



New Technology Improves No-Till Farming

Randall Reeder, Ag. Engineer



Word of the Year

Word of the Year for No-till

PRECISION

More Words for 2026

AI (Artificial Intelligence). Soil Health.
Autonomous. Cameras. Biology.
Resistant Weeds. Cover crop mixes.
System. Regenerative. GMO.
IF and VF Tires.

Driving (17-18 mph)

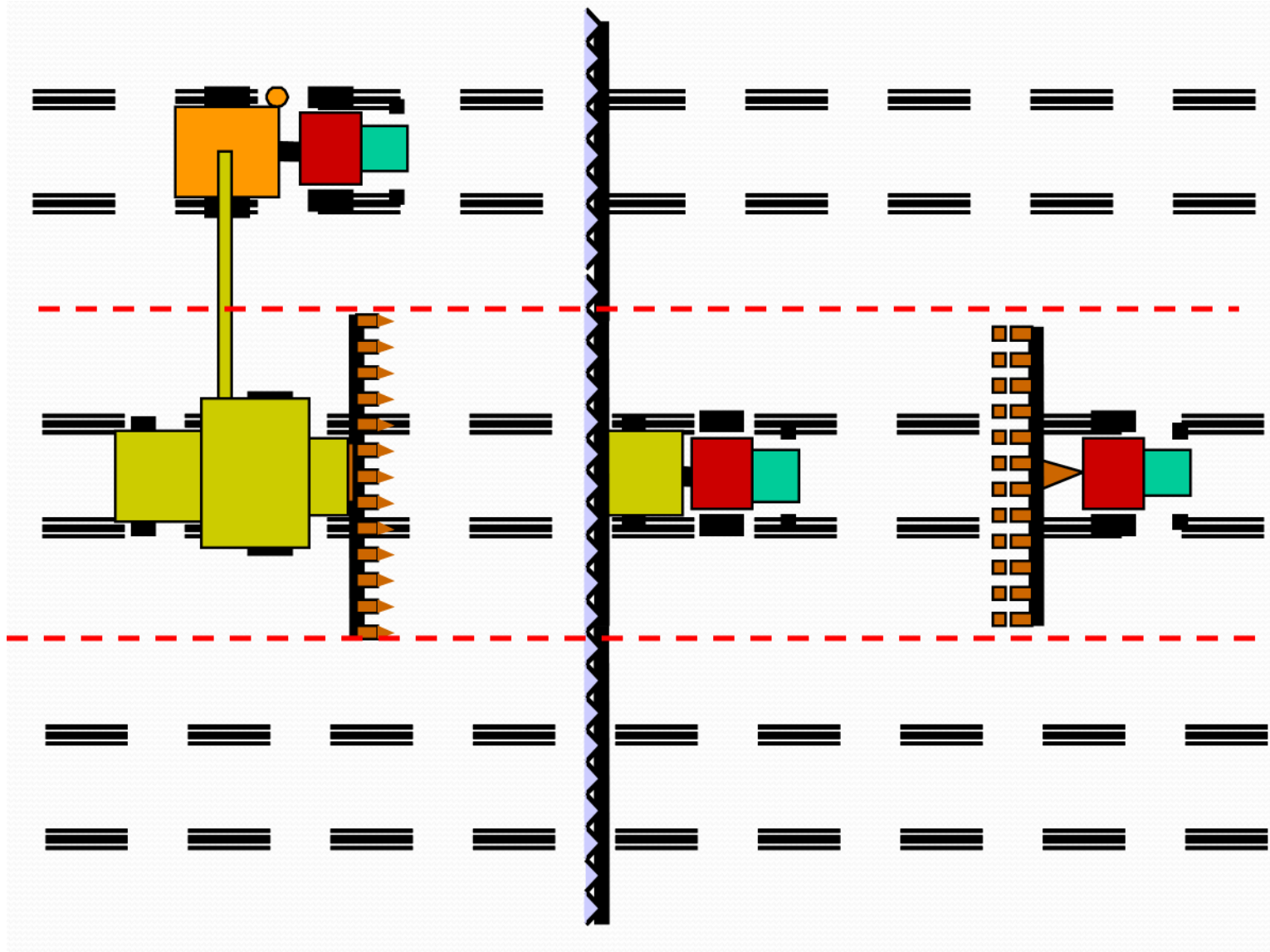
Planting seeds precisely

Injecting fertilizer

Spraying weeds

Precision

Precision Traffic



Autosteering.

2026 Standard equipment on big tractors
and combines

Autosteering.

2001 Add-on cost **\$50,000.**

Soil Compaction. Tires vs. Tracks



Tires vs. Tracks

JD 8870 compared to
CAT 65 and CAT 75

From Worst to Best

JD with 710/70R38 duals	24 psi
CAT 65	25 in. belt
CAT 75	35 in. belt
JD, 710/70R38 duals	7 psi front, 6 psi rear

Soil Compaction Tires, Half-track



Compaction Rank

Combine Tires and half-track

From Worst to Best

30.5 L32 Singles	34 psi
Half-track	avg. 10 psi
18.4 R38 Duals	26 psi
68 x 50.0-32	24 psi
68 x 50.0-32	15 psi

A green John Deere 9600 tractor is shown in a field. A person is standing next to the tractor, providing a sense of scale. The tractor has large, treaded tires and a yellow wheel rim. The number '9600' is visible on the side of the tractor.

Conclusions

1. Tires can provide the same protection from excessive compaction as rubber tracks.

. 2. Compaction under heavy loads is in relation to the inflation pressure of the tires.

Lower pressure equals less compaction.

Central Tire Inflation System (CTIS)



Tires

Bias

Radial

IF (Increased Flexion) (20% lower inflation pressure)

VF (Very High Flexion) (40% lower inflation pressure)

Robot Tractors

- 10 robots (50 HP)

1 500HP tractor

Cameras

Cameras



Autonomous Tractor



John Deere See & Spray

120-ft Boom 36 cameras, 10 GPU Processors



Sprayer Technology

Boom section or individual nozzle shutoffs...
less chemical, no double application. Drive
across grass waterways (saving time)

Camera technology. Only spray the weeds.
(Reduce chemical use by ~50% to 70%)

New nozzles, reduced drift

Sprayer Technology



Drones



Spraying

Seeding Cover Crops

Mapping

Planter technology

- Automatic down pressure
- Chain drives... electric
- Bulk handling
- Row shutoffs... no double seeding
- Variable rate seeding
- **Buy less seed with precision planting

soil moisture

Planter Technology

Row cleaners.

Combines



A.I.

In 2001, what did A.I. mean?

In 2026...

A.I. ChatGPT

From a photo of plant leaves, Identify plant species, disease, and offer solutions.

Fertilizer recommendations, based on thousands of research results.

No-Till SYSTEMS

CONTINUOUS No-till

Cover-Till Systems

Crop Rotation/Diversity

Cover Crops



Soil Properties

Physical
Soil Biology
Chemical

Biological

Regenerative

Grain Bin Safety and Grain Quality



Paddle Bin Sweep
(Safer than an Auger)

Grease Storage & Elimination (Sly)em

2000. Roundup Resistant Weeds. = 1

(More Start) 2025(6) to 2025(6)

2000 Martin Row cleaners, floating

2025. ~10 models

2000 Kodak film, slides

2025. Digital,

Smart Phones

2025: Degenerative tillage

~~More. What's biological 2025(6)~~

2025=Biologicals for crop protection.

Pam Marone, “by 2040, biologicals market will equal the chemical market for crop protection.”

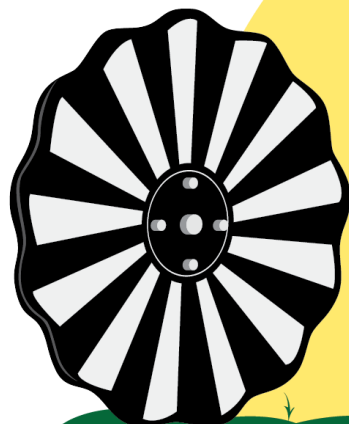
Take Home Message

Equipment & technology breakthroughs maximize the economic & environmental benefits of no-till.

**(Sponsored by Precision Agri Services.
Owner: Bill Lehmkuhl)**

Word of the Year for No-till

PRECISION



34th Annual
**NATIONAL
NO-TILLAGE
CONFERENCE**

January 6-9, 2026 • St. Louis, Mo.

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