

# AN INDEX OF PRICES PAID BY GROWERS IN THE GREEN INDUSTRY 2007–2020

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# Executive Summary

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The green industry is currently in the mature stage of the industry life cycle. As such, there are numerous pressures on existing firms in the industry, particularly a recurring one that is often referred to as the price-cost squeeze (or margin compression), where the prices obtained for products offered by green industry firms are held constant due to *real and perceived* competitive forces while, at the same time, the costs of the inputs used to produce these products are increasing. Even in situations where industry firms have increased prices for their plants, the costs of their production inputs have risen more quickly. Thus, margins for green industry firms are being “squeezed” relative to what they used to be during previous stages of the life cycle.

In an age of tight margins, it is essential for growers to have full and accurate information about inflationary trends so that they can better understand their cost structure to aid in managerial decision-making such as SKU rationalization, customer profitability analyses, and determining the need for price increases. Armed with such information, growers will be in a much better position to understand the inflationary pressures on their relative costs of production and use these data in making more informed pricing decisions (since total costs represent the price floor and willingness-to-pay on the part of the customer represents the price ceiling).

Thus, an *Index of Prices Paid by Growers* was developed in 2017 as part of the **Your MarketMetrics** industry benchmarking program and has been updated annually. This index reflects inflationary pressures on the most important inputs used by green industry growers and each cost-related line item is weighted by its relative share of the total of the typical assortment of goods and services purchased by growers for producing, marketing, and shipping plants. Using this methodology, a weighted average rate of inflation in the prices of these grower inputs is estimated.

Results from this indexing analysis indicate that the summary weighted Index of Prices Paid by Growers ranges from 100 in 2007 to a high of 131.5 in 2020. **This means that the overall cost of producing nursery and greenhouse crops is almost 32% higher in 2020 than it was in 2007, with labor experiencing the largest increase (46.3% higher in 2020).** The year-over-year (YOY) increases, reflecting the inflationary pressures of costs over time, are also calculated. YOY costs associated with the tracked expenses in 2020 increased about 0.54% over what they were in 2019.

For the first time since publication of this index, a forecast of anticipated input cost increases is estimated. **Based on market research across the industries and conversations with allied trade pundits associated with producing these inputs, a 5.24% increase in input costs is forecast for 2021** (Detailed analysis on the forecast projection methodology can be found on [page 7](#)).



# An Index of Prices Paid by Growers in the Green Industry

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## Introduction

Although the green industry has been an historically-important economic sector, the industry has been in the mature stage of the industry cycle for some time now and the potential for margin compression has increased. In such conditions, it is imperative that firms at all stages of the supply chain be cognizant of their respective costs of doing business. This white paper focuses on the grower sector of the green industry and the costs incurred in the propagation, production, and shipping of plants to retail and landscape customers.

While there are already-existing indices that are available that reflect general inflationary pressures in the economy, the use of standard measures such as the *Producers Price Index* (PPI) and *Consumer Price Index* (CPI) for this purpose is insufficient because wholesale growers purchase different goods and services from those used for calculating these indexes. The USDA National Agricultural Statistics Service also calculates an *Index of Prices Received by Farmers* for their crops and livestock and an *Index of Prices Paid by Farmers* for the inputs they use during production. However, these indices also fall short in that they contain many items that are not applicable to nursery and greenhouse growers or exclude items that are applicable.

The **Index of Prices Paid by Growers** overcomes the aforementioned challenges and includes major production inputs (e.g., containers, soil mixes, propagation stock, plant protection products, fertilizers, and fuel), along with the costs of labor, maintenance supplies, packaging materials, labels and other signage, freight, and other shipping-related expenses.



## Indexing Methodology

In calculating the index, the relative importance of each of the aforementioned input costs were determined by collecting income statement data from leading growers in the industry for multiple years and using the averages of these data to calculate a weight for each line item relative to the collective total. The weighting scheme for each of the line items is found in the following table.

**Relative weighting of items included in the Index of Prices Paid by Growers.**

| COST CATEGORY                    | % OF SALES    | % OF TRACKED EXPENSES |
|----------------------------------|---------------|-----------------------|
| Containers & other plastics      | 6.50%         | 10.24%                |
| Media (peat-based)               | 2.50%         | 3.94%                 |
| Propagative materials            | 15.00%        | 23.62%                |
| Plant protection products        | 1.00%         | 1.57%                 |
| Fertilizers                      | 1.00%         | 1.57%                 |
| Labor (wages)                    | 22.00%        | 34.65%                |
| Fuel/Energy                      | 2.50%         | 3.94%                 |
| Maintenance (supplies & repairs) | 2.00%         | 3.15%                 |
| Freight and trucking             | 11.00%        | 17.32%                |
| <b>TOTAL</b>                     | <b>63.50%</b> | <b>100.00%</b>        |
| Other expenses                   | 36.50%        | ---                   |
|                                  | 100.0%        | 100.00%               |

Altogether, the production-related line items included in the calculation of the index represented 63.5% of sales. The remaining 36.5% were either G&A expenses or non-allocable expenses that could not be attributed to specific production-related categories. Thus, these were not included in the calculation of the index.

Once the weights were established, then an index for each cost line item was estimated that reflected the relative changes in price for these expense line items through time. The base year for calculation of the index was 2007, so that year is set to 100. This year is also important since it reflects the most recent pre-Great Recession time frame. The costs of each line item in each subsequent year can then be compared to the same line item costs in 2007 to determine how much the cost has increased. Multiplying the weight of each line item times the index for that line item each year and then summing all of the line items yields the summary weighted index.

## The 2020 Index of Prices Paid by Growers

The 2020 index is 131.5, which means the overall cost of inputs used in producing nursery and greenhouse crops is about 31.5% higher in 2020 than it was in 2007. The year-over-year (YOY) increases are also presented, reflecting the annual inflationary pressures of costs over time. For example, the tracked costs in 2020 have increased about 0.54% over what they were in 2019. This was considerably less than the YOY increases in recent years and was likely due to stagnant pricing of inputs by allied trade firms in the midst of the uncertainty caused by the pandemic.

Index of Prices Paid by Growers in the Green Industry, 2007-2019 (2007=100).

| COST CATEGORY               | WEIGHT | 2007 | 2008  | 2009   | 2010  | 2011  | 2012  | 2013  | 2014  | 2015   | 2016  | 2017  | 2018  | 2019  | 2020  | 2021f |
|-----------------------------|--------|------|-------|--------|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|-------|-------|
| Containers & other plastics | 10.24% | 100  | 109.8 | 98.0   | 107.9 | 117.2 | 119.9 | 124.1 | 129.3 | 116.7  | 111.2 | 117.0 | 122.7 | 117.6 | 117.8 | 128.4 |
| Media (peat-based)          | 3.94%  | 100  | 103.2 | 90.8   | 96.9  | 95.3  | 95.5  | 99.1  | 97.6  | 110.9  | 124.9 | 117.2 | 116.3 | 114.8 | 115.4 | 118.9 |
| Propagative materials       | 23.62% | 100  | 102.8 | 106.7  | 108.4 | 111.9 | 114.2 | 115.9 | 117.8 | 117.9  | 119.5 | 122.0 | 125.0 | 128.1 | 131.9 | 139.9 |
| Plant protection products   | 1.57%  | 100  | 107.3 | 114.9  | 111.5 | 112.1 | 118.2 | 121.6 | 122.8 | 119.4  | 120.7 | 116.6 | 112.9 | 113.1 | 111.3 | 114.9 |
| Fertilizers                 | 1.57%  | 100  | 181.7 | 127.7  | 117.1 | 152.4 | 154.6 | 147.4 | 144.1 | 132.9  | 109.5 | 100.9 | 101.7 | 106.9 | 110.5 | 117.1 |
| Labor                       | 34.65% | 100  | 104.5 | 106.0  | 107.0 | 108.2 | 111.4 | 115.0 | 116.9 | 121.1  | 125.4 | 128.9 | 136.7 | 144.2 | 146.3 | 150.8 |
| Fuel/Energy                 | 3.94%  | 100  | 130.2 | 86.6   | 107.4 | 137.2 | 136.2 | 135.0 | 134.3 | 87.1   | 76.3  | 86.7  | 97.5  | 101.0 | 98.5  | 104.1 |
| Supplies & repairs          | 3.15%  | 100  | 102.9 | 104.9  | 106.9 | 111.2 | 114.5 | 115.5 | 117.6 | 117.7  | 117.9 | 120.0 | 124.1 | 127.6 | 129.6 | 133.5 |
| Freight and trucking        | 17.32% | 100  | 102.2 | 97.3   | 98.8  | 103.2 | 106.8 | 108.4 | 113.8 | 118.3  | 117.6 | 119.8 | 130.0 | 130.5 | 124.9 | 134.9 |
| Weighted index (2007=100)   |        | 100  | 106.4 | 102.9  | 105.9 | 110.6 | 113.4 | 115.8 | 118.3 | 117.7  | 118.7 | 121.4 | 127.7 | 130.8 | 131.5 | 138.4 |
| YOY increase/decrease       |        | ---  | 6.41% | -3.27% | 2.84% | 4.50% | 2.50% | 2.14% | 2.16% | -0.50% | 0.81% | 2.33% | 5.14% | 2.48% | 0.54% | 5.24% |

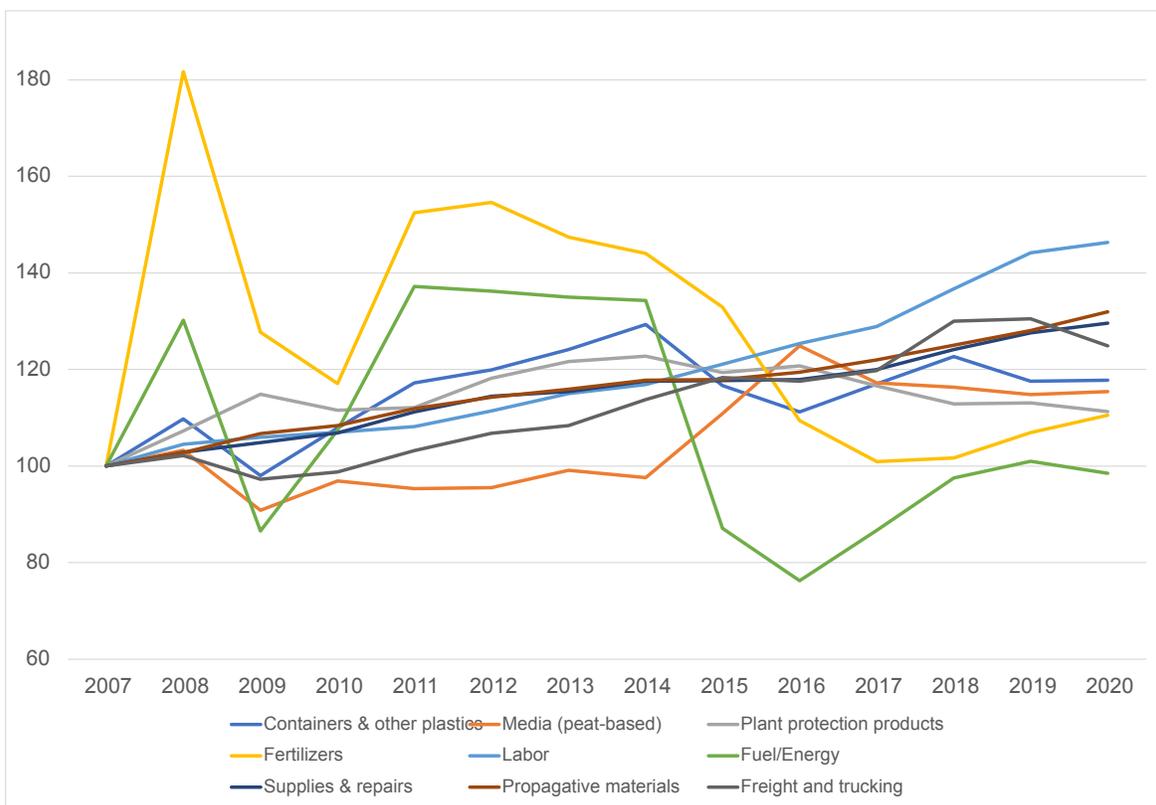
The YOY increases in the immediate post-recession time frame (2009-2011) created considerable margin compression for growers given their input costs were rising significantly but selling prices were stagnant due to the recession's impact on demand. While selling prices have increased since then, the question remains as to whether they have outpaced the increase in input prices. Anecdotally the answer would be *not entirely*, however, given there are currently no historic indices of selling prices across the industry, it is not possible to answer this definitively.

Recent data for growers and retailers that participate in the Your MarketMetrics benchmarking program that indicated margins improved in 2020 as a result of plant prices increasing at a faster rate than input costs. **However, it is anticipated that input costs in 2021 will rise by 5.24% as a result of the strong demand from growers in the industry who are looking to increase their tradeable assets (inventory) in the wake of the strong staycation-affected plant and landscape service demand in 2020 resulting from more time spent at home and the increased gardening and landscaping activity that resulted.**



The only line item that was less expensive in 2020 than it was during the index year of 2007 was the line item for fuel & energy costs. Given the rapid expansion of shale oil production sector over the last several years, as well as the geopolitics currently at play in the energy sector, this was not much of a surprise. This line item reflects changes in petroleum prices (including gasoline and diesel), as well as electricity, propane, and natural gas. Growers benefitted from some relief due to lower fuel/energy prices in 2015-2016, but these are now trending higher given the pressure on supplies because of weather events and demand-side pressures on processing capacity. However, during COVID, world demand for energy decreased due to slowed economic activity globally, thus reflected in the YOY decrease in 2020.

Index of Prices Paid by Growers, 2007-2020 (2007=100)



The three individual components of the index that experienced the largest cost increases since 2007 included labor, propagative materials, and the cost of freight and trucking, which are 46.3%, 31.9%, and 24.9% more expensive, respectively, than they were in 2007. Labor has been a two-fold dilemma for growers with the cost and availability of labor being a severe limitation for nursery and greenhouse



growers alike. Several growers have anecdotally indicated that they often have to hire multiple workers for every 1 full-time position since many tend to quit after realizing that jobs in the green industry are quite labor-intensive. This has obviously increased search and acquisition costs for labor, on top of the increased wages and associated burden of labor.

All other categories of costs have also experienced increases since 2007 (with the exception of fuel/energy as discussed previously). These range from 10.5% for fertilizers to 29.6% for supplies and repairs.

## Forecast for 2021

As mentioned earlier, a forecast is being included in this report for the first time. Based on market research across the industries and conversations with allied trade pundits associated with producing these inputs, a **5.24% weighted average increase** in input costs is forecast for 2021. The leading input cost increases are for containers and other plastics (+9%), freight and trucking (+8%), propagative materials (+6%), fertilizers (+6%), fuel and energy (+6%). Labor and the remaining inputs are anticipated to increase in the neighborhood of 3%.

**Note:** At the time this report was published (end of February 2021), there may be further adjustments that manufacturers, distributors, and other allied trade firms will make in their respective 2021 price schedules. Three in particular involve: (1) plastics-related inputs where container and plastic sheeting prices are still in a state of flux, which are correlated to petroleum, resin, and energy prices that are currently erratic due to winter storms across the country and other geopolitical forces (see appendix B); and (2) the trucking industry where tonnage increases from e-commerce pressures are putting demand pressure on limited trailer supplies and driver shortages continue to influence short-term freight pricing (see appendix C); and (3) the methodology underlying the adverse effect wage rate is still in flux politically, as well as the ongoing discussion regarding a minimum wage increase (see appendix A). Any of these factors (or other unforeseen events) may translate into higher/lower levels of input cost increases that are currently forecasted for 2021.

# Implications

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The purpose of this white paper was to update the Index of Prices Paid by Growers that documents the historical costs incurred by growers for the major inputs used during the production of nursery and greenhouse crops. It is important to note that **this is a national index** and certain factors of production (e.g., labor) may vary depending on the region of the country. Thus, growers could develop their own index by either adjusting the weights of each of the line items contained in the overall index and/or adjusting the line item indices according to the higher or lower expenses incurred in their respective region.

This index also serves to document the **cost-price squeeze** for the green industry, specifically the rising costs of inputs. Armed with such information, growers will be in a much better position to understand the inflationary pressures on their relative costs of production and use these data in making more informed pricing decisions (since total costs represent the price floor and willingness to pay on the part of the customer represents the price ceiling).

Given the findings of the Index of Prices Paid by Growers, it is clear that inflationary pressures have the potential to erode margins for green industry growers and that there will continue to be increases in the costs of major inputs they utilize during production, particularly labor. Though outside the scope of this analysis, the industry will need to adjust prices levels over time to not only keep up with these inflationary pressures, but to ensure the financial sustainability of growers over the long run.



## APPENDIX A Labor Situation & Outlook

While the labor scarcity issue continues through the pandemic (and some say intensified by it), this appendix provides further details into the labor situation and outlook by looking specifically at the rising cost for general farm labor, the adverse effect wage rate for foreign labor, and the potential impacts of proposed federal and state policies to increase the minimum wage to \$15 an hour.

### General Farm Labor Wage Rates

In the broader agricultural labor market, according to USDA's labor survey conducted twice annually by the National Agricultural Statistics Service, there were 758,000 workers hired directly by farm operators on the nation's farms and ranches during the week of October 11-17, 2020, down 6 percent from the October 2019 reference week. Workers hired directly by farm operators numbered 777,000 during the week of July 12-18, 2020, down 3 percent from the July 2019 reference week.

Across all commodities and all regions, farm operators paid their hired workers an average gross wage of **\$15.87 per hour** during the October 2020 reference week, up 6 percent from the October 2019 reference week. Field workers received an average of \$15.28 per hour, up 6 percent. Livestock workers earned \$14.62 per hour, up 6 percent. The field and livestock worker combined gross wage rate, at \$15.10 per hour, was up 6 percent from the 2019 reference week. Hired laborers worked an average of 42.1 hours during the October 2020 reference week, down 1 percent from the hours worked during the October 2019 reference week.

From data collected in the earlier part of 2020, USDA-NASS reported that farm operators paid their hired workers an average gross wage of **\$15.62 per hour** during the July 2020 reference week, up 5 percent from the July 2019 reference week. Field workers received an average of \$14.98 per hour, up 6 percent, while livestock workers earned \$14.50 per hour, up 5 percent from a year earlier. The field and livestock worker combined gross wage rate, at \$14.85 per hour, was up 5 percent from the July 2019 reference week. Hired laborers worked an average of 41.4 hours during the July 2020 reference week, down 1 percent from the hours worked during the July 2019 reference week.

**The 2020 all-hired-worker annual average gross wage rate was \$15.49 per hour, up 4 percent from the 2019 annual average gross wage rate.** The 2020 field worker annual average gross wage rate was \$14.76 per hour, up 5 percent from the 2019 annual average. The 2020 livestock worker annual average gross wage rate was \$14.35 per hour. The 2020 annual average combined gross wage for field and livestock workers was \$14.62, up 5 percent from the 2019 annual average of \$13.99 per hour.



## Adverse Effect Wage Rates for Foreign Labor

The **Adverse Effect Wage Rate (AEWR)** is the minimum wage that the U.S. Department of Labor (DOL) has determined that must be offered and paid to U.S. and alien workers by agricultural employers of nonimmigrant H-2A agricultural workers. When agricultural employers offer employment to nonimmigrant foreign workers, payment of at least the AEWR is required. Published once a year by the DOL with the assistance of the USDA, the AEWR sets a separate minimum wage rate (i.e., a rate that will not adversely affect the employment opportunities of U.S. workers) for each state. The employer must pay all covered workers at least the highest of the following applicable wage rates in effect at the time work is performed: the adverse effect wage rate (AEWR), the applicable prevailing wage, the agreed-upon collective bargaining rate, or the Federal or State statutory minimum wage. Essentially, the AEWR is a minimum wage that provides a floor below which the wages of H-2A workers cannot fall. This wage rate has, anecdotally, had the effect of raising the existing wage rates, even for non-H2A workers.

With the release of USDA's Farm Labor Survey on February 11, farmers that utilize the H-2A program finally know the minimum wage they must pay their H-2A workers in 2021. Usually, this wage rate, known as the Adverse Effect Wage Rate, is known when the Farm Labor Survey is released in November, but changes in policy that were proposed and then struck down in the courts over the last four months delayed the Farm Labor Survey's release, which in turn held up the AEWR announcement. **The FLS reveals an average increase of \$0.63 per hour, or 4.5%, from 2020 to 2021, though there are considerable regional differences.** By comparison, according to the Bureau of Labor Statistics [Employment Cost Index](#), nationally, compensation costs for private industry workers increased 2.6% for the 12-month period ending in December 2020.

In fall 2020, the process of amending the wage methodology for the H-2A program began. First, in September, USDA issued a notice that it would no longer conduct the Farm Labor Survey, which is typically carried out in April and October and released in May and November, respectively. This change was important because the Department of Labor uses the data from the two surveys to calculate the annual national average gross wage rate for field and livestock workers, which becomes the AEWR. The annual national average gross wage rate for field and livestock workers is included in the November FLS report. Second, in November, DOL announced [a final rule](#) that would have updated the methodology for determining the annual AEWR in the H-2A visa program. Both actions were challenged in court by farmworker organizations.

The methodology changes never went into effect because on December 23, a federal court in California ruled against the implementation of DOL's final rule to alter the methodology used to calculate the AEWR for the H-2A program. The judge's decision required DOL to issue the 2021 AEWR by February 25. In a separate court decision, a judge ordered USDA to reinstate the FLS. As a result of the court rulings, none of the changes to the wage methodology for the H-2A program will be implemented. While this is interesting, what really matters for the H-2A program are the regional annual average gross wage rate for workers, which serve as the basis for the AEWR. The rate of change from region-to-region varied considerably in 2020. The state of California, which is its own region, had the largest increase – jumping \$1.28/hour, or 8.7%, above 2019. Meanwhile, wages in the Delta region (Arkansas, Louisiana and Mississippi)



had the smallest increase - 5 cents/hour, or 0.4%, above 2019. All but three (Delta, Southeast and Lake) of the 18 regions in the FLS exceeded the ECI's 2.6% increase. Hourly AEWK wages now exceed \$12/hour in all regions except the Delta and Southeast.

While a 4.5% single-year increase is sizable, the 2021 AEWK jump comes on the heels of several years of considerable wage rate increases. Over the last five years, the national average AEWK has increased by 20%. Again, however, regional wages are what really count. **From this perspective, depending on the region, wages have increased between 9% and 35% over the last five years.**

#### Adverse Effect Wage Rates by State 2020-2021

| STATE         | 2020 AEWK | 2021 AEWK | % CHANGE |
|---------------|-----------|-----------|----------|
| Alabama       | \$11.71   | \$11.81   | 0.85%    |
| Arizona       | \$12.91   | \$13.67   | 5.89%    |
| Arkansas      | \$11.83   | \$11.88   | 0.42%    |
| California    | \$14.77   | \$16.05   | 8.67%    |
| Colorado      | \$14.26   | \$14.82   | 3.93%    |
| Connecticut   | \$14.29   | \$14.99   | 4.90%    |
| Delaware      | \$13.34   | \$14.05   | 5.32%    |
| Florida       | \$11.71   | \$12.08   | 3.16%    |
| Georgia       | \$11.71   | \$11.81   | 0.85%    |
| Hawaii        | \$14.90   | \$15.56   | 4.43%    |
| Idaho         | \$13.62   | \$14.55   | 6.83%    |
| Illinois      | \$14.52   | \$15.31   | 5.44%    |
| Indiana       | \$14.52   | \$15.31   | 5.44%    |
| Iowa          | \$14.58   | \$15.37   | 5.42%    |
| Kansas        | \$14.99   | \$15.89   | 6.00%    |
| Kentucky      | \$12.40   | \$12.96   | 4.52%    |
| Louisiana     | \$11.83   | \$11.88   | 0.42%    |
| Maine         | \$14.29   | \$14.99   | 4.90%    |
| Maryland      | \$13.34   | \$14.05   | 5.32%    |
| Massachusetts | \$14.29   | \$14.99   | 4.90%    |
| Michigan      | \$14.40   | \$14.72   | 2.22%    |
| Minnesota     | \$14.40   | \$14.72   | 2.22%    |
| Mississippi   | \$11.83   | \$11.88   | 0.42%    |
| Missouri      | \$14.58   | \$15.37   | 5.42%    |
| Montana       | \$13.62   | \$14.55   | 6.83%    |
| Nebraska      | \$14.99   | \$15.89   | 6.00%    |
| Nevada        | \$14.26   | \$14.82   | 3.93%    |
| New Hampshire | \$14.29   | \$14.99   | 4.90%    |
| New Jersey    | \$13.34   | \$14.05   | 5.32%    |
| New Mexico    | \$12.91   | \$13.67   | 5.89%    |
| New York      | \$14.29   | \$14.99   | 4.90%    |

|                |         |         |       |
|----------------|---------|---------|-------|
| North Carolina | \$12.67 | \$13.15 | 3.79% |
| North Dakota   | \$14.99 | \$15.89 | 6.00% |
| Ohio           | \$14.52 | \$15.31 | 5.44% |
| Oklahoma       | \$12.67 | \$13.03 | 2.84% |
| Oregon         | \$15.83 | \$16.34 | 3.22% |
| Pennsylvania   | \$13.34 | \$14.05 | 5.32% |
| Rhode Island   | \$14.29 | \$14.99 | 4.90% |
| South Carolina | \$11.71 | \$11.81 | 0.85% |
| South Dakota   | \$14.99 | \$15.89 | 6.00% |
| Tennessee      | \$12.40 | \$12.96 | 4.52% |
| Texas          | \$12.67 | \$13.03 | 2.84% |
| Utah           | \$14.26 | \$14.82 | 3.93% |
| Vermont        | \$14.29 | \$14.99 | 4.90% |
| Virginia       | \$12.67 | \$13.15 | 3.79% |
| Washington     | \$15.83 | \$16.34 | 3.22% |
| West Virginia  | \$12.40 | \$12.96 | 4.52% |
| Wisconsin      | \$14.40 | \$14.72 | 2.22% |
| Wyoming        | \$13.62 | \$14.55 | 6.83% |

## The Federal Minimum Wage

Currently, 29 states and D.C. have minimum wages above the federal minimum wage of \$7.25 per hour. Five states have not adopted a state minimum wage: Alabama, Louisiana, Mississippi, South Carolina and Tennessee. Two states, Georgia and Wyoming, have a minimum wage below \$7.25 per hour. In all seven of these states, the federal minimum wage of \$7.25 per hour applies.

Twenty-one states began 2020 with higher minimum wages than in 2019. Seven states (Alaska, Florida, Minnesota, Montana, Ohio, South Dakota, and Vermont) automatically increased their rates based on the cost of living, while 14 states (Arizona, Arkansas, California, Colorado, Illinois, Maine, Maryland, Massachusetts, Michigan, Missouri, New Jersey, New Mexico, New York, and Washington) increased their rates due to previously approved legislation or ballot initiatives. Florida voters approved Amendment 2, raising the state minimum wage to \$15.00 per hour by 2026. The amendment raises the minimum wage to \$10.00 per hour effective September 2021, with a continuing annual increase until reaching \$15.00 per hour.

If enacted at the end of March 2021, the Raise the Wage Act of 2021 (S. 53, as introduced on January 26, 2021) would raise the federal minimum wage, in annual increments of \$1.50 for 5 years, to \$15 per hour by June 2025 and then adjust it to increase at the same rate as median hourly wages. The Congressional Budget Office (CBO) recently released an analysis of the bill's effects on the federal budget (<https://www.cbo.gov/publication/56975>). The analysis from the CBO highlights a number of



things that policymakers should keep in mind as they consider minimum wage legislation in the upcoming Congress. First, raising the federal minimum wage to \$15 by 2025 would benefit 27 million workers and would lead to a 10-year increase in wages of \$333 billion for the low-wage workforce—the same workforce that has borne the brunt of the COVID-19 economic shock and worked in essential jobs that have kept the economy going. In short, given which parts of the workforce have economically suffered the most from the pandemic, it seems more than appropriate to include a minimum wage increase in any relief and rescue package. Second, the federal minimum wage is a powerful policy instrument to redistribute income and bargaining power towards low-wage workers, and as a result it has very large gross fiscal effects on both federal revenue and federal spending.

A separate analysis released by the Economic Policy Institute (EPI) indicated a number of large gross changes to both spending and revenue were likely to result from the increase in earnings for low-wage workers. In particular, the EPI estimated that by raising earnings of low-wage workers, a \$15 minimum wage by 2025 would significantly reduce spending on Supplemental Nutrition Assistance Program and the Earned Income and Child Tax Credits. The CBO analysis also estimates outlays would fall for these public assistance programs, as they predict the higher minimum wage would lift nearly 1 million people out of poverty.

There are essentially two main analytical differences between the EPI and CBO studies: (1) CBO models predict 1.4 million job losses due to the minimum wage increase while the EPI models do not; and (2) CBO models consider how the minimum wage increases are “financed” and assumes that a substantial part of this financing occurs through price increases that are mostly paid by those with high incomes and reductions in profits on the part of firms that employ low-wage labor. The EPI study reports, on the other hand, does not tackle the financing issue, but does conclude that the median employment effect of the minimum wage across studies of low-wage workers is essentially zero.

Another assumption within the CBO models is that most of the increased labor earnings for low-wage workers are paid for by reduced profits and/or price increases, the bulk of which are paid by high-income families whose average annual family income is well over \$200,000. As such, the CBO modeling assumptions, which drive a large part of their finding that higher minimum wages will increase the federal budget deficit, show that a higher minimum wage could aid in reversing the generation-long rise in income inequality in the United States. The CBO analysis also highlights the multiple significant channels through which a higher minimum wage would affect the federal budget. In looking just at revenues, for example, they note: “The bill would increase revenues, on net, from 2021 to 2031. That net effect would be the result of a number of factors that worked in opposite directions.” In short, this represents a fiscally-significant policy change. In the end, the CBO analysis confirms that a higher federal minimum wage will significantly boost earnings and living standards for low-wage workers, especially those hit hardest by the COVID-19 pandemic, but it will also have direct and significant fiscal effects.



## APPENDIX B Energy Situation & Outlook

The short-term energy outlook remains subject to heightened levels of uncertainty because responses to COVID-19 continue to evolve. Reduced economic activity related to the COVID-19 pandemic has caused changes in energy demand and supply over the past year and will continue to affect these patterns in the future. U.S. gross domestic product (GDP) declined by 3.6% in 2020 from 2019 levels. This outlook assumes U.S. GDP will grow by 3.8% in 2021 and by 4.2% in 2022 (U.S. Energy Information Agency).

### Fuels commentary

Brent crude oil spot prices averaged \$55 per barrel (b) in January, up \$5/b from the December average but \$9/b lower than the average in January of last year. Higher Brent prices in January largely reflected the January 5 announcement by Saudi Arabia that it would unilaterally cut 1.0 million barrels per day (b/d) of crude oil production in February and March, in addition to the reduced production levels on which the Organization of the Petroleum Exporting Countries (OPEC) and partner countries (OPEC+) previously agreed. Brent crude oil prices will likely average \$56/b in the first quarter of 2021 and \$52/b over the remainder of the year. Lower oil prices are expected later in 2021 as a result of rising oil supply that will slow the pace of global oil inventory withdrawals. High global oil inventory levels and spare production capacity will limit upward price pressures, with Brent prices forecast to average \$55/b in 2022.

World consumption totaled 93.9 million b/d of petroleum and liquid fuels in January, which is down 2.8 million b/d from January 2020. Global consumption of petroleum and liquid fuels will likely average 97.7 million b/d for all of 2021, which is up by 5.4 million b/d from 2020. Consumption of petroleum and liquid fuel is expected to increase by 3.5 million b/d in 2022 to average 101.2 million b/d.

U.S. crude oil production averaged 11.0 million b/d in January, which is down slightly from 11.1 million b/d in November (the most recent month for which historical data are available). Production is expected to continue to decline slightly in the coming months, reaching 10.9 million b/d in June. Although oil-directed drilling has increased in the United States in recent months, the number of active drilling rigs remains lower than year-ago levels. Production from newly drilled wells will be more than offset by declining production rates at existing wells in the first half of 2021. However, based on forecasted West Texas Intermediate crude oil prices remaining near or higher than \$50/b during the forecast period, drilling will likely continue to increase. As a result, production from new wells will exceed the declines from legacy wells, and overall crude oil production will increase in the second half of 2021 and in 2022. U.S. crude oil production will likely average 11.0 million b/d in 2021—down from 11.3 million b/d in 2020 and 12.2 million b/d in 2019—and will rise to 11.5 million b/d in 2022.



U.S. regular gasoline retail prices averaged \$2.33 per gallon (gal) in January, compared with an average of \$2.20/gal in December and \$2.55/gal in January 2020. Gasoline prices are expected to average \$2.44/gal in 2021 and \$2.46/gal in 2022. On a volume basis, U.S. consumption of gasoline declined by more than other petroleum products in 2020. U.S. gasoline consumption is forecasted to rise but remain lower than 2019 levels. U.S. gasoline consumption is forecast to average 8.6 million b/d in 2021 and 8.9 million b/d in 2022, up from 8.0 million b/d in 2020 but lower than the 9.3 million b/d consumed in 2019.

U.S. diesel fuel prices averaged \$2.68/gal in January compared with \$2.58/gal in December and \$3.05/gal in January 2020, and forecasts suggest that they will average \$2.70/gal in 2021 and \$2.77/gal in 2022.

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## Natural gas commentary

Total U.S. consumption of natural gas is forecasted to average 81.7 billion cubic feet per day (Bcf/d) in 2021, down 1.9% from 2020. The decline in total U.S. consumption reflects less natural gas consumed for electric power as a result of higher natural gas prices compared with last year. In 2021, residential natural gas demand is expected to average 12.9 Bcf/d (up 0.2 Bcf/d from 2020) and commercial demand to average 9.1 Bcf/d (up 0.6 Bcf/d from 2020). Industrial consumption will likely average 23.0 Bcf/d in 2021 (up 0.4 Bcf/d from 2020) as a result of increased manufacturing activity amid a recovering economy. Industrial consumption of 23.0 Bcf/d would be 0.1 Bcf/d below the 2019 level. Total U.S. natural gas consumption is expected to average 81.0 Bcf/d in 2022.

In January, the Henry Hub natural gas spot price averaged \$2.71 per million British thermal units (MMBtu), up from the December average of \$2.59/MMBtu. Henry Hub spot prices are expected to reach a monthly average of \$2.98/MMBtu in February 2021. Higher expected prices in February reflect expectations of continued strong liquefied natural gas (LNG) exports and a shrinking surplus of natural gas in storage compared with the five-year (2016–20) average. Recent NOAA forecasts for mid-February weather show cold temperatures could extend across much of the United States, which creates an upside risk to near-term prices in this outlook. Henry Hub spot prices are expected to average \$2.95/MMBtu in 2021, which is up from the 2020 average of \$2.03/MMBtu. Continued growth is expected in LNG exports and in domestic natural gas consumption outside of the electric power sector, as production remains relatively flat, will contribute to Henry Hub spot prices rising to an average of \$3.27/MMBtu in 2022.

U.S. working natural gas in storage ended October at more than 3.9 trillion cubic feet (Tcf), 5% more than the 2015–19 average and the fourth-highest end-of-October level on record. Inventory withdrawals were 703 billion cubic feet (Bcf) in January, compared with a five-year (2016–20) average January withdrawal of 716 Bcf. The January withdrawals occurred at a lower rate than forecasted previously. The lower-than-expected withdrawal is the result of warmer-than-average January temperatures that reduced natural gas use for space heating. However, declines in U.S. natural gas production this winter compared with last winter will more than offset the declines in natural gas consumption, which will contribute to natural gas storage returning to levels near the five-year average by the end of winter. Forecast natural gas inventories end March 2021 at 1.8 Tcf, which is about the same as the five-year average.



U.S. production of dry natural gas will likely average 90.5 Bcf/d in 2021 and 91.0 Bcf/d in 2022, which are down from an average of 91.3 Bcf/d in 2020 and 93.1 Bcf/d in 2019. Dry natural gas production remains relatively flat, averaging between 89.8 Bcf/d and 91.0 Bcf/d in every month from February 2021 through July 2022. Flat natural gas production is the result of falling production in several of the smaller natural gas producing regions being offset by growth in other regions, most notably in the Appalachia and Haynesville regions.

The United States exported an estimated 9.8 Bcf/d of LNG in January amid high spot natural gas prices in Asia. However, foggy conditions and high winds affected export operations at Sabine Pass LNG, Corpus Christi LNG, and Cameron LNG, leading to several weather-related closures and sporadic suspension of piloting services on several days in January. U.S. LNG exports will likely average 8.5 Bcf/d in 2021. In 2022, LNG exports are expected to average 9.2 Bcf/d, surpassing the amount of natural gas exported via pipeline for the first time.

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## Electricity commentary

Consumption of electricity in the United States is expected to increase by 1.6% in 2021 after falling 3.8% in 2020. Residential sector retail sales will likely grow by 2.2% in 2021. The increase is primarily a result of colder forecast temperatures in the first quarter of 2021 compared with the same period in 2020, which will raise demand for space heating, along with the assumption that more people will be working from home than in the first quarter of 2020. Retail sales of electricity in the commercial and industrial sectors will increase by 1.2% and 2.3%, respectively. For 2022, total electricity consumption is expected to grow by another 1.7%.

The share of U.S. electric power generated with natural gas is expected to fall from 39% in 2020 to 37% in 2021 and to 35% in 2022. The forecast natural gas share declines in response to a forecast increase in the price of natural gas delivered to electricity generators from an average of \$2.38/MMBtu in 2020 to \$3.27/MMBtu in 2021 (a 37% increase). Coal's forecast share of electricity generation rises from 20% in 2020 to 21% in 2021 and to 22% in 2022. Electricity generation from renewable energy sources rises from 20% in 2020 to 21% in 2021 and to 23% in 2022. The nuclear share of U.S. generation declines from 21% in 2020 to 20% in 2021 and to 19% in 2022.

Planned additions to U.S. wind and solar generating capacity in 2021 and 2022 is expected to contribute to increasing electricity generation from those sources. The U.S. electric power sector added 17.5 gigawatts (GW) of new wind capacity in 2020. Another 15.3 GW of wind capacity will likely be added in 2021 and 3.6 GW in 2022. Utility-scale solar capacity rose by an estimated 11.1 GW in 2020. The forecast for added utility-scale solar capacity is 16.2 GW for 2021 and 12.3 GW for 2022.

U.S. coal production to total 589 MMst in 2021, 50 MMst (9%) more than in 2020. In 2022, coal production is expected to rise by a further 5 MMst (1%). These increases reflect higher forecast demand for coal in the electric power sector because of rising natural gas prices, which increases coal's competitiveness



relative to natural gas for power generation dispatch. Although coal production is expected to rise in 2022, production increases will likely be limited by strong inventory draws. Significant coal supply to the power sector will come from a reduction in inventory levels in 2022, as the power sector brings inventory levels back in line with historical averages. Coal production is forecasted to be limited by declining production capacity, as high mine reclamation costs have contributed to mine divestments and closings that may counter the effects of higher coal demand.

Rising global economic activity is expected to contribute to rising steel production and power demand, which will lead to increased U.S. exports of both metallurgical and steam coal. Coal exports are expected to total 85 MMst in 2021, up by 24% from 2020, which was the lowest level since 2016. Exports are expected to rise by 6 MMst in 2022 to 91 MMst.

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## Emissions

U.S. energy-related carbon dioxide (CO<sub>2</sub>) emissions are expected to decrease by 11% in 2020. This decline in emissions is the result of less energy consumption related to economic contraction in response to the COVID-19 pandemic. In 2021, energy-related CO<sub>2</sub> emissions is forecasted to increase by about 4% from the 2020 level as economic activity increases leading to rising energy use. Energy-related CO<sub>2</sub> emissions are also expected to rise by 3% in 2022 as economic growth continues.



## APPENDIX C Freight & Trucking Situation & Outlook

### General commentary

The last 18 months have been a frenetic and bumpy period for the trucking industry. In late 2019 through early 2020, the trucking industry stabilized and there was confidence for growth into the foreseeable future, until COVID-19 hit in March. The pandemic placed carriers into two distinct groups: (1) those carrying essential consumer goods such as groceries, hand sanitizer, cleaning and paper products; and (2) carriers working in industrial, manufacturing and non-essential retail segments. Those in the first group had to ramp up services quickly to meet skyrocketing demands. Those in the second group are still struggling on the road to recovery. Also, now carriers (as many other businesses across the country) must be conscious of the varied state and local policies and regulations on social distancing and mask requirements, along with a lack of working capital going into 2021. **Many industry experts anticipate a major disruption in the logistics industry as manufacturers and retailers try to return to normal, or the “new normal.”**

The forecast for early 2021 is that growers will have the upper hand on pricing given the current freight conditions. However, lower rates are not predicted to last long. Demand likely will tighten up significantly through the first half of the year. Since rates change based on volume and utilization, and shipping volumes are expected to increase, contractual pricing will be more complex because it is based on future volume commitments, which are challenging to predict. Growers who consistently ship using preferred third-party carriers may benefit in the long run because they can leverage current market conditions for multi-year contracts rather than bidding out freight every time it looks to be advantageous. For carriers and shippers, technology will be a significant method of staying ahead of the competition.

The third-party logistics providers that are predicted to survive and thrive in this environment are those who utilize automation technology like robotics and predictive analytics. Companies that most likely will fair best in this exceedingly competitive space will use these types of technologies to develop value-added services to benefit their shipping customers and differentiate their brand using improved communications, advanced planning, and strategic development of processes to improve inventory tracking, shipping logistics, and executive decision-making. To fully compete through the next decade, logistics companies will need to make sustainable freight practices (e.g., reduced emissions and alternative fuels) a top priority.

### Less-Than-Truckload Commentary

A shift in consumer buying behaviors accelerated significantly during the pandemic that filled all transportation networks with e-commerce shipments of all shapes and sizes. Online purchases of furniture and appliances, apparel, and groceries, among other items, are likely to remain at least 10% higher post-pandemic. The e-commerce impact will continue to create ongoing capacity constraints.



The rate increases some carriers are imposing in high-capacity lanes likely will continue into 2021, until capacity corrects itself. Other factors affecting the LTL environment during 2021: (1) Shippers of bulky, low-density freight, along with shippers of over-dimensional freight that parcel carriers are trying to price out of the parcel network, may face additional obstacles. LTL carriers trying to push these freight types to Truckload are raising rates; (2) Many LTL carriers also are considering the quality of their revenue streams. In addition to restricting certain freight, some are not accepting new customers that do not fit into their business model; (3) Surcharges appear likely to remain and even increase; and (4) National Motor Freight Classification (NMFC) changes announced quarterly require scrutiny to determine if classification shifts apply to the products shipped. Without awareness of these changes, you might miss an opportunity to make an adjustment that reduces your overall transportation-related costs. When service disruptions or rate increases occur, shifting from one carrier to another might seem like a way to improve your position. Instead, consider building buffers of a day or two into your schedules and set reasonable expectations.

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## Truckload commentary

The unpredictability that characterized most of 2020 continues to make itself felt in the truckload market. Spot rates plateaued in Q4 2020, but at a rate that's about 30% higher than a year ago. Similarly, rates for flatbed shipments are up about 10% compared to a year ago, while rates for refrigerated truckloads have increased 20% during the same period. One reason for the rate increase is a drop in capacity. Chaos in the international and intermodal market may lead to more shipments moving to Truckload and further constraining capacity. Overall shipping tonnage is down, but so is the number of available drivers. Many smaller trucking companies may have left the market, driven out by a challenging mix of COVID-19 and rising insurance premiums, some resulting from high jury verdicts awarded in the aftermath of accidents. Thus, mid-sized carriers have been reluctant to add equipment and drivers in this turbulent time.

The conclusion of the election season may spark consumer confidence. In turn, that might drive shipping volumes that may further constrain capacity. The disruption in the small package market may mean some of those shipments move to the LTL market, and a percentage of those then head to the Truckload market. All of these scenarios will further constrain capacity. **In light of the factors affecting the truckload market, growers can expect rate increases of 3-5% for contracted service. Rate increases in the spot market likely will be in the neighborhood of 5-8%.** When negotiating rates, take a lane-by-lane and market-by-market approach. This strategy targets those carriers whose rates appear out of alignment with the market while focusing on our goal of leveraging relationships to take corrective action. Growers can gain some protection from the overall increases that might not be available without those relationships – so keep maintaining a true partner relationship with your carriers. Negotiate on a lane-specific level, while keeping a strategic focus on your spot providers by close monitoring of their bid participation, tender acceptance, price competitiveness and service performance. Keep commitments to, and expect commitments from, both contract and spot service providers. This will insulate you from the short-term extreme hikes and position you well to capture capacity, service, and cost gains over the long term.

