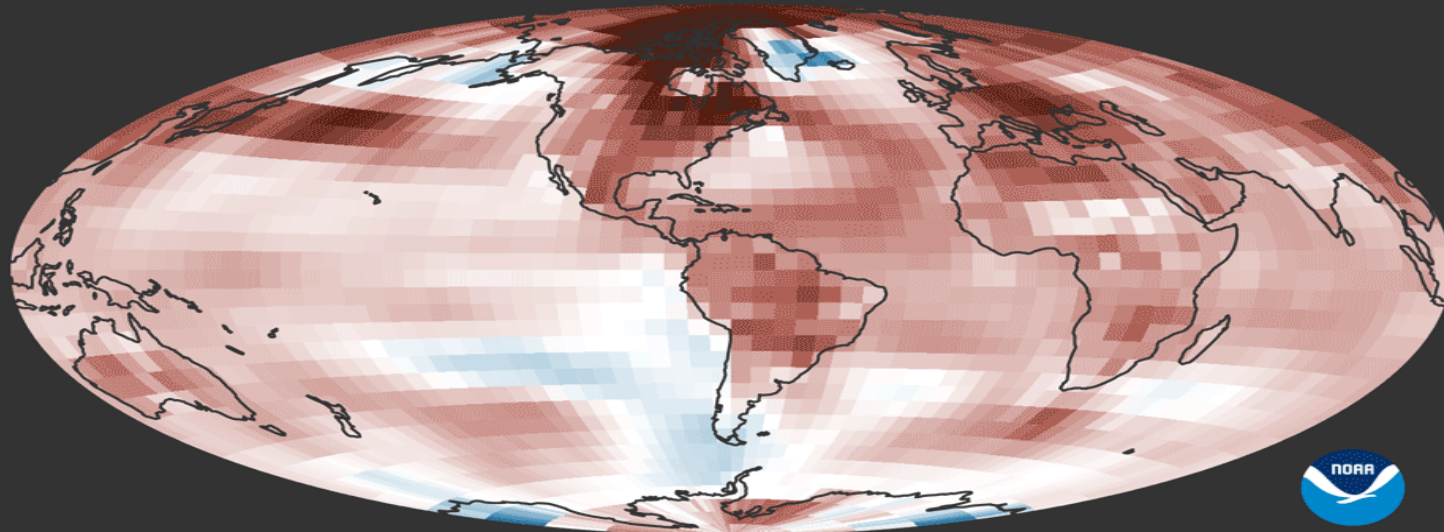
Soil Degradation



Desertification



IT'S OFFICIAL:



What's Crazier?



Humans have been
Farming the Earth for
over 6,000+ years,
have we lived up to our
True Potential?



Good or Bad?

at the Homes



In the 1950s we had
Victory Gardens



In the 2000s we have
Processed/Fast Food



How do We Truly Help Soil Health?



You'll Fall for Anything!



Time
magazine
6/30/1947

Seeds:
Mother Natures
blueprint for
Life!



A close-up photograph of two hands shaking in a firm grip. The person on the left is wearing a dark brown suit jacket, and the person on the right is wearing a light grey suit jacket. Both are wearing white dress shirts. The background is a dark blue world map with a subtle, lighter blue glow. The text 'No Till' is positioned above the left hand, 'Organic' is positioned above the right hand, and 'Regenerative' is positioned below the handshake in a bright green color.

No Till

Organic

Regenerative



Regenerative Farming

Spring time strips into Winter Rye/Triticale.

This gives me as much Cover Crop benefits as possible: weed suppression, water infiltration, increased soil life activity, root growth and protected soil. Apply N-P-K in strip application.

Regenerative No-Till



Regenerative Organic

A photograph of a field of tall, green grasses with purple flowers, split vertically into two halves. The left half is labeled 'Regenerative' and the right half is labeled 'Organic'. The grasses are dense and reach up to the top of the frame. The background shows a flat horizon line under a clear sky.

An aerial view of a large agricultural field. The field is divided into long, straight rows of crops. The crops in the foreground are a mix of green and brown, suggesting a cover crop or a crop in a different stage of growth. In the distance, a tractor is visible, moving through the field. The sky is clear and blue. The overall scene depicts a well-maintained and productive agricultural landscape.

Regenerative Farming



Regenerative Farming

Regenerative Farming





Regenerative Farming



Regenerative Farming



“Lots of Less”

How do I Truly Live up to My Best Potential in my Farming or Personal Life? I Follow my:

- ▶ Heart
- ▶ Environment/Climate
- ▶ Economy
- ▶ Instinct
- ▶ ROI, not Yield! (Brain not Ego)
- ▶ Faith
- ▶ My Soil Health Principles!

Soil Health Principles

- 1) Armor/cover/protect the Soil.
- 2) Minimize Soil disturbance. Chemical and Physical!
- 3) Maintain a living root in the Soil.
- 4) Diversity as much as possible.
- 5) Livestock integration, controlled grazing.
- 6) Context, adapt practices to your environment!



1) Clothe/Shelter/Feed the Soil





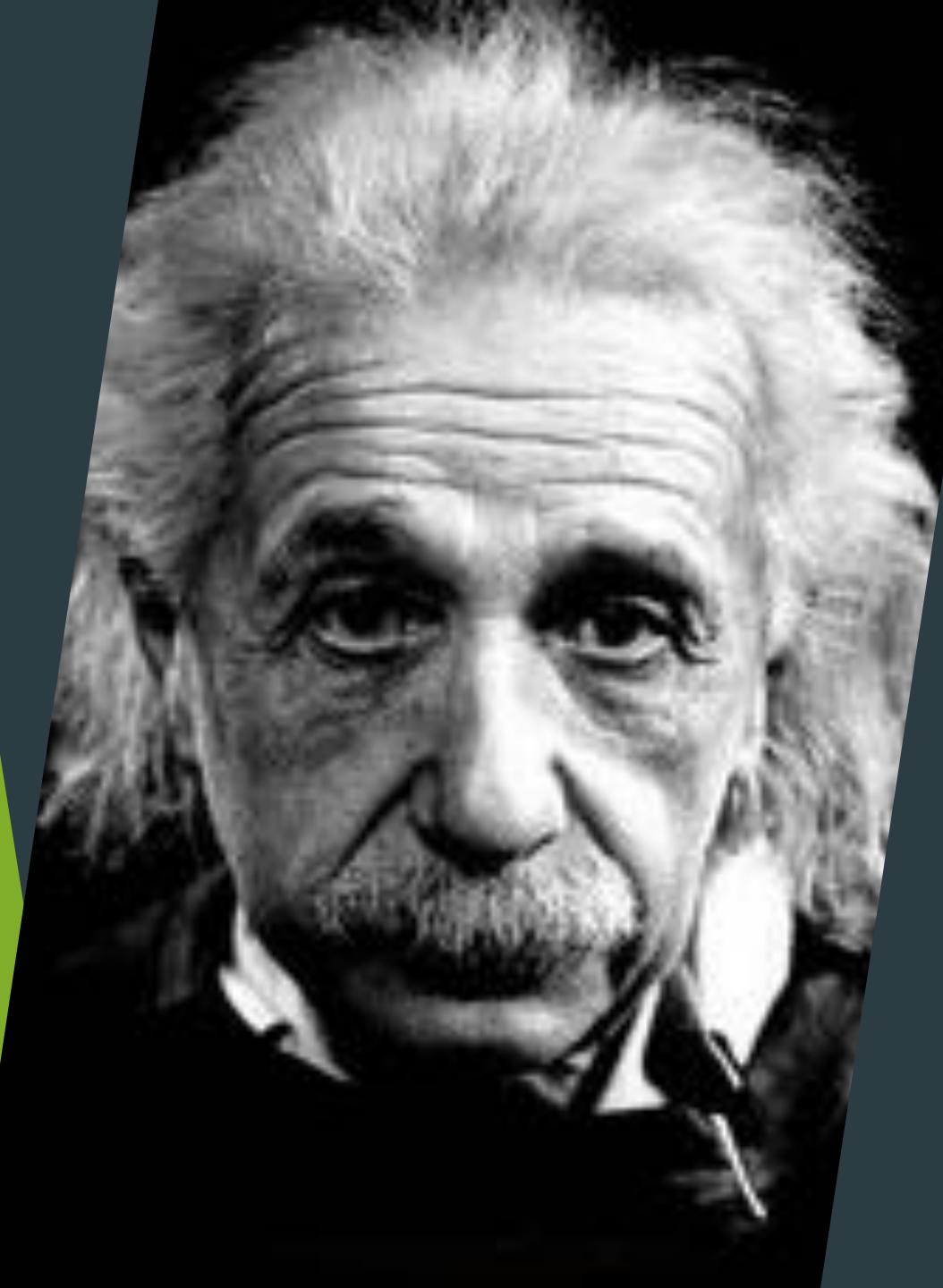




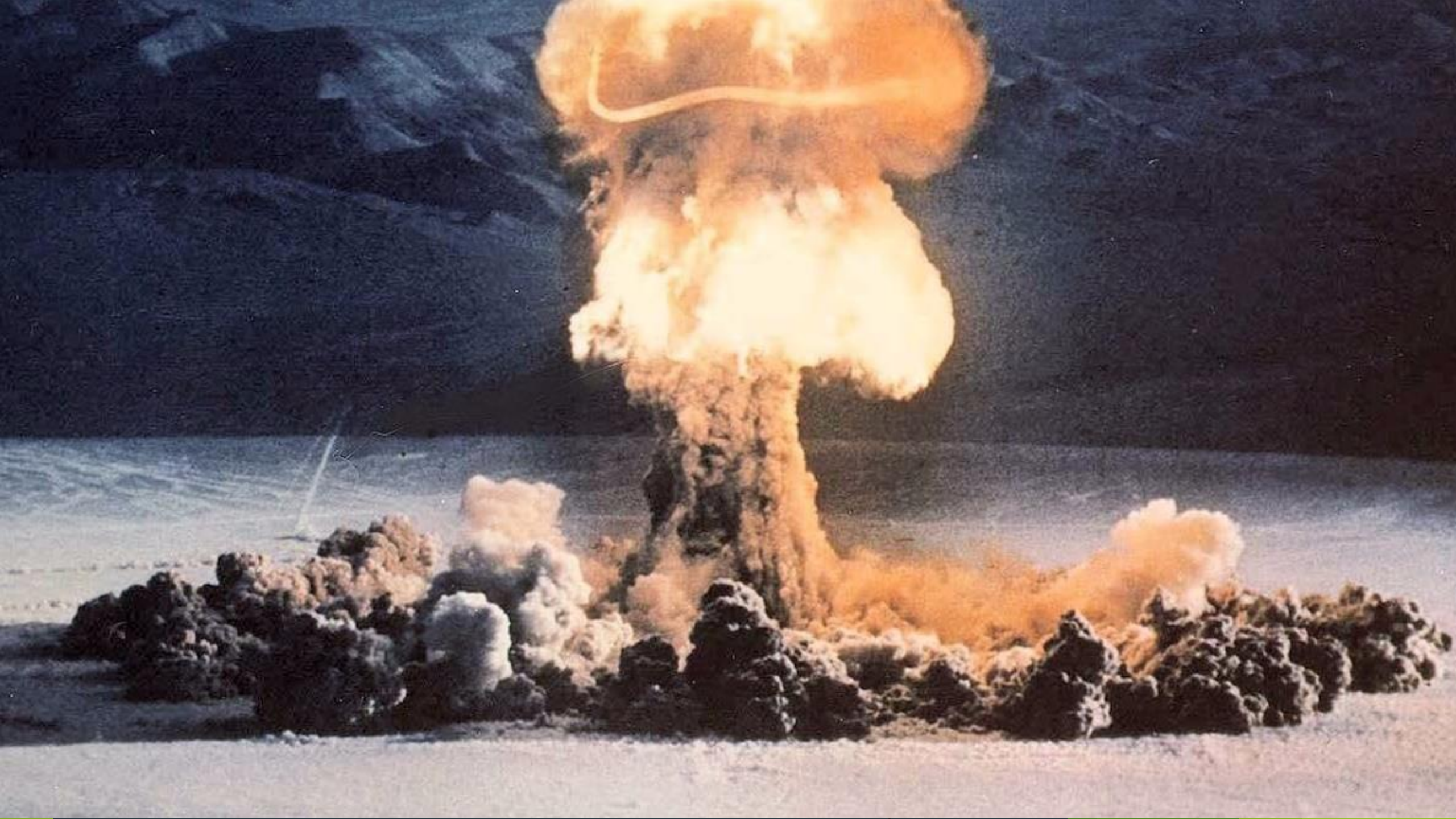
Physically

Chemically

2) Minimizing Soil Disturbance



“Energy cannot be created or destroyed, it can only be changed from one form to another.”



Chernobyl





3) Continuous Living Plant/Root





Innerseeding



Feeding the Soil







Free Range Vegans!

Use Hi strength Electric Fencer!

Ready to Graze!



But seriously,

Of all the Animals in the world, there is less than my fingers and toes that are toxic to Humans.

But over 700 Plants in the US and Canada alone are deadly toxic to Humans.



4) Plant Diversity

Diversity of Roots and Microbes!









5) Livestock Integration

Dual Incomes from all my Acres by Grazing

- ▶ **Spring and Early Summer:** Soybeans, Sweet Corn, Sunflowers, Buckwheat, Hemp-Seed/Fiber and CBD. Organic gives me later planting dates.
- ▶ **Cool season grasses**



Dual Incomes from all my Acres by Grazing

- ▶ **Late Summer and Fall:** Peas, Small Grains, Sweetcorn, Sunflowers, Buckwheat and Corn.
- ▶ Warm and Cool season grasses, brassicas and legumes.



Dual Incomes from all my Acres by Grazing

- ▶ **Winter:** Peas, Small Grains and Bale grazing-easy and variable rate technology without being high tech.
- ▶ Warm season residue of grasses
- ▶ Cool season grasses and brassicas





Bal



6)Context: You need to make it work on your Farm, in your Environment.





Increasing my \$\$Potential\$\$ by Caring for my Soil

- ▶ Feeding my Soil Microbes, the same ones that are in my Microbiome.
- ▶ Balancing my Fungi and Bacteria
- ▶ Different practices, different tests!
- ▶ What's in my Soil Rick Haney?

The Total Nutrient Digest (TND)

- ▶ It's a measure of the soil's net worth when it comes to nutrients. \$\$\$
- ▶ While most extract tests provide you with what is “available”, the TND provides you with the Nutrient Potential of your soil.

The Total Nutrient Digest (TND) “\$\$True Potential\$\$”

▶ Provides:

▶ Carbon

▶ Nitrogen

▶ Phosphorus

▶ Potassium

▶ Calcium

▶ Magnesium

▶ Sulfur

▶ Zinc

▶ Iron

▶ Manganese

▶ Copper

▶ Boron

▶ Molybdenum

Who's the
Banker?



Who's the
Banker?



The Soil



Mg

The Deposits and Withdrawals are your? Farming Practices

Good
Positives

Bad
Negatives

(My Farm)

Deposits and Withdrawals

▶ PLUS +1

- ▶ No-Till
- ▶ Plant a cover crop(each time)
- ▶ Reduce chemicals
- ▶ Add to rotation
- ▶ Add diversity(into cover crops)
- ▶ Non GMO traits
- ▶ Biologicals
- ▶ Livestock manure use
- ▶ Livestock grazing
- ▶ Planting pollinators and trees
- ▶ Etc.....

▶ Negative -1

- ▶ Tillage pass(each time)
- ▶ Chemical spray pass
- ▶ Insecticide treatment
- ▶ Fungicide treatment
- ▶ GMO seed use
- ▶ Synthetic fertilizer
- ▶ Over fertilizing
- ▶ Pushing activities in unfit fields
- ▶ Spending \$\$\$ (advanced)
- ▶ Taking nutrients off(cash crop or forage)
- ▶ Etc.....

Plus & Negative Example

Current Conventional Farms(Me 15+ years ago)

- ▶ Stacked traits -1
- ▶ Synthetic fert. -1
- ▶ Spring tillage pass -1
- ▶ Pre chemical pass -1
- ▶ Post chemical pass -1
- ▶ Fall tillage -1

TOTAL= -6

-6 equals poor Soil Sealth

Plus & Negative Example(Corn 2024)

My No-Till

- ▶ Non-GMO seed +1
- ▶ Synthetic fert. -1
- ▶ Active growing Covers +1
- ▶ No Till planting +1
- ▶ Pre chemical pass -1
- ▶ Post chemical pass -1
- ▶ Early innerseeding of CC +1
- ▶ CC has pollinators +1
- ▶ Fall livestock grazing +1

TOTAL= +3

+3 equals on the right path

My Organic

- ▶ Organic/naked seed +1
- ▶ Livestock fertilizer use +1
- ▶ Active growing Covers +1
- ▶ Tillage -1
- ▶ Rotary Hoe -1
- ▶ Row crop cultivating -1
- ▶ Weed zapper/handweeding +1
- ▶ Early innerseeding of CC +1
- ▶ CC has pollinators +1
- ▶ Fall livestock grazing +1

TOTAL= +4

+4 equals Good Soil Health but room for improvement

Who's the Bank Teller?

Soil Microbes!

- ▶ Treat them good (feed them Carbon) and your transactions will be much easier.
- ▶ Mistreat them and transactions/life gets harder.
- ▶ A Lot Like MARRIED Life!



Dr. Harold Willis

Up to:

4.6 times more
Nitrogen(Nitrate)

7.2 times more
available
Phosphorus

11 times more
available
Potassium

1.4 times more
exchangeable
Calcium

Everything
coming out of a
worm is neutral
ph

What's our True Potential?

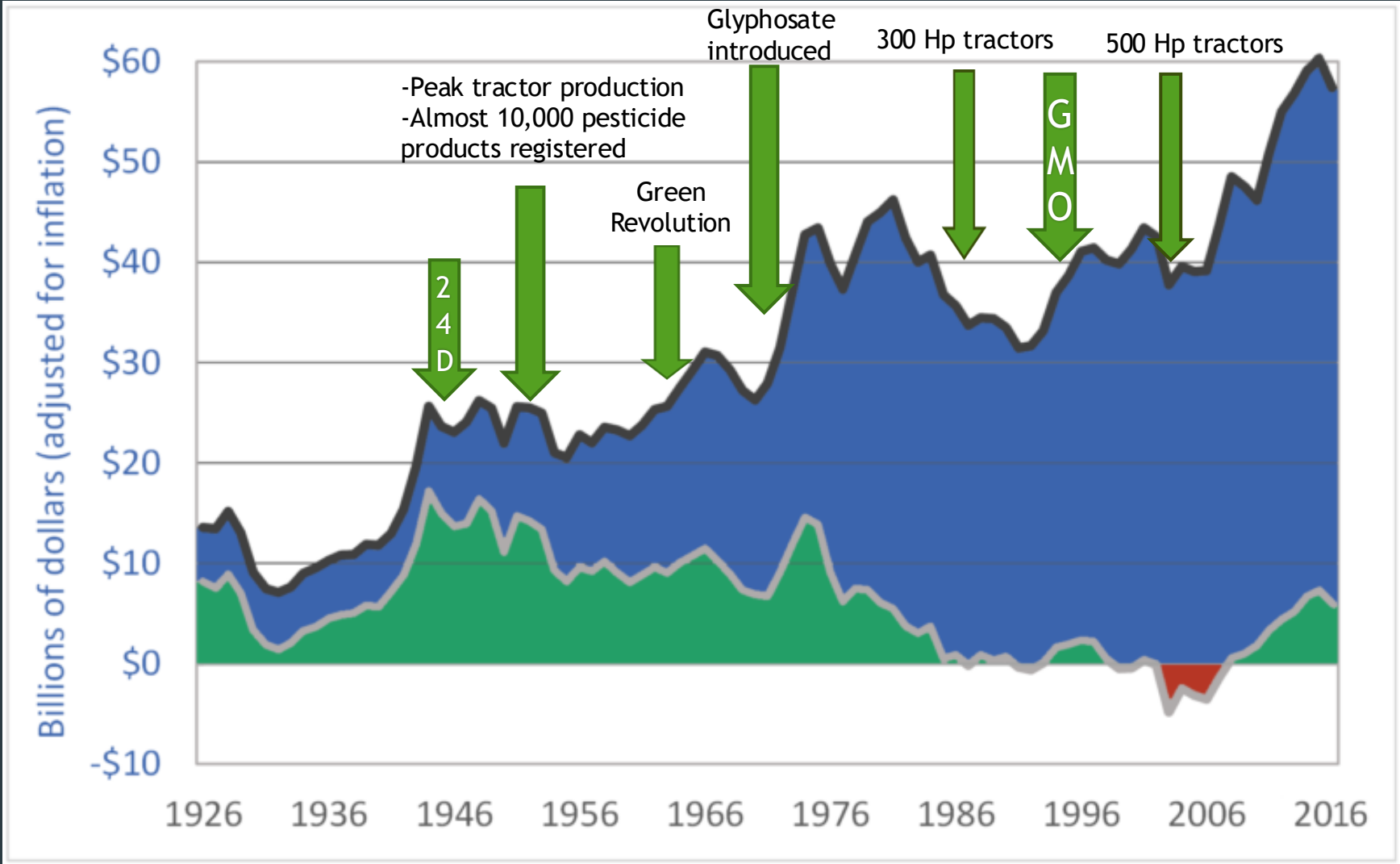








Gross Farm Revenue vs Net Farm Income



Loss of Farms and Communities





Give the Consumer what they want!



Human Health

- ▶ In 1960 4% of the entire population had chronic disease.
- ▶ In 2015 46% of children will have a chronic disease by the age of 18.
- ▶ Autism has doubled in the last six years, 1 out of 3 children by 2035.
- ▶ 1 out of 2 men, 1 out of 3 women will have cancer in their lifetime(not including skin cancer).
- ▶ 1 in 4 people have fertility issues.
- ▶ We spend \$700 billion on military in the U.S.
- ▶ We spend \$3.5 trillion on chronic disease management.











Ignoring the Signs

Not Believing in Yourself

Not learning from Your Mistakes

Living up to your
True Potential!



Biggest Soil Health failures:

- 1) You don't plant **SOMETHING!**
- 2) Thinking tillage/chemicals will solve everything. Becoming an Addict!
- 3) Thinking you can't make it work in your fields.
- 4) Not networking with other farmers.
- 5) Cover Crop termination.

Biggest Soil Health failures:

- 6) Not realizing that **EVERYTHING** is Connected!
- 7) Not enough Diversity
- 8) Patience!
- 9) For every action there is a reaction:
You choose if it's **Positive** or **Negative!**
- 10) Not listening to **Mother Nature!**

Healthy Humans Need:

1. Oxygen
2. Water
3. Food
4. Shelter
5. Sleep/Rest
6. We need Love!

Healthy Soils Need:

1. Oxygen
2. Water
3. Food/Continuous Living Root
4. Shelter/Armor
5. Rest, Sleep/Minimize Disturbance
6. Show it some Love!

Live up to
You're
“True Potential”





“Everybody has
a Story to Tell”

**In Memory of
Michael Cotter
1931-2017**

Here's to the crazy ones. The misfits. The rebels. The troublemakers. The round pegs in the square holes. The ones who see things differently. They're not fond of rules and they have no respect for the status quo. You can quote them, disagree with them, glorify or vilify them. About the only thing you can't do is ignore. Because they change things. They push the human race forward. And while some people may see them as the crazy ones, we see genius. Because the people who are crazy enough to think they can change the world, are the ones who do.

Apple Inc.

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