West Coast Collaborative

We do not inherit the earth from our ancestors, we borrow it from our children.

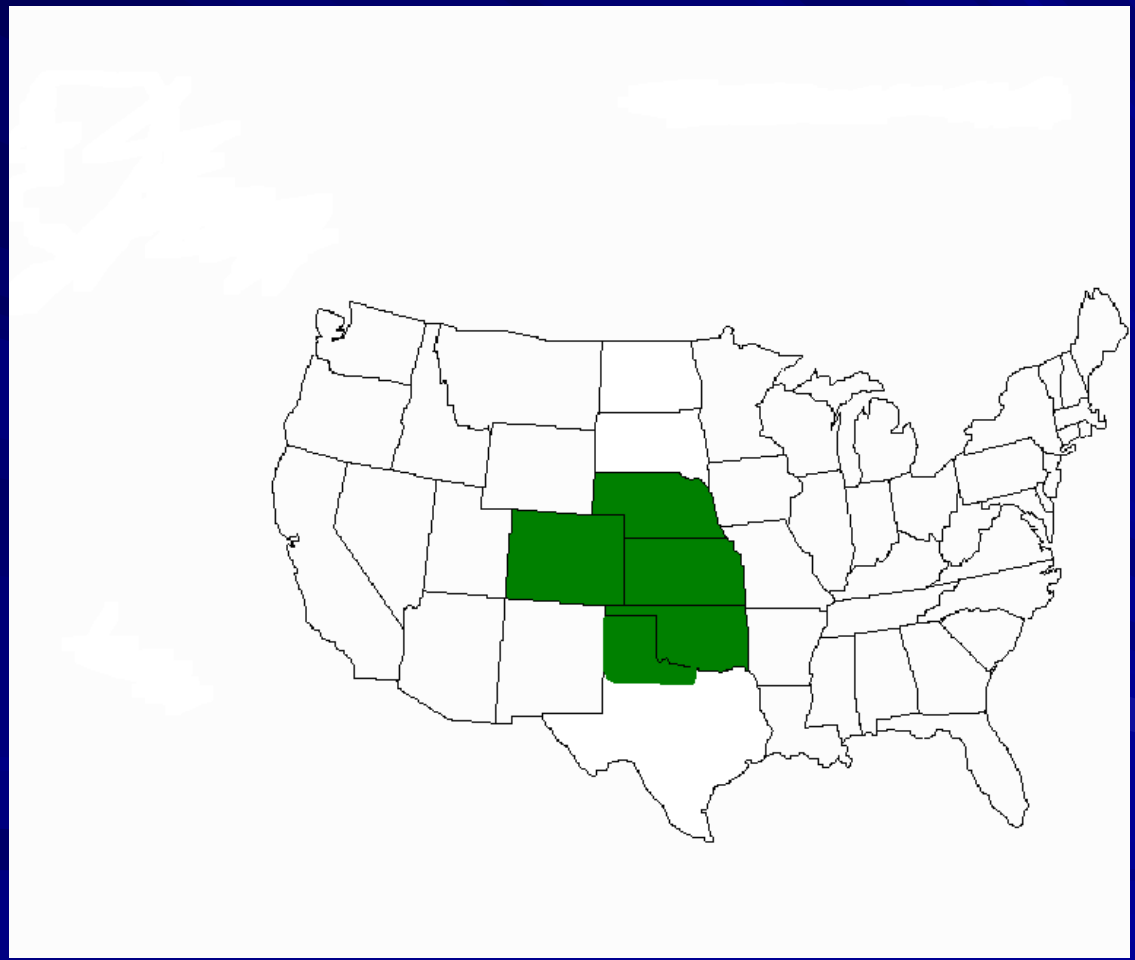
~Native American Proverb

The early ranchers disapproved of farmers coming in and breaking up the land.

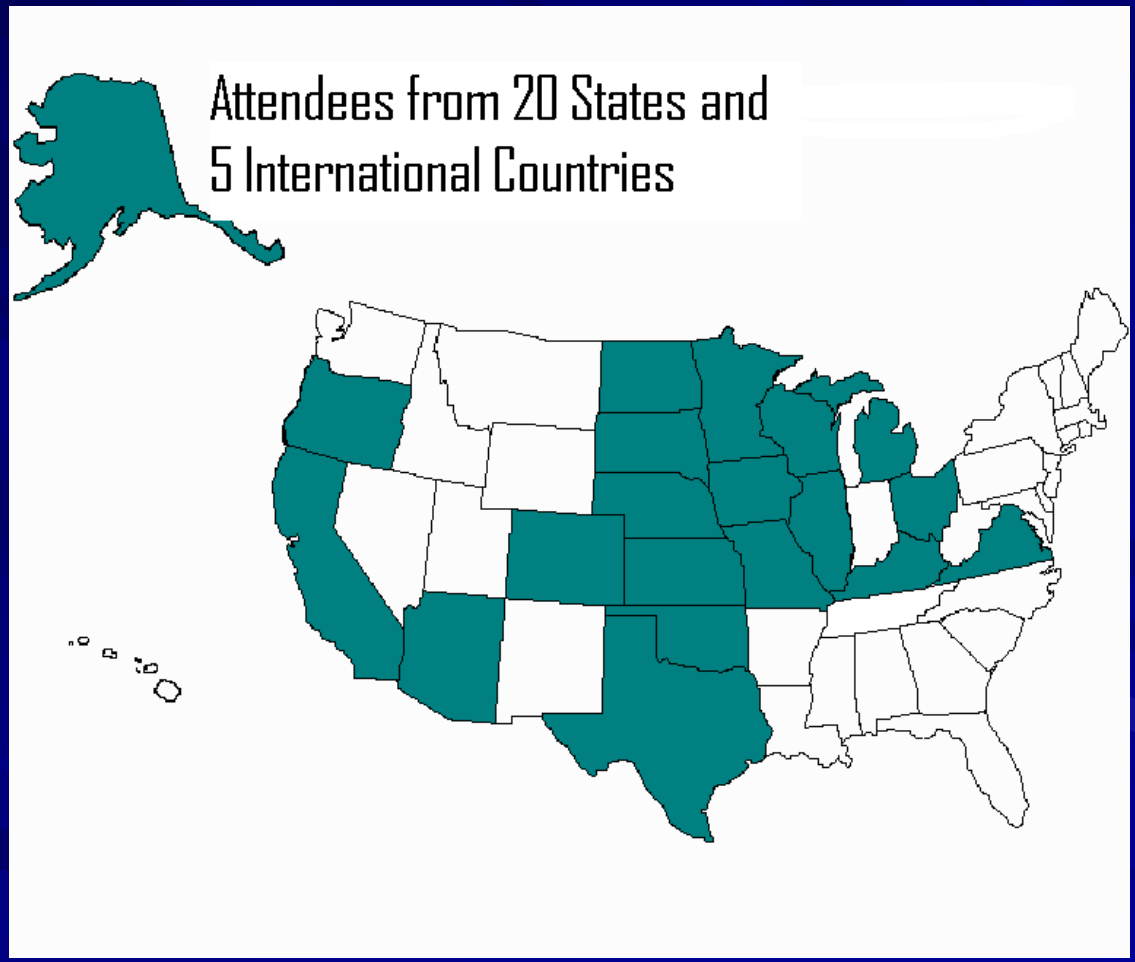
They agreed with the American Indian who saw a settler plowing in the 1880s and told the settler, ***"Wrong side up."***

How much land should be "wrong side up" still dominates the land use debate.

No-till on the Plains is a Regional Organization

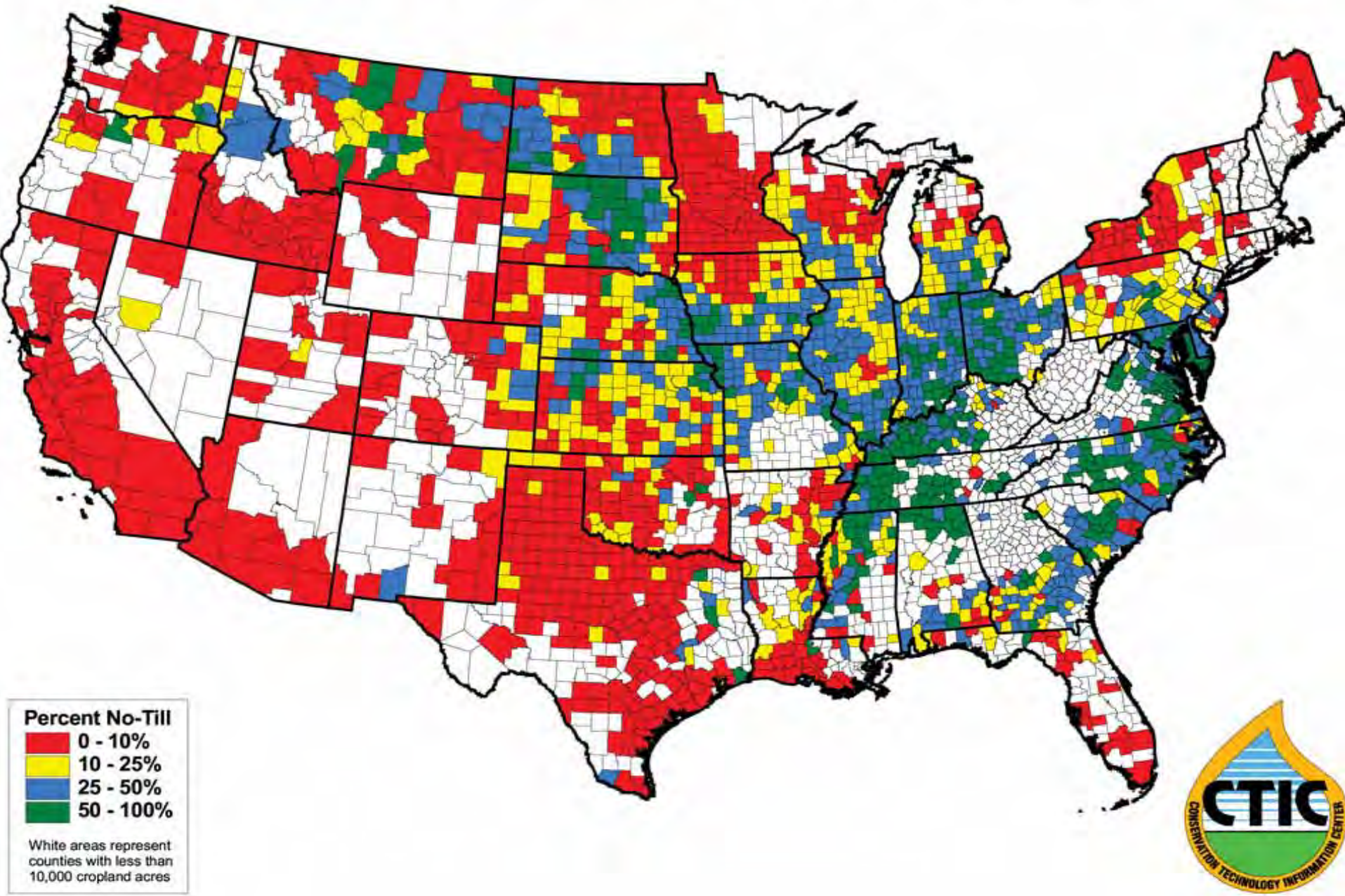


Winter Conference Attendees



No-Till on the Plains has been promoting the profit and environmental aspects of *continuous no-till* cropping systems since 1992

Percent No-Till - All Crops - 2004



- Best estimate is that about only about 8-12% of US cropland has been farmed with continuous no-till (at least 5 years).

It must be remembered that there is no harder job, more difficult to do or more uncertain in success, than being a leader imposing a new paradigm…

…because every innovator has as enemy -- the one that was successful under the old concepts…

Machiavelli 1469-1527

The plow as “the” symbol of agriculture

...is still deeply rooted in many cultures and *MINDSET* continues to be the biggest obstacle to no-till adoption in most parts of the world.

Worldwide Continuous No-till (CNT) research has been producer driven!

NO-Tillage is:

- A continuous or permanent system,
- wherein soil disturbance is kept at the absolute minimum,
- to place seed (and fertilizer) in an agronomically correct manner

NO-Tillage:

- Focuses on growing and maintaining high levels of surface mulch or plant residues.
- The results are improved soil structure & water-holding capacity; which translates into healthier crops, better soil ecology and increased profitability.

Soil cover determines quality of no-till

- < 60% of soil cover can be considered low quality, insufficient cover to control wind or water erosion

- 60-80% = fairly good quality, sufficient cover to control wind erosion

- > 80% = high quality, sufficient to effectively control wind and water erosion, high water infiltration rates, less water evaporation, good weed control.

A soil in its natural undisturbed state is ideal for plant growth!

Emulate the Prairie

Why No-tillage?

- 96 % Erosion
- 66 % Fuel
- Carbon emissions
+ quality of water
+ biological activity

Why No-tillage?

- Farmers under the age of 35 will need to expand their operations 10 times just to keep the current acres still in production.
- >Profitability
- <Labor Concerns
- Environmentally Friendly
  - The world is NOT going to continue to tolerate bad stewardship
- Sustainable


Foreign Competition is Fierce!
Fotocenter

Dwayne Beck

No-till doesn’t mean just not tilling…it is residue and carbon management.

Dwayne Beck

Don’t change the land to fit your management,

change your management to fit the land.

Advantages of No-tillage and Permanent Soil Cover

- Wind water erosion near zero
- Increased water infiltration into the soil
- More available soil moisture
- Maintenance or increase in soil organic matter content

Advantages of No-tillage and Permanent Soil Cover

- Carbon is sequestered in soil enhancing its quality, reducing the threat of global warming
- Soil improvement (chemical, physical, biological)
- Reduced use of fertilizers and lower production costs

Advantages of No-tillage and Permanent Soil Cover

- Crop productivity is increased
- Survival of the family farm is assured by profitability and high sustainable crop production.

Off-farm Effects of No-till

- Reduction of sedimentation of rivers, reservoirs, and lakes
- Enhanced water quality
- Less problems for hydroelectric plants
- Less road sedimentations
- Reduction of cost to government and society of small towns due to off-farm effects of soil erosion

Crop Residue

Photo by Gregory F. Scott, USDA Natural Resources Conservation Service

Reclamation Process


1
.9
.8
.7
6


Runoff from
Conventional till
field ↓
From CNT field
↓


From CNT field
↓
Runoff from Conventional
till field ↓

Taking Samples

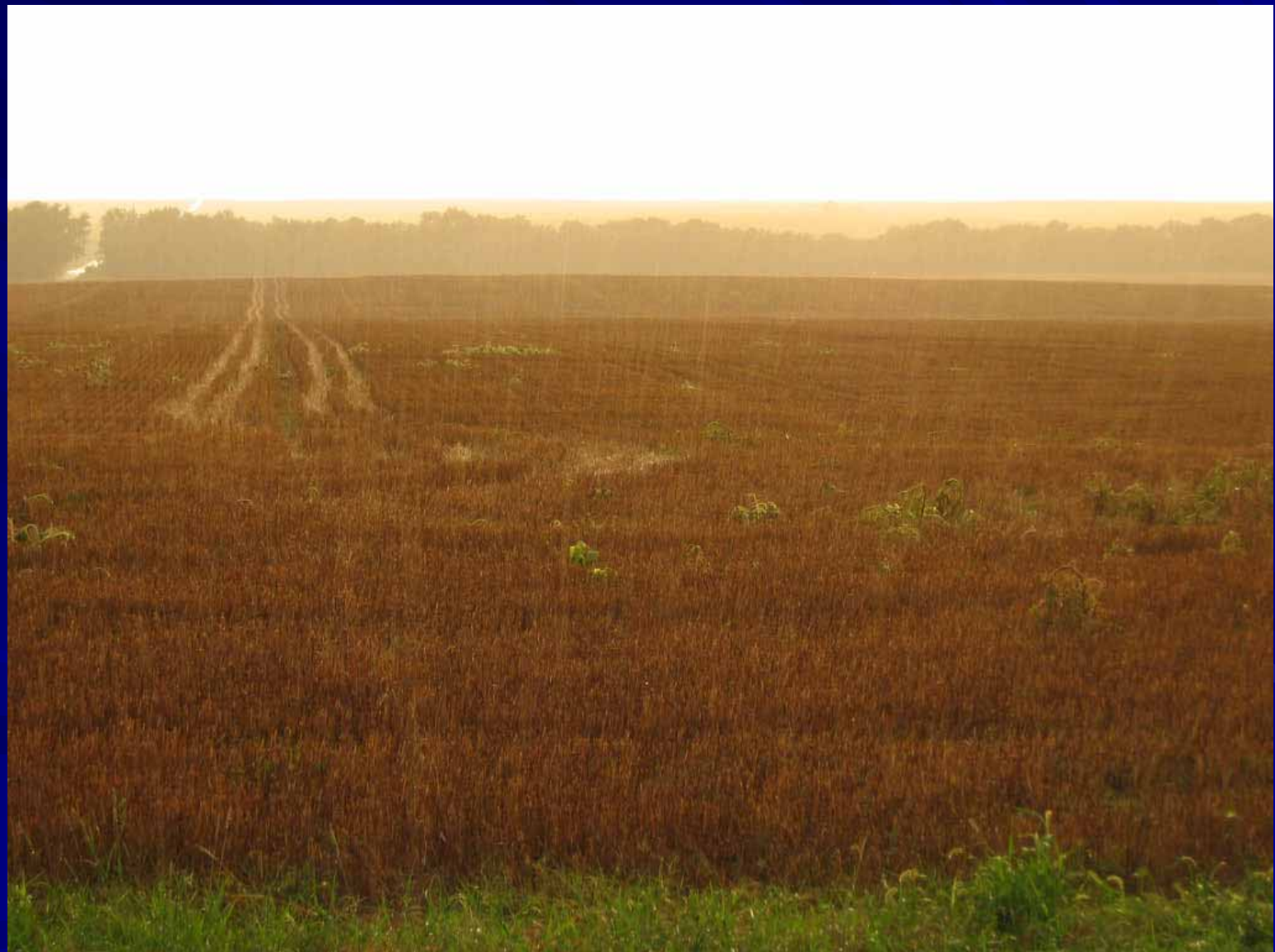

SERVUS
STORM MASTER

Conventional tillage = no structure

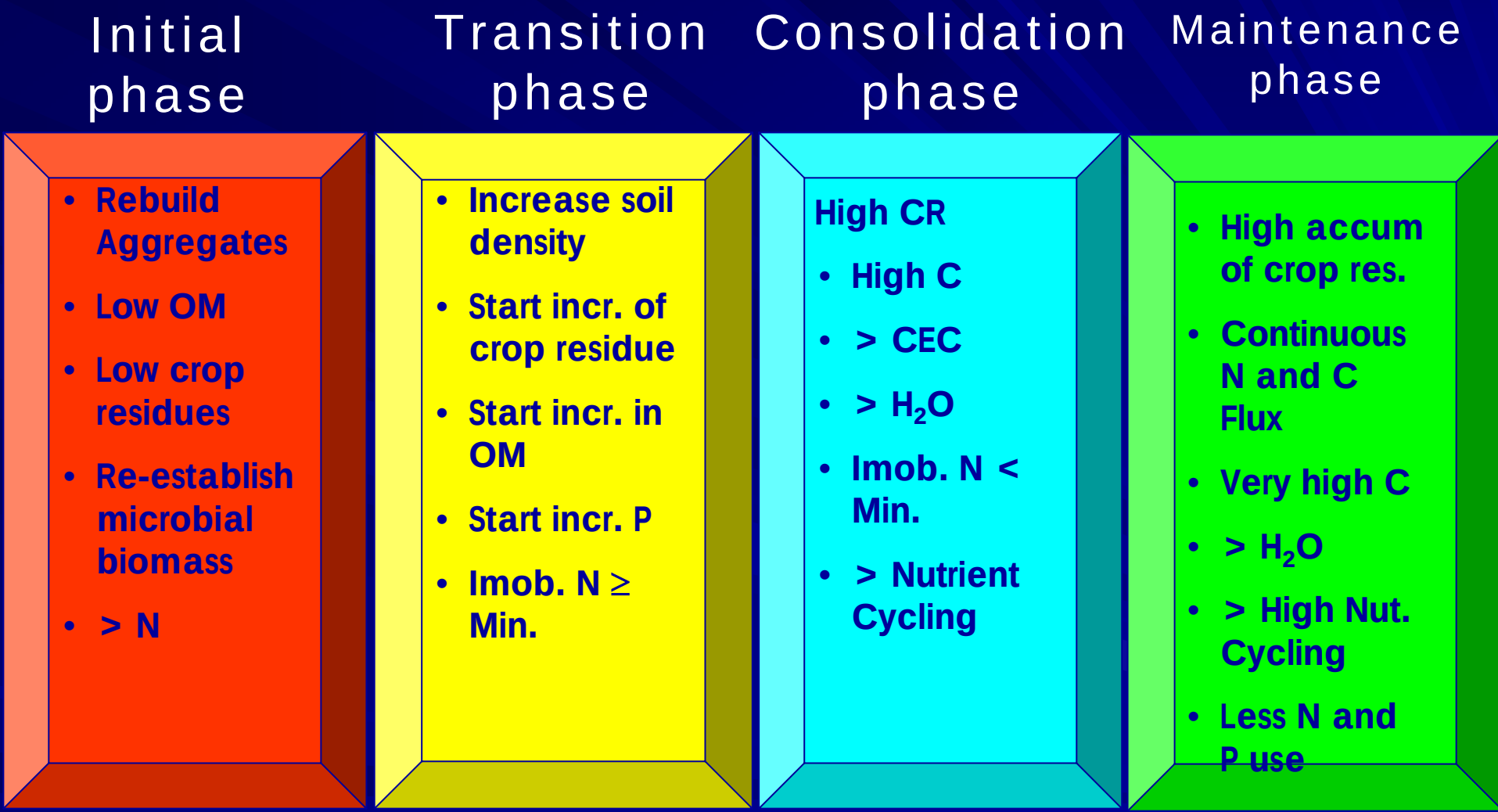
CNT = Great Structure!

Typical Runoff from Conventional Tillage

Typical Infiltration from CNT



Evolution of a continuous no-till system



(Sá, 2001)

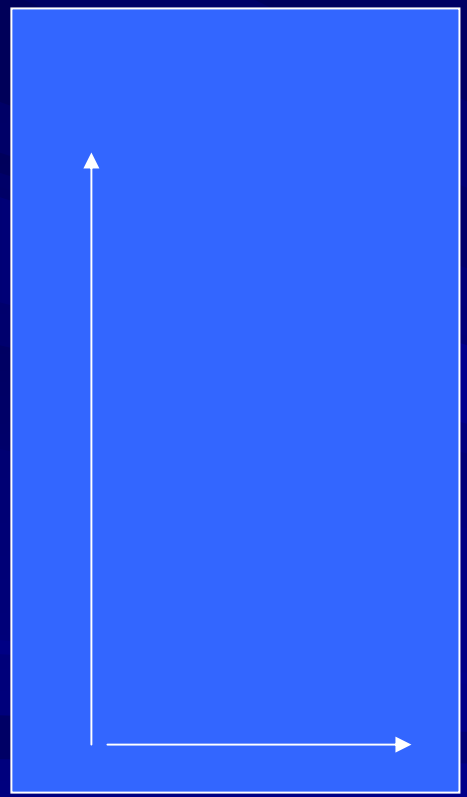
North America's Premier No-till Event

Whirlwind Expo

Points North Bus Tour

A rut is nothing but a coffin with the ends kicked out. –Mike Arnoldy

Going up and over Terraces



¼ mile = 1320 ft / 30 = 44

80 acres

- 88 passes
- 44 passes

88 – 44 = 44 extra turns

44 * 2 turns per pass = 88

88 * 10 secs per turn = 880

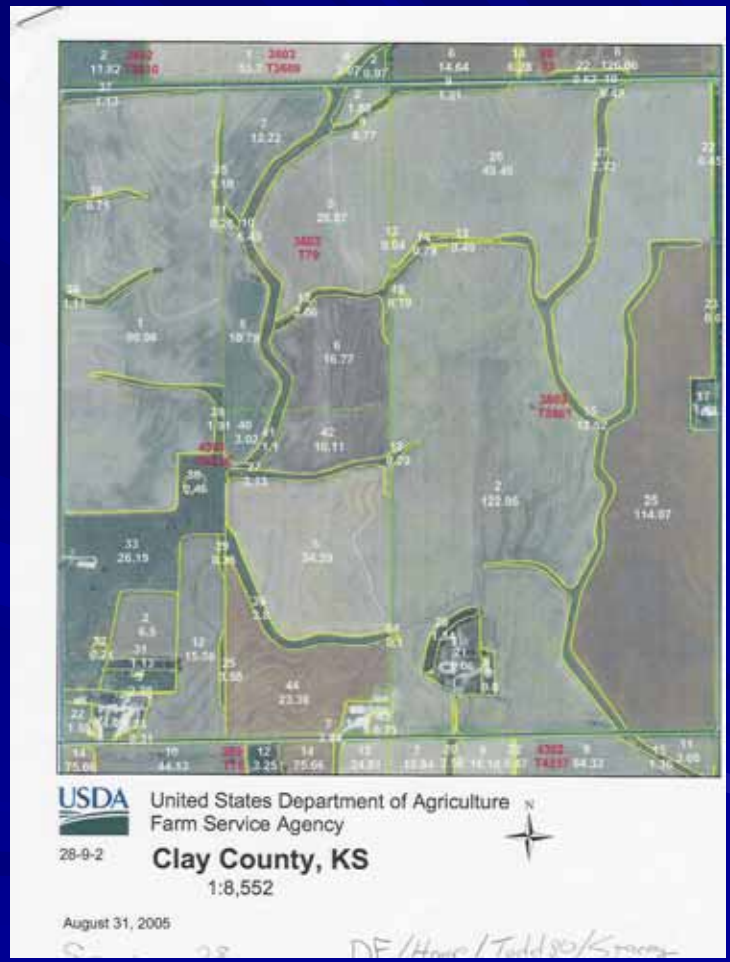
880 / 60 secs = 15 minutes

1000 acres / 80 = 12.5 / 4 =
3.125 hrs per Operation

Eliminating More Turns

Drive thru Waterways

- Turn around 2 times instead of 8
- 6 turns at 10 seconds per turn = 1 minute
- ¼ mile = 1320 ft
- 1320/30 = 44 passes
- Saves 44 minutes per 100 acres



Soil Organic Matter – No Moisture

Awesome Structure

Stacked Soybeans

Continuous Cropping - Note date stamp


JOHN DEERE
31 5 2004


31 5 2004

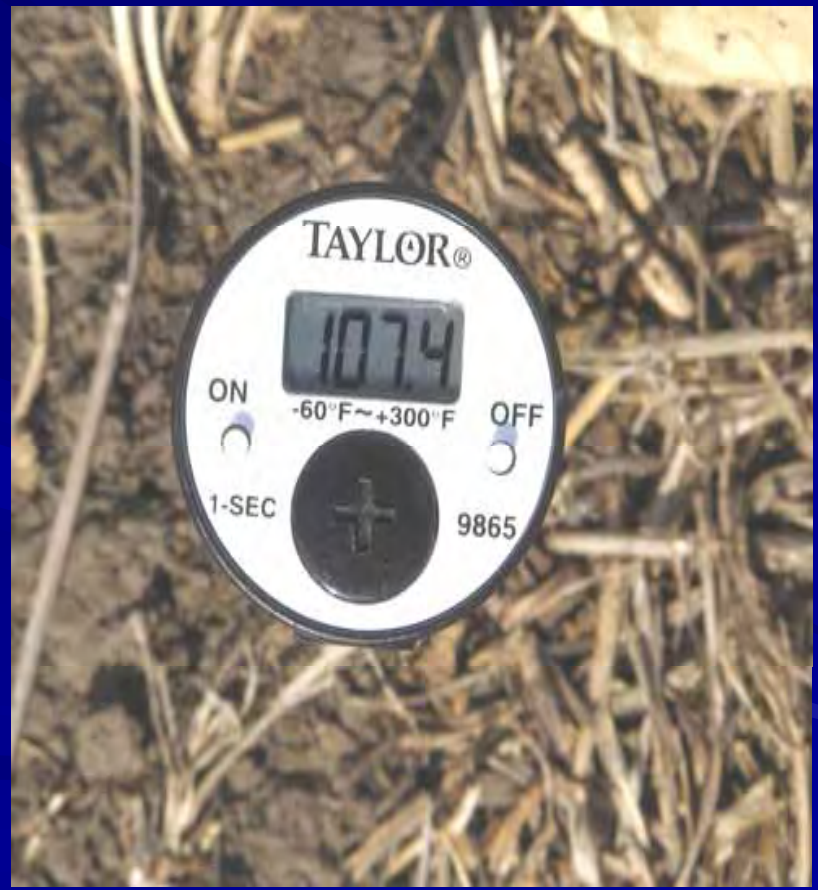

17 8 2004

Planting into Residue

Freeze & Thaw or Wet & Dry Builds Vertical Structure

Dakota Lakes Research Farm

Soil Temperatures



The concept of stacked rotations, D. Beck

Crops are repeated on the same field only in the 5th year

No-till Discussion Website

www.notill.org

Leading Edge

The Journal of No-Till Agriculture

December 2006 Volume 5 Number 3

No-till On The Plains

The Thrill of Competition

5th Anniversary Issue

by Matt Hagny

Win, lose, or draw, Gabe Brown has fun testing himself against every new challenge. While so many people lament the supposed lack of opportunity in agriculture, Gabe sees things quite differently: "People don't realize how much money they can make in agriculture. We always thought making $10 – 20 an acre on a wheat crop was doing great. Some of the things I grow net $200 – 250 an acre, and they're not high risk by any means."

Gabe isn't one to brag—not at all. His point is simply that there's a trove of good returns to be had in cropping and livestock, if only we will open our minds to the possibilities. "People get stuck in a rut. They always plant the same things. They're afraid to try anything new. But you can't do what dad and granddad did and expect to earn a good living with expenses being what they are today."

Gabe is hardly one to get stuck in a rut. More like he's careening down the highway while pulling off maneuvers not for the faint of heart. And he's actually enjoying the ride!

What sets Gabe apart? Gabe, along with his wife, Shelly, and two college-age children, run an integrated cattle and cropping enterprise on the outskirts of Bismarck, North Dakota. Sounds quite typical so far? —there's almost nothing ordinary about it. Gabe has been a longtime practitioner of planned (rotational) grazing in cells or paddocks. Most of the crops he plants are for grazing or forage. He double-crops (this is central North Dakota!). He cover-crops. He plants *mixtures* of species for grazing and covers. He grows things you've never heard of. And he's always—*always*—looking for any way to make more profit with less investment (of time or money).

Photo by Jay Fuhrer

Gabe's corn into killed alfalfa. Manure that was spread a few months prior has decomposed already. The corn can be harvested for grain or several types of forage. Lots of options, just the way Gabe likes it.

Contents

“Something in common that is the soil is uniting us. It is a new concept that we are trying to introduce: to treat the soil with more attention, a little bit friendlier, to dedicate time to it and to study it much more. The soil requires our attention, not only there is in the soil the possibility of extracting nutrients and food that requires the human being. That is one of the functions that it should have, but we have to take care of it, because it is a natural resource considered renewable and there is our mistake; we have treated the soil like a transitory tool that produces, without considering that it may be exhausted when it is wrongly treated”.

Carlos Crovetto

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