

# **Dealer Sentiment & Business Conditions Update**

April 2023

## **Monthly Ag Equipment Intelligence North American Dealer Survey**

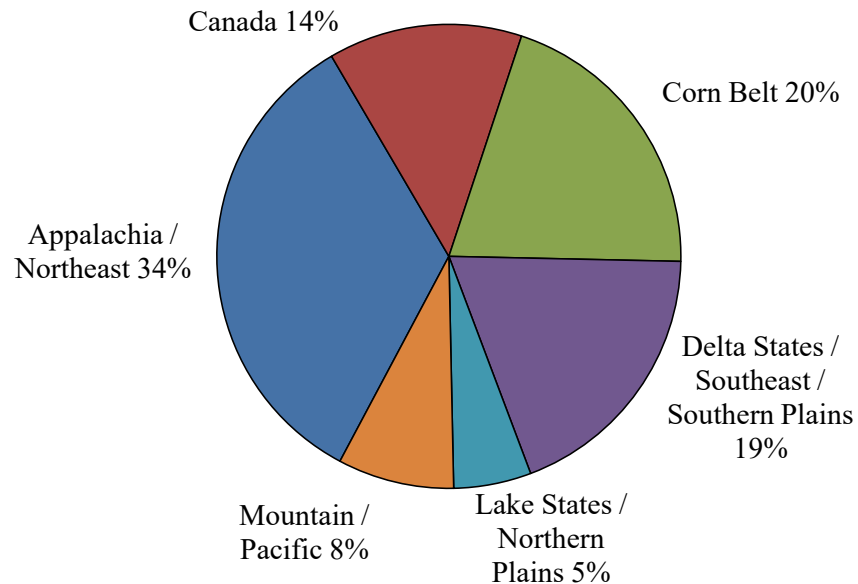
- **Background:**

- We are pleased to announce the results of the March 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 March survey had ~100 respondents representing combined annual revenues of roughly \$4 billion. Participants represent a broad cross section of geographies and brands, summarized in the charts below.

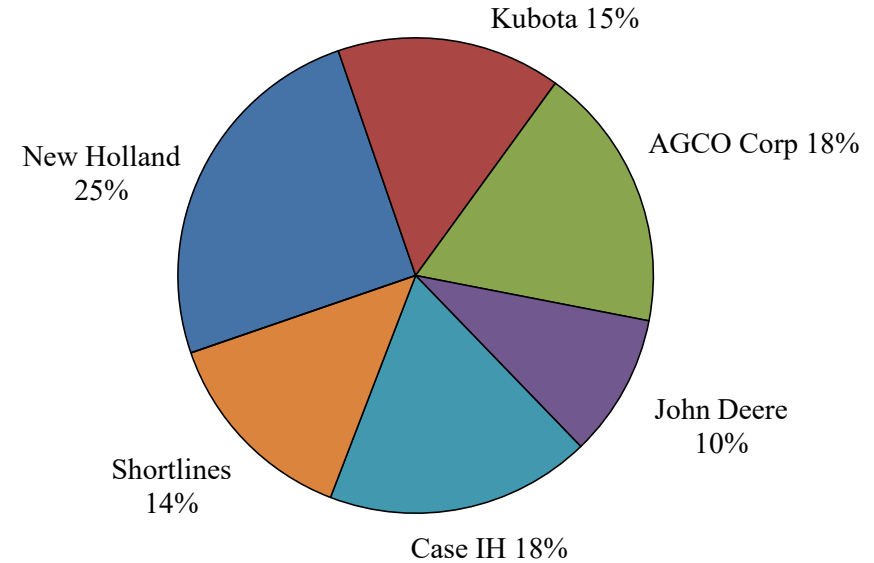
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**Appalachia / Northeast** – CT, DE, KY, MA, MD, ME, NC, NH, NY, NJ, PA, RI, TI, TN, VA, VT, WV, **Corn Belt** – IL, IN, IA, MO, OH, **Delta States / Southeast / Southern Plains** – AL, AR, FL, GA, LA, MS, OK, SC, TX, **Lake States / Northern Plains**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

## Survey Participants by Region



## Participants by Brand



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## Highlights / Summary Thoughts

- **Sales** – Average dealer sales were reported +6% y/y in March, up 1pt vs last month. A net 7% of dealers missed their sales budgets in March vs 8% that missed plan in February. Parts and Service sales were up 2% y/y, inline with last month. 7 of 12 equipment categories showed sequential acceleration this month vs the 9 equipment categories showing sequential deceleration last month.
- **Outlook** – The 2023 sales forecast was up 4% in March, inline with last month with a net 35% of dealers expecting growth vs the 34% expecting sales downside last month. The USDA released their April 2022/23 crop year report with our proxy showing 40% cash receipts growth this year vs 40% growth last month. John Deere forecasts North America large ag unit sales up 20% in 2023 while small ag unit sales are forecast flat to +5%. AGCO forecasts tractor units flat, while CNH forecasts large tractor units up 5-10%.
- **Inventory** – New equipment inventory levels were unchanged this month with a net 34% of dealers reporting inventories too low, while a net 34% of dealers reported used inventories too low this month vs the net 39% reporting used inventories too low last month.
- **Pricing** – Used equipment pricing was up ~3% y/y in March, unchanged from last month, while new equipment prices are reported up ~3% on average.

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## Monthly Sales Growth

- Sales in March were +6% y/y, up 1pt vs last month with a net 7% of dealers missing plan vs a net 8% missed plan in February.
- A net 18% of dealers reported less optimism in March vs 18% reporting less optimism last month. The continued depletion of both new and used inventories, inflation/rising interest rates, and recessionary pressures appear to be causing concern amongst participants offset by production/delivery improvements.

N. American Farm equipment Dealer Survey - Average Dealer Sales Growth																	
% Change y/y	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23
AGCO	7%	8%	0%	1%	2%	3%	4%	-1%	4%	3%	1%	1%	-2%	-2%	-3%	12%	12%
John Deere	7%	1%	0%	4%	7%	4%	6%	6%	3%	4%	14%	7%	5%	7%	6%	8%	10%
New Holland	-5%	10%	5%	4%	3%	-4%	-13%	-2%	5%	-13%	-25%	-6%	10%	-5%	-4%	-2%	-1%
Case IH	9%	2%	2%	2%	3%	0%	3%	-3%	0%	4%	-5%	4%	1%	11%	7%	4%	4%
Kubota	8%	8%	10%	8%	0%	2%	-7%	8%	2%	-4%	6%	5%	3%	5%	2%	9%	9%
Shortlines/Other	11%	7%	3%	3%	-1%	-4%	16%	0%	11%	2%	-10%	-1%	-1%	-3%	-4%	-2%	0%
Total	8%	6%	2%	4%	4%	1%	3%	1%	2%	2%	0%	4%	4%	6%	4%	5%	6%

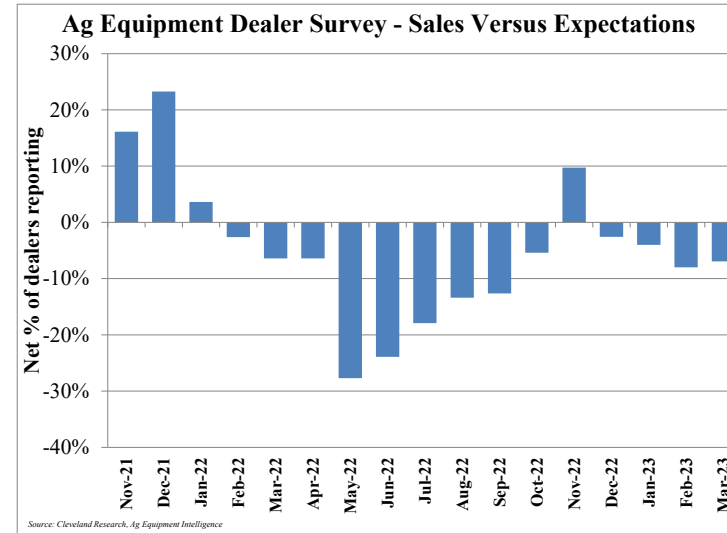
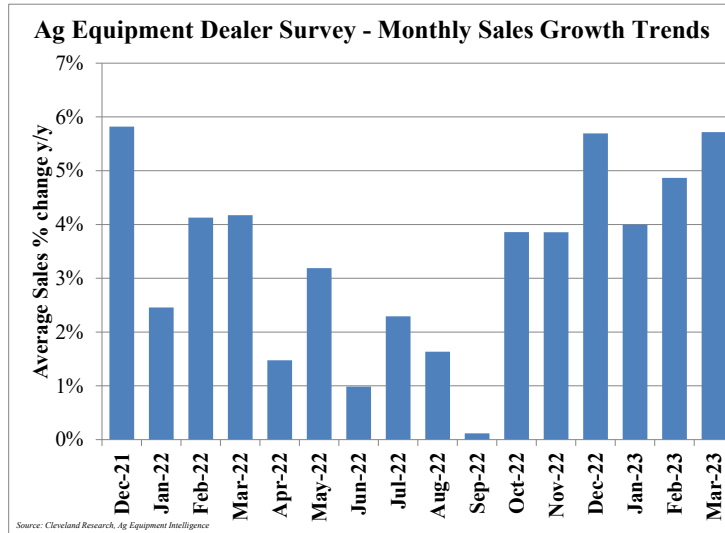
Source: Cleveland Research, Ag Equipment Intelligence

N. American Farm Equipment Dealer Survey - Sales Versus Expectations																	
% of Dealers Reporting	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23
Better than expected	34%	36%	23%	20%	24%	17%	20%	16%	20%	21%	23%	29%	26%	26%	22%	24%	24%
In line with expectations	47%	51%	58%	58%	45%	39%	37%	50%	47%	45%	49%	51%	46%	43%	48%	46%	46%
Worse than expected	18%	13%	19%	22%	31%	45%	43%	34%	33%	34%	28%	19%	28%	30%	30%	31%	31%
Net % (Better - Worse)	16%	23%	4%	-3%	-6%	-6%	-28%	-24%	-18%	-13%	-13%	-5%	10%	-3%	-4%	-8%	-7%

Source: Cleveland Research, Ag Equipment Intelligence

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## Monthly Sales Growth Continued



N. American Farm Equipment Dealer Survey - Average Dealer Revenue Growth Trends																	
% of Dealers Reporting	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23
Positive Sales Growth	69%	70%	45%	53%	48%	41%	45%	47%	43%	47%	49%	50%	46%	42%	39%	43%	50%
Flat Sales	13%	13%	30%	26%	24%	20%	24%	20%	22%	20%	20%	23%	25%	28%	31%	27%	16%
Negative Sales Growth	18%	17%	24%	21%	28%	39%	32%	33%	35%	33%	32%	27%	29%	30%	30%	30%	34%
<b>Net % Reporting Growth</b>	<b>51%</b>	<b>53%</b>	<b>21%</b>	<b>32%</b>	<b>20%</b>	<b>2%</b>	<b>13%</b>	<b>14%</b>	<b>8%</b>	<b>14%</b>	<b>17%</b>	<b>23%</b>	<b>17%</b>	<b>12%</b>	<b>9%</b>	<b>13%</b>	<b>16%</b>
<b>Average % Change y/y</b>	<b>8%</b>	<b>6%</b>	<b>2%</b>	<b>4%</b>	<b>4%</b>	<b>4%</b>	<b>1%</b>	<b>3%</b>	<b>1%</b>	<b>2%</b>	<b>2%</b>	<b>0%</b>	<b>4%</b>	<b>4%</b>	<b>6%</b>	<b>5%</b>	<b>6%</b>

Source: Cleveland Research

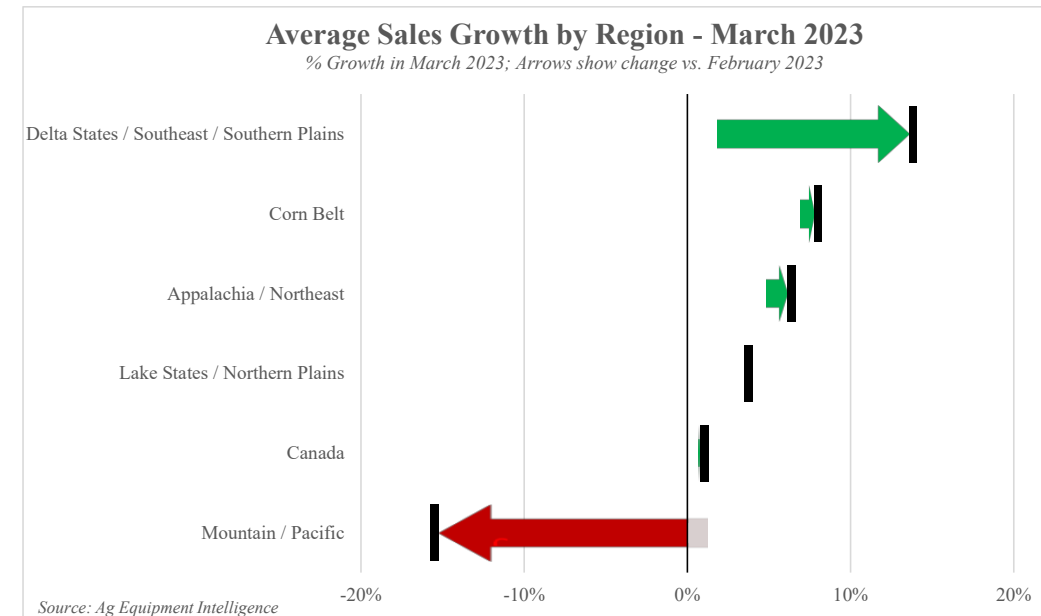
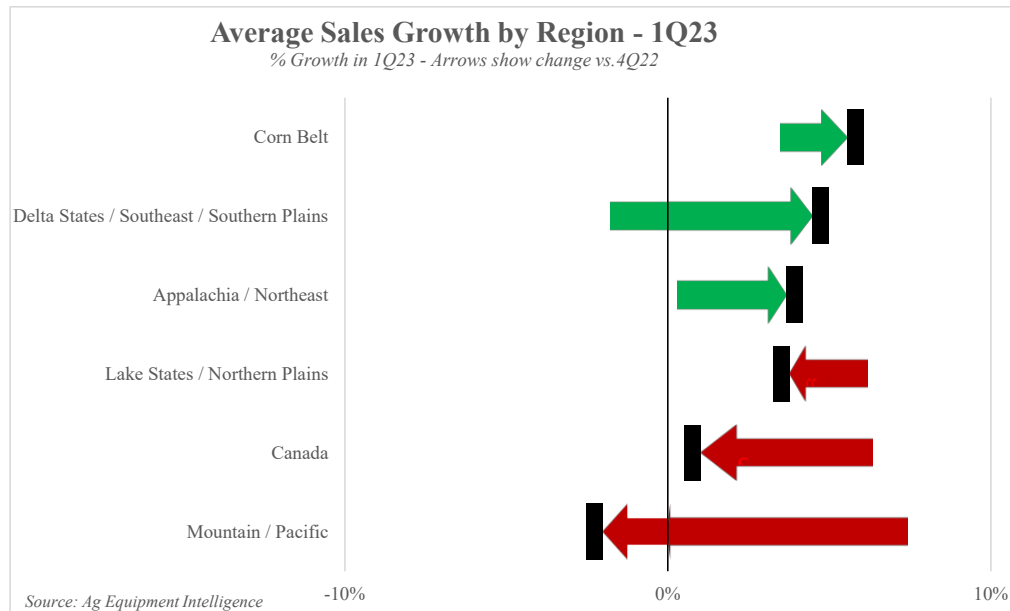
Optimism/Sentiment vs. Last Month																	
% of Dealers Reporting	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23
More Optimistic	18%	12%	0%	12%	12%	0%	3%	8%	6%	4%	4%	9%	10%	12%	9%	14%	14%
Same	51%	67%	59%	46%	54%	39%	39%	41%	48%	49%	51%	50%	59%	58%	48%	55%	55%
Less Optimistic	31%	21%	41%	42%	35%	61%	58%	52%	46%	46%	44%	41%	31%	30%	44%	31%	31%
<b>Net % Dealer Optimism</b>	<b>-13%</b>	<b>-9%</b>	<b>-41%</b>	<b>-30%</b>	<b>-23%</b>	<b>-23%</b>	<b>-61%</b>	<b>-54%</b>	<b>-44%</b>	<b>-39%</b>	<b>-42%</b>	<b>-31%</b>	<b>-21%</b>	<b>-18%</b>	<b>-35%</b>	<b>-18%</b>	<b>-18%</b>

Source: Cleveland Research

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## Monthly Sales Growth by Region

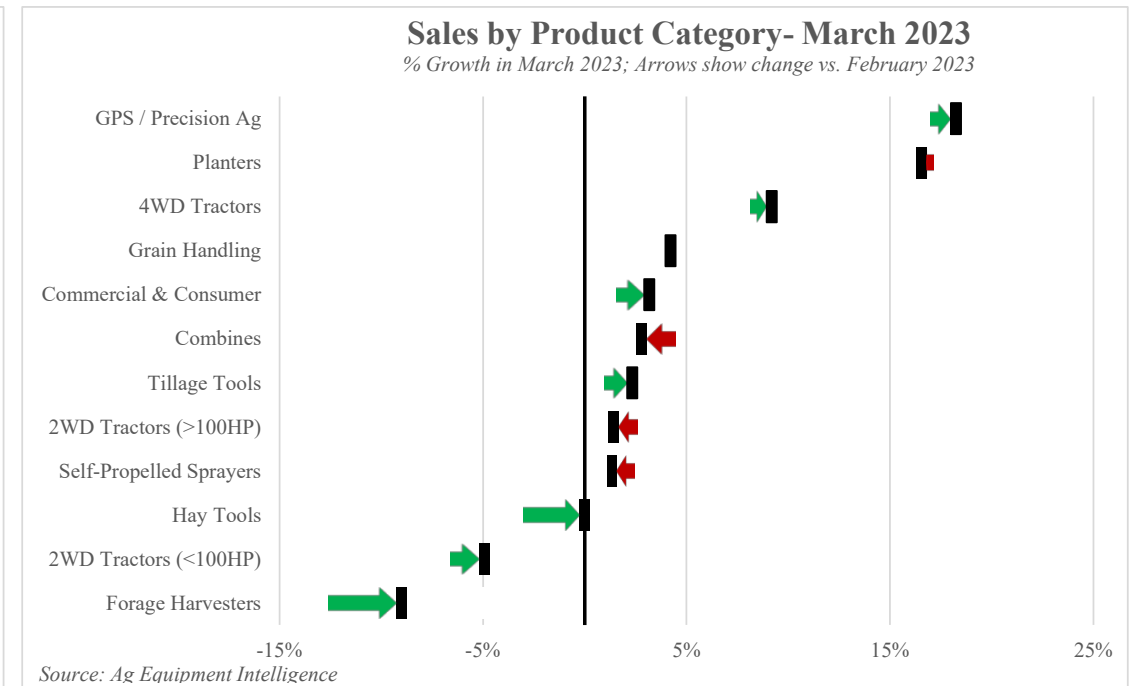
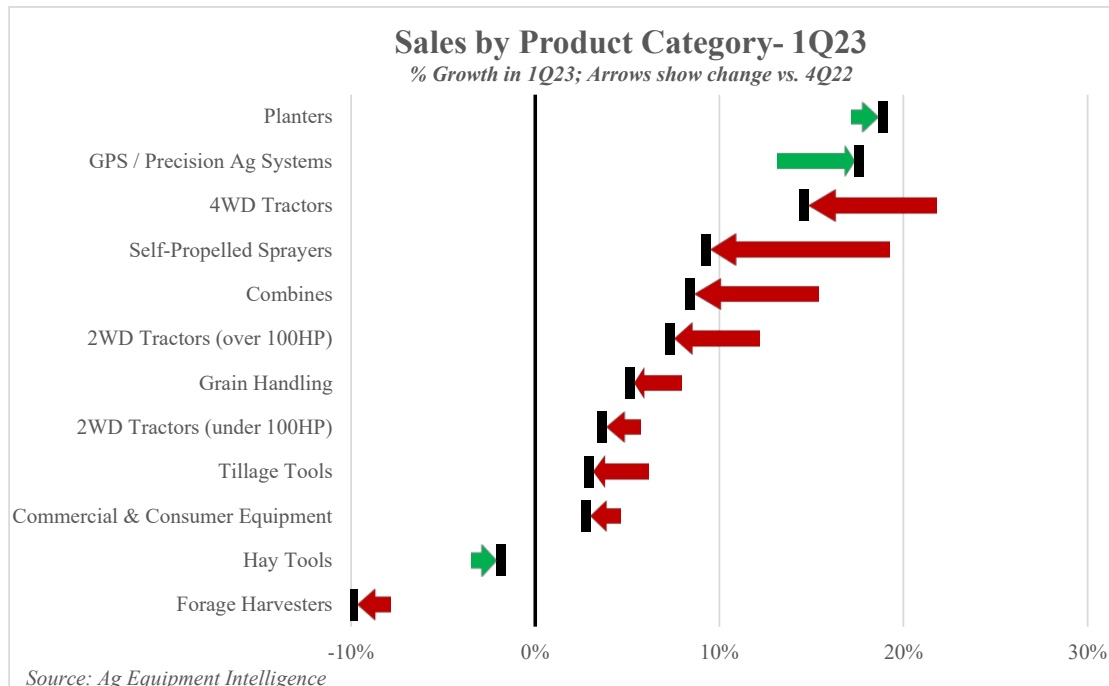
- 3 of the 6 regions saw sequential acceleration in March vs 4 showing deceleration last month. Delta States / Southeast / Southern Plains region was the strongest region in the month, while Mountain / Pacific region was the weakest.
- In 1Q, 3 of the 6 regions saw sequential acceleration. Corn Belt was the strongest region in the month, while Mountain / Pacific region was the weakest. Delta States / Southeast / Southern Plains region showed the greatest Q/Q improvement, while Mountain / Pacific region was the weakest,



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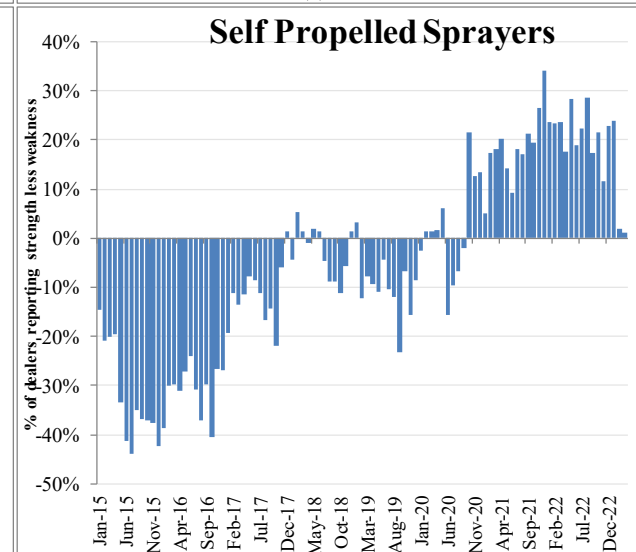
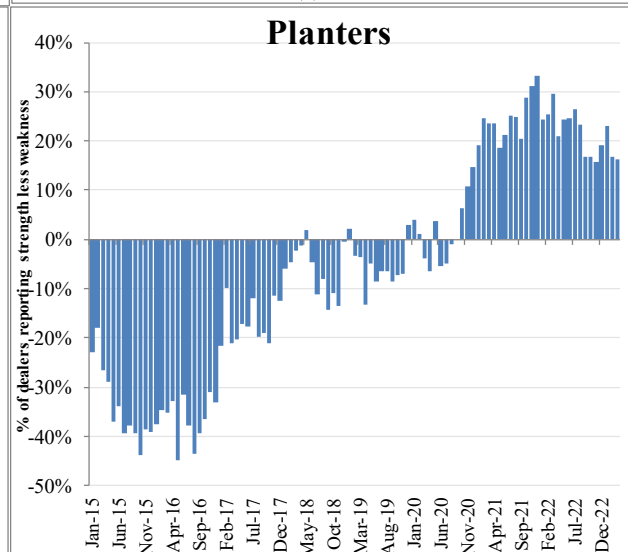
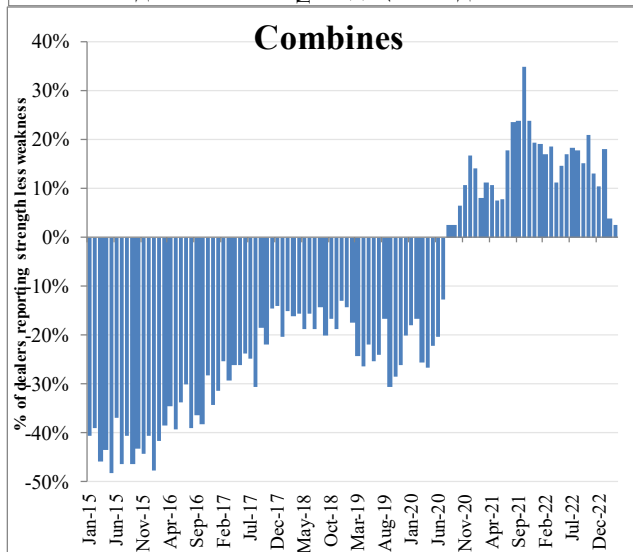
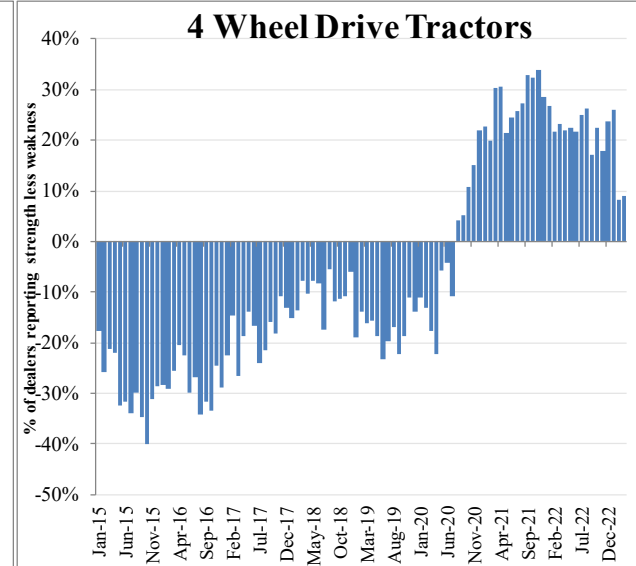
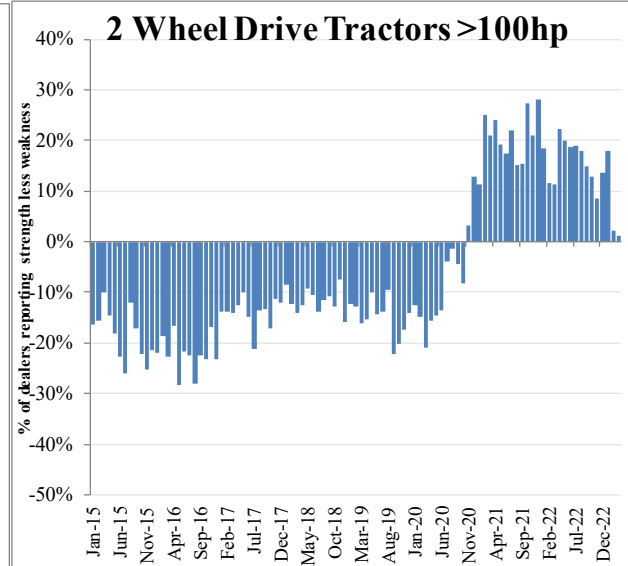
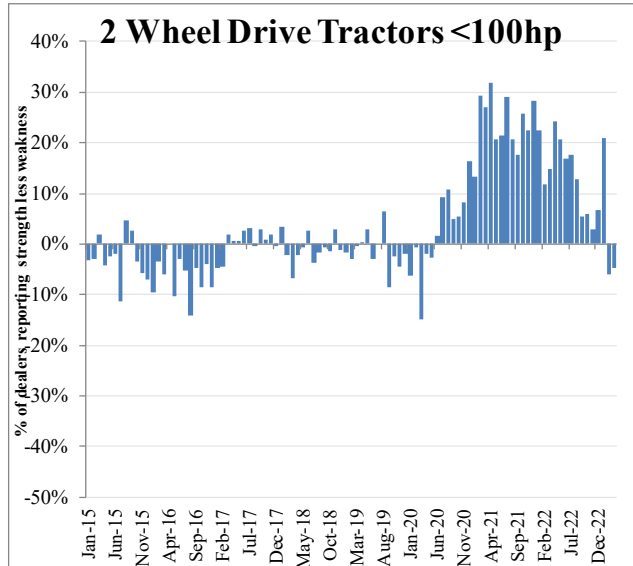
## Equipment Category Sales Trends

- Sales trend by product category accelerated this month with 7 of 12 categories showing acceleration vs 9 categories showing deceleration last month. In March, GPS / Precision Ag was the strongest category, while Forage Harvesters was the weakest category.
- In 1Q, 9 of the 12 categories showed sequential deceleration with Forage Harvesters and Hay Tools being the only two categories to show signs of deceleration Y/Y.

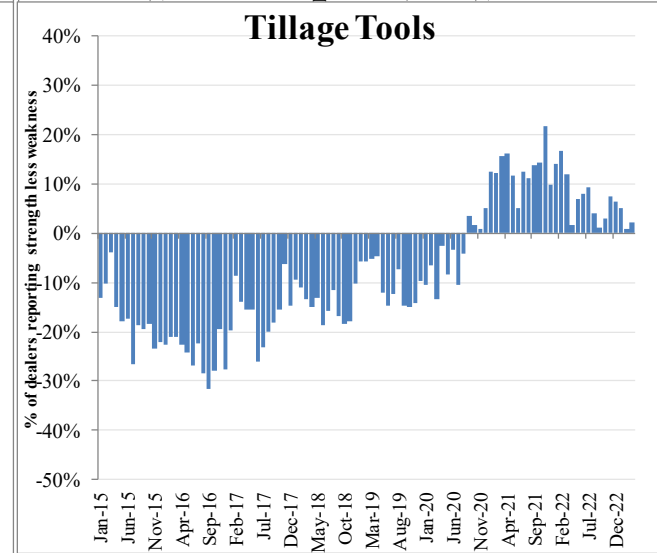
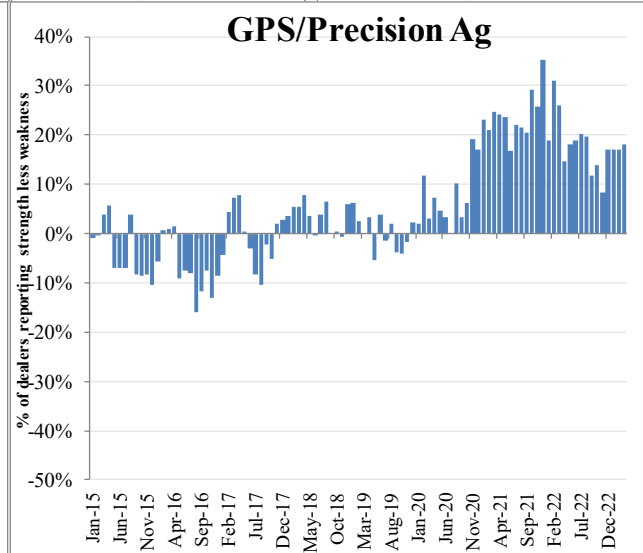
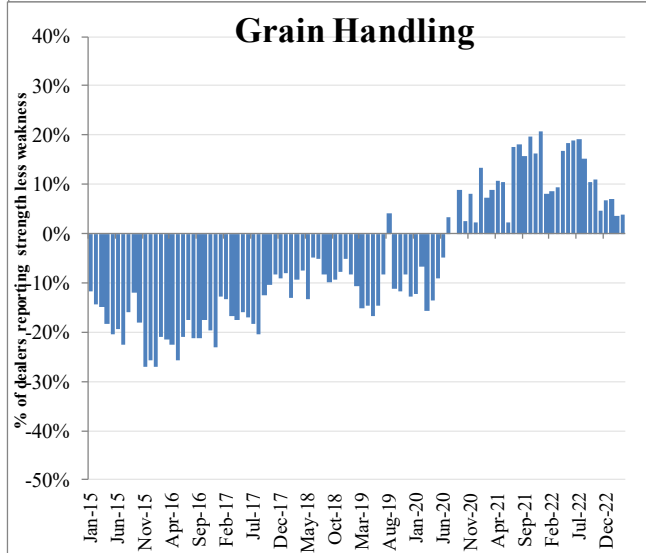
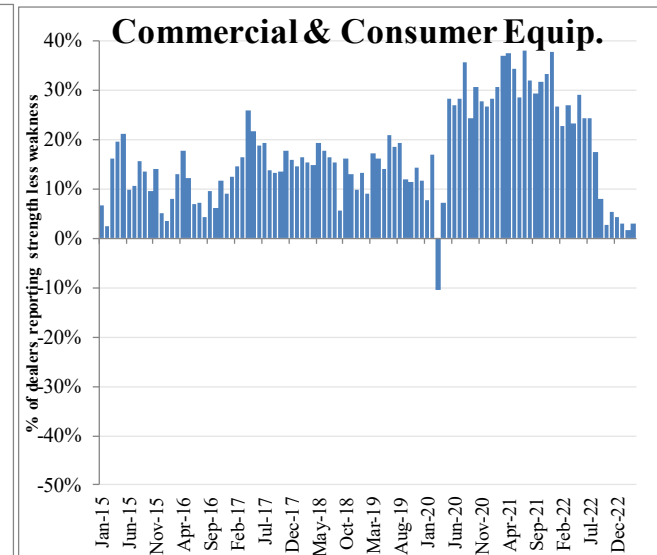
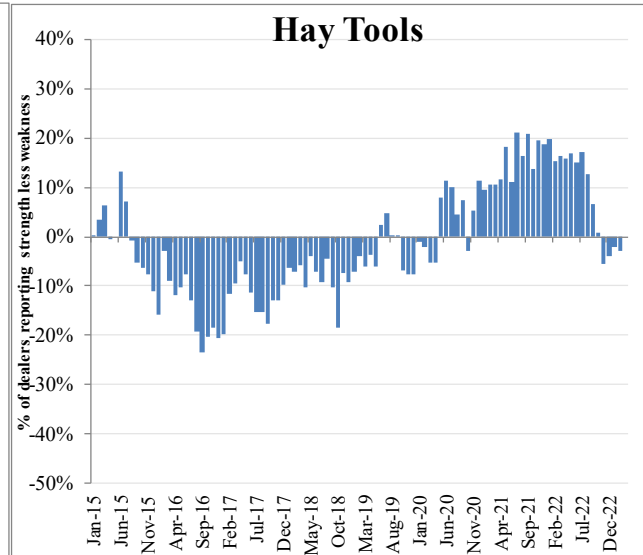
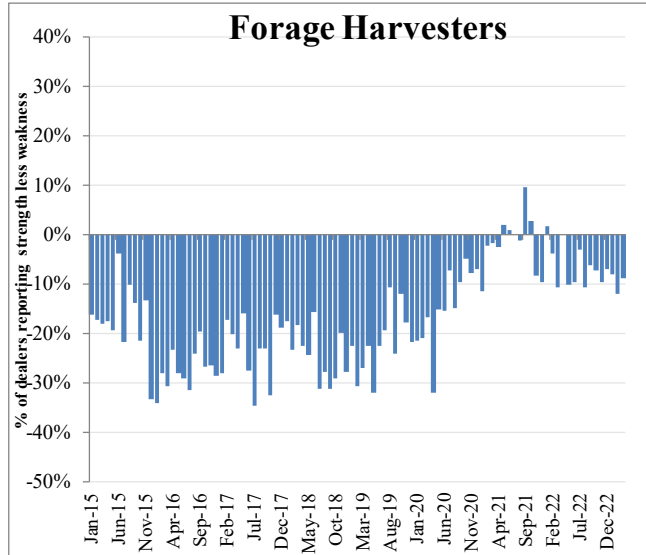




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## Average Dealer Sales Outlook

- The 2023 sales forecast is up 4%, inline with last month with a net 35% of dealers forecasting sales growth this year, up 100bps from the 34% that expected sales growth last month. John Deere forecasts North America large ag unit sales up 20% in 2023 while small ag unit sales are forecast flat to up 5%. AGCO forecasts tractors units flat, while CNH forecasts large tractor units up 5-10%. Recessionary concerns, rising interest rate/equipment costs, and allocations appear to be negatively weighing on dealers outlook.

N. American Farm Equipment Dealer Survey - 2023 Sales Forecast										
% change y/y	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23
AGCO	1%	-1%	-2%	0%	-1%	-6%	-3%	4%	6%	7%
John Deere	1%	-1%	-8%	-4%	-5%	-4%	-3%	1%	2%	2%
New Holland	0%	0%	-2%	0%	0%	-3%	0%	-9%	4%	5%
Case IH	-10%	-7%	-3%	-3%	1%	-10%	-14%	-2%	-9%	-9%
Kubota	1%	1%	3%	5%	4%	2%	-2%	-2%	1%	-2%
Shortlines/Other	4%	3%	-7%	-7%	-1%	0%	4%	-4%	2%	0%
<b>Total</b>	<b>1%</b>	<b>-1%</b>	<b>-2%</b>	<b>0%</b>	<b>0%</b>	<b>-3%</b>	<b>-1%</b>	<b>-1%</b>	<b>4%</b>	<b>4%</b>

Source: Cleveland Research, Ag Equipment Intelligence

N. American Farm Equipment Dealer Survey - Net % of Contacts Forecasting Growth in 2023										
% of Dealers Reporting	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23
Positive Sales Growth	44%	38%	31%	35%	39%	30%	29%	44%	56%	58%
Flat Sales	14%	20%	25%	28%	28%	22%	25%	21%	22%	19%
Negative Sales Growth	42%	43%	44%	38%	34%	48%	46%	35%	23%	23%
<b>Net % Expecting Growth</b>	<b>3%</b>	<b>-5%</b>	<b>-14%</b>	<b>-3%</b>	<b>5%</b>	<b>-17%</b>	<b>-17%</b>	<b>9%</b>	<b>34%</b>	<b>35%</b>

Source: Cleveland Research, Ag Equipment Intelligence

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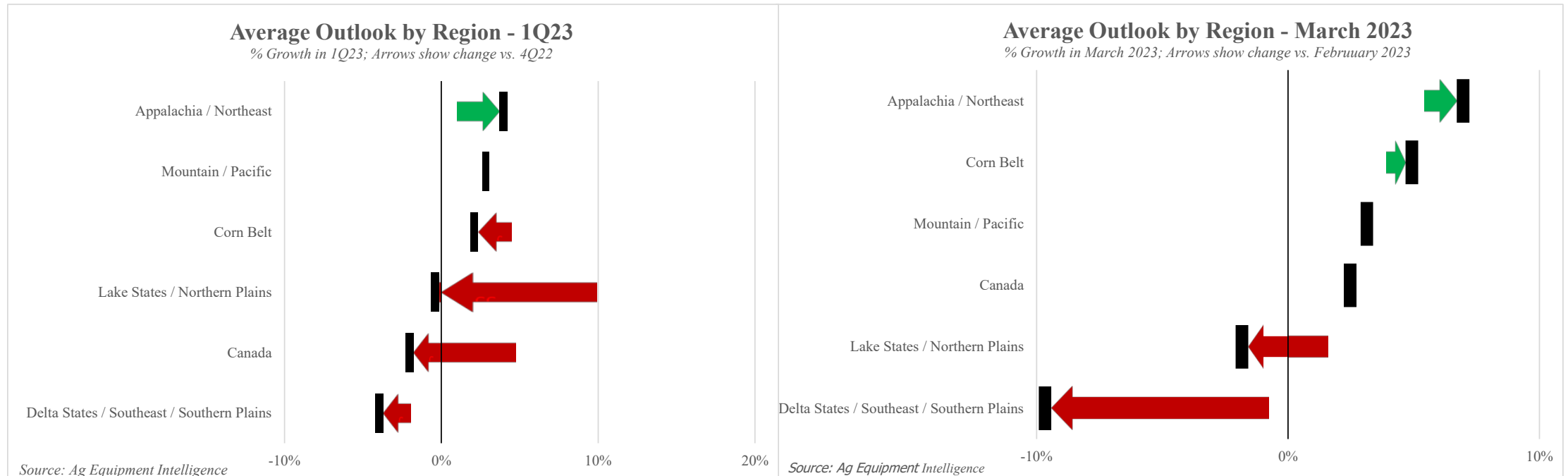
## **Most Interesting Commentary – Monthly Sales and Outlook**

- Interest rates and a concerning economic environment is slowing orders. (Appalachia / Northeast)
- Case is offering 0% interest for 84 months on select models on the New Holland brand. (Corn Belt)
- More equipment started to arrive ahead of plan including harvest equipment. (Appalachia / Northeast)
- Interest rates are our biggest concern and we feel economic fatigue is coming. (Mountain / Pacific)
- Used inventory levels are ticking up yet still seems impossible to find a good used tractor. (Corn Belt)
- New inventories remain below plan. Used inventories have increased some but we are not concerned. (Lake States / Northern Plains)
- The manufacturers are ignoring our questions about a slowing market. (Corn Belt)
- Farmer sentiment is fading and resulting in slower order intake M/M. (Lake States / Northern Plains)
- We need to see financing programs or a drop in price to keep demand levels elevated. (Delta States / Southeast / Southern Plains)

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## 2023 Sales Results

- In March, the 2023 outlook accelerated in 2 of the 6 regions vs 5 accelerating last month with the greatest sequential acceleration in Appalachia / Northeast, while Delta States / Southeast / Southern Plains region showed the greatest sequential deceleration.
- In 1Q, 3 of the 6 regions expect sales declines vs all expecting growth last quarter.

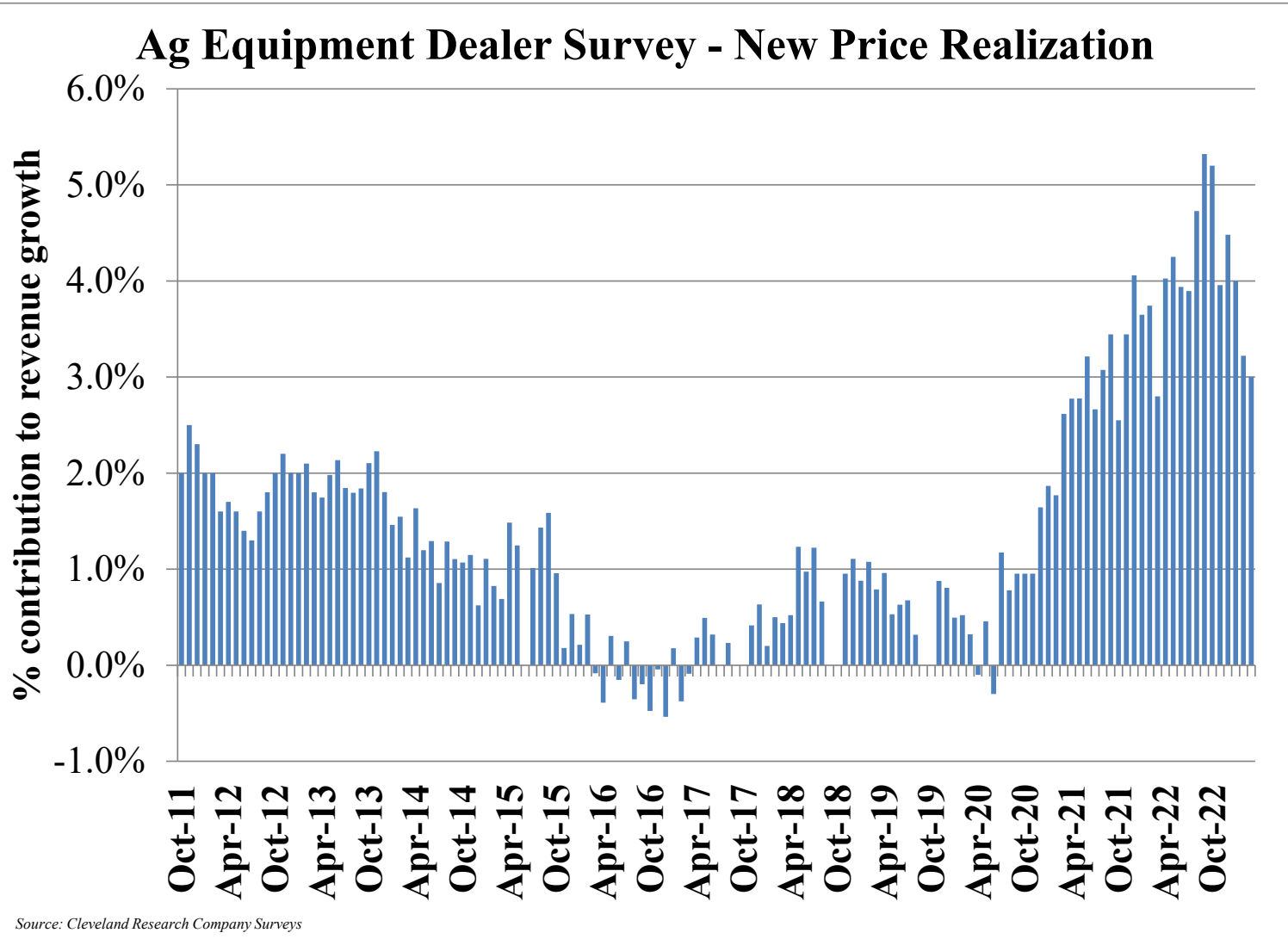


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## Pricing Trends

Price contribution was up ~3% on average in March, similar to February.

Commentary suggests the rate of increases in relation to freight and material surcharges, as well as base model increases, continues but at slower rate vs a few months ago.



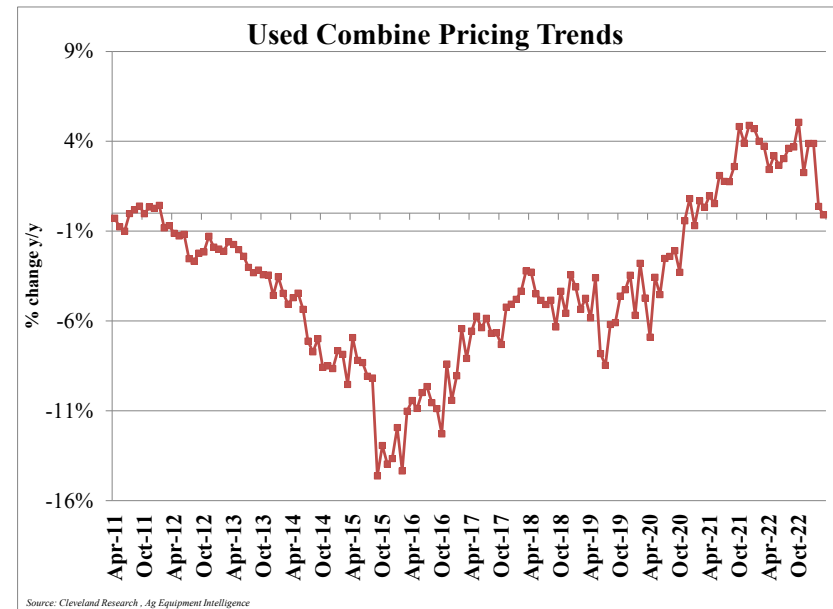
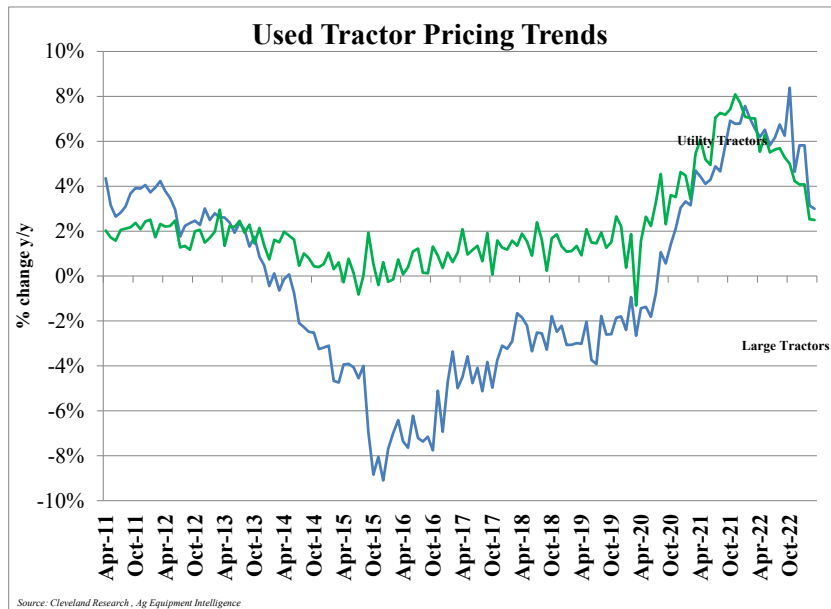
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## Used Equipment Pricing

- Used equipment pricing was up ~3% y/y in March, unchanged from last month.

Used Tractor and Combine Values - % Change y/y																	
Product Category	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23
Compact Tractor (<40HP)	8%	8%	7%	7%	7%	7%	6%	5%	5%	5%	5%	5%	4%	4%	3%	2%	2%
Utility Tractor (40-100HP)	8%	7%	7%	7%	7%	7%	7%	6%	6%	6%	6%	5%	5%	5%	4%	3%	3%
Row Crop Tractor (100HP+)	8%	7%	8%	8%	7%	7%	7%	6%	6%	6%	7%	7%	5%	5%	4%	5%	5%
4WD Tractors	6%	6%	7%	7%	6%	6%	6%	5%	5%	5%	5%	9%	4%	7%	3%	1%	1%
Combines	4%	5%	5%	4%	4%	4%	3%	3%	3%	3%	3%	5%	2%	4%	4%	0%	0%

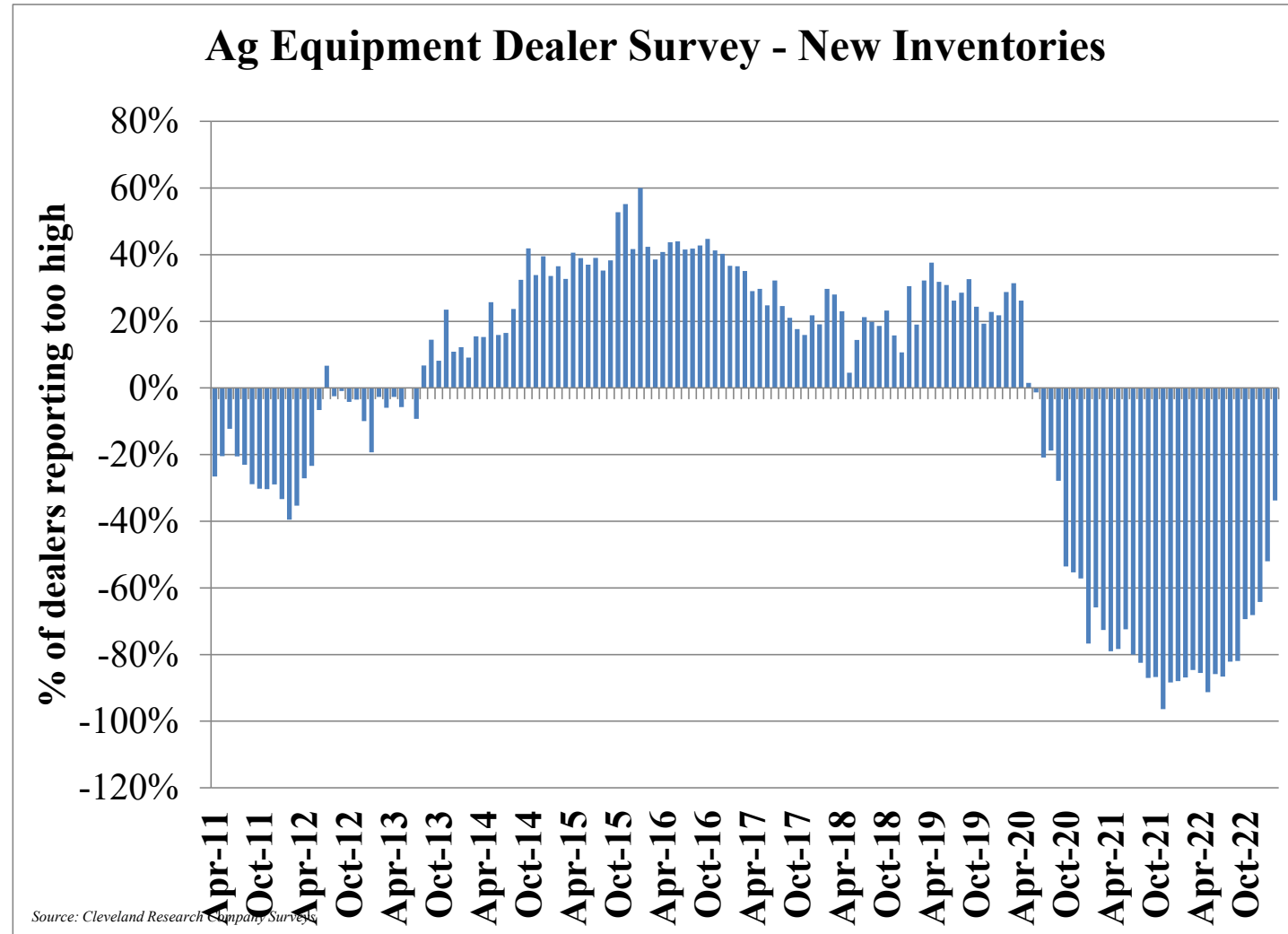
Source: Cleveland Research, Ag Equipment Intelligence



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## New Equipment Inventory Levels

New equipment inventory levels were unchanged in March with a net 34% of dealers reporting inventories too low (14% too high, 39% inline, 47% too low).

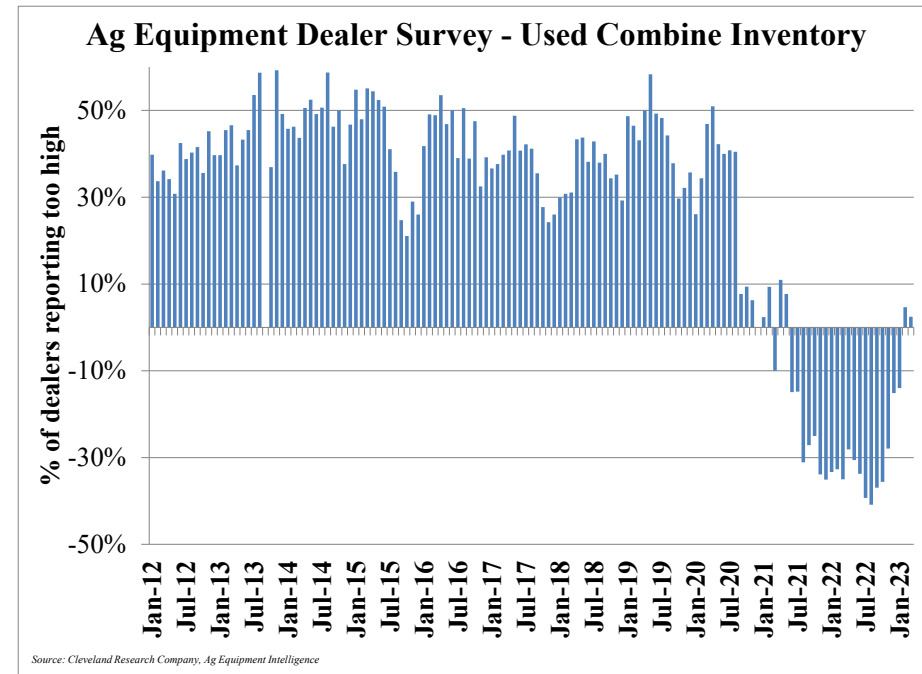
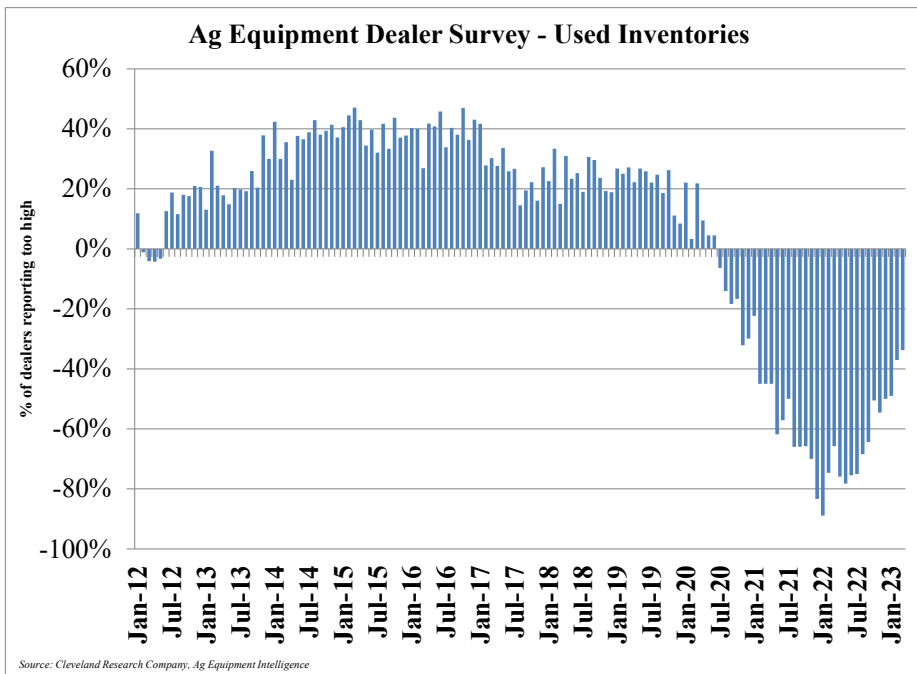




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## Used Equipment Inventory Levels

- A net 34% of dealers reported used equipment inventory as too low (11% too high, 45% inline, 45% too low) in March, vs the net 39% of dealers reported used equipment inventory as too low (8% too high, 45% inline, 47% too low) in February.
- A net 2% of dealers reported used combine inventories as too high – the second “too high” reading since May 2021 – in the month (24% too high, 54% inline, 22% too low), vs the net 3% reporting inventories too low (26% too high, 51% inline, 23% too low) in February.
- A net 75% of dealers report used HHP tractor inventories too low in March (0% too high, 25% inline, 75% too low), vs the net 78% reporting inventories too low last month (0% too high, 22% inline, 78% too low).



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## 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
Apr-20	26,243	6,395	2,044	388	35,070	2,432	607	13%	6%	-12%	11%	9%	-9%	1%
May-20	27,882	6,884	1,570	206	36,542	1,776	312	19%	9%	-21%	-7%	15%	-20%	-21%
Jun-20	27,805	8,096	1,659	152	37,712	1,811	626	39%	27%	-1%	-20%	33%	-3%	30%
Jul-20	22,127	7,505	1,736	192	31,560	1,928	782	40%	28%	4%	-13%	34%	2%	36%
Aug-20	16,509	6,351	1,496	227	24,583	1,723	655	14%	13%	-7%	9%	12%	-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	19,850	8,255	3,589	683	32,377	4,272	817	24%	9%	8%	20%	18%	9%	9%
Nov-20	12,242	4,803	1,147	237	18,429	1,384	301	41%	23%	19%	65%	35%	25%	-6%
Dec-20	16,743	8,004	2,502	383	27,632	2,885	664	37%	31%	20%	2%	33%	18%	-12%
Jan-21	11,061	4,633	1,558	250	17,502	1,808	420	33%	19%	3%	39%	26%	7%	72%
Feb-21	12,050	4,198	1,308	223	17,779	1,531	247	48%	28%	47%	6%	42%	39%	-12%
Mar-21	24,390	6,950	2,142	293	33,775	2,435	477	99%	59%	29%	12%	82%	26%	5%
Apr-21	32,478	8,306	2,766	528	44,078	3,294	615	24%	30%	35%	36%	26%	35%	1%
May-21	26,185	7,553	2,032	315	36,085	2,347	470	-6%	10%	29%	53%	-1%	32%	51%
Jun-21	22,874	7,800	2,151	322	33,147	2,473	616	-18%	-4%	30%	112%	-12%	37%	-2%
Jul-21	21,421	7,778	2,443	346	31,988	2,789	1,020	-3%	4%	41%	80%	1%	45%	30%
Aug-21	18,007	6,739	1,965	305	27,016	2,270	794	9%	6%	31%	34%	10%	32%	21%
Sep-21	18,095	6,953	2,474	397	27,919	2,871	990	2%	3%	20%	-3%	4%	16%	53%
Oct-21	20,836	8,608	3,946	666	34,056	4,612	1,320	5%	4%	10%	-2%	5%	8%	62%
Nov-21	12,952	5,245	1,465	171	19,833	1,636	328	6%	9%	28%	-28%	8%	18%	9%
Dec-21	16,197	7,835	3,344	431	27,807	3,775	762	-3%	-2%	34%	13%	1%	31%	15%
Jan-22	11,528	4,467	1,706	252	17,953	1,958	254	4%	-4%	9%	1%	3%	8%	-40%
Feb-22	12,957	4,481	1,648	194	19,280	1,842	230	8%	7%	26%	-13%	8%	20%	-7%
Mar-22	18,510	6,023	2,253	250	27,036	2,503	403	-24%	-13%	5%	-15%	-20%	3%	-16%
Apr-22	24,638	6,782	2,799	360	34,579	3,159	569	-24%	-18%	1%	-32%	-22%	-4%	-7%
May-22	21,961	6,416	2,337	240	30,954	2,577	393	-16%	-15%	15%	-24%	-14%	10%	-16%
Jun-22	20,606	7,285	2,286	340	30,517	2,626	783	-10%	-7%	6%	6%	-8%	6%	27%
Jul-22	15,815	6,507	2,822	425	25,569	3,247	962	-26%	-16%	16%	23%	-20%	16%	-6%
Aug-22	15,378	6,209	2,248	321	24,156	2,569	1,011	-15%	-8%	14%	5%	-11%	13%	27%
Sep-22	15,195	6,373	2,800	293	24,661	3,093	1,196	-16%	-8%	13%	-26%	-12%	8%	21%
Oct-22	16,233	8,681	4,780	736	30,430	5,516	2,174	-22%	1%	21%	11%	-11%	20%	65%
Nov-22	9,540	4,701	1,502	211	15,954	1,713	393	-26%	-10%	3%	23%	-20%	5%	20%
Dec-22	12,037	7,151	3,209	614	23,011	3,823	901	-26%	-9%	-4%	42%	-17%	1%	18%
Jan-23	9,155	4,265	2,086	268	15,774	2,354	614	-21%	-5%	22%	6%	-12%	20%	142%
Feb-23	9,651	3,972	1,752	305	15,680	2,057	634	-26%	-11%	6%	57%	-19%	12%	176%
Mar-23	15,562	5,171	2,147	491	23,371	2,638	674	-16%	-14%	-5%	96%	-14%	5%	67%

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

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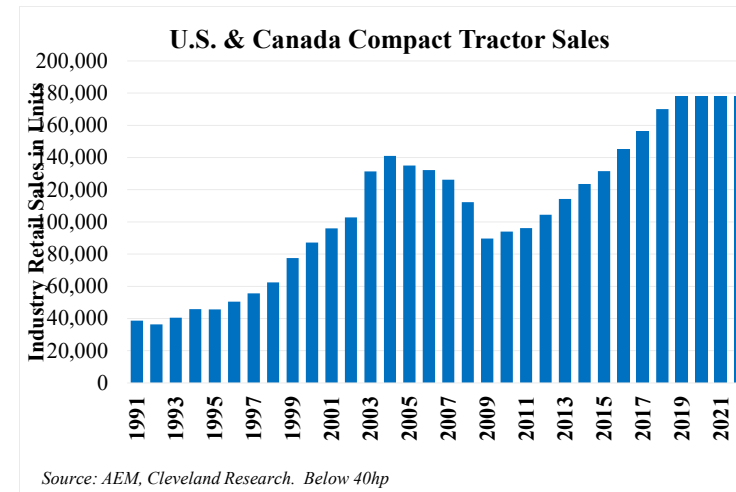
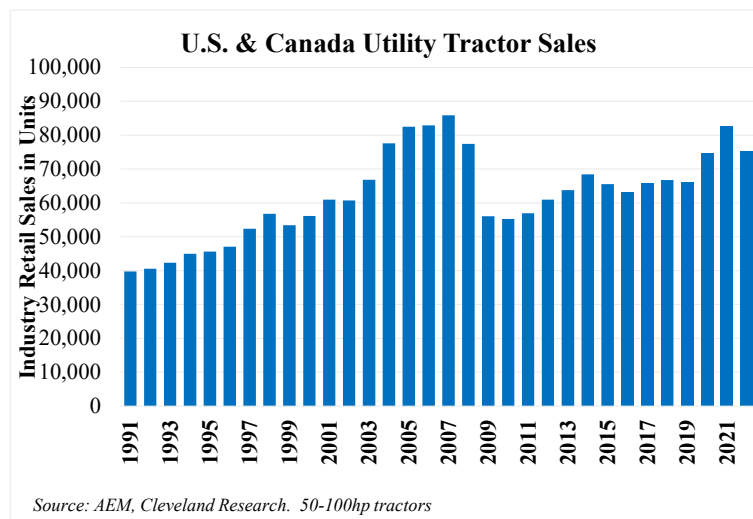
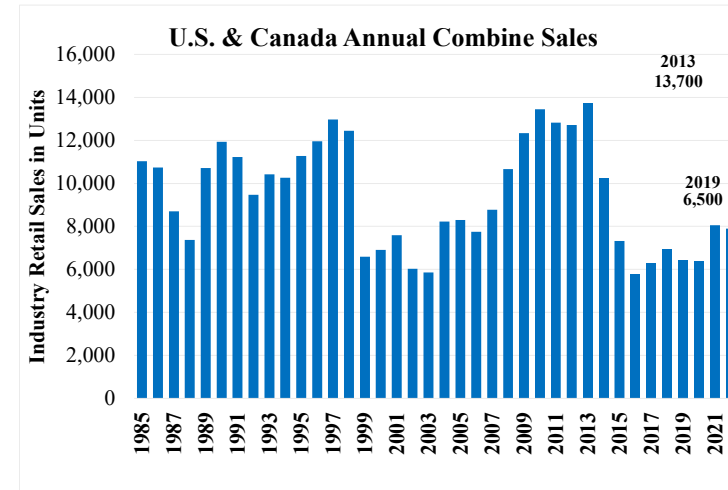
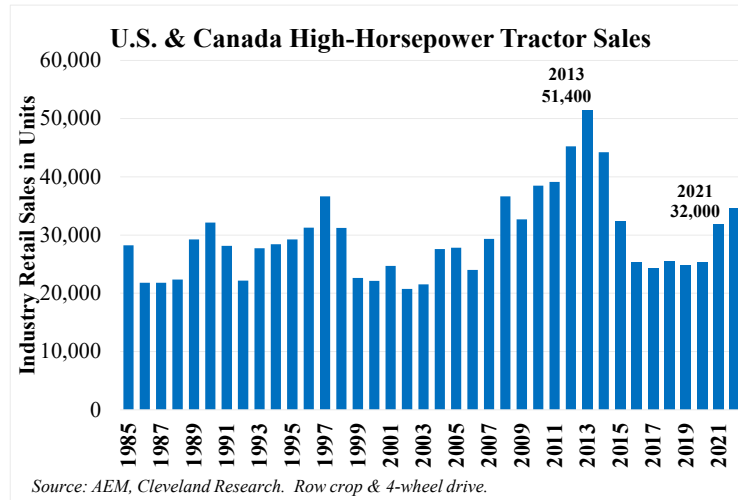
## North American Farm Equipment Industry Inventory

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
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%	50%	29%	58%	47%	24%
May-20	85,267	39,643	9,700	847	135,457	10,547	1,584	46%	60%	47%	26%	49%	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	31%	48%	46%	31%	36%	44%	29%
Aug-20	60,191	32,081	10,007	1,156	103,435	11,163	1,836	30%	46%	49%	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%
Oct-20	54,474	27,608	8,044	816	90,942	8,860	901	26%	38%	38%	24%	30%	36%	14%
Nov-20	57,603	28,178	8,502	878	95,161	9,380	814	27%	39%	40%	25%	31%	38%	13%
Dec-20	60,733	26,426	7,960	760	95,879	8,720	822	28%	35%	36%	22%	30%	34%	13%
Jan-21	66,018	26,898	7,982	613	101,511	8,595	890	30%	36%	36%	17%	32%	34%	14%
Feb-21	70,083	27,307	8,166	644	106,200	8,810	1,109	32%	36%	37%	18%	33%	34%	17%
Mar-21	64,668	26,383	8,321	694	100,066	9,015	1,347	28%	33%	36%	19%	29%	34%	21%
Apr-21	63,886	26,363	8,247	639	99,135	8,886	1,344	27%	33%	35%	17%	28%	33%	20%
May-21	48,249	23,856	7,738	727	80,570	8,465	1,441	20%	29%	32%	19%	23%	30%	21%
Jun-21	44,734	22,353	7,978	780	75,845	8,758	1,498	19%	28%	33%	19%	22%	31%	22%
Jul-21	45,522	21,148	7,523	758	74,951	8,281	1,488	19%	26%	30%	18%	22%	28%	21%
Aug-21	46,915	20,614	7,913	788	76,230	8,701	1,447	20%	25%	31%	18%	22%	29%	20%
Sep-21	46,365	20,005	7,794	807	74,971	8,601	1,298	20%	24%	30%	19%	22%	28%	17%
Oct-21	45,485	18,194	6,557	443	70,679	7,000	721	19%	22%	25%	10%	20%	23%	9%
Nov-21	50,434	18,539	6,848	424	76,245	7,272	675	21%	22%	26%	10%	22%	23%	8%
Dec-21	53,613	17,928	6,540	475	78,556	7,015	656	23%	22%	24%	11%	22%	22%	8%
Jan-22	60,014	18,907	6,537	450	85,908	6,987	699	25%	23%	24%	11%	24%	22%	9%
Feb-22	64,217	20,313	7,222	347	92,099	7,569	824	27%	25%	26%	8%	26%	23%	10%
Mar-22	70,601	22,056	7,431	380	100,468	7,811	1,134	30%	27%	26%	9%	29%	24%	15%
Apr-22	69,534	22,913	7,864	358	100,669	8,222	1,173	31%	29%	28%	9%	30%	26%	15%
May-22	67,141	23,924	7,894	457	99,416	8,351	1,401	31%	30%	28%	12%	30%	26%	18%
Jun-22	62,648	24,164	8,981	582	96,375	9,563	1,645	29%	31%	31%	15%	29%	29%	21%
Jul-22	72,732	27,110	8,740	498	109,080	9,238	1,669	34%	35%	30%	12%	34%	28%	21%
Aug-22	79,195	29,215	9,489	469	118,368	9,958	1,561	38%	38%	32%	12%	37%	30%	20%
Sep-22	83,276	30,557	9,473	507	123,813	9,980	1,624	40%	40%	32%	13%	39%	30%	20%
Oct-22	90,645	30,175	8,743	356	129,919	9,099	835	45%	40%	29%	9%	42%	26%	9%
Nov-22	97,412	31,692	9,605	606	139,315	10,211	1,176	49%	42%	31%	15%	45%	30%	13%
Dec-22	104,888	33,344	9,861	511	148,604	10,372	1,443	54%	44%	32%	12%	49%	30%	16%
Jan-23	114,591	36,335	10,047	487	161,460	10,534	1,534	60%	49%	33%	11%	53%	30%	16%
Feb-23	123,703	38,552	10,544	647	173,446	11,191	1,596	66%	52%	34%	15%	58%	32%	16%

Source: AEM; Cleveland Research Company estimates

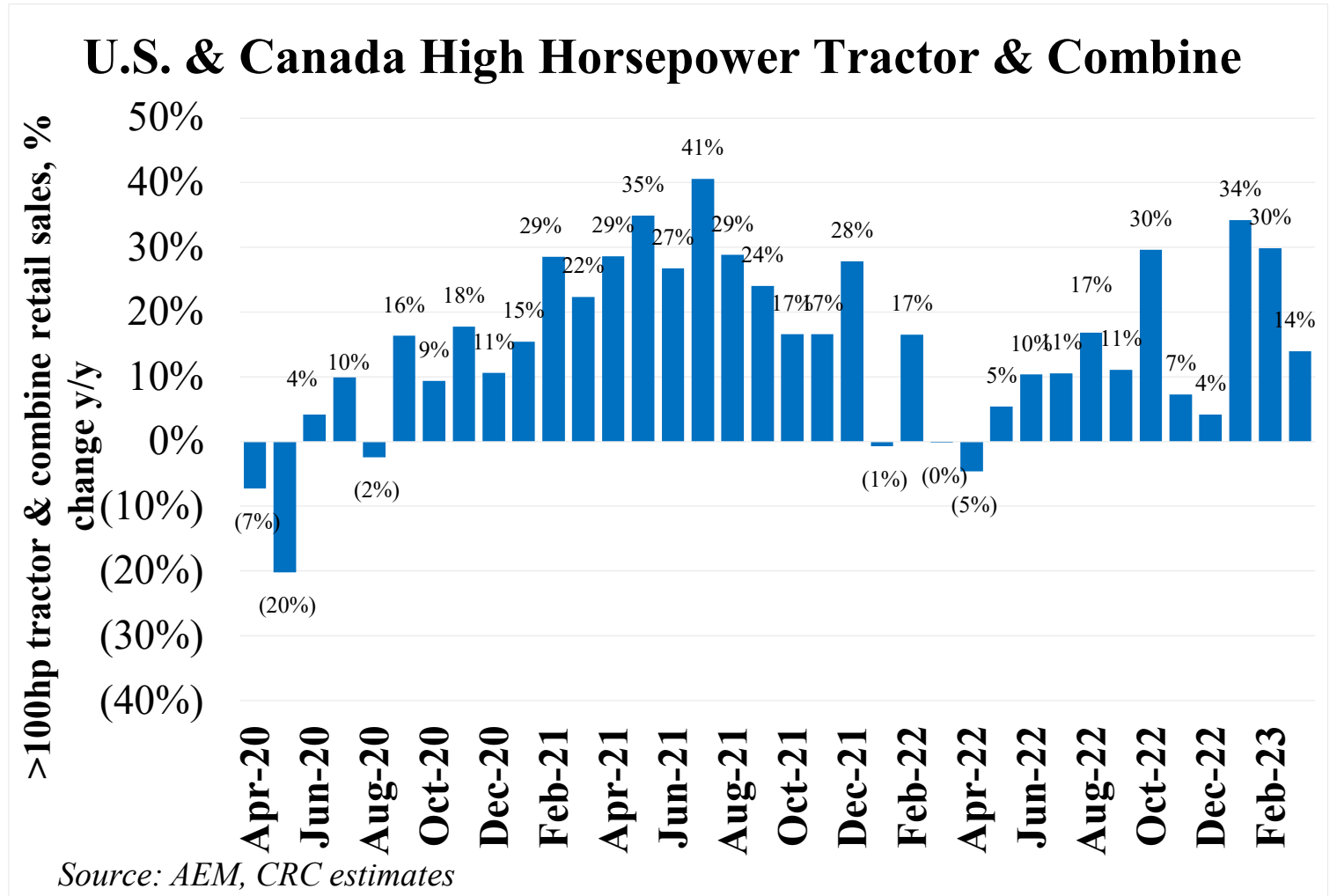
# Ag Equipment Intelligence®

## Annual Agricultural Equipment Industry Sales (1985-2020)



# Ag Equipment Intelligence<sup>®</sup>

## North America Large Ag Equipment Sales

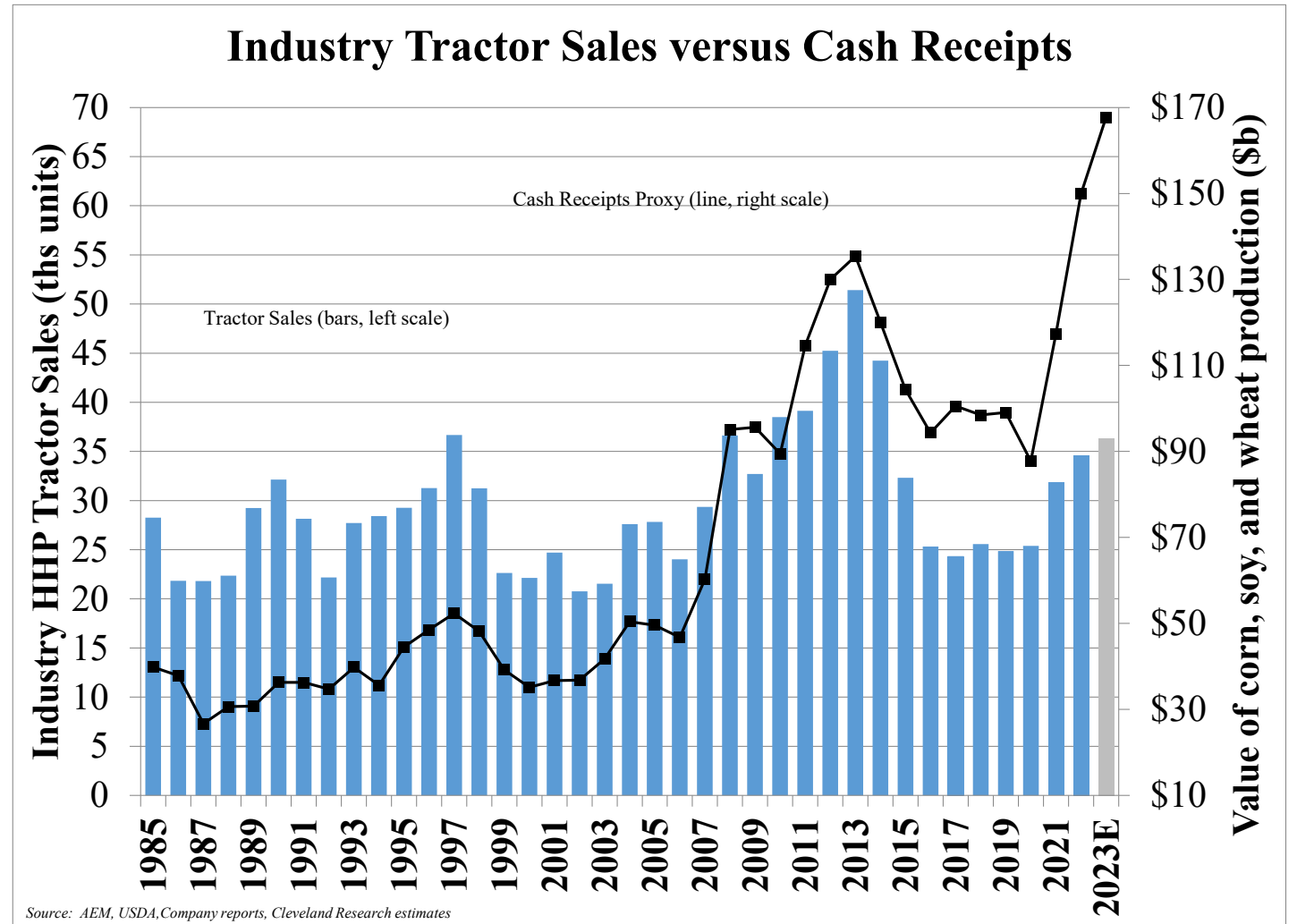


# Ag Equipment Intelligence®

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

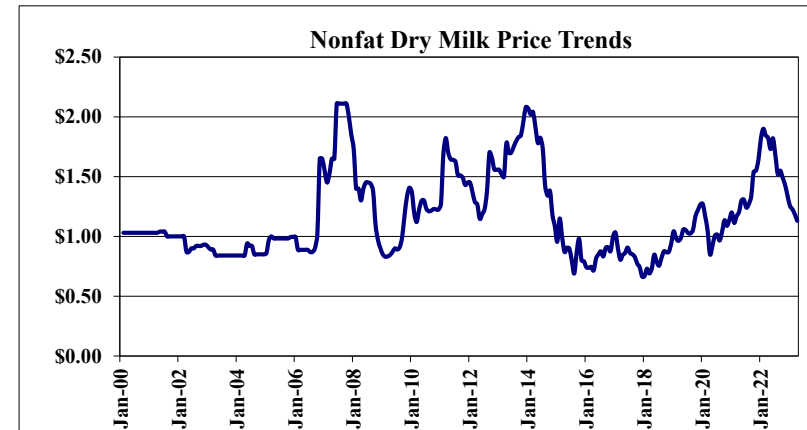
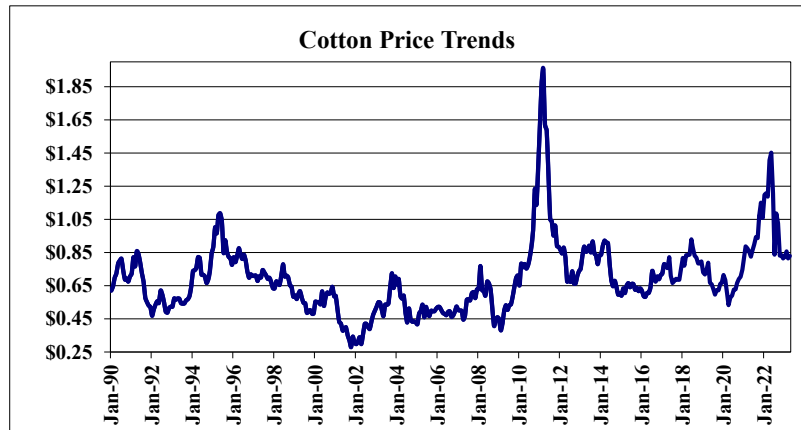
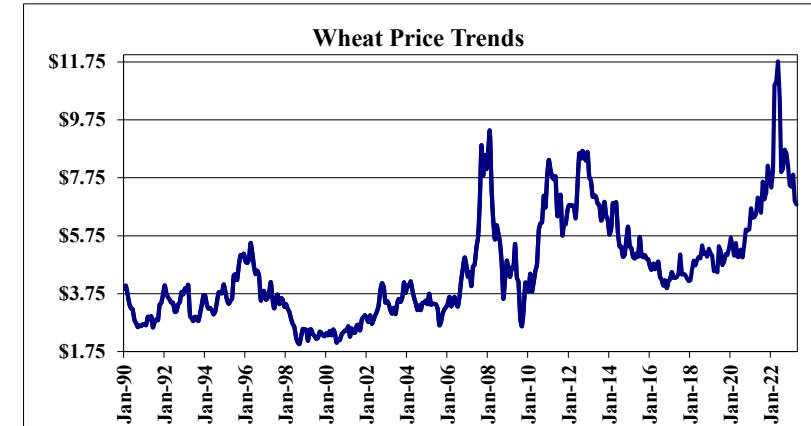
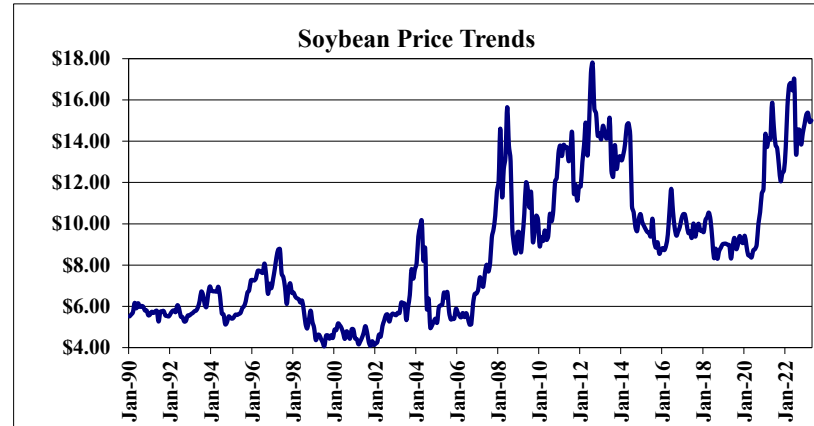
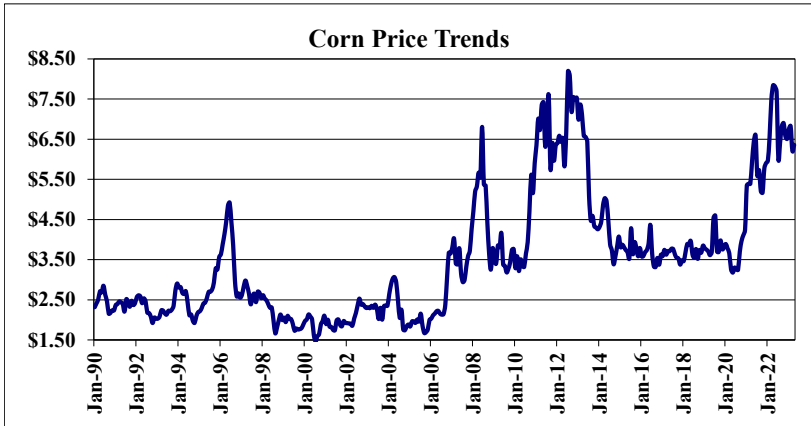
**USDA's April WASDE Update Highlights –** The following chart illustrates the historical relationship between the value of production of corn, soybeans, and wheat in the U.S. compared to annual industry sales of high horsepower tractors.

The USDA reported their April forecast for 2022/23 cash receipts with our proxy for April +40% (+40% last month) with Soybean cash receipts forecast up 34% (34% prior), Corn cash receipts are forecast up 42% (42% prior), and Wheat cash receipts are forecast up 59% (61% prior).



# Ag Equipment Intelligence®

## Long Term Commodity Price Trends



# Ag Equipment Intelligence®

## Commodity Trends: Long Run Supply and Demand Projections

US Corn, Soy, and Wheat Supply and Demand - Long Term Annual Forecast 2022													
US Corn Balance Sheet - USDA Long Term Forecast (May 2022)													
Millions of bushels	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/2027	2027/2028	2028/2029	2029/2030	2030/2031	2031/2032
Planted	90	91	93	92	91	91	90	90	90	90	90	90	90
Harvested	81	82	85	84	83	83	82	82	82	82	82	82	82
Yield (bu/acre)	168	171	177	181	183	185	187	189	191	193	195	197	199
Beginning Stocks (MM bu)	2,221	1,919	1,235	1,500	1,935	2,205	2,445	2,495	2,560	2,595	2,620	2,665	2,675
Production (MM bu)	13,620	14,111	15,115	15,240	15,225	15,390	15,370	15,535	15,700	15,865	16,030	16,095	16,260
Imports (MM bu)	42	24	25	25	25	25	25	25	25	25	25	25	25
<b>Total Supply (MM bu)</b>	<b>15,883</b>	<b>16,055</b>	<b>16,375</b>	<b>16,765</b>	<b>17,185</b>	<b>17,620</b>	<b>17,840</b>	<b>18,055</b>	<b>18,285</b>	<b>18,485</b>	<b>18,675</b>	<b>18,785</b>	<b>18,960</b>
Feed & Residual (MM Bu)	5,898	5,598	5,625	5,750	5,825	5,950	6,050	6,150	6,275	6,400	6,475	6,525	6,600
Food, Seed, & Industrial Total	6,288	6,470	6,810	6,680	6,680	6,675	6,670	6,645	6,640	6,615	6,610	6,585	6,580
Ethanol & By-Products	4,857	5,033	5,375	5,250	5,250	5,250	5,250	5,225	5,225	5,200	5,200	5,175	5,175
Domestic Use	12,186	12,068	12,435	12,430	12,505	12,625	12,720	12,795	12,915	13,015	13,085	13,110	13,180
Exports	1,777	2,753	2,500	2,400	2,475	2,550	2,625	2,700	2,775	2,850	2,925	3,000	3,075
<b>Total Use</b>	<b>13,963</b>	<b>14,821</b>	<b>14,935</b>	<b>14,830</b>	<b>14,980</b>	<b>15,175</b>	<b>15,345</b>	<b>15,495</b>	<b>15,690</b>	<b>15,865</b>	<b>16,010</b>	<b>16,110</b>	<b>16,255</b>
Ending Stocks	1,919	1,235	1,440	1,935	2,205	2,445	2,495	2,560	2,595	2,620	2,665	2,675	2,705
Ending Stocks/Use	13.7%	8.3%	9.6%	13.0%	14.7%	16.1%	16.3%	16.5%	16.5%	16.5%	16.6%	16.6%	16.6%
Weeks Carryover	7.1	4.3	5.0	6.8	7.7	8.4	8.5	8.6	8.6	8.6	8.7	8.6	8.7
<b>Average Farm Price (\$/bu)</b>	<b>\$3.56</b>	<b>\$4.53</b>	<b>\$5.90</b>	<b>\$4.80</b>	<b>\$4.50</b>	<b>\$4.30</b>	<b>\$4.20</b>	<b>\$4.00</b>	<b>\$4.00</b>	<b>\$4.00</b>	<b>\$4.00</b>	<b>\$4.00</b>	<b>\$4.00</b>
Value of Production	\$48,487	\$63,923	\$89,179	\$73,152	\$68,513	\$66,177	\$64,554	\$62,140	\$62,800	\$63,460	\$64,120	\$64,380	\$65,040
% change y/y	-6%	32%	40%	-18%	-6%	-3%	-2%	-4%	1%	1%	1%	0%	1%

U.S. Soybean Balance Sheet - USDA Long Term Forecast (May 2022)													
Millions of bushels	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/2027	2027/2028	2028/2029	2029/2030	2030/2031	2031/2032
Planted	76	83	87	88	88	88	88	88	88	88	88	88	88
Harvested	75	83	86	87	87	87	87	87	87	87	87	87	87
Yield Per Harvested Acre (Bushe	47	51	51	52	52	53	53	54	54	55	55	56	56
Beginning Stocks	909	525	257	320	300	306	300	295	280	284	288	292	296
Production	3,552	4,216	4,435	4,465	4,535	4,580	4,620	4,665	4,710	4,750	4,795	4,840	4,885
Imports	15	20	15	20	20	20	20	20	20	20	20	20	20
<b>Total Supplies</b>	<b>4,476</b>	<b>4,761</b>	<b>4,707</b>	<b>4,805</b>	<b>4,855</b>	<b>4,906</b>	<b>4,940</b>	<b>4,980</b>	<b>5,010</b>	<b>5,054</b>	<b>5,103</b>	<b>5,152</b>	<b>5,201</b>
Crush	2,165	2,141	2,215	2,240	2,280	2,320	2,350	2,380	2,405	2,430	2,455	2,480	2,500
Exports	1,679	2,261	2,140	2,140	2,145	2,160	2,170	2,195	2,195	2,210	2,230	2,250	2,275
Seed & Residual	108	102	118	124	125	125	125	125	126	126	126	126	127
<b>Total Use</b>	<b>3,952</b>	<b>4,504</b>	<b>4,473</b>	<b>4,504</b>	<b>4,550</b>	<b>4,605</b>	<b>4,645</b>	<b>4,700</b>	<b>4,726</b>	<b>4,766</b>	<b>4,811</b>	<b>4,856</b>	<b>4,902</b>
Ending Stocks	525	257	235	300	306	300	295	280	284	288	292	296	299
Stocks/Use	13.3%	5.7%	5.3%	6.7%	6.7%	6.5%	6.4%	6.0%	6.0%	6.0%	6.1%	6.1%	6.1%
<b>Average Price (\$/bu)</b>	<b>\$8.57</b>	<b>\$10.80</b>	<b>\$13.25</b>	<b>\$10.50</b>	<b>\$10.35</b>	<b>\$10.25</b>	<b>\$10.15</b>	<b>\$10.00</b>	<b>\$10.00</b>	<b>\$10.00</b>	<b>\$10.00</b>	<b>\$10.00</b>	<b>\$10.00</b>
Value of Production	\$30,441	\$45,533	\$58,764	\$46,883	\$46,937	\$46,945	\$46,893	\$46,650	\$47,100	\$47,500	\$47,950	\$48,400	\$48,850
% change y/y	-19%	50%	29%	-20%	0%	0%	0%	-1%	1%	1%	1%	1%	1%



# Ag Equipment Intelligence®

## Commodity Trends: Long Run Supply and Demand Projections

US Corn, Soy, and Wheat Supply and Demand - Long Term Annual Forecast 2022 (continued)													
U.S. Wheat Balance Sheet - USDA Long Term Forecast (March 2021)													
Millions of bushels	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/2027	2027/2028	2028/2029	2029/2030	2030/2031	2031/2032
Planted	46	45	47	49	49	48	48	47	47	47	47	46	46
Harvested	37	37	37	41	41	40	40	39	39	39	39	38	38
Yield Per Harvested Acre (Bushe	52	50	44	49	50	50	50	51	51	52	52	52	53
Beginning Stocks	1,080	1028	845	580	636	683	704	726	721	730	727	735	735
Production	1,932	1828	1,646	2,003	2,020	1,996	2,012	1,987	2,003	1,993	2,005	1,999	2,015
Imports	104	100	95	120	120	120	120	120	120	120	120	120	120
<b>Total Supplies</b>	<b>3,116</b>	<b>2,956</b>	<b>2,586</b>	<b>2,703</b>	<b>2,776</b>	<b>2,799</b>	<b>2,836</b>	<b>2,833</b>	<b>2,844</b>	<b>2,843</b>	<b>2,852</b>	<b>2,854</b>	<b>2,870</b>
Food	962	961	962	966	968	970	972	974	976	978	980	982	984
Seed	60	64	64	66	65	65	63	63	63	63	62	62	62
Feed&residual	96	95	100	110	110	100	100	100	100	100	100	100	100
Exports	969	992	805	925	950	960	975	975	975	975	975	975	975
<b>Total Use</b>	<b>2,087</b>	<b>2,112</b>	<b>1,931</b>	<b>2,067</b>	<b>2,093</b>	<b>2,095</b>	<b>2,110</b>	<b>2,112</b>	<b>2,114</b>	<b>2,116</b>	<b>2,117</b>	<b>2,119</b>	<b>2,121</b>
Ending Stocks	1,028	845	655	636	683	704	726	721	730	727	735	735	749
Stocks/Use	49.3%	40.0%	33.9%	30.8%	32.6%	33.6%	34.4%	34.1%	34.5%	34.4%	34.7%	34.7%	35.3%
<b>Average Price (\$/bu)</b>	<b>\$4.58</b>	<b>\$5.05</b>	<b>\$7.70</b>	<b>\$6.50</b>	<b>\$6.00</b>	<b>\$5.50</b>	<b>\$5.50</b>	<b>\$5.50</b>	<b>\$5.50</b>	<b>\$5.50</b>	<b>\$5.25</b>	<b>\$5.25</b>	<b>\$5.25</b>
Value of Production	\$8,849	\$9,231	\$12,674	\$13,020	\$12,120	\$10,978	\$11,066	\$10,929	\$11,017	\$10,962	\$10,526	\$10,495	\$10,579
% change y/y	-9%	4%	37%	3%	-7%	-9%	1%	-1%	1%	0%	-4%	0%	1%
Total Acreage and Value of U.S. Corn, Soy and Wheat Production - USDA May 2022 Projection													
<b>Total Corn, Soy, Wheat</b>	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/2027	2027/2028	2028/2029	2029/2030	2030/2031	2031/2032
Planted (mm acres)	211	219	227	229	228	227	226	225	225	225	225	224	224
Harvested (mm acres)	194	202	209	212	211	210	209	209	209	208	208	207	207
Yield (bu/acre)	99	100	101	103	103	104	105	106	107	109	110	111	112
Production	19,104	20,155	21,196	21,708	21,780	21,966	22,002	22,187	22,413	22,608	22,830	22,934	23,160
Average Price (\$/bu)	\$4.59	\$5.89	\$7.58	\$6.13	\$5.86	\$5.65	\$5.57	\$5.40	\$5.39	\$5.39	\$5.37	\$5.38	\$5.37
<b>Value of Production</b>	<b>\$87,776</b>	<b>\$118,687</b>	<b>\$160,616</b>	<b>\$133,054</b>	<b>\$127,570</b>	<b>\$124,100</b>	<b>\$122,513</b>	<b>\$119,719</b>	<b>\$120,917</b>	<b>\$121,922</b>	<b>\$122,596</b>	<b>\$123,275</b>	<b>\$124,469</b>
% change y/y	-11%	35%	35%	-17%	-4%	-3%	-1%	-2%	1%	1%	1%	1%	1%

Source: USDA, Cleveland Research estimates

## U.S Acreage Planted Per Crop Year

