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Farm Program Update: ARC and PLC Support

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As commodity prices have fallen substantially since 2012, crop revenue and farm income have suffered. To illustrate, the national marketing year average price for corn has fallen from a record high of $6.89 per bushel in the 2012/2013 marketing year to a projected $3.50 per bushel for the 2016/2017 marketing year, based on supply and demand estimates published by USDA in June. With similar price weakness across other crops, the impact on crop revenue and farm income has been dramatic. U.S. net farm income is projected to fall to $54.8 billion for 2016, more than 50% below the record $123.3 billion in 2013. Nebraska net farm income has fallen dramatically as well, although above-average yields and reduced feed costs for livestock producers in the past two years have helped buffer the fall thus far.

Also helping to offset some of the losses from substantially lower crop prices is the new portfolio of federal farm commodity programs implemented as part of the 2014 Farm Bill. Recall that as part of the farm program enrollment in 2014, producers had to make enrollment decisions regarding base acreage, payment yields, and the election between Agriculture Risk Coverage at the county level (ARC-County), Agriculture Risk Coverage at the individual level (ARC-IC), or Price Loss Coverage (PLC). While the PLC reference price support levels were set at fixed rates in the legislation, the ARC revenue support levels were tied to moving average yields and prices. With moving average prices for corn and soybeans far above the PLC reference prices at the time of decisions in late 2014 and early 2015, it was no surprise that more than 95% of Nebraska producers chose ARC-County. With prices for grain sorghum and wheat closer to PLC reference prices, more producers considered and signed up for PLC protection on those crops, with more than 40% choosing PLC for grain sorghum and 50% for wheat. By comparison, ARC-IC had minimal sign-up, likely due to increased complexity and reduced payment factors relative to ARC-County.
As commodity prices have declined, both ARC and PLC have become important components of the farm income safety net and also cash flow projections for producers. An analysis of programs and payments provides insight on the protection offered to producers and the impact on the bottom line.

Payment Estimates and Outlook

The ARC program incorporates both national price and county or individual farm yield results from each crop year into the calculation of payments while the PLC program incorporates only national price results. Any payments are due to producers in October of the year following harvest after the marketing year is complete. Thus, program payments for the 2014 crop year were paid to producers in late 2015, 2015 crop payments will be due in late 2016, and so on. ARC and PLC payments received on the 2014 crop amounted to more than $5.2 billion nationally

and more than $612 million in Nebraska. Current projections suggest similarly large payments due on the 2015 crop later this year and potentially even the 2016 crop due in 2017 before payments dramatically decline. Analysis below helps explain the payments and outlook for program support.

Both the PLC and ARC programs rely on national marketing year average prices. The PLC program provides price protection when the current national marketing year average price drops below the reference price. The ARC program provides revenue protection by crop or on the farm based on 86 percent of the 5-year Olympic average yields and prices. Table 1 provides the reference prices, market prices, and benchmark prices used by the programs, with projections for 2015 through 2018 based on current USDA supply and demand or baseline information.

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Reference Prices</th>
<th>National Marketing There Average Prices*</th>
<th>5-Year Olympic Average Benchmark Prices**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn ($/bu)</td>
<td>$3.70</td>
<td>$3.70</td>
<td>$3.70</td>
</tr>
<tr>
<td></td>
<td>(5.29)</td>
<td>(5.29)</td>
<td>(4.79)</td>
</tr>
<tr>
<td>Grain Sorghum ($/bu)</td>
<td>$3.95</td>
<td>4.03</td>
<td>3.30</td>
</tr>
<tr>
<td></td>
<td>(5.10)</td>
<td>(5.10)</td>
<td>(4.77)</td>
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<tr>
<td>Soybeans ($/bu)</td>
<td>$8.40</td>
<td>10.10</td>
<td>9.05</td>
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<tr>
<td></td>
<td>(12.27)</td>
<td>(12.27)</td>
<td>(11.87)</td>
</tr>
<tr>
<td>Wheat ($/bu)</td>
<td>$5.50</td>
<td>5.99</td>
<td>4.90</td>
</tr>
<tr>
<td></td>
<td>(6.60)</td>
<td>(6.70)</td>
<td>(6.70)</td>
</tr>
</tbody>
</table>


** 5-year Olympic average benchmark prices for each year calculated from national marketing year average prices and farm program reference prices for preceding 5 crop years (2009-2013 for 2014, 2010-2014 for 2015, etc.).
From the price data in Table 1, we can quickly see the growing significance of farm program support tied to the PLC program. Table 2 summarizes PLC payment rates for the 2014 crop and projected payment rates based on current projected prices for the 2015-2018 crops.

While PLC payments were nonexistent for major Nebraska crops for 2014, they have quickly become significant for grain sorghum and wheat and some other crops and could show up for corn as well as long as national marketing year average prices linger below $3.70 per bushel.

In contrast, the ARC program started off with substantial payments, but may fall off dramatically by the end of the current farm program after the 2018 crop. Using the price estimates from above together with available county-level yield data, we can calculate actual and potential ARC-ACO payment rates. ARC-ACO payments will vary by crop, county, and practice across the state each year, but a simple average of all ARC-ACO payments by crop gives an indicator of the magnitude of payments in Nebraska. Using actual payment data from the 2014 crop year, projected price and yield data from the 2015 crop year, and projected prices along with average yields for the 2016-2018 crop years, Table 3 provides average ARC-ACO payment rates by crop year through 2018.

ARC-ACO payments were large for the 2014 crop and are projected similarly large for the 2015 crop. Using corn as an illustration, the data in Table 1 shows a 30% price decline for both 2014 and 2015 relative to the 5-year Olympic average. Even above average yields across much of the state in each year could not fully make up for the gap between prices at 70% of average and revenue guarantees at 86% of the average. The 5-year Olympic average begins to fall dramatically for corn going into the 2016 crop year, but even lower price projections still translate into a 27% price loss. Coupled with a return to average yields (assumed until yield data or projections are available), the revenue losses are still large and the corresponding ARC-ACO payments for the 2016 Crop remain large. As the 5-year Olympic average benchmark price for corn continues to fall into 2017 and 2018, the potential for ARC-ACO payments quickly diminishes, given average yields and current price projections. For other major Nebraska crops, the ARC-ACO payments may linger longer, but eventually could disappear except for a small projected wheat payment through the 2018 crop year.

Detailed payment estimates and analysis are available on the Nebraska Extension farm bill website at [http://farmbill.unl.edu](http://farmbill.unl.edu). A full table of all counties, crops, and practices under the ARC-ACO program in Nebraska is posted online along with 2014 crop payment rates and current projections for the 2015 and 2016 crop years. Not all counties, crops, and practices as defined for ARC-ACO coverage have published yield estimates available from USDA-NASS for 2016.
2015, thus the projections are not complete, but are the best available at present time. Projections for counties with missing yield data will be added as they are released from USDA-FSA. Graphs of selected payments across counties across Nebraska are also included for illustration on the website.

Large Payments, Large Variability, Little Windfall

In total, the PLC and ARC payments of more than $612 million in Nebraska for the 2014 crop were a substantial infusion of cash flow and a large contribution to statewide net farm income. Based on the increased PLC payments to grain sorghum and wheat and the continued large ARC-CO payments on corn and soybeans, total program payments could remain near $600 million or more in the state for both the 2015 and 2016 crops, paid in late 2016 and 2017 respectively before falling dramatically to less than $200 million per year by 2018 and 2019.

As the 2014 crop payments were rolled out in late 2015, there was considerable attention to the total amount of payments as well as the variability in payments across crops, counties, and practices. While total payments in excess of $612 million clearly added to producers’ cash flows and bottom lines in 2015, they were not, as described by some, a windfall.

An analysis of the mechanics of the ARC-CO program starts with the guarantee set equal to 86% of the benchmark revenue, or 86% of the 5-year Olympic average benchmark price multiplied by the 5-year Olympic average benchmark yield. If the benchmark represents a relevant moving average revenue target, then the producer is at risk for the first 14% loss in revenue below the benchmark. ARC-CO starts to protect revenue losses below the guarantee, but then only on revenue losses up to 10% of the benchmark revenue (effectively protecting the 76-86% revenue band), then only on 85% of the base acres, then only up to the producer’s payment limits and eligibility, and then subject to a 7% reduction for budget sequestration. With all of the qualifiers and limits included, it is clear that ARC-CO cannot cover a producer’s entire revenue loss.

While the statistics of ARC-CO payments are readily comparable across crops, counties, and practices, the reality is that a larger ARC-CO payment is reflective of an even larger revenue loss relative to the benchmark. Thus, ARC-CO payments end up not as a windfall, but as a partial recovery of lost revenue. While the payments are after the fact and the added cash flow may mean more ability to remain profitable, the payments are clearly not a windfall to producers. The graphs available online readily illustrate that for a given crop and practice, counties with larger ARC-CO payments still lagged when total revenue (crop revenue plus ARC-CO payments) was compared to the ARC-CO guarantee.

There are some discrepancies in payments that are not as easily explained as the ARC-CO equation above. The ARC-CO guarantee is reliant on the same average price in all counties, but the average yield can vary substantially. A 5-year Olympic average yield is a rather short look-back period for yield performance. In a county with one bad year, the poor yield would be excluded in the Olympic average, but in a county with more than one bad year in the last 5, the poor yields start to contribute quickly to the benchmark yield, dragging it down relative to realistic production expectations, and in turn, reducing the effective support of the ARC-CO program.

In some counties, the issue is a lack of available yield data. Within USDA, the Farm Service Agency (FSA) works to combine published yield data per harvested acre from the National Agricultural Statistics Service (NASS) together with planted and failed acreage data reported to FSA to calculate the yields per planted acre for ARC-CO. But for some crops, counties, and practices, NASS data is unavailable because of limited crops, acres, or survey observations. FSA must still make estimates with the Risk Management Agency to reference crop insurance data to help fill gaps, but in some cases is still reliant on agency determinations based on the best available data or comparisons to similar or neighboring counties.

Managing Risk with Farm Programs

Beyond the analysis of payment rates, revenue losses, and yield data concerns, it must also be remembered that farm programs only provide partial risk protection to producers. Both PLC and ARC help producers cope with the risk of reduced prices and revenue, but both only provide limited support.

ARC-CO payments are based on county-level results and cannot perfectly compensate for individual producer results. The performance is arguably better than the state-based revenue protection provided by the Average Crop Revenue Election (ACRE) program in the previous farm bill, but it is still not a direct substitute for a producer’s individual risk management decisions and strategies. The ARC-IC program theoretically provides better farm-level protection, but with the reduced payment factor and very limited participation in Nebraska, it is not a significant tool at the present time. Furthermore, as noted above, ARC is tied to a moving average revenue calculation, so any protection is temporary, acting more like a shock absorber to ease the transition to a new economic setting as opposed to a safety net.

The PLC program is based solely on national prices and reference rates, so every participant gets the same payment rate if payments occur. While that may make the PLC program seem less risky or variable than ARC, the payment does not compensate at all for the actual yield and thus revenue performance of the individual operation. PLC does act more like a safety net, protecting producers indefinitely as long as market prices linger at or below reference prices, but the net move with prices, providing little support if prices fluctuate around levels above the reference prices.

Even recognizing the limitations, it is obvious that the PLC and ARC are important parts of a producer’s risk management strategy and bottom line. It is just as important to remember that the bottom line is also affected by all of the other risk management decisions, including production, insurance, and marketing decisions that all contribute to a portfolio approach to risk management.

Endnote:

Updated information, detail, and analysis is available at [http://farmbill.unl.edu](http://farmbill.unl.edu)

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