



Taking a Can-Do Approach With YOUR No-Till Farming System It is really about YOU!

Thomas E. Oswald
Cleghorn Iowa 51014





A Number to Ponder!

6600





Oswald Farm

We don't no-till because we have to...
it is how we CHOOSE to farm.



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Cleghorn Iowa



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The trees you see were planted!



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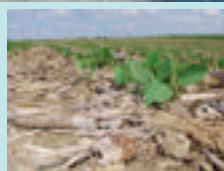


Tom and Susanne Oswald





20th Anniversary Gift



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So let me tell ya a story



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by the American Farm



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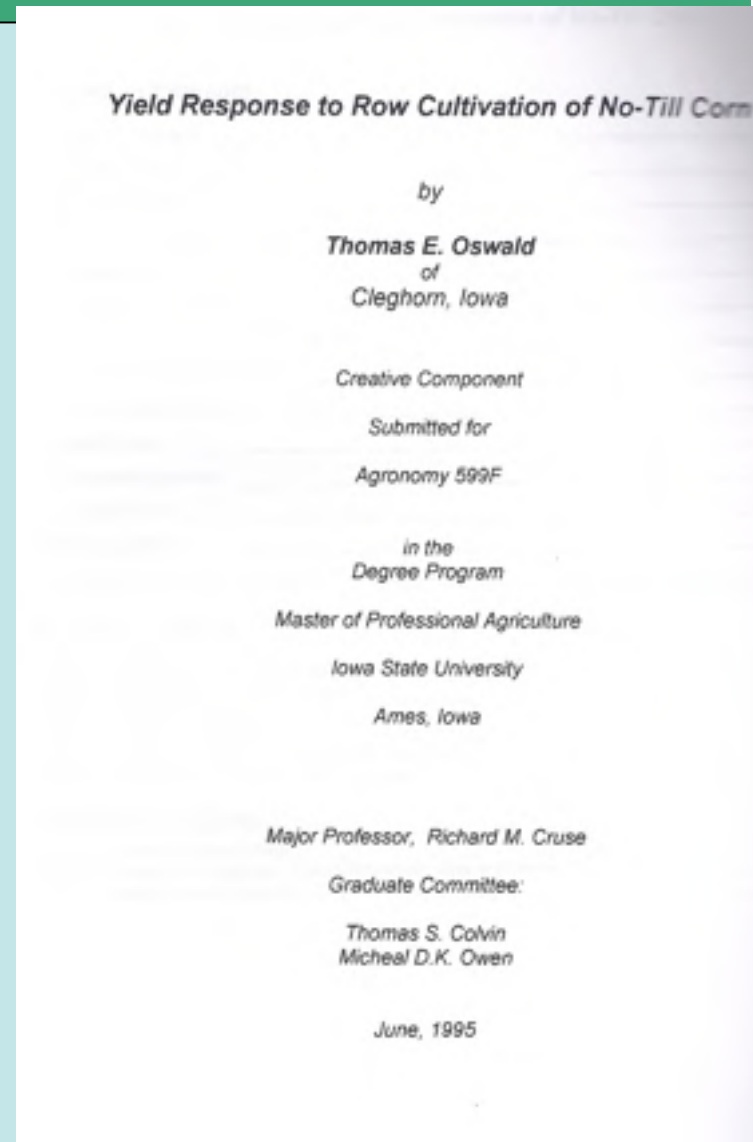


Master's Degree 1995

Yield Response to Row Cultivation of No-Till Corn

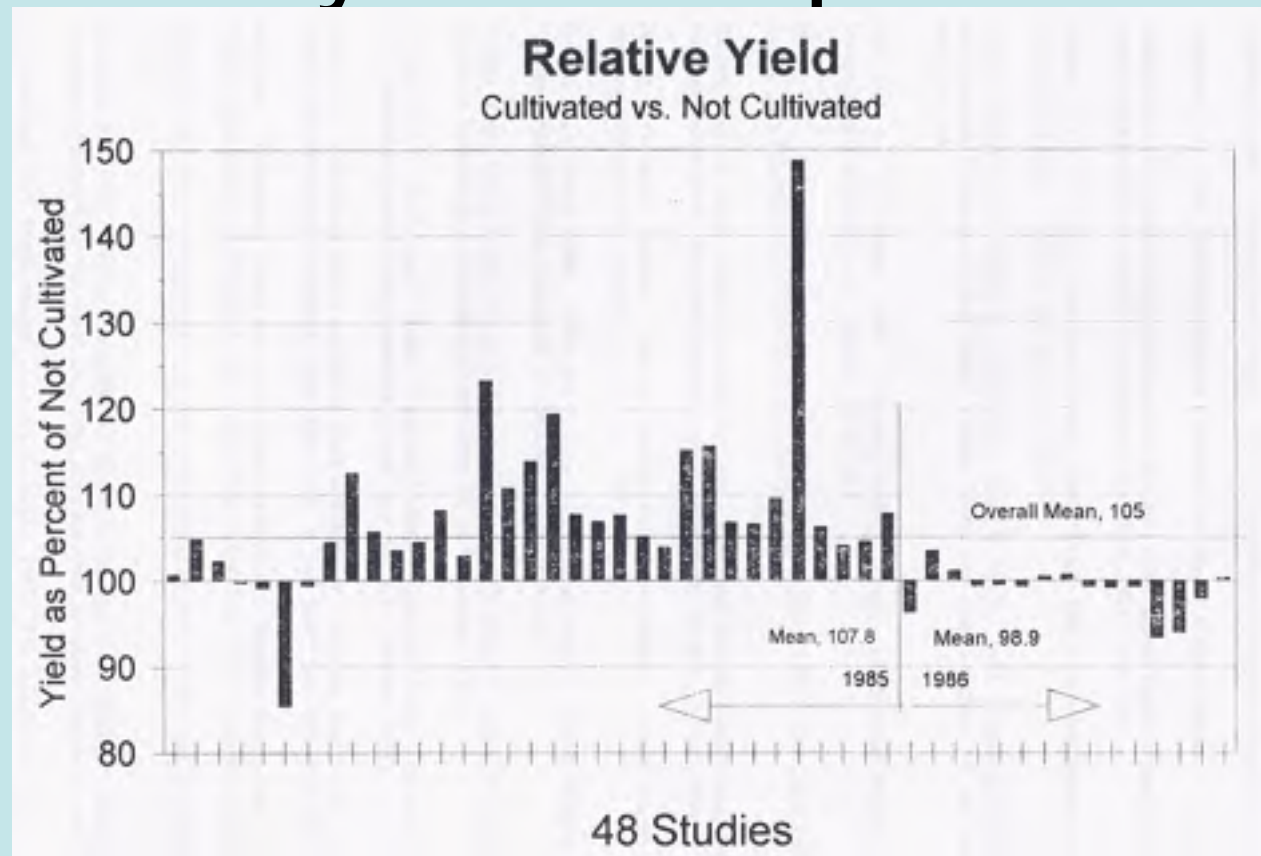
Looked at tillage, weed control, soil effects from tillage, and other factors in the field and in literature review.

Early 1990's





Why the Response?





Guiding Concepts Learned over Time and Study

- Tillage is Temporary
- Tillage begets Tillage
- Temperature Management outweighs tillage
- Mother Nature is a No-Tiller
- More Roots – Less Iron





Tillage is Temporary

What our tests taught us

■ Probably the most important lesson to be learned from our intensive year-long study of subsoiling is that the benefit is wiped out the very first time you drive machinery across the field. Airporosity readings taken before and after wheel traffic show that field trips actually compressed the soil tighter than it was before anything was done.

That means subsoiling must be accompanied by controlled traffic in the field to preserve improvements. "Whenever possible, your equipment should be set up so the tires follow the same track across the field," says Randall Reeder, Ohio State University ag engineer. "You might also try to reduce axle loads."



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**Strip Till Corn/Corn
2007**



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Case/IH 1200 Semi-Mounted Stacker Planter



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Our Friend the Earthworm



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4' Deep Earthworm Holes





4' Deep Earthworm Holes



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Where Do You Want to Go?

- What Does Success Look Like For YOU?



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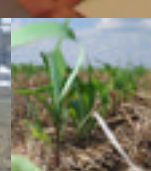
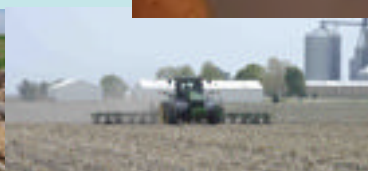


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- Understand the guy in YOUR morning mirror.
- What does it take to make you confident?
- How do you handle challenge and change?
- How do you make decisions?



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Surprises Happen



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“Man’s Got to Know His Limitations”

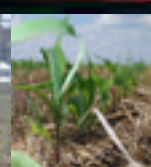
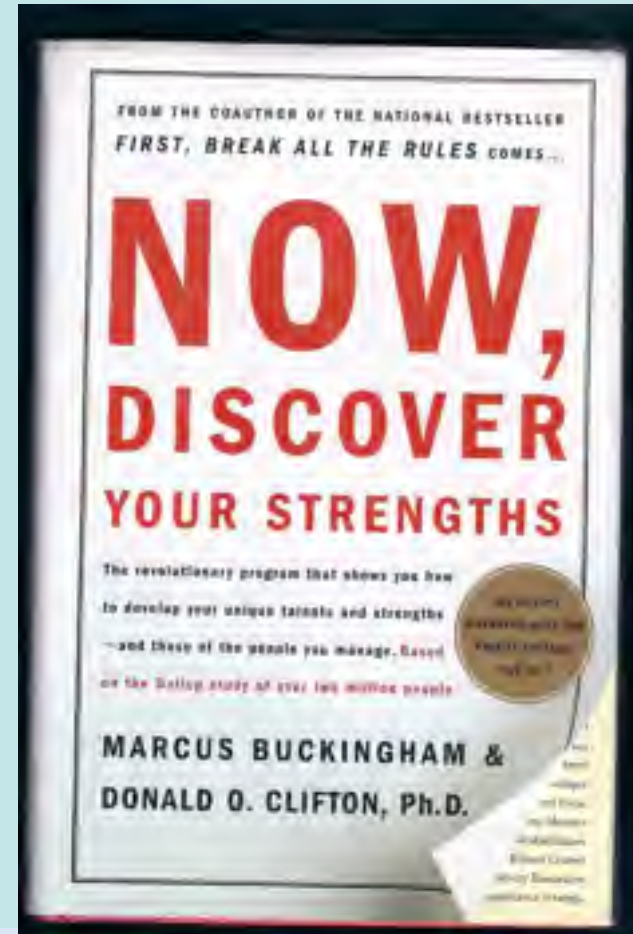
“Dirty Harry” Callahan
Clint Eastwood





What are YOUR Limitations?

- Most large businesses have some form of personnel management and personality profiling.
- Industrial psychology is big!





Pro/Con of No-Till

What do you CHOOSE to focus on?

- Pro Positives
 - More Yield
 - Looking for Challenge
 - Less Time
 - Less Fuel
 - Less Erosion
 - Gov't Payments
 - Better weed control

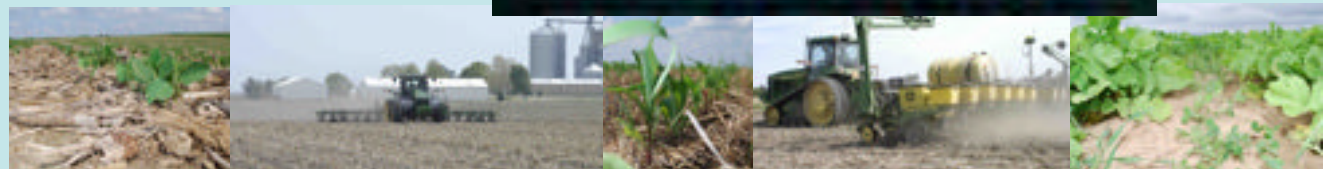
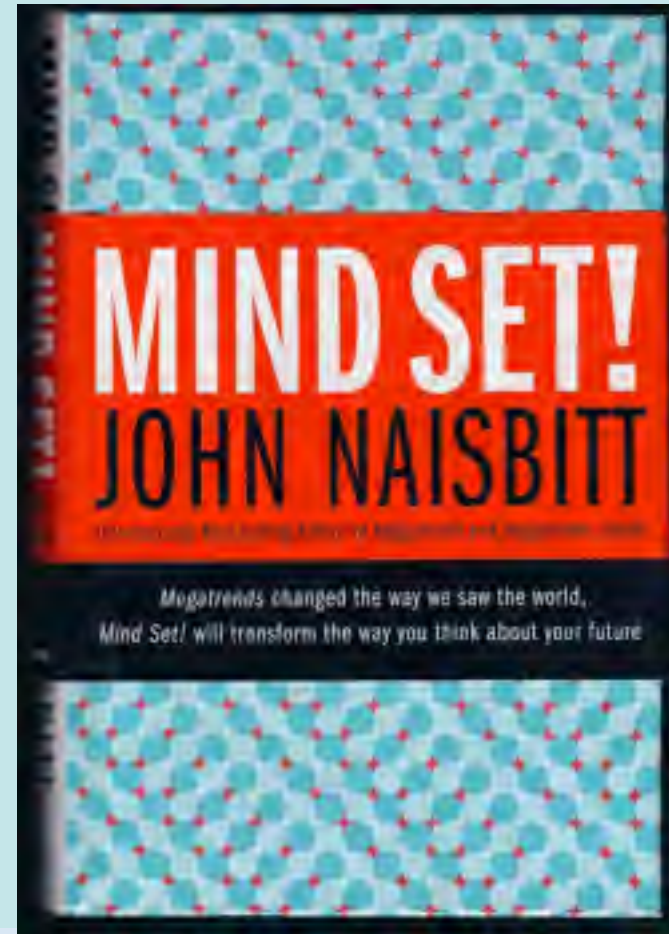
- Con Concerns
 - Yield Less?
 - Equipment
 - Knowledge
 - Wet soils
 - Fertilizer
 - Manure Plan(s)
 - Weed Management





It's All in Your Head!

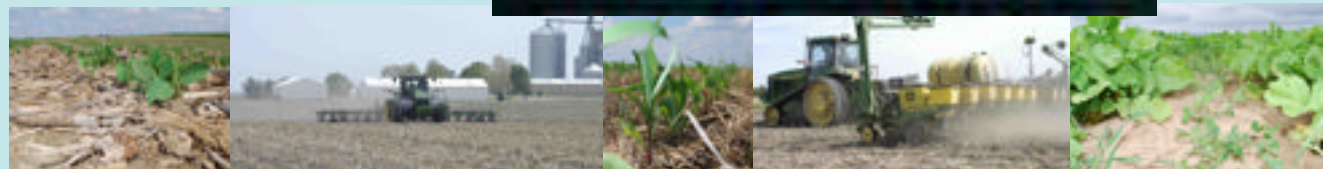
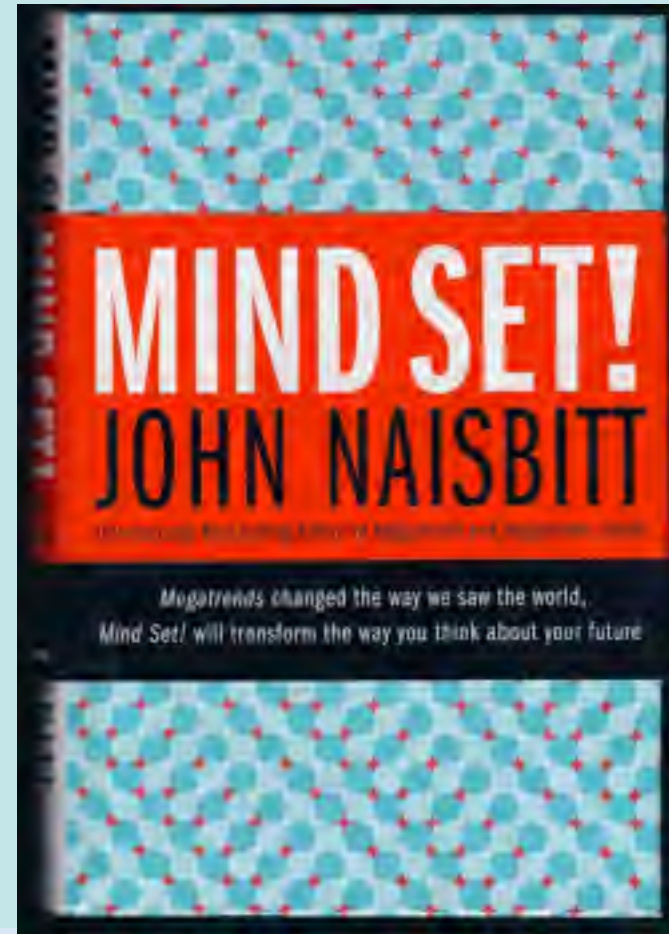
- Most things remain constant even when many things are changing.
- You don't **HAVE TO** be "right".





It's All in Your Head!

- See the future as a picture puzzle.
 - Look at things from different angles
- Things we expect to happen always happen more slowly than expected.



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Some Headlines Repeat..Not All

The Great Land BOOM

"We bid up a megalomaniac \$0 to \$1,100 an acre and bought it. But it may have been the dumbest thing we ever did," says an Indiana farmer. "It set a new standard, probably too high, for land in our area."

You see the situation the farmer describes being repeated all over the country as land prices soar to record highs.

Farm real estate values jumped 11% from March 1, 1972 to March 1, 1973 (latest USDA figures).

About 55% of all farmland being sold today—and remaining in production, grain and equine use, and farmer buying and selling. Thirty percent goes to buyers who continue to operate the land as farms. And 15% is bought by part-time farmers.

Still a good buy. The soaring line in many minds is whether land has gone so high as to be a poor investment. The evidence indicates otherwise.

Back in 1968 we carried a story titled, "Is \$200 an-acre land too high?" The conclusion we drew at

that time was that \$200 was not too high for first-class corn and bean ground when you considered intense plus inflation.

Though it has to be temporary, we're now in a new economic climate in agriculture that's making \$1,000 ground look good.

All you have to do is multiply \$2 corn and 36 bushels times 130 and 40 bu. per acre to come up with gross volume per acre your banker would have put you in a straitjacket 2 years ago but even mentioning is almost counting on.

Overvalued. "Our pastureland was underpriced by \$50-\$150 an acre not long ago," says Harry Lampher, agricultural representative, Tractor Trust Co., Trenton, Missouri. "It was \$200 now has gone to \$300," says Lampher.

The boom in Midwest land prices is partly responsible as customers scramble to get land to increase herds.

Long-term outlook. Robert D. Hainzel, USDA economist says, "It seems unlikely that the current high annual increase will be sustained for very long, but it does seem reasonable to expect the rise in land values in the next few years will at least match the long-term trend."

With higher rates, we could see some reduction in demand and a slow rise in land values.

On the other hand, if livestock and crop prices remain strong well into 1974, land price increases could match this year's increases," says Hainzel. **EN**

SOARING FARM LAND PRICES

Percentage Increase March 1972 to March 1973

Salem refreshes naturally!

Naturally grown menthol.
Rich natural tobacco taste.
No harsh, hot taste.

Warning: Quitting now will seriously reduce the risks to your health. © 1973 Philip Morris Inc.





Yesterday and Today?

More Precise Planting



Big Equipment will be tough to get with production sold out six months ahead.

want when you need it next year.

In farm machinery, big equipment will be the toughest to get. "Our big tractor production is sold for the first six months of 1974," says one machinery maker, "and so are our combines."

Most manufacturers have been stepping up capacity over the last year—some by as much as 60%. Others have started building new plants and most are working overtime to catch up with demand.

Supplies of gasoline and diesel fuel will continue





What's Old is New Again

1974 Successful Farming



Make the most of it with Pioneer yield power

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BRAZIL COMPETES FOR U.S. CORN, SOYBEAN MARKETS

Brazil wants to grab a big chunk of our foreign corn and soybean market. Some of our best world customers are helping her whip one of her main obstacles to foreign sales—getting grain from farms to ships. **Transportation costs decreasing.** Huge foreign investments have poured into Brazil's new "Export Corridors Program." The program is a cooper-

Soybean crop increasing. While their crop is comparatively small, Brazilian soybean production has been zooming. The crop rose from 2% of U.S. output in 1968 to 10% in 1972. The '72 crop was five times the '68 output, and 1973 production jumped roughly a third. Brazil wants to triple soybean output again by 1980.

Big Brazilian crop increases could



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Old Yet New 1940's

● ... the science of hybridization has been called one prairie.

CORN - - OLD YET NEW

When the first white settlers came to America, they learned from the Indians how to grow corn. Finding this new grain to be both nutritious and tasty, they soon discovered also that it was particularly well adapted to agricultural conditions in the new world. In a new land, with the tools and practices then prevailing, men produced more nutriment per acre than any other grain. So these first-comes adapted it with enthusiasm and those who followed carried its culture across the continent.

Conditions have changed pretty steep since those days. The land has been tamed. Agricultural practices and machinery have made tremendous advances. Yet through it all, corn has held its place as America's major grain crop. Wherever corn may be grown on this continent, there is scarcely a farming community that does not include it among the regularly planted crops. Approximately a fifth of all the agricultural land in the United States is used for growing corn — an extraordinary percentage what our forefathers

● These steps in corn handling. 1) Corn entering grass land. 2) Decorticating mill. 3. Pulp mill. 4. Filters. 5. Starch tables. 6. Etc.





Old Yet New 1940's



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Change Comes Slowly

1953 Till Planter

Planters and Grain Drills — From Broadcast to Precision

The statement, "Prepares the seedbed and plants in one operation," summarized the M-21 and M-21 Till Planter capability. The system reduced soil erosion by leaving a protective surface mulch. The till planter was based on extensive research of the time and represented progress for soil conservation. The M-21 planter was released in 1953 for the M tractor family and later the 400 tractor. The high horsepower requirement per acre and the lack of effective grass and brushland control kept the till planter from becoming accepted commercially. However, decades later the same objectives could be achieved by different means.



IH Equipment for Soil Conservation

International Harvester Inc., committed to IH employees worldwide, commemorated the activities of IHC in promoting soil conservation in its April 1947 issue. One article in the issue announced the appointment of Russell R. Payne to the newly created position of Agricultural Engineer in Charge of Soil Conservation. This appointment coincided with the first public demonstration of the M-21 till planter concept he had developed while working in the engineering department at IHC's Canton Works. This machine could plant two rows of corn or soybeans directly into soil or crop residue with no prep tillage.

down chisel and secondary, secondary grass and broad leaf herbicides were not developed. Only a few of the 50 units were retained. Several M-21 till planters were given to grant universities to encourage research in new methods of erosion prevention. One such incorporation of the M-21 till planter was in the till planter, the first continuous system selected area.

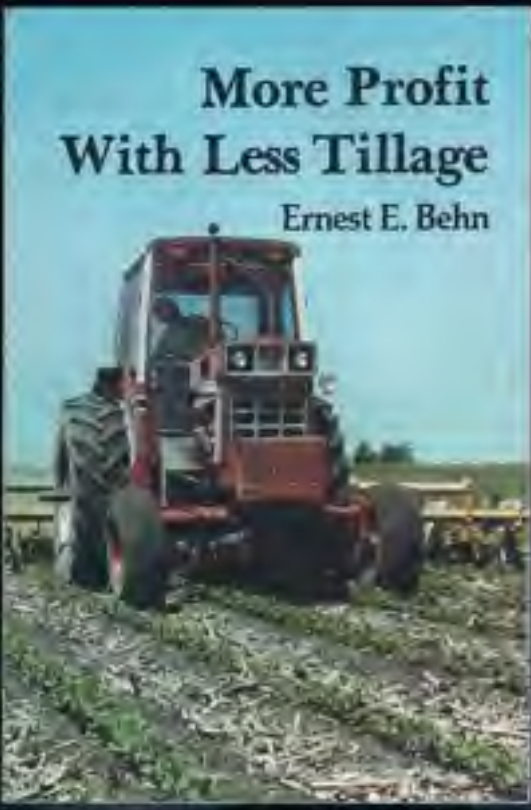
Bigger Tractors — Bigger Planters

With the more powerful tractors available in the market after World War II, farmers began

Late 1970's Ridge Till

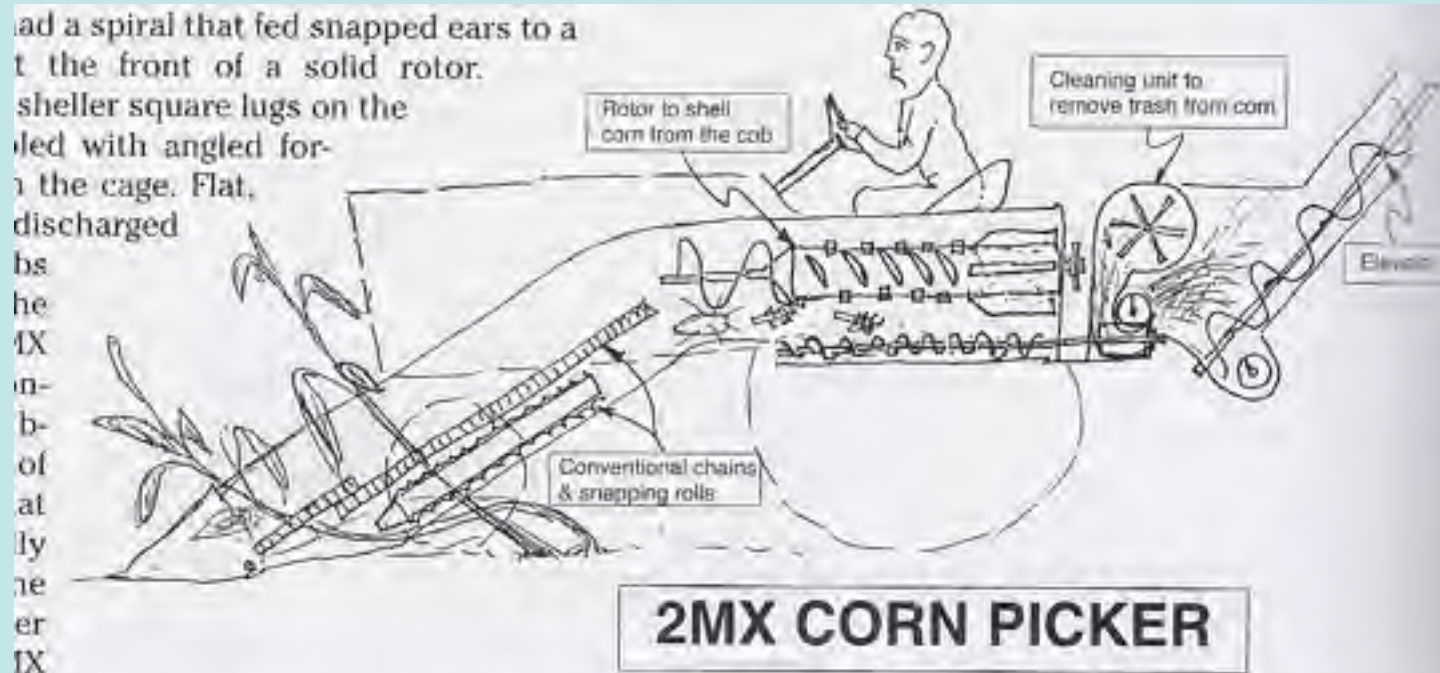
More Profit With Less Tillage

Ernest E. Behn





1962 Twin Rotor Corn Harvest

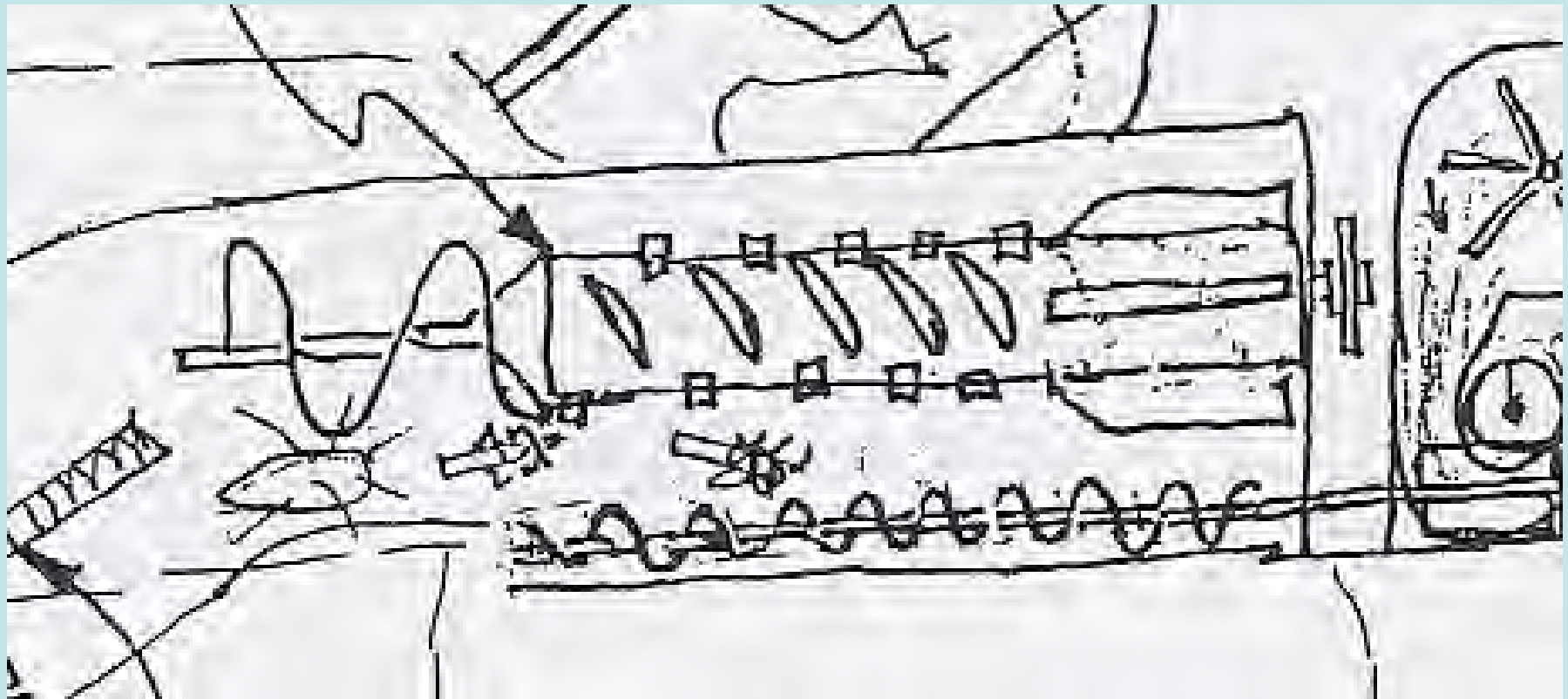


An engineering sketch of the 2MX tractor-mounted, 2-row, twin-cylinder corn picker/sheller exhibits the elements incorporated in the eventual Axial-Flow rotor: up-front feed spiral, tapered cone cylinder transition, solid cylinder rotor, angled forwarding vanes and flat, radial discharge paddles at the rear of the rotor. This sketch was made from an assembly blue print believed to be the only remaining documentation of the 2MX.





Look Familiar?



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Combine of the Future, circa 1976



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1991 Farm Industry News

Subsoiling: To Till or Not to Till?

If memories of big tires squishing through muddy fields last spring are creating compaction concerns, subsoiling may be on your mind for fall. But varying reports from several sources are fueling a deep-tillage debate.

Research results from several Midwestern universities have cast doubt on subsoiling's value for Cornbelt fields. Yet some farmers are convinced it works and have made it an important part of their tillage programs.

Maurice Strupp and his sons, Mike and Larry, routinely subsoil

A wet planting season, combined with a wet harvest, could make fields prime compaction candidates for subsoiling this fall. But what does it take to justify this extra trip?

Scott says a major benefit is more uniform crop growth. All the roots in a field seem to have better access to moisture and fertility, he observes.

So where's the debate?

Soft scientific support

Some scientific comparisons with normal tillage have shown yield increases with subsoiling, particularly in the southeastern states. But research in the Cornbelt has been less conclusive. University testing in Minnesota, Nebraska, Iowa, Illinois, Indiana and Wisconsin indicates little positive return from subsoiling. In some cases there





1991 Soybean Digest





Build A Set of Guiding
Principles to Navigate the
Noise
Build Flexibility and
Sustainability into YOUR
System





Guiding Concepts Learned over Time and Study

- Tillage is Temporary
- Tillage begets Tillage
- Temperature Management outweighs tillage
- Mother Nature is a No-Tiller
- More Roots – Less Iron





MOTHER NATURE IS A NO-TILLER!

Soils Form in ABSENCE of Tillage
Adapted Plants Grow JUST FINE!
Tillage is a Catastrophic Event





Mt. Desert Acadia Nat'l Park



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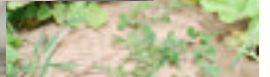
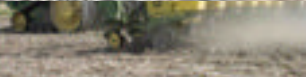


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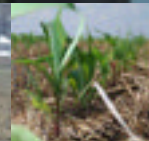
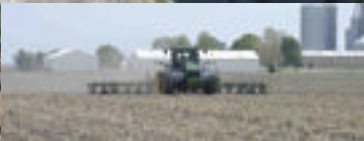


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Field Research

- It is NOT about the ANSWER... It is about the NEXT question....WHY?
- Data will tell you anything you want to hear if you torture it enough!





On-Farm Network

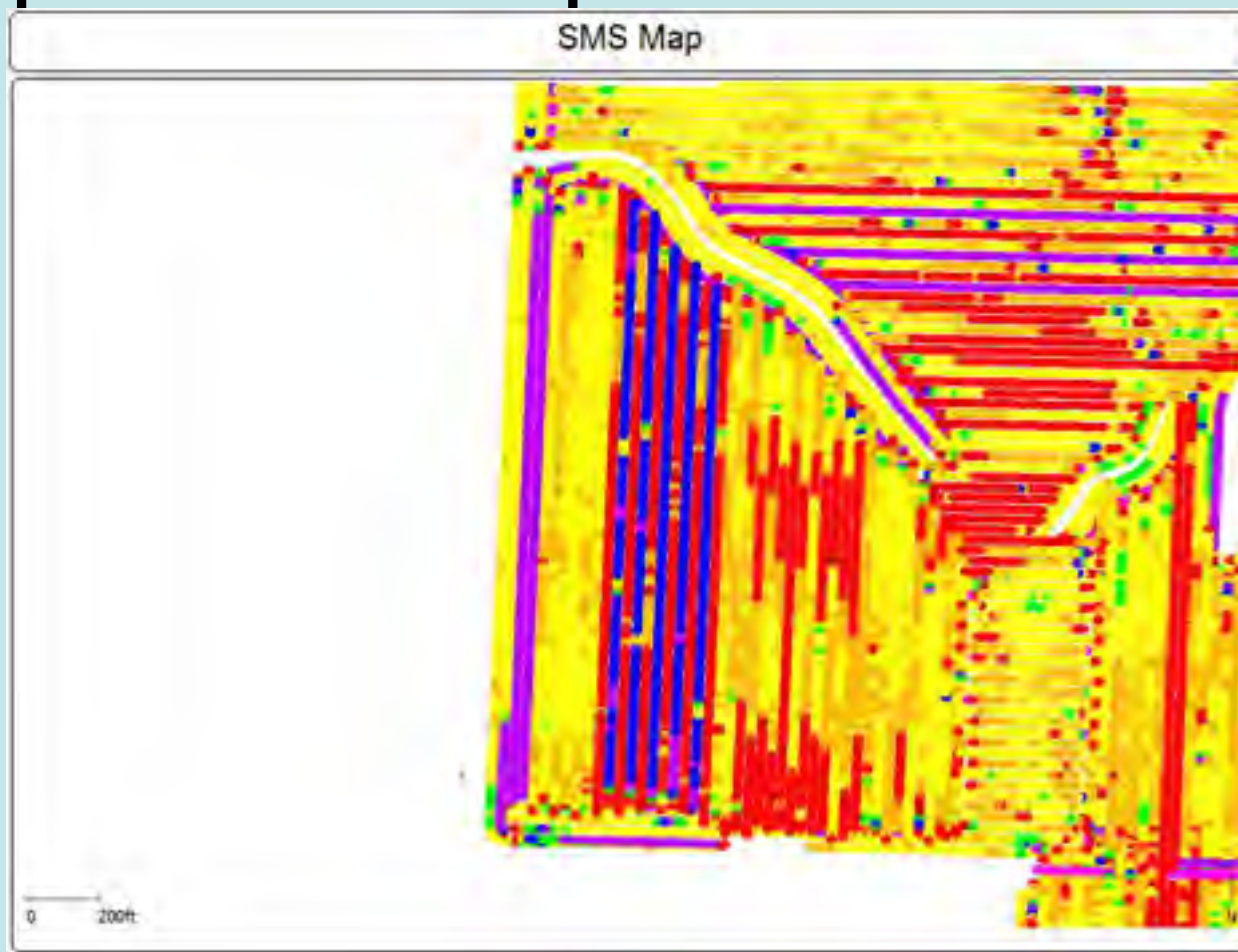
<http://www.agtechonfarm.net/>

- 10 states headed for 11
- GPS-Yield Monitors
- Scientifically supported methodology
- Value in pooling data
- Helps to calibrate practices locally!



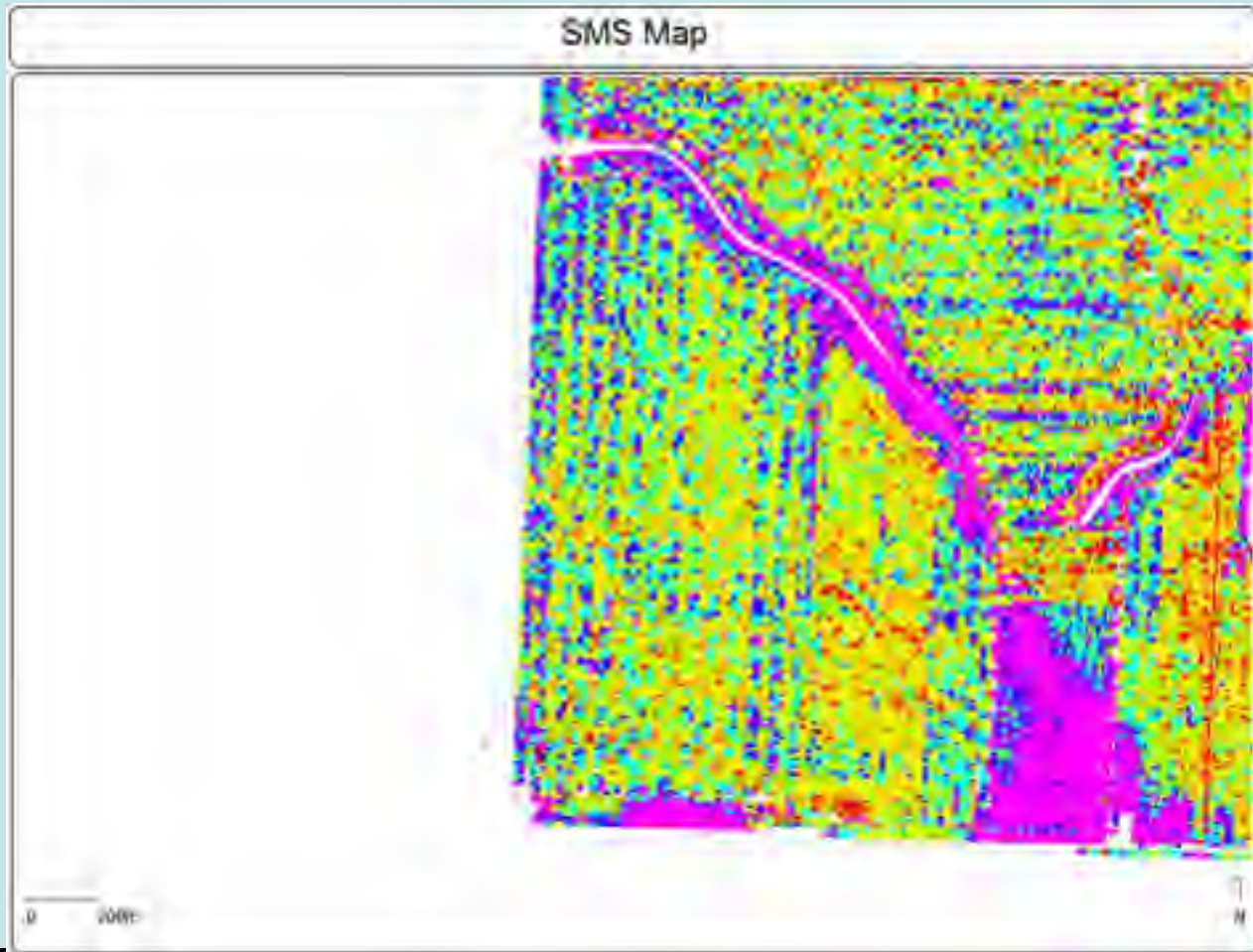


Replicated Strip Trials Fertilizer





Replicated Strip Trials Harvest



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Headline Study





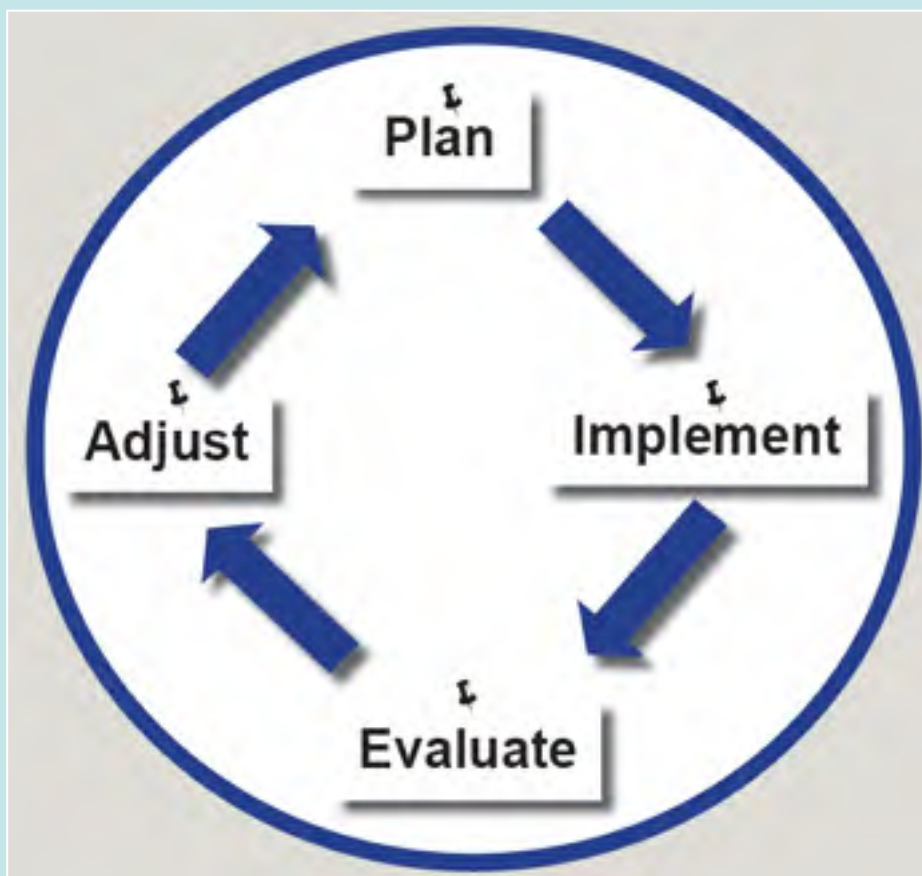
Statistics

- Replicate, Don't Average to Check
- Variation of the Check vs. Treatment
- L.S.D. is for Close Calls
- Liars can figure especially if they have something to sell.





Adaptive Management Model





Summary

- Know Yourself
- Build Guiding Principles
- Build Confidence through Research, Study and a Network of People
- Change is Good and doesn't have to be feared as it doesn't always happen fast





Michelangelo

- The greater danger for most of us lies not in setting our aim too high and falling short; but in setting our aim too low, and achieving our mark.

You paint your future with your BRAIN,
not your hands (paraphrased)



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May YOUR path not be too rocky





Credits

- Some information in the presentation was scanned from the following sources.
- No-Till Farmer Conservation Tillage Guide
- Farm Journal
- Successful Farming
- Soybean Digest
- New Idea corn publication
- IHC History to 1985 book

