

Ag Equipment Intelligence®

News, Information & Analysis for the Ag Equipment Marketer

- Mfrs. R&D Spending
- Alternative Fuels
- Farmers & Shortlines

John Deere to Reestablish Stake in Strip-Till Equipment Market

According to industry sources, select Midwest John Deere dealers are currently demoing new Deere-branded strip-till machines. The new unit is reportedly designed by shortline toolbar manufacturer Environmental Tillage Systems (ETS) of Faribault, Minn.

Prior to the Oct. 7 broadcast of [Ag Equipment Intelligence's \(AEI\) On the Record](#), a Minnesota farmer told *AEI* if he was venturing a guess on a Deere strip-till partner, it would be ETS. He noted "similar styles" between the companies.

One industry official told *AEI* he was surprised the production agree-

ment was struck with ETS instead of Orthman Manufacturing, which has a decades-long history of production and licensing agreements with John Deere.

Another industry official *AEI* spoke with noted that perhaps a newer machine — the 2510S is 10 years old — may signal a legitimization of the strip-till practice but may also indicate Deere is becoming more responsive to trends, even when machine volumes are not as high as in its core markets.

However, another longtime strip-till equipment official said, "Deere had strip-till before and never did anything

with it. I don't think it will go anywhere; it's not a new shiny toy for Deere. But ETS will bring technology to advance what Deere offers."

Another Deere dealer confirmed with *AEI* it would receive a Deere strip-till unit for 3 weeks in mid-October to demo with customers. Deere has a media event scheduled for Oct. 28 in Davenport, Iowa, where the company will unveil the latest "tillage tools and precision ag tillage technology with a focus on conservation tillage tools and techniques" and reveal a new product.

Continued on page 2

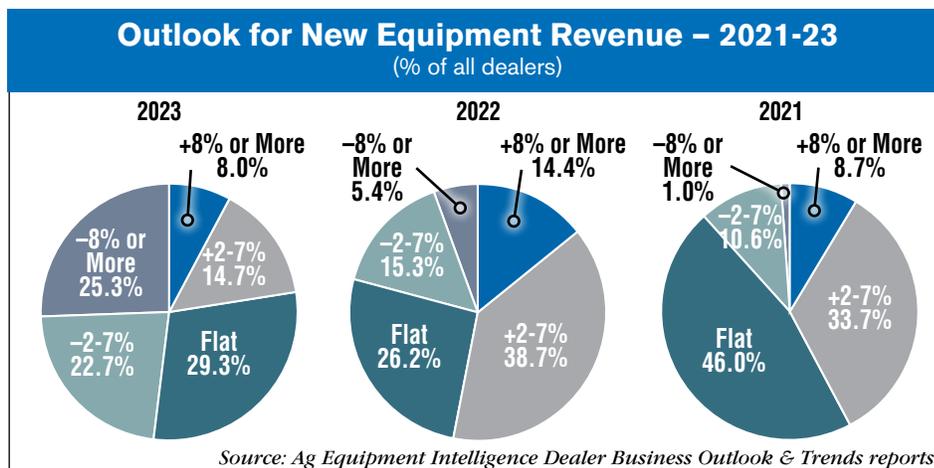
Dealers' 2023 Revenue Forecasts Favor Aftermarket Over Wholegoods

Ag Equipment Intelligence's latest Dealer Business Outlook & Trends survey saw a notable drop-off in optimism in dealers' new and used wholegoods revenue forecasts. This, alongside a sharp increase in parts and service revenue optimism, paints a picture of just how strongly equipment shortages and price increases have changed dealers' future expectations.

Dealer optimism in the previous report was driven by sharp economic recovery following the crash seen during the COVID-19 pandemic. Farmers' government payments, coupled with struggling equipment supply chains creating an equipment shortage, resulted in the perfect storm for an equipment seller's market.

Some optimism remains on the strength of farmers' finances and demand for equipment. However, inflation, continuing supply chain chokeholds, fear of recession and the Fed's interest rate hikes appear to have weighed more heavily on dealers' minds when taking the 2023 survey.

Negative Wholegoods Outlook. New wholegoods revenue projections



were the most negative in the latest study, likely the result of continuous equipment shortages. Nearly half of all surveyed dealers (48%) are forecasting some degree of new wholegoods revenue decline in 2023 vs. 20.7% who said the same for 2022. The percentage forecasting a decline of 8% or greater more than quadrupled from 5.4% for 2022 to 25.3% for 2023.

Less than a quarter (22.7%) are forecasting a revenue increase of 2% or more, with 8% forecasting an increase

of 8% or more (down from 14.4% who said the same for 2022).

U.S. new wholegoods sales outlooks were worse year-over-year, with 21.8% forecasting an increase for 2023 vs. 53.6% in the last report. Likewise, the percentage of U.S. dealers forecasting a new wholegoods revenue decline more than doubled from 20.7% to 49.3%.

Canadian dealers were more optimistic than their U.S. counterparts, with 33.4% forecasting some degree of new whole-

Continued on page 8

This new unit would replace Deere's previous strip-till unit, the 2510S Strip-Till Residue Master Applicator, which was introduced in the late 2000s. Deere discontinued the 2510S in 2021.

Deere's growing presence in the strip-till market could serve to "legitimize" the practice for many growers who might be skeptical of its benefits. A similar phenomenon occurred in 1985, when Deere launched its 750 no-till drill. According

to a report from *No-Till Farmer*, the innovation of the 750 "is said to have done more for no-till than any other no-till equipment development in history and confirmed that John Deere accepted no-till is here to stay."

It is not unusual for production agreements between a shortline and major line to culminate in acquisitions. For instance, New Holland acquired sprayer manufacturer Miller St. Nazianz in 2014 following

a 4-year manufacturing and distribution partnership. Similarly, the production and distribution agreement between Land Pride and Kubota gave 9 years of experience before Kubota's acquisition of Land Pride parent Great Plains Manufacturing in 2016 for \$430 million.

In the last decade, Deere acquired two other shortline equipment manufacturers in Hagie (self-propelled sprayers) and Monosem (precision planters). **AEI**

New Holland Brand President Talks Supply Chain Synergy, Dealer Network Size

At New Holland's Power Hour presentation at this year's Farm Progress Show on Aug. 31, New Holland Brand President Carlo Lambro presented on several key industry topics, including giving a flat global equipment sales outlook for 2022 and discussing a new approach to component supplying.

Supply Chain Organization & Lead Times. When asked about the key pain points in New Holland's manufacturing supply chain, Lambro said the biggest problem has been suppliers' struggles in acquiring raw materials. As a result, the company has shifted its component sourcing strategy, he said, toward working with fewer suppliers and forming more reliable, long-term agreements for sourcing components. Lambro said New Holland likely won't see the results of the new strategy until the middle of 2023, however.

He said New Holland's lead times are longest in its high horsepower segment and that CNH Industrial's ongoing labor negotiations with UAW-represented factories are contributing to longer lead times. For New Holland's T9 and T8 tractors ordered in early September, Lambro forecast deliveries at the middle of 2023. Mid-range tractors, meanwhile, would see deliveries in early 2023.

Lambro added the company doesn't forecast a slowdown in North American

or international equipment orders due to rising interest rates.

Dealer Network Size. Lambro also presented data on the current size of New Holland's dealer network, showing the manufacturer has 1,799 dealers worldwide, operating 4,031 individual locations. The data includes both ag and construction dealers.

According to Lambro, New Holland currently has 422 North American dealers operating 782 locations, bringing the size of New Holland's average North American dealer to 1.9 locations. *Ag Equipment Intelligence's* 2022 Big Dealer Report reported New Holland having 32 "big dealers" (dealers with 5 or more ag equipment locations) in North America in 2022, operating 266 stores.

Global Sales Forecast. Looking at total global ag equipment sales for the entire industry in 2022, New Holland forecasts combine sales to be flat year-over-year. By region, the

company is projecting combine sales to increase 15% in North America, a 21% decrease in Europe, Middle East and Africa (EMEA), an 11% increase in Asia Pacific and a 1% increase in South America. Additionally, New Holland is forecasting global tractor sales to be down 1% year-over-year for 2022, with the most notable regional shift being an estimated 5% decline in EMEA. North American tractor sales for 2022 were forecast to be flat year-over-year. **AEI**

New Holland Global Dealership Numbers – September 2022

	North America	Europe	South America	AMEA	ANZ	Global
Dealers	422	460	109	741	67	1,799
Points of Sale	782	1,035	351	1,732	131	4,031

Source: 2022 Farm Progress Show displays

AEI Copyright Notice

Ag Equipment Intelligence is a copyrighted publication of Lessiter Media. Copying an entire issue to share with others, by any means, is illegal. Duplicating individual items for internal use is permitted only with permission of the publisher. Licensing agreements that allow distribution of *Ag Equipment Intelligence* to a specified number of readers are available by contacting Lessiter Media at 262-777-2408.

The *Ag Equipment Intelligence* newsletter is published monthly for the farm equipment industry by Lessiter Media, P.O. Box 624, Brookfield, WI 53008-0624. ©2022 by Lessiter Media. All rights reserved. The editors of *Ag Equipment Intelligence* also publish a variety of other products, including the results of monthly surveys and special reports, and also maintain a website, www.AgEquipmentIntelligence.com. Reproduction in any form of published content and/or data from any *Ag Equipment Intelligence* product is strictly forbidden without the prior written consent of

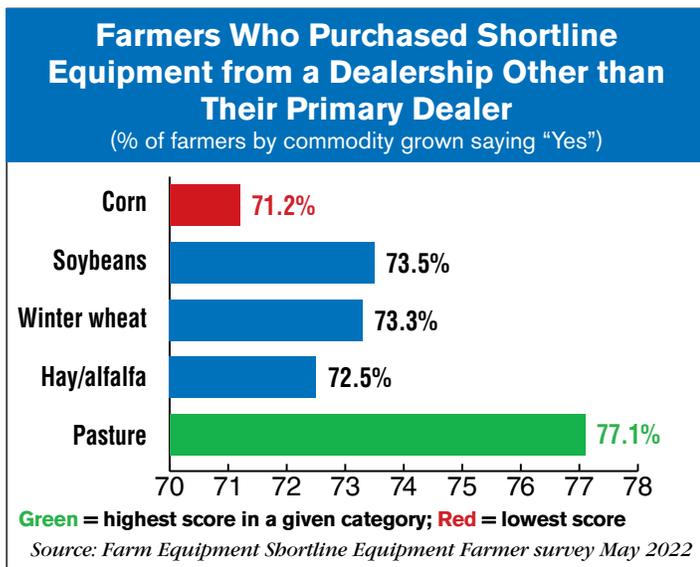
the publisher. Subscriptions to *Ag Equipment Intelligence*, which includes its monthly newsletter, special reports and other published materials, are available by contacting us (see below). Others may purchase these materials, also by contacting us (see below). U.S., Canada and Mexico subscriptions to the monthly newsletter and special reports are \$699 per year. International subscriptions are \$799 per year. Send subscription requests to: *Ag Equipment Intelligence*, P.O. Box 624, Brookfield, WI 53008-0624. Phone: 1-800-645-8455. info@agequipmentintelligence.com.

Breaking Down Farmers' Shortline Equipment Purchases by the Commodities They Grow

According to *Farm Equipment's* second annual survey to farmers about their shortline manufacturers, farmers continue to buy shortline equipment for the quality they get for the price and the major lines' lack of experience in niche areas.

Breaking the data down by the commodities farmers grow reveals not only which growers are most open to purchasing shortline equipment but also why different farmers purchase shortline equipment. The following brands were considered major lines: John Deere, Case IH, New Holland, AGCO (Fendt, Massey Ferguson, Challenger) and Kubota.

Dealer Interactions. Some 77.1% of growers keeping pasture said they'd purchased shortline equipment from a dealership outside of their primary dealer, the highest percentage by commodity



grown. Corn growers are the least likely to buy shortline equipment from a secondary dealer at 71.2%. Growers keeping pasture were again the most likely to purchase parts from a secondary dealership. Here, 78.7% of growers keeping pasture said they had, while soybean and winter wheat farmers were the least likely to have purchased shortline parts from another dealer at 68.1%.

Hay/alfalfa growers led the way in having service done on shortline equipment from other dealers at 49%.

Reasons to Purchase Shortline vs. Major-line. When asked for their primary reason to purchase a shortline brand of equipment over a major-line brand, growers who indicated they keep pasture were the most likely to prioritize the price of the equipment, with 50.5% choosing that option. Winter wheat farmers were the least likely to prioritize price at 36.6%.

The second-most popular reason was the lack of a comparable product from the majors, which was led by corn growers at

Continued on page 5

	Parts	Service/repair
Corn	68.2%	41.6%
Soybeans	68.1%	42.8%
Winter wheat	68.1%	45.4%
Hay/alfalfa	71.6%	49.0%
Pasture	78.7%	48.9%
Total	68.4%	43.5%

Green = highest score in a given category; Red = lowest score
Source: Farm Equipment Shortline Equipment Farmer survey May 2022

Producer Price Index Percentage Changes – Ag Equipment & Parts Segment

	Unadjusted 12-Month % Change	Unadjusted 1-Month % Change				
		September 2021–September 2022	May	June	July	Aug.
Agricultural machinery & equipment	16.2	0.5	1.8	0.2	0.7	0.7
Commercial turf & grounds care equipment, including parts & attachments	11.0	-0.1	0.2	0.0	2.3	0.0
Farm plows, harrows, rollers, pulverizers, etc. & attachments	33.7	0.0	9.6	0.0	2.5	5.9
Farm dairy equipment, sprayers and dusters, farm blowers & attachments	14.0	1.4	1.3	3.6	0.1	0.0
Planting, seeding, fertilizing machinery & attachments	13.2	3.7	0.0	-8.0	0.1	2.6
Harvesting machinery (except hay and straw) & attachments	15.9	-0.1	4.3	0.9	0.0	0.0
Haying machinery & attachments	16.9	0.0	0.0	0.0	0.0	0.0
All other farm machinery & equipment, excluding parts, including attachments	15.8	-0.2	-0.1	0.7	1.6	0.5
Parts for farm machinery, for sale separately	16.1	0.6	-0.7	1.4	0.7	0.3

Farm plows, harrows, rollers, pulverizers and attachments reported the greatest year-over-year price increase in September, up 33.7% from September 2021. This category also had the highest month-over-month price increase at +5.9%.

Source: U.S. Bureau of Labor Statistics, September 2022

Handicapping the Alternative Fuels Race

Given social and political pressure to remove carbon-based fuels from the marketplace and the subsequent reluctance of petroleum refiners to invest in additional throughput capacity, it's apparent that ultra-low sulfur diesel fuel (ULSDF), the popular top item on the farm fuel menu, will lose its undisputed top billing. But it's unlikely it will become a side-dish order any time soon.

Peering into the "crystal ball" of farm fuel evolution over the next 20 years, New Holland's Mark Lowery says diesel-fuel, particularly ULSDF and to some extent B100 and Renewable Diesel, will become a "minority player" in what powers farm equipment.

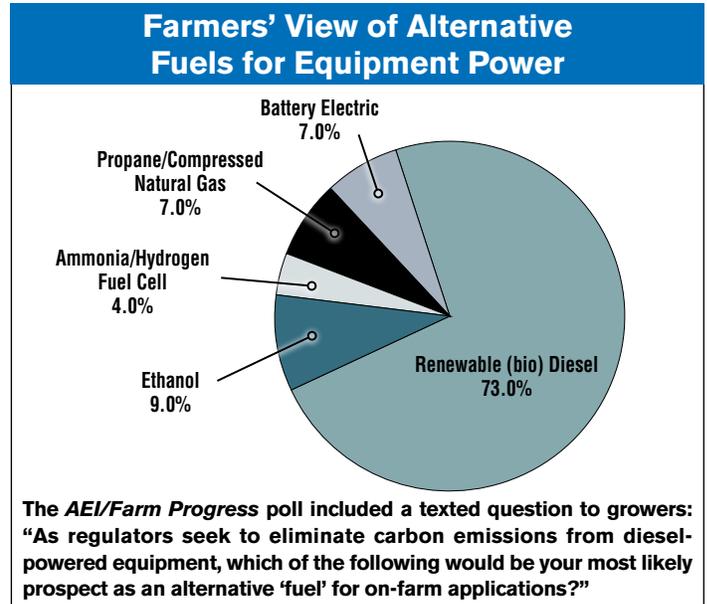
When asked about the potential product mix of diesel-powered equipment and machines powered with alternatives, Ashby Graham, JCB's general manager for product and marketing in North America, avoided percentage predictions. But he did say "the mix will definitely have shifted significantly toward alternative energy sources within the next 5 years."

If farmers have anything to say about it, however, renewable diesel and ethanol will both be fuels of choice if compliant equipment is available to burn them. In a joint text poll by *Ag Equipment Intelligence* and *Farm Progress* in July 2022, growers were asked about their choice for an alternative fuel as regulators seek to eliminate carbon emissions from diesel-powered equipment.

An overwhelming 82% threw their support behind renewable diesel and ethanol as their immediate choices of "decarbonized farm fuels."

Similarly, farm equipment dealers across North America who were surveyed by *Ag Equipment Intelligence* in August 2022 indicated similar thinking.

While the smorgasbord of alternative "fuels" will continue to evolve as "Net Zero 2050" approaches, if market economics are the prime motivator of change instead of regulatory fiat, the next 5 years will see three clearly rank-ordered leaders emerg-



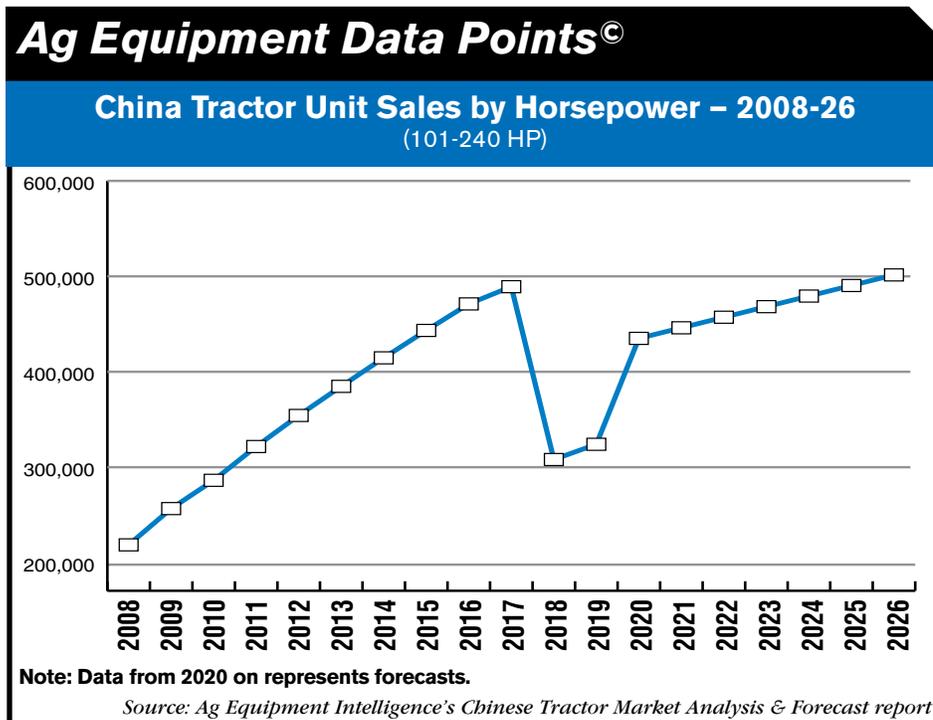
ing. In other words, ULSDF could be displaced gradually on North American farms, giving way to the following:

1. Renewable diesel and B100 blends, along with ethanol. Obvious farmer support for "drop-in" substitutes for ULSDF that require no changes in fueling infrastructure or engine technology assure a demand for the low-carbon diesel fuels. Steady investment by U.S.-based refiners in renewable diesel technology bodes well for ramping up supplies of low-carbon ULSDF substitutes over the period. And, the development of so-called "fuel agnostic" engines promises a bright future for continued use of ICE designs with a variety of low-carbon fuels, including ready supplies of ethanol which can easily be substituted as farm fuel as U.S. gasoline demand continues to fall.

Another clue to the significant role these renewable fuels will play became evident in late summer of 2022 as USDA announced an additional \$100 funding for the Higher Blends Infrastructure Incentive Program (HBIIP) that is expected to help defray upgrades to roughly 5,000 fueling stations in the U.S. to ensure higher blends of biofuels can be efficiently dispensed for transportation and off-road power equipment. In a nod to the reality of BEV shortcomings for high-load, long-duty-cycle applications, Secretary of Agriculture Tom Vilsack predicts the continued use of ICE technology over an extended period of time and says the lower-carbon fuels will provide a bridge to ultimate "zero carbon" goals.

Continued on page 5

[Click here to see more of the Alternatives to Fossil Fuels in Farm Machinery ... Overview & Outlook Through 2027 Report](#)



Handicapping the Alternative Fuels Race...Continued from page 4

In tandem with Vilsack’s announcement, the U.S. Senate introduced its own version of the Next Generation Fuels Act (NGFA), matching one launched by the U.S. House of Representatives in August 2021, which would establish a new high-octane, low-carbon fuel standard in 2026. The likely-to-pass legislation would allow engine builders to boost fuel efficiency at the same time they reduce GHG emissions. U.S. Sen. Tammy Duckworth, D-Ill., says the NGFA “allows near-term, cost-effective (low-carbon fuel) options, as opposed to EPA’s current path of eliminating the internal combustion engine and mandating electric vehicles.”

Expect significant short-term adoption of these low-carbon fuels as OEMs seek to lighten their carbon footprint, especially where quantities of the fuels are readily available — currently on the West Coast and in the Great Plains.

2. CNG/Biomethane. Existing fueling infrastructure possible through nationwide natural gas pipelines and increasing use of methane digesters on large, confined animal feeding operations (CAFO) provide a bright future for low-carbon emission farm equipment powered with CNG and/or locally produced biomethane. North America has vast reserves of low-carbon natural gas and methane digestion systems to produce biomethane pioneered in Europe are being adopted in areas of U.S. dairy and swine production and beef feeding operations.

Farmers have a long history using liquefied compressed gases such as butane, propane and methane, and at least one

major U.S. farm equipment producer has biomethane farm-tractor technology close to commercialization. In addition, “fuel agnostic” engines promise an economical transition from ULSD with specific designs aimed at using compressed liquified gases to meet near-term power and emission goals.

Look for adoption of this technology beginning over the next 2 years, especially in areas where large amounts of organic waste can be economically converted to biomethane.

3. Hydrogen fuel cell electric. While electrified broad-acre, high-horsepower, heavy-duty tractors aren’t ready for prime time with current LiO battery technology, the “Power of the Plains” could quite effectively go electric as OEMs develop hydrogen fuel cell technology and a compatible fueling infrastructure. Fuel cells can easily be fueled with NH3 “fertilizer ammonia” and compressed hydrogen transportation is rapidly developing on the West Coast to support hydrogen as an ICE fuel as well as feedstock for fuel cell vehicles.

Major farm equipment OEM R&D budgets are funding fuel cell technology to move electric power from only small farms, orchards and vineyards to traditional high-horsepower tractor operations — especially in Europe. Such technology will spread quickly as it becomes economically feasible and a “hydrogen infrastructure” is developed.

Fuel cells will likely be a player on North American farms in 7-10 years.



Breaking Down Farmers’ Shortline Equipment Purchases by the Commodities They Grow...Continued from page 3

24%. Winter wheat farmers were the least likely to consider this reason at 21.4%.

Manufacturer experience in a niche area — overall the third-most popular reason to purchase shortline equipment — was most popular with winter wheat growers at 21.4%, almost triple the 7.4% of growers who keep pasture. Winter wheat growers were the most likely to forego major-line equipment due to a lack of specialization at 11%, while corn growers were the least likely to consider this reason at 7%.

Embracing New Technology. When asked about their pattern of embracing new farm equipment technology, growers keeping pasture were the most likely to consider themselves innovators at 17.8%, while soybean growers were the least likely at 7.7%. Soybean growers, however, were the most likely to consider themselves early adopters (38.6%) and in the early majority of those adopting new tech (28.2%), while those keeping pasture were the lowest in these categories.

Winter wheat growers were the most present in the late majority category at 18.3%, and growers keeping pasture were the most likely to be slow to adapt to new farm tech at 18.9%.



Primary Reason to Purchase Shortline Product Over Major-Line (% of farmers by commodity grown)						
	Corn	Soybeans	Winter wheat	Hay/alfalfa	Pasture	Total
No comparable product exists	24.0%	23.5%	21.4%	22.4%	22.1%	23.8%
Majorline not specialized enough	7.0%	7.7%	11.0%	8.5%	8.4%	8.9%
Price/value	42.4%	41.3%	36.6%	44.2%	50.5%	41.3%
Immediate product availability	1.9%	1.6%	2.1%	4.9%	4.2%	3.3%
Manufacturer experience in niche area	17.0%	17.4%	21.4%	13.3%	7.4%	15.2%
Warranty & after-sales support	4.8%	5.3%	4.1%	3.0%	4.2%	3.9%
Other	3.0%	3.2%	3.5%	3.6%	3.2%	3.6%

Green = highest score in a given category; Red = lowest score
Source: Farm Equipment Shortline Equipment Farmer survey May 2022

Farmers’ Place on New Technology Adoption Curve (% of all farmers by commodity grown)						
	Corn	Soybeans	Winter wheat	Hay/alfalfa	Pasture	Total
Innovators	9.5%	7.7%	10.7%	11.5%	17.8%	11.5%
Early adopters	38.2%	38.6%	35.9%	34.6%	23.3%	37.9%
Early majority	27.4%	28.2%	25.2%	22.4%	22.2%	23.9%
Late majority	14.5%	15.9%	18.3%	16.7%	17.8%	14.6%
Slow to adapt	10.4%	9.6%	9.9%	14.7%	18.9%	12.1%

Green = highest score in a given category; Red = lowest score
Source: Farm Equipment Shortline Equipment Farmer survey May 2022

South American Ag Equipment Intelligence

Construction Progresses at New Jacto Factory

Jacto has entered the third and final stage of the construction of its new factory in Pompeia, in the state of Sao Paulo, Brazil. The factory will have 1.04 million square feet with the use of new technologies under the Agriculture 4.0 concept, which Jacto's website defines as "a set of state-of-the-art digital technologies integrated and connected through software, systems and equipment capable of optimizing agricultural production in all of its stages." The size is twice that of its current factory operations are projected to start in March of 2023.

Stara's New Factory Will Add 200 Workers

Brazilian farm equipment manufacturer Stara started construction on its second factory in Santa Rosa, Rio Grande do Sul, in 2021 and is now nearly two-thirds complete. The new facility adds 269,222 square feet and aims to improve efficiency for the procedures of welding, folding, painting and machining. The new factory would bring 200 additional workers to its current 400 personnel in Santa Rosa.

Nearly Half of Argentine Wheat Harvest in 'Bad Condition'

The drought in key regions of Argentina has provoked a new reduction in the estimate of the Buenos Aires Cereal Exchange for its wheat output. The country is expected to harvest 3 million fewer metric tons than previously forecast for total production of 17.5 million metric tons. This level is 4.9 million metric tons below last year. The lower yields are likely to result in lower farm equipment purchases in the region as well.

In addition, 45.9% of the wheat being harvested is considered under bad conditions. The early projection for corn and soybeans would bring a reduction of corn production from 58 to 56 million metric tons due to a reduction in acres, while the soybean production would increase. 

AEI Newsmakers

Tractor Zoom Announces \$5 Million in Series A Funding

Tractor Zoom, a data company that helps people find and value farm equipment, announced Oct. 3 the completion of a \$5 million dollar Series A funding round. The oversubscribed funding round, which was co-led by Builders VC of San Francisco, Calif., and Bienville Capital of New York, N.Y., allows company to make significant investments in product innovation and data science they need.

USDA WASDE Report: Lower Corn & Soybean Production

The Oct. 12 USDA WASDE report included a 2022-23 U.S. corn outlook for reduced supplies, greater feed and residual use, lower exports and corn used for ethanol and smaller ending stocks. 2022-23 corn production was forecast 49 million bushels lower at 13.895 billion.

U.S. soybean production was projected at 4.3 billion bushels, down 65 million bushels on lower yields. The soybean yield is projected at 49.8 bushels per acre, down 0.7 bushels from the September forecast.

AGI Announces CEO Leadership Transition

Ag Growth International Inc. announced Sept. 23 that Tim Close had stepped down as president and CEO and resigned as a director of AGI. The Board of Directors named Paul Householder, AGI's current chief operating officer, as president and CEO. Close will remain in an advisory role through year-end.

Caterpillar Announces Battery-Powered Wheel Loader Prototypes

According to an Oct. 4 press release, Caterpillar will display four electric machine prototypes, including battery prototypes, at bauma 2022 Oct. 24-30 in Munich, Germany. The battery electric machine prototypes include a mini excavator, medium excavator, medium wheel loader and compact wheel loader.

Volvo Penta & CMB.TECH Partner on Dual-Fuel Hydrogen Engines

Volvo Penta and CMB.TECH announced on Oct. 6 a partnership agreement designed to accelerate the development of dual-fuel hydrogen-powered solutions for both on land and at sea applications. The dual-fuel solution's main advantage is that it will reduce the emissions of greenhouse gases while at the same time provide a robust and reliable solution. If hydrogen is not available, the application continues to run on traditional fuel, safeguarding productivity. 

Exclusively Online

[Click here](#) to watch the latest episode of On the Record

[Click here](#) to read the latest Dealer Sentiments & Business Conditions Update.

4th Annual Ag Equipment Intelligence Executive Briefing Returns Dec. 8-9, 2022

Ag Equipment Intelligence has announced the return of its annual virtual event — the [Ag Equipment Intelligence 2023 Executive Briefing](#) — on Dec. 8-9, 2022. This executive briefing will provide an overview of the year to come through the eyes of those with boots on the ground — dealers, manufacturers, industry experts and more — as they share their successes, pain points and thoughts on how 2023 looks from their vantage point.

As the industry continues to deal with supply chain issues, staffing issues and more, this coming year will be critical to the success and growth of your business. The speakers and sessions that are being lined up — including for the first time at the Executive Briefing, all 5 major line equipment manufacturers together for a live discussion — will take a deep dive into the industry's most pressing issues and provide insights and outlooks to help you prepare for a successful 2023 and beyond.

Ag Equipment Intelligence VIP Members are eligible for a 50% off discounted registration rate. Simply enter promo code VIP199 on your registration form and save \$200.

Learn more about the 2023 Executive Briefing speakers, sessions and registration at www.AgEquipmentIntelligence.com/2023EB.

Large Ag Sales Climb in September

North American large ag equipment unit sales were up 11.1% in September, with strong growth in both row-crop tractors and combines, compared to up 16.8% in August. U.S. large ag equipment sales were up 4.2%, which Baird analyst Mircea (Mig) Dobre notes is the slowest since April and down from 12.4% growth in August. U.S. 4WD tractor sales were down 33.1%, row-crop tractors were up 9.6% and combines were up 6.6%. In Canada, large ag sales were up 62.8% in September vs. 50.8% in August. 4WD tractors were up 64.3% in Canada, while row-crop tractors were up 41.1% and combines were up 105.6%.

“Both row-crop tractors (+13.2%) and combines (+20.8%) posted robust growth, while sales of 4WD tractors were down 26.2%. U.S. dealer inventories were up 60.5% year-over-year in 2WD, down 43.4% year-over-year in 4WD, and flat for combines,” Dobre notes.

- **4WD tractor sales dropped 26.2% year-over-year** in September following 5.2% growth in August. U.S. dealer inventories of 4WD tractors were down 43.4% year-over-year in August. September is typically an above average month for 4WD tractor sales, accounting for an average of 9.7% of annual sales the last 5 years.

- **Row-crop tractor sales grew 13.2% year-over-year** in September following a 14.3% increase in August. U.S. row-crop tractor inventories were up 23.1% year-over-year in August, the 5th consecutive month of inventory growth and the highest growth since January 2014. September is typically an average month for row-crop tractor sales, accounting for an average of 8.3% of annual sales during the last 5 years.

- **Combine sales were up 20.8% year-over-year** in September after a 27.3% increase the in August. Last 3-month sales were up 13.0% year-over-year. Absolute combine unit sales were the second highest since December 2013. U.S. combine inventories were flat year-over-year in August. September is typically an above average month for combine sales, accounting for an average of 10.9% of annual sales over the last 5 years. **AEI**



SEPTEMBER U.S. UNIT RETAIL SALES

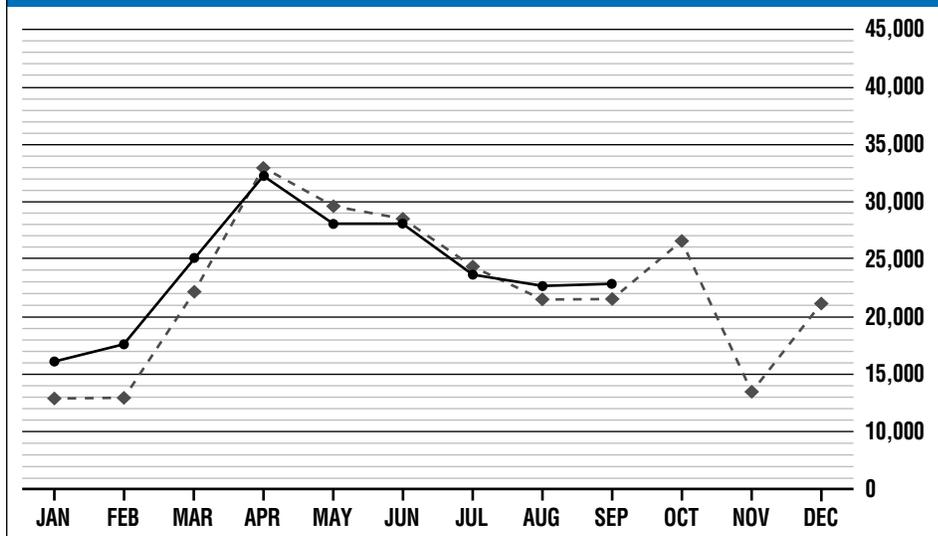
Equipment	September 2022	September 2021	Percent Change	YTD 2022	YTD 2021	Percent Change	Beginning Inventory September 2022
Farm Wheel Tractors-2WD							
Under 40 HP	13,687	16,360	-16.3	140,790	170,715	-17.5	71,267
40-100 HP	5,744	6,394	-10.2	49,468	56,445	-12.4	26,256
100 HP Plus	2,402	2,192	+9.6	18,146	16,257	+11.6	7,939
Total-2WD	21,833	24,946	-12.5	208,404	243,417	-14.4	105,462
Total-4WD	247	369	-33.1	2,136	2,390	-10.6	398
Total Tractors	22,080	25,315	-12.8	210,540	245,807	-14.3	105,860
SP Combines	904	848	+6.6	4,555	4,406	+3.4	1,112



SEPTEMBER CANADIAN UNIT RETAIL SALES

Equipment	September 2022	September 2021	Percent Change	YTD 2022	YTD 2021	Percent Change	Beginning Inventory September 2022
Farm Wheel Tractors-2WD							
Under 40 HP	1,508	1,735	-13.1	14,770	16,217	-8.9	7,928
40-100 HP	629	559	+12.5	4,475	4,552	-1.7	2,959
100 HP Plus	398	282	+41.1	2,702	2,568	+5.2	1,550
Total-2WD	2,535	2,576	-1.6	21,947	23,337	-6.0	12,437
Total-4WD	46	28	+64.3	537	589	-8.8	71
Total Tractors	2,581	2,604	-0.9	22,484	23,926	-6.0	12,508
SP Combines	292	142	+105.6	1,241	1,242	-0.1	449

U.S. UNIT RETAIL SALES OF 2WD & 4WD TRACTORS & COMBINES



— Assn. of Equipment Manufacturers

Dealers' 2023 Revenue Forecasts Favor Aftermarket Over Wholegoods...Continued from page 1

goods revenue increase vs. 50% saying the same in the last survey. One third of Canadian dealers this year, however, forecast revenue to be flat year-over-year for 2023, above the 28.6% who said the same for 2022.

Outlook on used equipment revenue growth was down as well, though less severely than with new wholegoods. Almost 32% of dealers are forecasting an increase for 2023, down from 49.1% in the previous survey. Slightly more dealers held a neutral view on used revenue at 37%, up from 31.8% but below the 45.1% who thought the same about 2021 used equipment sales.

The largest percentage of dealers in the last 3 years forecast their used equipment revenue down 2% or more

at 31.5%, up from 19.1% for 2022.

Some 31% of U.S. dealers forecast their used equipment revenue up in 2023, vs. 51.5% who said the same about 2022. Another 32.8% forecast their revenue down for 2023, almost double the 17.5% who said the same in the last survey. The percentage forecasting used revenue down 8% or greater more than tripled to 19.4%.

Canadian dealers were also more optimistic than their U.S. counterparts when it came to used equipment revenue outlook, with 33.4% forecasting some degree of growth, though 50% still gave flat forecasts. This is an improvement from 2022 forecasts, which saw Canadian dealers' responses spread evenly across all options save for "flat," where 38.4% of

Canadian dealers identified themselves.

Aftermarket Optimism. Parts revenue forecasts were up for 2023, an impressive feat given 2022 forecasts were already remarkably positive. Over 75% of dealers are forecasting at least a 2% increase in their parts revenue for 2023, reflecting a growing need for aftermarket in an industry where new equipment is being held longer as a result. This was above the 71.8% who said the same for 2022. Some 26% of dealers are forecasting an increase of 8% or more for 2023.

Just 5.5% of dealers forecast a decline in parts revenue, though this was still an increase from the 1.8% who forecast the same for 2022.

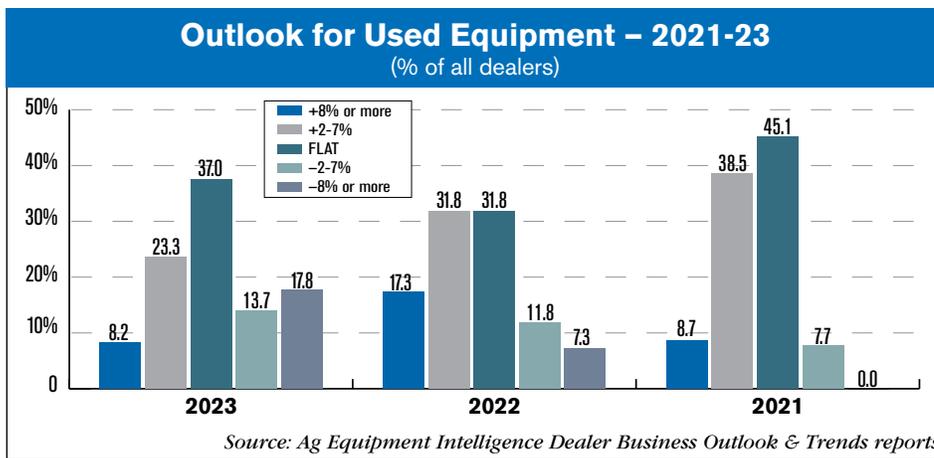
In the U.S., dealers' overall parts revenue optimism was down year-over-year, with 73.2% forecasting an increase vs. 76.3% in the previous survey. However, the percentage forecasting an 8% or more increase rose from 23.7% to 26.9%. Just 6% of U.S. dealers forecast any kind of parts revenue decline, up from 2.1% who forecast declines for 2022.

All surveyed Canadian dealers this year forecast a parts revenue increase for 2023, with the majority (83.3%) forecasting an increase of 2-7%. This was a positive shift from 2022 forecasts, when 38.5% forecast an increase of 2-7% and the remaining 61.5% held a flat year-over-year outlook.

Almost three-fourths of surveyed dealers (74.3%) are forecasting a service revenue increase for 2023, up from 70.9% who said the same for 2022. In this increase, the percentage forecasting an increase of 8% or more rose from 17.3% to 21.6%.

Under 6% of dealers forecast a decline in service revenue for 2023, a jump from the 0.9% who said the same for 2022.

U.S. dealers saw a slight decline in their service revenue optimism, with 72.1% forecasting an increase for next year vs. 75.3% who said the same for 2022. There was an increase in the percentage forecasting growth of 8% or more, however, from 19.6% to 22.1%. All surveyed Canadian dealers forecast an increase in service revenue for 2023, with 83.3% forecasting an increase of 2-7%. This beats forecasts for 2022, where 38.5% forecast an increase of 2-7% and 61.5% held a neutral view. The full report will be [available later this month.](#)



Parts Revenue Outlook by Country – 2022-23

(% of all dealers)

Revenue outlook	North America		U.S.		Canada	
	2023	2022	2023	2022	2023	2022
+8% or more	26.0%	20.9%	26.9%	23.7%	16.7%	0.0%
+2-7%	49.3%	50.9%	46.3%	52.6%	83.3%	38.5%
Little or no change	19.2%	26.4%	20.9%	21.6%	0.0%	61.5%
-2-7%	4.1%	1.8%	4.5%	2.1%	0.0%	0.0%
-8% or more	1.4%	0.0%	1.5%	0.0%	0.0%	0.0%

Source: Ag Equipment Intelligence Dealer Business Outlook & Trends reports

Service Revenue Outlook by Country – 2022-23

(% of all dealers)

Revenue outlook	North America		U.S.		Canada	
	2023	2022	2023	2022	2023	2022
+8% or more	21.6%	17.3%	22.1%	19.6%	16.7%	0.0%
+2-7%	52.7%	53.6%	50.0%	55.7%	83.3%	38.5%
Little or no change	20.3%	28.2%	22.1%	23.7%	0.0%	61.5%
-2-7%	4.1%	0.9%	4.4%	1.0%	0.0%	0.0%
-8% or more	1.4%	0.0%	1.5%	0.0%	0.0%	0.0%

Source: Ag Equipment Intelligence Dealer Business Outlook & Trends reports

AG EQUIPMENT INTELLIGENCE LISTS

Ag Equipment Manufacturers' R&D Expenses vs. Ag Sales — 2021

Ag Equipment Intelligence has compiled data from the SEC filings of publicly-traded ag equipment manufacturers to compare their research & development (R&D) spending with their ag equipment sales. R&D data from some manufacturers is reported in slightly different categories. For example, AGCO's research and development expenses are

consolidated within its "engineering expenses," which have been reported here in full. It should be noted that the R&D expenses reported here are not broken down by their allocation to ag equipment sales and likely include some expenses put toward other segments, such as construction. **AEI**

Research & Development Expenses vs. Ag Sales – 2012-21

(\$ in millions unless otherwise noted)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Alamo										
R&D Expenses	\$5.69	\$7.16	\$8.43	\$8.59	\$8.85	\$9.85	\$10.40	\$12.00	\$12.40	\$11.70
Ag Sales	\$204.00	\$219.40	\$214.30	\$208.30	\$205.80	\$227.40	\$370.60	\$350.70	\$352.30	812.70*
R&D Expenses as a % of Ag Sales	2.79%	3.26%	3.93%	4.12%	4.30%	4.33%	2.81%	3.40%	3.52%	1.44%
AGCO										
R&D Expenses	\$317.10	\$353.40	\$337.00	\$282.20	\$296.10	\$323.10	\$355.20	\$343.40	\$342.60	\$405.80
Ag Sales	\$9,962.20	\$10,786.90	\$9,723.70	\$7,467.30	\$7,410.50	\$8,306.50	\$9,352.00	\$9,041.40	\$9,149.70	\$11,138.30
R&D Expenses as a % of Ag Sales	3.18%	3.28%	3.47%	3.78%	4.00%	3.89%	3.80%	3.80%	3.74%	3.60%
Art's Way Mfg.										
R&D Expenses (not in millions)	\$125,000	\$174,000	\$191,000	\$162,000	\$140,000	\$183,000	\$178,000	\$149,000	\$199,000	\$152,000
Ag Sales	\$24.70	\$28.20	\$28.00	\$20.80	\$15.80	\$15.40	\$14.30	\$13.50	\$13.10	\$16.80
R&D Expenses as a % of Ag Sales	0.51%	0.62%	0.68%	0.78%	0.89%	1.19%	1.24%	1.10%	1.52%	0.91%
Buhler Industries (in Canadian dollars)										
R&D Expenses	\$8.40	\$8.50	\$8.70	\$8.30	\$8.70	\$9.60	\$12.30	\$7.80	\$6.90	\$8.10
Ag Sales	\$357.80	\$340.40	\$325.50	\$245.70	\$274.10	\$312.00	\$288.00	\$229.10	\$249.60	\$317.20
R&D Expenses as a % of Ag Sales	2.35%	2.50%	2.67%	3.38%	3.17%	3.08%	4.27%	3.40%	2.76%	2.55%
CNHI										
R&D Expenses	\$1,129.00	\$1,222.00	\$1,106.00	\$856.00	\$860.00	\$957.00	\$1,061.00	\$1,030.00	\$932.00	\$1,236.00
Ag Sales	\$13,780.00	\$16,763.00	\$15,204.00	\$11,025.00	\$10,120.00	\$10,683.00	\$11,682.00	\$10,959.00	\$10,923.00	\$14,721.00
R&D Expenses as a % of Ag Sales	8.19%	7.29%	7.27%	7.76%	8.50%	8.96%	9.08%	9.40%	8.53%	8.40%
John Deere										
R&D Expenses	\$1,433.60	\$1,477.30	\$1,452.00	\$1,425.10	\$1,393.70	\$1,372.50	\$1,657.60	\$1,783.00	\$1,644.00	\$1,587.00
Ag Sales	\$27,123.00	\$29,132.00	\$26,380.00	\$19,812.00	\$18,487.00	\$20,167.00	\$23,191.00	\$23,666.00	\$22,325.00	\$28,369.00
R&D Expenses as a % of Ag Sales	5.28%	5.07%	5.50%	7.19%	7.54%	6.80%	7.15%	7.53%	7.36%	5.60%
Kubota (in billions of yen)										
Total R&D Expenses	27.90	31.20	35.60	29.60	43.00	48.10	55.80	59.40	58.40	67.50
Farm Equipment & Engines Sales	620.00	744.30	1,002.90	849.90	1,032.20	1,152.50	1,237.90	1,260.90	1,219.20	1,474.40
R&D Expenses as a % of Ag Sales	4.50%	4.19%	3.55%	3.48%	4.17%	4.17%	4.51%	4.71%	4.79%	4.58%
Lindsay										
R&D Expenses	\$9.48	\$11.40	\$11.13	\$12.85	\$15.85	\$17.15	\$16.03	\$13.94	\$14.00	\$13.40
Ag Sales	\$475.30	\$626.00	\$539.90	\$451.20	\$421.60	\$418.00	\$439.90	\$351.50	\$349.40	\$471.40
R&D Expenses as a % of Ag Sales	2.00%	1.82%	2.06%	2.85%	3.76%	4.10%	3.64%	3.97%	4.01%	2.84%
Titan International										
R&D Expenses	\$7.15	\$11.17	\$14.01	\$11.16	\$9.97	\$10.30	\$11.15	\$9.86	\$9.01	\$10.10
Ag Sales	\$1,080.40	\$1,182.20	\$1,016.90	\$723.70	\$583.30	\$690.20	\$694.30	\$652.60	\$634.70	\$949.40
R&D Expenses as a % of Ag Sales	0.66%	0.94%	1.38%	1.54%	1.71%	1.49%	1.61%	1.51%	1.42%	1.06%
Valmont										
R&D Expenses	\$7.10	\$10.20	\$13.90	\$11.60	\$8.30	\$11.60	\$11.50	\$13.90	\$21.40	\$37.00
Ag Sales**	\$750.60	\$964.40	\$839.70	\$605.80	\$568.00	\$644.40	\$624.80	\$578.70	\$640.10	\$1,017.10
R&D Expenses as a % of Ag Sales	0.95%	1.06%	1.66%	1.91%	1.46%	1.80%	1.84%	2.40%	3.34%	3.64%

Note: Kubota's 2015 finances represent a 9 month period due to a change in the company's reporting fiscal year from that year on.

Due to rapidly changing conversion rates between the U.S. dollar and other currencies at the time of publication, all data is reported in its original currency to preserve accuracy.

* Alamo announced new "vegetation" business segment beginning in 2021 to include mowing and forestry/tree care.

** Valmont's business segment breakdown changed between 2015 and 2016, making annual irrigation sales larger in retrospect.

Source: SEC filings