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TREND-ADJUSTED ACTUAL PRODUCTION HISTORY STANDARDS HANDBOOK

2021 and Succeeding Crop Years

TITLE: TREND-ADJUSTED ACTUAL PRODUCTION HISTORY STANDARDS HANDBOOK	NUMBER: FCIC-20220-1
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SUJECT: **Provides the procedures to administer the Trend-Adjusted Actual Production History Program**	OPI: PRODUCT ADMINISTRATION AND STANDARDS DIVISON
	APPROVED: */s/ John W. Underwood* **for** **Deputy Administrator for Product Management**

REASON FOR ISSUANCE

The FCIC 20220-1 Trend-Adjusted APH Standards Handbook is being issued to provide procedures to administer the Trend-Adjusted APH program for the 2021 and succeeding crop years.

SUMMARY OF CHANGE

1.   Para. 21H   Added clarification that the approved APH yield is limited to the highest actual/pre-quality actual yield when QL is elected and used.

2.   Para. 21H   Added an example to show the clarification for QL.

3.   Para. 21 and 22 Minor editorial/grammar edits.

.

TREND-ADJUSTED ACTUAL PRODUCTION HISTORY STANDARDS HANDBOOK

CONTROL CHART

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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.

    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;

        (3)   the 10 percent yield limitation (cup) will not apply the year trend is cancelled; and

        (4)   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;

        (3)   the 10 percent limitation (cup) will not apply the year trend is terminated; and

        (4)   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 and YE

    A.   Yield Floors

        If Trend-Adjusted APH is elected for a crop/county, yield limitations do not apply regardless of whether 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 substitions 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.

F.   Quality Loss Option (QL)

When an actual yield is replaced with the pre-quality actual yield for QL and TA has been elected, TA will apply to the pre-quality actual yield that replaced the actual yield.

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, AP, 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, AP, 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.

14   Yield Not Eligible for Trend Adjustment (Continued)

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

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

    B.   New Producer

    Trend-adjustment will not apply to new producer T-Yields. New producer T-Yields (identified with an "I" 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 2021, the trend adjustment is 2 in the actuarial documents, and the insured has eligible yields in 2020, 2019, 2018 and 2017 crop years. Below are the trend adjustments to be applied for each specific yield year:

(1)   2020   (2021-2020) * 2 bushels = 2,
(2)   2019   (2021-2019) * 2 bushels = 4,
(3)   2018   (2021-2018) * 2 bushels = 6, and
(4)   2017   (2021-2017) * 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 (or pre-quality actual yield if QL has been elected and an actual yield has been replaced with a pre-quality actual yield) in the APH database with 1 year of trend adjustment applied.

Example 1:   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.

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

Example 2:   The highest actual yield within the APH database is 100 bushels and the trend adjustment is 2; however, QL was elected and used, and the highest pre-quality actual yield is 140. Therefore, the trend adjustment limitation is 142 (140+2). The average of all yields in the APH database is now 130. The approved APH yield is not limited to 102 (actual yield) due to QL being elected and used.

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 is 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

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 the insured elected yield cup option, and 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)

Exhibit 1

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

Exhibit 2

(Reserved)

Exhibit 3

(Reserved)

Exhibit 4

Example Trend-Adjusted APH Databases

Insured has produced corn in a single basic unit (BU) APH database since 2017. The county T-Yield is 166 bushels. For 2021, 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 2021 and APH database is updated.

Original APH Database

2021		Corn (0041)	NI (003)	Grain (016)
Unit # 0001-0000 BU				
Year	**Prod.**	**Acres**		**Yield**
2017	22500	150	A	150
2018	19300	100	A	193
2019	26400	150	A	176
2020	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) 2020: 2021 - 2020 = 1
(b) 2019: 2021 - 2019 = 2
(c) 2018: 2021 - 2018 = 3
(d) 2017: 2021 - 2017 = 4

Step 5: (a) 2020: 1 * 2 = 2
(b) 2019: 2 * 2 = 4
(c) 2018: 3 * 2 = 6
(d) 2017: 4 * 2 = 8

Step 6: (a) 2020: 197 + 2 = 199
(b) 2019: 176 + 4 = 180
(c) 2018: 193 + 6 = 199
(d) 2017: 150 + 8 = 158

Step 7: (199 + 180 + 199 + 158) / 4 = 184

Exhibit 4

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:

2021	Corn (0041)		NI (003)	Grain (016)
Unit # 0001-0000 BU				
Year	**Prod.**	**Acres**		**Yield**
2017	22500	150	A	150
2018	19300	100	A	193
2019	26400	150	A	176
2020	19700	100	A	197
T-Yield=166		**Approved APH**		**184**
		Average Yield		179
		Rate Yield		179

Exhibit 5

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 two bushels a year. The five APH databases below are prior to any trend adjustment.

Original APH Databases

2021	Corn (0041)	NI (003)		Grain (016)
Unit # 0001-0001 OU				
Year	Production	Acres		Yield
2011	19950	150	A	133
2012	14500	100	A	145
2013	25050	150	A	167
2014	12200	100	A	122
2015	23550	150	A	157
2016	16500	100	A	165
2017	25650	150	A	171
2018	19300	100	A	193
2019	26400	150	A	176
2020	19700	100	A	197
T-Yield = 130		Approved APH		**163**
		Average Yield		163
		Rate Yield		163

2021	Corn (0041)	NI (003)		Grain (016)
Unit # 0001-0002 OU				
Year	Production	Acres		Yield
2012			T	130
2013			Z	
2014			Z	
2015	11600	80	A	145
2016			Z	
2017			Z	
2018	12160	80	A	152
2019			Z	
2020	11840	80	A	148
T-Yield = 130		Approved APH		**144**
		Average Yield		144
		Rate Yield		144

2021	Corn (0041)	NI (003)		Grain (016)
Unit # 0001-0003 OU				
Year	Production	Acres		Yield
2002	0	200	A	0
2005	27600	200	A	138
2007	29400	200	A	147
2014			Z	
2015			Z	
2016			Z	
2017	40200	200	A	201
2018			Z	
2019			Z	
2020	33400	200	A	167
T-Yield = 130		Approved APH		**146**
		Average Yield		131
		Rate Yield		131

2021	Corn (0041)	NI (003)		Grain (016)
Unit # 0001-0004 OU				
Year	Production	Acres		Yield
2017			T	130
2018			T	130
2019			T	130
2020	5840	40	A	146
T-Yield = 130		Approved APH		**134**
		Average Yield		134
		Rate Yield		134

Exhibit 5

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

Original APH Databases (cont.)

2021	Corn (0041)	NI (003)	Grain (016)	
Unit # 0001-0005 OU				
Year	**Production**	**Acres**		**Yield**
2015			L	154
2016			L	154
2017			L	154
2018			L	154
2019			Z	
2020			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)   2020: 2021 – 2020 = 1
(b)   2019: 2021 – 2019 = 2
(c)   2018: 2021 – 2018 = 3
(d)   2017: 2021 – 2017 = 4
(e)   2016: 2021 – 2016 = 5
(f)   2015: 2021 – 2015 = 6
(g)   2014: 2021 – 2014= 7
(h)   2013: 2021 – 2013 = 8
(i)   2012: 2021 – 2012 = 9
(j)   2011: 2021 – 2011 = 10

Step 5:   (a)   2020: 1 * 2 = 2
(b)   2019: 2 * 2 = 4
(c)   2018: 3 * 2 = 6
(d)   2017: 4 * 2 = 8
(e)   2016: 5 * 2 = 10
(f)   2015: 6 * 2 = 12
(g)   2014: 7 * 2 = 14
(h)   2013: 8 * 2 = 16

Exhibit 5

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

A.   **Example of APH database with Full Trend Adjustment (Continued)**

Step 5:   **(Continued)**

(i)   2012: 9 * 2 = 18
(j)   2011: 10 * 2 = 20

Step 6:   (a)   2020: 197 + 2 = 199
(b)   2019: 176 + 4 = 180
(c)   2018: 193 + 6 = 199
(d)   2017: 171 + 8 = 179
(e)   2016: 165 + 10 = 175
(f)   2015: 157 + 12 = 169
(g)   2014: 122 + 14 = 136
(h)   2013: 167 + 16 = 183
(i)   2012: 145 + 18 = 163
(j)   2011: 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

2021	Corn (0041)	NI (003)		Grain (016)
Unit # 0001-0001 OU				
Year	Production	Acres		Yield
2011	19950	150	A	133
2012	14500	100	A	145
2013	25050	150	A	167
2014	12200	100	A	122
2015	23550	150	A	157
2016	16500	100	A	165
2017	25650	150	A	171
2018	19300	100	A	193
2019	26400	150	A	176
2020	19700	100	A	197
T-Yield = 130		**Approved APH**		**174**
		Average Yield		163
		Rate Yield		163

Exhibit 5

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

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) 2020: $2021 - 2020 = 1$
(b) 2018: $2021 - 2018 = 3$
(c) 2015: $2021 - 2015 = 6$
(d) 2012: not eligible for trend

Step 5: (a) 2020: $1 * 1.5 = 1.5$
(b) 2018: $3 * 1.5 = 4.5$
(c) 2015: $6 * 1.5 = 9$
(d) 2012: 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.

Exhibit 5

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

B.   **Example of APH database with 75 percent of Trend Adjustment (Continued)**

Resulting APH Database

2021	Corn (0041)	NI (003)		Grain (016)
Unit # 0001-0002 OU				
Year	**Production**	**Acres**		**Yield**
2012			T	130
2013			Z	
2014			Z	
2015	11600	80	A	145
2016			Z	
2017			Z	
2018	12160	80	A	152
2019			Z	
2020	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)   2020: $2021 - 2020 = 1$
              (b)   2017: $2021 - 2017 = 4$
              (c)   2007: $2021 - 2007 = 14$
              (d)   2005: $2021 - 2005 = 16$
              (e)   2002: $2021 - 2002 = 19$

Step 5:   (a)   2020: $1 * 1 = 1$
              (b)   2017: $4 * 1 = 4$
              (c)   2007: $14 * 1 = 14$
              (d)   2005 $16 * 1 = 16$
              (e)   2002: $19 * 1 = 19$

Step 6:   (a)   2020: $167 + 1 = 168$

Exhibit 5

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

C.   **Example of APH database with 50 percent of Trend Adjustment (Continued)**

Step 6:   (Continued)

(b) 2017: 201 + 4 = 205
(c) 2007: 147 + 14 = 161
(d) 2005: 138 + 16 = 154
(e) 2002: 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

2021	Corn (0041)	NI (003)		Grain (016)
Unit # 0001-0003 OU				
Year	**Production**	**Acres**		**Yield**
2002		200	A	0
2005	27600	200	A	138
2007	29400	200	A	147
2014			Z	
2015			Z	
2016			Z	
2017	40200	200	A	201
2018			Z	
2019			Z	
2020	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

Exhibit 5

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

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

Step 4:   (a) 2020: $2021 - 2020 = 1$
              (b) 2019: not eligible for trend
              (c) 2018: not eligible for trend
              (d) 2017: not eligible for trend

Step 5:   (a) 2020: $1 * 0.5 = 0.5$
              (b) 2019: not eligible for trend
              (c) 2018: not eligible for trend
              (d) 2017: not eligible for trend

Step 6:   (a) 2020: $146 + 0.5 = 146.5$
              (b) 2019: $130 + 0 = 130$
              (c) 2018: $130 + 0 = 130$
              (d) 2017: $130 + 0 = 130$

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

2021	Corn (0041)	NI (003)	Grain (016)	
Unit # 0001-0004 OU				
Year	**Production**	**Acres**		**Yield**
2017			T	130
2018			T	130
2019			T	130
2020	5840	40	A	146
T-Yield = 130		**Approved APH**		**134**
		Average Yield		134
		Rate Yield		134

Exhibit 5

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

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

2021	Corn (0041)	NI (003)	Grain (016)	
Unit # 0001-0005 OU				
Year	**Production**	**Acres**		**Yield**
2015			L	154
2016			L	154
2017			L	154
2018			L	154
2019			Z	
2020			Z	
T-Yield = 154		**Approved APH**		**154**
		Average Yield		154
		Rate Yield		154

Exhibit 6

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 2017 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

2021	**Soybeans (0081)**	**Nfac (NI) (053)**	**Commodity (091)**	
Unit # 0001-0002 OU				
Year	**Production**	**Acres**		**Yield**
2015	0	0	T	29
2016	0	0	T	29
2017	600	100	A	6
2018	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) 2018: $2021 – 2018 = 3$
   (b) 2017: not eligible for trend due to the actual yield is excluded for YE
   (c) 2016: not eligible for trend
   (d) 2015: not eligible for trend

Step 5: (a) 2018: $3 * 0.125 = 0.375$
   (b) 2017: not eligible for trend due to the actual yield is excluded for YE
   (c) 2016: not eligible for trend
   (d) 2015: not eligible for trend

Step 6: (a) 2018: $17 + 0.375 = 17.375$ (17 is used due to YA election)
   (b) 2017: 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) 2016: $29 + 0 = 29$
   (d) 2015: $29 + 0 = 29$

Exhibit 6

<u>**Example of APH Database With …. where TA limits the Approved APH Yield (Continued)**</u>

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 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

2021	Soybeans (0081)	Nfac (NI) (053)	Commodity (091)	
Unit # 0001-0002 OU				
Year	**Production**	**Acres**		**Yield**
2015	0	0	T	29
2016	0	0	T	29
2017	600	100	A	6
2018	1400	100	A	14
T-Yield = 29		**Approved APH**		**23**
		Average Yield		20
		Rate Yield		20

Exhibit 7

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

Cotton King County, TX 2021 T-Yield 278
Prior year's approved APH yield: 501
T-Yields: 2018-2020=307
         2012-2017=256
         2011=213
Eligible yield exclusion years: 2019, 2018, 2016, 2014, 2011 (identified with *)
Trend adjustment: 4.4

Year	Production	Acres	Yield desc	Yield	YA	YE Opt-out	TA
2011	187,846	566.4	A	332		*	376
2012	228,861	318.0	A	720			760
2013	48,341	324.5	A	149	154		189
2014	43,441	324.5	A	134	154	*	
2015	177,521	318.5	A	557			583
2016	0	332.8	A	0	154	*	
2017	0	332.8	A	0	154		172
2018	1,655	332.8	A	5	184	*	
2019	0	0	Z	0		*	
2020	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.

Exhibit 8

Example Trend-Adjusted APH Database with QL

Insured has produced wheat in a single basic unit (BU) APH database since 2017. The county T-Yield is 66 bushels. For 2021, the insured has elected QL, and in the 2017 crop year they filed a NOL for the quality loss that they experienced in that crop year. The insured has also elected Trend-Adjusted APH. The trend adjustment for wheat in the insured's county is 1. The insured provides an acceptable production report in 2021 and APH database is updated.

Original APH database:

2021	Wheat (0011)		NI (003)	
Unit # 0001-0000 BU				
Year	**Prod.**	**Acres**		**Yield**
2017	7,500	150	A	50
2018	9,300	100	A	93
2019	11,400	150	A	76
2020	9,700	100	A	97
T-Yield=66		**Approved APH**		**79**
		Average Yield		79
		Rate Yield		79

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) 2020: 2021 - 2020 = 1
(b) 2019: 2021 - 2019 = 2
(c) 2018: 2021 - 2018 = 3
(d) 2017: 2021 - 2017 = 4

Step 5: (a) 2020: 1 * 1 = 1
(b) 2019: 2 * 1 = 2
(c) 2018: 3 * 1 = 3
(d) 2017: 4 * 1 = 4

Step 6: (a) 2020: 97 + 1 = 98
(b) 2019: 76 + 2 = 78
(c) 2018: 93 + 3 = 96
(d) 2017: 81 + 4 = 85 (81 is used due to QL election)

Step 7: (98 + 78 + 96 + 85) / 4 = 89

Exhibit 8

Example Trend-Adjusted APH Database with QL (Continued)

Step 8:   89 < (97 + 1 = 98). Approved APH yield = 89.

Step 9:   (97 + 76 + 93 + 50) / 4 = 79. APH yield without trend adjustment = 79.

Resulting APH Database

2021		Wheat (0011)		NI (003)		TA, QL	
	Unit # 0001-0000 BU						
Year	Prod.	Pre-Quality Prod.	Acres			Yield	Pre-Quality Yield
2017	7,500	12,150	150	A		50	81
2018	9,300		100	A		93	
2019	11,400		150	A		76	
2020	9,700		100	A		97	
T-Yield=66			Approved APH			89	
			Average Yield			79	
			Rate Yield			79	