

# FEDERAL CROP INSURANCE QUOTER

API Documentation 2021

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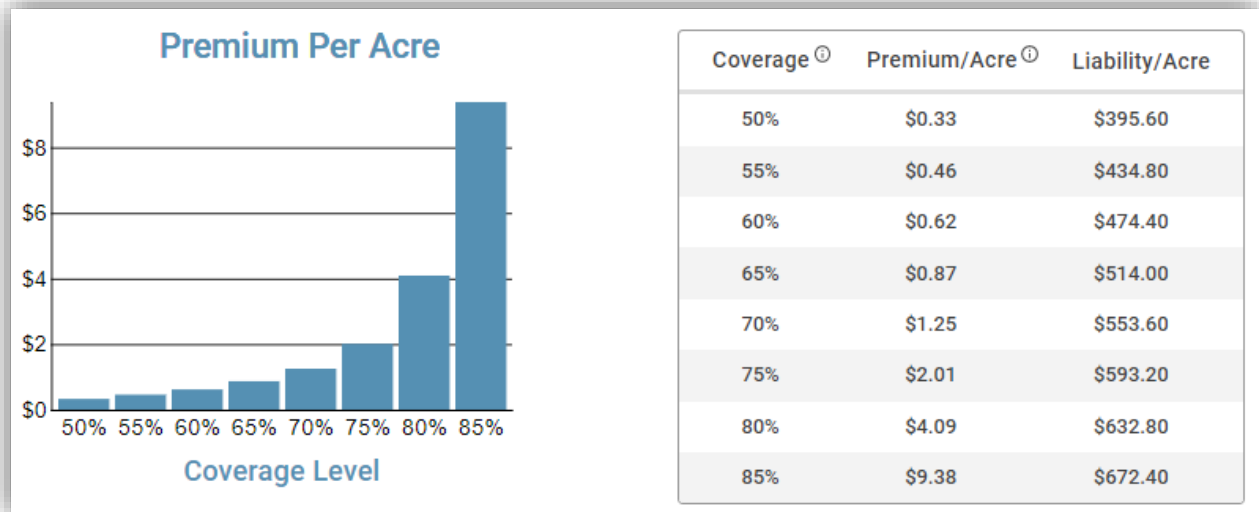
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## Service Overview

The Federal Crop Insurance Quoter API is used to calculate insurance premiums for Yield Protection, Revenue Protection, and Revenue Protection with Harvest Price exclusion, along with their area coverage alternatives.



Premium Calculator in [DataLayers](#)

## POST Request

POST Request Example – application/json

```
{
  'FIPS':17081, 'CropCode':41, 'Type':16, 'Practice':3, 'PreventedPlanting':0,
  'UseTAYield':1, 'UsePerAcre':1, 'SharePercentage':1.00,
  'TrendAdjustedYield':129.88, 'Acres':44.56999969, 'Year':2019, 'APHYield':129.88,
  'Price':4.00, 'Volatility':0.15, 'IncludeAdminFee':0.0
}
```

## Header Parameters

**content-type:** "application/json"

**Ocp-Apim-Subscription-Key:** Subscription keys are given upon purchase [Purchase APIs](#) 

## Request Parameters

Name	Type	Description
<b>FIPS</b>	<b>int</b>	The FIPS code of a county (e.g. 17019).
<b>CropCode</b>	<b>int</b>	The code for a crop (e.g. corn's crop code is 41) from table A00420 of RMA ADM files.
<b>Type</b>	<b>int</b>	The code for the type of a crop (e.g. corn type grain is 16) from RMA ADM files.
<b>Practice</b>	<b>int</b>	The code for the practice type of a crop (e.g. non-irrigated is 3) from RMA ADM files.
<b>PreventedPlanning</b>	<b>int</b>	An integer in the range [0, 2]. 0 = Standard, 1 = Plus 5%, 2 = Plus 1.
<b>UseTAYield</b>	<b>int</b>	An integer in the range [0, 1]. 1 = Use Trend-Adjusted Yield, 0 = do not use TrendAdjusted Yield.
<b>SharePercentage</b>	<b>double</b>	A float indicating the insured share percent, in the range [0.001, 1].
<b>TrendAdjustedYield</b>	<b>double</b>	A double specifying the TrendAdjusted Yield.
<b>Acres</b>	<b>double</b>	A double specifying the acreage.
<b>Year</b>	<b>int</b>	An integer specifying the year that the calculation should take place for.
<b>APHYield</b>	<b>double</b>	A double specifying the Actual Production History Yield.
<b>Price</b>	<b>double</b>	A double specifying the projected crop price.
<b>Volatility</b>	<b>double</b>	A double specifying the volatility of the crop.



<b>ReturnParameters</b>	<b>int</b>	If value is 1, parameters for the steps of the premium calculation are included in the response. If value is 0, parameters from the premium calculation are not included in the response.
<b>HighRiskCode</b>	<b>string</b>	Subcounty high risk code that the insured field is located in and is relevant to the specified crop, practice, and type (e.g. 'AAA').

## POST Response

POST Response Example – application/json

```
{
  "Premium": [
    [2.75, 1.85, 1.12, 2.06, 1.31, 0.8, 2.35, 1.57, 0.95],
    [3.87, 2.65, 1.47, 2.89, 1.89, 1.04, 3.29, 2.23, 1.25],
    [4.98, 3.49, 1.94, 3.67, 2.47, 1.37, 4.22, 2.92, 1.63],
    [7.3, 5.19, 2.42, 5.29, 3.6, 1.64, 6.14, 4.32, 2.11],
    [9.39, 6.81, 3.16, 6.81, 4.65, 2.11, 7.78, 5.57, 2.72],
    [13.14, 9.77, 4.81, 9.58, 6.69, 3.23, 10.71, 7.77, 3.98],
    [19.02, 14.55, 8.61, 14.01, 10.01, 5.83, 15.34, 11.31, 6.97],
    [29.25, 22.83, 15.96, 22.22, 16.21, 10.95, 23.71, 17.76, 13.09]
  ],
  "PremiumAllAcres": [
    [159.0, 107.0, 65.0, 119.0, 76.0, 46.0, 136.0, 91.0, 55.0],
    [224.0, 153.0, 85.0, 167.0, 109.0, 60.0, 190.0, 129.0, 72.0],
    [288.0, 202.0, 112.0, 212.0, 143.0, 79.0, 244.0, 169.0, 94.0],
    [422.0, 300.0, 140.0, 306.0, 208.0, 95.0, 355.0, 250.0, 122.0],
    [543.0, 394.0, 183.0, 394.0, 269.0, 122.0, 450.0, 322.0, 157.0],
    [760.0, 565.0, 278.0, 554.0, 387.0, 187.0, 619.0, 449.0, 230.0],
    [1100.0, 841.0, 498.0, 810.0, 579.0, 337.0, 887.0, 654.0, 403.0],
    [1691.0, 1320.0, 923.0, 1285.0, 937.0, 633.0, 1371.0, 1027.0, 757.0]
  ],
  "Subsidy": [
    [0.67, 0.8],
    [0.64, 0.8],
    [0.64, 0.8],
    [0.59, 0.8],
    [0.59, 0.8],
    [0.55, 0.77],
    [0.48, 0.68],
    [0.38, 0.53]
  ],
  "Liability": [
    [13509.0],
    [14860.0],
    [16211.0],
    [17562.0],
    [18913.0],
    [20264.0],
    [21615.0],
    [22965.0]
  ],
  "TotalPremium": [
    [8.32, 5.59, 5.59, 6.26, 3.96, 3.96, 7.11, 4.76, 4.76],
    [10.74, 7.37, 7.37, 8.02, 5.22, 5.22, 9.13, 6.21, 6.21],
    [13.82, 9.7, 9.7, 10.17, 6.87, 6.87, 11.74, 8.13, 8.13],
    [17.81, 12.64, 12.12, 12.9, 8.77, 8.25, 14.99, 10.55, 10.55],
    [22.92, 16.62, 15.82, 16.6, 11.36, 10.57, 18.99, 13.58, 13.58],
    [29.21, 21.72, 20.91, 21.29, 14.89, 14.0, 32.78, 17.26, 17.26],
    [36.58, 27.97, 26.93, 26.93, 19.27, 18.23, 29.49, 21.76, 21.76],
    [47.18, 36.82, 33.95, 35.85, 26.15, 23.28, 38.26, 28.64, 27.86]
  ],
  "TotalPremiumAllAcres": [
    [481.0, 323.0, 323.0, 362.0, 229.0, 229.0, 411.0, 275.0, 275.0],
    [621.0, 426.0, 426.0, 464.0, 302.0, 302.0, 528.0, 359.0, 359.0],
    [799.0, 561.0, 561.0, 588.0, 397.0, 397.0, 679.0, 470.0, 470.0],
    [1030.0, 731.0, 701.0, 746.0, 507.0, 477.0, 867.0, 610.0, 610.0],
    [1325.0, 961.0, 915.0, 960.0, 657.0, 611.0, 1098.0, 785.0, 785.0],
    [1689.0, 1256.0, 1209.0, 1231.0, 861.0, 814.0, 1375.0, 998.0, 998.0],
    [2115.0, 1617.0, 1557.0, 1557.0, 1114.0, 1054.0, 1705.0, 1258.0, 1258.0],
    [2728.0, 2129.0, 1963.0, 2073.0, 1512.0, 1346.0, 2212.0, 1656.0, 1611.0]
  ],
  "SubsidyAmount": [
    [5.57, 3.74, 4.46, 4.2, 2.65, 3.16, 4.76, 3.18, 3.8],
    [6.87, 4.72, 5.9, 5.14, 3.34, 4.19, 5.85, 3.98, 4.96],
    [8.84, 6.21, 7.77, 6.5, 4.39, 5.5, 7.52, 5.21, 6.5],
    [10.52, 7.45, 9.7, 7.61, 5.17, 6.61, 8.8, 6.23, 8.44],
    [13.52, 9.81, 12.66, 9.79, 6.71, 8.46, 11.21, 8.01, 10.86],
    [16.07, 11.95, 16.1, 11.71, 8.2, 10.84, 13.08, 9.49, 13.28],
    [17.55, 13.42, 18.32, 12.92, 9.25, 12.4, 14.15, 10.45, 14.79],
    [17.93, 13.99, 17.99, 13.63, 9.94, 12.33, 14.55, 10.88, 14.77]
  ],
  "SubsidyAmountAllAcres": [
    [322.0, 216.0, 258.0, 243.0, 153.0, 183.0, 275.0, 184.0, 220.0],
    [397.0, 273.0, 341.0, 297.0, 193.0, 242.0, 338.0, 230.0, 287.0],
    [511.0, 359.0, 449.0, 376.0, 254.0, 318.0, 435.0, 301.0, 376.0],
    [608.0, 431.0, 561.0, 440.0, 299.0, 382.0, 512.0, 360.0, 488.0],
    [782.0, 567.0, 732.0, 566.0, 388.0, 489.0, 648.0, 463.0, 628.0],
    [929.0, 691.0, 931.0, 677.0, 474.0, 627.0, 756.0, 549.0, 768.0],
    [1015.0, 776.0, 1059.0, 747.0, 535.0, 717.0, 818.0, 604.0, 855.0],
    [1037.0, 809.0, 1040.0, 788.0, 575.0, 713.0, 841.0, 629.0, 854.0]
  ],
  "Guarantee": [
    [234.0, 234.0, 59.0],
    [257.0, 257.0, 64.9],
    [280.0, 280.0, 70.8],
    [304.0, 304.0, 76.7],
    [327.0, 327.0, 82.6],
    [350.0, 88.5],
    [374.0, 374.0, 94.4],
    [397.0, 397.0, 100.3]
  ],
  "CountyLevelPrem": [
    [6.87, 5.1525, 4.580000000000001, 4.38, 3.285, 2.92, 5.97, 4.4775, 3.98],
    [8.82, 6.6150000000000011, 5.8800000000000008, 5.9, 4.4250000000000007, 3.9333333333333334, 6.76, 5.07, 4.5066666666666668],
    [11.7, 8.775, 7.8, 7.84, 5.88, 5.226666666666667, 9.42, 7.065, 6.28],
    [20.81, 15.6075, 13.873333333333333, 13.04, 9.78, 8.693333333333333, 13.68, 10.26, 9.120000000000001],
    [38.32, 28.740000000000002, 25.546666666666667, 21.73, 16.297500000000003, 14.486666666666668, 22.6, 16.950000000000003, 15.066666666666668]
  ],
  "CountyLevelGuarantee": [
    [427.0, 427.0, 107.9],
    [458.0, 458.0, 115.6],
    [488.0, 488.0, 123.3],
    [519.0, 519.0, 131.0],
    [549.0, 549.0, 138.7]
  ],
  "CountyDataAvailable": true,
  "Plans": [1, 3, 6, 16, 31, 1, 4, 2, 17, 3, 5, 3, 2, 33, 2]
}
```



## Response Parameters

Name	Type	Description
<b>Premium</b>	<b>double[8 , 9]</b>	The eight arrays are for coverage levels 50% - 85%, index corresponding the ascending coverage. Within each array, index values are as shown: double[* , 0] → RP Optional, double[* , 1] → RP Basic, double[* , 2] → RP Enterprise, double[* , 3] → RPHPE Optional, double[* , 4] → RPHPE Basic, double[* , 5] → RPHPE Enterprise, double[* , 6] → YP Optional, double[* , 7] → YP Basic, double[* , 8] → YP Enterprise
<b>PremiumAllAcres</b>	<b>double[8 , 9]</b>	The premium per acre from the 'Premium' value multiplied by the acreage. Has same index structure as 'Premium'.
<b>Subsidy</b>	<b>double[8 , 2]</b>	The eight arrays are for coverage levels 50% - 85%, index corresponding the ascending coverage. Within each array, index arrays are as follows: double[* , 0] → Subsidy rate for Basic/Optional units double[* , 1] → Subsidy rate for Enterprise units.
<b>Liability</b>	<b>double[8 , 1]</b>	The eight arrays are for coverage levels 50% - 85%, index corresponding the ascending coverage. Each value is the liability at that coverage level.
<b>TotalPremium</b>	<b>double[8 , 9]</b>	Same structure as 'Premium'. Values are the premiums before the subtracting the subsidy.
<b>TotalPremiumAllAcres</b>	<b>double[8 , 9]</b>	The total premium per acre from 'TotalPremium' multiplied by the acreage amount. Has same index structure as 'Premium'.
<b>SubsidyAmount</b>	<b>double[8 , 9]</b>	Same index structure as 'Premium'. Values are the dollar amount per acre that are subtracted from the 'TotalPremium' to give you the 'Premium'.
<b>SubsidyAmountAllAcres</b>	<b>double[8 , 9]</b>	The subsidy amount per acre from 'SubsidyAmountAllAcres' multiplied by acreage amount. Has same index structure as 'Premium'.
<b>Guarantee</b>	<b>double[8 , 3]</b>	The eight arrays are for 50-85% coverage levels with index corresponding to ascending coverage level. The values in each array are as follows: double[* , 0] → Minimum Revenue Guarantee double[* , 1] → Revenue guarantee double[* , 2] → Yield guarantee



<b>CountyLevelPrem</b>	<b>double[5, 9]</b>	The five arrays are for coverage levels index corresponding the ascending coverage. The values in each list match the index structure in 'Premium'.
<b>CountyLevelGuarantee</b>	<b>double[5, 3]</b>	The five arrays are for coverage levels index corresponding the ascending coverage. The values in each array are as follows: double[* , 0] → Minimum Revenue Guarantee    double[* , 1] → Revenue guarantee    double[* , 2] → Yield guarantee
<b>CountyDataAvailable</b>	<b>bool</b>	Indicates whether county level data is available for the input given.
<b>Plans</b>	<b>Int[]</b>	Array of unspecified length, indicating what insurance plans are available for the inputs given.
<b>Parameters</b>	<b>string</b>	Array of unspecified length, indicating what insurance plans are available for the inputs given. Coverage levels (e.g. '50%') Policy ('rp', 'yp', 'rphpe') Unit ('Basic', 'Optional', 'Enterprise') Parameters (Parameters of the equation)



Please contact [support@analytics.ag](mailto:support@analytics.ag) or [josh@ag-analytics.org](mailto:josh@ag-analytics.org) with any comments or questions.

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