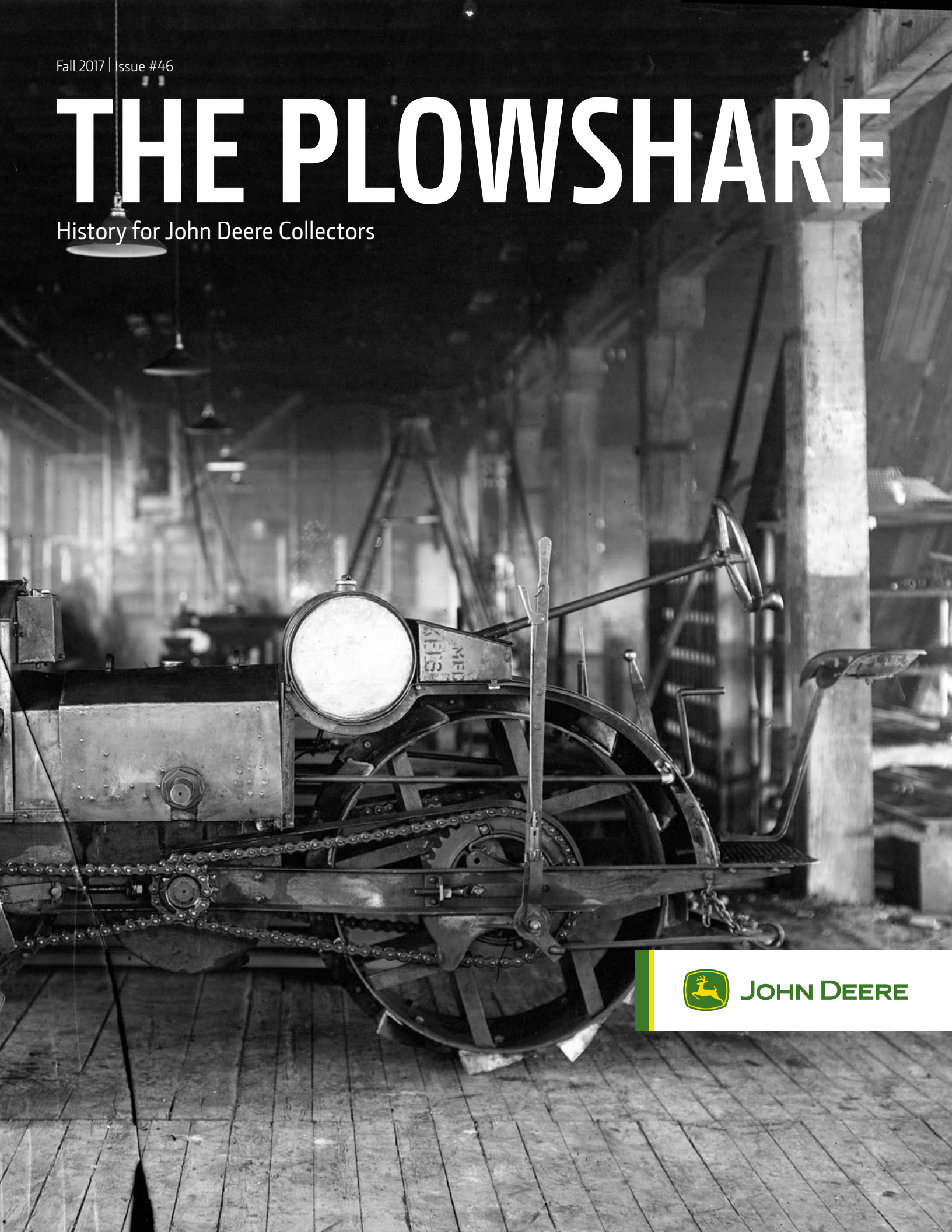
Fall 2017 | Issue #46

# THE PLOWSHARE

History for John Deere Collectors



JOHN DEERE


# Welcome to the September Issue

Tractors on the brain! With the event season in full swing, we just can't get enough. One of the best surprises of summer is seeing the trailers full of green and yellow tractors and equipment crisscrossing the highways on their way to shows across the country. It's a great reminder that Deere tractors are known for their durability, and have been from the beginning.

From 1912-1918, John Deere invested more than $250,000 in tractor development. This is a significant investment for a company which, in 1913, had total sales of $30 million. These experimental tractors, for which we have tantalizing clues regarding their form and function, are still somewhat mysterious over a hundred years later. One in particular continues to draw interest—the All-Wheel Drive. You may better know it as the Dain. In our ongoing research, we continue to complete small pieces of the All-Wheel Drive puzzle. We share those insights in this issue.

We have also been thrilled to see some of you in the field this summer—both at the Land of Lincoln Expo in Carlinville, Illinois, and the National G Reunion in Greenville, Illinois. These were great opportunities to get your feedback about all things history. The Plowshare relies on the suggestions of our readers, so if you've not told us what interests you, send us an email at history@johndeere.com. You'll see some of the results on our new history pages at www.deere.com/history.

Keep your ideas coming!

**NEIL DAHLSTROM**
*Manager, Corporate Archives & History*

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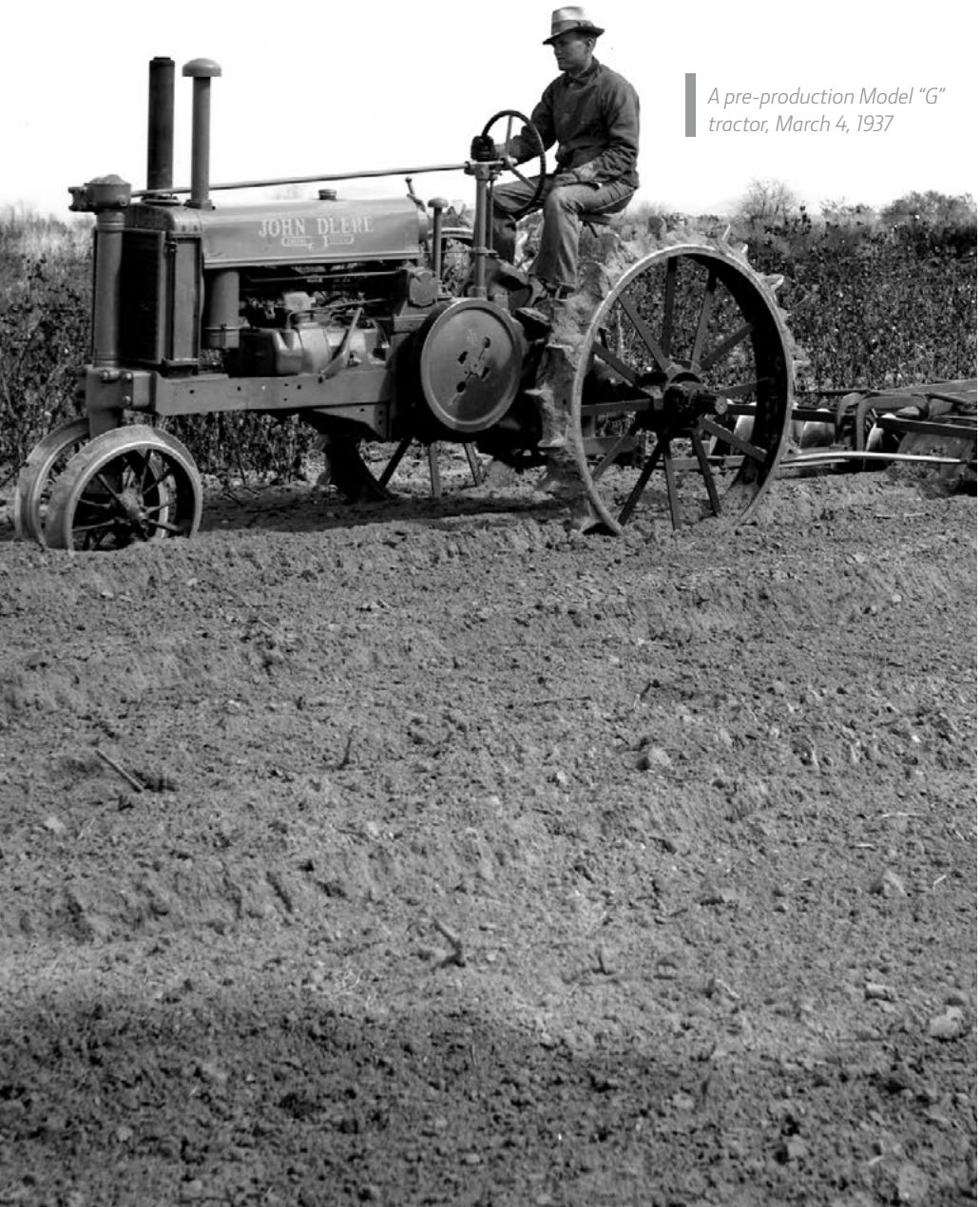
# Model "G"

## *MORE POWER FOR ROW-CROP FARMERS*




*A pre-production Model "G" tractor, March 4, 1937*

This summer the John Deere collector community marked the 80th anniversary of the Model "G" tractor. Perhaps less celebrated by the casual observer than other early models, the Model "G" marked a transition in tractor development. Its production run, from 1937 to 1953, also spanned some difficult times, with development beginning during the Great Depression and production continuing after World War II.

In the early 1920s, when tractors were still a rarity on American farms, a shortcoming was a lack of versatility. Tractors could be used to prepare the soil for planting, but many tasks still required horses to complete. This changed in 1924 when International Harvester released its Farmall tractor. With a high rear axle and tricycle design, the Farmall addressed the needs of a row-crop farmer.

John Deere responded with its first "General Purpose" tractor, the Model "GP," in 1928. A few years later, Deere released its first true row-crop design in 1934 with the Model "A" and its smaller counterpart the "B," in 1935. These tractors placed the company on a solid foundation within the industry.

The Model "G" was designed initially to meet customers' demands for more power from a row-crop tractor. Production of experimental Model "G"s began in 1935 with an estimated ten tractors named the "KX."

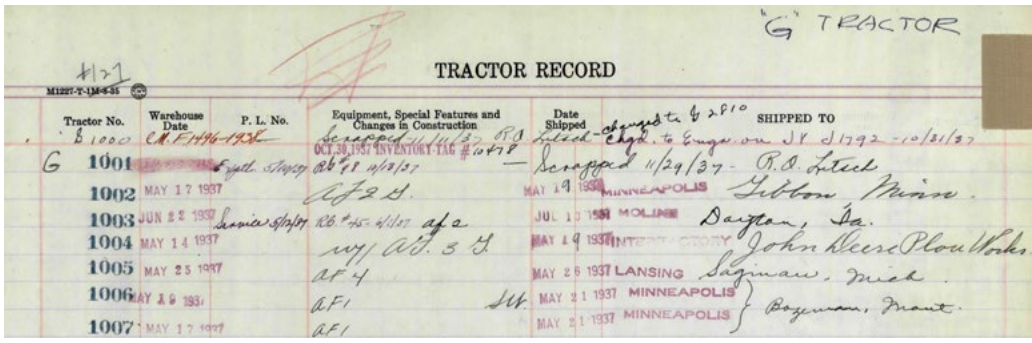
The tractor was initially dubbed the Model "F," but Frank Silloway, Deere's Vice President of Sales, urged a name change to avoid confusion between this tractor and the International F-30.

On January 16, 1937, John Deere issued an internal memo introducing a new tractor intent on meeting "the needs of larger farms requiring a general purpose tractor having greater power at both the belt and the drawbar than that available from the Model "A."

The first Model "G" was probably built in May 1937, but its exact build date is unknown. The serial number, G-1000, was scrapped and became G-2810. The second "G," number G-1001, was built on May 10.

The next few years saw many changes to the John Deere row-crop tractor line. The Models "A" and "B" were "styled" by renowned industrial engineer Henry Dreyfuss. They were also equipped with larger engines and six-speed transmission. The Model "G," on the other hand, had to wait.

Newly enacted regulations as a result of the United States' entry into World War II in December 1941, prevented Deere from raising prices to offset the costs of research, development, and production. In February 1942, an internal memo announced the release of a modified, or modernized, Model "G." The new tractor would be built, "to better distinguish the improvement made in the Model 'G' Tractor beginning with the serial number G-13000…we will change the model designation from 'G' to 'GM'."


"G" TRACTOR

TRACTOR RECORD

| Tractor No. | Warehouse Date | P. L. No. | Equipment, Special Features and Changes in Construction | Date Shipped | SHIPPED TO |
|---|---|---|---|---|---|
| G 1000 | | | Scrapped 11/29/37 RD | | Changed to Engine on J# 1792 - 10/31/37 |
| 1001 | | | OCT. 30 1937 INVENTORY TAG # 10478 | | Scrapped 11/29/37 - R.D. Litsch |
| 1002 | MAY 17 1937 | | | MAY 19 1937 MINNEAPOLIS | Gibbon, Minn. |
| 1003 | JUN 22 1937 | | | JUL 13 1937 MOLINE | Dayton, Ia. |
| 1004 | MAY 14 1937 | | | MAY 19 1937 | John Deere Plow Works |
| 1005 | MAY 25 1937 | | | MAY 26 1937 LANSING | Saginaw, Mich. |
| 1006 | MAY 19 1937 | | | MAY 21 1937 MINNEAPOLIS | Bozeman, Mont. |
| 1007 | MAY 17 1937 | | | MAY 21 1937 MINNEAPOLIS | |


*The Model "GM" on skeleton wheels pulling a Killefer scraper, October 1942.*

# The "GM" would be the last series to be styled.

*Roll-o-Matic, shown here on a Model "B," was available beginning in 1947.*


It would also receive numerous other updates including electric starting, lights, and a 6-speed gearbox, among others. But as the war continued, raw materials like rubber and steel became increasingly difficult and more expensive to acquire. Model "GM" production was suspended in September 1942, just a few weeks before the War Production Board froze the sale of all tractor and farm machinery. The "GM" would not be produced for another two years.

With the conclusion of World War II, the "GM" returned to the John Deere production line. In September 1946, to ensure consistency with the other single-letter designations, the "GM" reverted back to the Model "G." Additional front end options like the Roll-o-Matic were available, as well as a number of front wheel options like the single front-wheeled "GN" and the adjustable "GW."

In late 1947, the Model "G" was updated to the "late styled" versions which included a cushioned seat with a battery box.

The demand for the tractor had also expanded beyond traditional Midwest row-crops, leading to the creation of the "GH" or hi-crop tractor for sugar cane and vegetable farms requiring a tractor with a high clearance. The last Model "G" was built in February 1953, and shipped to Greene, Iowa, about 50 miles north of Waterloo. A few months later the "G" would officially be replaced by the Model 70 as John Deere's largest row-crop tractor.

# ON THE ROAD WITH THE JOHN DEERE ARCHIVES

*The John Deere Archives hit the road this summer, much to the delight of Midwest collectors.*

Historical equipment manager Brian Holst attended the Land of Lincoln Expo in mid-June in Carlinville, Illinois, bringing with him, a rare find: the experimental 101 Tractor, from the John Deere Archives collection. The tractor was designed by Theo Brown, manager of Deere's experimental department, during World War II.In addition to answering questions from interested visitors, Brian also presented "John Deere and the Men that Moved the Company," an exploration of ten individuals who had an influence in either the direction of John Deere, or the products the company produced.

In late July, Deere participated in the National Model G Reunion in Greenville, Illinois. In conjunction with the Heritage Days show at the American Farm Heritage Museum, the show was organized by the Southern Illinois Green Iron club. The event, which hosted more than 500 tractors, also recognized eighty years of the model "L" tractor.

Brand Standards Manager Chris Boyens traveled to Greenville, towing the John Deere Archives' own 1938 Model "G," freshly restored for the event. Chris, a Model "G" specialist, also gave a presentation to a crowd of over sixty people on the evolution of the Model "G" from 1937-1953.

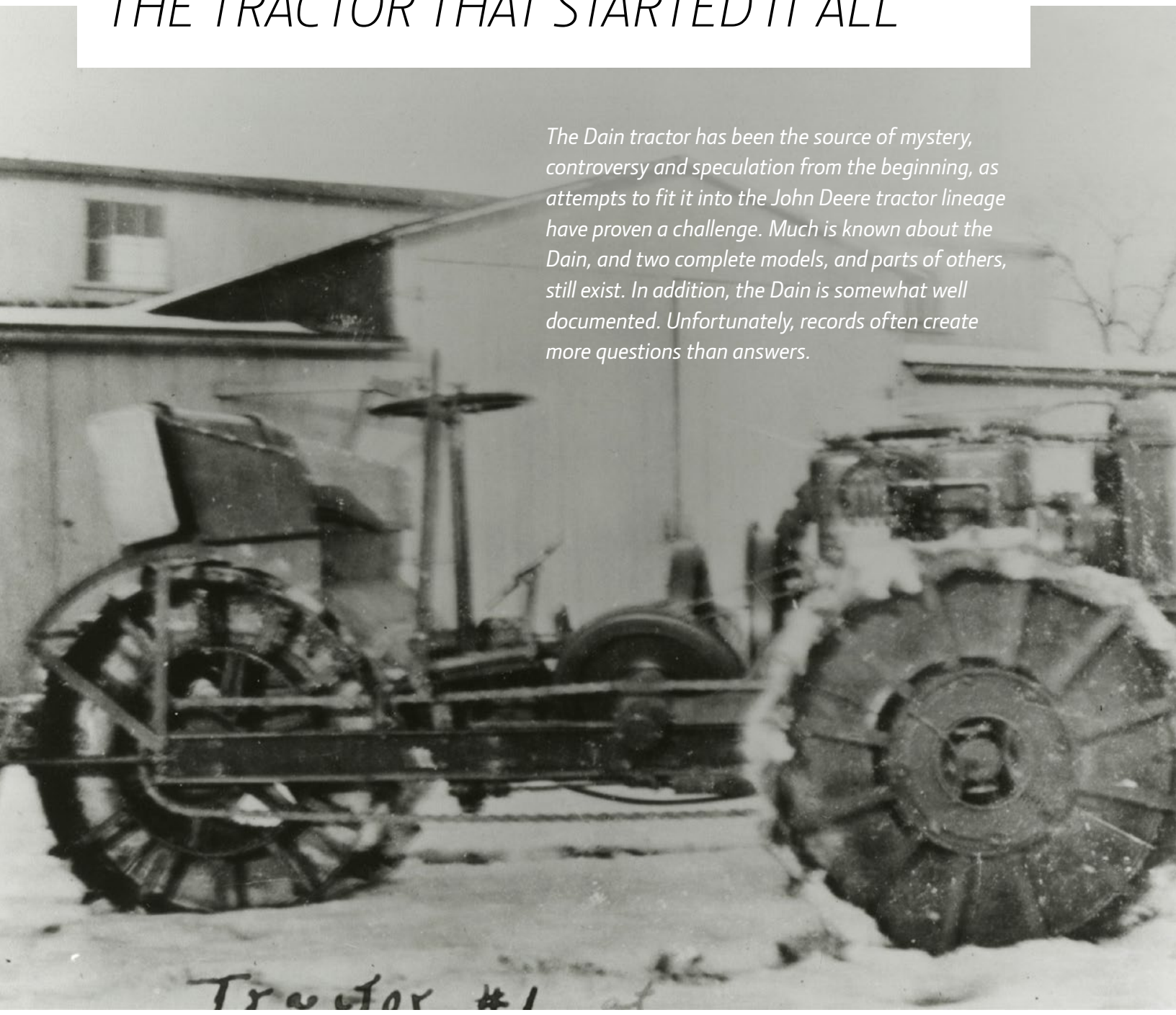
Both events featured the amazing talents of those who keep the heritage of John Deere running—the countless volunteers, collectors and fans that continue to share their stories and their memories.

*Model 101 Tractor, circa 1942*


*1938 Model "G" owned by John Deere*

# THE JOHN DEERE ALL-WHEEL DRIVE

## *THE TRACTOR THAT STARTED IT ALL*

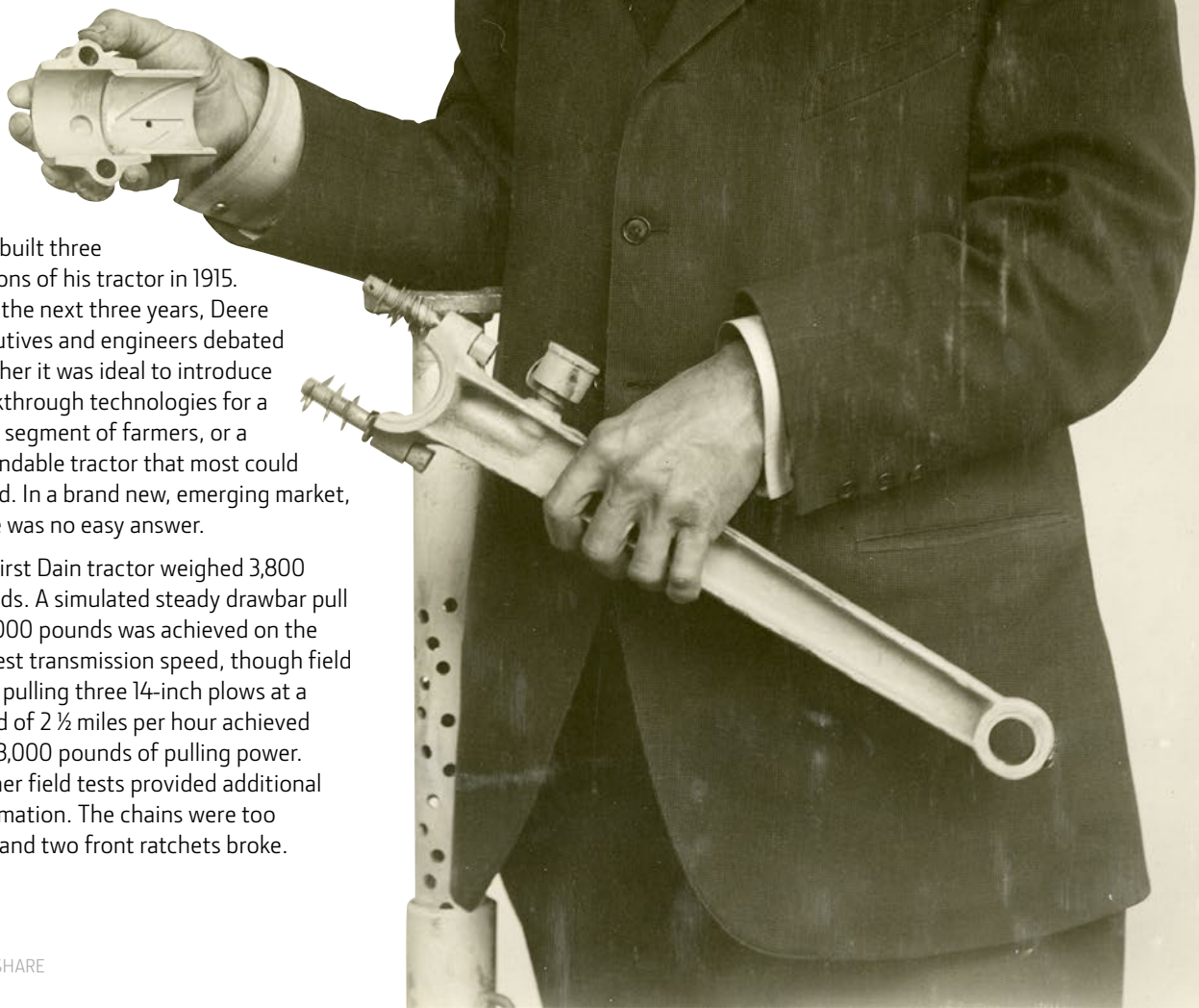



*The Dain tractor has been the source of mystery, controversy and speculation from the beginning, as attempts to fit it into the John Deere tractor lineage have proven a challenge. Much is known about the Dain, and two complete models, and parts of others, still exist. In addition, the Dain is somewhat well documented. Unfortunately, records often create more questions than answers.*

## *All-Wheel Drive R&D*

Joseph Dain sold his namesake company, the Dain Manufacturing Company, to John Deere in late 1910. The company was formed in 1881 to build sweep rakes and hay stackers, and had grown to include factories in Ottumwa, Iowa, and Welland, Ontario, Canada. Dain remained in Ottumwa for a few years after the acquisition, and was also named vice president of Deere & Company, with additional responsibility for the patent and experimental departments.

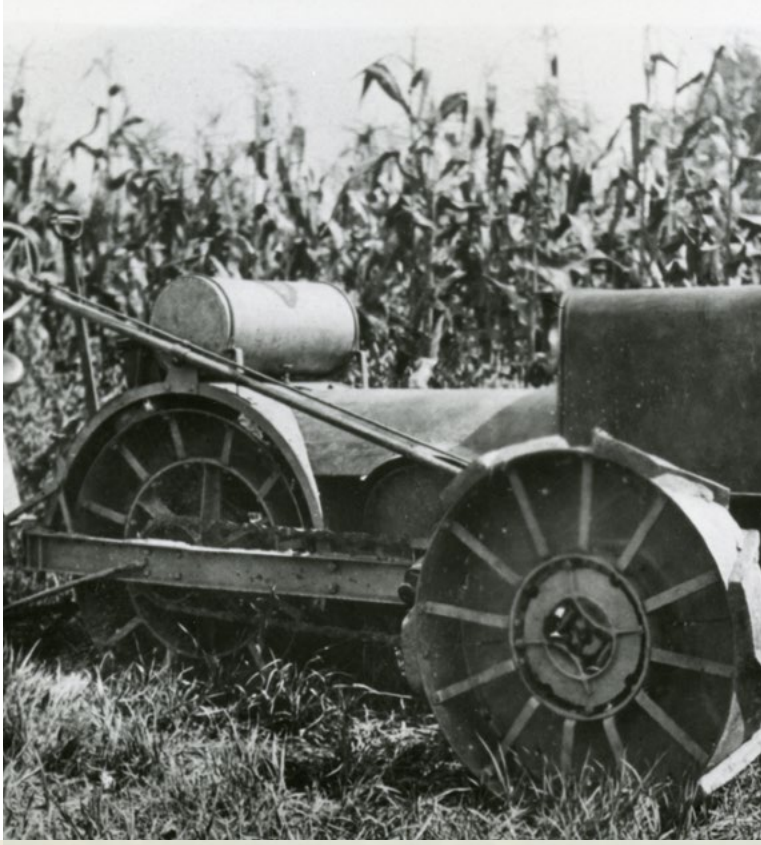
In 1913, Dain moved to Moline, and the following year, in May 1914, was asked to design a light tractor plow that could be sold for $700. That September he was given $3,000 to build a prototype. Enough progress was made that in February 1915, he was given room to work "until he considers it perfected . . ."



*Joseph Dain posing with a connecting rod – 1913*

Dain built three versions of his tractor in 1915. Over the next three years, Deere executives and engineers debated whether it was ideal to introduce breakthrough technologies for a small segment of farmers, or a dependable tractor that most could afford. In a brand new, emerging market, there was no easy answer.

The first Dain tractor weighed 3,800 pounds. A simulated steady drawbar pull of 5,000 pounds was achieved on the slowest transmission speed, though field tests pulling three 14-inch plows at a speed of 2 ½ miles per hour achieved only 3,000 pounds of pulling power. Further field tests provided additional information. The chains were too light and two front ratchets broke.



*All-Wheel Drive #2, – late 1915*

But Dain was pleased overall, noting that "as it is entirely different from any other tractor on the market, we did not have anyone's previous experience to guide us."

The second Dain was built with a friction transmission like the first, but weighed in at 4,000 pounds. In Minnesota, a test tractor plowed 80 acres. In early December 1915, the third prototype was done. Dain replaced the friction transmission with a positive gear-driven transmission. Dain was enthusiastic about his prospects and on March 13, 1916, he sent an excited telegram to Moline from San Antonio, Texas.

*"Have followed tractor closely for two weeks. Conditions extremely hard and rough. Absolutely no weakness in construction. Gears, chains, universals, in fact all parts in good condition. Tractor has traveled near five hundred miles under extreme load. Change speed gear a wonder. I recommend to the Board that we build ten machines at once."*

*All-Wheel Drive #3, pulling four, 24-inch disks in San Antonio, Texas – 1915*

He estimated a cost of $25-50,000 for new machinery, patterns, and tools, to continue the work. The Board approved.

*John Deere Marseilles Works, East Moline, IL, 1917. This was the site of much of Deere's experimental tractor development from 1912-1918. The site later became the John Deere Spreader Works.*

## *Evolution of the Dain*

By the summer of 1916, five Dain tractors had been built in East Moline (at the John Deere Marseilles Works) and one in Moline, likely at the Plow Works. A new motor was being designed by McVickers Engineering of Minneapolis to overcome the power and replacement parts issues of the earlier Waukesha engines. An updated cost analysis was performed: with a cost of $200 per engine, the estimate to build the Dain was now around $600, which meant a final price tag of $1,200. Although much higher than the target of $700, it was still believed that the farmer would pay for the advanced technology. "This is somewhat higher than has been considered admissible for a three-plow tractor," Dain offered to the Board. "It is the writer's belief, however, that an all-wheel drive will ultimately be the tractor the farmer will pay for."

At the same time, company chief engineer Max Sklovsky was working on his third tractor design, the D-2. It shared the same single-piece, cast iron frame concept as his first two prototypes, but with a single-cylinder engine and integration of Dain's all-wheel drive design. Dain and Sklovsky agreed on "low cost, easy accessibility, and certainty of burning kerosene being some of the desirable features," wrote superintendent of manufacturing, George Mixter. He still held that farmers would want a tractor with automobile steer, but that an all-wheel drive tractor "might overcome this point of view." For undocumented reasons, the D-2 program was cancelled, and the Dain project became the focus.

At the end of 1916, J.S. Molstad and George Schutz of the Minneapolis branch submitted a five page report of a multi-month field study of Dain tractors in Aberdeen, S.D., and Fargo and Minot, N.D. Key requirements were becoming clearer: durability, accessibility, and "fool-proof simplicity" were critical, as was "being able to change speed without stopping." Furthermore, they recommended that the "matter of price should be forgotten for the present . . . Go ahead and build the tractor—first class all the way through, using extra good magnetos, carburetors, etc., as well as making it extra good in other details, and when that is done if the price must of necessity be $1500, to market them profitably, let's sell them for that." They were also savvy enough to understand Deere & Company's core business was still implements. "In considering the matter of price we must remember the more tractors we sell the more tractor plows we will sell."

## *Dain Production Approved*

At the outset of 1917, a bright future lay ahead for Deere. Year-end revenues would top $33 million, the highest in company history. Tractor development appeared to be reaching a conclusion and Deere would have its first tractor on the market soon. Industry tractor sales, now being driven by a manpower shortage from the United States' entry into World War I, were trending in the right direction, rising from 14,000 units in 1914 to 36,000 in 1916. Sales would reach 164,500 units in 1918.

In March 1917, George Mixter updated the Board on the full tractor development program. The revised McVickers engine "now looks alright" on the Dain, he told them, but "as to the cost of the tractor as a commercial possibility," he had some doubt. Regardless, he "did not believe Deere & Company could afford to drop it and not have a well-developed tractor up their sleeve."

In June 1917, Dain made his best pitch on the all-wheel drive tractor:

*"Gentleman. The day of the cheap tractor is about over. The work the tractor must do precludes the use of cheap materials and workmanship. There are several machines on the market at present that advertise to pull three plows and that weigh only four or five hundred pounds more than ours, which weighs 4,435 pounds, without lugs, oil, gas or water, selling for less than we can market our machine.*

*They cannot pull as much as we at the same speed, which means they have much less power, but the most important difference is that they do not use the same class of workmanship or materials as we must use, as must everyone else to have their tractor a success in the hands of the farmer."*

*John Deere's grandson, George Mixter – 1912*

Everything seemed on track until a series of personnel changes threatened Deere's tractor development programs. Engineer Theo Brown, who had been instrumental in each of the development programs to date, including his own "Tractivator" design, was reassigned in June to design and build a combat wagon for the United States Army.

In July, George Mixter, the grandson of John Deere who had been a primary driver of tractor development, resigned and moved to Washington D.C. to work for the United States Ordnance Department.

In the fall of 1917, Charles Melvin, designer of John Deere's first experimental tractor, died during a routine surgery.

By September, there were more Dain prototypes in the field in Minneapolis, North Dakota and South Dakota. The report on the tractor in Minot was reported as "best on the market" for the following reasons:

- it had all-wheel, four-chain drive, which was much quieter and more durable than gears,
- it could change speed without stopping even under load, thereby saving time, and
- it had foolproof simplicity and accessibility.

One of the tractors sent to Huron, S.D., was used on the farm of John Deere dealer F.R. Brumwell. It plowed 110 acres, harvested 260 acres, and pulled five wagon loads of stone about 12 miles to Huron on two occasions. Brumwell was enthusiastic about the tractor and bought three of them: one for his farm and two for customers.

The first tractors with the Waukesha engine were satisfactory in every way except that they lacked power. When they were changed over to the McVicker designed engines, the tractors proved to do all that was required of them. The final drive chains had been increased to handle the higher horsepower. Of the four 1917 tractors with the new engine, three went to Huron and one to Minot. Field tests convinced the Board to order "not over 100" of the Dain tractors to be built by an outside firm. This was soon after altered to build them in-house in East Moline.

John Deere was poised to enter the tractor business. Sadly, Joseph Dain would not see his project through. On October 31, 1917, Dain died in Minneapolis from pneumonia contracted during field tests in Huron. Now with the passing of Melvin and Dain, the reassignment of Brown, and the departure of Mixter, much of the collective knowledge of John Deere's early tractor development was gone.

Deere still moved forward.

Less than three weeks after Dain's death, in mid-November, a full report was made to the Board on all Dain tractors in the field, as well as a study of several competitors. The project was put under the direction of Leon Clausen, and at the November 19, 1917, meeting of the Board of Directors, approval and direction was given for "the manufacture of 100 tractors of the Dain type, as are available, and such outside assistance as it is advisable to obtain…"

On December 11, 1917, the contract for the motors and provisions for manufacturing was approved. The first 50 Dain tractors were to be completed by June 1, 1918. Joseph Dain, Jr. "who has had wide experience in the development of the tractor in connection with the work of his father," was to be used "to the fullest extent and in as important a capacity as his experience and abilities permit." A factory report at the end of 1917 confirmed a "desire to build 100 for sale and further observation. This work will be carried on during the winter and spring, with the object of getting them into the field during the summer of 1918."


*All-Wheel Drive lineup, and what appears to be a Dain truck*

## *The Fate of the All-Wheel Drive*

John Deere's entry into the tractor market—the All-Wheel Drive—was a go in early 1918, but the market had changed dramatically during the developmental years. Members of the Board, led by Willard Velie, thought production of 100 tractors was not aggressive enough. He reminded president William Butterworth of the unanimous resolution passed in 1912 to build a tractor plow, observing that "five years and ten months have elapsed" and "our position as either tractor or plow manufacturers, is not as strong today as when we started." Velie argued that Deere could not profit from 100 tractors, and in the process would become direct competitors to former allies that were building tractors. "I cannot refrain from remarking that we should build tractors largely and whole-heartedly, or dismiss the tractor matter as inconsequential and immaterial."

"I desire to go on record as believing firmly the future of Deere & Company, imperatively and insistently requires immediate action…" he closed.

Action would come, but not for the All-Wheel Drive. Instead, Deere now understood better than ever what customers wanted and needed in a tractor. The solution came in the form of information that a leading tractor manufacturer, the Waterloo Gasoline Engine Company, might be for sale. On March 14, 1918, Deere acquired the company and its Waterloo Boy line of tractors and stationary engines. The next month, in April 1918, the first All-Wheel Drive tractor was completed, but instead of representing the future of John Deere, it was now an advanced concept with a limited market.

At the end of its initial development phase, Deere went back to its original objectives to sell an affordable, durable, kerosene tractor. The Waterloo Boy would define the qualities that Deere had been looking for in its own design over the previous six years, and would define the John Deere tractor until the introduction of the New Generation of Power in 1960.

So what is the All-Wheel Drive's legacy?

Manufacturing reports show that fifty-five tractors were sold by the end of October 1919, and that efforts were made over the next few years to sell the remaining inventory. Despite the board approving "up to 100" records show that only 90 were actually built. An advertising brochure for the tractor was published in 1919, and again in 1920 and 1921, indicating that Deere was still selling its original production of 90 tractors. Unfortunately, the records don't tell us how many were sold after 1919.

At the September 1918 Board Meeting, $50,000 was approved for the advertising program of the Waterloo Gasoline Engine Company for the period April 1, 1918-April 12, 1919. When the existing Waterloo dealer contracts expired at the end of 1918, Deere began to more heavily advertise the John Deere Waterloo Boy tractor, promoting the kerosene burning engine, dependability, and the merits of a "good tractor backed by a permanent organization."

Internally, Deere profiled the Waterloo Gasoline Engine Company in its new employee communication, "The John Deere Magazine." John Deere thought Waterloo a good fit because of "its well-known adherence to the highest quality of its output," and how the "products of the Waterloo Gasoline Engine Company will add new lustre [sic]to it."

With the advent of the John Deere Waterloo Boy tractor, the All-Wheel Drive became a footnote in Deere's tractor history. But like the Melvin, Sklovsky, and other experimental John Deere tractors built from 1912-1918, it was a critical product that led to the most important decision of all—permanent entry into a new, disruptive product segment that would forever change agriculture.

# GREEN IRON FANS FLOCK TO GRAND DETOUR

Against a backdrop of sunny skies and mild temperatures, more than 1,300 "Green Iron" fans gathered at the John Deere Historic Site in Grand Detour, Illinois, in August. The three-day "Green Iron Days" event attracted visitors from 15 states, and from as far away as California, Texas, and Mississippi.

A total of 66 John Deere tractors were displayed throughout the grounds, ranging from two cylinder tractors to lawn tractors, and with their proud owners standing nearby to share stories with visitors young and old. Cultivators and plows were also on display.

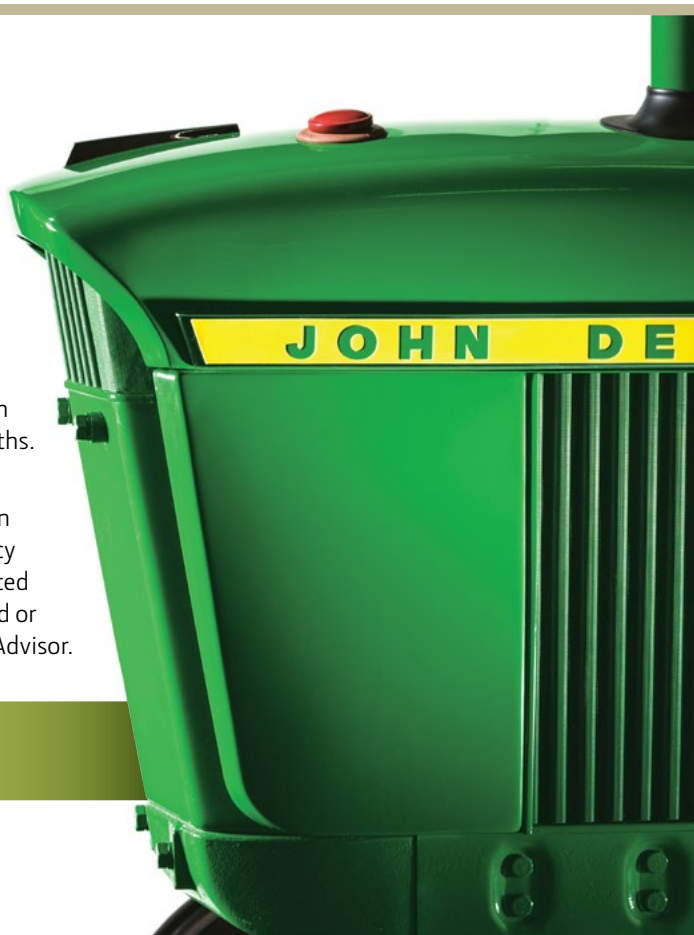
Historic Site manager Kristen Veto found a common theme when talking to exhibitors and guests. "Everyone loved how beautiful and peaceful the Site was for a tractor show," she said. "In fact, many of the exhibitors told me that out of all the shows they attend, this is their favorite to participate in," Veto said.

# TRACTOR MUSEUM, PAVILION RECOGNIZED BY TRIPADVISOR

Congratulations to the John Deere Tractor & Engine Museum in Waterloo, Iowa, and the John Deere Pavilion in Moline, Illinois, for being recognized with TripAdvisor's 2017 Certificate of Excellence.

The award honors businesses in the hospitality sector that consistently demonstrated a commitment to excellence through great customer feedback and reviews on TripAdvisor over the past 12 months.

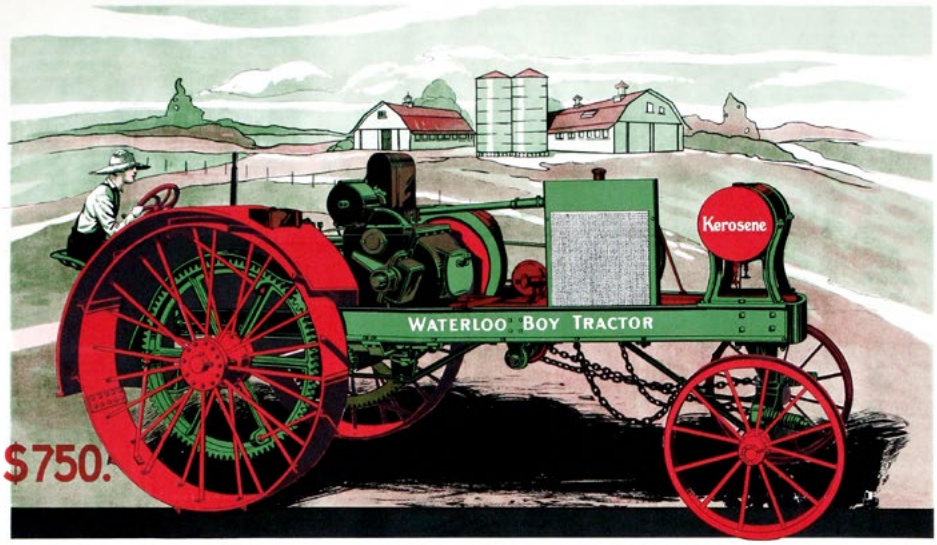
According to TripAdvisor, the achievement is awarded based on "the quality, quantity, and recency of reviews and opinions" submitted by those who have visited, stayed or dined at a location listed on TripAdvisor.




*Both locations offer free admission, and are open 9 a.m. – 5 p.m. on Monday through Saturday, and Noon to 4 p.m. on Sunday.*

# FROM THE ARCHIVES

A sign of things to come. This 1917 poster advertises the Waterloo Boy Kerosene Tractor.




YOU can reduce time and labor cost in all branches of farm work—You can get a bigger, more profitable crop by giving your land better preparation and by doing all other work at just the right time.

## Waterloo Boy Kerosene Tractor

IS BUILT FOR THE AVERAGE FARM—It is a proven success—Adapted for every power use of field, road and farm. It does the following:

| | | | |
|---|---|---|---|
| PLOWING | REAPING | HAULING | SILO FILLING |
| DRILLING | BINDING | ROAD WORK | ANY BELT WORK |
| DISKING | THRESHING | BRIDGE WORK | HEAVY SAWING |

AND MAKES YOU MONEY DOING CUSTOM WORK FOR NEIGHBORS


It takes one man and a team a day to plow 2 acres.

With our tractor you do 8 acres a day, using 3 14-inch plows.

The fuel cost is but 16 cents an acre—no fuel cost when tractor is not working.

When horses are not working you feed them just the same.

It takes time and labor to look after them—they require shelter.

Besides plowing my tractor does all the other work stated above.

This tractor is so simple and easy working that a 15-year old boy can run it all day without trouble.

If you have enough work horses to do your work right, you can get along with five to eight less by using a WATERLOO BOY.

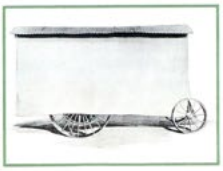
Sell your surplus horses—it will more than return your investment in a WATERLOO BOY Tractor.

WATERLOO BOY Tractor will prove the greatest profit producer you ever had on the farm.

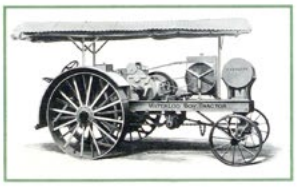
It SAVES MONEY by requiring less for fuel and upkeep than it costs for feed and upkeep of the horses the tractor replaces.

It SAVES MONEY by doing away with a lot of farm hand labor field work—also by saving care given those surplus horses.

It MAKES MONEY by doing your work better and quicker—at just the right time—helping you raise a bigger crop—preventing loss at harvest time when time is so valuable. Also giving you a chance to do work for neighbors at good prices.



High in Quality



Low in Price

ASK FOR FURTHER INFORMATION

The dealer in whose window or store you see this hanger will be glad to tell you more about the WATERLOO BOY Tractor. Investigate this tractor with a record of success everywhere—a paying investment for all users.

## Waterloo Gasoline Engine Co.