

Exhibit Name: Premium Calculation
 Exhibit Number: P11-13, Plans 16, 17
 Record Name: Acreage
 Record Code: P11

Reinsurance Year: 2026
 Version: Comment
 Release Date: 3/13/2025

Margin Protection (MP)

Insurance Plan Code 16 Margin Protection 17 Margin Protection with Harvest Price Option

Commodity Code 0011 Wheat 0018 Rice 0041 Corn 0081 Soybeans

Calculations	Field Name	Record Number	Field Number	Field Format	Field Rounding	Rules
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Section 1: Dollar Amount of Insurance

Dollar Amount of Insurance = $\frac{\text{Expected Revenue} * \text{Coverage Level Percent} * \text{Price Election Percent}}{\text{Election Percent}}$	Dollar Amount of Insurance			Internal	99999999.99	2 decimal places.		
	Coverage Level Percent			P14	34	9.99	2 decimal places.	Coverage Level Percent in 5% increments as selected for MP.
	Price Election Percent			P14	35	9.99	2 decimal places.	Protection Factor
	Expected Revenue			ADM		99999999.99	None	Expected Revenue. Edit with ADM Price, "A00810."

Section 2: Liability Calculation

Total Guarantee Amount = Dollar Amount of Insurance * Reported Acreage	Total Guarantee Amount			P11	110	9999999999	Round to whole number.	
	Reported Acreage			P11	48	9999999.99	None	
Liability Amount = Total Guarantee Amount * Insured Share Percent	Liability Amount			P11	101	9999999999	Round to whole number.	Cup at \$1.
	Insured Share Percent			P11	43	9.9999	None	

Section 3: Total Premium, Subsidy, and Producer Premium Calculation

Sections 3 and 4 will be used if base (companion) record does not have qualifying information for MP Net Premium.

Preliminary Total Premium Amount = $\frac{\text{Reported Acreage} * \text{Base Rate} * \text{Price Election Percent}}{\text{Insured Share Percent}}$	Preliminary Total Premium Amount			Internal		9999999999	Round to whole number.	
	Base Rate			ADM		999999.9999	None	Base Rate is Margin Protection Premium Amount Per Acre. Edit with ADM Area Rate, "A01135" and ADM Area Coverage Level, "A01130".
Total Premium Amount = Preliminary Total Premium Amount	Total Premium Amount			P11	102	9999999999	Round to whole number.	
	Subsidy Amount			P11	100	9999999999	Round to whole number.	Used when there is a first Commodity Loss.
	Subsidy Percent			ADM		9.999	None	Edit with ADM Subsidy Percent, "A00070".
Producer Premium Amount = Total Premium Amount - Subsidy Amount	Producer Premium Amount			P11	103	9999999999	Round to whole number.	

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Section 4: Premium Credit for MP Policies with Base Policy						MP policy has an associated base (companion) policy. Use Sections 3 and 4 when base (companion) record does not have qualifying information for MP Net Premium.
Simple Average Annual Yield = $\sum_{i=1, \dots, N} \text{Average Annual Yield}(i) / N$	Simple Average Annual Yield			Internal	99999999.99	Round to 2 decimals. Sum all average annual yields in the APH database for a type/practice unit divide by the number of yields.
	Average Annual Yield(i)			Internal	99999999.99	Round to 2 decimals. APH average annual yields for each year in the APH database. For Corn "0041" Type Silage "026", convert each Average Annual Yield (measured in tons) to bushels by dividing by 0.15 and rounding to the nearest whole number.
	N			Internal	99999	Whole Number. Count of the yields in the APH database.
Simple Average County Yield = $\sum_{i=1, \dots, N} \text{Yield}(i) / N$	Simple Average County Yield			Internal	99999999.99	Round to 2 decimals. Sum (county) yields for the same years that yields are reported for the unit and divide by the number of yields.
	Yield(i)			ADM	99999999.99	Round to 2 decimals. Yield(i) is the "Yield Amount" found in the ADM Historical Yield Trend, "A01115".
	N			Internal	99999	Whole Number. Count of the yields in the APH database.
County Yield Deviation(i) = Yield(i) - Simple Average County Yield	County Yield Deviation(i)			Internal	999999.99	Round to 2 decimals.
Unit Yield Deviation(i) = Average Annual Yield(i) - Simple Average Annual Yield	Unit Yield Deviation(i)			Internal	999999.99	Round to 2 decimals.
Cross Product(i) = County Yield Deviation(i) * Unit Yield Deviation(i)	Cross Product(i)			Internal	999999.9999	Round to 4 decimals.
Squared County Deviation(i) = County Yield Deviation(i) * County Yield Deviation(i)	Squared County Deviation(i)			Internal	999999.9999	Round to 4 decimals.

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$Beta = \sum \text{Cross Product}(i) / \sum \text{Squared County Deviation}(i)$	Beta		Internal	999999.9999	Round to 4 decimals.	If calculated Beta < 0.3 or if N < 4, set Beta = 0.3 or if calculated Beta > 1.6, set Beta = 1.6. Step 13 of Parameter Example Exhibit P15-6. <i>Note: The sum of the cross product ($\sum \text{Cross Product}(i)$) and the sum of the squared county deviation ($\sum \text{Squared County Deviation}(i)$) should be rounded to 2 decimals before performing the beta calculation.</i> When there are zero (0) yield years with an approved actual yield type for MP then the Beta, Alpha, Sigma are NOT calculated for the MP P11 and the MP P11 is treated as a standalone MP P11. Credit will = 1.
$Alpha = \text{Simple Average Annual Yield} - Beta * \text{Simple Average County Yield}$	Alpha		Internal	999999.9999	Round to 4 decimals.	
$\text{Squared Yield Deviation}(i) = [\text{Average Annual Yield}(i) - Alpha - Beta * \text{Yield}(i)]^2$	Squared Yield Deviation(i)		Internal	999999.9999	Round to 4 decimals.	
$Sigma = [\sum_{i=1, \dots, N} \text{Squared Yield Deviation}(i) / (N-2)]^{0.5}$	Sigma		Internal	999999.9999	Round to 4 decimals.	If N < 4, Sigma = 0.
Trigger Margin Calculation:						
$\text{Trigger Margin} = \text{Expected Margin} - (1 * (\text{Expected Revenue} * (1 - \text{Coverage Level Percent})))$	Trigger Margin		Internal	99999999.99	Round to 2 decimals.	
	Expected Margin		ADM	99999999.99	Round to 2 decimals.	Expected Margin found in the ADM Price, "A00810".

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Simulated MP Losses Calculation:

<p>For t = 1 to n and j= 1 to 100</p> <p>Margin Draw (t,j) = Detrended Yield(t) * Commodity Price Draw Quantity (t,j) - Input Cost Draw Quantity (t,j)</p>	Margin Draw			Internal	99999999.99	Round to 2 decimals.	Note: Starting in 2018, the 't' is defined as 60 and will increase by one each year.
	n			ADM	99999999.99	None	Beginning in 2018 'n' is defined as 60 and will increase by one each year going forward.
	Detrended Yield			ADM	9999999999.99	None	Do not make calculations if Detrended Yields = 0, skip to next value. Detrended Yield found in the ADM Historical Yield Trend, "A01115".
	Commodity Price Draw Quantity			ADM	99999.9999999999	None	Commodity Price Draw Quantity found in the ADM Draw Data, "A00615".
	Input Cost Draw Quantity			ADM	9999.9999999999	None	Input Cost Draw Quantity found in the ADM Draw Data, "A00615".
Counter = Counter + 1	Counter			Internal	99999999.99	Whole Number.	Counter is set = 0 to begin the simulation. Do not increment counter when any County Detrended Yield = 0 or missing from ADM data.
<p>When Insurance Plan Code Equals 16:</p> <p>MP Gross Indemnity Draw(t,j) = MIN(MAX[Trigger Margin - Margin Draw(t,j),0] * Price Election Percent, Dollar Amount of Insurance)</p>	MP Gross Indemnity Draw(t,j)			Internal	99999999.99	Round to 2 decimals.	
<p>When Insurance Plan Code equals 17:</p> <p>MP Gross Indemnity Draw(t,j) = MIN(MAX(Coverage Level Percent * Expected County Yield * MAX(Projected Price, Commodity Price Draw Quantity(t,j)) - Expected Revenue + Expected Margin - Margin Draw(t,j), 0) * Price Election Percent, Dollar Amount of Insurance)</p>	Projected Price			ADM	99999.9999		Edit with ADM Price, "A00810". The Projected Price to be used in MP will be stored in Projected Price in "A00810" in the applicable record for either Insurance Plan Code 16 or 17.
	Expected County Yield			ADM	99999999.99	None	Edit with ADM Price, "A00810". Expected County Yield = Expected Index Value.
MP Gross Indemnity = $\sum_{t=1, \dots, n} \sum_{j=1, \dots, 100} [MP \text{ Gross Indemnity Draw}(t,j)]$	MP Gross Indemnity			Internal	99999999.99	Round to 2 decimals.	Sum the MP Gross Indemnities for all iterations.

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Calculations	Field Name	Record Number	Field Number	Field Format	Field Rounding	Rules
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Simulated Farm Yield Calculation:

Farm Yield Draw(t,j) = MAX[Alpha + Beta * Detrended Yield(t) + Sigma * Farm Deviation Quantity (j),0]	Farm Yield Draw(t,j)		Internal		99999999.99	Round to 2 decimals.	
	Farm Deviation Quantity (j)		ADM		99999999.9999	None	Farm Deviation Quantity (j) found in the ADM Draw Data, "A00615".
Farm Revenue Draw(t,j) = Farm Yield Draw(t,j) * Commodity Price Draw Quantity (t,j)	Farm Revenue Draw(t,j)		Internal		99999999.99	Round to 2 decimals.	

Simulated Indemnities for Base (Companion) Policy Calculation:

Coverage Level = Coverage Level for Base (Companion) Policy	Coverage Level		P14	34	9.99	2 decimal places.	Note - this is the Coverage Level for Base (Companion) Policy.
Guarantee Per Acre = Approved Yield * Coverage Level	Approved Yield		P11	42	99999999.99	None	
	Guarantee Per Acre		Internal			If Unit of Measure equals Pounds "LBS", then round to whole number. If Unit of Measure equals Tons "TONS", then round to 2 decimals. Otherwise, round to 1 decimal.	
YP Indemnity Draw(t,j) = Projected Price * MAX(Guarantee Per Acre - Farm Yield Draw(t,j),0)	YP Indemnity Draw(t,j)		Internal		99999999.99	2 decimal places.	The Projected Price to be used in MP will be stored in Projected Price in "A00810" in the applicable record for either Insurance Plan Code 16 or 17. For Corn "0041" Type Silage "026", convert Approved Yield (measured in tons) to bushels by dividing by 0.15 and rounding to the nearest whole number.
RP Guarantee Draw(t,j) = Guarantee Per Acre * MAX(Commodity Price Draw Quantity (t,j), Projected Price)	RP Guarantee Draw(t,j)		Internal		99999999.99	2 decimal places.	The Projected Price to be used in MP will be stored in Projected Price in "A00810" in the applicable record for either Insurance Plan Code 16 or 17. For Corn "0041" Type Silage "026", convert Approved Yield (measured in tons) to bushels by dividing by 0.15 and rounding to the nearest whole number.

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Margin Protection (MP)									
Insurance Plan Code			16 Margin Protection						17 Margin Protection with Harvest Price Option
Commodity Code			0011 Wheat		0018 Rice		0041 Corn		0081 Soybeans
Calculations			Field Name		Record Number	Field Number	Field Format	Field Rounding	Rules
$RP \text{ Indemnity Draw}(t,j) = \text{MAX}[\text{RP Guarantee Draw}(t,j) - \text{Farm Revenue Draw}(t,j), 0]$			RP Indemnity Draw(t,j)		Internal		99999999.99	2 decimal places.	
$RPHPE \text{ Indemnity Draw}(t,j) = \text{MAX}[\text{Guarantee Per Acre} * \text{Projected Price} - \text{Farm Revenue Draw}(t,j), 0]$			RPHPE Indemnity Draw(t,j)		Internal		99999999.99	2 decimal places.	<p>The Projected Price to be used in MP will be stored in Projected Price in "A00810" in the applicable record for either Insurance Plan Code 16 or 17.</p> <p>For Corn "0041" Type Silage "026", convert Approved Yield (measured in tons) to bushels by dividing by 0.15 and rounding to the nearest whole number.</p>
Net Indemnities:									
$YP \text{ Net Indemnity Draw}(t,j) = \text{MAX}[\text{MP Gross Indemnity Draw}(t,j) - YP \text{ Indemnity Draw}(t,j), 0]$			YP Net Indemnity Draw(t,j)		Internal		99999999.99	2 decimal places.	
$RP \text{ Net Indemnity Draw}(t,j) = \text{MAX}[\text{MP Gross Indemnity Draw}(t,j) - RP \text{ Indemnity Draw}(t,j), 0]$			RP Net Indemnity Draw(t,j)		Internal		99999999.99	2 decimal places.	
$RPHPE \text{ Net Indemnity Draw}(t,j) = \text{MAX}[\text{MP Gross Indemnity Draw}(t,j) - RPHPE \text{ Indemnity Draw}(t,j), 0]$			RPHPE Net Indemnity Draw(t,j)		Internal		99999999.99	2 decimal places.	
Summed Net Indemnities:									
$YP \text{ Net Indemnity} = \sum_{t=1, \dots, n} \sum_{j=1, \dots, 100} [YP \text{ Net Indemnity Draw}(t,j)]$			YP Net Indemnity		Internal		99999999.99	2 decimal places.	
$RP \text{ Net Indemnity} = \sum_{t=1, \dots, n} \sum_{j=1, \dots, 100} [RP \text{ Net Indemnity Draw}(t,j)]$			RP Net Indemnity		Internal		99999999.99	2 decimal places.	
$RPHPE \text{ Net Indemnity} = \sum_{t=1, \dots, n} \sum_{j=1, \dots, 100} [RPHPE \text{ Net Indemnity Draw}(t,j)]$			RPHPE Net Indemnity		Internal		99999999.99	2 decimal places.	
Gross Premium and Net Premium Per Acre on a 100% share basis:									
$\text{Gross Premium} = \text{Round}(\text{MP Gross Indemnity} / \text{Counter}, 2)$			Gross Premium		Internal		99999999.99	2 decimal places.	
$YP \text{ Net Premium Per Acre} = \text{Round}(YP \text{ Net Indemnity} / \text{Counter}, 2)$			YP Net Premium Per Acre		Internal		99999999.99	2 decimal places.	
$RP \text{ Net Premium Per Acre} = \text{Round}(RP \text{ Net Indemnity} / \text{Counter}, 2)$			RP Net Premium Per Acre		Internal		99999999.99	2 decimal places.	
$RPHPE \text{ Net Premium Per Acre} = \text{Round}(RPHPE \text{ Net Indemnity} / \text{Counter}, 2)$			RPHPE Net Premium Per Acre		Internal		99999999.99	2 decimal places.	

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Commodity Code	0011 Wheat	0018 Rice	0041 Corn	0081 Soybeans

Calculations	Field Name	Record Number	Field Number	Field Format	Field Rounding	Rules
--------------	------------	---------------	--------------	--------------	----------------	-------

Base (Companion) Policy Credit and MP Net Premium:						
YP Base Policy Credit = Gross Premium - YP Net Premium Per Acre	YP Base Policy Credit			Internal	99999999.99	2 decimal places.
RP Base Policy Credit = Gross Premium - RP Net Premium Per Acre	RP Base Policy Credit			Internal	99999999.99	2 decimal places.
RPHPE Base Policy Credit = Gross Premium - RPHPE Net Premium Per Acre	RPHPE Base Policy Credit			Internal	99999999.99	2 decimal places.
Preliminary MP Net Premium = Base Rate * Price Election Percent - (YP Base Policy Credit, RP Base Policy Credit, or RPHPE Base Policy Credit)	Preliminary MP Net Premium			Internal	99999999.99	2 decimal places.
	Base Rate			ADM	999999.9999	None Base Rate is Margin Protection Premium Amount Per Acre. Edit with ADM Area Rate, "A01135" and ADM Area Coverage Level, "A01130". Use Sections 3 and 4 when base (companion) record does not have qualifying information for MP Net Premium.
Base Policy Premium = Base Policy Total Premium Amount / Insured Share Percent / Reported Acreage	Base Policy Total Premium Amount			P11	102	99999999.99 2 decimal places. Edit with YP, RP, RPHPE Total Premium Amount from P11 Insurance Plan Code 01, 02, or 03.
	Base Policy Premium			Internal	93	99999999.99 2 decimal places. Converts Base Policy Total Premium to dollars per 100 percent share acre.
MP Net Premium = MAX(Preliminary MP Net Premium, 0.50, 0.30 * Base Rate * Price Election Percent, (Base Rate * Price Election Percent) - (0.70 * Base Policy Premium))	MP Net Premium			Internal	99999999.99	2 decimal places. 0.50 = 50 cent minimum cost per acre 0.30 * Base Rate * Price Election Percent limits subsidy to 70% of the calculated amount (Base Rate * Price Election Percent) - (0.70 * Base Policy Premium) limits credit to 70% of the premium per acre of the base policy.

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Section 5: Total Premium, Subsidy, and Producer Premium Calculation for MP Policies with Base (Companion) Policy:

Preliminary Total Premium Amount = Reported Acreage * MP Net Premium * Insured Share Percent	Preliminary Total Premium Amount			Internal	9999999999	Round to whole number.	
Total Premium Amount = Preliminary Total Premium Amount * Multiple Commodity Adjustment Factor	Total Premium Amount			P11	102	9999999999	Round to whole number.
	Multiple Commodity Adjustment Factor			ICE		9999.9999	Round to whole number. Edit with ICE Multiple Cropping, "D00063". Used when there is a first Commodity Loss.
Subsidy Amount = Total Premium Amount * Subsidy Percent	Subsidy Amount			P11	100	9999999999	Round to whole number. If this record qualifies for Beginning Farmer and Rancher or Native Sod, see Section 4 for subsidy calculations.
	Subsidy Percent			ADM		9.999	None Edit with ADM Subsidy Percent, "A00070".
Producer Premium Amount = Total Premium Amount - Subsidy Amount	Producer Premium Amount			P11	103	9999999999	Round to whole number.

Section 6: Beginning Farmer and Rancher (BFR), Veteran Farmer Rancher (VFR), Native Sod (NS), and Conservation Compliance (CC) Subsidy Calculations

Base Subsidy Amount = Total Premium Amount * Subsidy Percent	Base Subsidy Amount			Internal		9999999999	Round to whole number. Cupped by the standard rule of \$1 if applicable.
	Subsidy Percent			ADM		9.999	None Edit with ADM Subsidy Percent, "A00070".
BFR/VFR Subsidy Amount = Total Premium Amount * 0.10 * (1 - CC Subsidy Reduction Percent)	CC Subsidy Reduction Percent			P11	76	9.9999	None If Applicable; else 0.
	BFR/VFR Subsidy Amount			Internal		9999999999	Round to whole number. Beginning Farmer Rancher/Veteran Farmer Rancher Subsidy Amount. If Applicable; else 0. 0.10 (10%).
Native Sod Subsidy Amount = Total Premium Amount * 0.50	Native Sod Subsidy Amount			Internal		9999999999	Round to whole number. If Applicable; else 0. 0.50 (50%). For CAT coverage, Native Sod Subsidy Amount is always 0.
CC Subsidy Reduction Amount = Base Subsidy Amount * CC Subsidy Reduction Percent	CC Subsidy Reduction Amount			P11	118	9999999999	Round to whole number. CC Subsidy Reduction Amount. If Applicable; else 0.
Subsidy Amount = Base Subsidy Amount + BFR/VFR Subsidy Amount - Native Sod Subsidy Amount - CC Subsidy Reduction Amount	Subsidy Amount			P11	100	9999999999	Round to whole number. Subsidy Amount cannot exceed Total Premium Amount. Subsidy Amount will be cupped at \$0.
Producer Premium Amount = Total Premium Amount - Subsidy Amount	Producer Premium Amount			P11	103	9999999999	Round to whole number.