The Actual Production History Yield Exclusion:
Overview of Premium Rating

Background:

Section 11009 of the 2014 Farm Bill, or Section 508(g)(4)(C) of the Federal Crop Insurance Act (the Act), directs the Risk Management Agency (RMA) to allow producers the option to exclude any recorded or appraised yield for any crop year in which the county yield is at least 50 percent below the simple average during the previous 10 consecutive crop years.

- A crop year determined eligible for exclusion in a county will also be eligible for exclusion in any contiguous county by any producer.
- Separate determinations will be made for irrigated and non-irrigated acreage.

Section 508(g)(4)(D) of the Act provides that premium shall be adjusted to reflect the risk associated with the exclusion of yield history. Furthermore, the election to exclude yield history does not circumvent Section 508(d)'s actuarial sufficiency requirement.

Premium Rating Approach

The Actual Production History (APH) Yield Exclusion (YE) may allow producers to increase their APH beyond what would have been obtained under current yield measures (i.e. 60 percent transitional yield (T-yield) substitution). An increase in APH results in a higher insurance guarantee, and greater indemnity payments, than would otherwise have occurred. This requires an increase in the premium rate charged to producers using YE in order to account for the increased risk of loss.

The following table provides an illustrative example of how YE can affect APH. It is based on a corn producer. The years eligible for exclusion include 2011 and 2012. The producer has yields reported for each year since 2005, allowing both 2011 and 2012 to be excluded. Approved yields are provided for the simple average APH, APH with 60 percent T-yield substitution, and APH with excluded yields.

Year	County T-yield	60% of T-yield	Grower APH	APH w/60% Substitution	APH w/ Excluded Yields
2005	96	58	110	110	110
2006	104	62	100	100	100
2007	104	62	88	88	88
2008	104	62	118	118	118
2009	106	64	111	111	111
2010	106	64	110	110	110
2011	119	71	55	71	Excluded
2012	119	71	20	71	Excluded
2013	119	71	57	71	71
2014	119	71	153	153	153
Approved Yield			92	100	108

The simple unadjusted average of yields is 92 bushels per acre. Using the currently-available 60 percent yield substitution, this amount increases to 100 bushels per acre. The YE will enable the producer to increase his or her APH beyond what can be currently obtained – up to 108 bushels per acre.

The effect of YE on the producer's insurance guarantee across different coverage levels is shown in Table 1. In this example, YE increases the insurance guarantee by approximately 5 percent, or roughly equal to a one-step increase in coverage level. For instance, the insurance guarantee for 65 percent coverage, without using YE, is 65 bushels per acre. This happens to be about the same as the insurance guarantee for 60 percent coverage, but with YE. This shows that 60 percent coverage with YE has an *effective coverage level* of 65 percent.

Table 2 illustrates the approach used to determine premium rates for YE. The approach is based on the principle that a similar yield guarantee has a similar risk of loss, and so should have a similar premium rate. For instance, the premium rate charged for 60 percent coverage with YE (about $38) is nearly the same as the premium rate charged for 65 percent coverage without YE – because they both have nearly the same insurance guarantee (rounding to 65 bushels per acre in each case). Although the two yields round to the same number (65 bushels), they are slightly different, which is why the corresponding premium rates are slightly different.

To the extent that YE increases a producer's effective coverage level, additional premium is charged in the same manner that RMA currently charges for higher coverage levels. Given this, actuarial soundness is not negatively impacted by the implementation of YE. This premium rating approach is currently being used for the APH Trend Adjustment (TA) – a type of yield adjustment that impacts yield guarantees in a similar manner as YE. TA is a privately-submitted insurance product that underwent external review during the Federal Crop Insurance Corporation Board approval process.

One other case to be addressed is when a grower selects a high coverage level *and* selects YE. For example, if the grower in Table 1, selects 85 percent coverage and YE, he or she would have an insurance guarantee of 92 bushels per acre, which translates into an *effective coverage level* of about 92 percent. However, RMA does not publish premium rates above 85 percent. What will occur instead is that RMA will extrapolate, based on data from the lower coverage levels, how much premium should be charged for a coverage level of 92 percent. In Table 2 this results in a premium rate of nearly $105, well above the premium rate for 85 percent coverage without YE.

As with any extrapolation, the potential error grows as the input value (i.e. effective coverage level) becomes more extreme and departs from actual historical experience. One consequence of this is that premium rates can grow very quickly, especially for effective coverage levels that exceed 100 percent. As new data on effective coverage levels in excess of 85 percent become available each year, this extrapolation will be refined.

Table 1: APH Guarantee		
	Without YE (APH=100)	With YE (APH=108)
Cov. Level 50%	50	54
55%	55	59
60%	60	65
65%	65	70
70%	70	76
75%	75	81
80%	80	86
85%	85	92

Table 2: Premium Per Acre		
	Without YE	With YE
Cov. Level 50%	$19.13	$23.19
55%	$24.26	$29.39
60%	$30.58	$38.06
65%	$38.18	$48.69
70%	$48.55	$61.50
75%	$59.53	$73.87
80%	$71.42	$87.49
85%	$84.33	$104.68

YE and Yield-Based Premium Adjustments

One component of premium rates is commonly referred to as a 'yield adjustment'. The yield adjustment is based on a producer simple average yield, or 'rate yield', as compared to the average yield for the county (reference yield). To the extent that a producer's rate yield is above the reference yield for the county, the premium rate decreases, and vice-versa. This reflects the fact that more productive producers tend to have a lower risk of loss.

The rate yield will continue to be based on all actual yields, regardless of whether some of those yields may have been excluded from a producer's APH. This maintains a more accurate measure of a producer's risk relative to other producers in the county. If yields from only the good years were used, the yield adjustment would not be as accurate. The yield performance of producers in bad years is at least as informative about their risk as their performance in good years and should not be excluded from this process. Therefore, YE leaves the yield adjustment unaffected.