

**United States
Department of
Agriculture**



**Federal Crop
Insurance
Corporation**



**Risk
Management
Agency**

**Product
Administration
and Standards
Division**

**FCIC-20220
(12-2017)**

TREND- ADJUSTED ACTUAL PRODUCTION HISTORY STANDARDS HANDBOOK

2018 and Succeeding Crop Years

**RISK MANAGEMENT AGENCY
KANSAS CITY, MO 64133**

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| TITLE: TREND-ADJUSTED ACTUAL PRODUCTION HISTORY STANDARDS HANDBOOK | NUMBER: FCIC-20220 |
| EFFECTIVE DATE: Effective Upon Approval and Until Obsoleted | ISSUE DATE: December 19, 2017 |
| SUJECT: Provides the procedures to administer the Trend-Adjusted Actual Production History Program | OPI: PRODUCT ADMINISTRATION AND STANDARDS DIVISON |
| | APPROVED: <i>/s/ Richard Flournoy</i> Deputy Administrator For Product Management |

REASON FOR ISSUANCE

The FCIC 20220 Trend-Adjusted APH Standards Handbook is being issued to provide procedures to administer the Trend-Adjusted APH program for the 2018 and succeeding crop years crop year for those crops with a November 30, 2017, or later contract change date.

1. Para. 3. Removed procedure that stated cups do not apply when TA is cancelled by the insured or terminated by RMA in Para. 3E and 3F.
2. Para. 4. Changed Yield Limitations to Yield Floors in Para. 4A and added Yield Cups (YC) to Para. 4B(3).
3. Para. 22. Added exception for when YC is elected and cup is not opted out of for an APH database to Step 8 for calculating approved APH yields.
4. Exh. 7. Added example for approved APH yield calculation with YA, YE, TA and YC elected.

TREND-ADJUSTED ACTUAL PRODUCTION HISTORY STANDARDS HANDBOOK

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PART 1 OVERVIEW AND GENERAL REQUIREMENTS

1 Overview

Trend-Adjusted APH, if elected, adjusts yields in APH databases to reflect increases in yields through time in the county. Trend adjustments are made on each eligible yield within a qualifying APH database based on the county's historical yield trend. The actuarial documents provide the historical yield trend. The approved APH yield is calculated using trend-adjusted yields and any other applicable yields within the APH database.

2 Availability

See actuarial documents for the applicable county/crop/P/Ts available for Trend-Adjusted APH.

3 Eligibility

A. Insureds' Eligibility

An insured must be in an eligible county and have at least one APH database with an actual yield in one of the four most recent crop years for the crop/county.

B. Election

To be applicable for the current crop year, the insured must elect Trend-Adjusted APH:

- (1) By the applicable SCD;
- (2) On a crop/county basis; and
- (3) On an application or policy change form by including the option code of "TA".

C. Coverage Levels

Trend-Adjusted APH is available for additional coverage level policies. Trend-Adjusted APH is not available for CAT policies.

D. Continuous

Trend-Adjusted APH is a continuous election that remains in effect unless:

- (1) Cancelled in writing on or before the applicable cancellation date for the effective crop year; or
- (2) Terminated by the FCIC.

3 Eligibility (Continued)

E. Cancellation of Trend-Adjusted APH by Insured

When an insured cancels Trend-Adjusted APH:

- (1) Trend adjustments to any yield will no longer apply;
- (2) If SA T-Yields were calculated from approved APH yields containing actual yields with trend adjustments, the SA T-Yields must be replaced with the variable T-Yield; and
- (3) Yield substitution and yield floors may apply, when elected, and as applicable.

F. Termination of Trend-Adjusted APH by FCIC

If Trend-Adjusted APH is terminated by FCIC:

- (1) Trend adjustments to any yield will no longer apply;
- (2) If SA T-Yields were calculated from approved APH yields containing actual yields with trend adjustments, SA T-Yields must be recalculated based on the current year's approved APH yields without trend adjustments; and
- (3) Yield substitution and yield floors may apply, when elected, and as applicable.

G. Transfers

When the crop's policy is transferred to a different AIP, Trend-Adjusted APH will be considered cancelled at the time the crop policy is cancelled. If the crop policy is transferred to a different AIP, the insured may elect Trend-Adjusted APH with the assuming AIP on or before the SCD.

4 Applicability of Yield Floors, Yield Reductions, YA, YE and YC

A. Yield Floors

If Trend-Adjusted APH is elected for a crop/county, yield floors do not apply regardless of whether or not an APH database qualifies for trend adjustment.

Exception: If Trend-Adjusted APH is elected for a crop/county and the actuarial documents do not authorize a yield trend for a specific P/T, yield floors are applicable for those APH databases, if they otherwise qualify.

B. Yield Reductions

Procedures concerning yield reductions contained in the CIH Part 15 Section 5 are unaffected when Trend–Adjusted APH is elected.

- (1) Actual yields that have been reduced due to excessive yields are not eligible for trend adjustment. See CIH Para. 1573 for excessive actual yield procedures.
- (2) Reductions of approved APH yields due to inconsistent approved APH yields or different production methods will apply even when yields within the APH database have been adjusted for trend. See CIH Para. 1574 and 1575 for reductions due to inconsistent approved APH yields or different production methods.

C. Yield Adjustments (YA) (Substitutions)

Yield substitutions apply when elected by the insured. Yield substitutions are based on 60 percent of the applicable T-Yield before adjustment for yield trend, as applicable.

Exception: For BFRs, yield substitutions are based on 80 percent of the applicable T-Yield.

D. Yield Exclusions (YE)

YE applies when elected by the insured. When an actual yield in an eligible crop year is excluded, an excluded actual yield is not considered for TA purposes when determining:

- (1) whether an APH database qualifies for TA by having at least an actual yield in one of the four most recent crop years, see Para. 11;
- (2) the applicable TA percentages, see Para. 21B; and
- (3) the highest actual yield in the APH database with one year of trend adjustment applied for the TA limitation of the approved APH yield for the APH database (Para. 21H).

E. Yield Cups (YC)

YC applies when elected by the insured. Application of YA, YE, or TA on an actual yield for an eligible crop year within an APH database will not affect the calculation of the approved APH yield if a yield cup applies to the APH database.

5-10 (Reserved)

PART 2 APPLICABILITY OF TREND-ADJUSTED APH

11 APH Database Qualifications

- (1) The APH database must have at least an actual yield in one of the four most recent crop years.
- (2) If the APH database contains fewer than four actual yields in the 12 most recent crop years the trend adjustment is reduced. See Part 3 Para. 21B for the applicable percentage of reduction.
- (3) For the purposes of Trend-Adjusted APH, yields identified with the following yield descriptors are considered actuals: A, AY, AX, BF, DA, FA, J, NA, NW, P, PA, PW, and WY, see CIH Exh. 15.

12 Yields Eligible for Trend Adjustment

Yields contained in a qualifying APH database identified with the following yield descriptors are eligible for trend adjustment: A, AY, BF, DA, FA, NA, NW, PA, PW, and WY, see CIH Exh. 15.

13 Master Yields (MY)

If available for the crop and elected by the insured, MYs are eligible for Trend-Adjusted APH. Trend adjustments will be made to the actual yields in the MY summary APH database.

14 Yield Not Eligible for Trend Adjustment

A. Added Land and New Crop/Practice/Type (P/T)

- (1) For Added land and new crop/P/T APH databases using SA T-Yields identified with an “L”, “IL”, or “C” yield descriptors, trend adjustments do not apply. Trend adjustments only apply to actual yields.
- (2) While added land and new crop/P/T procedures (CIH Part 17, Sections 9 and 10) are not affected by the election of TA, the calculation for SA T-Yields is changed when an approved APH yield includes trend adjustment. SA T-Yields will continue to be determined based on the crop year the APH database is established, by crop/P/T/TMA. However, instead of using the approved APH yield from each of the insured’s existing APH databases for the policy that have at least one year of actual/assigned yields, by crop/P/T/TMA to calculate the SA T-Yield, use:
 - (a) the adjusted yield for APH databases with yields that have trend adjustment with at least one actual/assigned yield; and
 - (b) the approved APH yield for APH databases where actual yields have not been trended with at least one actual/assigned yield.

All other calculations and requirements for use of the SA T-Yield remain unchanged.

14 Yield Not Eligible for Trend Adjustment (Continued)

B. New Producer

Trend-adjustment will not apply to new producer T-Yields. New producer T-Yields (identified with an “T” or “IL” yield descriptor) will not be adjusted for trend. However, actual yields, when qualified, may be trended even when contained in an APH database with new producer T-Yields.

C. North Dakota Personal Transitional Yield (PTY)

For APH databases using the PTY (identified with the “K” yield indicator), T-Yields based on the PTY will not be adjusted for trend. Trend-Adjusted APH does not change the PTY calculation. The PTY is calculated by dividing total production by the total acreage for a crop/P/T/TMA for each year, with the sum of all years divided by the number of years. Therefore, actual yields are not trended in the PTY calculation. However, actual yields within the APH database may be trend adjusted.

15 Written Agreements

Trend-Adjusted APH will not apply to any APH databases insured under a written agreement, with the following exceptions:

- (1) High Risk Land Written Agreement (HR); and
- (2) Written Unit Agreement (UA).

16 Production Reporting

Selecting Trend-Adjusted APH requires no additional production reporting by the insured.

17-20 (Reserved)

PART 3 CALCULATIONS

21 Trend-Adjusted APH Calculation

The following subparagraphs explain the process and calculations of the Trend-Adjusted APH program.

A. Crop/County Trend Adjustment

Each eligible crop/county/P/T will have a trend adjustment established in the actuarial documents.

B. Applicable Trend Adjustment Percentages

Each eligible yield in a qualifying APH database will be adjusted by the applicable trend adjustment percentage determined by the number of actual yields in the previous 12 crop years in the APH database, see Part 2 Para. 11 above for applicable actual yields. The applicable trend adjustment percentages are as follows:

- (1) One actual yield = 25 percent of trend adjustment;
- (2) Two actual yields = 50 percent of trend adjustment;
- (3) Three actual yields = 75 percent of trend adjustment; or
- (4) Four or more actual yields = 100 percent of trend adjustment.

C. Trend Adjustment for Age of Eligible Yield

The trend adjustment is applied to each eligible yield in a qualifying APH database and will be adjusted upward by the trend adjustment multiplied by the age of the eligible yield. The age of the eligible yield is determined by subtracting the yield year from the current crop year.

Example: The crop year is 2018, the trend adjustment is 2 in the actuarial documents, and the insured has eligible yields in 2017, 2016, 2015 and 2014 crop years. Below are the trend adjustments to be applied for each specific yield year:

- (1) 2017 $(2018-2017) * 2$ bushels = 2,
- (2) 2016 $(2018-2016) * 2$ bushels = 4,
- (3) 2015 $(2018-2015) * 2$ bushels = 6, and
- (4) 2014 $(2018-2014) * 2$ bushels = 8.

D. Applying Trend Adjustment

The trend adjustment, adjusted by the applicable trend adjustment percentage, will be added to each eligible yield, see Part 2 Para. 12 in each qualifying APH database. This is a calculation only, the yields within the APH database remain unchanged.

E. Calculation of Approved APH Yield

The calculation of the approved APH yield is unchanged, except trend adjustments are applied to eligible yields before averaging.

F. Calculation of the Rate Yield

The rate yield is equal to the average yield when Trend-Adjusted APH applies to an APH database with the following exceptions:

- (1) the approved APH yield is reduced due to Inconsistent Approved APH Yields, see CIH Para. 1574 for Inconsistent Approved APH Yield determination procedures. In these situations, the rate yield will be equal to the approved APH yield; and
- (2) the approved APH yield is reduced due to Different Production Methods being carried out for the current crop year which results in lower actual yields, see CIH Para. 1575 for Different Production Method determination procedures. In these situations, the rate yield will be equal to the approved APH Yield.

G. Calculation of Adjusted Yield (APH Yield without Trend Adjustment)

AIPs must also calculate the adjusted yield which is the APH yield without Trend Adjustment and is calculated by the average of the yields in the APH database:

- (1) without trend adjustment;
- (2) without yield limitations (cups and yield floors);
- (3) prior to any yield exclusions; and
- (4) with yield substitutions, if YA has been elected by the insured.

The adjusted yield is not the same as the rate yield. The increase in coverage resulting from the Trend-Adjusted APH yield relative to the APH yield without Trend Adjustment (Adjusted Yield) is used to determine the appropriate premium rate.

Exception: When yield reductions apply to the APH database the Adjusted Yield must equal the approved APH yield.

H. Trend Adjustment Limitation of the Approved APH Yield

The approved APH yield for the APH database is limited to the highest actual yield in the APH database with 1 year of trend adjustment applied.

Example: The highest actual yield within the APH database is 150 bushels and the trend adjustment is 2. Therefore, the trend adjustment limitation is 152 (150+2). The average of all yields in the APH database is 154; however, the approved APH yield is limited to 152 due to the trend adjustment limitation.

21 Trend-Adjusted APH Calculation (cont.)

H. Trend Adjustment Limitation of the Approved APH Yield (cont.)

Exception: The approved APH yield will not be less than the adjusted yield, see G above.

Example: The applicable T-Yield is 100 bushels and the trend adjustment factor is 2. The APH database has only one actual yield equal to 10 bushels, Therefore, the trend adjustment limitation is 12 (10+2). Due to this exception, the approved APH yield would be 90 bushels (100T+100T+100T+10A/4 years = 90), rather than being limited to 12 bushels due to the trend adjustment limitation.

22 Steps for Calculating the Approved APH Yield When Trend-Adjusted APH Elected

Follow the steps below to calculate the approved APH yield for an APH database when Trend-Adjusted APH elected.

- Step 1:** Determine if the APH database has at least an actual yield in one of the four most recent crop years to determine if the APH database qualifies for trend adjustment. If not, APH database is not eligible for trend adjustment. If there is, continue to next step;
- Step 2:** Determine the number of actual yields in the most recent 12 crop years to determine the trend adjustment percentage for the APH database, see 21B above;
- Step 3:** Multiply the trend adjustment contained in the actuarial documents by the trend adjustment percentage determined in Step 2. Round result to four decimal places;
- Step 4:** Determine age of each eligible yield, see 21C above;
- Step 5:** Multiply the age of each eligible yield by the trend adjustment, adjusted by applicable trend adjustment percentage determined in Step 3. Round result to four decimal places;
- Step 6:** Add the result of step 5 to each eligible yield to obtain the trend adjustment yield for each crop year, see 21D above. Round result to whole number;
- Step 7:** Calculate the approved APH yield by summing trend-adjusted yields and all other yields within the APH database and dividing by the number of yields in the APH database, see 21E; and

22 Steps for Calculating the Approved APH Yield When Trend-Adjusted APH Elected (cont.)

Step 8: Compare the approved APH yield to the trend adjustment limitation, see 21H above. If the approved APH yield is less than the trend adjustment limitation, then the final approved APH yield equals the Trend-Adjusted APH yield from step 7. If the yield calculated in step 7 is greater than the trend adjustment limitation, then the final approved APH yield equals the trend adjustment limitation.

Exception: If insured elected Yield Cup option, does not opt-out of the cup applying to an APH database and the APH database qualifies for the cup in accordance with CIH Part 15 Section 5, then the approved APH yield is the prior year's approved APH yield times 0.9.

Step 9: Calculate the adjusted yield, see 21G above.

23-30 (Reserved)

Acronyms and Abbreviations

The following table provides the acronyms and abbreviations used in this handbook.

| Approved Acronyms/Abbreviations | Term |
|------------------------------------|------------------------------------|
| AIP | Approved Insurance Provider |
| APH | Actual Production History |
| BFR | Beginning Farmer and Rancher |
| CAT | Catastrophic Risk Protection |
| CIH | Crop Insurance Handbook |
| FCIC | Federal Crop Insurance Corporation |
| PASS | Policy Acceptance Storage System |
| PTY | Personal Transitional Yield |
| P/T | Practice/Type |
| RMA | Risk Management Agency |
| SA T-Yield | Simple Average Transitional-Yield |
| SCD | Sales Closing Date |
| T-Yield | Transitional-Yield |

(Reserved)

(Reserved)

Example Trend-Adjusted APH Databases

Insured has produced corn in a single basic unit (BU) APH database since 2014. The county T-Yield is 166 bushels. For 2018, the insured has elected YA (60 percent of T-Yield = 100 bushels); however, it does not apply to any of the actual yields reported. The insured has also elected Trend-Adjusted APH. The trend adjustment for corn in the insured's county is 2. The insured provides an acceptable production report in 2018 and APH database is updated.

| Original APH Database | | | | |
|-----------------------|-------|----------------|-------------|----------------|
| 2018 | | Corn (0041) | NI (003) | Grain (016) |
| Unit # 0001-0000 BU | | | | |
| Year | Prod. | Acres | | Yield |
| 2014 | 22500 | 150 | A | 150 |
| 2015 | 19300 | 100 | A | 193 |
| 2016 | 26400 | 150 | A | 176 |
| 2017 | 19700 | 100 | A | 197 |
| T-Yield=166 | | Approved APH | | 179 |
| | | Average Yield | | 179 |
| | | Rate Yield | | 179 |

To calculate the approved APH yield using trend adjustment:

- Step 1:** The APH database has at least an actual yield in one of the four most recent crop years, qualifying for trend adjustment.
- Step 2:** The APH database has four actual yields in the most recent 12 crop years; therefore, the applicable trend adjustment percentage is 100 percent.
- Step 3:** $1.00 * 2 = 2$
- Step 4:**
- (a) 2017: $2018 - 2017 = 1$
 - (b) 2016: $2018 - 2016 = 2$
 - (c) 2015: $2018 - 2015 = 3$
 - (d) 2014: $2018 - 2014 = 4$
- Step 5:**
- (a) 2017: $1 * 2 = 2$
 - (b) 2016: $2 * 2 = 4$
 - (c) 2015: $3 * 2 = 6$
 - (d) 2014: $4 * 2 = 8$
- Step 6:**
- (a) 2017: $197 + 2 = 199$
 - (b) 2016: $176 + 4 = 180$
 - (c) 2015: $193 + 6 = 199$
 - (d) 2014: $150 + 8 = 158$
- Step 7:** $(199 + 180 + 199 + 158) / 4 = 184$

Example Trend-Adjusted APH Databases (cont.)

Step 8: $184 < (197 + 2 = 199)$. Approved APH yield = 184

Step 9: $(197 + 176 + 193 + 150) / 4 = 179$. APH Yield without Trend Adjustment = 179

Resulting APH database:

| 2018 | Corn (0041) | NI (003) | Grain (016) |
|----------------------------|------------------------|----------------------|------------------------|
| Unit # 0001-0000 BU | | | |
| <u>Year</u> | <u>Prod.</u> | <u>Acres</u> | <u>Yield</u> |
| 2014 | 22500 | 150 | A 150 |
| 2015 | 19300 | 100 | A 193 |
| 2016 | 26400 | 150 | A 176 |
| 2017 | 19700 | 100 | A 197 |
| T-Yield=166 | | Approved APH | 184 |
| | | Average Yield | 179 |
| | | Rate Yield | 179 |

Example APH Databases with Different Percentage of Trend-Adjusted Factor

The insured has elected Trend-Adjusted APH for corn in the county. The insured has five optional units (OU). The county T-Yield is 130 bushels (60 percent of the T-Yield = 78) and the insured has elected yield substitution (YA). The trend adjustment from the actuarial documents for the crop/county is 2 bushels a year. The five APH databases below are prior to any trend adjustment.

Original APH Databases

| 2018 | Corn (0041) | NI (003) | Grain (016) | |
|---------------------|----------------|---------------|----------------|-------|
| Unit # 0001-0001 OU | | | | |
| Year | Production | Acres | | Yield |
| 2008 | 19950 | 150 | A | 133 |
| 2009 | 14500 | 100 | A | 145 |
| 2010 | 25050 | 150 | A | 167 |
| 2011 | 12200 | 100 | A | 122 |
| 2012 | 23550 | 150 | A | 157 |
| 2013 | 16500 | 100 | A | 165 |
| 2014 | 25650 | 150 | A | 171 |
| 2015 | 19300 | 100 | A | 193 |
| 2016 | 26400 | 150 | A | 176 |
| 2017 | 19700 | 100 | A | 197 |
| T-Yield = 130 | | Approved APH | | 163 |
| | | Average Yield | | 163 |
| | | Rate Yield | | 163 |

| 2018 | Corn (0041) | NI (003) | Grain (016) | |
|---------------------|----------------|---------------|----------------|-------|
| Unit # 0001-0002 OU | | | | |
| Year | Production | Acres | | Yield |
| 2009 | | | T | 130 |
| 2010 | | | Z | |
| 2011 | | | Z | |
| 2012 | 11600 | 80 | A | 145 |
| 2013 | | | Z | |
| 2014 | | | Z | |
| 2015 | 12160 | 80 | A | 152 |
| 2016 | | | Z | |
| 2017 | 11840 | 80 | A | 148 |
| T-Yield = 130 | | Approved APH | | 144 |
| | | Average Yield | | 144 |
| | | Rate Yield | | 144 |

| 2018 | Corn (0041) | NI (003) | Grain (016) | |
|---------------------|----------------|---------------|----------------|-------|
| Unit # 0001-0003 OU | | | | |
| Year | Production | Acres | | Yield |
| 1999 | 0 | 200 | A | 0 |
| 2002 | 27600 | 200 | A | 138 |
| 2004 | 29400 | 200 | A | 147 |
| 2011 | | | Z | |
| 2012 | | | Z | |
| 2013 | | | Z | |
| 2014 | 40200 | 200 | A | 201 |
| 2015 | | | Z | |
| 2016 | | | Z | |
| 2017 | 33400 | 200 | A | 167 |
| T-Yield = 130 | | Approved APH | | 146 |
| | | Average Yield | | 131 |
| | | Rate Yield | | 131 |

| 2018 | Corn (0041) | NI (003) | Grain (016) | |
|---------------------|----------------|---------------|----------------|-------|
| Unit # 0001-0004 OU | | | | |
| Year | Production | Acres | | Yield |
| 2014 | | | T | 130 |
| 2015 | | | T | 130 |
| 2016 | | | T | 130 |
| 2017 | 5840 | 40 | A | 146 |
| T-Yield = 130 | | Approved APH | | 134 |
| | | Average Yield | | 134 |
| | | Rate Yield | | 134 |

Example APH Databases with Different Percentage of Trend-Adjusted Factor (cont.)

| Original APH Databases (cont.) | | | | |
|--------------------------------|-------------------|---------------|----------------|--------------|
| 2018 | Corn (0041) | NI (003) | Grain (016) | |
| Unit # 0001-0005 OU | | | | |
| <u>Year</u> | <u>Production</u> | <u>Acres</u> | | <u>Yield</u> |
| 2012 | | | L | 154 |
| 2013 | | | L | 154 |
| 2014 | | | L | 154 |
| 2015 | | | L | 154 |
| 2016 | | | Z | |
| 2017 | | | Z | |
| T-Yield = 154 | | Approved APH | | 154 |
| | | Average Yield | | 154 |
| | | Rate Yield | | 154 |

A. Example of APH database with Full Trend Adjustment

Step 1: The APH database for 0001-0001 has at least an actual yield in one of the four most recent crop years, qualifying for trend adjustment.

Step 2: The APH database has 10 actual yields in the most recent 12 crop years; therefore, the applicable trend adjustment percentage is 100 percent.

Step 3: $1.00 * 2 = 2$

Step 4:

- (a) 2017: $2018 - 2017 = 1$
- (b) 2016: $2018 - 2016 = 2$
- (c) 2015: $2018 - 2015 = 3$
- (d) 2014: $2018 - 2014 = 4$
- (e) 2013: $2018 - 2013 = 5$
- (f) 2012: $2018 - 2012 = 6$
- (g) 2011: $2018 - 2011 = 7$
- (h) 2010: $2018 - 2010 = 8$
- (i) 2009: $2018 - 2009 = 9$
- (j) 2008: $2018 - 2008 = 10$

Step 5:

- (a) 2017: $1 * 2 = 2$
- (b) 2016: $2 * 2 = 4$
- (c) 2015: $3 * 2 = 6$
- (d) 2014: $4 * 2 = 8$
- (e) 2013: $5 * 2 = 10$
- (f) 2012: $6 * 2 = 12$
- (g) 2011: $7 * 2 = 14$
- (h) 2010: $8 * 2 = 16$

Example APH Databases with Different Percentage of Trend-Adjusted Factor (cont.)

A. Example of APH database with Full Trend Adjustment (cont.)
Step 5: (cont.)

- (i) 2009: $9 * 2 = 18$
 (j) 2008: $10 * 2 = 20$

- Step 6:** (a) 2017: $197 + 2 = 199$
 (b) 2016: $176 + 4 = 180$
 (c) 2015: $193 + 6 = 199$
 (d) 2014: $171 + 8 = 179$
 (e) 2013: $165 + 10 = 175$
 (f) 2012: $157 + 12 = 169$
 (g) 2011: $122 + 14 = 136$
 (h) 2010: $167 + 16 = 183$
 (i) 2009: $145 + 18 = 163$
 (j) 2008: $133 + 20 = 153$

Step 7: $(199 + 180 + 199 + 179 + 175 + 169 + 136 + 183 + 163 + 153) / 10 = 174$

Step 8: $174 < (197 + 2 = 199)$. Approved APH yield = 174

Step 9: $(197 + 176 + 193 + 171 + 165 + 157 + 122 + 167 + 145 + 133) / 10 = 163$
 APH Yield without Trend Adjustment = 163.

Resulting APH Database

| 2018 | Corn (0041) | NI (003) | Grain (016) |
|----------------------------|-------------------|----------------------|----------------|
| Unit # 0001-0001 OU | | | |
| <u>Year</u> | <u>Production</u> | <u>Acres</u> | <u>Yield</u> |
| 2008 | 19950 | 150 | A 133 |
| 2009 | 14500 | 100 | A 145 |
| 2010 | 25050 | 150 | A 167 |
| 2011 | 12200 | 100 | A 122 |
| 2012 | 23550 | 150 | A 157 |
| 2013 | 16500 | 100 | A 165 |
| 2014 | 25650 | 150 | A 171 |
| 2015 | 19300 | 100 | A 193 |
| 2016 | 26400 | 150 | A 176 |
| 2017 | 19700 | 100 | A 197 |
| T-Yield = 130 | | Approved APH | 174 |
| | | Average Yield | 163 |
| | | Rate Yield | 163 |

Example APH Databases with Different Percentage of Trend-Adjusted Factor (cont.)

B. Example of APH database with 75 percent of Trend Adjustment

- Step 1:** The APH database for 0001-0002 has at least an actual yield in one of the four most recent crop years, qualifying for trend adjustment.
- Step 2:** The APH database has three actual yields in the most recent 12 crop years; therefore, the applicable trend adjustment percentage is 75 percent.
- Step 3:** $0.75 * 2 = 1.5$
- Step 4:** (a) 2017: $2018 - 2017 = 1$
 (b) 2015: $2018 - 2015 = 3$
 (c) 2012: $2018 - 2012 = 6$
 (d) 2009: not eligible for trend
- Step 5:** (a) 2017: $1 * 1.5 = 1.5$
 (b) 2015: $3 * 1.5 = 4.5$
 (c) 2012: $6 * 1.5 = 9$
 (d) 2009: not eligible for trend
- Step 6:** (a) 2017: $148 + 1.5 = 149.5$
 (b) 2015: $152 + 4.5 = 156.5$
 (c) 2012: $145 + 9 = 154$
 (d) 2009: $130 + 0 = 130$
- Step 7:** $(150 + 157 + 154 + 130) / 4 = 148$
- Step 8:** $148 < (152 + 2 = 154)$. Approved APH yield = 148
- Step 9:** $(148 + 152 + 145 + 130) / 4 = 144$. APH Yield without Trend Adjustment = 144.

Example APH Databases with Different Percentage of Trend-Adjusted Factor (cont.)

B. Example of APH database with 75 percent of Trend Adjustment (cont.)
Resulting APH Database

| 2018 | Corn (0041) | NI (003) | Grain (016) |
|----------------------------|-------------------|---------------------|----------------|
| Unit # 0001-0002 OU | | | |
| <u>Year</u> | <u>Production</u> | <u>Acres</u> | <u>Yield</u> |
| 2009 | | | T 130 |
| 2010 | | | Z |
| 2011 | | | Z |
| 2012 | 11600 | 80 | A 145 |
| 2013 | | | Z |
| 2014 | | | Z |
| 2015 | 12160 | 80 | A 152 |
| 2016 | | | Z |
| 2017 | 11840 | 80 | A 148 |
| T-Yield = 130 | | Approved APH | 148 |
| | | Average APH | 144 |
| | | Rate Yield | 144 |

C. Example of APH database with 50 percent of Trend Adjustment

Step 1: The APH database for 0001-0003 has at least an actual yield in one of the four most recent crop years, qualifying for trend adjustment.

Step 2: The APH database has two actual yields in the most recent 12 crop years; therefore, the applicable trend adjustment percentage is 50 percent.

Step 3: $0.50 * 2 = 1$

Step 4: (a) 2017: $2018 - 2017 = 1$
 (b) 2014: $2018 - 2014 = 4$
 (c) 2004: $2018 - 2004 = 14$
 (d) 2002: $2018 - 2002 = 16$
 (e) 1999: $2018 - 1999 = 19$

Step 5: (a) 2017: $1 * 1 = 1$
 (b) 2014: $4 * 1 = 4$
 (c) 2004: $14 * 1 = 14$
 (d) 2002: $16 * 1 = 16$
 (e) 1999: $19 * 1 = 19$

Step 6: (a) 2017: $167 + 1 = 168$

Example APH Databases with Different Percentage of Trend-Adjusted Factor (cont.)

C. Example of APH database with 50 percent of Trend Adjustment (cont.)
Step 6: (cont.)

(b) 2014: $201 + 4 = 205$

(c) 2004: $147 + 14 = 161$

(d) 2002: $138 + 16 = 154$

(e) 1999: $78 + 19 = 97$ (78 is used due to YA election)

Step 7: $(168 + 205 + 161 + 154 + 97) / 5 = 157$

Step 8: $157 < (201 + 2 = 203)$. Approved APH yield = 157

Step 9: $(167 + 201 + 147 + 138 + 78) / 5 = 146$. APH Yield without Trend Adjustment = 146.

Resulting APH Database

| 2018 | Corn (0041) | NI (003) | Grain (016) |
|----------------------------|--------------------------|----------------------|---------------------|
| Unit # 0001-0003 OU | | | |
| <u>Year</u> | <u>Production</u> | <u>Acres</u> | <u>Yield</u> |
| 1999 | | 200 | A 0 |
| 2002 | 27600 | 200 | A 138 |
| 2004 | 29400 | 200 | A 147 |
| 2011 | | | Z |
| 2012 | | | Z |
| 2013 | | | Z |
| 2014 | 40200 | 200 | A 201 |
| 2015 | | | Z |
| 2016 | | | Z |
| 2017 | 33400 | 200 | A 167 |
| T-Yield = 130 | | Approved APH | 157 |
| | | Average Yield | 131 |
| | | Rate Yield | 131 |

D. Example of APH database with 25 percent of Trend Adjustment

Step 1: The APH database for 0001-0004 has at least an actual yield in one of the four most recent crop years, qualifying for trend adjustment.

Step 2: The APH database has one actual yield in the most recent 12 crop years; therefore, the applicable trend adjustment percentage is 25 percent.

Step 3: $0.25 * 2 = 0.5$

Example APH Databases with Different Percentage of Trend-Adjusted Factor (cont.)

D. Example of APH database with 25 percent of Trend Adjustment (cont.)

Step 4: (a) 2017: $2018 - 2017 = 1$
 (b) 2016: not eligible for trend
 (c) 2015: not eligible for trend
 (d) 2014: not eligible for trend

Step 5: (a) 2017: $1 * 0.5 = 0.5$
 (b) 2016: not eligible for trend
 (c) 2015: not eligible for trend
 (d) 2014: not eligible for trend

Step 6: (a) 2017: $146 + 0.5 = 146.5$
 (b) 2016: $130 + 0 = 130$
 (c) 2015: $130 + 0 = 130$
 (d) 2014: $130 + 0 = 130$

Step 7: $(147 + 130 + 130 + 130) / 4 = 134$

Step 8: $134 < (146 + 2 = 148)$. Approved APH yield = 134

Step 9: $(146 + 130 + 130 + 130) / 4 = 134$. APH Yield without Trend Adjustment = 134.

Resulting APH Database

| 2018 | Corn (0041) | NI (003) | Grain (016) | |
|----------------------------|--------------------------|----------------------|------------------------|---------------------|
| Unit # 0001-0004 OU | | | | |
| <u>Year</u> | <u>Production</u> | <u>Acres</u> | | <u>Yield</u> |
| 2014 | | | T | 130 |
| 2015 | | | T | 130 |
| 2016 | | | T | 130 |
| 2017 | 5840 | 40 | A | 146 |
| T-Yield = 130 | | Approved APH | | 134 |
| | | Average Yield | | 134 |
| | | Rate Yield | | 134 |

Example APH Databases with Different Percentage of Trend-Adjusted Factor (cont.)

E. Example of APH database with no Trend Adjustment

Step 1: The APH database for 0001-0005 does not have at least an actual yield in one of the four most recent crop years; therefore, does not qualify for trend adjustment.

Resulting APH Database

| 2018 | Corn (0041) | NI (003) | Grain (016) | |
|----------------------------|--------------------------|----------------------|------------------------|---------------------|
| Unit # 0001-0005 OU | | | | |
| <u>Year</u> | <u>Production</u> | <u>Acres</u> | | <u>Yield</u> |
| 2012 | | | L | 154 |
| 2013 | | | L | 154 |
| 2014 | | | L | 154 |
| 2015 | | | L | 154 |
| 2016 | | | Z | |
| 2017 | | | Z | |
| T-Yield = 154 | | Approved APH | 154 | |
| | | Average Yield | 154 | |
| | | Rate Yield | 154 | |

Example of APH Database With YE, YA and TA where TA limits the Approved APH Yield

The insured has elected Trend-Adjusted APH (TA) for soybeans in the county. The insured has OUs. The county T-Yield is 29 bushels (60 percent of the T-Yield = 17) and the insured has elected yield substitution (YA) and yield exclusion (YE). The trend adjustment from the actuarial documents for the crop/county is 0.50 bushels a year. Crop year 2014 is eligible for yield exclusion for soybeans in the county and the insured did not choose to opt-out of the exclusion. The APH database below is prior to any trend adjustment or YE.

| Original APH Database | | | | |
|-----------------------|--------------------|--------------------|--------------------|--------------|
| 2018 | Soybeans (0081) | Nfac (NI) (053) | Commodity (091) | |
| Unit # 0001-0002 OU | | | | |
| <u>Year</u> | <u>Production</u> | <u>Acres</u> | | <u>Yield</u> |
| 2012 | 0 | 0 | T | 29 |
| 2013 | 0 | 0 | T | 29 |
| 2014 | 600 | 100 | A | 6 |
| 2015 | 1400 | 100 | A | 14 |
| T-Yield = 29 | | Approved APH | | 23 |
| | | Average Yield | | 20 |
| | | Rate Yield | | 20 |

- Step 1:** The APH database for 0001-0002 has one actual yield in one of the four most recent crop years after yield exclusion (see Para. 4 D and 11), qualifying for trend adjustment.
- Step 2:** The APH database has one actual yield in the most recent 12 crop years after yield exclusion (see Para. 4D and 21B); therefore, the applicable trend adjustment percentage is 25 percent.
- Step 3:** $0.50 * 0.25 = 0.125$
- Step 4:**
- (a) 2015: $2018 - 2015 = 3$
 - (b) 2014: not eligible for trend due to the actual yield is excluded for YE
 - (c) 2013: not eligible for trend
 - (d) 2012: not eligible for trend
- Step 5:**
- (a) 2015: $3 * 0.125 = 0.375$
 - (b) 2014: not eligible for trend due to the actual yield is excluded for YE
 - (c) 2013: not eligible for trend
 - (d) 2012: not eligible for trend
- Step 6:**
- (a) 2015: $17 + 0.375 = 17.375$ (17 is used due to YA election)
 - (b) 2014: 29 (29 is used due to YE causing less than 4 years of actuals in the APH database and the APH database being completed with the T-Yield)
 - (c) 2013: $29 + 0 = 29$
 - (d) 2012: $29 + 0 = 29$

Example of APH Database With YE, YA and TA.....the Approved APH Yield (Continued)

Step 7: $(17 + 29 + 29 + 29) / 4 = 26$

Step 8: $26 > (14 + 2 = 16)$. Approved APH yield = 23

Note: The TA limitation of the approved APH yield in Para. 21H limits the the approved APH yield to the highest actual yield in the APH database with one year of trend adjustment; however, the approved APH yield will not be less than the adjusted yield. Also, the approved APH yield was calculated at 26 with TA, YA, and YE elected together, however, TA limited the approved APH yield to the adjusted yield of 23.

Step 9: $(17 + 17 + 29 + 29) / 4 = 23$. APH Yield without Trend Adjustment (adjusted yield) = 23.

Resulting APH Database

| 2018 | Soybeans (0081) | Nfac (NI) (053) | Commodity (091) | |
|----------------------------|--------------------|----------------------|--------------------|--------------|
| Unit # 0001-0002 OU | | | | |
| <u>Year</u> | <u>Production</u> | <u>Acres</u> | | <u>Yield</u> |
| 2012 | 0 | 0 | T | 29 |
| 2013 | 0 | 0 | T | 29 |
| 2014 | 600 | 100 | A | 6 |
| 2015 | 1400 | 100 | A | 14 |
| T-Yield = 29 | | Approved APH | 23 | |
| | | Average Yield | 20 | |
| | | Rate Yield | 20 | |

Example of Approved APH Yield Calculation with YA, YE, TA and YC Elected

Cotton King County, TX 2018 T-Yield 278

Prior year's approved APH yield: 501

T-Yields: 2015-2017=307

2009-2014=256

2008=213

Eligible Yield Exclusion Years: 2016, 2015, 2013, 2011, 2008, 2006 (identified with *)

Trend Adjustment: 4.4

| Year | Production | Acres | Yield desc | Yield | YA | YE Opt-out | TA |
|----------------------|------------|-------|-------------------------------------|-------|--------------------------|---------------|-----|
| 2008 | 187,846 | 566.4 | A | 332 | | * Y | 376 |
| 2009 | 228,861 | 318.0 | A | 720 | | | 760 |
| 2010 | 48,341 | 324.5 | A | 149 | 154 | | 189 |
| 2011 | 43,441 | 324.5 | A | 134 | 154 | * | |
| 2012 | 177,521 | 318.5 | A | 557 | | | 583 |
| 2013 | 0 | 332.8 | A | 0 | 154 | * | |
| 2014 | 0 | 332.8 | A | 0 | 154 | | 172 |
| 2015 | 1,655 | 332.8 | A | 5 | 184 | * | |
| 2016 | 0 | 0 | Z | 0 | | * | |
| 2017 | 92,447 | 328.4 | A | 282 | | | 286 |
| Rate Yield = 242 | | | Average Yield = 242 | | | | |
| Adjusted Yield = 299 | | | Prior Year's Approved APH Yield=201 | | Approved APH Yield = 451 | | |

* - means year is eligible to be excluded if YE is elected

(1) Approved APH yield with YA: $(332+720+154+154+557+154+154+184+282)/9=299$

(2) Approved APH yield with YA and YE: $(332+720+154+557+154+282)/6=367$

(3) Approved APH yield YA, YE and TA: $(376+760+189+583+172+286)/6=394$

(4) Approved APH yield with YA, YE, TA and YC: $501*0.9=451$

Note: The approved APH yield is equal to the cupped yield because insured elected YC, did not opt-out of the cup applying to this APH database, and the cupped yield is higher than approved APH calculated using YA, YE, and TA.

In this example, the YC option code must be identified on the P15 yield record transmitted to RMA and the yield limitation flag (YLF) must be set to 09 (because YA was elected). If the insured did not elect YA, the yield limitation flag must be set to 16 with the YC option code identified on the P15 yield record.