

# ***Ag Equipment Intelligence***

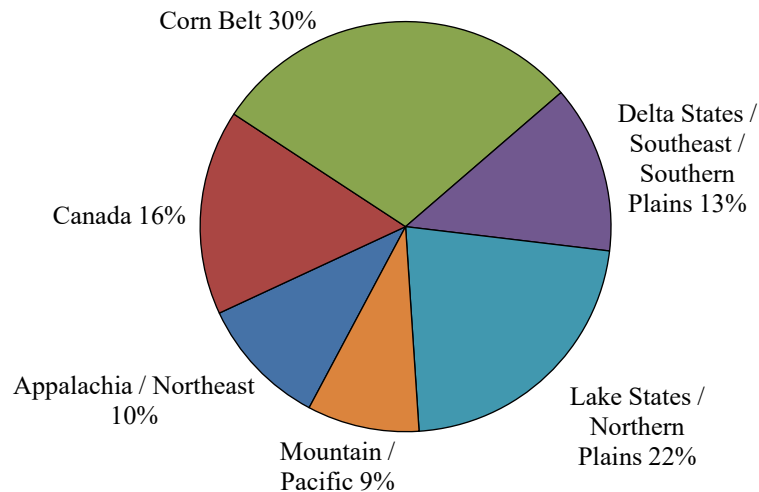
November 2020 Dealer Sentiments &  
Business Conditions Update

# Monthly Ag Equipment Intelligence North American Dealer Survey

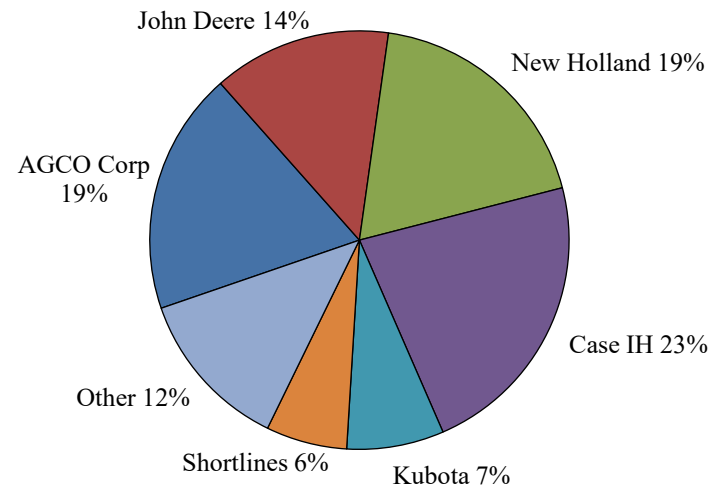
## Background:

- We are pleased to announce the results of the October *Ag Equipment Intelligence* survey conducted in partnership with Cleveland Research Company. We hope this monthly survey will provide valuable and timely insight into industry trends and fundamentals.
- The October survey had ~65 respondents representing combined annual revenues of roughly \$2.5 billion. Participants represent a broad cross section of geographies and brands, summarized in the charts below.

### Survey Participants by Region



### Participants by Brand



**Appalachia / Northeast** – CT, DE, KY, MA, MD, ME, NC, NH, NY, NJ, PA, RI, TI, TN, VA, VT, WV, **Corn Belt** – IL, IN, IA, MO, OH, **Delta States / Southeast / Southern Plains** – AL, AR, FL, GA, LA, MS, OK, SC, TX, **Lake States / Northern Plains** – KS, MI, MN, NE, ND, SD, WI, **Mountain / Pacific** – AK, AZ, CA, CO, HI, ID, MT, NM, NV, OR, UT, WA, WY. Note AGCO represents Massey Ferguson and Challenger brands.

## Highlights / Summary Thoughts

- **Sales** – Average dealer sales were reported up 3% year-over-year in October vs. up 1% year-over-year last month. A net 37% of dealers beat their sales budgets in October vs. the net 33% that beat in September. Parts and Service sales were up 4% year-over-year, in line with last month. 8 of 12 equipment categories showed sequential improvement this month, including the best reading for combines since December 2012 and 4WD tractors since December 2013.
- **Outlook** – The 2020 forecast is up 3% year-over-year vs. up 2% year-over-year last month with a net 2% of contacts that expect growth, in line with last few months. The 2021 dealer forecast is up 3% year-over-year vs. up 1% year-over-year last month. The November USDA crop report indicates further growth in cash receipts for the 2020-21 crop year, with our proxy now showing 25% cash receipts growth this year. We think there is upside to the dealer outlook for 2021 given the historical relationship between the USDA report and dealer outlook. John Deere forecasts North America industry unit sales up 5-10% in 2021.
- **Inventory** – New equipment inventory levels were down in October with a net 54% of dealers reporting inventories “too low” vs. the 28% reporting inventories “too low” in September. Used equipment inventory levels were similar in October with a net 17% of dealers reporting used inventory “too low” vs. a net 18% of dealers reporting used inventory as “too low” last month. This is the fourth time since 2012-13 used and new inventory data was respectively reported “too low.”
- **Pricing** – Used equipment pricing was up 1% in October, in line with August and September, while new equipment was up around 1.1% year-over-year vs. up around 1.4% last month. Used large tractor pricing saw the third positive uptick in sales since around 2015 and was up around 2% year-over-year in October.

# Monthly Sales Growth

- Sales in October were up 3% year-over-year vs. up 1% year-over-year last month with a net 37% of dealers that beat plan vs. the net 33% that beat plan in September.
- A net 27% of dealers reported more optimism in October vs. the net 16% of dealers more optimistic in September. Reasonable commodity pricing, decent weather and a good harvest were noted as drivers to the growing optimism among dealers.

**N. American Farm equipment Dealer Survey - Average Dealer Sales Growth**

% Change y/y	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20
AGCO	7%	-2%	5%	7%	-8%	3%	-7%	0%	-4%	-1%	-6%	-4%	1%	5%
John Deere	3%	5%	-5%	-3%	4%	2%	1%	-5%	1%	0%	0%	4%	9%	3%
New Holland	-2%	0%	-17%	-32%	-11%	-1%	-2%	-4%	-1%	0%	-1%	-1%	-3%	8%
Case IH	-10%	0%	-7%	5%	-1%	3%	-2%	-9%	1%	0%	-2%	-4%	-4%	-4%
Kubota	-11%	5%	-6%	2%	0%	-2%	-11%	0%	2%	-3%	2%	3%	7%	4%
Shortlines/Other	2%	-20%	-15%	3%	-1%	-3%	-8%	3%	-30%	-4%	-2%	6%	7%	0%
<b>Total</b>	<b>-1%</b>	<b>-3%</b>	<b>-5%</b>	<b>-1%</b>	<b>0%</b>	<b>0%</b>	<b>-3%</b>	<b>-4%</b>	<b>-2%</b>	<b>-2%</b>	<b>-1%</b>	<b>0%</b>	<b>1%</b>	<b>3%</b>

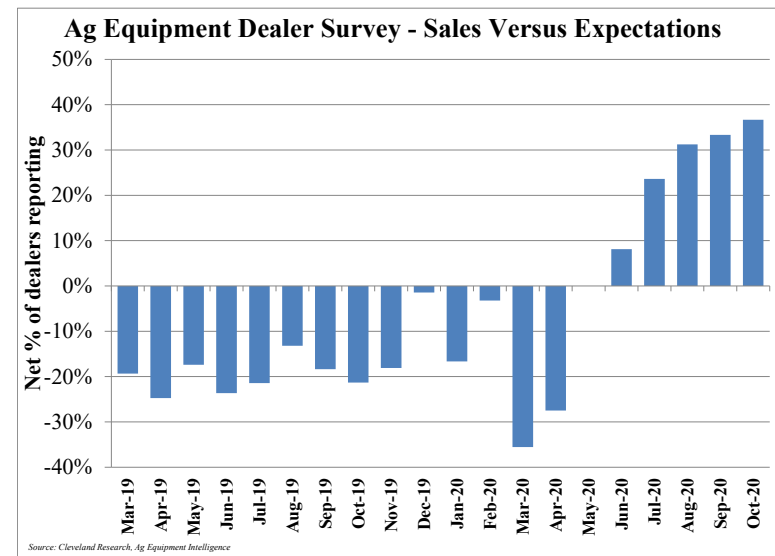
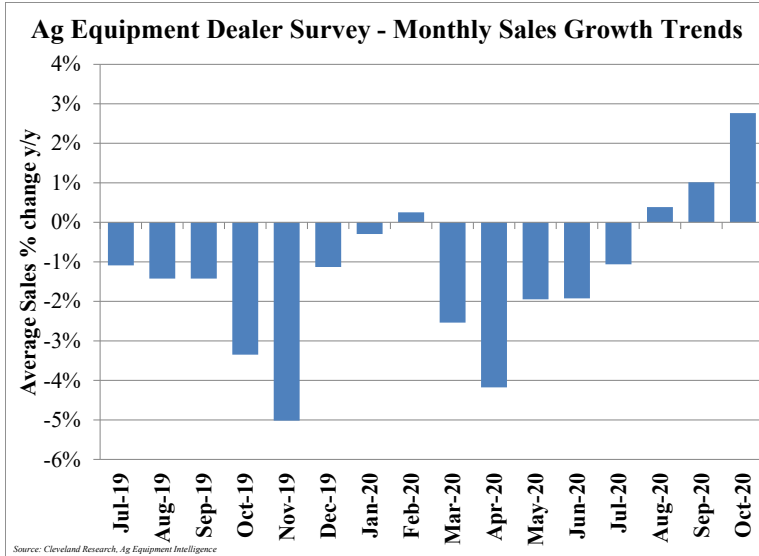
Source: Cleveland Research, Ag Equipment Intelligence

**N. American Farm Equipment Dealer Survey - Sales Versus Expectations**

% of Dealers Reporting	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20
Better than expected	20%	16%	16%	25%	15%	23%	11%	20%	28%	36%	40%	50%	52%	48%
In line with expectations	41%	47%	50%	49%	53%	51%	42%	32%	44%	36%	43%	31%	29%	41%
Worse than expected	39%	37%	34%	26%	32%	26%	47%	48%	28%	28%	17%	19%	19%	11%
<b>Net % (Better - Worse)</b>	<b>-18%</b>	<b>-21%</b>	<b>-18%</b>	<b>-1%</b>	<b>-17%</b>	<b>-3%</b>	<b>-36%</b>	<b>-28%</b>	<b>0%</b>	<b>8%</b>	<b>24%</b>	<b>31%</b>	<b>33%</b>	<b>37%</b>

Source: Cleveland Research, Ag Equipment Intelligence

# Monthly Sales Growth Continued



## N. American Farm Equipment Dealer Survey - Average Dealer Revenue Growth Trends

% of Dealers Reporting	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20
Positive Sales Growth	41%	40%	25%	41%	30%	31%	26%	25%	29%	39%	36%	44%	32%	40%
Flat Sales	16%	13%	11%	22%	27%	46%	30%	41%	38%	31%	35%	34%	43%	43%
Negative Sales Growth	43%	47%	64%	37%	43%	23%	44%	34%	33%	30%	29%	22%	25%	17%
<b>Net % Reporting Growth</b>	<b>-2%</b>	<b>-7%</b>	<b>-39%</b>	<b>5%</b>	<b>-13%</b>	<b>8%</b>	<b>-18%</b>	<b>-9%</b>	<b>-5%</b>	<b>9%</b>	<b>7%</b>	<b>22%</b>	<b>6%</b>	<b>23%</b>
<b>Average % Change y/y</b>	<b>-1%</b>	<b>-3%</b>	<b>-5%</b>	<b>-1%</b>	<b>0%</b>	<b>0%</b>	<b>-3%</b>	<b>-4%</b>	<b>-2%</b>	<b>-2%</b>	<b>-1%</b>	<b>0%</b>	<b>1%</b>	<b>3%</b>

Source: Cleveland Research

## Optimism/Sentiment vs. Last Month

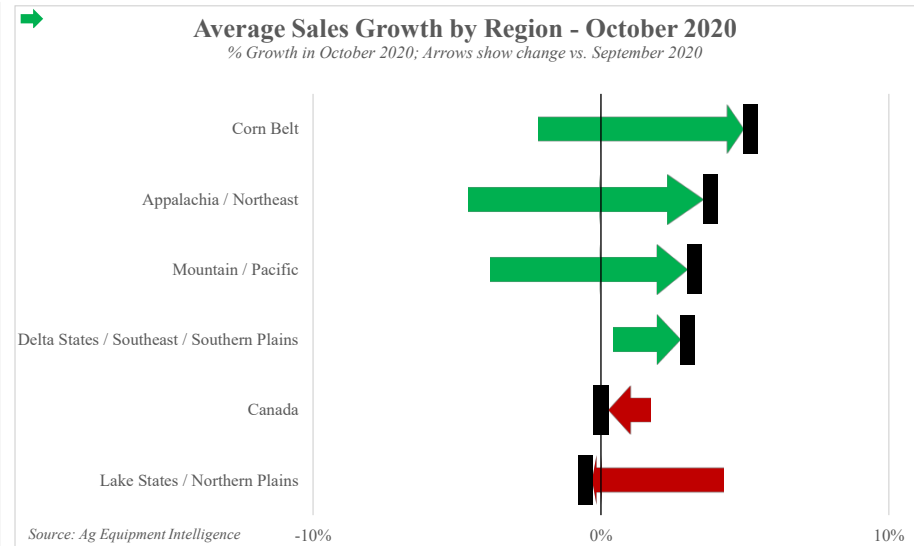
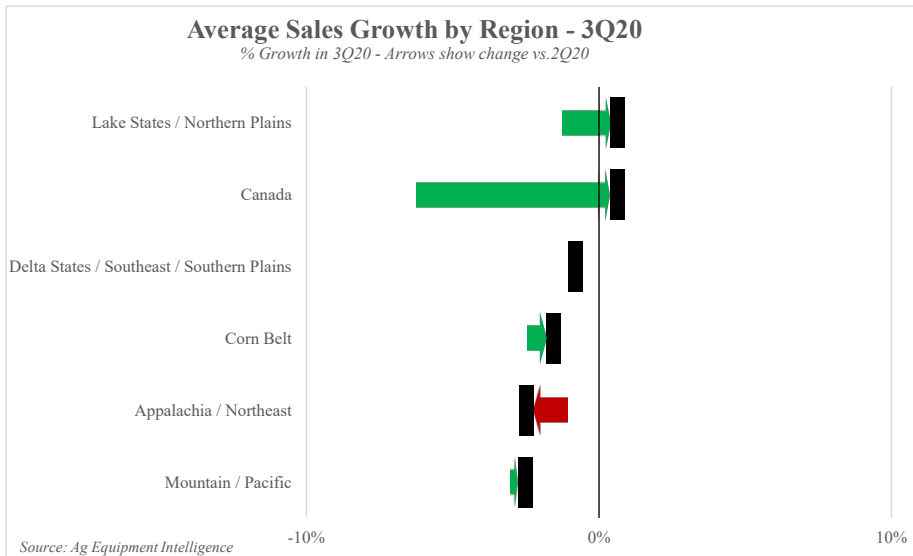
% of Dealers Reporting	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20
More Optimistic	10%	13%	17%	27%	27%	24%	7%	13%	34%	27%	25%	31%	32%	40%
Same	61%	51%	63%	48%	60%	48%	21%	35%	40%	50%	60%	50%	52%	47%
Less Optimistic	29%	36%	20%	25%	13%	27%	72%	53%	25%	23%	15%	19%	16%	13%
<b>Net % Dealer Optimism</b>	<b>-18%</b>	<b>-24%</b>	<b>-3%</b>	<b>1%</b>	<b>14%</b>	<b>-3%</b>	<b>-66%</b>	<b>-40%</b>	<b>9%</b>	<b>4%</b>	<b>10%</b>	<b>13%</b>	<b>16%</b>	<b>27%</b>

Source: Cleveland Research

Source: Ag Equipment Intelligence

# Monthly Sales Growth by Region

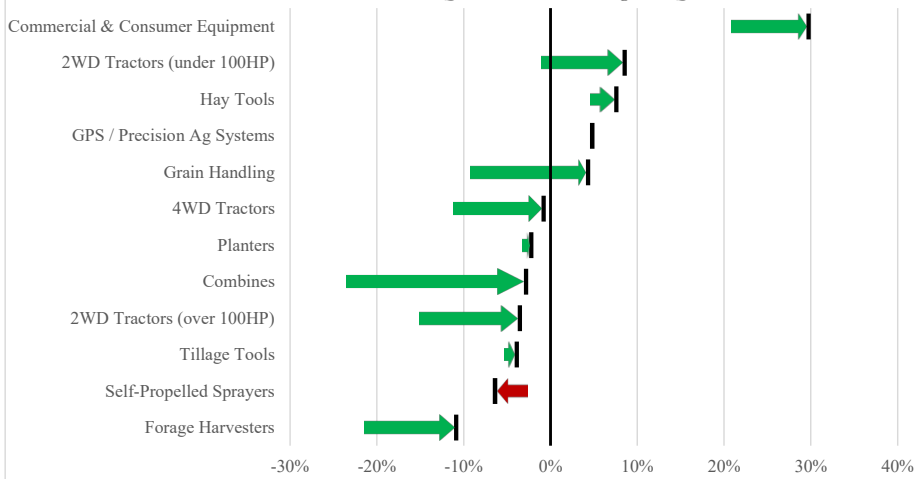
- 4 of the 6 regions saw sequential acceleration in October vs. September. Corn Belt region was the strongest while Lake States/Northern Plains region was the weakest region in the month.
- Corn Belt and Appalachia/Northeast regions showed the greatest sequential improvement in October, while Lake States/Northern Plains region showed the greatest sequential deceleration.



# Equipment Category Sales Trends

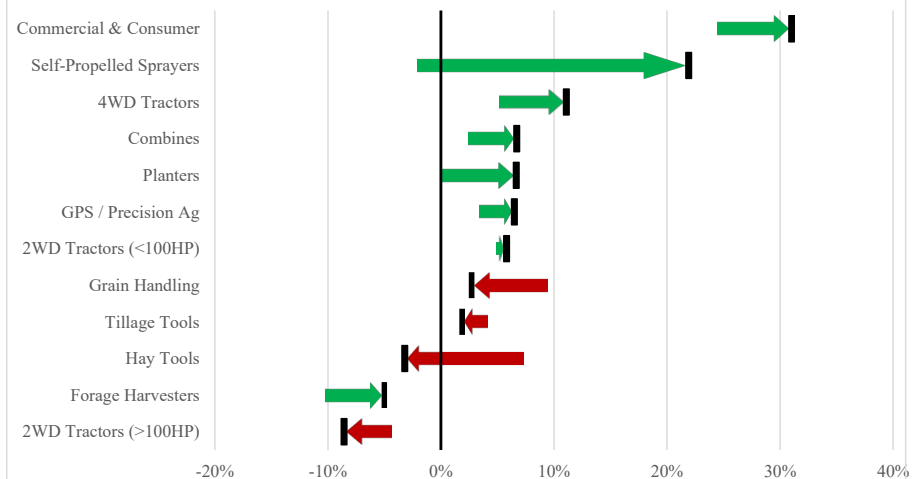
- Sales trends by product category improved in October with 8 of 12 categories showing improvement vs. 7 of 12 categories showing improvement in September.
- The most notable sequential improvement was in Self-Propelled Sprayers while Hay Tools showed the greatest deterioration in October.

**Sales by Product Category- 3Q20**  
*% Growth in 3Q20; Arrows show change vs. 2Q20*



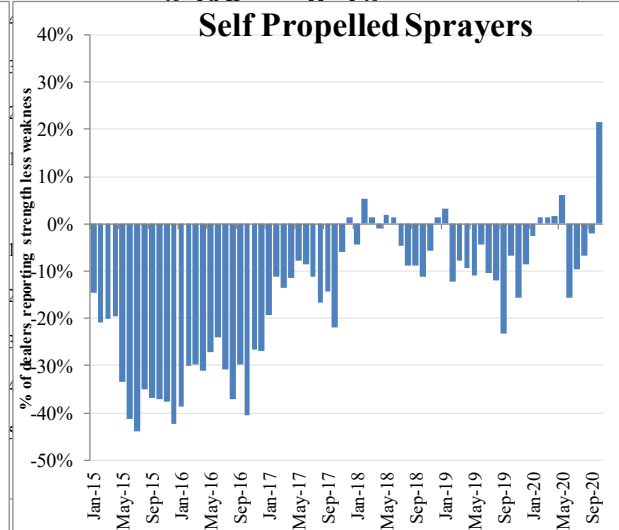
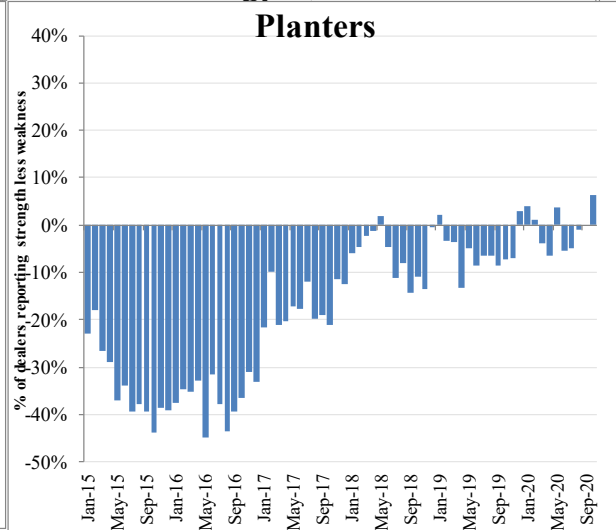
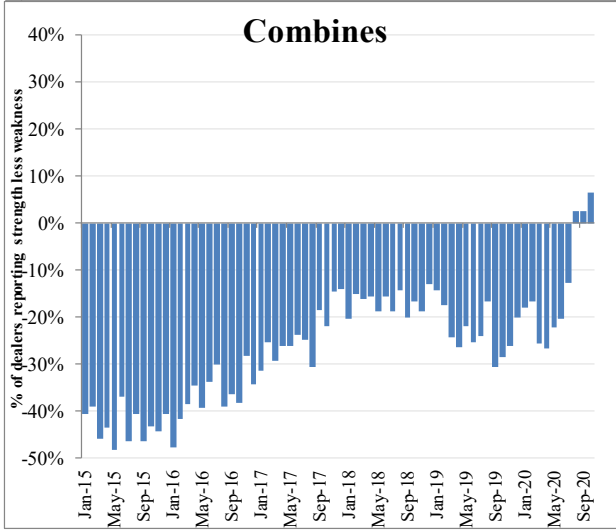
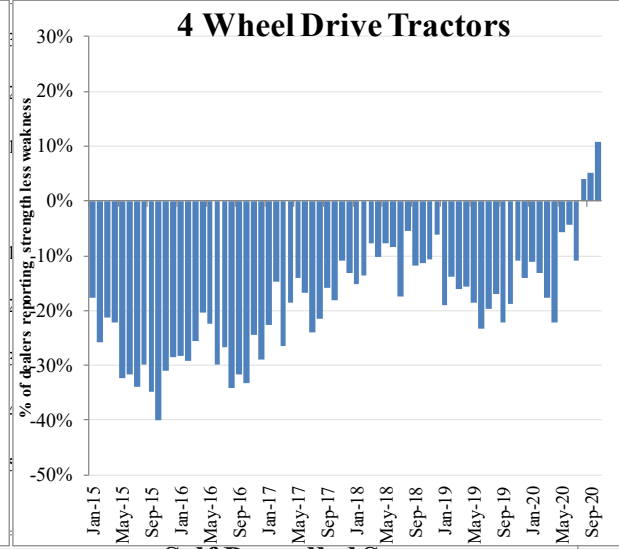
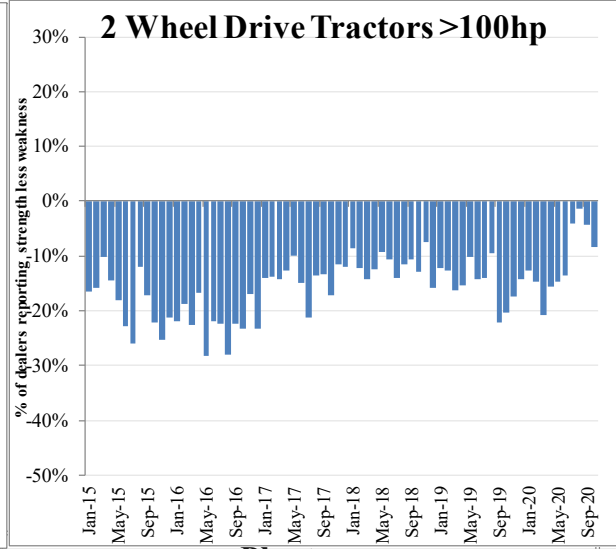
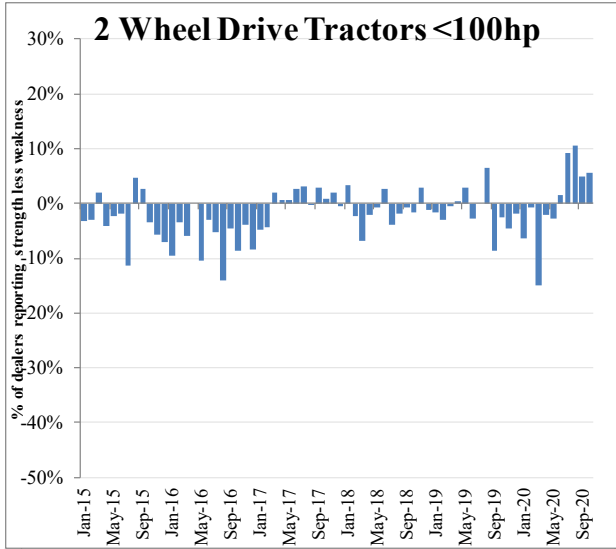
Source: Ag Equipment Intelligence

**Sales by Product Category- October 2020**  
*% Growth in October 2020; Arrows show change vs. September 2020*



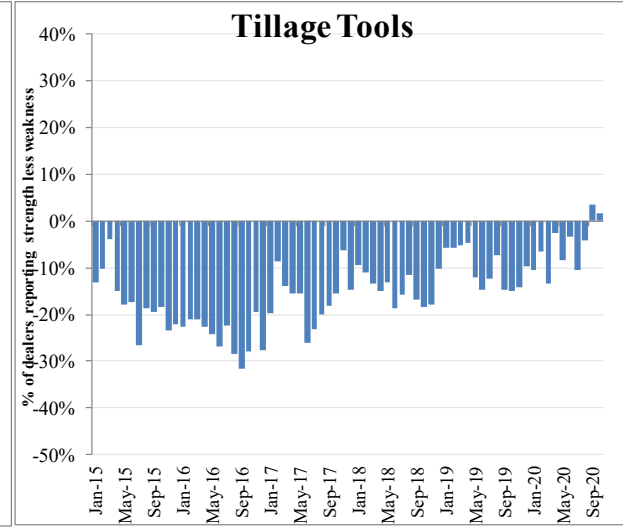
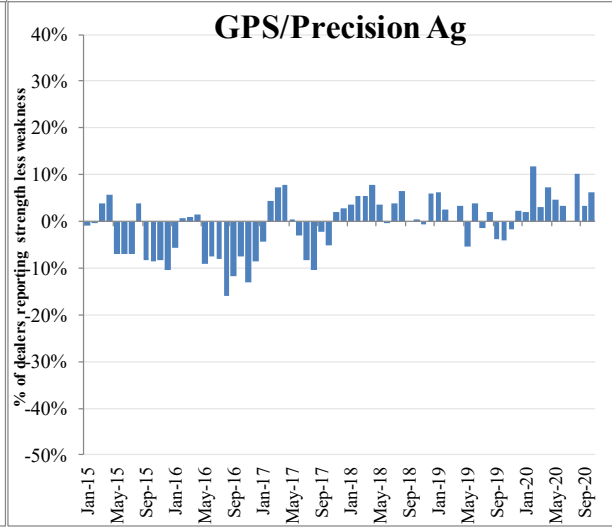
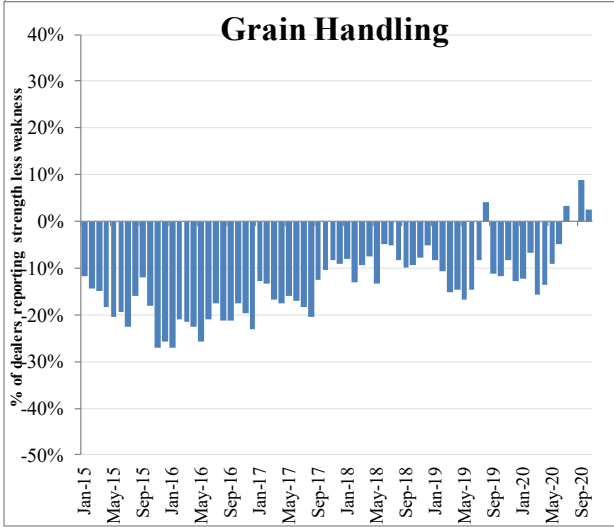
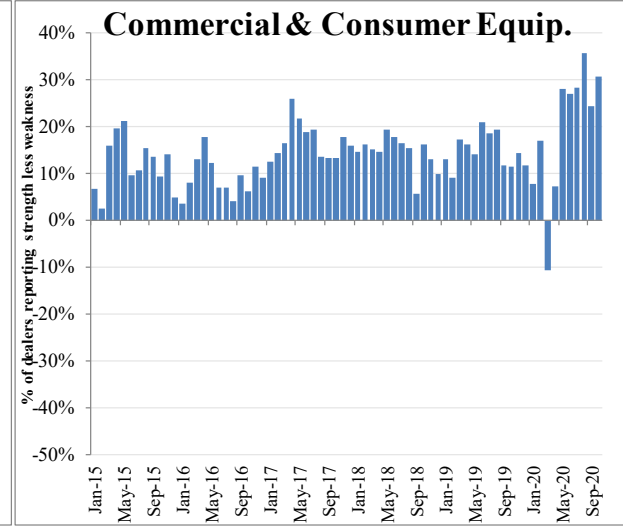
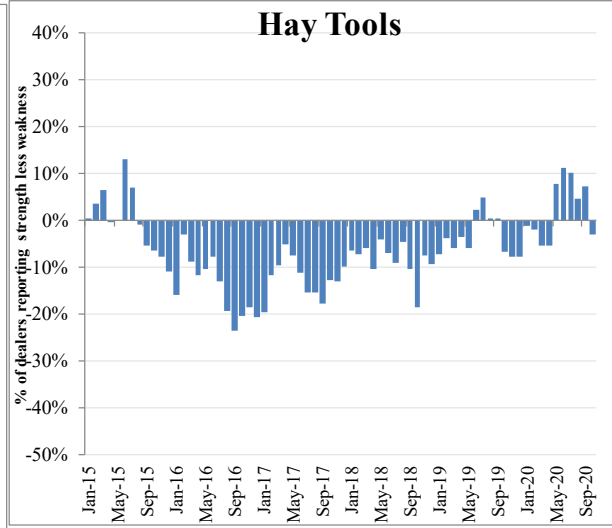
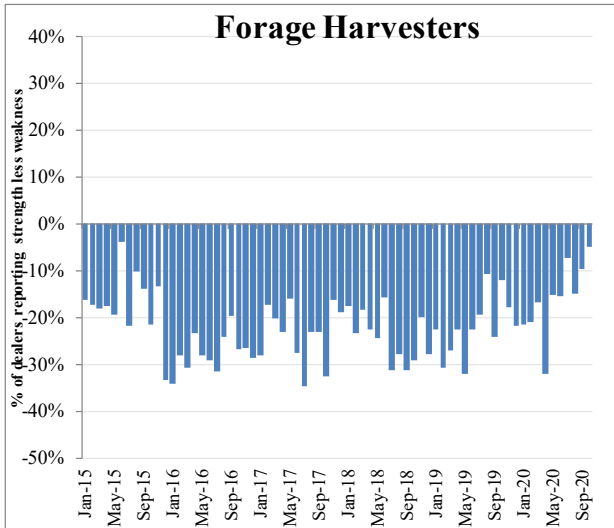
Source: Ag Equipment Intelligence

# Equipment Category Sales Trends





# Equipment Category Sales Trends (Continued)



## Average Dealer Sales Outlook

- The 2020 forecast is up 3% year-over-year vs. up 2% year-over-year last month with a net 2% that expects growth, in line with the last few months. AGCO and John Deere's 2020 forecast for N. America ag is down 10%. CNH forecasts industry sales down 10% for 140+ HP tractors and combines and up 5% for 0-140 HP tractors. John Deere's 2021 forecast for N. America ag industry unit sales is up 5-10%.

**N. American Farm Equipment Dealer Survey - Net % of Contacts Forecasting Growth in 2020**

% of Dealers Reporting	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20
Positive Sales Growth	31%	44%	48%	52%	55%	45%	36%	40%	37%	45%	42%	44%	42%	43%
Flat Sales	33%	24%	25%	21%	9%	21%	16%	14%	17%	11%	18%	14%	18%	16%
Negative Sales Growth	37%	32%	27%	27%	35%	34%	48%	46%	46%	43%	40%	42%	40%	41%
<b>Net % Expecting Growth</b>	<b>-6%</b>	<b>12%</b>	<b>21%</b>	<b>24%</b>	<b>20%</b>	<b>10%</b>	<b>-12%</b>	<b>-6%</b>	<b>-9%</b>	<b>2%</b>	<b>2%</b>	<b>2%</b>	<b>2%</b>	<b>2%</b>

Source: Cleveland Research, Ag Equipment Intelligence

**N. American Farm Equipment Dealer Survey - 2020 Sales Forecast**

% change y/y	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20
AGCO	0%	-2%	1%	-3%	2%	-1%	3%	2%	1%	-4%	3%	-1%	1%	6%	6%
John Deere	1%	0%	-2%	-1%	0%	2%	-1%	-9%	-6%	0%	0%	-5%	2%	-5%	0%
New Holland	-4%	-3%	-1%	0%	-3%	-12%	-3%	3%	-12%	-8%	-3%	-3%	-2%	-2%	2%
Case IH	-1%	-7%	-3%	-3%	0%	6%	2%	-5%	-12%	-2%	-1%	-1%	3%	6%	6%
Kubota	-3%	-5%	-3%	2%	3%	1%	1%	-9%	-3%	2%	-5%	-5%	-2%	8%	1%
Shortlines/Other	1%	-2%	0%	1%	4%	2%	-4%	-2%	4%	7%	-2%	1%	-4%	7%	1%
<b>Total</b>	<b>-1%</b>	<b>-2%</b>	<b>-2%</b>	<b>-2%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>-6%</b>	<b>-7%</b>	<b>-3%</b>	<b>-3%</b>	<b>-1%</b>	<b>0%</b>	<b>2%</b>	<b>3%</b>

Source: Cleveland Research, Ag Equipment Intelligence

**2020 Ag Equipment Industry Sales Outlook (units)**

Geography	Deere	CNH Industrial	AGCO Corp.
N. America	Down 10%	Tractors (10%)-5%, Combines (10%)	Down 10%
Western Europe	Down 5-10%	Tractors (15%)-(10%), Combines (15%)	Down 10%
Latin America	Down 10-15%	Tractors (10%), Combines (10%)	Flat to Down 5%
Asia	Down Moderately	Tractors Flat to (5%), Combines 5%	na

Source: Company reports, CRC estimates

Source: Ag Equipment Intelligence

## Most Interesting Commentary - Monthly Sales and Outlook

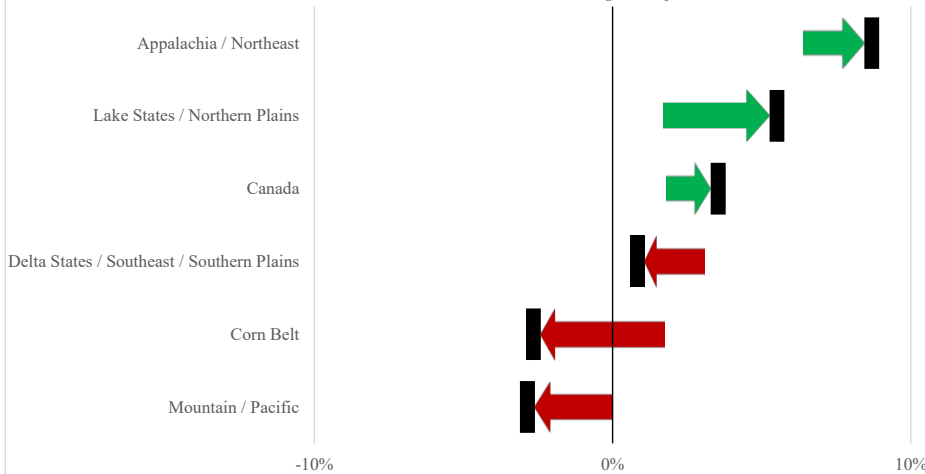
- One month in isolation was not meaningful since timing of large purchases can change from year to year. (Mountain/Pacific)
- The hobby farm/consumer market is still very strong despite the change in seasons. (Corn Belt)
- October sales were off because we could not get equipment in to sell. (Delta States/Southeast/Southern Plains)
- Demand is high, but we have no inventory. (Appalachia/Northeast)
- Grain prices are ticking upwards and above average yields. Operators are in a position where they are going to have to update some equipment. (Corn Belt)
- We are concerned about the uncertain political climate, the pandemic, and the lack of inventory. (Delta States/Southeast/Southern Plains)
- The election results have made the farmers nervous to spend money. (Lake States/Northern Plains)
- Our pre-sell season was very strong. We already have 60% of our sales booked for 2021. (Canada)
- Used inventory turns are the highest they have ever been. With the aging equipment on the farm and equipment worn out beyond repair, there are many customers not trading their used and buying new outright. (Corn Belt)
- We are seeing strength in large ag equipment sales. (Appalachia/Northeast)
- Everyone is worried about COVID-19 spiking back up and the results of the election. (Lake States/Northern Plains)
- Commodity prices continue to improve. (Mountain/Pacific)
- Our sales were doing great but then we could not get product. If we could get the unit, we could not get the attachment. We are shipping units out that are not complete and will have to bring them back to finish the build. (Canada)
- The dry fall weather helped us out a lot. Harvest was better than expected. (Corn Belt)
- Sales started to slow down as customers waited for the election results. (Lake States/Northern Plains)
- Markets have picked up and we think there will be money spent before year end. (Corn Belt)

# 2020 Sales Outlook

- In October, the 2020 outlook improved in 3 of the 6 regions with the greatest sequential improvement in the Lake States/Northern Plains region. 4 of 6 regions are expecting growth in 2020.
- Appalachia/Northeast, Lake States/Northern Plains, Canada, and Delta States/Southeast/Southern Plains are the regions expecting growth in 2020.

**Average Outlook by Region - October 2020**

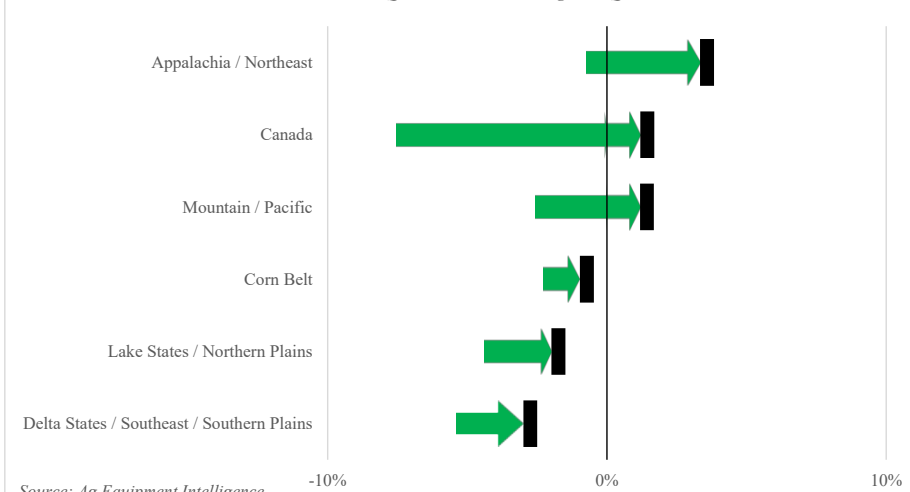
*% Growth in October 2020; Arrows show change vs. September 2020*



Source: Ag Equipment Intelligence

**Average Outlook by Region - 3Q20**

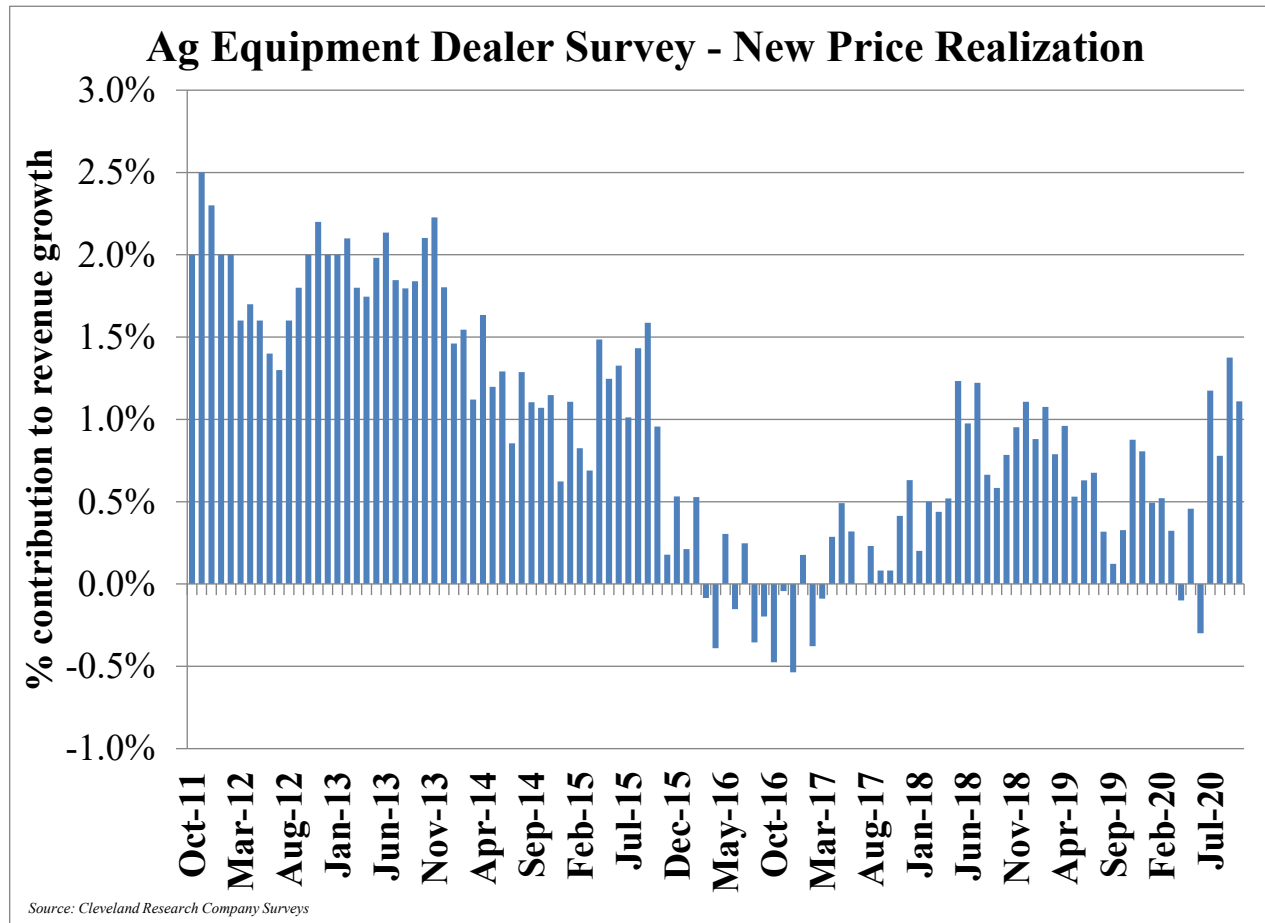
*% Growth in 3Q20; Arrows show change vs. 2Q20*



Source: Ag Equipment Intelligence

# Pricing Trends

- Price contribution was up 1.1% in October vs. up 1.4% last month. Commentary suggests the increase in price is the result of standard seasonal price increases by the manufacturer.

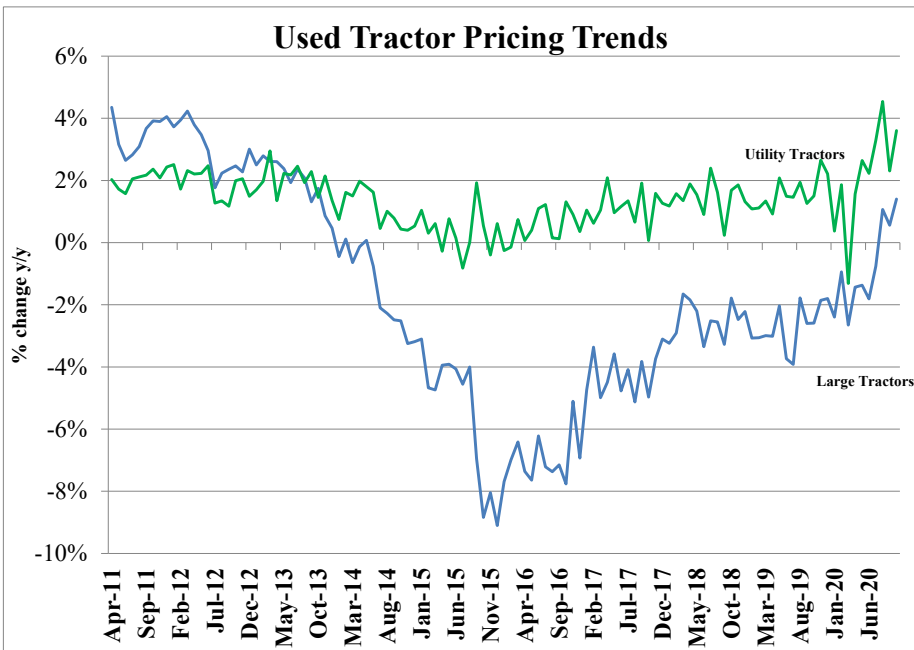


# Used Equipment Pricing

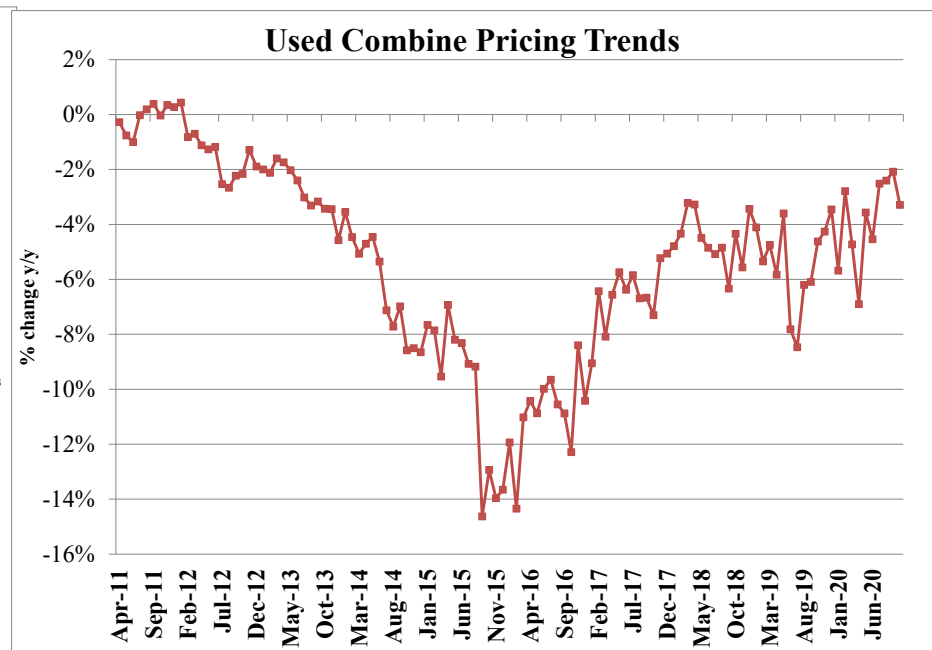
- Used equipment pricing was up 1% in October, in line with last month. Used large tractor pricing was reported up 2% year-over-year while combine pricing was reported down 3% year-over-year vs. down 2% year over-year last month.

Used Tractor and Combine Values - % Change y/y													
Product Category	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20
Compact Tractor (<40HP)	1%	3%	2%	1%	2%	-2%	2%	3%	3%	4%	5%	3%	4%
Utility Tractor (40-100HP)	2%	3%	2%	0%	1%	-1%	1%	2%	1%	3%	4%	2%	3%
Row Crop Tractor (100HP+)	(1%)	(1%)	(1%)	(2%)	(0%)	(3%)	(1%)	(1%)	(3%)	(0%)	1%	1%	2%
4WD Tractors	(4%)	(2%)	(2%)	(3%)	(1%)	(2%)	(2%)	(2%)	(1%)	(1%)	1%	0%	1%
Combines	(5%)	(4%)	(3%)	(6%)	(3%)	(5%)	(7%)	(4%)	(5%)	(3%)	(2%)	(2%)	(3%)

Source: Cleveland Research, Ag Equipment Intelligence



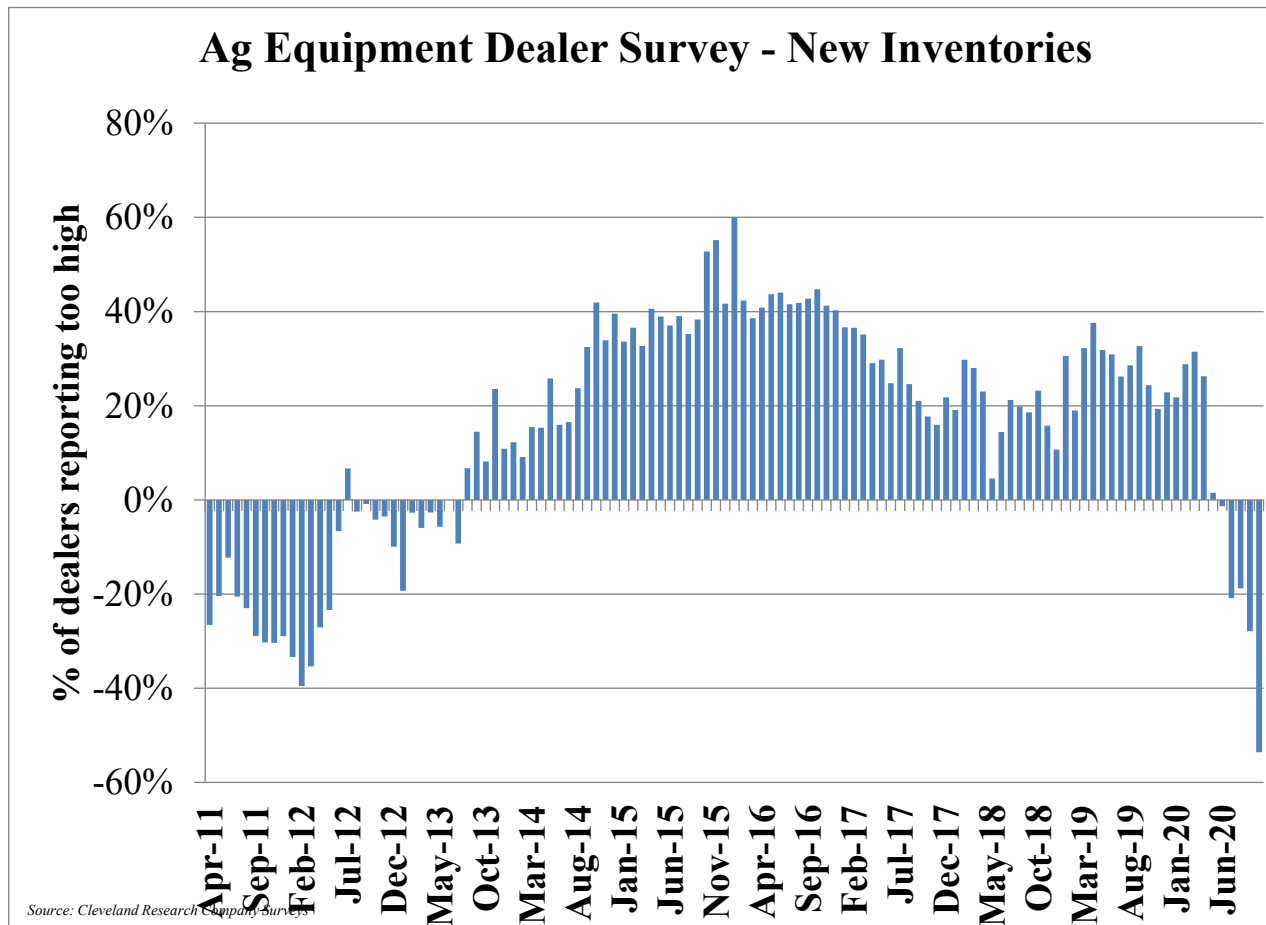
Source: Cleveland Research, Ag Equipment Intelligence



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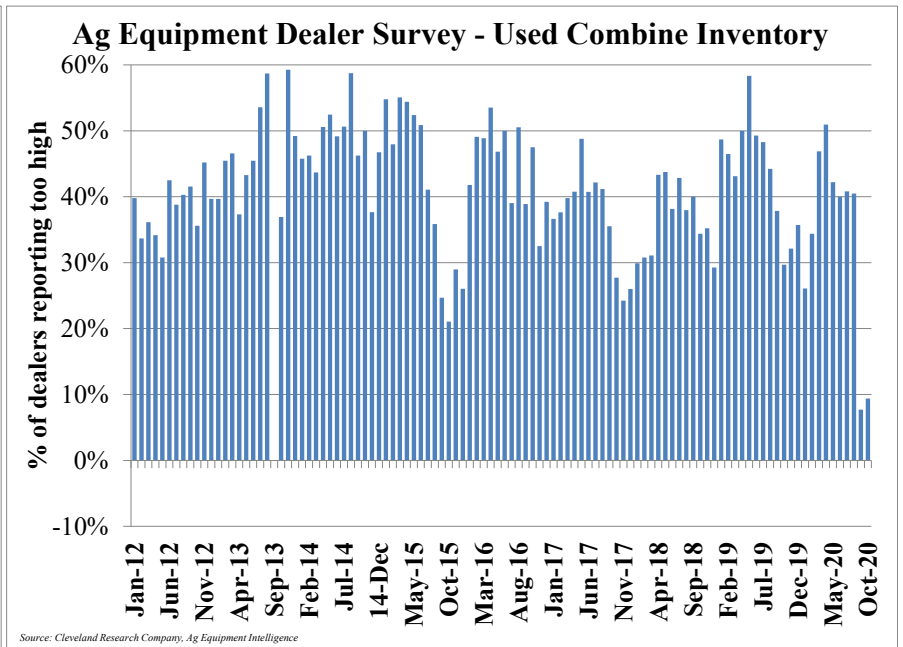
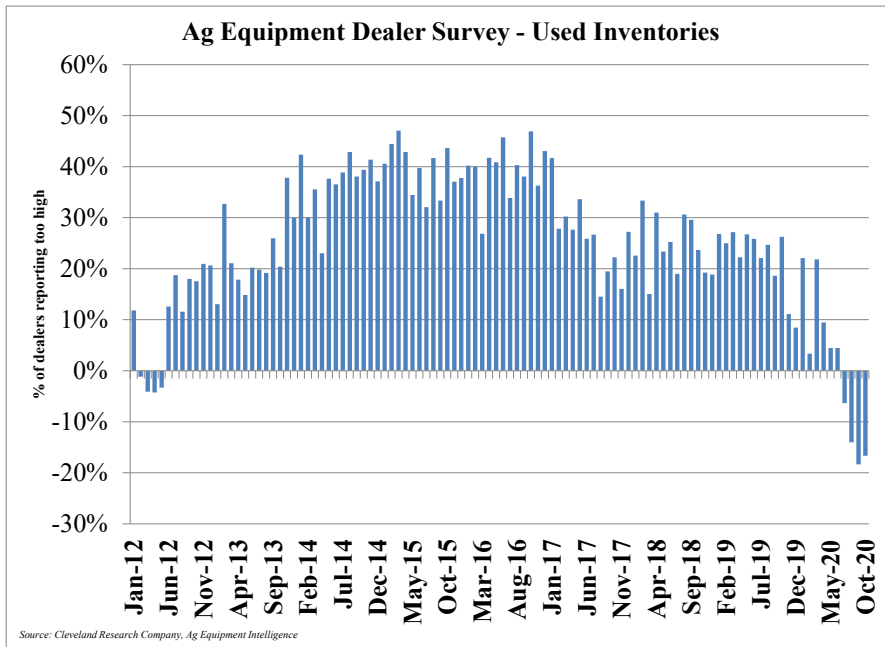
# New Equipment Inventory Levels

- New equipment inventory levels decreased in October with a net 54% of dealers reporting inventories “too low” (2% too high, 42% in line, 56% too low) vs. 28% of dealers reporting inventories “too low” (8% too high, 56% in line, 36% too low) in September.



# Used Equipment Inventory Levels

- A net 17% of dealers reported used equipment inventory as “too low” (15% too high, 53% in line, 32% too low) vs. a net 18% of dealers reporting used equipment inventory as “too low” last month (13% too high, 56% in line, 31% too low).
- Used combine inventory was similar in October with a net 9% of dealers reporting inventories as “too high” (22% too high, 65% in line, 13% too low) vs. the net 8% reporting inventories “too high” in September (23% too high, 62% in line, 15% too low).
- A net 38% of dealers reported used HHP tractor inventories “too low” in October (13% too high, 36% in line, 51% too low) vs. the net 45% reporting inventories “too low” last month (5% too high, 45% in line, 50% too low).





# North American Farm Equipment Industry Retail Sales

## NORTH AMERICAN FARM EQUIPMENT RETAIL SALES

	Units							% change year-over-year						
	< 40 HP	Utility	Row Crop	4-Wheel	Total Tractor	Row Crop & 4WD	Combines	< 40 HP	Utility	Row Crop	4-Wheel	Total Tractor	Row Crop & 4WD	Combines
Mar-18	14,425	5,289	1,877	317	21,908	2,194	395	5%	-1%	5%	-6%	3%	3%	-14%
Apr-18	19,435	6,264	2,335	386	28,420	2,721	708	0%	6%	-3%	-9%	1%	-4%	40%
May-18	23,016	6,258	1,871	275	31,420	2,146	451	18%	5%	17%	8%	15%	16%	21%
Jun-18	20,644	6,780	1,845	243	29,512	2,088	696	15%	4%	16%	27%	13%	18%	17%
Jul-18	15,840	5,851	1,868	238	23,797	2,106	850	17%	-1%	30%	75%	13%	34%	30%
Aug-18	14,032	5,674	1,445	178	21,329	1,623	642	18%	4%	19%	5%	14%	17%	-5%
Sep-18	11,806	4,908	1,633	364	18,711	1,997	663	3%	-7%	16%	37%	1%	19%	3%
Oct-18	16,635	7,789	3,399	635	28,458	4,034	741	10%	5%	-9%	-10%	6%	-9%	-11%
Nov-18	8,460	3,811	970	243	13,484	1,213	324	4%	-10%	1%	30%	0%	6%	-2%
Dec-18	11,561	6,675	2,092	326	20,654	2,418	883	6%	4%	6%	-21%	5%	2%	26%
Jan-19	7,949	3,790	1,327	250	13,316	1,577	321	12%	-8%	-7%	2%	3%	-6%	21%
Feb-19	8,965	3,467	1,034	188	13,654	1,222	384	25%	4%	-8%	-15%	16%	-9%	22%
Mar-19	14,602	5,164	1,831	319	21,916	2,150	558	1%	-2%	-2%	1%	0%	-2%	41%
Apr-19	23,314	6,059	2,326	351	32,050	2,677	601	20%	-3%	0%	-9%	13%	-2%	-15%
May-19	23,360	6,304	1,998	222	31,884	2,220	397	1%	1%	7%	-19%	1%	3%	-12%
Jun-19	20,024	6,374	1,670	189	28,257	1,859	480	-3%	-6%	-9%	-22%	-4%	-11%	-31%
Jul-19	15,777	5,874	1,668	220	23,539	1,888	577	0%	0%	-11%	-8%	-1%	-10%	-32%
Aug-19	14,447	5,602	1,612	208	21,869	1,820	617	3%	-1%	12%	17%	3%	12%	-4%
Sep-19	13,978	5,894	1,645	339	21,856	1,984	691	18%	20%	1%	-7%	17%	-1%	4%
Oct-19	16,021	7,561	3,336	567	27,485	3,903	750	-4%	-3%	-2%	-11%	-3%	-3%	1%
Nov-19	8,586	3,867	972	145	13,570	1,117	322	1%	1%	0%	-40%	1%	-8%	-1%
Dec-19	12,172	6,072	2,086	376	20,706	2,462	774	5%	-9%	0%	15%	0%	2%	-12%
Jan-20	8,224	3,887	1,496	180	13,787	1,676	244	3%	3%	13%	-28%	4%	6%	-24%
Feb-20	8,013	3,259	1,047	210	12,529	1,257	283	-11%	-6%	1%	12%	-8%	3%	-26%
Mar-20	12,200	4,371	1,557	263	18,391	1,820	453	-16%	-15%	-15%	-18%	-16%	-15%	-19%
Apr-20	26,146	6,404	2,046	389	34,985	2,435	607	12%	6%	-12%	11%	9%	-9%	1%
May-20	27,608	6,889	1,573	206	36,276	1,779	313	18%	9%	-21%	-7%	14%	-20%	-21%
Jun-20	27,675	8,098	1,667	152	37,592	1,819	628	38%	27%	0%	-20%	33%	-2%	31%
Jul-20	22,110	7,498	1,736	192	31,536	1,928	783	40%	28%	4%	-13%	34%	2%	36%
Aug-20	16,705	6,383	1,500	227	24,815	1,727	656	16%	14%	-7%	9%	13%	-5%	6%
Sep-20	17,700	6,775	2,055	411	26,941	2,466	646	27%	15%	25%	21%	23%	24%	-7%
Oct-20	19,721	8,258	3,595	685	32,259	4,280	831	23%	9%	8%	21%	17%	10%	11%

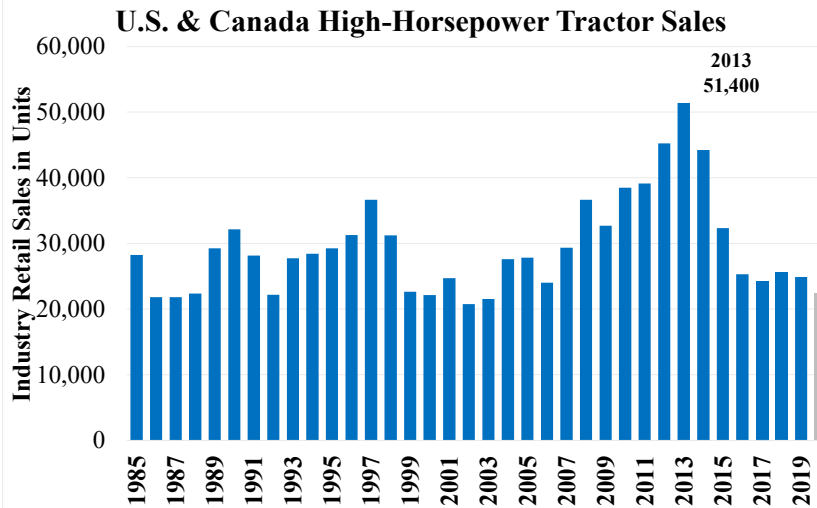
Source: AEM; Cleveland Research Company estimates. High hp tractors are row crop & 4-wheel drive.

# North American Farm Equipment Industry Inventory

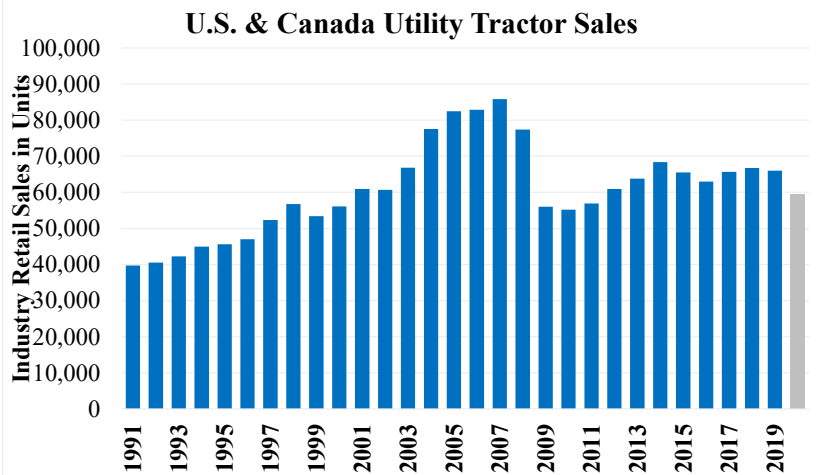
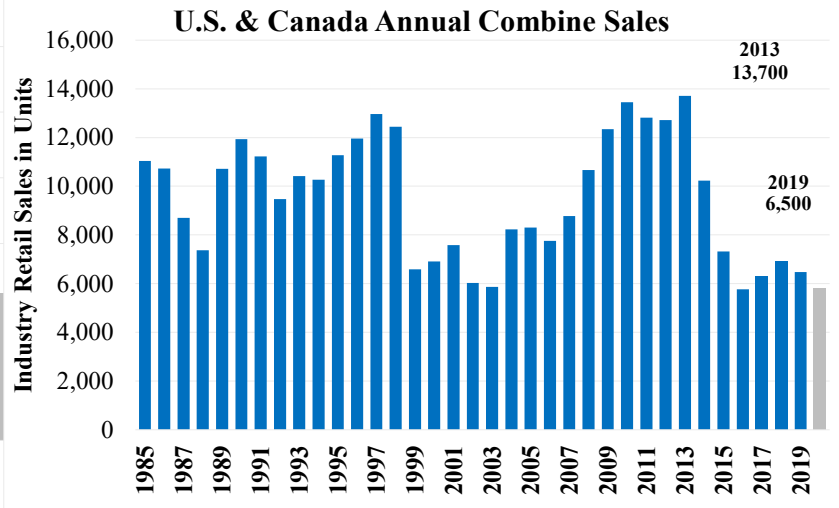
NORTH AMERICAN FARM EQUIPMENT INVENTORY														
	Inventory (Units)							Inventory to 12-mo. Sales						
	< 40 HP	Utility	Row Crop	4-Wheel	Total Tractor	Row Crop & 4WD	Combines	<40HP	Util	RC	4-WD	Total Tractor	Row Crop & 4WD	Comb
Feb-18	101,479	37,637	10,590	935	150,641	11,525	1,333	65%	57%	51%	26%	61%	48%	21%
Mar-18	103,354	38,556	11,004	963	153,877	11,967	1,548	66%	58%	53%	27%	62%	49%	25%
Apr-18	102,049	38,808	10,826	933	152,616	11,759	1,527	65%	59%	52%	27%	62%	49%	24%
May-18	94,678	38,846	10,908	997	145,429	11,905	1,750	59%	58%	52%	28%	58%	49%	27%
Jun-18	92,274	38,227	10,997	1,100	142,598	12,097	1,908	57%	57%	52%	31%	56%	49%	29%
Jul-18	92,063	38,569	11,030	1,163	142,825	12,193	1,784	56%	58%	51%	32%	56%	48%	26%
Aug-18	90,302	38,505	11,174	1,222	141,203	12,396	1,870	54%	57%	51%	33%	54%	49%	27%
Sep-18	87,522	38,147	11,431	1,316	138,416	12,747	1,690	52%	57%	52%	35%	53%	49%	25%
Oct-18	86,634	37,327	10,437	1,180	135,578	11,617	1,166	51%	56%	48%	32%	52%	46%	17%
Nov-18	92,950	39,424	11,048	1,174	144,596	12,222	1,159	55%	59%	51%	31%	55%	48%	17%
Dec-18	96,606	39,300	11,103	1,342	148,351	12,445	1,284	57%	59%	51%	37%	57%	49%	19%
Jan-19	102,599	39,911	11,167	1,292	154,969	12,459	1,410	60%	60%	51%	35%	59%	49%	20%
Feb-19	108,169	41,608	11,605	1,364	162,746	12,969	1,667	63%	63%	53%	37%	61%	51%	24%
Mar-19	113,593	42,206	12,089	1,439	169,327	13,528	1,798	66%	64%	56%	39%	64%	53%	25%
Apr-19	104,886	42,157	12,126	1,338	160,507	13,464	1,739	59%	64%	56%	37%	60%	53%	24%
May-19	97,263	40,822	11,963	1,252	151,300	13,215	1,988	55%	62%	55%	35%	56%	52%	28%
Jun-19	95,055	39,248	11,902	1,401	147,606	13,303	2,229	54%	60%	55%	40%	55%	53%	33%
Jul-19	96,853	38,341	11,655	1,397	148,246	13,052	2,305	55%	58%	54%	40%	55%	52%	35%
Aug-19	98,923	39,257	11,260	1,394	150,834	12,654	2,384	56%	60%	52%	40%	56%	50%	36%
Sep-19	100,345	41,280	11,652	1,290	154,567	12,942	1,876	56%	62%	54%	37%	57%	52%	29%
Oct-19	100,036	39,441	10,047	981	150,505	11,028	1,248	56%	59%	47%	29%	56%	44%	19%
Nov-19	103,079	39,813	10,932	1,052	154,876	11,984	1,249	58%	60%	51%	32%	57%	48%	19%
Dec-19	103,197	39,004	10,725	1,022	153,948	11,747	1,107	58%	59%	50%	30%	57%	47%	17%
Jan-20	107,487	40,659	10,422	955	159,523	11,377	1,232	60%	61%	48%	29%	59%	46%	19%
Feb-20	112,298	41,971	10,641	1,012	165,922	11,653	1,477	63%	64%	49%	30%	62%	47%	23%
Mar-20	114,401	44,204	10,900	1,111	170,616	12,011	1,633	65%	68%	51%	34%	64%	49%	26%
Apr-20	101,757	42,447	10,457	955	155,616	11,412	1,456	57%	65%	49%	29%	58%	47%	24%
May-20	85,267	39,643	9,700	847	135,457	10,547	1,584	47%	60%	47%	26%	50%	44%	26%
Jun-20	72,001	36,417	9,451	938	118,807	10,389	1,767	38%	54%	46%	29%	42%	43%	28%
Jul-20	62,238	33,498	9,628	997	106,361	10,625	1,848	32%	48%	46%	31%	37%	44%	29%
Aug-20	60,191	32,081	10,007	1,156	103,435	11,163	1,836	30%	46%	48%	36%	35%	47%	28%
Sep-20	57,125	30,188	9,812	1,167	98,292	10,979	1,379	28%	42%	47%	35%	33%	45%	21%

Source: AEM; Cleveland Research Company estimates

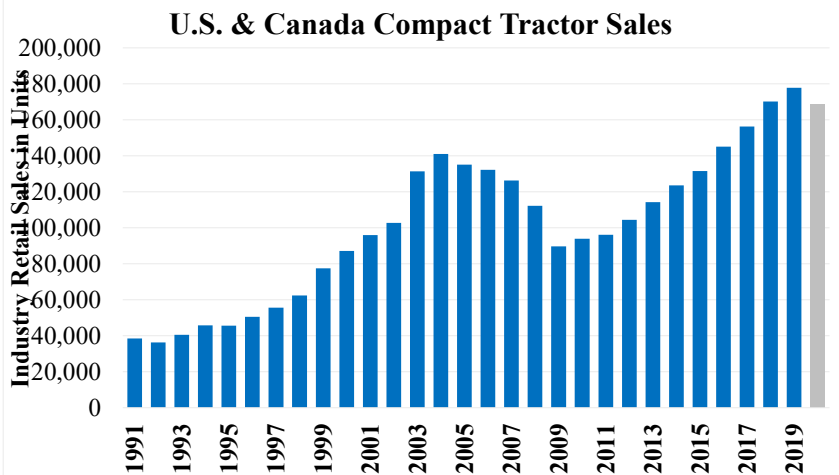
# Annual Agricultural Equipment Industry Sales (1985 - 2019)



Source: AEM, Cleveland Research. Row crop & 4-wheel drive.



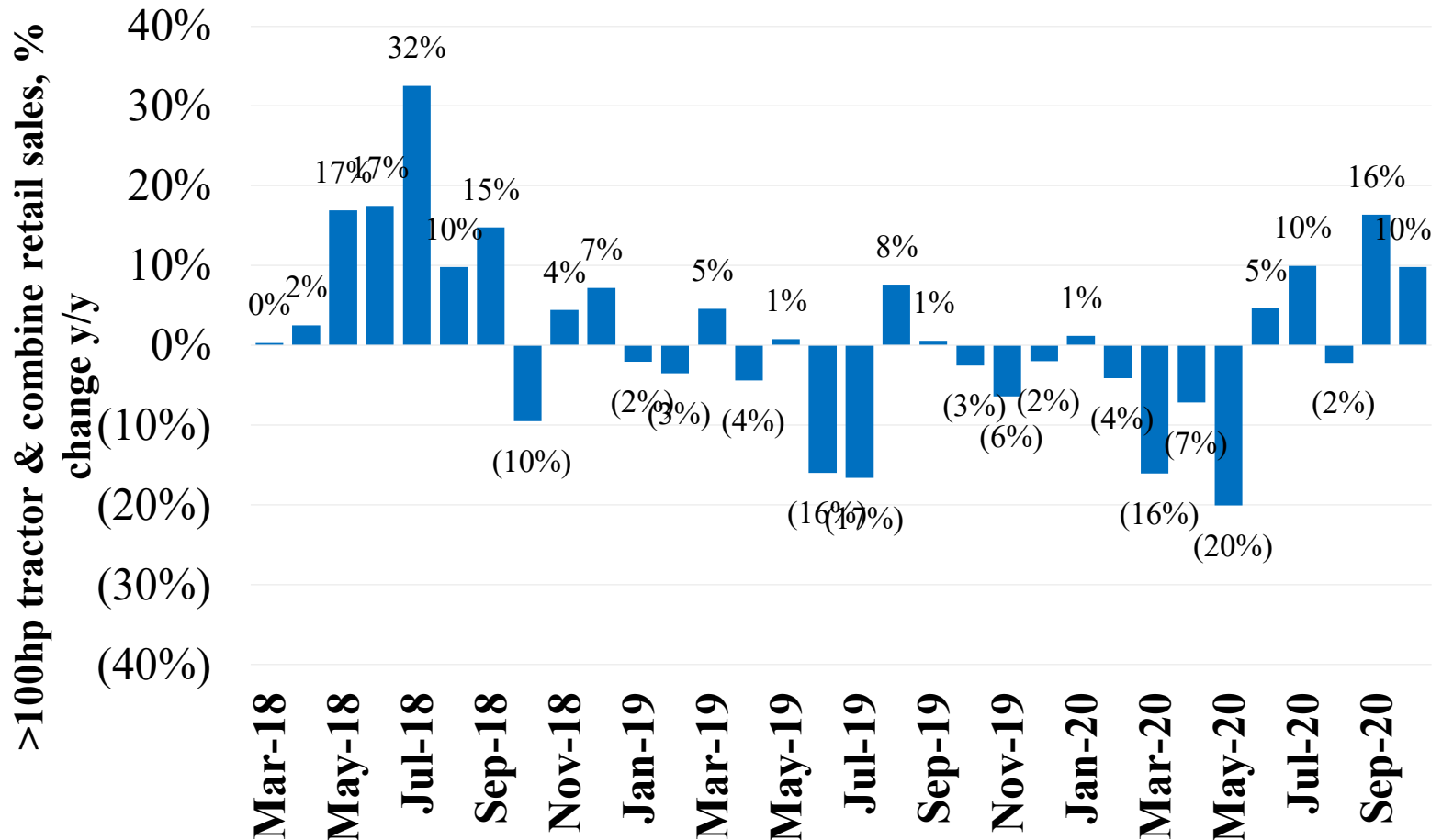
Source: AEM, Cleveland Research. 50-100hp tractors



Source: AEM, Cleveland Research. Below 40hp

# North America Large Ag Equipment Sales

## U.S. & Canada High Horsepower Tractor & Combine

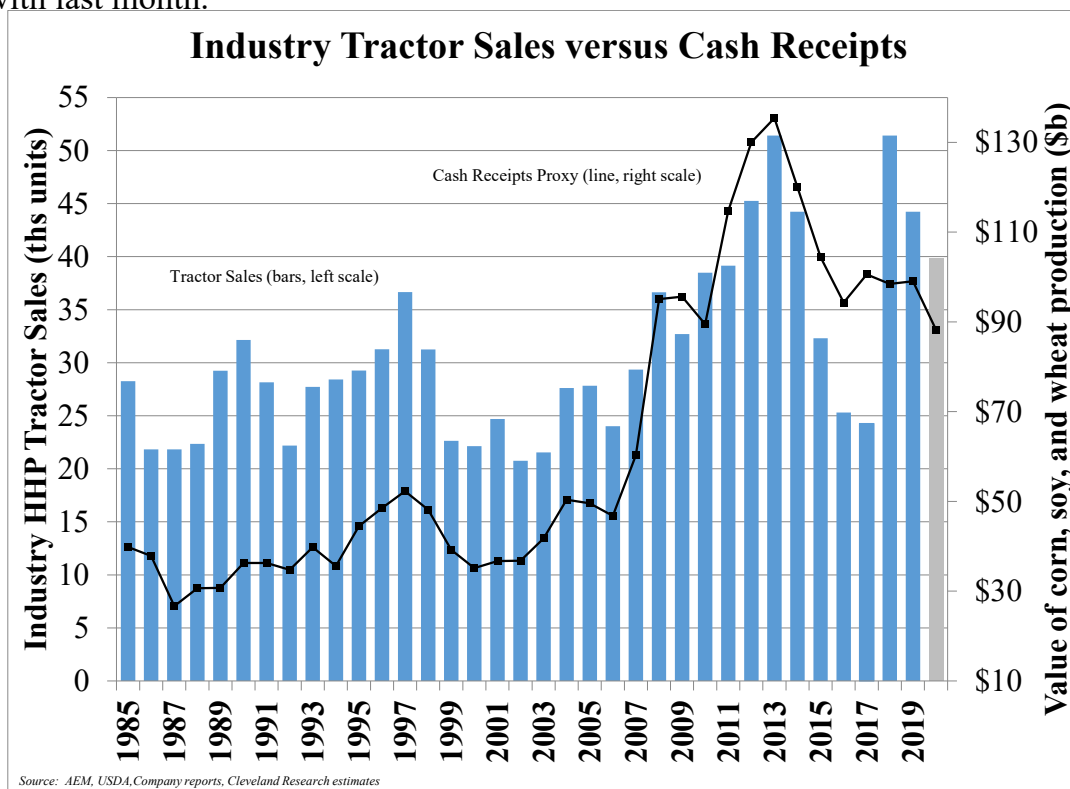


Source: AEM, CRC estimates

# Commodity Prices – Cash Receipts vs. Next Year Equipment Sales

**USDA’s November WASDE Update Highlights** – The following chart illustrates the historical relationship between the value of production of corn, soybeans and wheat in the U.S. compared to annual industry sales of high horsepower tractors.

USDA’s November crop report improved from last month with our 2020-21 cash receipts proxy forecast up 25% year-over-year vs. up 18% year-over-year last month. Corn cash receipts are forecast up 20% this month vs. up 9% last month while soybean cash receipts are forecast up 42% in November vs. up 37% last month. Wheat cash receipts are forecast down 3%, in line with last month.



# Long Term Commodity Price Trends

### Corn Price Trends



### Soybean Price Trends



### Wheat Price Trends



### Cotton Price Trends



# Commodity Trends – Long Run Supply and Demand Projections

US Corn, Soy, and Wheat Supply and Demand - Long Term Annual Forecast 2020													
US Corn Balance Sheet - USDA Long Term Forecast (May 2020)													
Millions of bushels	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/2027	2027/2028	2028/2029
Planted	94	90	89	90	91	89	89	89	89	89	89	89	89
Harvested	87	83	81	81	83	82	82	82	82	82	82	81	81
Yield (bu/acre)	175	177	176	168	178	181	183	185	187	189	191	193	195
Beginning Stocks (MM bu)	1,737	2,293	2,140	2,221	1,995	1,618	1,653	1,678	1,753	1,823	1,888	1,993	2,023
Production (MM bu)	15,148	14,609	14,340	13,620	14,722	15,450	15,620	15,795	15,870	16,040	16,210	16,285	16,355
Imports (MM bu)	57	36	28	42	25	50	50	50	50	50	50	50	50
<b>Total Supply (MM bu)</b>	<b>16,942</b>	<b>16,938</b>	<b>16,508</b>	<b>15,883</b>	<b>16,742</b>	<b>17,118</b>	<b>17,323</b>	<b>17,523</b>	<b>17,673</b>	<b>17,913</b>	<b>18,148</b>	<b>18,328</b>	<b>18,428</b>
Feed & Residual (MM Bu)	5,463	5,304	5,429	5,827	5,775	5,775	5,950	6,075	6,175	6,325	6,450	6,600	6,675
Food, Seed, & Industrial Total	6,891	7,057	6,793	6,282	6,475	7,215	7,195	7,170	7,125	7,100	7,055	7,005	6,955
Ethanol & By-Products	5,463	5,605	5,378	4,852	5,050	5,725	5,700	5,675	5,625	5,600	5,550	5,500	5,450
Domestic Use	12,354	12,361	12,222	12,109	12,250	12,990	13,145	13,245	13,300	13,425	13,505	13,605	13,630
Exports	2,293	2,438	2,066	1,778	2,325	2,475	2,500	2,525	2,550	2,600	2,650	2,700	2,750
<b>Total Use</b>	<b>14,647</b>	<b>14,799</b>	<b>14,288</b>	<b>13,887</b>	<b>14,575</b>	<b>15,465</b>	<b>15,645</b>	<b>15,770</b>	<b>15,850</b>	<b>16,025</b>	<b>16,155</b>	<b>16,305</b>	<b>16,380</b>
Ending Stocks	2,295	2,140	2,221	1,995	2,167	1,653	1,678	1,753	1,823	1,888	1,993	2,023	2,048
Ending Stocks/Use	15.7%	14.5%	15.5%	14.4%	14.9%	10.7%	10.7%	11.1%	11.5%	11.8%	12.3%	12.4%	12.5%
Weeks Carryover	8.1	7.5	8.1	7.5	7.7	5.6	5.6	5.8	6.0	6.1	6.4	6.5	6.5
<b>Average Farm Price (\$/bu)</b>	<b>\$3.36</b>	<b>\$3.36</b>	<b>\$3.61</b>	<b>\$3.56</b>	<b>\$3.60</b>	<b>\$4.00</b>	<b>\$4.10</b>	<b>\$3.95</b>	<b>\$3.80</b>	<b>\$3.80</b>	<b>\$3.70</b>	<b>\$3.70</b>	<b>\$3.70</b>
Value of Production	\$50,897	\$49,086	\$51,767	\$48,487	\$52,999	\$61,800	\$64,042	\$62,390	\$60,306	\$60,952	\$59,977	\$60,255	\$60,514
% change y/y	4%	-4%	5%	-6%	9%	17%	4%	-3%	-3%	1%	-2%	0%	0%
U.S. Soybean Balance Sheet - USDA Long Term Forecast (May 2020)													
Millions of bushels	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/2027	2027/2028	2028/2029
Planted	83	90	89	76	83	86	85	85	85	86	86	86	87
Harvested	83	90	88	75	82	85	84	84	84	85	85	85	86
Yield Per Harvested Acre (Bushe)	52	49	51	47	52	51	52	52	53	53	54	54	55
Beginning Stocks	197	302	438	909	523	518	616	604	561	498	448	423	392
Production	4,296	4,412	4,428	3,552	4,268	4,350	4,345	4,390	4,435	4,510	4,585	4,630	4,705
Imports	22	22	14	15	15	20	20	20	20	20	20	20	20
<b>Total Supplies</b>	<b>4,515</b>	<b>4,736</b>	<b>4,880</b>	<b>4,476</b>	<b>4,806</b>	<b>4,888</b>	<b>4,981</b>	<b>5,014</b>	<b>5,016</b>	<b>5,028</b>	<b>5,053</b>	<b>5,073</b>	<b>5,117</b>
Crush	1,899	2,055	2,092	2,165	2,180	2,170	2,200	2,225	2,255	2,280	2,305	2,335	2,355
Exports	2,174	2,134	1,752	1,676	2,200	1,970	2,045	2,095	2,130	2,165	2,190	2,210	2,230
Seed & Residual	141	109	127	142	136	132	132	132	133	135	135	136	136
<b>Total Use</b>	<b>4,214</b>	<b>4,298</b>	<b>3,971</b>	<b>3,983</b>	<b>4,516</b>	<b>4,272</b>	<b>4,377</b>	<b>4,452</b>	<b>4,518</b>	<b>4,580</b>	<b>4,630</b>	<b>4,681</b>	<b>4,721</b>
Ending Stocks	301	438	909	523	290	616	604	561	498	448	423	392	396
Stocks/Use	7.1%	10.2%	22.9%	13.1%	6.4%	14.4%	13.8%	12.6%	11.0%	9.8%	9.1%	8.4%	8.4%
<b>Average Price (\$/bu)</b>	<b>\$9.47</b>	<b>\$9.33</b>	<b>\$8.48</b>	<b>\$8.57</b>	<b>\$9.80</b>	<b>\$9.55</b>	<b>\$9.95</b>	<b>\$9.90</b>	<b>\$9.70</b>	<b>\$9.65</b>	<b>\$9.45</b>	<b>\$9.45</b>	<b>\$9.45</b>
Value of Production	\$40,683	\$41,164	\$37,549	\$30,441	\$41,826	\$41,543	\$43,233	\$43,461	\$43,020	\$43,522	\$43,328	\$43,754	\$44,462
% change y/y	16%	1%	-9%	-19%	37%	-1%	4%	1%	-1%	1%	0%	1%	2%

# Commodity Trends – Long Run Supply and Demand Projections (Cont.)

## US Corn, Soy, and Wheat Supply and Demand - Long Term Annual Forecast 2020 (continued)

### U.S. Wheat Balance Sheet - USDA Long Term Forecast (May 2020)

Millions of bushels	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/2027	2027/2028	2028/2029
Planted	50	46	48	46	44	50	46	47	47	47	47	46	46
Harvested	44	38	40	37	37	42	39	39	39	39	39	39	39
Yield Per Harvested Acre (Bushe	53	46	48	52	50	49	49	49	49	50	50	51	51
Beginning Stocks	976	1,181	1,099	1,080	1,028	946	897	896	907	906	919	909	913
Production	2,309	1,741	1,885	1,932	1,826	2,036	1,926	1,941	1,957	1,973	1,968	1,984	1,979
Imports	118	158	135	105	125	135	140	140	140	140	140	140	140
<b>Total Supplies</b>	<b>3,403</b>	<b>3,080</b>	<b>3,119</b>	<b>3,117</b>	<b>2,979</b>	<b>3,117</b>	<b>2,963</b>	<b>2,977</b>	<b>3,004</b>	<b>3,019</b>	<b>3,027</b>	<b>3,033</b>	<b>3,032</b>
Food	949	964	955	962	960	966	969	972	975	978	981	984	987
Seed	61	63	59	60	61	63	63	63	63	62	62	61	61
Feed&residual	156	47	88	102	100	110	110	110	110	110	100	100	100
Exports	1,055	906	937	965	975	925	925	925	950	950	975	975	975
<b>Total Use</b>	<b>2,221</b>	<b>1,981</b>	<b>2,039</b>	<b>2,089</b>	<b>2,096</b>	<b>2,064</b>	<b>2,067</b>	<b>2,070</b>	<b>2,098</b>	<b>2,100</b>	<b>2,118</b>	<b>2,120</b>	<b>2,123</b>
Ending Stocks	1,182	1,099	1,080	1,028	883	897	896	907	906	919	909	913	909
Stocks/Use	53.2%	55.5%	53.0%	49.2%	42.1%	43.5%	43.3%	43.8%	43.2%	43.8%	42.9%	43.1%	42.8%
<b>Average Price (\$/bu)</b>	<b>\$3.89</b>	<b>\$4.72</b>	<b>\$5.16</b>	<b>\$4.58</b>	<b>\$4.70</b>	<b>\$5.30</b>	<b>\$5.40</b>	<b>\$5.40</b>	<b>\$5.20</b>	<b>\$5.10</b>	<b>\$5.00</b>	<b>\$5.00</b>	<b>\$5.00</b>
Value of Production	\$8,982	\$8,218	\$9,727	\$8,849	\$8,582	\$10,791	\$10,400	\$10,481	\$10,176	\$10,062	\$9,840	\$9,920	\$9,895
% change y/y	-11%	-9%	18%	-9%	-3%	26%	-4%	1%	-3%	-1%	-2%	1%	0%

### Total Acreage and Value of U.S. Corn, Soy and Wheat Production - USDA May 2020 Projection

Total Corn, Soy, Wheat	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/2027	2027/2028	2028/2029
Planted (mm acres)	228	227	226	211	218	225	220	221	221	221	222	221	221
Harvested (mm acres)	213	210	209	194	202	209	204	205	205	206	206	205	206
Yield (bu/acre)	102	99	99	99	103	105	107	108	109	110	110	112	112
Production	21,753	20,762	20,653	19,104	20,816	21,836	21,891	22,126	22,262	22,523	22,763	22,899	23,039
Average Price (\$/bu)	\$4.62	\$4.74	\$4.80	\$4.59	\$4.97	\$5.23	\$5.38	\$5.26	\$5.10	\$5.09	\$4.97	\$4.98	\$4.99
<b>Value of Production</b>	<b>\$100,562</b>	<b>\$98,468</b>	<b>\$99,043</b>	<b>\$87,776</b>	<b>\$103,408</b>	<b>\$114,133</b>	<b>\$117,675</b>	<b>\$116,333</b>	<b>\$113,502</b>	<b>\$114,536</b>	<b>\$113,145</b>	<b>\$113,928</b>	<b>\$114,871</b>
% change y/y	7%	-2%	1%	-11%	18%	10%	3%	-1%	-2%	1%	-1%	1%	1%

Source: USDA, Cleveland Research estimates

Source: USDA, CRC estimates



# U.S. Acreage Planted Per Crop Year

