Ag Equipment Intelligence

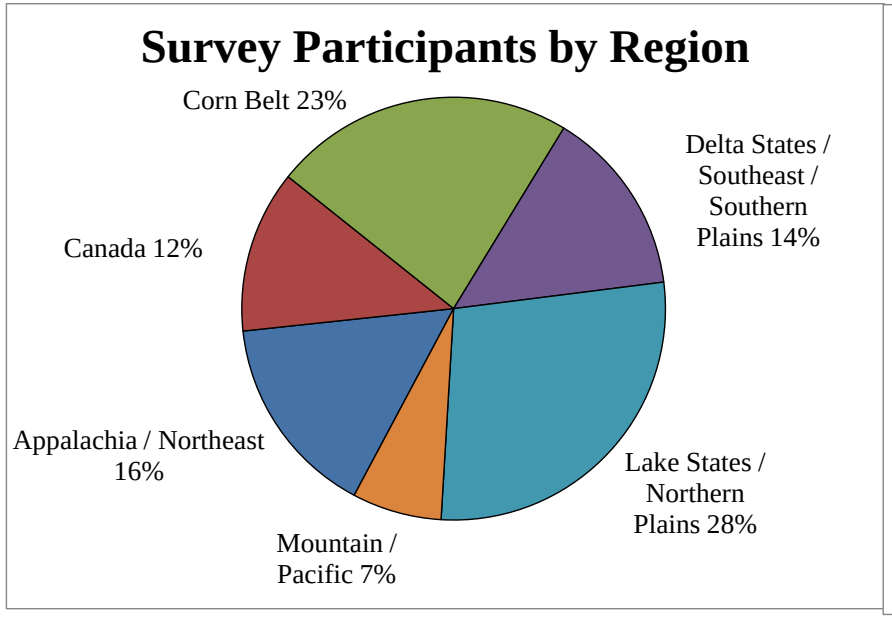
April 2017 Dealer Sentiments & Business Conditions Update

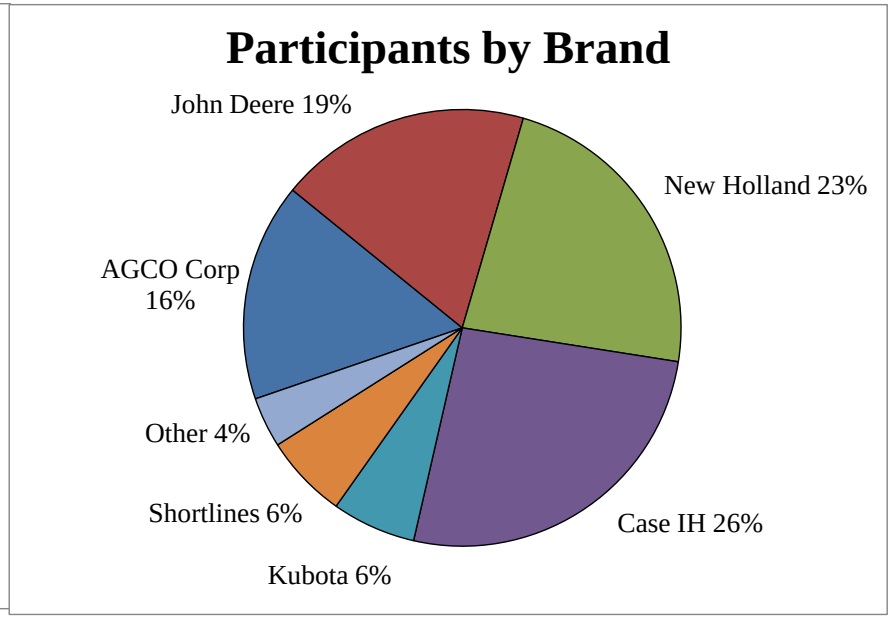
Monthly Ag Equipment Intelligence North American Dealer Survey

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 ~160 respondents representing combined annual revenues of roughly $5 billion. Participants represent a broad cross section of geographies and brands are summarized in the charts below.





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.

Source: Farm Equipment Magazine Survey

Highlights / Summary Thoughts

- **Sales –** Average dealer sales were reported down 5% y/y in March, inline with February, as a net 18% of dealers missed their sales budget vs the 20% that missed last month. A net 13% of dealers reported a sales decline in the month, better than the net 20% citing a decline in February. Commercial and consumer lawn equipment and GPS / Precision ag sales showed strength, while large equipment demand remains weak.

- **Outlook –**The 2017 sales forecast fell to down 4%, compared to the 2% declines forecast in February, and similar to forecasts from November to January as sentiment has grown less optimistic over the last month.

- **Inventory –** A net 35% of dealers reported new equipment inventories as too high, similar to the 37% in February. Used equipment inventories remained elevated as a net 30% of dealers reported used inventory as too high, slightly above the 28% last month.

- **Pricing –** Dealers reported relatively flat new equipment pricing as OEM price increases have been offset by greater discounting at the dealer level. Used equipment values fell in the month with large tractor pricing reported down ~5% y/y, vs the down 3% reported in February. Used combine pricing was down 8% y/y vs down 6% in February.

Source: Farm Equipment Magazine Survey

Monthly Sales Growth

- Average dealer sales were reported down 5% y/y in March, inline with February. A net 18% of dealers missed their sales budgets in March, compared to the 20% that missed last month.
- A net 1% of dealers reported they are less optimistic, similar to the 1% reporting more optimism in February as the weak sentiment seen in 2016 has subsided but optimism is muted in the near term.

N. American Farm Equipment Dealer Survey - Average Dealer Sales Growth

% Change y/y	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17
AGCO	4%	-12%	-24%	-13%	-14%	-22%	-27%	-9%	0%	-7%	-18%	-4%	-1%	-19%	-7%	-22%	-12%	-12%	-12%	-5%	-13%	-4%	-11%
John Deere	-15%	-14%	-19%	-14%	-15%	-16%	-12%	-16%	-11%	-11%	-13%	-11%	-6%	-8%	-16%	-17%	-4%	-9%	-11%	-6%	-1%	-7%	-1%
New Holland	-7%	-5%	-17%	-12%	-23%	-14%	-13%	-15%	-11%	-10%	-15%	-16%	2%	-3%	-8%	-11%	-12%	-14%	-9%	-15%	-7%	2%	-12%
Case IH	-19%	-19%	-17%	-19%	-20%	-19%	-22%	-18%	-18%	-20%	-15%	-9%	-19%	-8%	-5%	-11%	-8%	-11%	-11%	-14%	-8%	-4%	-5%
Kubota	0%	0%	0%	-3%	-2%	2%	-5%	-13%	-8%	0%	8%	2%	6%	2%	8%	1%	4%	1%	-1%	5%	-5%	2%	7%
Shortlines/Other	-6%	-16%	-7%	-38%	-7%	-9%	-8%	-8%	-9%	-1%	-4%	-6%	-7%	-4%	8%	-22%	-22%	-11%	-7%	-14%	-9%	5%	4%
Total	**-13%**	**-13%**	**-18%**	**-15%**	**-16%**	**-16%**	**-16%**	**-15%**	**-13%**	**-12%**	**-13%**	**-10%**	**-6%**	**-9%**	**-8%**	**-11%**	**-7%**	**-10%**	**-10%**	**-9%**	**-6%**	**-5%**	**-5%**

Source: Cleveland Research, Ag Equipment Intelligence

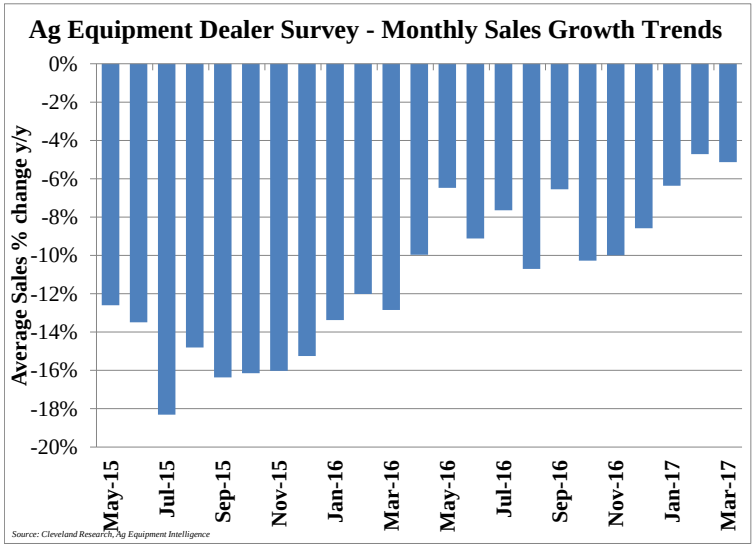
N. American Farm Equipment Dealer Survey - Sales Versus Expectations

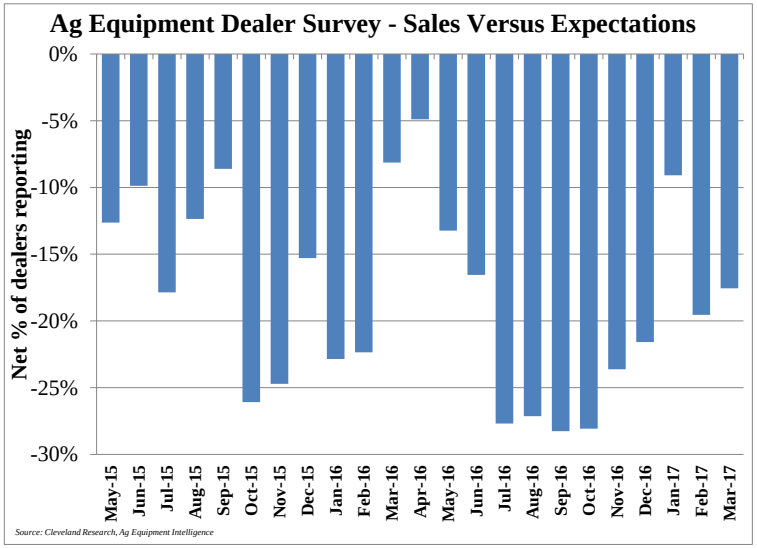
% of Dealers Reporting	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17
Better than expected	23%	21%	18%	16%	19%	15%	12%	19%	12%	15%	20%	24%	21%	22%	15%	14%	14%	16%	8%	11%	16%	11%	12%
In line with expectations	39%	48%	45%	56%	53%	43%	51%	47%	52%	47%	52%	48%	46%	40%	43%	44%	44%	40%	61%	57%	59%	58%	58%
Worse than expected	36%	31%	36%	28%	28%	41%	37%	34%	35%	38%	28%	29%	34%	38%	42%	41%	42%	44%	31%	32%	25%	31%	30%
Net % (Better - Worse)	**-13%**	**-10%**	**-18%**	**-12%**	**-9%**	**-26%**	**-25%**	**-15%**	**-23%**	**-22%**	**-8%**	**-5%**	**-13%**	**-17%**	**-28%**	**-27%**	**-28%**	**-28%**	**-24%**	**-22%**	**-9%**	**-20%**	**-18%**

Source: Cleveland Research, Ag Equipment Intelligence

Source: Farm Equipment Magazine Survey

Monthly Sales Growth Continued





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

% of Dealers Reporting	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17
Positive Sales Growth	29%	26%	20%	19%	24%	20%	16%	18%	14%	20%	23%	27%	29%	27%	20%	19%	22%	18%	20%	26%	27%	25%	32%
Flat Sales	17%	11%	16%	16%	16%	15%	17%	10%	22%	20%	17%	23%	16%	23%	21%	19%	22%	15%	23%	17%	22%	31%	23%
Negative Sales Growth	54%	63%	64%	65%	60%	65%	67%	72%	64%	60%	60%	50%	55%	50%	59%	62%	56%	67%	58%	58%	52%	45%	45%
Net % Reporting Growth	**-25%**	**-37%**	**-43%**	**-46%**	**-35%**	**-46%**	**-52%**	**-54%**	**-50%**	**-40%**	**-37%**	**-23%**	**-26%**	**-23%**	**-39%**	**-43%**	**-33%**	**-48%**	**-38%**	**-32%**	**-25%**	**-20%**	**-13%**
Average % Change y/y	**-13%**	**-13%**	**-18%**	**-15%**	**-16%**	**-16%**	**-16%**	**-15%**	**-13%**	**-12%**	**-13%**	**-10%**	**-6%**	**-9%**	**-8%**	**-11%**	**-7%**	**-10%**	**-10%**	**-9%**	**-6%**	**-5%**	**-5%**

Source: Cleveland Research

Optimism/Sentiment vs. Last Month

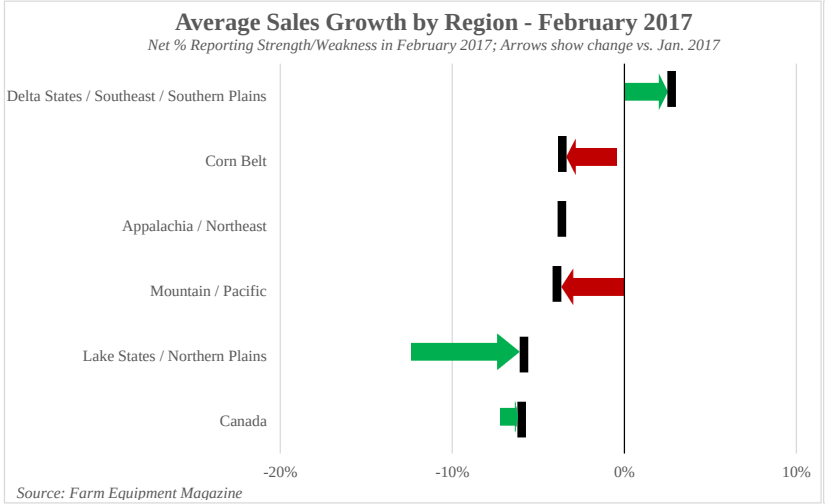
% of Dealers Reporting	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17
More Optimistic	12%	13%	14%	11%	12%	8%	10%	8%	11%	13%	17%	15%	22%	11%	16%	11%	14%	13%	15%	17%	31%	21%	26%
Same	48%	58%	52%	45%	51%	60%	52%	48%	46%	51%	55%	59%	51%	60%	44%	52%	49%	53%	60%	58%	48%	60%	47%
Less Optimistic	40%	30%	35%	43%	37%	33%	38%	44%	43%	36%	28%	26%	27%	30%	40%	36%	38%	34%	25%	26%	20%	19%	27%
Net % Dealer Optimism	**-26%**	**-18%**	**-21%**	**-32%**	**-26%**	**-25%**	**-28%**	**-35%**	**-31%**	**-24%**	**-11%**	**-11%**	**-4%**	**-19%**	**-24%**	**-25%**	**-24%**	**-21%**	**-10%**	**-9%**	**11%**	**1%**	**-1%**

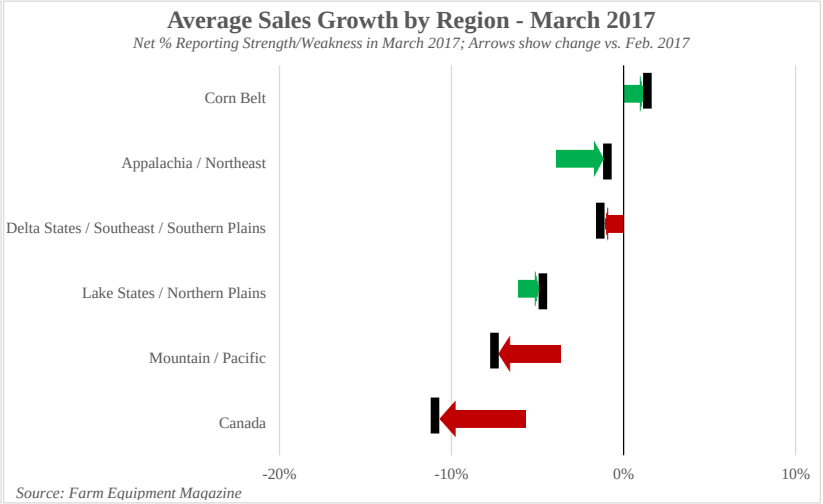
Source: Cleveland Research

Source: Farm Equipment Magazine Survey

Monthly Sales Growth by Region

- Sales trends by region were mixed in the month. The Corn Belt, Appalachia/Northeast, and Lake States/Northern Plains regions improved from February's reading, as the Corn Belt saw the best reading since May 2014. The Canada, Mountain/Pacific, and Delta States/Southeast/Southern Plains regions declined from last month's results.

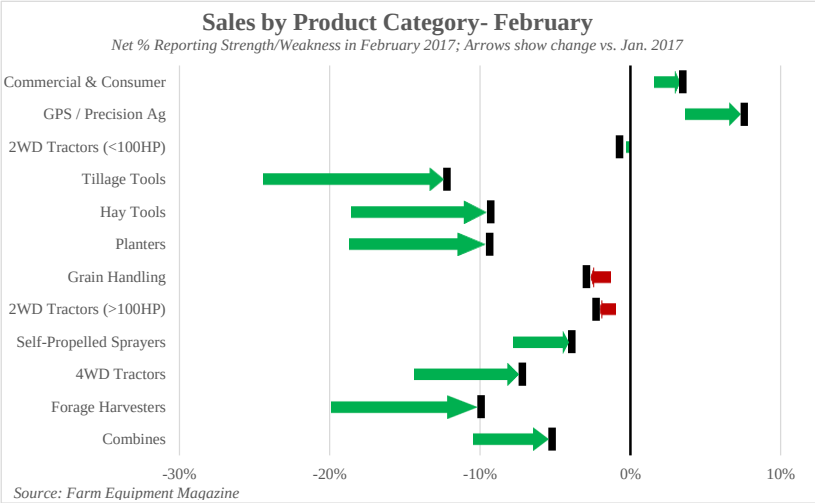


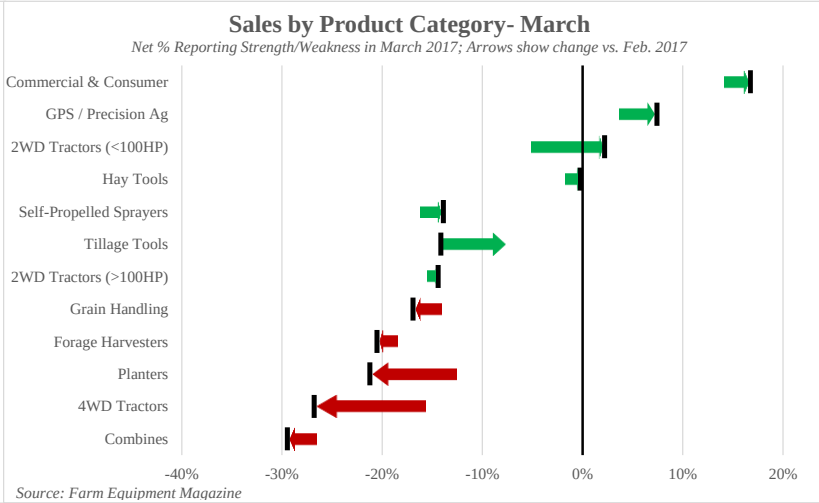


Source: Ag Equipment Intelligence

Equipment Category Sales Trends

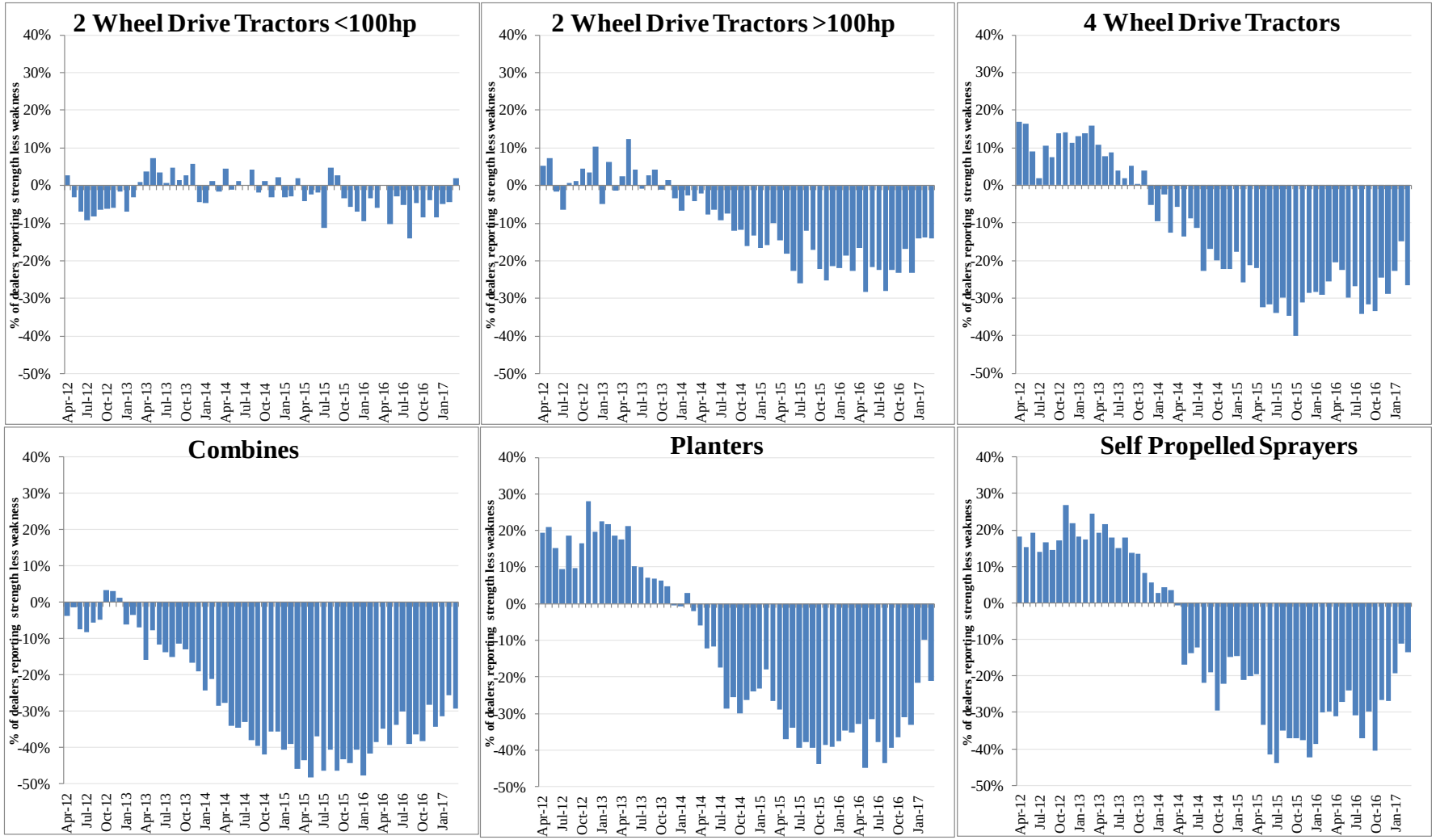
- Equipment sales trends were mixed in March as commercial & consumer lawn equipment, GPS / Precision Ag, and 2WD tractors showed strength in contrast to declines in other categories (planters, combines, sprayers, and harvesters in particular). 2WD tractors saw growth in March for the first time since September 2015.





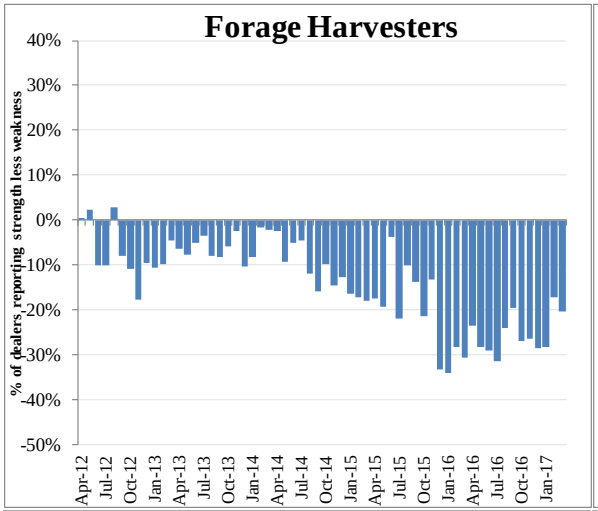
Source: Ag Equipment Intelligence

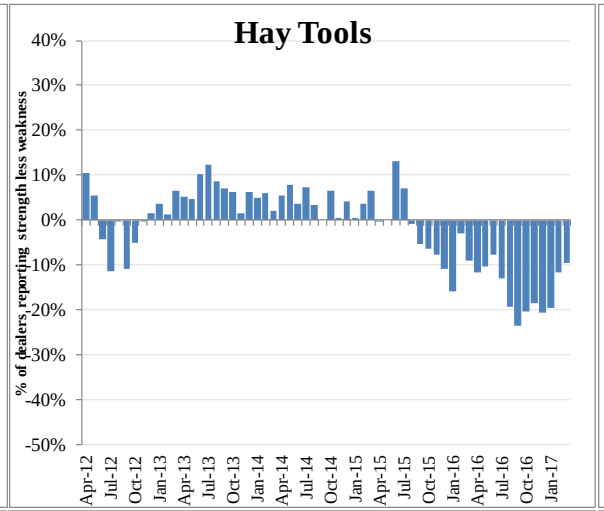
Equipment Category Sales Trends

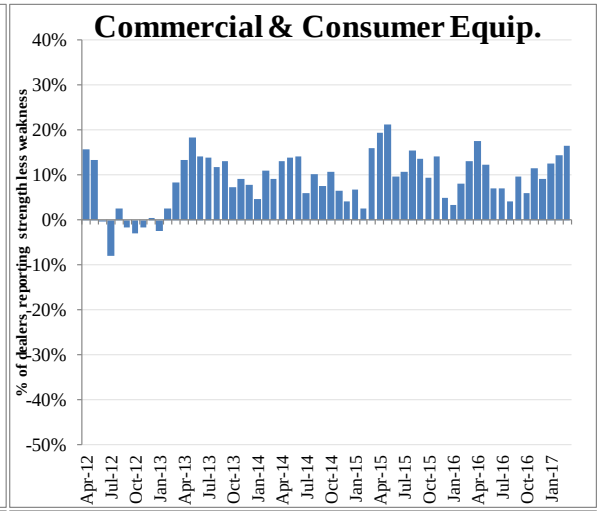


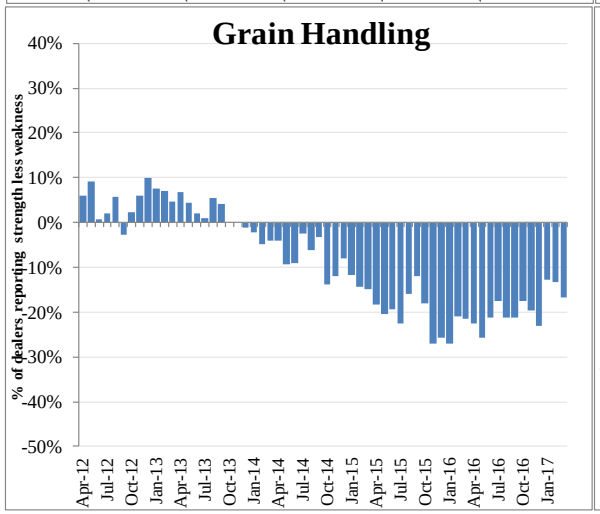
Source: Ag Equipment Intelligence

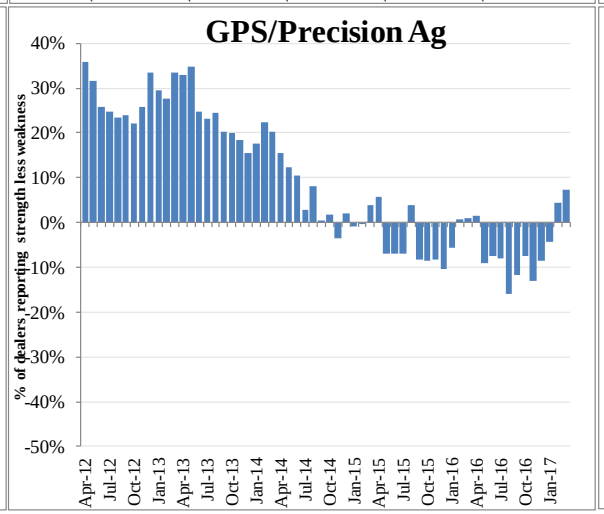
Equipment Category Sales Trends (Continued)

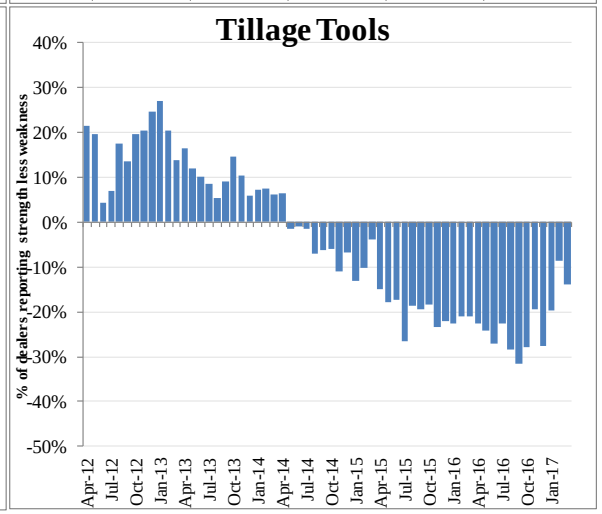












Source: Ag Equipment Intelligence

Average Dealer Sales Outlook

- The 2017 sales growth forecast was reported at down 4%, down from last month's forecast, but inline with forecasts from November to January. Commentary suggests that elevated inventories, weak farmer income, and diminished manufacturer programs have offset the improved customer sentiment seen over the past 4-5 months.

- The bottom table details the 2017 industry outlooks from Deere, CNHI, and AGCO. N. America industry forecasts are down 5-10% on average.

N. American Farm Equipment Dealer Survey - 2017 Sales Forecast

% change y/y	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17
AGCO	-1%	-2%	-20%	-10%	-8%	-2%	-1%	2%	-5%
John Deere	-11%	-4%	-15%	-1%	-6%	-5%	-3%	-3%	-3%
New Holland	-4%	-3%	-21%	-3%	-5%	-4%	-6%	-3%	-5%
Case IH	-14%	-6%	-20%	-12%	2%	-13%	-7%	-3%	-6%
Kubota	6%	-24%	4%	-3%	-6%	-2%	-8%	3%	4%
Shortlines/Other	-3%	-5%	-19%	-2%	0%	-10%	1%	-2%	-6%
Overall	**-8%**	**-7%**	**-8%**	**-5%**	**-4%**	**-4%**	**-4%**	**-2%**	**-4%**

Source: Cleveland Research, Ag Equipment Intelligence

2017 Ag Equipment Industry Sales Outlook (units)

Geography	Deere	CNH Industrial	AGCO Corp.
N. America	Down 5-10%	Tractors (5-10%), Combines (5-10%)	Down 5-10%; HHP Down 10%
Western Europe	Down ~5%	Tractors (5%), Combines (5%)	Flat to Down 5%
Latin America	Up 15-20%	Tractors 15%, Combines 15%	Up 10%
CIS or ROW	na	na	na
Asia	Flat to up Slightly	Tractors 0-5%, Combines Flat	na

Source: Company reports, CRC estimates

Source: Ag Equipment Intelligence

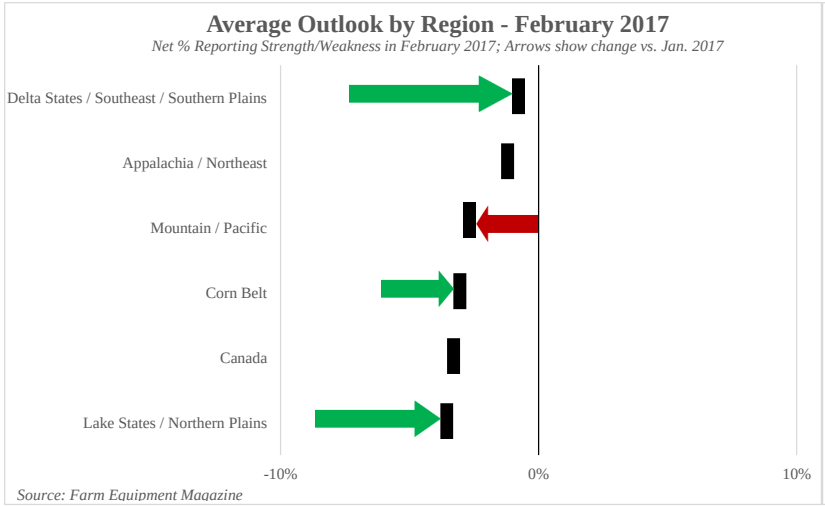
Most Interesting Commentary - Monthly Sales and Outlook

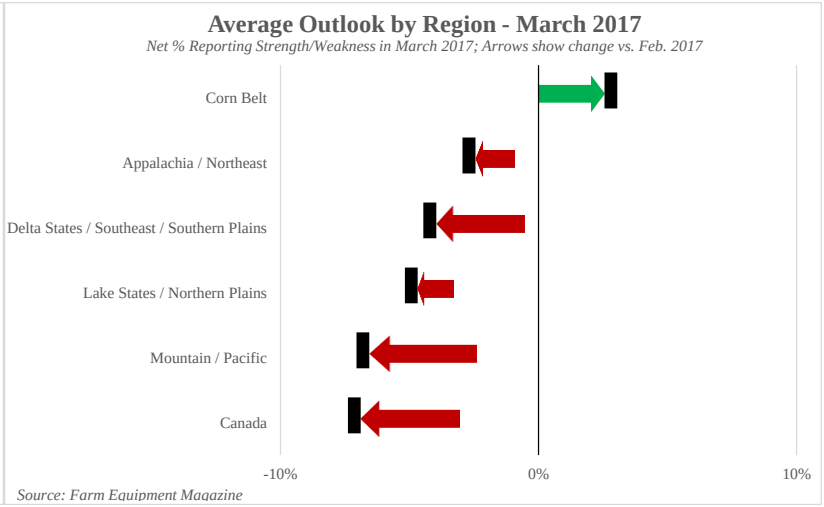
- Ag equipment sales are still tough. We have moved a few used combines but at very low margins, and lawn and garden sales are flat to slightly up y/y.
- January and February were strong, while March came in below expectations. April has started off slow.
- The level of demand for replacement equipment was surprising, as well as the continued strong demand for precision equipment.
- Hay tool and skid steer loader sales picked up in the month, while sales of compact tractors remained soft.
- We have sold five new tractors in the same period that we sold one in 2016, so we are much more optimistic about 2017.
- Parts and service sales increased in the month, while equipment sales and margins were down. Aftermarket has been our primary focus for about 3-4 years and that seems to be paying off in times like these.
- Our used equipment sales have picked up, but with the lack of programming from our manufacturer, our new sales are suffering.
- March was a good month so I am somewhat more optimistic for the year. Sales in some locations were better than expected, while the remainder of our dealer locations were inline with expectations.
- Our manufacturer program support has gone away and they are placing more responsibility on the dealer. It appears that there could be increased programming in April, but it could be too late as we are nearly half way through selling season for spring planting.
- An inability to move late model HHP row crop tractors is severely impeding our ability to sell new tractors.
- Margins and inventory levels have definitely improved from a year ago, but we are still working on reducing inventory.
- Our inventory levels for used compact tractors are low, but our large tillage and planter inventory is elevated.
- Dealers are burdened with high inventories and are willing to travel far and wide to unload it. We need commodity prices to go up for farmers to have money to spend.
- Customers won’t buy new equipment until commodity prices come up. Sales of planters and combines are inline with expectations, but other equipment sales seem to be in a holding pattern.
- All programming has been reduced and interest rates are starting to climb on financing and leasing. Leasing residuals have gone down but the dealer guaranteed portion is up.

Source: Ag Equipment Intelligence

2017 Sales Outlook

- The 2017 outlook in March declined from February with forecasts in the range of down 7% to up 3%. The Corn Belt region forecast improved in February while the remaining region forecasts declined from last month. Dealers noted increased optimism with customers, but remain cautious as farmer income remains weak.

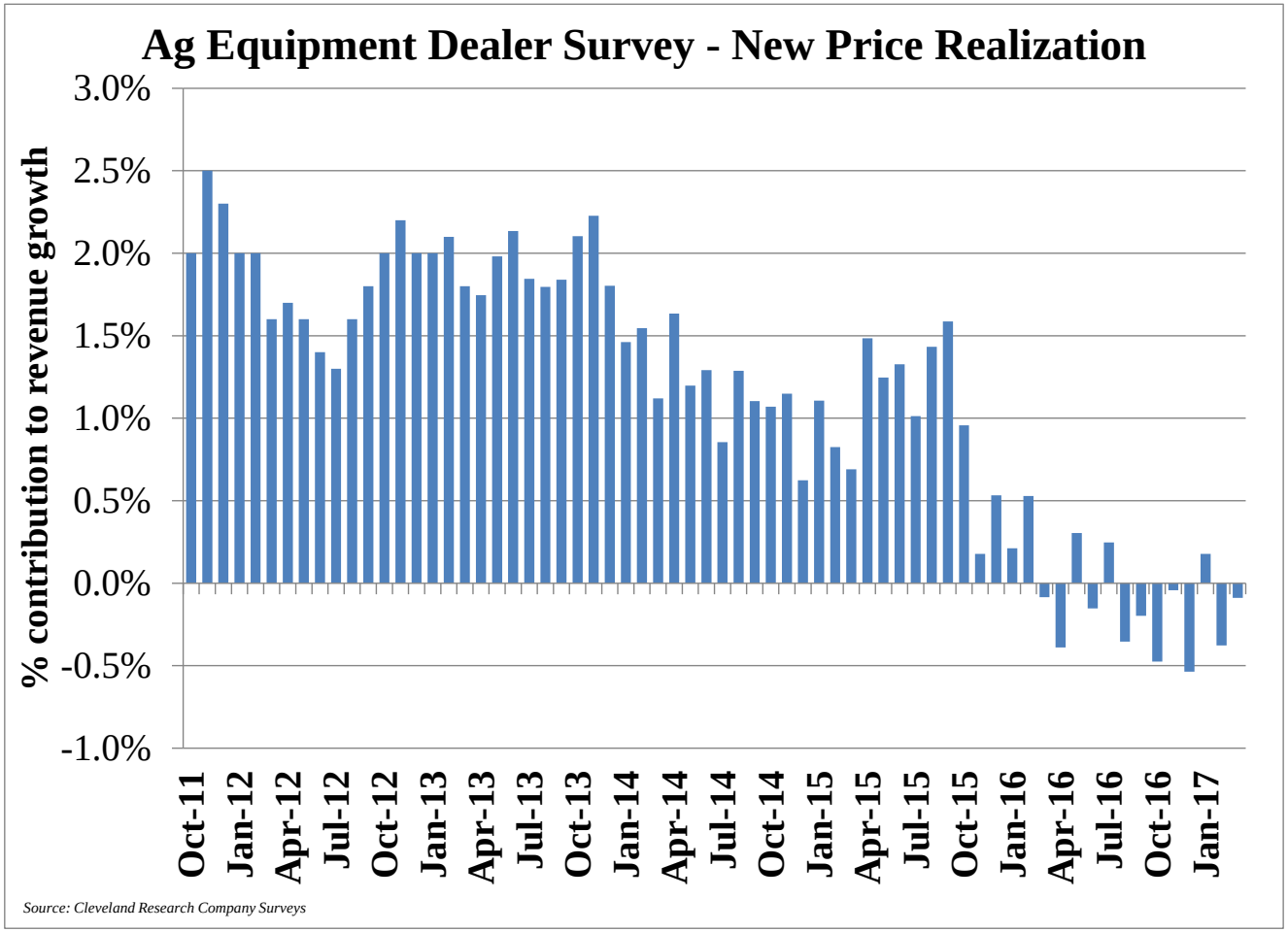




Source: Ag Equipment Intelligence

Pricing Trends

- Dealers reported relatively flat pricing over the last year as incentive programs have more than offset list price increases. Commentary in the month suggests that OEMs are pulling back on incentive programs.



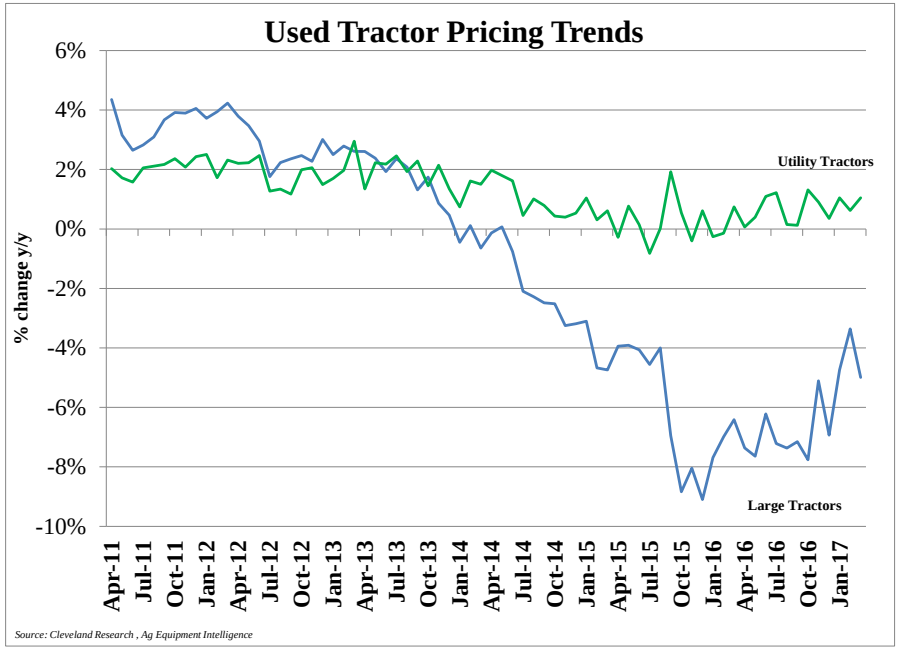
Source: Ag Equipment Intelligence

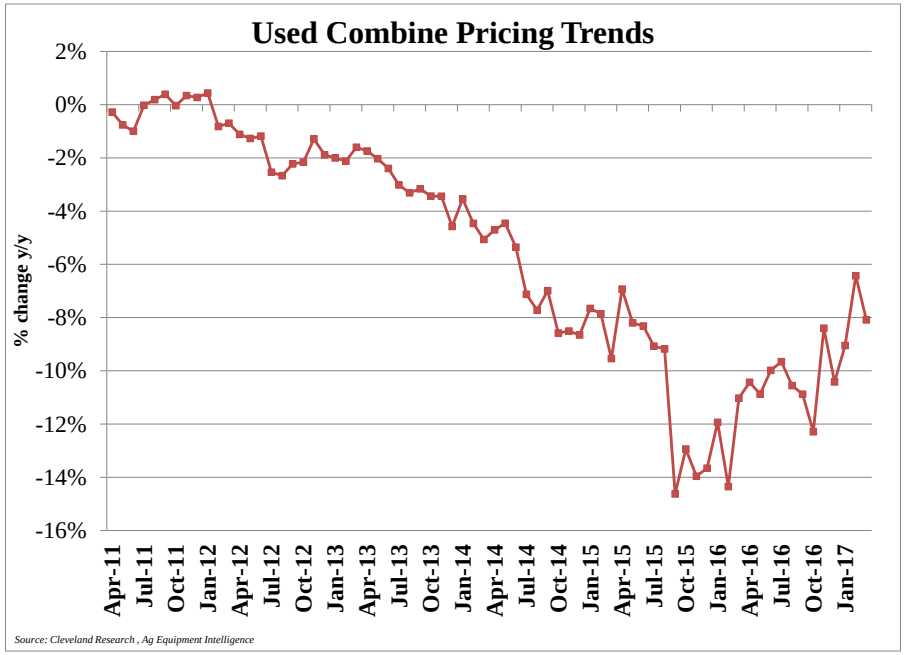
Used Equipment Pricing

- Pricing trends saw deterioration in the month. Large tractors were reported down 5% y/y, worse than the 3% decline reported in February. Combine pricing also declined with values reported down 8% y/y, vs the 6% decline in February.

Used Tractor and Combine Values (Y/Y)

	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17
Compact (<40HP)	(1%)	0%	(1%)	0%	1%	0%	1%	2%	2%	1%	1%	2%	2%	1%	1%	1%	1%
Utility (40-100HP)	(0%)	1%	0%	(1%)	0%	0%	0%	1%	1%	(0%)	(0%)	1%	0%	0%	1%	0%	1%
Row Crop (100HP+)	(7%)	(7%)	(6%)	(5%)	(5%)	(6%)	(7%)	(5%)	(6%)	(6%)	(6%)	(6%)	(4%)	(5%)	(3%)	(2%)	(3%)
4WD Tractors	(9%)	(11%)	(10%)	(9%)	(8%)	(8%)	(9%)	(8%)	(8%)	(9%)	(8%)	(10%)	(7%)	(9%)	(6%)	(4%)	(7%)
Combines	(14%)	(14%)	(12%)	(14%)	(11%)	(10%)	(11%)	(10%)	(10%)	(11%)	(11%)	(12%)	(8%)	(10%)	(9%)	(6%)	(8%)

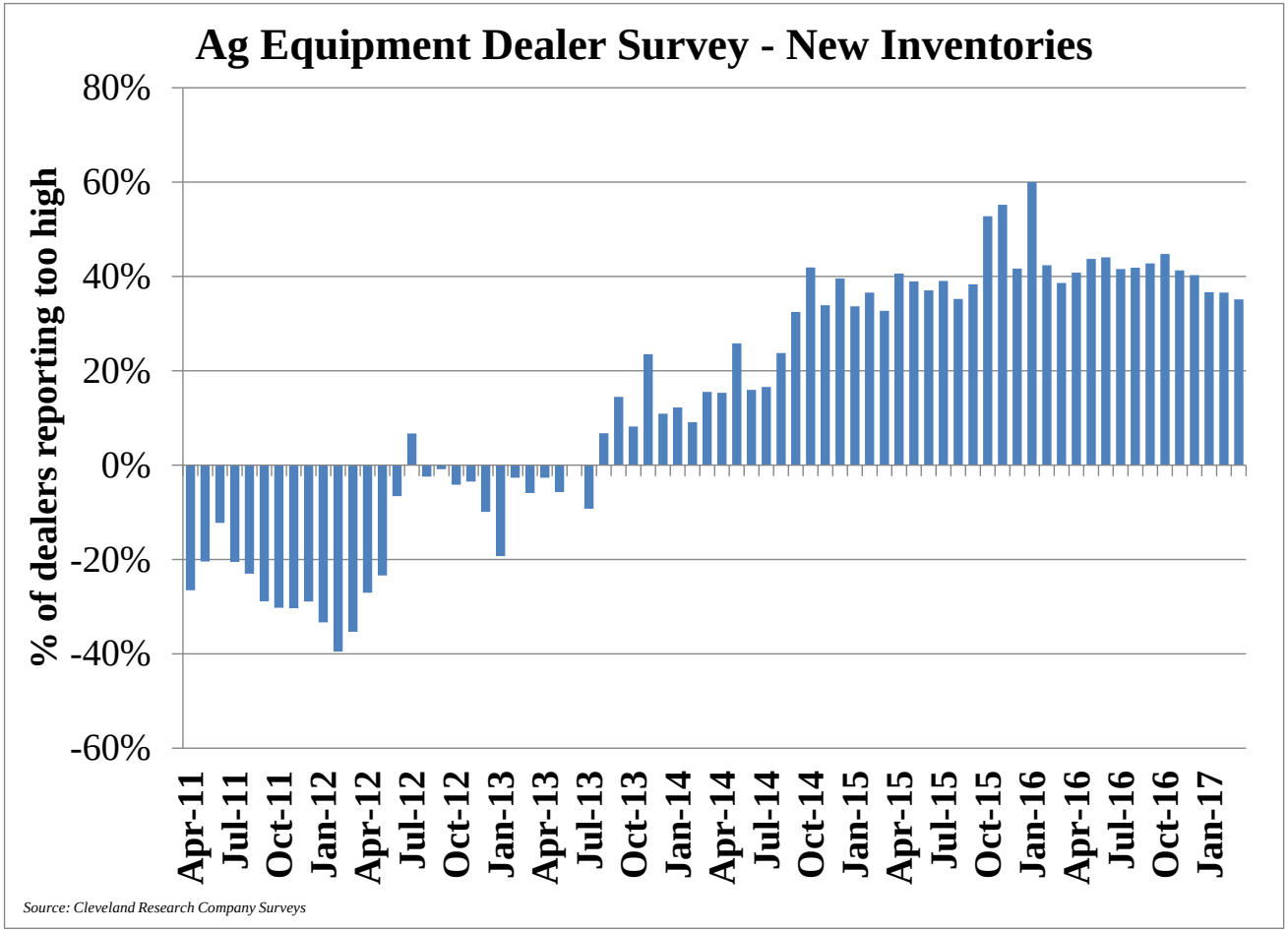




Source: Ag Equipment Intelligence

New Equipment Inventory Levels

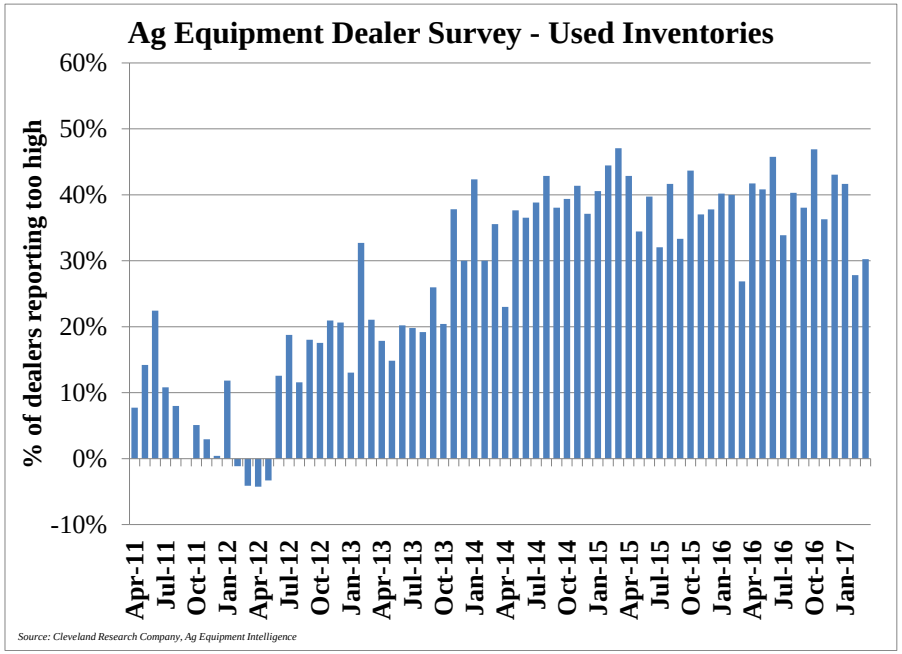
- A net 35% of dealers reported new equipment inventories too high (45% too high, 45% about right, 10% too low), slightly better than the 37% in February. New inventory levels have been elevated for over 3 years.

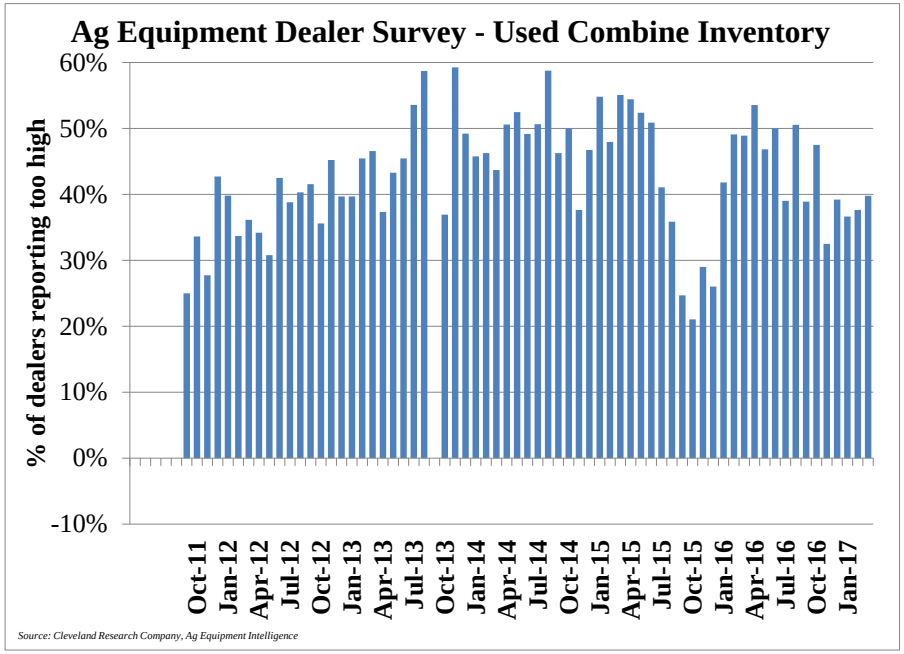


Source: Ag Equipment Intelligence

Used Equipment Inventory Levels

- A net 30% of dealers reported used equipment inventory as too high (40% too high, 51% about right, 9% too low), similar to the 28% reporting heightened inventory in February (38% too high, 51% about right, 11% too low). Used combine inventory levels were reported as too high by a net 40% of dealers in March, compared to February's reading of 38%.





Source: Ag Equipment Intelligence

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
Jan-14	4,755	4,152	3,303	631	12,841	3,934	824	1%	2%	12%	-7%	3%	8%	33%
Feb-14	5,308	3,745	2,423	575	12,051	2,998	526	4%	1%	-6%	-14%	0%	-8%	-15%
Mar-14	10,108	5,110	3,155	655	19,028	3,810	899	22%	3%	-9%	-7%	9%	-9%	-25%
Apr-14	14,191	6,010	3,752	745	24,698	4,497	996	2%	7%	-13%	-12%	0%	-13%	-13%
May-14	16,828	6,586	2,928	474	26,816	3,402	669	-2%	6%	-16%	-14%	-2%	-16%	-24%
Jun-14	15,245	6,488	2,733	408	24,874	3,141	837	13%	2%	-16%	-25%	5%	-18%	-25%
Jul-14	11,245	5,934	3,206	389	20,774	3,595	1,034	5%	7%	1%	-21%	4%	-2%	-30%
Aug-14	9,691	5,444	2,575	371	18,081	2,946	946	4%	9%	-9%	-37%	2%	-14%	-24%
Sep-14	11,333	6,193	3,276	492	21,294	3,768	1,142	32%	28%	-2%	-14%	23%	-4%	-11%
Oct-14	10,950	7,085	4,920	733	23,688	5,653	983	14%	6%	-17%	-40%	1%	-21%	-41%
Nov-14	5,857	4,177	1,891	354	12,279	2,245	450	4%	8%	-29%	-45%	-4%	-32%	-50%
Dec-14	8,089	7,473	3,730	512	19,804	4,242	920	6%	8%	-24%	-47%	-3%	-28%	-40%
Jan-15	5,382	4,506	3,124	220	13,232	3,344	384	13%	9%	-5%	-65%	3%	-15%	-53%
Feb-15	5,305	3,250	1,955	348	10,858	2,303	399	0%	-13%	-19%	-39%	-10%	-23%	-24%
Mar-15	9,702	4,799	2,539	499	17,539	3,038	470	-4%	-6%	-20%	-24%	-8%	-20%	-48%
Apr-15	16,624	6,461	3,131	430	26,646	3,561	664	17%	8%	-17%	-42%	8%	-21%	-33%
May-15	16,028	5,643	1,994	260	23,925	2,254	549	-5%	-14%	-32%	-45%	-11%	-34%	-18%
Jun-15	15,679	6,526	2,409	300	24,914	2,709	502	3%	1%	-12%	-26%	0%	-14%	-40%
Jul-15	14,372	7,039	2,469	268	24,148	2,737	806	28%	19%	-23%	-31%	16%	-24%	-22%
Aug-15	9,800	5,087	1,768	167	16,822	1,935	679	1%	-7%	-31%	-55%	-7%	-34%	-28%
Sep-15	10,917	5,348	1,934	249	18,448	2,183	845	-4%	-14%	-41%	-49%	-13%	-42%	-26%
Oct-15	12,897	6,792	3,266	515	23,470	3,781	796	18%	-4%	-34%	-30%	-1%	-33%	-19%
Nov-15	6,112	3,728	1,159	222	11,221	1,381	343	4%	-11%	-39%	-37%	-9%	-38%	-24%
Dec-15	8,755	6,376	2,567	516	18,214	3,083	883	8%	-15%	-31%	1%	-8%	-27%	-4%
Jan-16	5,946	4,250	1,981	243	12,420	2,224	455	10%	-6%	-37%	10%	-6%	-33%	18%
Feb-16	6,429	3,372	1,185	222	11,208	1,407	241	21%	4%	-39%	-36%	3%	-39%	-40%
Mar-16	12,453	5,110	1,905	258	19,726	2,163	346	28%	6%	-25%	-48%	12%	-29%	-26%
Apr-16	17,713	5,586	2,548	337	26,184	2,885	465	7%	-14%	-19%	-22%	-2%	-19%	-30%
May-16	17,201	5,634	1,976	234	25,045	2,210	333	7%	0%	-1%	-10%	5%	-2%	-39%
Jun-16	15,794	6,594	1,974	223	24,585	2,197	567	1%	1%	-18%	-26%	-1%	-19%	13%
Jul-16	13,344	5,418	1,833	152	20,747	1,985	619	-7%	-23%	-26%	-43%	-14%	-27%	-23%
Aug-16	11,600	5,068	1,315	102	18,085	1,417	563	18%	0%	-26%	-39%	8%	-27%	-17%
Sep-16	12,632	5,491	1,768	203	20,094	1,971	621	16%	3%	-9%	-18%	9%	-10%	-27%
Oct-16	13,850	6,819	2,722	612	24,003	3,334	579	7%	0%	-17%	19%	2%	-12%	-27%
Nov-16	7,382	3,656	907	205	12,150	1,112	294	21%	-2%	-22%	-8%	8%	-19%	-14%
Dec-16	10,343	6,326	2,071	328	19,068	2,399	687	18%	-1%	-19%	-36%	5%	-22%	-22%
Jan-17	6,821	3,854	1,396	147	12,218	1,543	289	15%	-9%	-30%	-40%	-2%	-31%	-36%
Feb-17	7,868	3,319	1,335	199	12,721	1,534	276	22%	-2%	13%	-10%	13%	9%	15%
Mar-17	13,950	5,328	1,790	338	21,406	2,128	457	12%	4%	-6%	31%	9%	-2%	32%

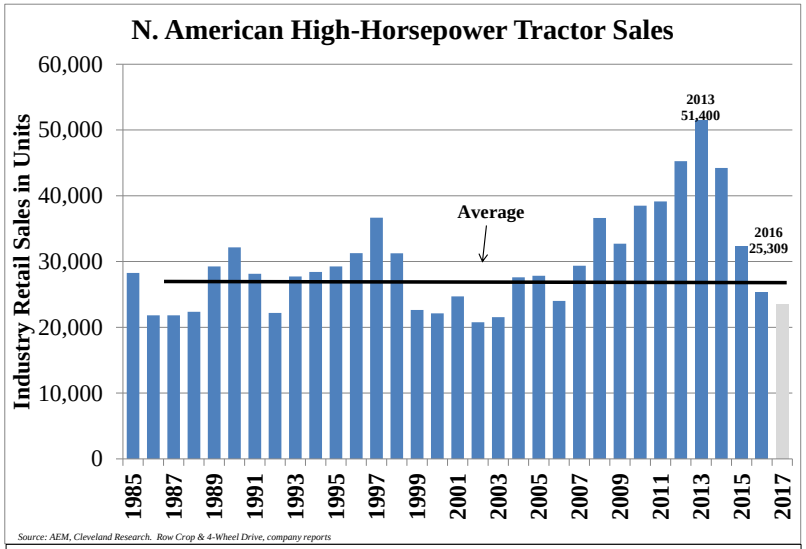
Source: AEM; Cleveland Research Company estimates. High hp tractors are row crop & 4-wheel drive.

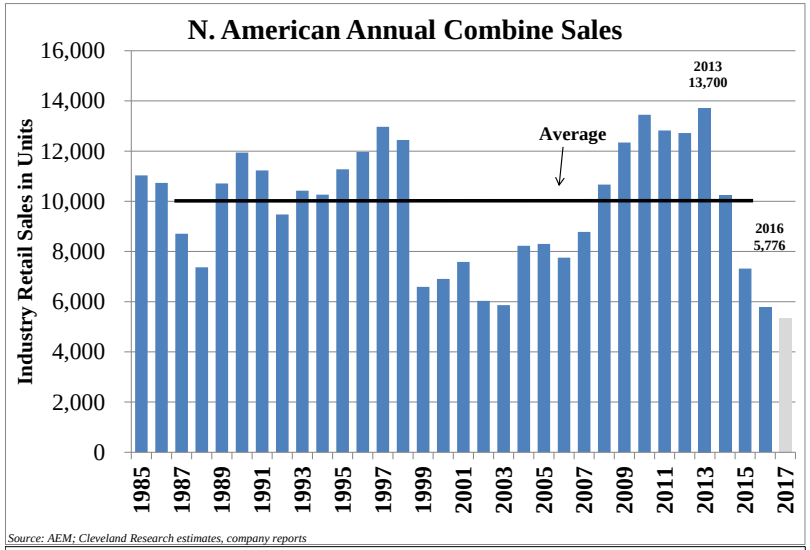
North American Farm Equipment Industry Inventory

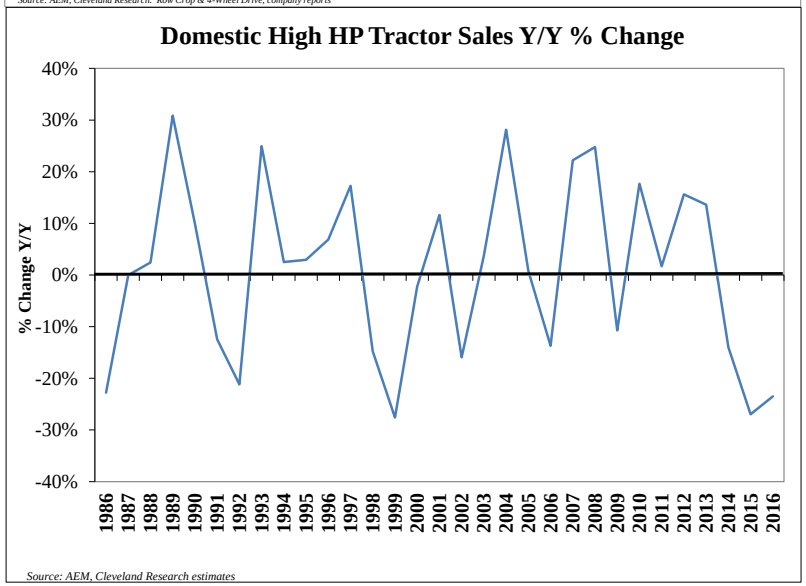
NORTH AMERICAN FARM EQUIPMENT INVENTORY														
	Inventory (Units)							Inventory to 12-mo. Sales						
	< 40 HP	Utility	Row Crop	4-Wheel	Total Tractor	Row Crop & 4WD	Combines	<40HP	Util	RC	4-WD	Total Tractor	Row Crop & 4WD	Comb
Dec-13	67,863	32,028	13,318	2,049	115,258	15,367	2,083	59%	50%	31%	24%	50%	30%	15%
Jan-14	69,111	33,240	12,620	2,028	116,999	14,648	1,681	60%	52%	29%	24%	51%	28%	12%
Feb-14	71,514	34,326	13,267	2,046	121,153	15,313	2,063	62%	54%	31%	25%	53%	30%	15%
Mar-14	71,249	35,256	14,058	2,218	122,781	16,276	2,456	61%	55%	33%	27%	53%	32%	18%
Apr-14	69,986	35,615	13,298	2,117	121,016	15,415	2,467	60%	55%	31%	26%	52%	31%	18%
May-14	66,364	34,755	13,505	2,255	116,879	15,760	2,734	57%	54%	32%	28%	51%	32%	21%
Jun-14	62,025	34,004	14,531	2,294	112,854	16,825	3,101	53%	52%	35%	29%	49%	34%	24%
Jul-14	61,829	34,393	14,836	2,159	113,217	16,995	3,144	52%	53%	36%	27%	49%	35%	25%
Aug-14	62,466	35,692	15,060	2,193	115,411	17,253	3,360	53%	54%	37%	29%	49%	36%	28%
Sep-14	61,811	35,926	16,185	2,399	116,321	18,584	2,891	51%	54%	40%	32%	49%	38%	24%
Oct-14	63,713	35,965	14,640	1,802	116,120	16,442	2,187	52%	53%	37%	25%	49%	35%	19%
Nov-14	67,691	37,110	14,840	1,652	121,293	16,492	2,046	55%	55%	38%	24%	51%	36%	19%
Dec-14	69,876	35,550	14,638	1,426	121,490	16,064	1,674	57%	52%	39%	22%	51%	36%	16%
Jan-15	73,716	35,405	13,934	1,439	124,494	15,373	1,713	59%	51%	37%	24%	53%	35%	18%
Feb-15	78,177	36,676	13,981	1,436	130,270	15,417	1,820	63%	54%	38%	25%	55%	36%	19%
Mar-15	81,662	37,881	14,179	1,346	135,068	15,525	2,040	66%	56%	39%	24%	58%	37%	22%
Apr-15	80,348	37,047	13,193	1,353	131,941	14,546	2,116	64%	54%	37%	26%	56%	35%	24%
May-15	78,880	37,037	13,177	1,400	130,494	14,577	2,058	63%	55%	38%	28%	56%	36%	23%
Jun-15	76,286	36,584	13,006	1,416	127,292	14,422	2,276	61%	54%	37%	29%	55%	36%	27%
Jul-15	72,876	35,232	12,507	1,354	121,969	13,861	2,218	56%	51%	37%	28%	52%	36%	27%
Aug-15	74,247	36,442	12,555	1,343	124,587	13,898	2,232	58%	53%	38%	29%	53%	37%	28%
Sep-15	65,844	37,545	12,551	1,374	117,314	13,925	2,001	51%	56%	39%	32%	51%	38%	26%
Oct-15	75,042	37,885	11,906	1,266	126,099	13,172	1,504	57%	56%	39%	31%	54%	38%	20%
Nov-15	79,228	39,911	12,983	1,317	133,439	14,300	1,492	61%	60%	44%	33%	58%	43%	20%
Dec-15	82,737	41,363	13,140	1,189	138,429	14,329	1,277	63%	63%	46%	30%	60%	44%	17%
Jan-16	86,618	42,352	12,727	1,129	142,826	13,856	1,169	66%	65%	47%	28%	62%	44%	16%
Feb-16	92,071	44,704	13,298	1,097	151,170	14,395	1,281	69%	68%	50%	28%	66%	48%	18%
Mar-16	93,703	45,127	13,327	1,131	153,288	14,458	1,281	69%	69%	52%	31%	66%	49%	18%
Apr-16	90,381	44,499	13,136	1,115	149,131	14,251	1,312	66%	69%	52%	31%	65%	50%	19%
May-16	86,451	43,931	13,015	1,152	144,549	14,167	1,492	63%	68%	52%	33%	62%	49%	22%
Jun-16	82,264	42,688	12,928	1,005	138,885	13,933	1,593	59%	66%	52%	29%	60%	49%	24%
Jul-16	81,046	41,621	12,765	920	136,352	13,685	1,580	59%	66%	53%	28%	60%	50%	24%
Aug-16	79,823	41,683	12,962	998	135,466	13,960	1,671	57%	66%	55%	30%	59%	52%	26%
Sep-16	78,438	41,007	12,671	1,103	133,219	13,774	1,428	56%	65%	54%	34%	58%	52%	23%
Oct-16	77,609	39,058	11,417	1,013	129,097	12,430	1,118	55%	62%	50%	30%	56%	47%	19%
Nov-16	80,250	39,972	12,075	1,059	133,356	13,134	1,105	56%	63%	53%	32%	57%	51%	19%
Dec-16	81,456	39,339	11,955	985	133,735	12,940	1,082	56%	62%	54%	32%	57%	51%	19%
Jan-17	83,153	39,248	11,838	1,024	135,263	12,862	1,099	57%	62%	55%	34%	58%	52%	20%
Feb-17	84,464	39,659	11,692	1,105	136,920	12,797	1,345	57%	63%	54%	37%	58%	52%	24%

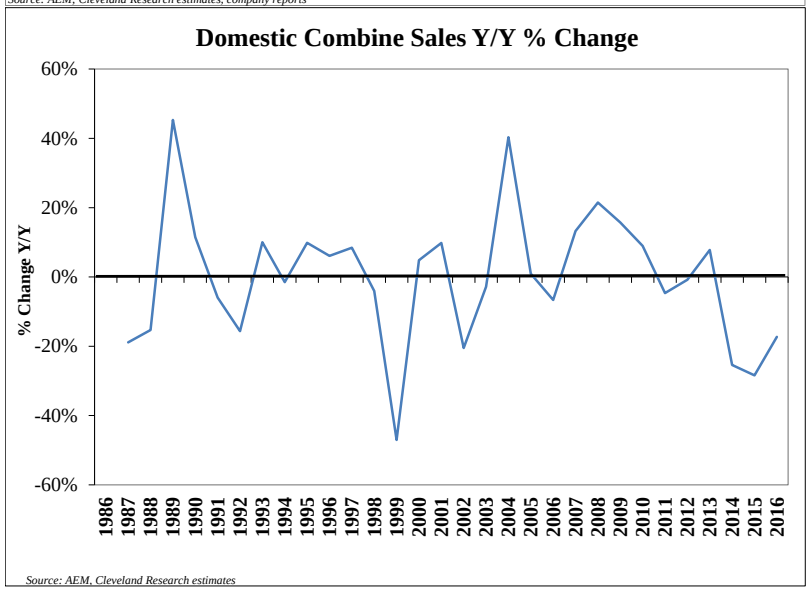
Source: AEM; Cleveland Research Company estimates

Annual Agricultural Equipment Industry Sales (1985 - 2016)

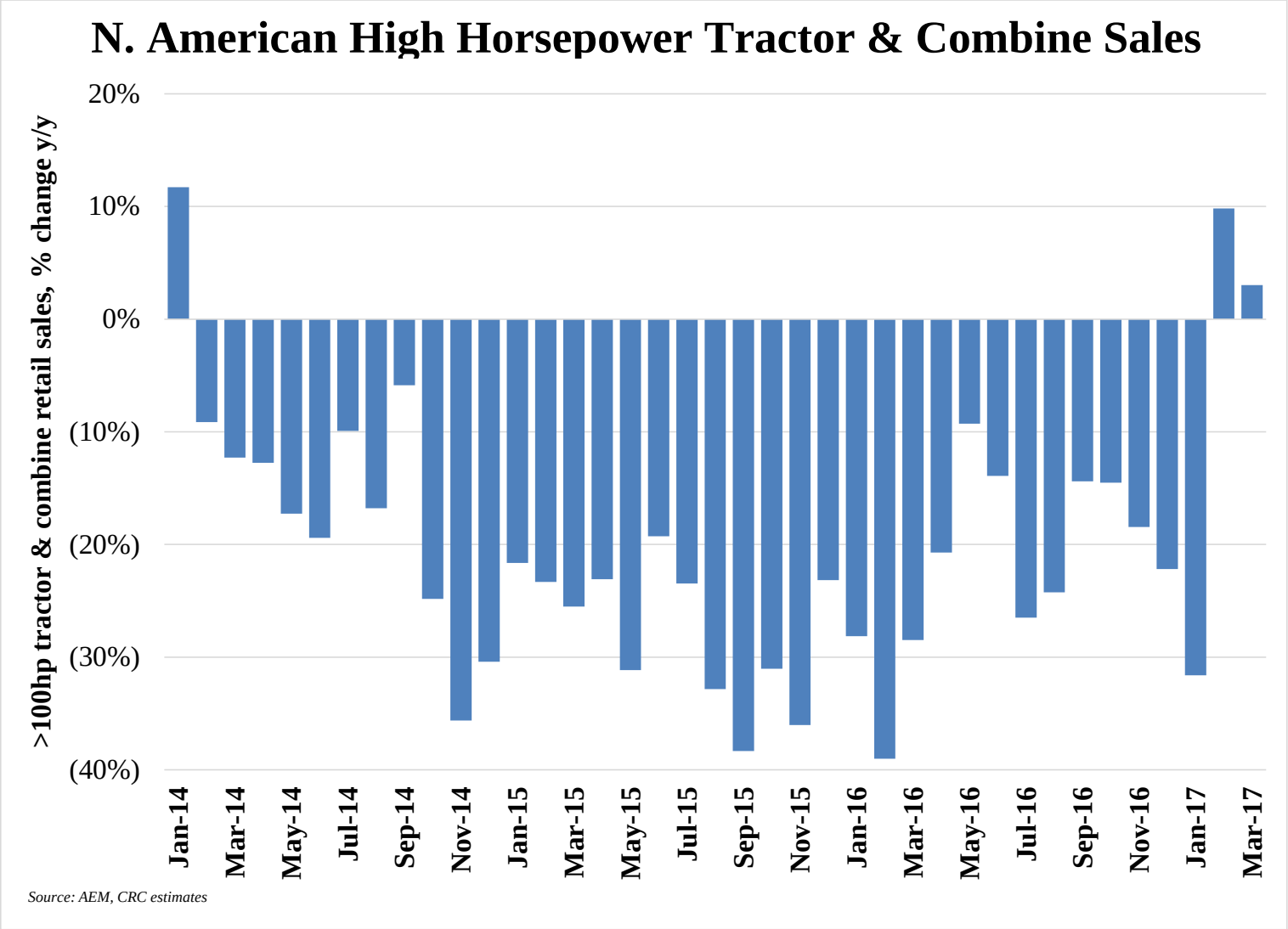








North America Large Ag Equipment Sales

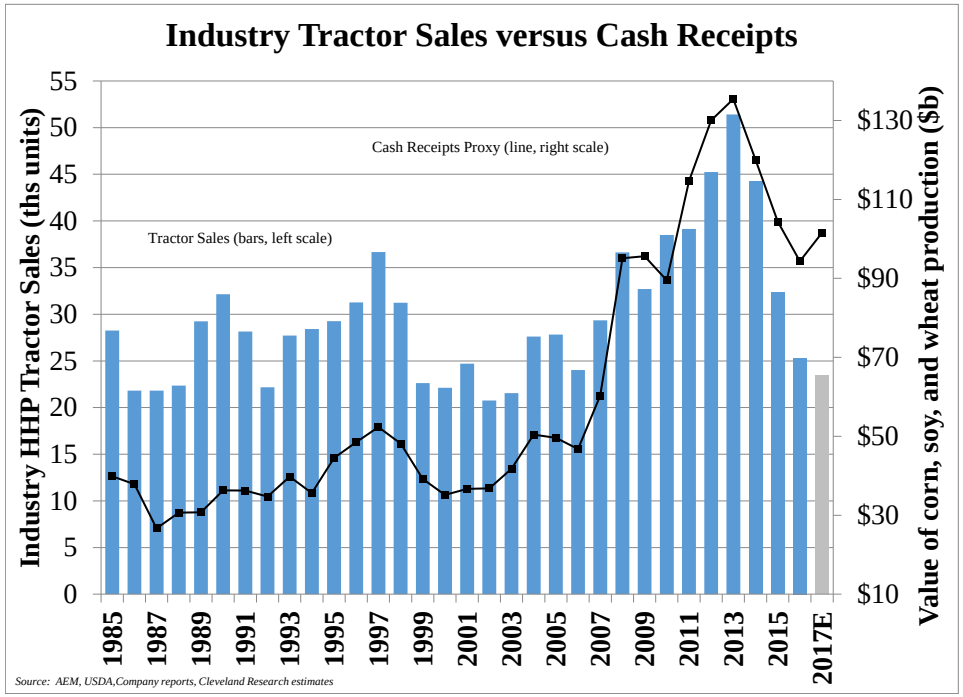


Source: AEM

Commodity Prices – Cash Receipts vs. Next Year Equipment Sales

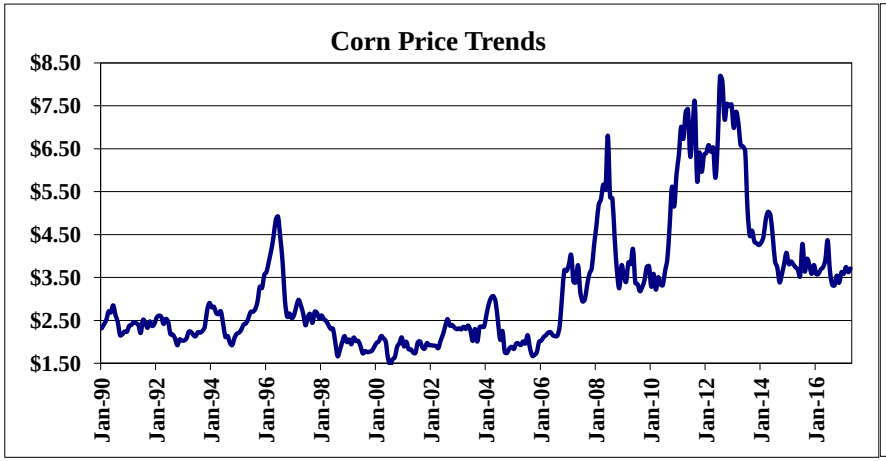
USDA's April WASDE Update Highlights – The following chart illustrates the historical relationship between the value of production of corn, soybeans, and wheat in the U.S. compared to annual industry sales of high horsepower tractors.

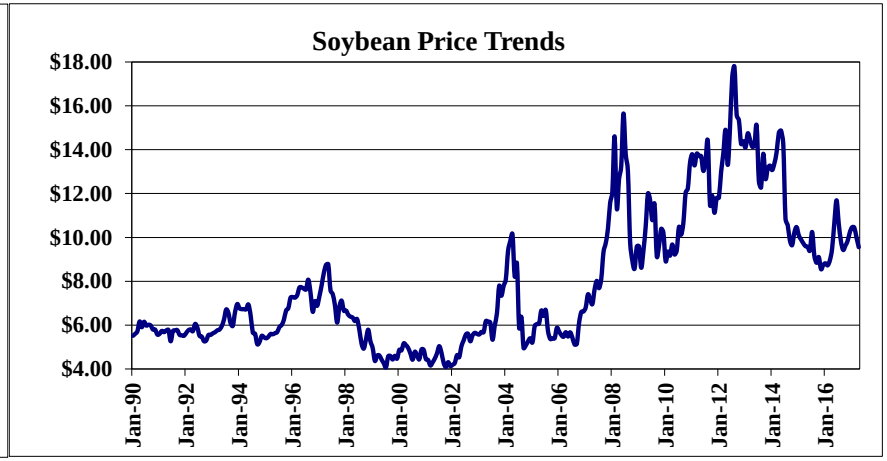
USDA's April crop report was similar to March, with cash receipts proxy forecast up 8% y/y in 2016/2017. Soybean average pricing estimates were adjusted down 1% from last month to $9.55/bu.

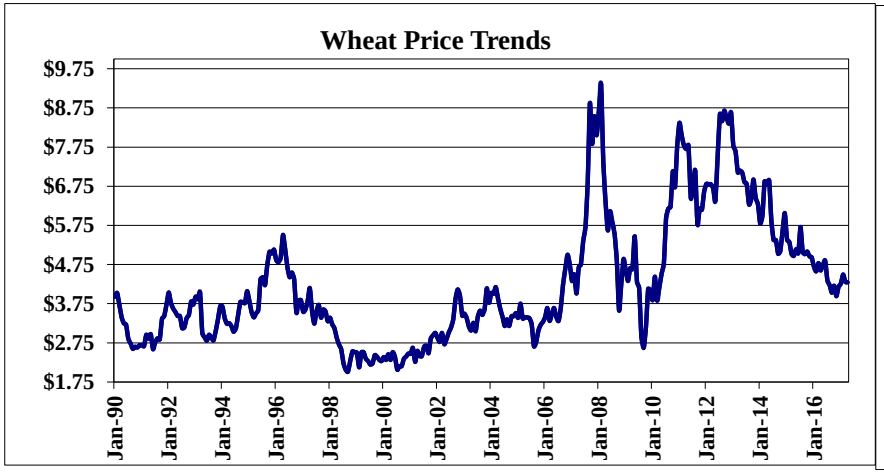


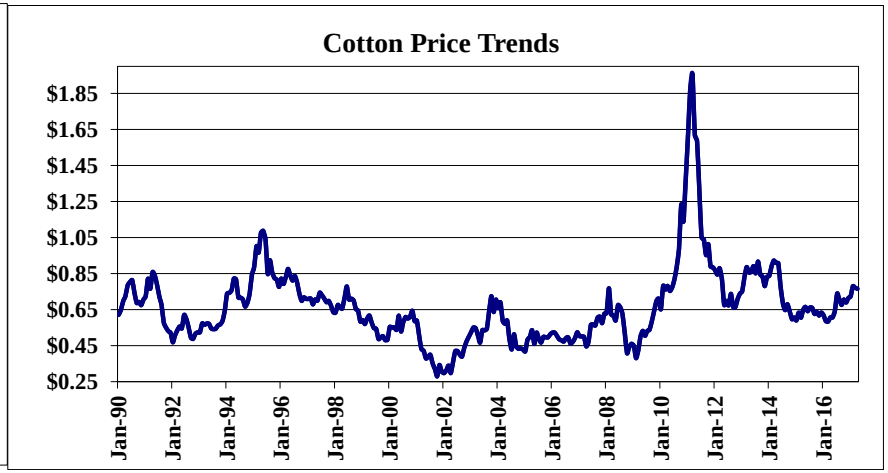
Source: USDA, CRC estimates

Long Term Commodity Price Trends









Source: USDA, FactSet

Commodity Trends – Long Run Supply and Demand Projections

US Corn, Soy, and Wheat Supply and Demand - Long Term Annual Forecast 2017

US Corn Balance Sheet - USDA Long Term Forecast (Feb 2017)

Millions of bushels	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/2027
Planted	95	91	88	94	90	90	90	89	88	88	87	87	87	86
Harvested	88	83	81	87	82	82	82	81	80	80	79	79	79	78
Yield (bu/acre)	158	171	168	175	171	173	175	177	179	181	183	185	187	189
Beginning Stocks (MM bu)	821	1,232	1,731	1,737	2,403	2,298	2,213	2,193	2,104	2,033	2,023	1,933	1,923	1,896
Production (MM bu)	13,829	14,216	13,601	15,148	14,060	14,135	14,300	14,285	14,360	14,520	14,495	14,655	14,719	14,784
Imports (MM bu)	36	32	67	55	50	50	50	50	50	50	50	50	50	50
Total Supply (MM bu)	**14,686**	**15,480**	**15,399**	**16,940**	**16,513**	**16,483**	**16,563**	**16,528**	**16,514**	**16,603**	**16,568**	**16,638**	**16,692**	**16,730**
Feed & Residual (MM Bu)	5,036	5,315	5,130	5,500	5,500	5,500	5,600	5,625	5,700	5,800	5,850	5,950	6,025	6,075
Food, Seed, & Industrial Total	6,501	6,568	6,635	6,895	6,765	6,795	6,770	6,775	6,730	6,705	6,685	6,640	6,620	6,595
Ethanol & By-Products	5,134	5,209	5,206	5,450	5,325	5,350	5,325	5,325	5,275	5,250	5,225	5,175	5,150	5,125
Domestic Use	11,537	11,883	11,765	12,395	12,265	12,295	12,370	12,400	12,430	12,505	12,535	12,590	12,645	12,670
Exports	1,917	1,864	1,898	2,225	1,950	1,975	2,000	2,025	2,050	2,075	2,100	2,125	2,150	2,175
Total Use	**13,454**	**13,747**	**13,663**	**14,620**	**14,215**	**14,270**	**14,370**	**14,425**	**14,480**	**14,580**	**14,635**	**14,715**	**14,795**	**14,845**
Ending Stocks	1,232	1,731	1,738	2,320	2,298	2,213	2,193	2,104	2,033	2,023	1,933	1,923	1,896	1,885
Ending Stocks/Use	9.2%	12.6%	12.7%	15.9%	16.2%	15.5%	15.3%	14.6%	14.0%	13.9%	13.2%	13.1%	12.8%	12.7%
Weeks Carryover	4.8	6.5	6.6	8.3	8.4	8.1	7.9	7.6	7.3	7.2	6.9	6.8	6.7	6.6
Average Farm Price ($/bu)	**$4.46**	**$3.70**	**$3.61**	**$3.40**	**$3.30**	**$3.35**	**$3.35**	**$3.45**	**$3.50**	**$3.55**	**$3.60**	**$3.65**	**$3.65**	**$3.70**
Value of Production	$61,677	$52,599	$49,100	$51,503	$46,398	$47,352	$47,905	$49,283	$50,260	$51,546	$52,182	$53,491	$53,724	$54,701
% change y/y	-17%	-15%	-7%	5%	-10%	2%	1%	3%	2%	3%	1%	3%	0%	2%

U.S. Soybean Balance Sheet - USDA Long Term Forecast (Feb 2017)

Millions of bushels	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/2027
Planted	77	83	83	83	86	85	85	85	85	85	85	85	85	85
Harvested	76	83	82	83	85	84	84	84	84	84	84	84	84	84
Yield Per Harvested Acre (Bushels)	44	48	48	52	48	48	49	49	50	50	51	51	52	52
Beginning Stocks	141	92	191	197	480	396	326	306	291	300	309	317	330	338
Production	3,358	3,927	3,926	4,307	4,050	4,070	4,090	4,130	4,195	4,240	4,280	4,325	4,365	4,405
Imports	72	33	24	25	30	30	30	30	30	30	30	30	30	30
Total Supplies	**3,571**	**4,052**	**4,141**	**4,528**	**4,560**	**4,496**	**4,446**	**4,466**	**4,516**	**4,570**	**4,619**	**4,672**	**4,725**	**4,773**
Crush	1,734	1,873	1,886	1,940	1,935	1,955	1,970	1,990	2,015	2,040	2,060	2,085	2,105	2,130
Exports	1,647	1,843	1,936	2,025	2,100	2,085	2,040	2,055	2,070	2,090	2,110	2,125	2,150	2,150
Seed & Residual	98	145	121	128	130	129	130	130	131	131	132	132	132	132
Total Use	**3,479**	**3,861**	**3,943**	**4,083**	**4,165**	**4,169**	**4,140**	**4,175**	**4,216**	**4,261**	**4,302**	**4,342**	**4,387**	**4,412**
Ending Stocks	92	191	197	445	396	326	306	291	300	309	317	330	338	361
Stocks/Use	2.7%	4.9%	5.0%	10.9%	9.5%	7.8%	7.4%	7.0%	7.1%	7.2%	7.4%	7.6%	7.7%	8.2%
Average Price ($/bu)	**$13.00**	**$10.10**	**$8.95**	**$9.55**	**$9.35**	**$9.40**	**$9.40**	**$9.45**	**$9.45**	**$9.50**	**$9.55**	**$9.55**	**$9.55**	**$9.55**
Value of Production	$43,654	$39,663	$35,138	$41,132	$37,868	$38,258	$38,446	$39,029	$39,643	$40,280	$40,874	$41,304	$41,686	$42,068
% change y/y	0%	-9%	-11%	17%	-8%	1%	0%	2%	2%	2%	1%	1%	1%	1%

Source: USDA CRC estimates

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

US Corn, Soy, and Wheat Supply and Demand - Long Term Annual Forecast 2017 (continued)

U.S. Wheat Balance Sheet - USDA Long Term Forecast (Feb 2017)

Millions of bushels	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/2027
Planted	56	57	55	50	49	49	50	50	50	50	50	50	50	50
Harvested	45	46	47	44	41	42	42	42	42	42	42	42	42	42
Yield Per Harvested Acre (Bushels)	47	44	44	53	47	48	48	48	49	49	50	50	50	51
Beginning Stocks	718	590	752	976	1,143	993	892	832	784	742	707	679	658	654
Production	2,134	2,026	2,062	2,310	1,936	1,976	2,012	2,029	2,045	2,062	2,079	2,096	2,113	2,129
Imports	169	144	113	110	120	125	125	125	130	135	140	145	150	155
Total Supplies	**3,021**	**2,760**	**2,927**	**3,395**	**3,199**	**3,094**	**3,029**	**2,986**	**2,959**	**2,939**	**2,926**	**2,920**	**2,921**	**2,938**
Food	955	960	957	960	965	970	975	980	985	990	995	1,000	1,005	1,010
Seed	77	81	67	61	66	67	67	67	67	67	67	67	67	67
Feed&residual	223	111	152	190	200	190	180	170	170	170	170	170	170	170
Exports	1,176	855	775	1,025	975	975	975	985	995	1,005	1,015	1,025	1,025	1,035
Total Use	**2,431**	**2,007**	**1,952**	**2,236**	**2,206**	**2,202**	**2,197**	**2,202**	**2,217**	**2,232**	**2,247**	**2,262**	**2,267**	**2,282**
Ending Stocks	590	753	976	1,159	993	892	832	784	742	707	679	658	654	656
Stocks/Use	24.3%	37.5%	50.0%	51.8%	45.0%	40.5%	37.9%	35.6%	33.5%	31.7%	30.2%	29.1%	28.9%	28.8%
Average Price ($/bu)	**$6.87**	**$5.99**	**$4.89**	**$3.85**	**$4.00**	**$4.30**	**$4.50**	**$4.70**	**$4.70**	**$4.80**	**$4.90**	**$5.00**	**$5.00**	**$5.00**
Value of Production	$14,661	$12,136	$10,083	$8,894	$7,744	$8,497	$9,054	$9,536	$9,612	$9,898	$10,187	$10,480	$10,565	$10,645
% change y/y	-16%	-17%	-17%	-12%	-13%	10%	7%	5%	1%	3%	3%	3%	1%	1%

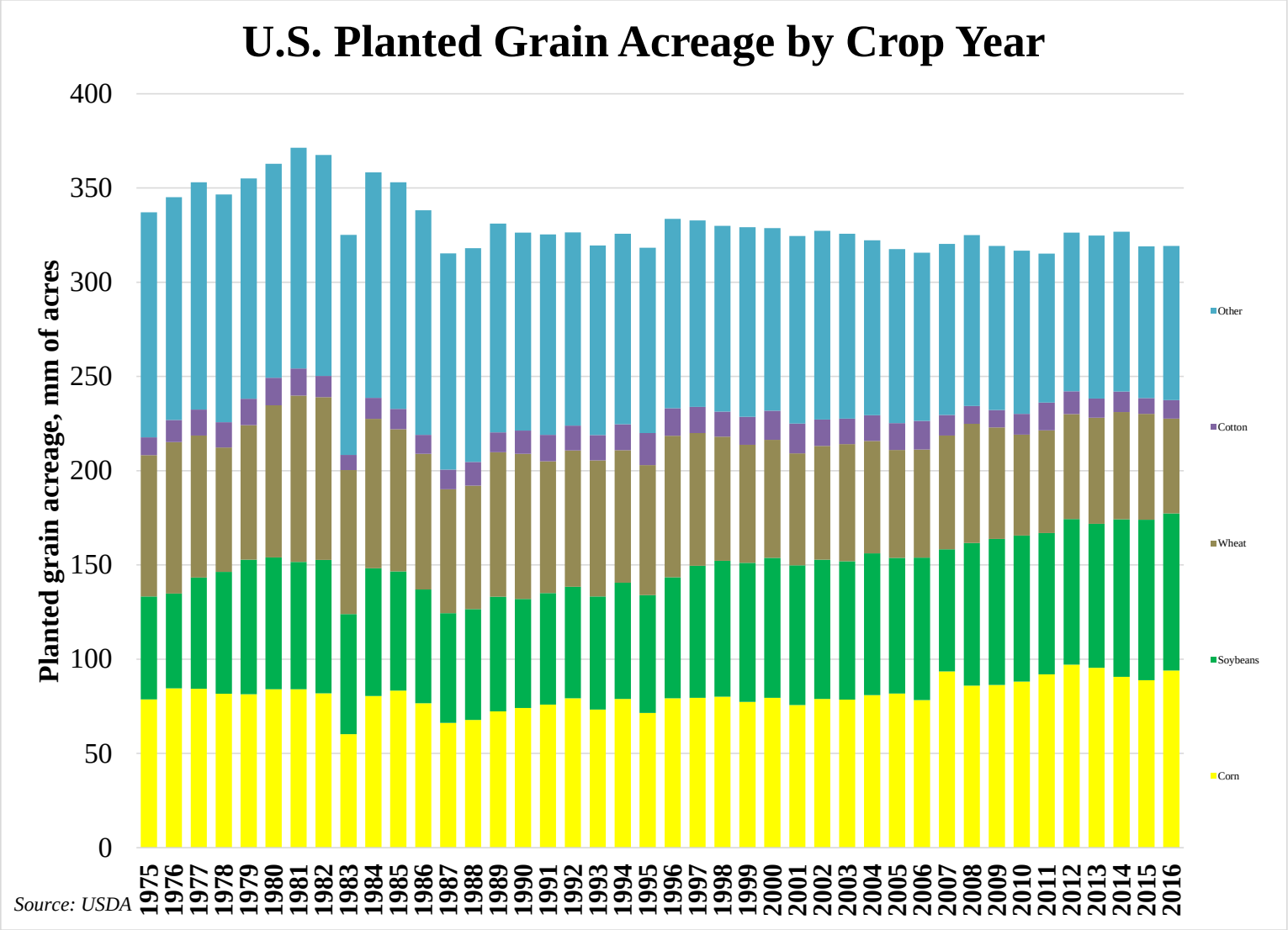
Total Acreage and Value of U.S. Corn, Soy and Wheat Production - USDA February 2017 Projection

Total Corn, Soy, Wheat	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/2027
Planted (mm acres)	228	231	226	228	224	224	224	223	223	223	222	222	221	221
Harvested (mm acres)	209	212	210	213	208	208	207	206	206	206	205	205	205	204
Yield (bu/acre)	92	95	93	102	96	97	98	99	100	101	102	103	103	104
Production	19,321	20,169	19,589	21,765	20,046	20,181	20,402	20,444	20,600	20,822	20,854	21,076	21,197	21,318
Average Price ($/bu)	$6.21	$5.18	$4.81	$4.66	$4.59	$4.66	$4.68	$4.79	$4.83	$4.89	$4.95	$4.99	$5.00	$5.04
Value of Production	**$119,992**	**$104,398**	**$94,320**	**$101,529**	**$92,010**	**$94,107**	**$95,405**	**$97,848**	**$99,514**	**$101,724**	**$103,243**	**$105,275**	**$105,975**	**$107,414**
% change y/y	-11%	-13%	-10%	8%	-9%	2%	1%	3%	2%	2%	1%	2%	1%	1%

Source: USDA, Cleveland Research estimates

Source: USDA, CRC estimates

U.S. Acreage Planted Per Crop Year



Source: USDA, Cleveland Research estimates