

Agricultural Policy and Risk Management Brief

May 25, 2018

How much indemnity would North Carolina farmers lose without the Harvest Price Option in Revenue Protection Insurance?

A Retrospective Evaluation for North Carolina Corn, Soybeans, and Cotton

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One of the most popular crop insurance product available in the United States (US) is the Revenue Protection (RP) policy that includes a Harvest Price Option (HPO). The HPO gives farmers the chance to recalculate their revenue guarantee and indemnity payments using the harvest price (HP), if the HP is greater than projected price at planting (PP). Historically, the HPO mechanism has been justified based on the additional protection it provides for farmers who forward sell crops and who feed their crops to livestock and would need to buy grain at a higher price if there were losses (Zulauf et al., 2017). This “marketing” rationale views HPO as a replacement value feature when there is a yield loss and price increases from planting to harvest.

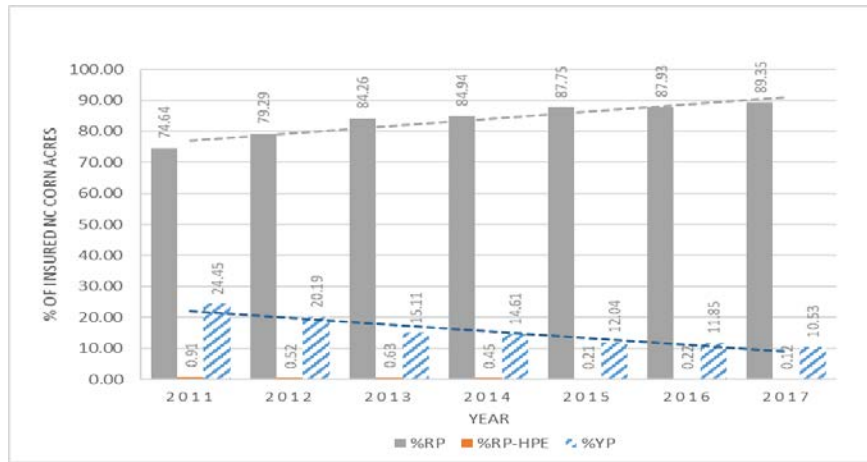
This HPO feature is arguably the main reason why RP is so popular with farmers nationwide, even though the premium one has to pay to get this coverage is greater than the premium required for the other individual-level crop insurance options available (i.e., compared to the RP with Harvest Price Exclusion (RP-HPE), where there is no HPO; and the yield-loss-triggered Yield Protection (YP) product). In North Carolina, close to 90% of insured corn, soybeans, and cotton acres with individual coverage in 2017 is protected through RP crop insurance with the HPO feature (See Figure 1.A to 1.C below). Note that RP insured share has been steadily increasing since 2011, while the insured share for YP has been decreasing (and RP-HPE uptake has been consistently low at less than 3.5%).

Despite the popularity of RP, and the HPO feature, there have been recent proposals to eliminate the HPO feature in crop insurance. Last November 2018, Senators Jeff Flake (R-AZ) and Jeanne Shaheen (D-NH) introduced a bill to eliminate the HPO. A companion bill was also introduced by Rep. John Duncan (R-TN) in the House. Former USDA Chief Economist, Joe Glauber, in an opinion piece for The Hill supported the proposed legislation to eliminate HPO (Glauber, 2017). These efforts to get rid of HPO stems from the escalating taxpayer cost of providing payments through the HPO feature. The Senators argue that about \$21 billion over ten years can be saved if HPO is eliminated.

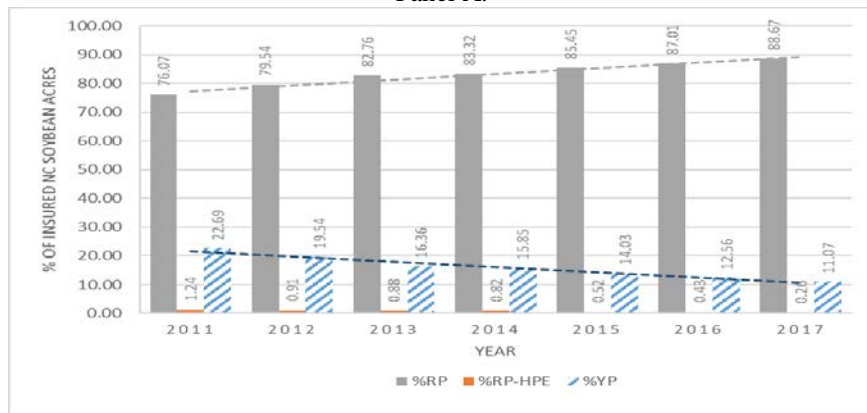
With these recent attempts to eliminate HPO, the purpose of this brief is to provide some background on the utilization of RP (with HPO) in North Carolina and provide a retrospective look at what indemnity payments in NC may have looked like had the HPO feature not been available. Note, however, that our retrospective analysis assumes that those who bought RP (with HPO) would have bought a YP insurance plan instead (i.e., the second most popular individual crop insurance policy). In this case, one can consider our indemnity reduction measures as an “upper end” estimate had there been no HPO.¹

One important characteristic of HPO is that the feature only activates when $HP > PP$ and that there is enough of a farm-level yield loss to trigger indemnity payment (Zulauf, 2017). Widespread, nationwide losses for a

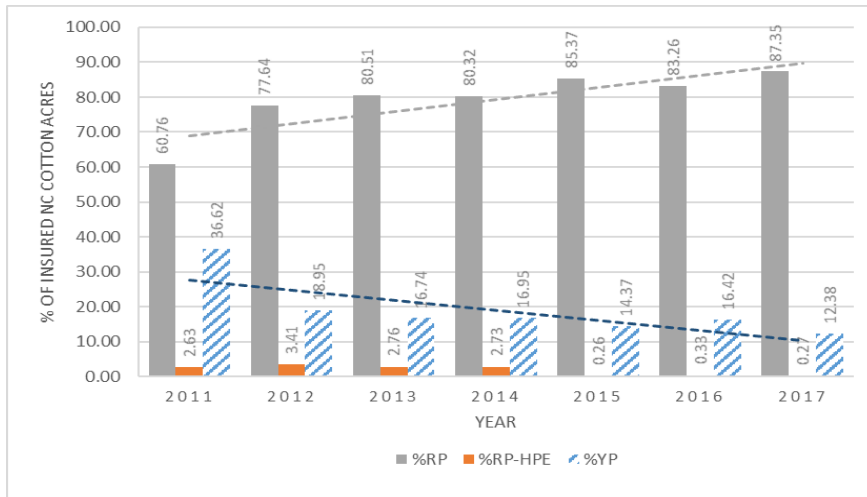
¹ It is an upper end estimate since we calculate actual revenue in this case using the PP rather than HP (as is used with the alternative RP-HPE product). This does not reduce the likelihood of triggering payments (as with the RP-HPE).



Panel A.



Panel B.



Panel C.

Figure 1. Share of Insured Acres in RP, RP-HPE, and YP Plans of Insurance in North Carolina for: Corn (Panel A), Soybeans (Panel B), and Cotton (Panel C), 2011-2017

crop typically drives the HP to be higher than the PP (as in the drought year of 2012, which affected a good chunk of total corn production area, and pushed up corn and soybean HPs).

Based on publicly available 2011-2017 data from the Risk Management Agency's (RMA's) Price Discovery tool, HP was greater than PP in only two of the seven years in the data (See Table 1 below), which is about a 28.5% incidence rate. For the three field crops with the largest acreage in NC (e.g., corn, soybeans, cotton), note that the largest percentage increase in prices (from planting to harvest) was observed in 2012 for corn and the lowest percentage increase was in 2013 for cotton. Zulauf et al. (2017), using price data from 1974 to 2016, indicate that HP was greater than PP in 37% of the years for corn, 42% of the years for soybeans, and 40% of the years for cotton. Moreover, Zulauf et al. (2017) reported that, in years HP was higher than PP, HP on average was higher by about 16% for corn, 19% for soybeans, and 21% for cotton. All these figures suggest that the HPO feature historically do not activate more than 50% of the time and that the HP increase also do not usually go above 50%.

Table 1. Harvest Prices (HP), Planting Prices (PP), and Percent Change from PP to HP, in Years where the RP Harvest Price Option is Triggered (i.e. HP > RP).

Crop/Year	Harvest Price	Planting Price	%Change
Corn (\$/bu)			
2011	6.94	5.93	17.03
2012	7.63	5.66	34.81
Soybeans (\$/bu)			
2012	12.27	14.48	18.01
2016	8.91	10.07	13.02
Cotton (\$/lb)			
2013	0.81	0.83	2.47
2016	0.62	0.69	11.29

To further assess the value of the HPO feature in NC, it is also important to get an estimate of the indemnity that would likely have not been paid had the HPO feature not been available in the RP insurance product. Using the RMA's Summary of Business data for NC from 2011-2017, I was able to calculate the potential percentage reduction in indemnities for NC corn, soybeans, and cotton farmers had HPO not existed (See Figure 2).² For example, in 2012, corn farmers in NC would have received about 25% less indemnities if producers that bought RP that year purchased the next popular product (YP without the HPO). Moreover, NC soybean farmers would on average lost 15% of the indemnity payments in 2012 had HPO not been available (and they substituted YP). For cotton, the estimated indemnity reduction is smaller at 2.4% in 2013 and 10% in 2016.

Just to provide a little bit of context on these estimated percentage reductions, the total indemnities for RP with HPO in 2012 was about \$3.5 million in NC at the 75% coverage level (i.e., the most popular coverage level choice in NC). If instead NC soybean farmers had insured using YP, the total indemnities would have only been around \$3 million (i.e., a half a million shortfall). For NC corn, the estimated reduction in 2012 would have been about \$1.2 million. These numbers may not look astronomically large, but in a yield loss year these reduced payment magnitudes may make a difference between positive or negative net incomes at the individual farm level.

² The estimated indemnity reductions were calculated by using the liability and indemnity measures from the Summary of Business data (in NC). The historical average yield (to calculate the guarantee) was backed out from the liability data and the actual yield (for each year) was backed out of the indemnity data. Information on coverage levels, harvest prices, and insured acres were used in this process. And once the historical average yield and actual yield for each year is calculated, new guarantees and payments can be calculated using PP rather than HP. Detailed calculation procedures available from the author upon request.

In conclusion, this brief illustrates the potential indemnity amounts that would have not been paid out to NC corn, soybeans, and cotton farmers had the HPO feature not been in place for past years where HP > PP. It is important to note that analysis here is retrospective and only serves as a rough guide for what may happen in the future if there were no HPO. The actual future impact would largely depend on how producers shift their insurance purchases if HPO is not available (and of course the prices and yields that would be realized in the future). Nevertheless, the simple analysis here shows that risk protection from insurance for NC corn, soybeans, and cotton farmers would likely erode if HPO is not available. And if this crop insurance feature is important to your particular operation, you should let your legislators know about it (especially in this Farm Bill year).

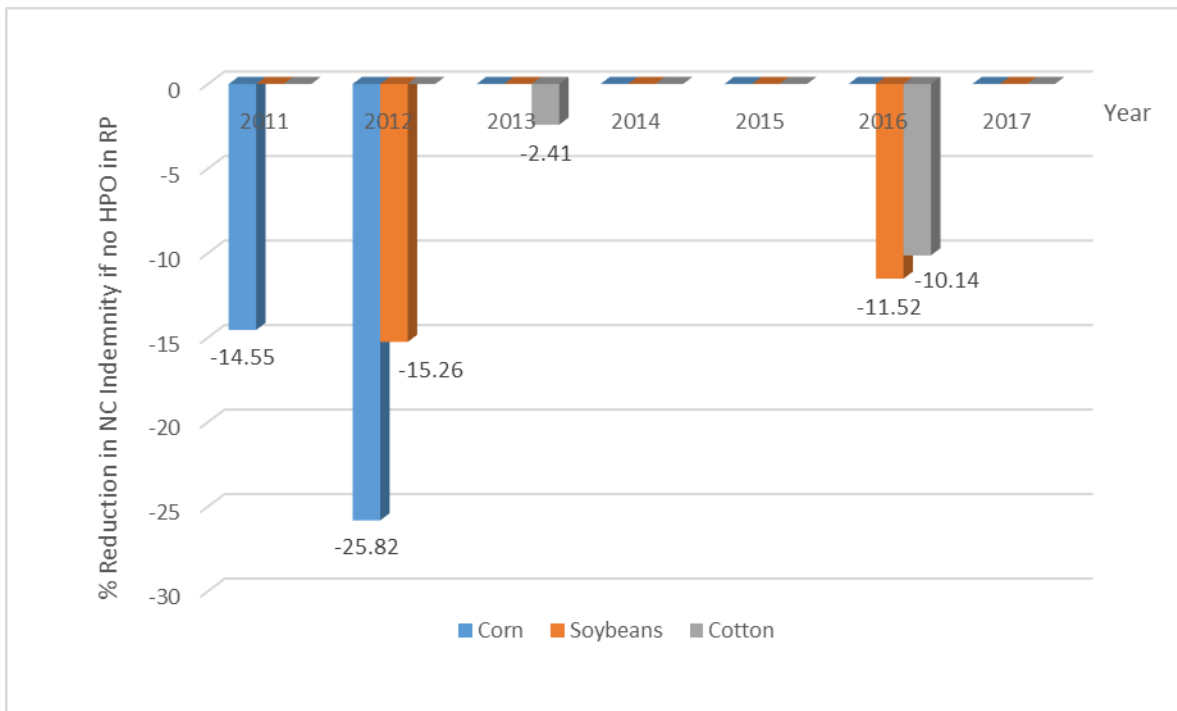


Figure 2. Percentage Reduction in Total North Carolina Indemnities for RP had the HPO not been included, 2011-2017

REFERENCES:

Glauber, J. "Reform our crop insurance program to reduce the burden on taxpayers." *The Hill*. (Nov, 8, 2017). Accessed from: <http://thehill.com/opinion/finance/359166-reform-our-crop-insurance-program-to-reduce-the-burden-on-taxpayers>

Zulauf, C., G. Schnitkey, J. Coppess, and N. Paulson. "Harvest Price Option: Historical Assessment." *farmdoc daily*. (7):197, Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign, October 26, 2017.

FOR MORE INFORMATION (Additional Links):

Schnitkey, G. "Overwhelming Use of Harvest Price Option Crop Insurances." *farmdoc daily* (8):83, Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign, May 8, 2018.

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Note: This publication can be downloaded at the "Crop Insurance" resources website of the Department of Agricultural and Resource Economics at North Carolina State University:
<https://cals.ncsu.edu/are-extension/business-planning-and-operations/crop-insurance/>
