

# Agriculture By the Numbers

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**NDSU Extension Agribusiness and Applied Economics**

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## Interim Report on U.S.-China Phase One Trade Agreement

By Frayne Olson, NDSU Extension Crop Economist/Marketing Specialist

One of the major driving forces behind the recent rally in grain prices has been the large U.S. export sales to China. I have received several questions about the pace of these sales and whether China will meet its purchase commitments outlined in the Phase One trade agreement between the two countries.

Fortunately, on Oct. 23, 2020, the U.S. Trade Representative and the U.S. Department of Agriculture released a joint interim report summarizing the impacts of the Phase One trade agreement. The report provided updates on the two key chapters in the agreement that impacted agriculture: Chapter Three, which focused on reducing or eliminating nontariff agricultural trade barriers, and Chapter Six, which details targets for expanding sales volume of U.S. agricultural products to China.

A lot of the attention regarding this agreement has been on the sales targets outlined in Chapter Six because of the short-term impacts on U.S. crop, meat and specialty crop prices. However, the long-term impacts of reducing or eliminating nontariff barriers, outlined in Chapter Three, may have a larger impact on U.S. and North Dakota agriculture.

A nontariff trade barrier refers to a trade restriction not linked to a tax or duty. Examples can include quotas, embargoes or sanctions. Nontariff barriers on agricultural products often are linked to food safety, human or animal health or disease prevention. The terms "sanitary and phytosanitary measures" commonly are used to describe these barriers.

The goal of Chapter Three in the Phase One agreement was to reduce or remove specific nontariff trade barriers on U.S. agricultural

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products. Based upon the interim report, 50 of the 57 commitments that have detailed time lines have been implemented.

Examples include streamlining the regulatory process to authorize new seed varieties, allowing U.S. barley to be imported for processing and implementing phytosanitary protocols for China to import fresh potatoes.

Other examples include lifting the ban on imported beef and beef products from animals more than 30 months of age and re-opening China's market to U.S. poultry meat, after a four-year ban due to avian influenza. While many of the nontariff trade barriers involve meat, livestock or dairy products, reducing these barriers has an indirect impact on crop prices through increased domestic feed demand.

Reducing or eliminating nontariff trade barriers has expanded total U.S. agricultural exports to China in excess of the 2017 baseline levels outlined in the agreement. The interim report estimated that China had purchased approximately 71% of the 2020 target for total export value. The USDA estimated total calendar year agricultural exports at \$23.6 billion through Oct. 8, 2020.

While this is lower than may crop market traders and analysts had expected, the Phase One agreement did not become effective until Feb. 14, 2020. The five commodities that have seen the largest increase in export sales are corn, soybeans, sorghum, beef and pork. As a reminder, the export sales levels listed in the agreement are measured in U.S. dollars, not bushels or tons.

The total Phase One agreement purchasing targets are accumulated during the calendar year, not the crop marketing year. This difference in timing can make tracking trade progress more complex. Based upon the data in the interim report, China has three months remaining to reach the targeted levels. Given the current pace of Chinese imports, the goal of increasing total purchases by \$12.5 billion above the 2017 benchmark may be obtained. Only time will tell.

A copy of the full interim report can be found at <https://ustr.gov/about-us/policy-offices/press-office/press-releases/2020/october/ustr-and-usda-release-report-agricultural-trade-between-united-states-and-china>.



# 2021 Production Cost Commentary: Costs Mixed as We Move Into 2020

By Bryon Parman, NDSU Extension Agricultural Finance Specialist

Despite lower commodity prices during the last six or seven years, crop production costs have remained sticky. For most commodities, the lion's share of input costs includes equipment/overhead, fertilizer, chemicals (herbicides and pesticides), labor, cash rents, seed cost and fuels (propane and diesel fuel).

At one time, interest rates comprised a significant share of production costs. However, the historically low rates of the last decade have mostly relegated interest to a small share of overall operating budgets.

With the exception of fertilizer and fuels, most production costs have trended sideways. The figure below is the national average fertilizer price per pound of nitrogen for anhydrous ammonia, urea, UAN28 and UAN 32, and is provided by DTN.

Nitrogen prices are as low in the fall of 2020 as they have been in the last 10 years. This provides an opportunity for producers who may be planning to raise crops such as wheat, corn or sunflowers, which require considerable amounts of nitrogen.

Other fertilizer products such as MAP, DAP and potash are also down considerably, compared with the last year or so. Given how low the prices are, our opinion is that we won't see much more downside to prices.

Chemical prices have remained fairly steady since 2009. While we saw a peak in 2014 with a price index of about 110, chemical prices have come back down slightly to where they were 10 years ago.

The biggest concern moving forward for producers in North Dakota is not necessarily the price of chemicals, but potential problems with new weed pressure. We have seen reports that chemical costs per acre in states with Palmer amaranth issues may be more than \$80 per acre. Therefore, we likely will not see a herbicide price spike into next year, but the quantities applied may increase in areas with strong weed pressure.

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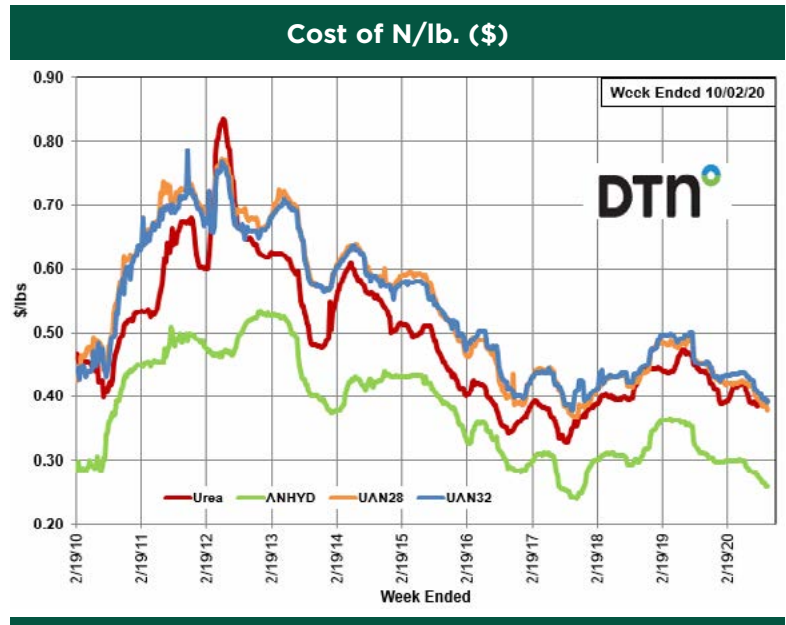
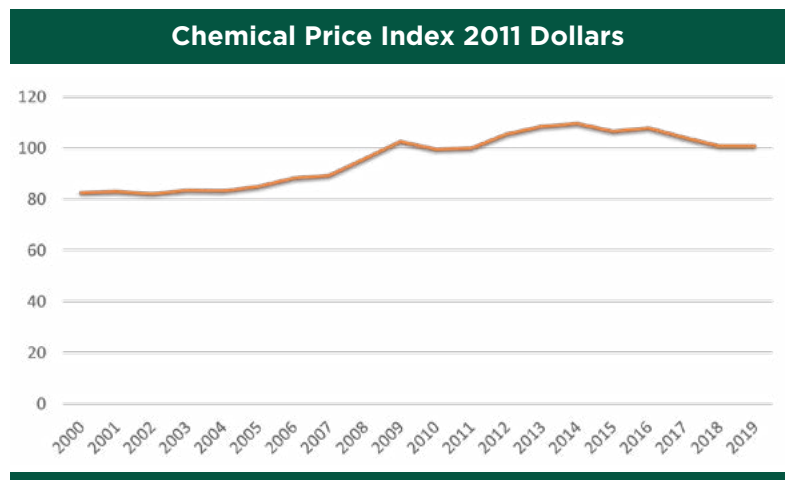


Chart Created by DTN: 9110 West Dodge Road, Omaha, NE 68114  
[www.mydtn.com/agriculture/web/ag/markets/fuels-fertilizers#!/fertilizers](http://www.mydtn.com/agriculture/web/ag/markets/fuels-fertilizers#!/fertilizers)



Data from National Agricultural Statistics Service (NASS)



## 2021 Production Cost Commentary – continued from page 3

Much like chemical prices, seed/plant costs have remained steady during the last half decade. Seed prices spiked in 2014 and have trended down slightly. They are 20% higher than they were, compared with 2011. However, they are down slightly since 2014, with an index value of 117.

Land values and cash rents in North Dakota also have trended sideways for the last five years. Following a persistent runup from 2006 to 2013, rents and values have stabilized despite lower commodity prices.

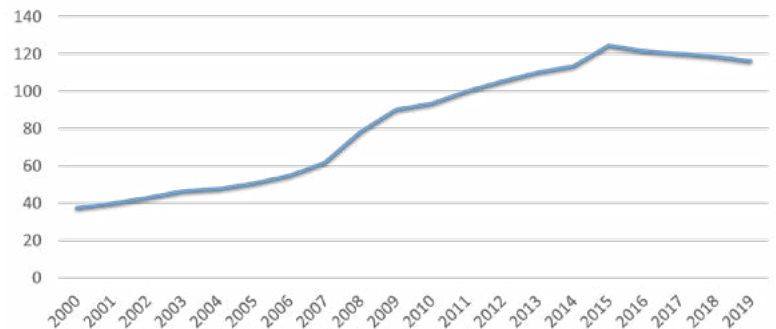
Partially aided by ad hoc farm payments and low interest rates, as well as people in the market willing to buy land when it hits the market, land values have endured a prolonged period of slim profit margins. We expect that 2021 will continue the sideways trend of land rental rates and values as federal aid plus better commodity prices in 2020 will relieve any downward pressure that may have occurred.

The two major budgetary items that have continued an upward trend are equipment costs and labor costs. Labor costs have continued a steady upward trend that in 2017 began increasing faster as wages across the U.S. moved upward. Finding and retaining skilled farm labor has been a continuing issue because many farming operations require much more knowledge and experience than in years past.

The equipment cost index also has risen steadily since 2000. What is important to note, however, is that comparing costs from decades ago to today's prices is difficult because it may not be a fair comparison. For instance, if tractor costs are compared purely on horsepower (HP), modern equipment has many more features, engineering advances that reduces downtime, and longevity

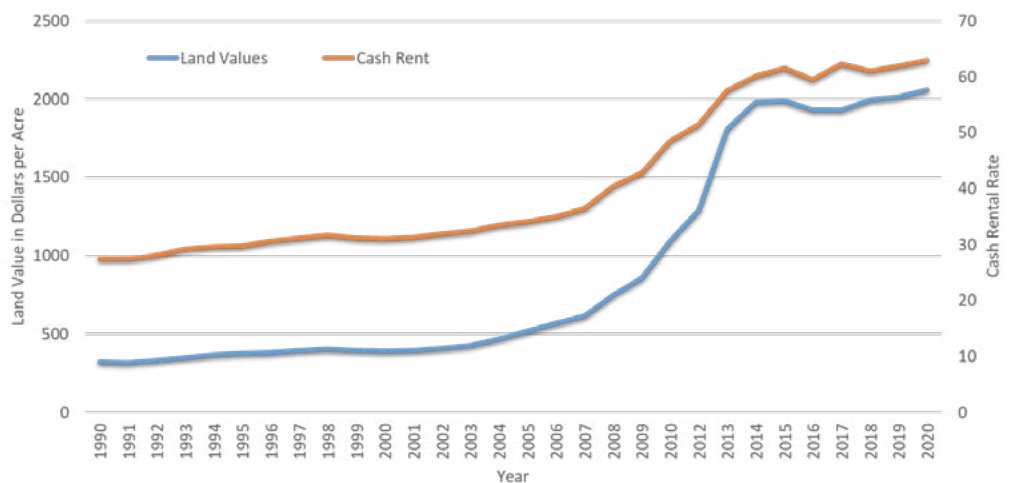
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### Seed Cost Index



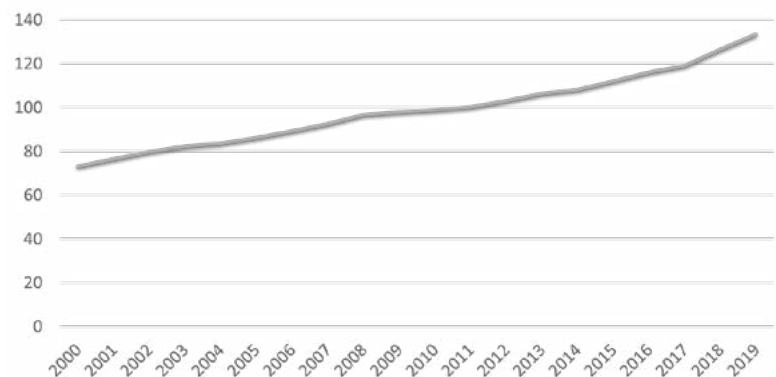
Data from National Agricultural Statistics Service (NASS)

### North Dakota Land Values and Cash Rents



Data from North Dakota Department of Trust Lands Survey

### Farm Labor Cost Index Benchmark 2011 Dollars



Data from National Agricultural Statistics Service (NASS)

## 2021 Production Cost Commentary — continued from page 4

differences. Therefore, part of the increases in costs per HP rating may not accurately capture the true change in prices.

Despite the increase in costs, however, dollars spent on farm equipment declined from 2014 to 2016 considerably before stabilizing. This indicates that as prices have risen and commodity prices declined or remained low, producers are trading equipment less frequently, compared with six or seven years ago.

In general, the major categories of production costs headed into 2021 look mixed. Several of the costs, including seed, chemicals (other than fertilizer) and land values/rents look as though they will maintain similar prices to the last four years or so because 2020's conditions are not likely to have any real impact on those costs in the next six months or so.

Fertilizers, on the other hand, are down near their 10-year lows, making now a good time to pre-price them, knocking off some of the price risk heading into next year's planting season. As low as fertilizer prices are, a lot of additional downward movement is unlikely because fertilizer companies will look to export if prices become too low.

Finally, equipment and labor costs, which have trended upward, may not continue that trajectory. Equipment costs are unlikely to come down because we have seen an uptick in equipment investment in 2020 as farm incomes look to be higher than they have been in the last four years. This may prompt many who have been putting off upgrades or new purchases to buy.

Labor, on the other hand, may be affected by high unemployment during a pandemic, halting the steady increase in wages and creating tight labor availability. However, things such as travel restrictions and visa availability again may play a large role in the beginning of 2021.

### Farm Equipment Purchases and Costs



Data from National Agricultural Statistics Service (NASS)

# The Road From Here

By David Ripplinger, NDSU Extension Bioproducts/Bioenergy Economist

As we approach the end of 2020 with its severe disruptions to the economy and daily life, the thought of what the future may bring is natural.

While the economy has regained its footing and recovered much of what was lost, we haven't fully recovered yet. At the same time, the impacts of COVID-19 as a disruptor and accelerator are ever more clear.

I'm regularly asked about the energy transition and my predictions. The question may differ in how it's asked: What do you think about electric vehicles? How long will we be using fossil fuels?

And the tenor varies from enthusiasm from those excited for change to concern from those who appreciate our current system. But the idea is the same, that the fuels that have dominated, if not owned certain segments of the economy for the four decades I've been alive, probably will not be in the same position 40 years from now.

At the least, Mark Twain's adage of "reports of my death are greatly exaggerated" surely holds true for crude oil and gasoline today, and the brightest days for natural gas are still ahead of us. Even the boldest prognostications such as Bloomberg New Energy Finance only expect electric vehicles to make up just more than half of new car sales in a generation, while the U.S. Department of Energy expects about 20% market share by 2050, or at least they did prior to COVID. That the number of electric vehicles in North Dakota is still in the hundreds and the number of models on showroom floors in the state is very small provides insight into consumer interest in these vehicles today.

One thing that has clearly changed with COVID-19 is the relationship between biofuels and refined petroleum products. What had been a battle between the two for a greater proportion of the fuel tank has changed to a reluctant alliance to keep the internal combustion engine as the dominant power system for passenger vehicles. That doesn't mean that the oil industry is eager to concede to higher blends from E-15, which can be sold year-round to higher octane, higher compression, more fuel-efficient engines.

As I write this, we are on the eve of a national election that may lead to a change in energy and environmental priorities. The power of regulation and subsidies can't be ignored. Leaning on the scales certainly can change behavior and what starts a creek can end as a great river. The Clean Power Plan

that was an immediate threat to coal-fired power in 2016 was put on the shelf after the last election, just as increased regulation of fracking, methane capture and carbon emissions may be brought back to the table.

The U.S. Department of Energy's Energy Information Administration, in its monthly Short-Term Energy Outlook, forecasts a recovery in vehicle miles traveled by the end of 2021, the time at which many economists also think the economy will have fully recovered from the COVID. I think this is a bit optimistic.

COVID-19 has led to structural unemployment for millions of Americans. The hospitality and retail sectors have been decimated, and until employment numbers recover, people will not have jobs to drive to or disposable income to spend on recreational travel. Many still are hesitant to shop and dine as they once did.

Some strong predictions also have been made about the future of the airline industry and business travel. Just earlier this week, I heard the situation framed well: The first time a deal is lost by a person meeting remotely to one who was meeting in person will be the last time.

Disruptions to retail have provided an opportunity for Amazon to grow quickly. With trips to the market being replaced with a few minutes of shopping online, or with deliveries automatically scheduled and made based on past interest, even fewer miles will be traveled.

Perhaps the brightest opportunity arising from the past year is again an unlikely alliance between biofuels and petroleum. As transportation fuel use has waned, refinery utilization has fallen, with smaller refineries often at greatest risk of shuttering because of economies of scale. The good news has come in the form of demand for renewable diesel, a biomass-based diesel made by putting feedstock through a traditional distillation process.

California, which incentivizes low-carbon fuels, has a price of about \$7.25 per gallon for renewable diesel. Renewable diesel keeps refineries running, using agricultural products, fuels the economy and reduces carbon emissions. The Marathon Refinery in Dickinson, N.D., is being retooled for renewable diesel.



# Talkin' Turkey and Givin' Thanks

By Tim Petry, NDSU Extension Livestock Economist

When the calendar turns to November, many people's thoughts turn to Thanksgiving family get-together planning.

At the forefront is a bountiful holiday meal, which may include turkey. Also included are abundant amounts of a wide variety of side dishes, of which many ingredients originate from a very productive and diverse U.S. agriculture.

According to history.com ([www.history.com/topics/thanksgiving/history-of-thanksgiving](http://www.history.com/topics/thanksgiving/history-of-thanksgiving)), the first U.S. Thanksgiving celebration likely occurred in the autumn of 1621. Pilgrim colonists' first corn harvest was successful due almost entirely to help from local Native Americans. So, the two groups organized a celebratory feast.

Much of the food had to be cooked over open fires, unlike the fancy ovens, barbeque grills and fryers of today. The Mayflower ship's sugar supply was depleted, so the meal didn't feature pies and other deserts, which are the hallmark of today's celebration.

Meat came from local fishing and hunting expeditions, which included fish, lobster, seal, venison and various birds, including wild turkeys. The native wild turkeys had mainly dark meat with small breasts. Through time, domesticated turkeys were bred to have the large, tender white meat breasts of today's popular Thanksgiving fare.

Informal Thanksgiving celebrations continued, but in 1789, President George Washington issued the first official Thanksgiving proclamation after the ratification of the U.S.

Constitution. Ben Franklin even promoted naming the wild turkey as the official U.S. bird, much to the chagrin of bald eagle supporters.

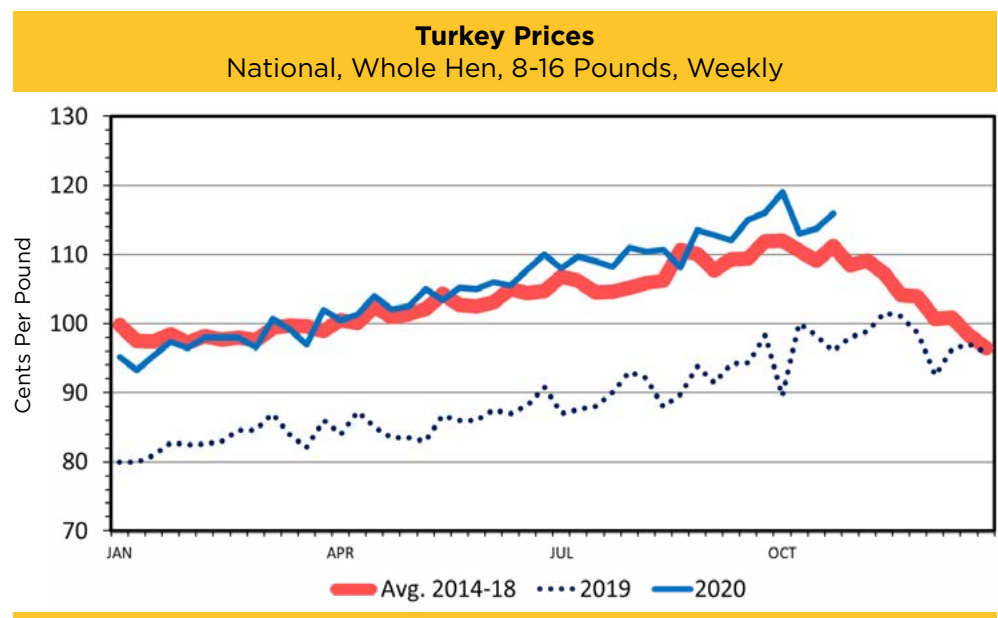
At the urging of many groups, in 1863, President Abe Lincoln officially proclaimed the Thanksgiving holiday to be the last Thursday in November.

The U.S. is the world's leading producer of turkeys and turkey meat. Also, the U.S. is the leading producer of beef and chicken, and second only to China in pork production.

Likewise, the U.S. is also the leading exporter of turkey, high-quality beef and pork, and second behind Brazil in chicken exports.

So, the U.S. meat industry is very important to the U.S. economy and livestock producers. Consumers also benefit with an ample, year-round supply of myriad meat product choices, especially at Thanksgiving.

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## Talkin' Turkey and Givin' Thanks — continued from page 7

U.S. turkey production steadily increased until reaching a record annual high in 2008 at 6.25 billion pounds. Since then, production has held relatively steady at just under 6 billion pounds. 2020 turkey production is estimated by the U.S. Department of Agriculture at 5.74 billion pounds and increasing to 5.77 billion pounds in 2021.

Minnesota is the leading turkey-producing state, with 40 million birds produced in 2019. North Carolina ranked second, with 31 million and Arkansas a close third, with 30 million. South Dakota ranks 12th at 4.5 million. The USDA does not publish North Dakota turkey production data, but according to the North Dakota Turkey Federation, about 1 million birds are produced in the state.

How much turkey do we gobble up at Thanksgiving? According to the National Turkey Federation, about 46 million turkeys are on Thanksgiving tables, with 22 million eaten at Christmas and another 19 million consumed at Easter. U.S. per capita consumption of turkey has averaged about 16 pounds for the last 10 years, with the USDA predicting 15.8 pounds consumed per person in 2020.

Most turkey hens are sold as frozen whole birds. Toms are mostly destined for further processing and made into many consumer products such as breasts, legs, bacon, deli meats and ground turkey that are consumed year-round.

Whole turkey prices (wholesale, whole hen, 8 to 16 pounds) increased steadily and peaked in 2016 at an all-time record high of \$1.17 per pound.

The accompanying whole turkey price chart indicates a seasonal pattern to prices, with a steady yearly increase until October, right before the peak holiday demand. Current prices at \$1.16 per pound are almost 20 cents per pound above last year.

Higher prices are the result of reduced production in April and May due to COVID-19. Processing plants were forced to close or reduce capacity as workers became infected by the virus and Centers for Disease Control and Prevention and Occupational Safety and Health Administration guidelines were adopted.

Even though wholesale prices are higher, consumers are likely to again find good bargains when shopping for Thanksgiving turkeys. Many retail food stores feature turkeys as “loss leaders” at below cost to lure customers into the store to purchase higher margin items that complete the Thanksgiving meal. Sometimes even local price wars emerge.

Even though the COVID-19 pandemic has severely disrupted our everyday lives, we still have a lot to be thankful for. U.S. consumers enjoy the safest, largest quantity and most diverse product line of meat in the world. Happy Thanksgiving to all of you. ■



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