Agrifood markets and support in the United States after 1 year of COVID-19 pandemic

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Abstract
This article briefly outlines the agrifood market and policy situation in the United States after 1 year of the COVID-19 pandemic. Agrifood markets suffered initial disruptions from both supply-side and demand-side shocks but significant adjustments by farmers, processors, distributors, and government kept these relatively short-lived. Substantial support has been provided to farmers as part of $5 trillion of economy-wide stimulus enacted. This included payments in 2020 under the Coronavirus Food Assistance Program (CFAP) of nearly $24 billion to producers of a wide array of products. These payments came on top of trade-related support provided to agriculture in 2018 and 2019. The stimulus also included expansion of nutrition assistance programs for low-income households which were among the hardest hit by the pandemic. I conjecture that the pandemic will influence planning and social policy across the US economy for years to come but will not shift the basic structure of US agricultural production and distribution. Counter-cyclical farm policy is reentrenched within the political arena and expectations for support levels may have been raised.
production et de la distribution agricoles aux États-Unis. La politique agricole anticyclique est de nouveau enracinée dans l’arène politique et les attentes concernant les niveaux de soutien peuvent avoir été augmentées.

1 INTRODUCTION

When the first death from COVID-19 occurred in the United States in February 2020, it seemed unfathomable that fatalities would run into the thousands, then tens and hundreds of thousands. Every nation scrambled to respond to the pandemic threat within its unique cultural, political and institutional norms. Suppression of the virus and a return to full economic activity were the dual public goals. None found a perfect formula as none was possible—tradeoffs had to be made. The United States, with distinct federal, state, and local governance authorities, and amidst simmering partisan disunity that the pandemic inflamed, undertook lockdowns and health measures less strenuous nationwide than might have been. Congress enacted substantial fiscal stimulus on a bipartisan basis in 2020 and the Federal Reserve pursued supportive monetary policies. The result, despite a sharp initial shock, was likely less economic contraction than in many developed countries and an increase in aggregate disposable income for the calendar year. There were also more pandemic-related deaths per capita than elsewhere, with deaths reaching 525,000 in 1 year.

As shelter in place and other emergency health measures were initiated in March–April 2020, agriculture and the agrifood system faced substantial disruptions. Pandemic-related mortality and stress on health systems and healthcare providers dominated the news, but scenes of empty grocery shelves added to the sense of crisis. With a collapse of food consumed away from home, the fine-tuned supply chains for commercial and residential consumption were not fit for task. Falling prices across a broad array of farm commodities sent shivers down agriculture’s spine. Dairy farmers dumped milk they could not sell while elsewhere long lines waited at charity food banks for donations they could not afford to buy. Yet from the beginning, agricultural economists remained mostly optimistic that the food system could adjust. That has largely proven the case.

This article briefly outlines the agrifood situation in the United States 1 year after the first pandemic death. At the level the COVID-19 pandemic has occurred, which could have been even worse, agrifood supply chains adjusted and supply disruptions eased more quickly than some thought possible. Fiscal stimulus including direct income transfers, enhanced unemployment benefits, payroll protection payments, and nutrition assistance dampened income shocks and bolstered food demand. Emergency farm support aided incomes for producers of a wide array of animal and plant products, not just traditional program crops. And a year has made a difference for agricultural prices, with crop prices up sharply in early-2021. None of this is to understate the difficulties faced in the agrifood sector over the past year. Average effects mask substantial variation in the impacts on diverse producers, consumers and regions. Even with a brighter picture for farmers and consumers at the 1-year point, and grounds for cautious optimism, the pandemic rages on and has left the country exhausted. Some of its effects will be a long time overcoming and the agrifood sector will not be immune to these impacts.

2 SUPPLY CHAIN DISRUPTIONS: DEEP BUT SHORT-LIVED

A body of agricultural economics literature has swiftly emerged tracing the developments since March 2020 in the agrifood sector of the United States and globally.1 Weersink et al. (2021) provide a cogent assessment for the United States and Canada. The key observation is that agricultural supply chains and markets suffered both supply-side and demand-side shocks in the first months of the pandemic. Supply disruptions arose from illness among workers and the need for social distancing and installation of protective mechanisms in production and distribution facilities, which reduced output short term. Demand shocks affected primarily how products reached consumers. Consumption away from home dropped precipitously under social distancing while retail grocery demand correspondingly increased, a persistent shift as the pandemic continued.

1 Among special issues devoted to the COVID-19 pandemic as of March 2021 are Canadian Journal of Agricultural Economics (Ker & Cardwell, 2020), EuroChoices (Davis, 2020), Agricultural Systems (Stephens, Martin, van Wijk, Timsina, & Snow, 2021), and Applied Economic Perspectives and Policy (Gundersen, Mallory and Petrolia, 2021).
As Weersink et al. (2021) highlight, effects differed across products depending on perishability, production-cycle lengths, and market structure. Thus, dairy was sharply impacted as milk demand shifted toward at-home use. Dairy prices in the United States, which had risen nearly 30% in 2019, fell below 2018 levels in March–May 2020. Broiler and egg production also have relatively short production cycles, and production declined in April and May compared to a year earlier. Sharper production disruptions occurred in pork and beef, despite longer biological production lengths. Beef steer slaughter fell one-third and hogs by 40% during April–May. The effect was a sharp increase in the spread between falling farm-level and rising retail prices. But production of beef and pork regained prepandemic volumes by May–June. Producer prices stabilized and were rising by August 2020.

Among crops, seasonal summer production of perishable fruits and vegetables was coming into timing as the pandemic spread. Effects varied widely across products, but supply disruption did not end up causing broad product availability problems, while the availability, health, and wellbeing of farmworkers were concerns that came into focus. Storable grains and oilseeds faced less short-term adjustment stress. Production had been dampened by a historically high number of acres not planted in 2019 because of weather. Price movements were mixed at the pandemic onset: corn prices fell with declining feed and ethanol demand, soybean prices were less affected and wheat and rice prices initially increased. Further decline of crop prices into the year raised concern about pandemic-depressed global demand carrying forward to 2020 crops. But by early-2021 world grain prices were much higher than in early-2020 as increased demand from China and elsewhere together with production shortfalls in Europe, Russia, and Ukraine overtook pandemic downward price pressure. In the United States, consumer food prices were 3.9% higher in December 2020 than a year earlier, compared to a general inflation rate of 1.4%.

3 | FARM SUPPORT AND INCOME: OFFSETS TO LOSSES

At the onset of the pandemic, the two trillion dollar Coronavirus Aid, Relief, and Economic Security (CARES) Act (March 27, 2020) provided wide-reaching financial assistance to large and small businesses, state and local governments, hospitals, and families. Agricultural businesses have received support to the tune of $6 billion under the CARES Act’s Payroll Protection Program. The CARES Act also provided the basis for USDA to orchestrate a new Coronavirus Food Assistance Program (CFAP-1) above and beyond support authorized in the 2018 farm bill and designed to offset pandemic-related producer losses on 2019 crops in storage and livestock production during the first quarter of 2020. CFAP-1 authorized coverage of losses initially estimated up to $16 billion, of which $10.5 billion was distributed (Table 1). A second program (CFAP-2) was implemented in September to compensate losses for 2020 crops and livestock during the second through fourth quarters up to $14 billion, with $13.3 billion distributed by March 2021. A third round of support includes rolling forward unspent CFAP funds and up to $13 billion of additional loss coverage authorized under the $900 billion Coronavirus Response and Relief Supplemental Appropriations Act, part of the Consolidated Appropriations Act (CAA, December 27, 2020). Implementation of the third round of farm support is pending in March 2021. Further national stimulus on the order of $1.9 trillion was enacted by the new Biden administration in the American Rescue Plan of 2021 (ARP, March 11, 2021) with support only from Democrats in Congress. Agricultural support in the ARP is targeted primarily to USDA commodity purchases and distribution and to aid to socially disadvantaged farmers and ranchers.

A global pandemic inducing economy-wide stimulus of which support to agriculture is a small part is one policy circumstance. This is quite different than the Market Facilitation Programs (MFP) implemented in 2018 and 2019 by the Trump administration solely to provide agriculture with compensation for losses arising from foreign retaliation, primarily by China, against new tariffs imposed by the United States (Grant, Arita, Emlinger, Johansson, & Xie, 2021; Orden, 2021). Nonetheless, it is noteworthy that for these very different reasons US agriculture is experiencing a period of four to five or more years of unusually high support. This support has had an effect, with USDA forecasting inflation-adjusted net farm income in calendar year 2020 to be the fourth highest in a half century. Government payments account for 44% of that income, more than double the average contribution (Glauber & Smith, 2021).

To determine individual CFAP payments, USDA had to develop a remarkable set of loss estimates and compensation formulas. At risk of oversimplification for brevity, the payments are product-specific and are related overall to losses due to lower prices and/or increased marketing costs during a defined relevant period (see, e.g., Schnepf, 2020 for a more complete description of the CFAP programs). Eligible quantities have varied based on production, unpriced inventories or sales. Given the parameters and allocated funding, CFAP has often been able to compensate 80% of calculated losses. Product and producer coverage has expanded and become more detailed from CFAP-1 to CFAP-2 to CAA. From the outset, it has included substantial support for a larger set of products than under farm bills. Taking CFAP-1 and CFAP-2 together,
nonspecialty crops (largely grains and oilseeds, the primary target of farm bill support) have received about $8.9 billion, livestock (mainly cattle and hogs) $8.4 billion, dairy $3.0 billion and specialty crops, and other products (mainly fruits and vegetables) $3.4 billion by February 2021. If notified as part of its Current Total Aggregate Measurement of Support, the United States likely will exceed its $19.1 billion support limit under the WTO for 2020, but creative legal ways of reporting these payments may be adopted. The CAA, and to a limited extent the ARP, will provide additional support during 2021.

A third issue for both MFP and CFAP payments concerns expenditures explicitly authorized by Congress versus discretionary use of borrowing authority by the executive branch granted to it through the Commodity Credit Corporation (CCC). The MFP programs initiated by the Trump administration were funded exclusively under CCC authority. CFAP-1

| TABLE 1 | Schematic of MFP, CFAP, CAA, and ARP agricultural support in 2018–2021 |
| 2018 Market Facilitation Program (MFP) | Initiated in July 2018 by USDA under Commodity Credit Corporation (CCC) authority |
| Payments of $9.6 billion based on production of: | |
| Soybeans: $7.3 billion; cotton, sorghum, wheat and corn: $1.3 billion | |
| Cherries and almonds: $0.2 billion | |
| Dairy and hogs: $0.8 billion (based on milk production history or live hogs owned) | |

| 2019 Market Facilitation Program (MFP) | Initiated in May 2019 by USDA under Commodity Credit Corporation (CCC) authority |
| Payments of $14.5 billion made for: | |
| Nonspecialty crops: $13.6 billion based on per-acre payments determined by commodity-specific payment rates and county-level historical average planted areas, yields and crop mix; eligible area determined by 2019 planted area of covered crops, not to exceed 2018 planted area. Nonspecialty crops included, along with 20 others, alfalfa hay, barley, corn, rice, soybeans, upland cotton, and wheat | |
| Specialty crops: $0.3 billion based on 2019 area. Specialty crops included, along with six others, almonds, fresh grapes and sweet cherries and walnuts | |
| Dairy and hogs: $0.6 billion based on 2019 milk production history or live hogs owned | |

| 2020 Coronavirus Food Assistance Program (CFAP-1) | Announced in April 2020 by USDA using funding and authority of the $2 trillion Coronavirus Aid, Relief and Economic Security (CARES) Act signed into law March 27, 2020 and CCC authority |
| Payments of $10.6 billion (near complete as of February 21, 2021, compared to $16 billion initially estimated by USDA in May 2020) made for: | |
| Nonspecialty crops: $2.7 billion based on 52.5% of price decline and eligible inventory (minimum of unpriced inventories on January 15, 2020 or 50% of 2019 production); includes corn ($1.8 billion), soybeans ($0.5 billion), cotton ($0.3 billion), other ($0.1 billion) | |
| Specialty crops and aquaculture, nursery crops, floriculture: $1.0 billion based on 80% of price decline and mid-January to mid-April 2020 level of sales plus certain other losses | |
| Dairy: $1.8 billion based on 80% of price decline and January-March 2020 level of sales plus 25% of price decline for anticipated April–June level of sales | |
| Beef cattle ($4.4 billion), Hogs and pigs ($0.6 billion): based on 80% of price decline and mid-January to mid-April 2020 level of sales plus additional payments based on inventories | |
| Other products: $0.1 billion based on various criteria | |

| 2020 Coronavirus Food Assistance Program (CFAP-2) | Announced in September 2020 by USDA using primarily $13.9 billion CCC borrowing authority replenishment provided in the CARES Act |
| Payments of $13.2 billion (near complete as of February 21, 2021) for products in four categories: | |
| Acre Based: $6.2 billion | |
| Price-trigger crops: Coverage of 80% of price decline between January 13–17 and July 27–31, 2020 if 5% or greater based on 2020 farm planted acres and past yields and national share of 2020/21 marketing year crop marketed by end of 2020; eligible crops: corn ($3.4 billion), soybeans ($1.3 billion), wheat ($0.7 billion), cotton ($0.3 billion), sorghum ($0.1 billion), barley ($0.05 billion), sunflowers ($0.02 billion) | |
| Flat-rate crops: Payment of $15/acre planted in 2020 for 31 field or row crops not qualifying for price-trigger; including alfalfa (highest payments $0.1 billion), canola, oats, peanuts, rice, sugar beets, sugarcane | |
| Sales commodities: $2.4 billion | |
| Sliding scale of payments based on 2019 sales for a wide range of products not qualifying for price-trigger and without 2020 planted acreage data; includes aquaculture, nursery crops, floriculture, horticulture, tree nuts, fruit, vegetables, other livestock and other (Continues) |
TABLE 1  (Continued)

| Other Price-trigger products: $4.6 billion |
| Payments based on 75% of 2019 broiler and egg production ($0.04 billion), April-December 2020 estimated milk production ($1.2 billion), maximum April 12-August 31, 2020 inventory of beef cattle ($2.8 billion), hogs and pigs ($0.5 billion) and lambs and sheep ($0.09 billion) |

Consolidated Appropriations Act, 2021 (CAA)
Signed into law December 27, 2020; includes the $900 billion Coronavirus Response and Relief Supplemental Appropriations Act, 2021

| Anticipated payments of $13.0 billion allocated to agricultural programs; implementation pending as of February 21, 2021: |
| Price-trigger and flat-rate crops: $4.8 billion based on payments of $20/acre; includes corn ($1.8 billion), soybeans ($1.7 billion), wheat ($0.8 billion), cotton ($0.2 billion) |
| Specialty crops: modified CFAP-2 rules, block and local market grants ($0.2 billion) |
| Ethanol: coverage of losses due to reduced fuel consumption |
| Contract poultry and livestock: $1.0 billion to cover 80% of losses due to supply chain disruptions |
| Other livestock provisions: additional inventory-based payments to cattle producers; coverage of 80% of depopulation losses; expanded dairy margin coverage ($0.5 billion) |

CFAP Additional Assistance
Announced in January 2021 by USDA

| Anticipated payments of $2.3 billion using authorized funds left over from CFAP-1 and CFAP-2; implementation on hold for Biden administration review as of February 21, 2021 |

American Rescue Plan of 2021
Signed into law March 11, 2021; provides $1.9 trillion in pandemic-related funding

| Authorizes about $10.5 billion for agricultural programs, including: |
| USDA food purchases and distribution ($3.6 billion); debt relief ($4.0 billion) and assistance and support ($1.0 billion) to socially disadvantaged farmers and ranchers; SARS-CoV-2 surveillance of animals ($0.3 billion) |

Source: Compiled by the author from various government and news sources.

was based on $6.5 billion of CCC discretionary authority together with $9.4 billion appropriated under the CARES Act. CFAP-2 was funded almost entirely by an early replenishment of CCC borrowing authority included in the CARES Act. There has been discussion of raising the CCC borrowing limit, which would give even more latitude to the executive branch in determining farm support.

4  |  POVERTY AND FOOD INSECURITY: DISPARITIES HEIGHTENED

The broad relief provided by the CARES Act dampened GDP contraction, raised disposable income and has played the largest role in sustaining domestic food demand. It quickly became evident that low-income and minority communities were among the hardest hit by the pandemic, in part because of the sharp decline in low-wage employment in shuttering nonessential service sectors and in part because employment in essential services (including food production and distribution) kept them exposed to contagion. Less-resilient housing environments at low-income levels also raised the exposure to COVID-19; indeed, heightened vulnerability to various shocks for various reasons is almost a definition of poverty. Attention thus turned to poor Americans and food insecurity. Gunderson, Hake, Dewey and Engelhard (2021) estimated that food insecurity, defined broadly as those “without access at all times to enough food for an active, healthy life” would affect 54 million Americans in 2020, a 46% increase compared to 2018.

To address food insecurity directly, the $100 billion Families First Coronavirus Response Act (March 18, 2020) provided emergency funding for several nutrition assistance programs, including $500 million for women, infants and children (WIC), $500 million for state-managed food distributions and open-ended funding for what became by year’s end $4.0 billion for a new USDA-managed farm-to-families food purchase and distribution program as a part of CFAP (see Aussenberg & Billings, 2021 for further description of the COVID-19 nutrition assistance programs). This legislation also began to facilitate food access under pandemic conditions by replacing meals usually served at schools and relaxing eligibility and other requirements affecting program recipients and state administrators. The CARES Act then authorized an expansion of nutrition benefits at a funding level matched to the increase in farm support authority. Nutrition provisions of the CARES Act included additional funding of $8.8 billion for child nutrition programs, $15.8 billion for expanded Supplemental Nutrition Assistance Program (SNAP) benefits and $900 million for commodity distribution. A Continuing Appropriations Act (October 1, 2020) authorized additional funding estimated at $8.0 billion for nutrition programs and the CAA
authorized an additional estimated $13 billion that includes open-ended funding to raise SNAP benefits by 15% from January through June 2021, $1.5 billion for the farm-to-families program and $400 million for USDA milk purchases to provide dairy products for free distribution. The ARP authorizes an additional $12 billion including to extend the increased SNAP benefits through September 2021, provides other SNAP assistance to states, and for expanded WIC benefits.

Increased poverty and food insecurity is not only a domestic issue. The greatest uncertainty surrounds the course and consequences of the COVID-19 pandemic in the developing world. While agricultural production levels have proven resilient in many developing countries, shocks to national incomes were severe in 2020, raising poverty and food insecurity. Using late—2020 GDP assessments, Baquedano, Zereyesus, Christensen, and Valdes (2021) estimate that the number of food insecure people increased by 160 million in 76 developing countries. In the coming decade, incomes are projected to resume their upward trend and food insecurity to fall but from the lower income levels and higher food insecurity of the pandemic, thus shifting downward for a sustained period the nonetheless growing food demand within these countries.

5 | LOOKING AHEAD

This short article has highlighted the character of US responses to COVID-19 in the agrifood sector and their impacts 1 year after the pandemic onset. While great uncertainty remains, I conclude with a few conjectures about possible long-term implications.

First, this historic shock will influence planning and social policy across the US economy for years to come. The agrifood sector was deeply affected but also adjusted quickly. The COVID-19 shock is unlikely to shift the basic structure of US agricultural production and distribution. Risk management will receive enhanced attention and improvements should be prompted throughout the system to add resilience and raise standards. But market actors up and down the supply chain from farmers to retailers will not be inclined to give up efficiency and related practices that are profitable in normal years. Those profits add up year-over-year to offset shock losses. One outcome that would be beneficial is if the pandemic boosts public and private investment in agrifood R&D. Past investments that made possible the rapid development of COVID-19 vaccines provide a constructive lesson. And as Paarlberg (2021) argues in a recent book aimed at the broad food debates, modern science and technology are the path to addressing environmental and other challenges faced in agriculture and food production and distribution.

The COVID-19 farm support is consistent with the counter-cyclical character of US farm policy since the Great Depression. It accounts for only a small fraction of the national stimulus provided under the pandemic, so here too is consistent with US norms. Still, it has raised support to a level not seen since the farm financial crisis of the 1980s. This points in several directions. Counter-cyclical farm policy is reentrenched within the US political arena. The shock of 2020 will not be forgotten. In just 12 years, the centennial of the original Agricultural Adjustment Act of 1933 will be celebrated and I expect with great fanfare.

Within this context, several questions arise. Will farm support return to levels of recent farm bills or will the substantial COVID-19 support raise expectations of future support—that is, has it reset the bar on the amounts of support to be expected through counter-cyclical policy? This applies to the traditional program crops, but also to other products, particularly livestock, that have received less farm bill support. Will these new beneficiaries find ways to continue to make claims for higher support than received before the pandemic, including through administrative use of the CCC as well as legislation? There will be some dampening down, but I expect higher levels of support may prove hard to fully unwind.

The pandemic has exacerbated racial, income and other disparities in the United States. The political divisions have been terrible in the wake of the 2020 elections. Pandemic after-effects will continue to exacerbate this situation, with worsened disparities and more discussion around them. This could divide the traditional logrolling coalition of farmers, nutrition and environmental interests. Yet, farm bills offering something to each are enacted in the end with wide bipartisan support. I expect this will prove true for the 2023 farm bill.

Finally, there is the question of trade. While it precedes the pandemic, US trade policy is in disarray after the Trump administration, with new unilateral tariffs and foreign retaliation. This is also going to prove hard to unwind. I argued a year ago that the COVID-19 pandemic underscored the inherent fragility of an integrated world but that shutting down and barriers are not the answer long term. Stronger international institutions and cooperation are the long-term answer, including for detection and containment of contagious diseases and to ensure food security. A year ago, at the pandemic onset, I said this was an argument for tomorrow, not for today. Tomorrow is here. These issues need to be engaged.

ACKNOWLEDGMENTS
I thank Lars Brink, Robert Paarlberg, and Carl Zulauf for helpful comments. All values are expressed in the article in US dollars.
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How to cite this article: Orden, D. Agrifood markets and support in the United States after 1 year of COVID-19 pandemic. Can J Agr Econ. 2021;69:243–249. https://doi.org/10.1111/cjag.12278