

# Pasture, Rangeland, Forage Rainfall Index Plan of Insurance

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This presentation does not replace or supersede any procedures or modify any provisions contained in the complete insurance policy.



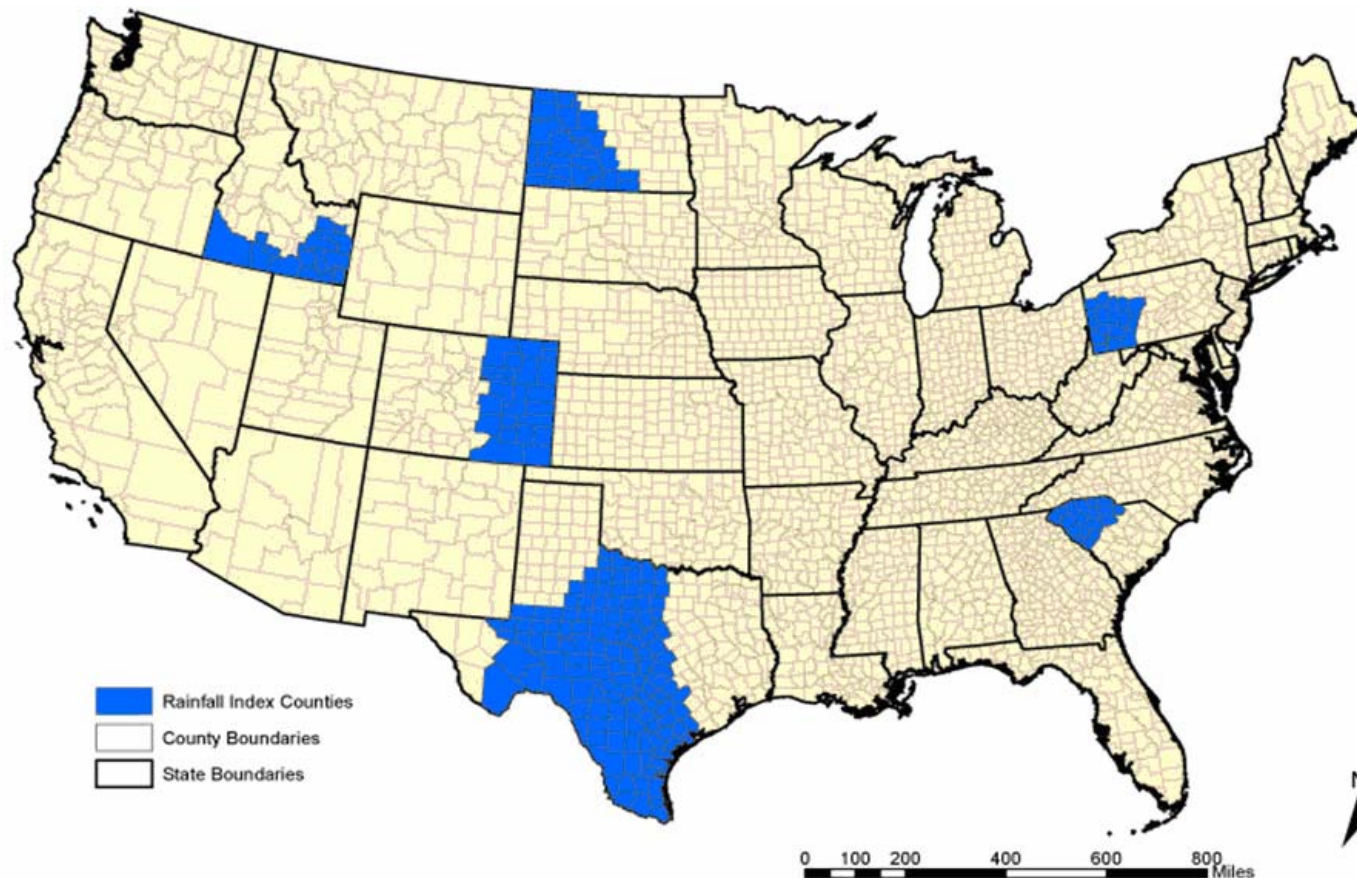
# Introduction and Program Overview

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Introduction and Overview  
Science Behind the Program  
Program Basics  
Additional Tools and Information  
Detailed Example

# Introduction

- Beginning with the 2007 Crop Year





# Challenges

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- Crop challenges
  - Various plant species
  - Timing of plant growth
  - Crop continuously harvested via livestock
  - Lack of individual/industry data
  - Vast range of management practices across the industry
  - Publicly announced prices not available



# Crop Types

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- Grazingland
  - Established acreage of perennial forage
  - Intended for grazing by livestock
  - Acreage must be suitable for grazing
- Hayland
  - Established acreage of perennial forage
  - Intended for haying
  - Acreage must be suitable for haying



# Program Overview

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- GRP program
  - Group plan
    - Losses cover an area
  - No individual coverage
  - Index – based on precipitation
    - Not measuring actual individual production
  - No loss adjustments, records, etc.
  - Timely payments
  - Does not reward poor management practices



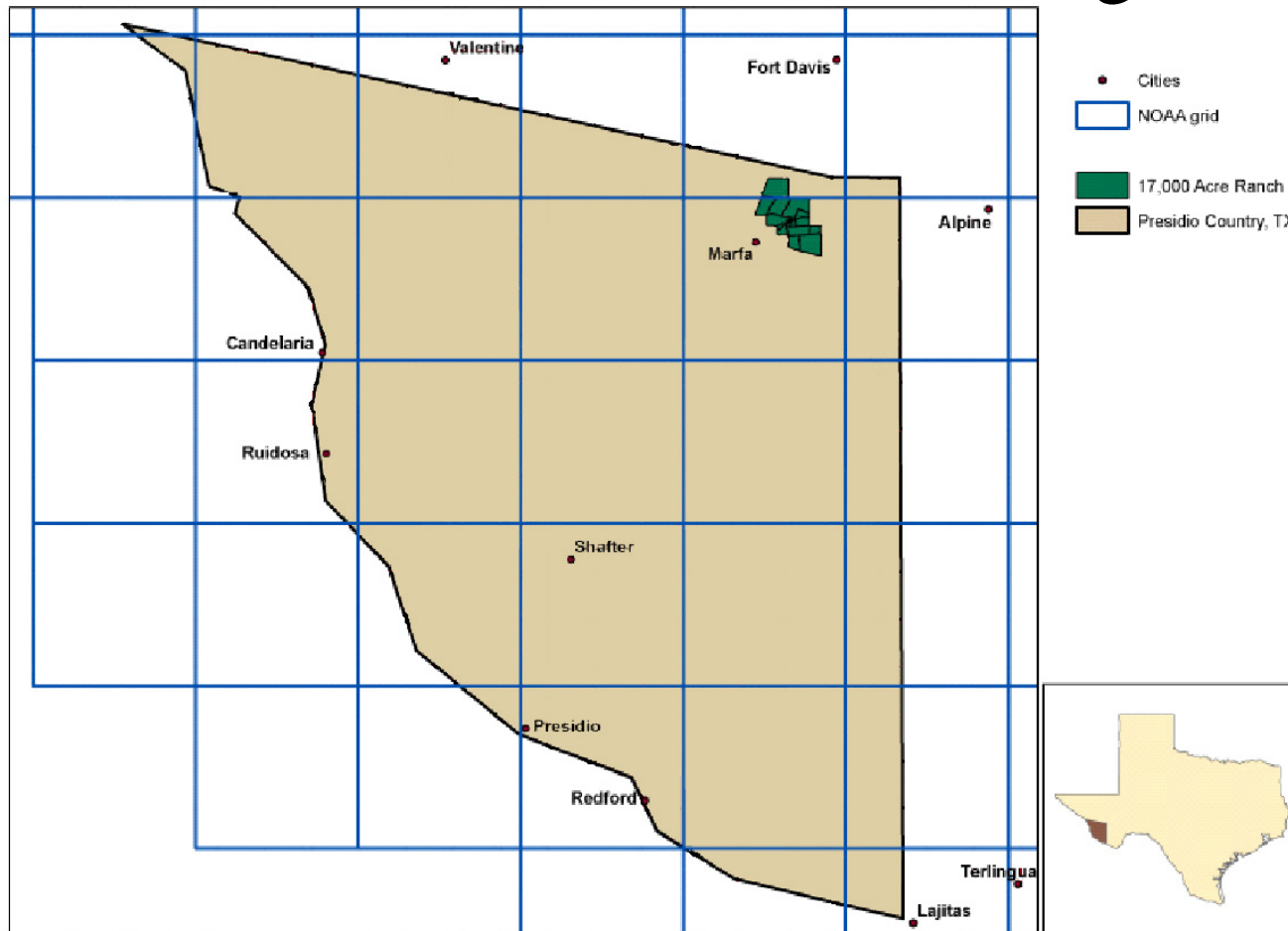
# Program Overview

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- Index background
  - Lack of actual producer/industry production data
  - No consistent and sound methodology for measuring production for the crop
  - The deviation from long-term normal precipitation is used to establish the index
    - SINGLE PERIL COVERAGE
  - Precipitation has a high degree of correlation to forage production

# Program Overview

- Area of insurance = ~ 12 x 12 mile grids







# Program Overview

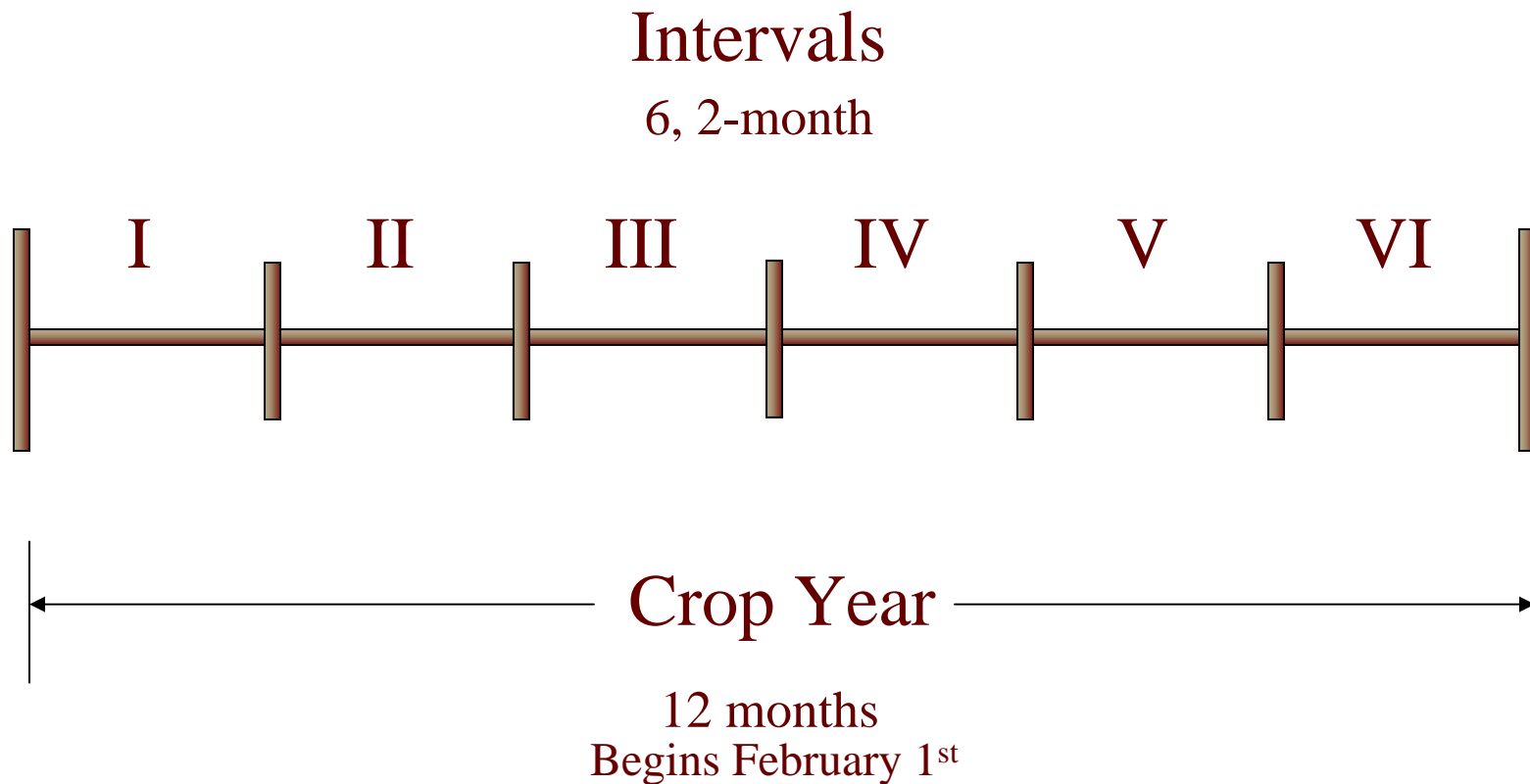
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- Index Intervals
  - Multiple Intervals offered – 6
  - Crop year divided into 6, 2-month Intervals for each grid
  - Ability for producers to manage appropriate timing risks
    - Correlate to individual growth patterns and production seasons
  - The 2-month Intervals provide for greater reaction to precipitation events vs. a yearly average

# Program Overview

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## □ Index Intervals





# Program Overview

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## □ Index Intervals

### ■ Producers must select at least 2 Intervals

- The purpose of the program is to insure annual forage production
  - Total annual forage production is influenced by precipitation in more than one 2-month Interval; therefore, producers are required to insure in more than one Interval

Maximum percentages are region specific

- Based on growing season (50 – 70%)



# Program Overview

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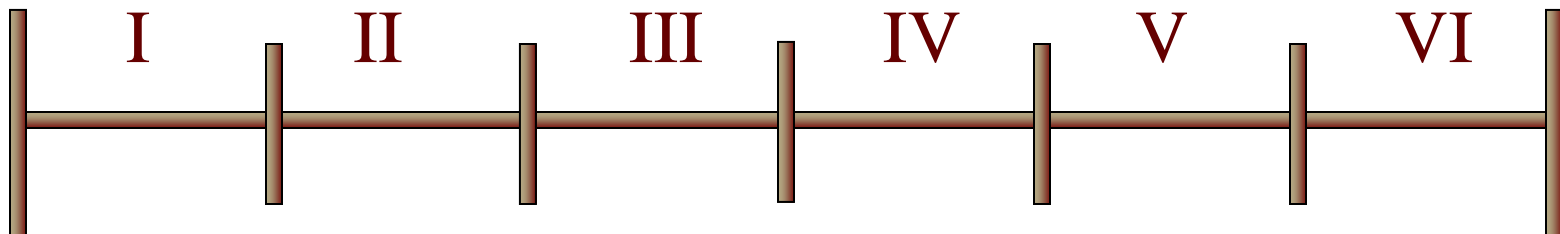
## □ Index Intervals

- Minimizes dependency on subjective pre-determined forage growing seasons
  
- Maintains consistency across the country
  - Allows for regional and local variances
  - Allows individual freedom to select appropriate Intervals
  
- Index Intervals are mutually exclusive
  - One index does not effect the others
  - All rated separately
  - These Intervals act as ‘mini-insurance periods’

# Index Intervals

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<b>INDEX INTERVALS</b>	<b>START DATE</b>	<b>END DATE</b>
(221) Index Interval I	February 1	March 31
(222) Index Interval II	April 1	May 31
(223) Index Interval III	June 1	July 31
(224) Index Interval IV	August 1	September 30
(225) Index Interval V	October 1	November 30
(226) Index Interval VI	December 1	January 31





# Program Overview

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- Coverage Levels
  - Percentages available: 90, 85, 80, 75, and 70
  - Consistent with other GRP programs
  - Higher coverage levels reduce basis risk
    - Correlates closer to individual experience
  
- Sales Closing Date and Acreage Reporting Date
  - November 30th



# Program Overview

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## □ Rating

- Each grid, Index Interval, and coverage level is individually rated
  - No economic advantage of insuring in one scenario vs. another
  - Encourages producers to select a scenario that best mitigates their operation/production risks



# Program Overview

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- Not required to insure 100% of acreage
  - Forage utilized in the annual grazing or hay cycle can be insured without insuring all acreage
  - All acres within a property may not be productive, e.g., rocky areas, submerged areas
  - Provides additional flexibility for the insured to design the coverage to his specific needs
  - Because the program is a group program and other programs are not available, there is no opportunity to ‘move’ production





# Program Overview

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- Program supported via internet
  - Provides the most efficient and effective way to deliver the program
  - Allows access to the mapping tools
    - Locate grazing areas and associated Grid ID numbers
  - Provides access to the historical indices
  - Allows access to all relevant data, materials, and tools associated with the program



# **Science and Technology Behind the Program**

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# Crop Biology

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- The program addresses forage-based production systems on land areas producing primarily perennial vegetation
- Comprised of diverse plant communities and mixtures:
  - Perennial and annual
  - Warm season and cool season
  - Different growth habits over extended time periods
- Because of the nature of forage-based systems, the program is designed to insure annual production



# Program Technology

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- Precipitation is highly correlated with forage production, but does not directly predict actual forage production
  
- Index starts accumulating on the first day of the specified Interval through the last day of the same Interval
  - Influence of extreme precipitation events is effectively reduced
  - At the end of each 2-month Interval the percent of normal is calculated

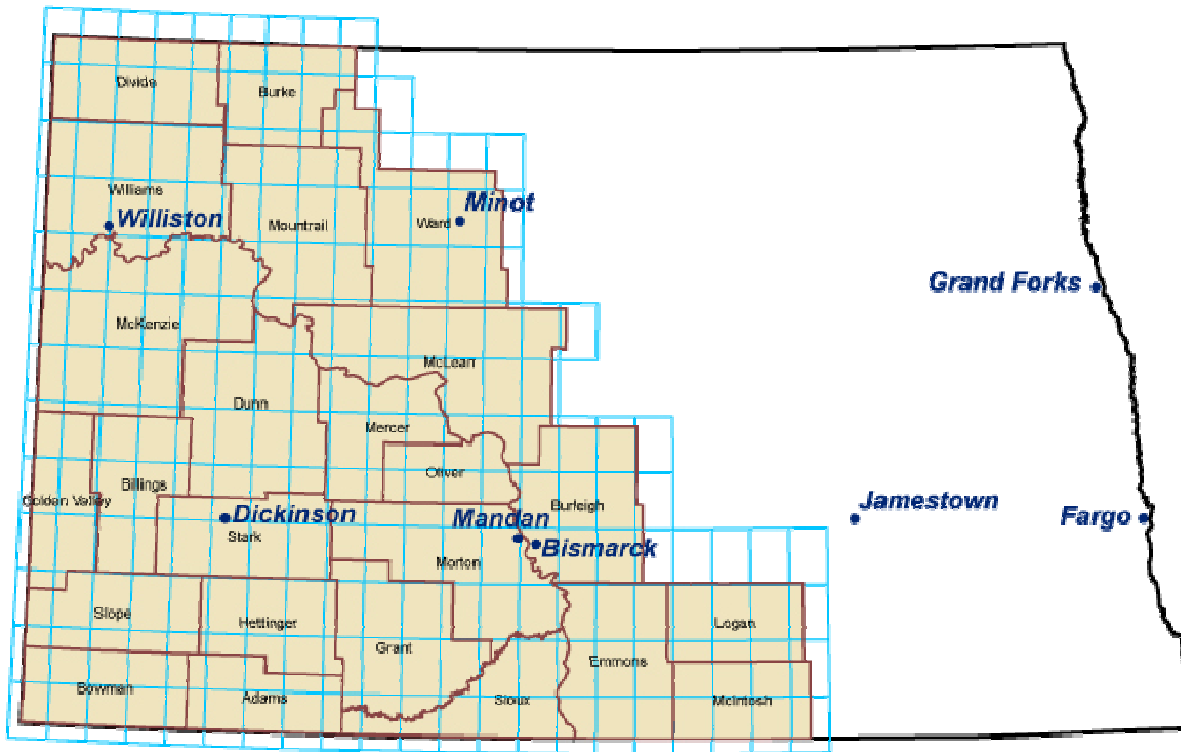


# Program Technology

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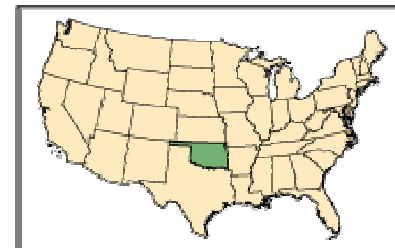
- Daily historical data since 1948
  
- Data updated daily
  
- Data is interpolated by NOAA into weather grids nationwide
  - ~ 12 x 12 miles in size (0.25° data), and used in many other national programs

# Grid Example for North Dakota



- Cities
- Rainfall Grid
- County Boundaries

0 15 30 60 90 120 Miles



# Program Basics

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# Basic Definitions

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- ***Insurable Acreage:*** Hayland and grazingland that is not planted annually
  - Overseeding into acreage of existing forage crops is acceptable
  - Annually planted crops currently not insurable
  - Insurable acres will consist of the total number of acres suitable for insurance under these crop provisions
    - Includes both insured acres and uninsured acres





# Basic Definitions

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- ***Insured Acres:*** The number of insurable acres selected to be insured by a producer
  - May choose to insure either Grazingland, Hayland, or both
  - Not required to insure 100% of the crop type(s)
    - If the insured chooses to insure the crop types under this policy they cannot insure the same crop under any other FCIC subsidized program



# Basic Definitions

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- ***County Base Value:*** Established production value of grazingland and hayland forage
  - Only one value per county for each crop type
  
- ***Productivity Factor:*** A percentage multiplier allowing the insured to individualize coverage based on their individual crop productivity
  - Insured selects between 60% and 150%
    - Only one productivity factor may be selected per county and crop type



# Basic Definitions

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- ***Policy Protection per Unit:*** Dollar amount of protection per acre, multiplied by the insured acres, multiplied by the producer's share of the unit for each grid

## **EXAMPLE:**

\$ Amount of Protection/ac = \$18.00, Insured Acres = 1,000, Share = 100%,  
50% Interval II, 50% Interval III

*For:*

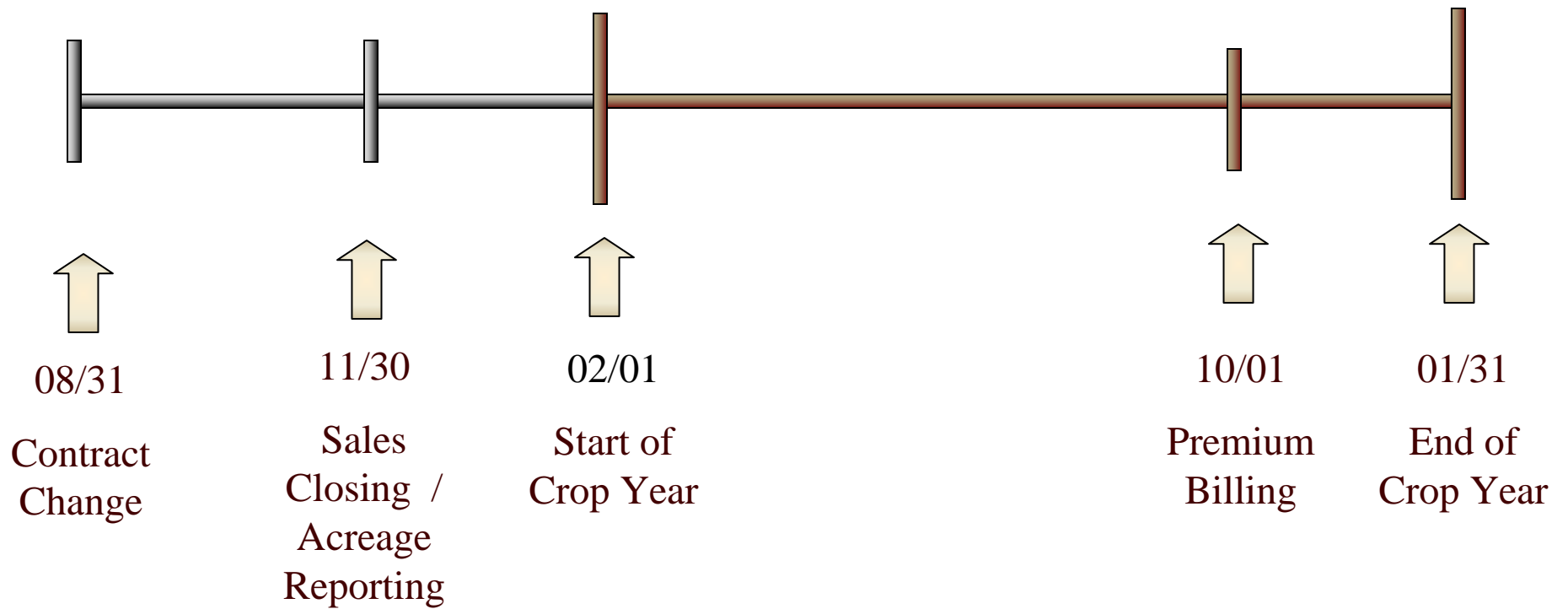
Index Interval II:  $\$18.00 \times 500 \text{ ac} \times 100\% \text{ (share)} = \mathbf{\$9,000}$

Index Interval III:  $\$18.00 \times 500 \text{ ac} \times 100\% \text{ (share)} = \mathbf{\$9,000}$

- ***Policy Protection:*** The sum of the policy protection per units (**\$18,000**)

# Program Dates

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# Index Definitions

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- ***Expected Grid Index:*** Based on the historical mean accumulated precipitation by Index Interval, expressed as a percentage;  $EGI = 100$
  
- ***Final Grid Index:*** Based on the current accumulated precipitation data for each Index Interval
  - If current data represents a 40% reduction, then  $FGI = 60$
  
- ***Trigger Grid Index:*** The selected coverage level multiplied by the Expected Grid Index
  - *i.e.* - Coverage Level = 85; then Trigger Grid Index = 85
  - If the final grid index falls below the trigger grid index, the insured may be due an indemnity

# Rates and Premiums

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- Premium Rate
  - Applied to cover risk
    - Based on the level of risk with each scenario
    - Each scenario independently rated
  - Not an application fee (ie., NAP)
- Subsidy
  - Premium is subsidized by USDA

Coverage Level	Subsidy
70%	64%
75%	64%
80%	59%
85%	59%
90%	55%



# Trigger and Indemnity Example

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## ***EXAMPLE:***

**Trigger Grid Index (Coverage Level) = 85**

**Final Grid Index: Interval II = 90, Interval III = 60**

Payment Calculation Factor =

Index Interval II:  $(85 - 90)/85 = \text{No indemnity due } (90 > \text{TGI})$

Index Interval III:  $(85 - 60)/85 = 0.294$

**Total Indemnity = \$2,646**

Index Interval II = **\$0**

Index Interval III = **(\$9,000 x 0.294) = \$2,646**

*{ \$18.00 x 500 (acres in III) x 1.0 (share) } x 0.294 = \$2,646*



# Grid ID Selection

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- ***Grid ID:*** A specific code associated with each grid
  
- ***Point of Reference:*** A designated point, identifiable by longitude and latitude
  - Selected by the insured
  - Point that best represents the insured acreage
  - This determines the Grid ID for insurance





# Grid ID Selection

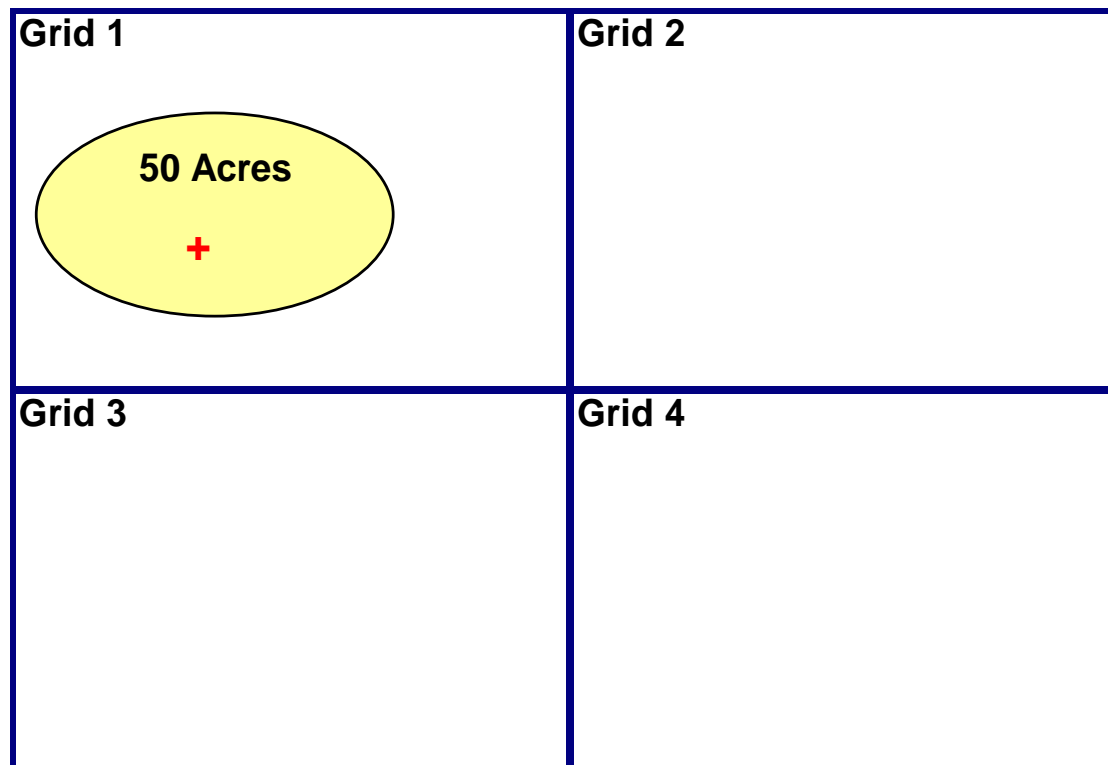
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- Certify the points of reference are representative of the acreage assigned to each Grid ID and the amount of acreage in each Grid ID(s)
  - ***Example:*** if the contiguous acreage is located in four grids the acreage can be separated into two, three, or four grids – or left all in one grid
  - The same acres cannot be insured in more than one Grid ID or county
  
- Determine the point of reference and corresponding Grid ID by Sales Closing Date

# Examples of Determining Grid ID(s)

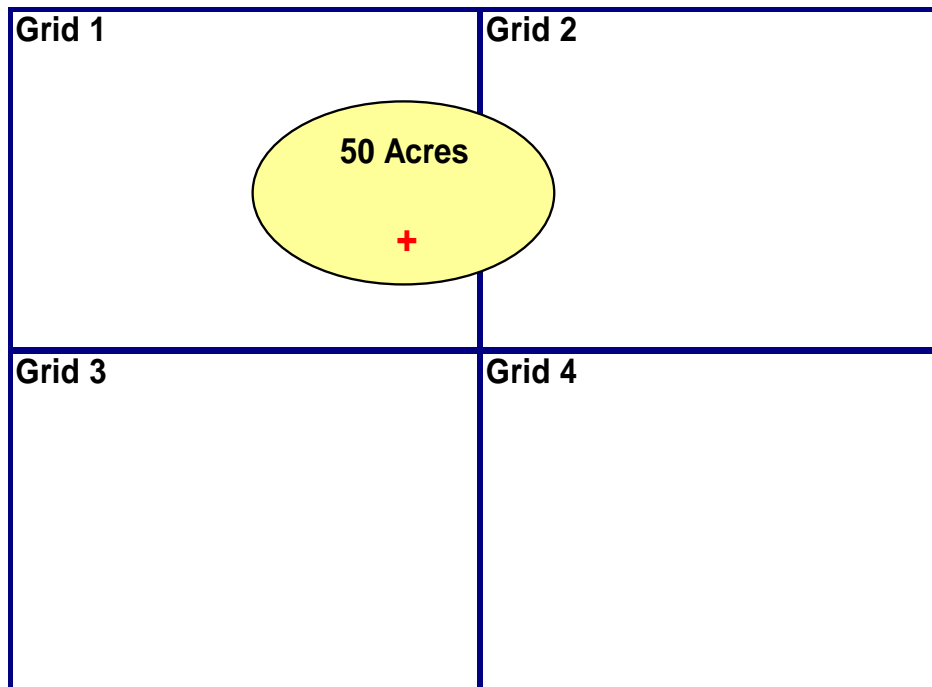
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- ❑ Contiguous Acreage – One Grid
- ❑ The insured picks **one** point of reference on the property



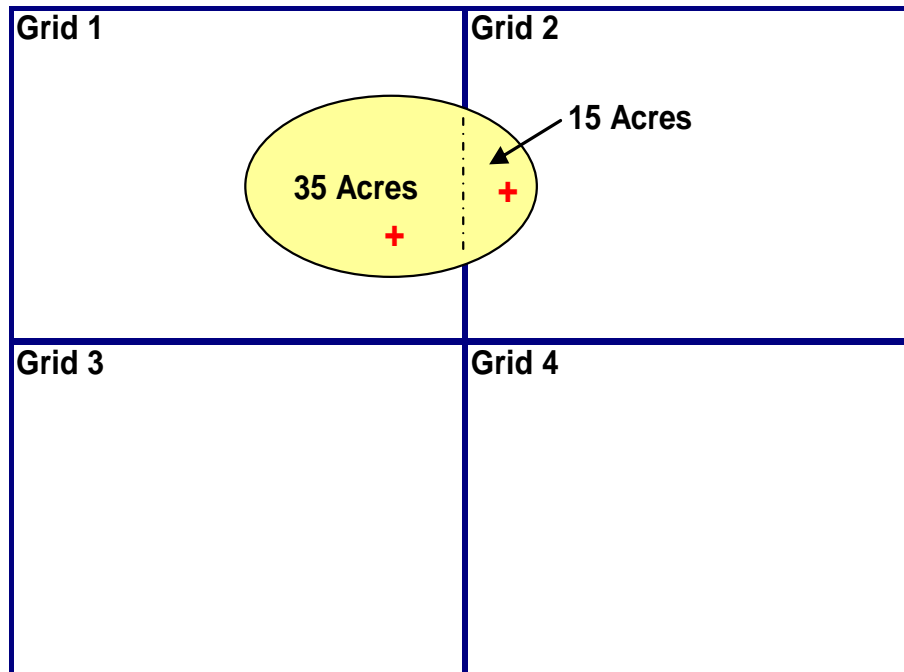
# Examples of Determining Grid ID(s)

- Contiguous Acreage – Multiple Grids, Counties, and/or States (**Combined**)
- The insured picks **one** point of reference in the contiguous acreage (**could pick Grid 1 or Grid 2**)



# Examples of Determining Grid ID(s)

- Contiguous Acreage – Multiple Grids, Counties, and/or States (**Separated**)
- The insured selects **one** point of reference in each Grid and assigns the number of acres





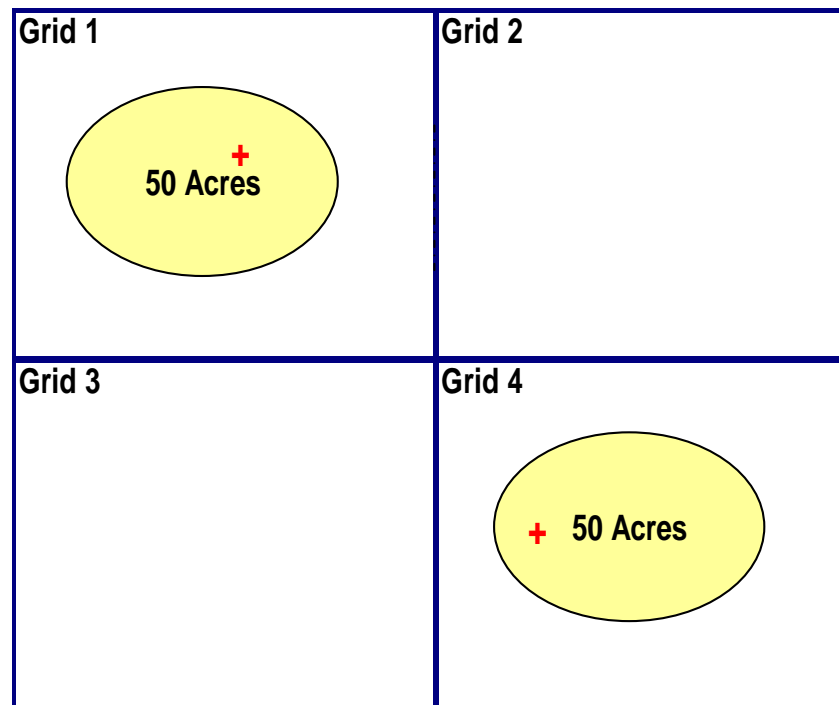
# Examples of Determining Grid ID(s)

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- Determining the Grid ID (s) for Non-Contiguous Acreage (multiple properties)
  - A point of reference must be selected for each separate, non-contiguous acreage
  - The steps in determining the point of reference are similar to the steps outlined for contiguous acreage, simply repeated for each non-contiguous acreage to be insured

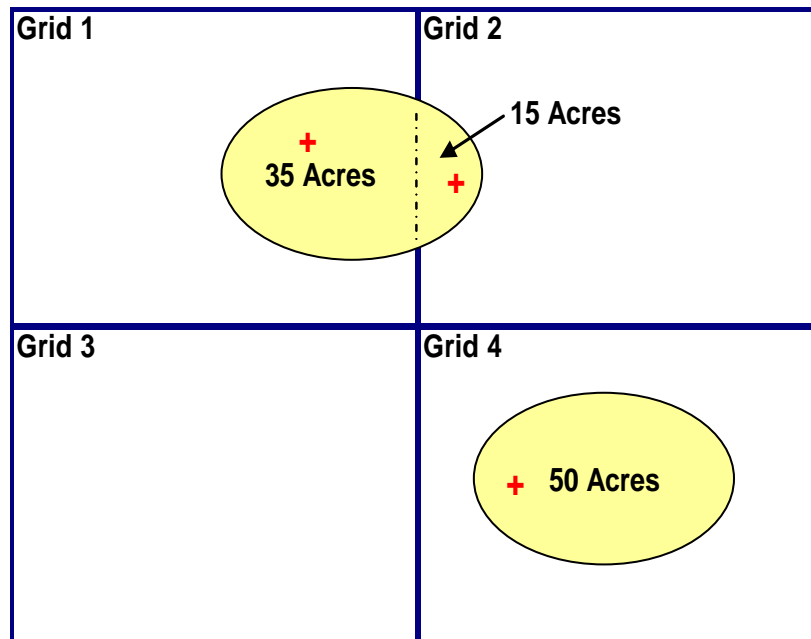
# Examples of Determining Grid ID(s)

- The insured has two separate acreage locations in two grids
- The insured picks a point of reference in Grid 1 and a point of reference in Grid 4 and insures the two properties under two separate Grid ID's



# Examples of Determining Grid ID(s)

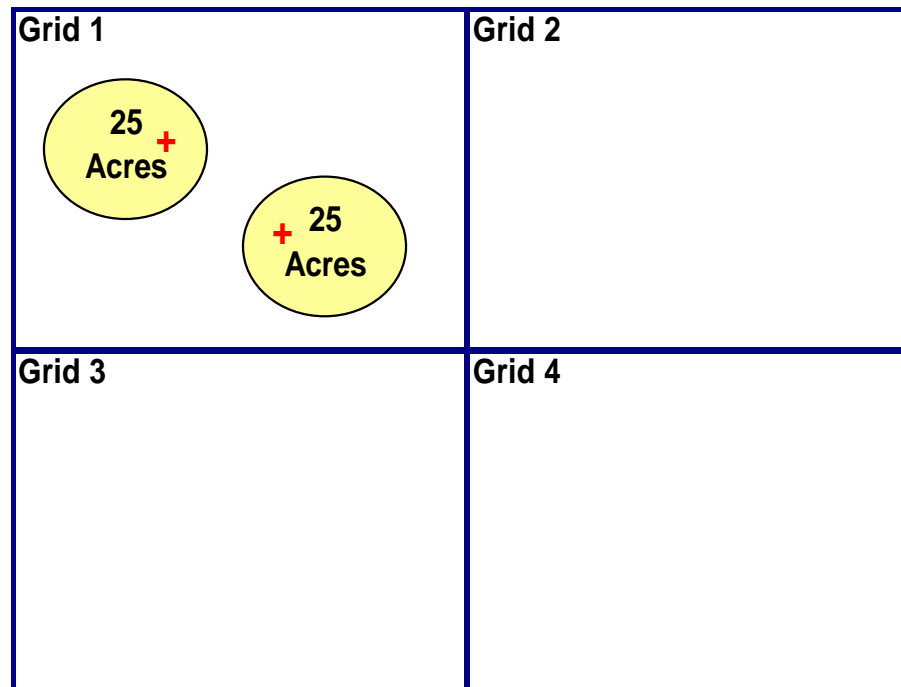
- The insured has two separate acreage locations in three grids
- First, the insured would pick a point of reference in Grid 4
- The insured then has the option of combining his acreage in Grid 1 and Grid 2, or insuring them separately by grid



# Examples of Determining Grid ID(s)

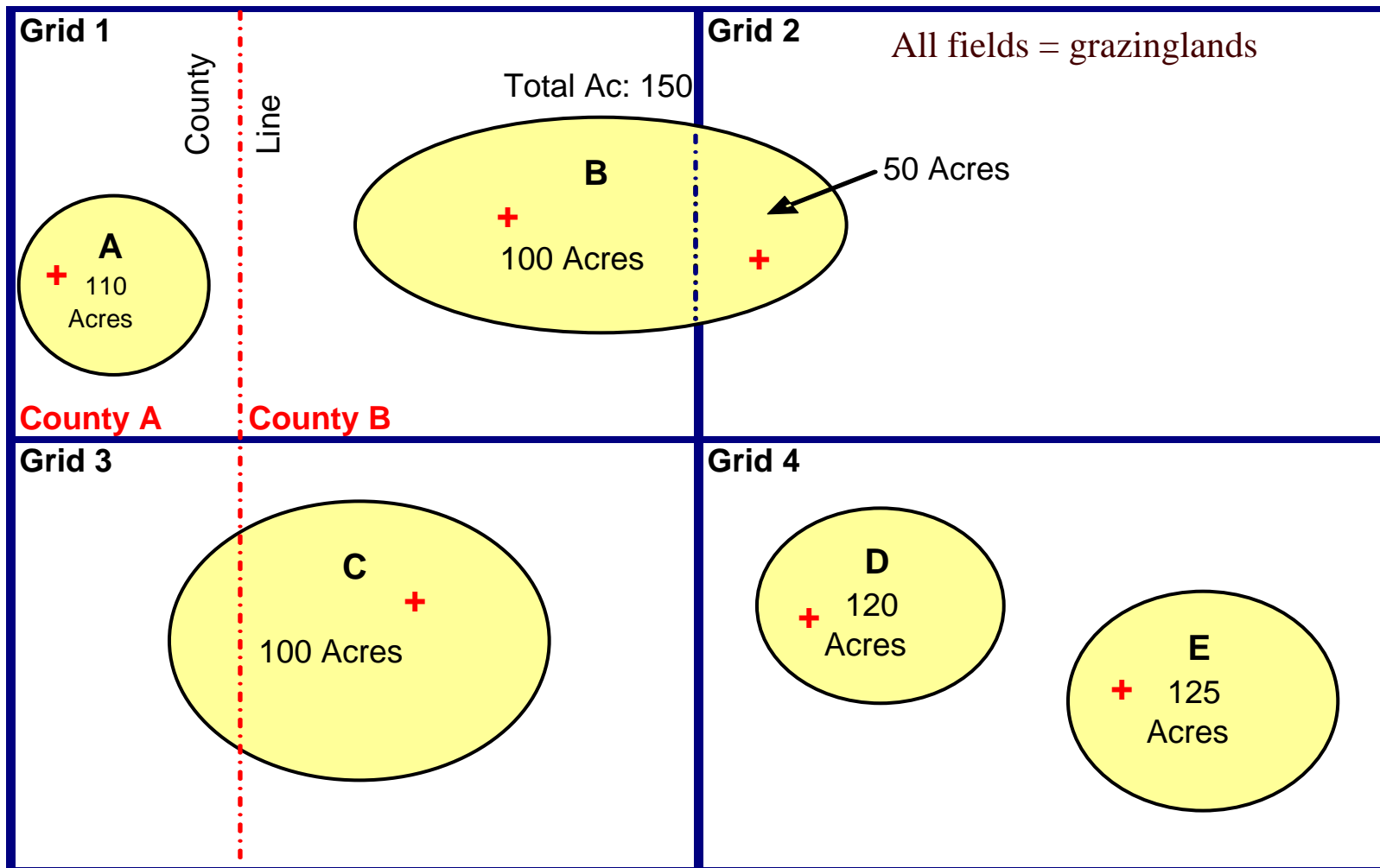
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- If the non-contiguous acreage is located in the same grid
- The non-contiguous acreage will be combined and given a single Grid ID

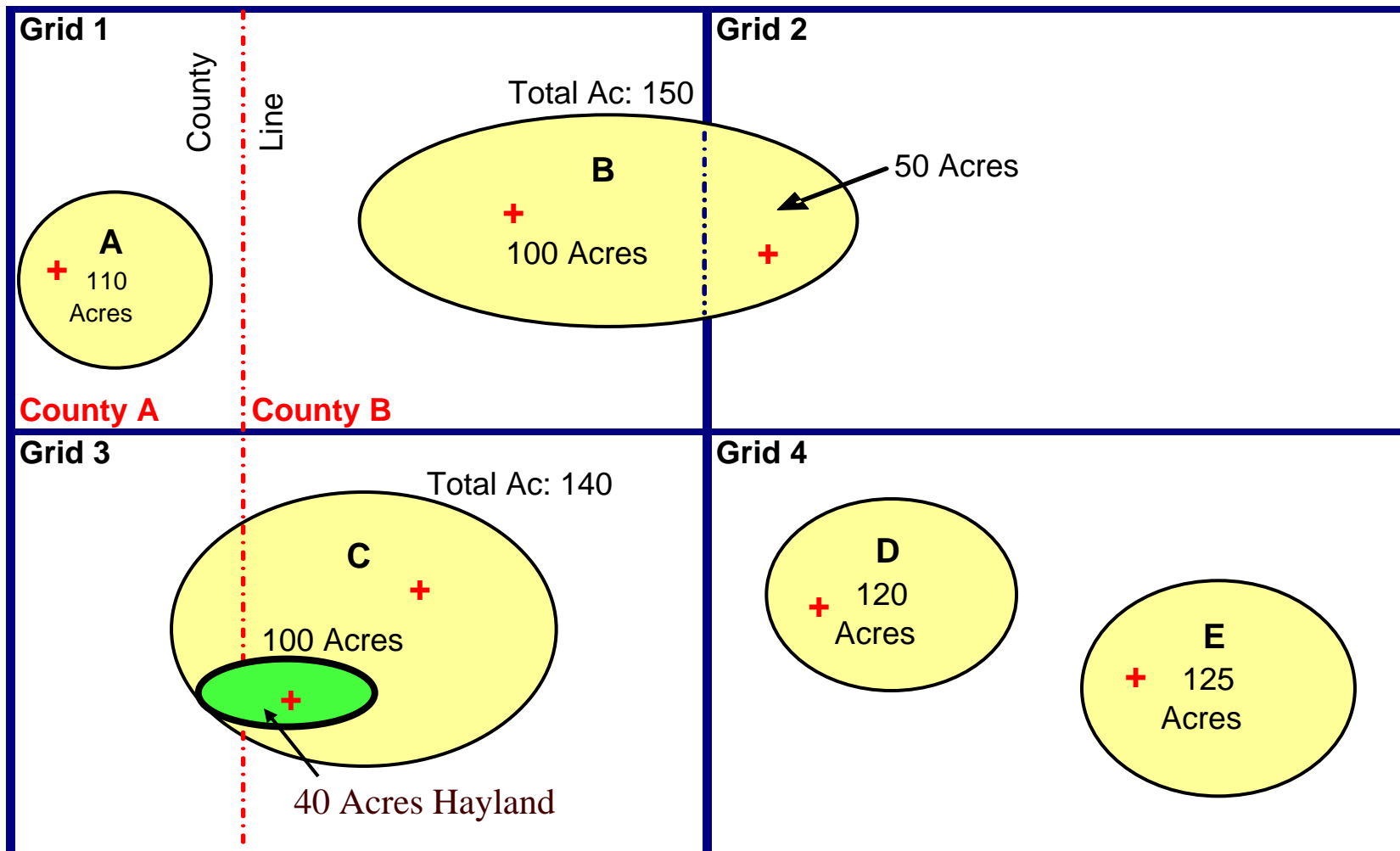




# Grid ID Selection Test



# Grid ID Selection Test



# **Use of the Website and Information Needed**

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# Topographical Map

## Map Driven Weather Grid Id Locator for Pasture, Rangeland, Forage Rainfall Index Insurance Program

**Steps**

1. Set Layer to Topo Map
2. Type in nearest town
3. Click FIND
4. View site list
5. Click site to view
6. Navigate to property
7. Switch layer to Photo
8. Navigate to point
9. Print view for records
10. Note Grid ID

**Type a city name and click FIND**

City:

**Possible matches. Click to view**

- [1. San Angelo, Texas](#)
- [2. San Angelo Junction, Texas](#)

**Select the type of map below**

Layer:

**View data at this location**

- [Lookup Grid ID Using Lat/Lon](#)
- [Decision Support Tool](#)
- [View Historical Rainfall Indices](#)
- [View Rates/Values](#)
- [RMA Premium Calculator](#)

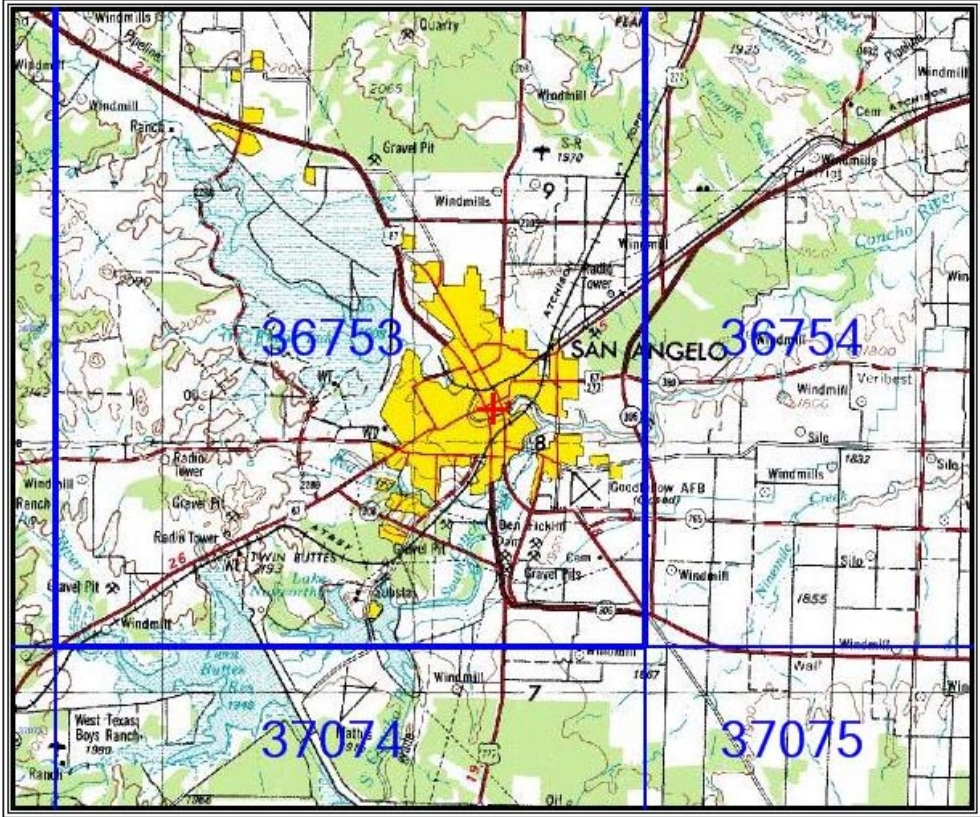
**Other Links**

- [Return to RMA](#)

**San Angelo, Tom Green County, Texas, United States**  
Latitude=31.4599, Longitude=-100.4401, Rainfall Grid ID = 36753.

Map Size: [Small](#) [Medium](#) [Large](#) [Extra Large](#)

[Link to this location](#)



To navigate, click on map or use N/S/E/W button.

To zoom In/Out, click resolution button or +/- button.

**+** Resolution

- 7 ft
- 13 ft
- 27 ft
- 54 ft
- 108 ft
- 215 ft
- 430 ft
- 860 ft
- 1720 ft

**-**

To print the map, click the print button below.

This website is a product of [RMA](#), [GMS](#), and [CNRIT](#). Powered by [TerraServer](#). Image courtesy of the U.S. Geological Survey.



# Determining Grid ID(s) – Basic Steps

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- ❑ Type in the city and/or county name where the property is located
- ❑ Select the city or county from the possible matches, a topo map for the area will be displayed
- ❑ Narrow the search by selecting an area near the actual location of the insured's property
- ❑ Once the applicant has located the general area, it is recommended they continue to refine the search by switching to the photo maps
- ❑ Using the topo map, photo map, or combination of both, choose an appropriate resolution for proper identification of the property boundaries and corresponding Grid ID(s)

# Photo Map

## Map Driven Weather Grid Id Locator for Pasture, Rangeland, Forage Rainfall Index Insurance Program

**Steps**

1. Set Layer to Topo Map
2. Type in nearest town
3. Click FIND
4. View site list
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10. Note Grid ID

**Type a city name and click FIND**

City:

**Possible matches. Click to view**

1. [San Angelo, Texas](#)
2. [San Angelo Junction, Texas](#)

**Select the type of map below**

Layer:

**View data at this location**

[Lookup Grid ID Using Lat/Lon](#)  
[Decision Support Tool](#)  
[View Historical Rainfall Indices](#)  
[View Rates/Values](#)  
[RMA Premium Calculator](#)

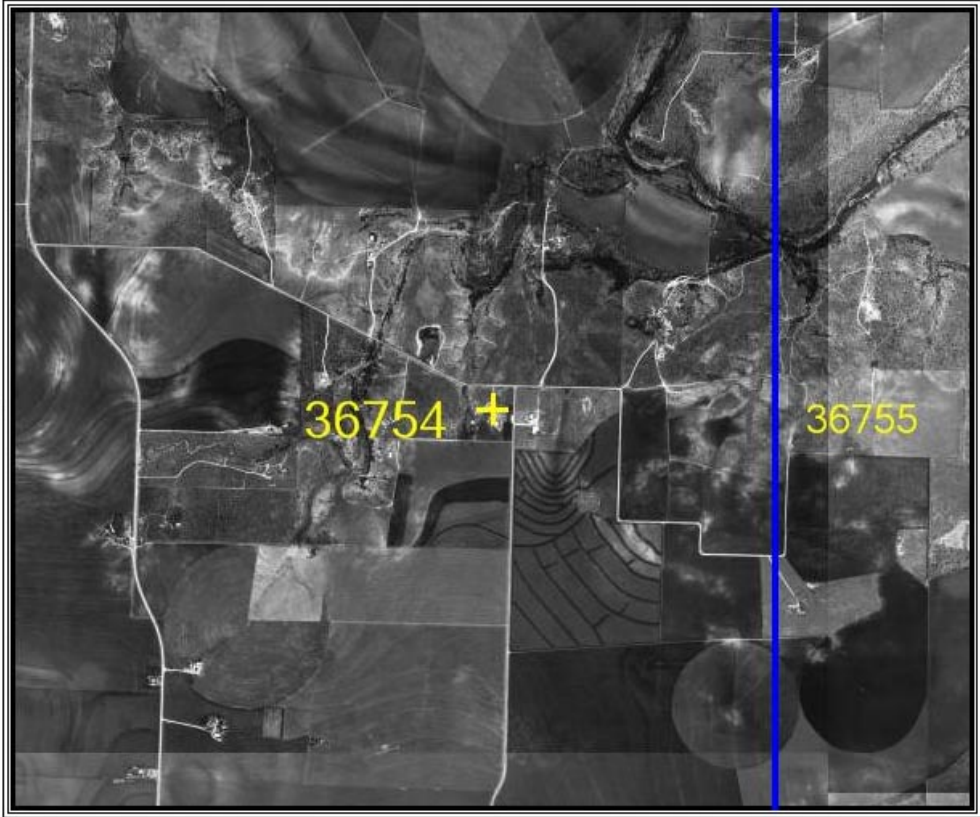
**Other Links**

[Return to RMA](#)

**18 mi E of San Angelo, Tom Green County, Texas, United States**  
**Latitude=31.5138, Longitude=-100.1403, Rainfall Grid ID = 36754.**

Map Size: [Small](#) [Medium](#) [Large](#) [Extra Large](#)

[Link to this location](#)



To navigate, click on map or use N/S/E/ W button.

To zoom In/Out, click resolution button or +/- button.

Resolution

- 3 ft
- 7 ft
- 13 ft
- 27 ft
- 54 ft
- 108 ft
- 215 ft
- 430 ft
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- 1720 ft

To print the map, click the print button below.

This website is a product of [RMA](#), [GMS](#), and [CNRIT](#). Powered by [TerraServer](#). Image courtesy of the U.S. Geological Survey.



# Determining Grid ID(s) – Additional Steps

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- The insured then selects **one** point of reference on the property by moving the cross marker ('+') to that location
  - Grid ID is listed at the top of the screen (and on the map itself)
  
- A Print Icon is in the lower right hand corner of the screen
  - This printed map can be used as a record to verify the Grid ID
  - Once printed, the property boundary can also be outlined and initialed by the insured for verification purposes
  
- The insured must certify the point of reference



# Information Agents Need to Collect

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- Insurable Acres per County
- Share
- **Producer Selections** (for each County/State combination):
  - Crop Type
  - Grid IDs
  - Coverage Level
  - Productivity Factor
  - Index Intervals
  - Insured Acres
  - Amount of Insurance per Index Interval



# Worksheet Information - Completed

## PASTURE, RANGELAND, FORAGE RAINFALL INDEX WORKSHEET

1. Insured's Name: \_\_\_\_\_ 2. Date: \_\_\_/\_\_\_/\_\_\_ 3. State: \_\_\_\_\_ ( ) 4. County: \_\_\_\_\_ ( )  
 5. Crop Type: \_\_\_\_\_ 6. Coverage Level/Trigger Index: \_\_\_\_\_ 7. Productivity Factor: \_\_\_\_\_ % 8. \$ Amt. of Prot/Ac: \_\_\_\_\_

9. Grid ID	10. Insurable Acreage	11. Insured Acreage	12. Share  <small>percentage</small>	13. Index Interval	14. Unit Number	15. % Insured acreage/ Unit  <small>percentage</small>	16. Insured acreage/ Unit  <small>acres</small>	17. Policy Protection/ Unit  <small>dollars</small>	18. Premium Rate/\$100  <small>dollars</small>	19. Premium/ Unit  <small>dollars</small>	20. Premium Subsidy Amt  <small>dollars</small>	21. Premium Due From Grower  <small>dollars</small>		
37881	100	100	100	I	221	00100	50	50	900	12.00	108	64	44	
				II	222	00200	50	50	900	14.00	126	74	52	
				III										
				IV										
				V										
				VI										
				<b>Total</b>						100	100			
37882	50	50	100	I	221	00100	10	5	90	13.50	12	7	5	
				II	222	00200	50	25	450	13.00	59	35	24	
				III										
				IV										
				V										
				VI	226	00300	40	20	360	12.00	43	25	18	
				<b>Total</b>						100	50			
37883	100	100	50	I	221	00100	50	50	450	13.00	59	35	24	
				II										
				III										
				IV										
				V										
				VI	226	00200	50	50	450	12.00	54	32	22	
				<b>Total</b>						100	100			
37884	245	245	100	I	221	00100	50	122.5	2205	13.00	287	169	118	
				II	222	00200	30	73.5	1323	14.00	185	109	76	
				III	223	00300	20	49	882	15.00	132	78	54	
				IV										
				V										
				VI										
				<b>Total</b>						100	245			
<b>County Totals</b>	<b>10a. 495</b>	<b>11a. 495</b>					<b>16a. 495</b>	<b>17a. \$8,010</b>		<b>19a. \$1,065</b>	<b>20a. \$628</b>	<b>21a. \$437</b>		

Prepared by: \_\_\_\_\_ (Agent's Signature) Insured's Initials: \_\_\_\_\_

# **Additional Program Tools and Information**

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# PRF - Rainfall Index Decision Tool

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- The calculator is not part of the program
  - Not required to buy insurance
  - Provides estimates
  - Values are based on current information to derive historical estimates of indemnity, premium, and subsidy numbers
  - May not match the official figures released by FCIC in past years
  - Contact a qualified insurance agent for actual premium quotes

# Decision Tool: Example

## Pasture, Rangeland, Forage Rainfall Index Decision Tool

Please complete the following information (Yellow areas):

State:    
 County:    
 Grid ID:    
 Insured Crop Type:    
 Coverage Level (%):    
 Productivity Factor (%):    
 Share (%):    
 Insurable Acres:    
 Sample Year:

County Base Value per Acre \$11.12   
 Dollar Amount of Protection per Acre \$11.34   
 Total Insured Acres 245   
 Total Policy Protection \$2,778   
 Subsidy Level 59%   
 Maximum % of Total Insured Acres Allowed per Index Interval 50%

Input information in all the yellow fields

Base information provided

This tool provides estimates for indemnity, premium, and subsidy values for the Pasture, Rangeland, Forage Rainfall Index Pilot Program. These values are based on current information to derive historical estimates of indemnity, premium, and subsidy numbers and may not match the official figures released by FCIC in past years. Contact a qualified insurance agent for actual premium quotes.

Index Interval*	Insured Acres per Index Interval	Policy Protection per Unit	Premium Rate per \$100	Total Premium (\$/ac)	Premium Subsidy (\$/ac)	Producer Premium (\$/ac)	Actual Index Value	Indemnity (\$/ac)
I	122.50	\$1,389	31.33	\$3.55	\$2.10	\$1.46	41.8	\$5.76

# Decision Tool: Example


Insurable Acres:

Sample Year:

This tool provides estimates for indemnity, premium, and subsidy values for the Pasture, Rangeland, Forage Rainfall Index Pilot Program. These values are based on current information to derive historical estimates of indemnity, premium, and subsidy numbers and may not match the official figures released by FCIC in past years. Contact a qualified insurance agent for actual premium quotes.

Index Interval*	Insured Acres per Index Interval	Policy Protection per Unit	Premium Rate per \$100	Total Premium (\$/ac)	Premium Subsidy (\$/ac)	Producer Premium (\$/ac)	Actual Index Value	Indemnity (\$/ac)
I	122.50	\$1,389	31.33	\$3.55	\$2.10	\$1.46	41.8	\$5.76
II	73.50	\$833	31.56	\$3.58	\$2.11	\$1.47	43.1	\$5.59
III	49	\$556	31.90	\$3.62	\$2.14	\$1.48	37.6	\$6.33
IV	0	\$0	31.24	\$0.00	\$0.00	\$0.00	38.1	\$0.00
V	0	\$0	30.72	\$0.00	\$0.00	\$0.00	39.6	\$0.00
VI	0	\$0	31.06	\$0.00	\$0.00	\$0.00	39.5	\$0.00
Per Acre	N/A	N/A	N/A	\$3.57	\$2.11	\$1.46	N/A	\$5.82
Policy Total	245	\$2,778	N/A	\$875	\$516	\$359	N/A	\$1,427

\*Intervals: I-Feb-Mar, II-Apr-May, III-June-July, IV-Aug-Sep, V-Oct-Nov, VI-Dec-Jan



Insert the number of acres for each Index Interval (percentages allowed specified in the Special Provisions)

Results

Once information is entered, click Submit Query

(if any information is changed must resubmit query)



# Additional Information

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- Historical Index
  - Lookup values since 1948
  
- Lookup Grid ID using Longitude/Latitude
  - Must be submitted in the correct data format
  
- RMA premium calculator



# Summary

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- ❑ A new program for a commodity with little or no history of crop insurance
- ❑ GRP based program
- ❑ Losses determined by index (not individual production)
- ❑ Terminology differences
- ❑ Producer is allowed or required to make choices
- ❑ Can tailor the program to producer risk management needs

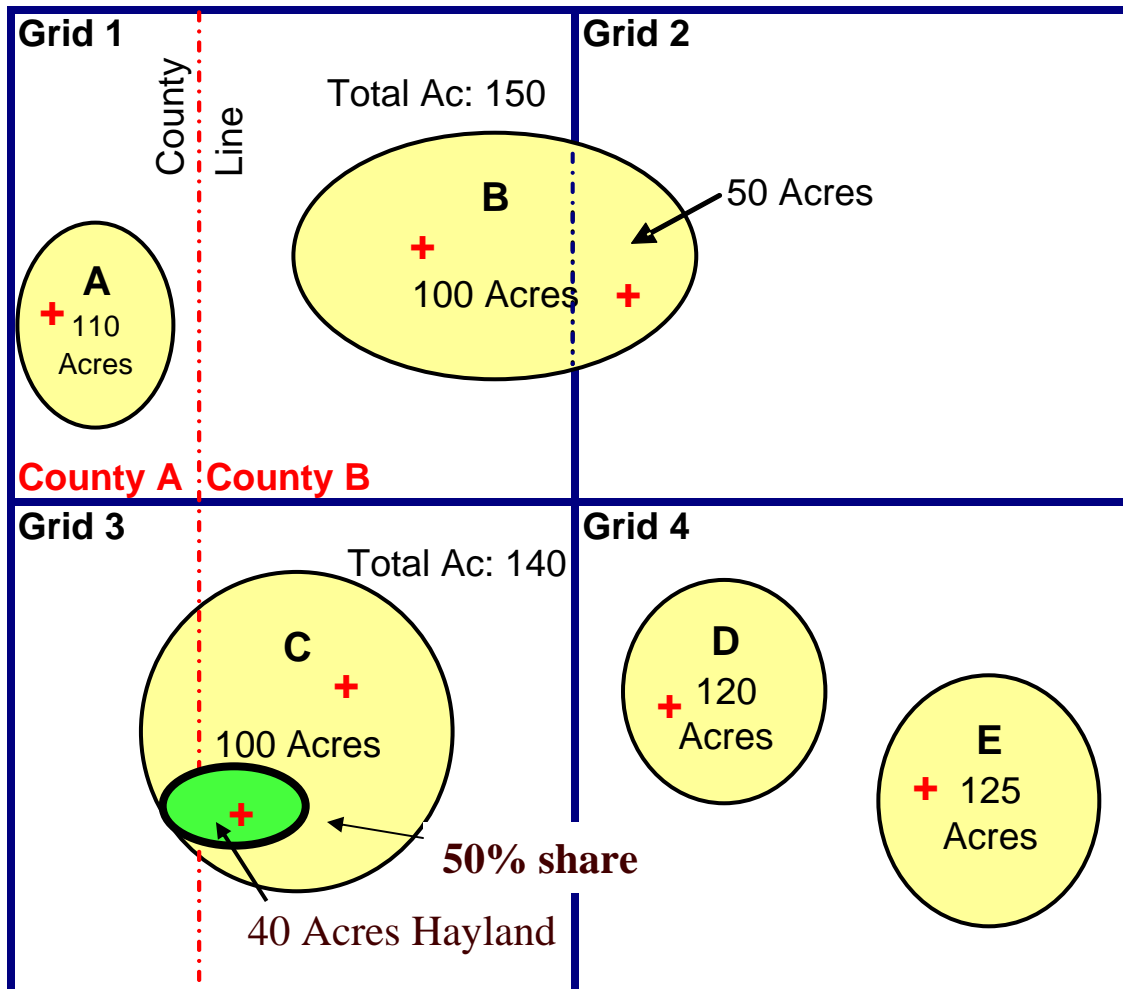
# **Joe Rancher Contacts His Agent**

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A step-by-step example



# Determining Grid ID's



Joe Rancher has 645 acres of insurable grazingland and hayland in two counties. His insurable acreage is contained in five non-contiguous properties: A, B, C, D, and E.

**Note: Actual Grid IDs will have 5 digits.**



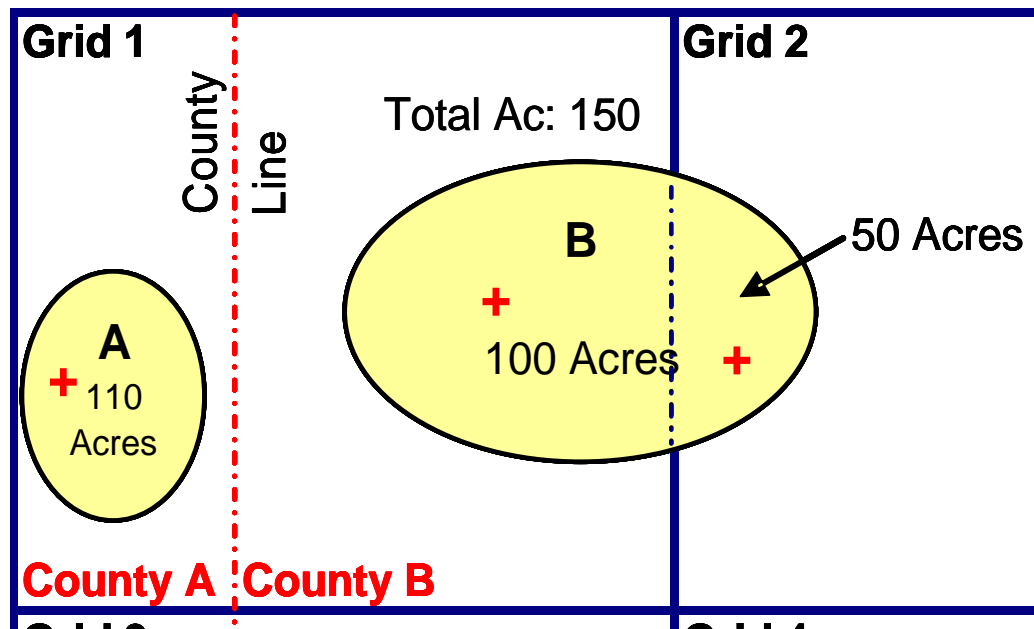
# Decision

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- Joe Rancher decides to insure the four properties (535 insurable acres) located in County B and leave property A uninsured in County A
- Had he chosen to insure Property A in County A, he would have had to insure that acreage separately because Property A is non-contiguous from his other properties and located in a different county

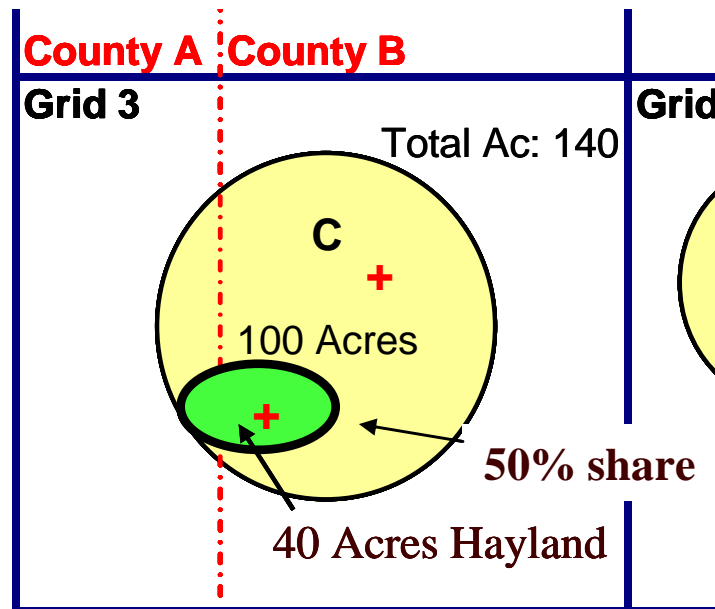
# Decision

- Property B – Contiguous acreage located in more than one grid
  - Decides to separate the property into two Grid IDs, with 100 insured acreage in Grid 1 and 50 insured acreage in Grid 2. He picks a reference point in each grid



# Decision

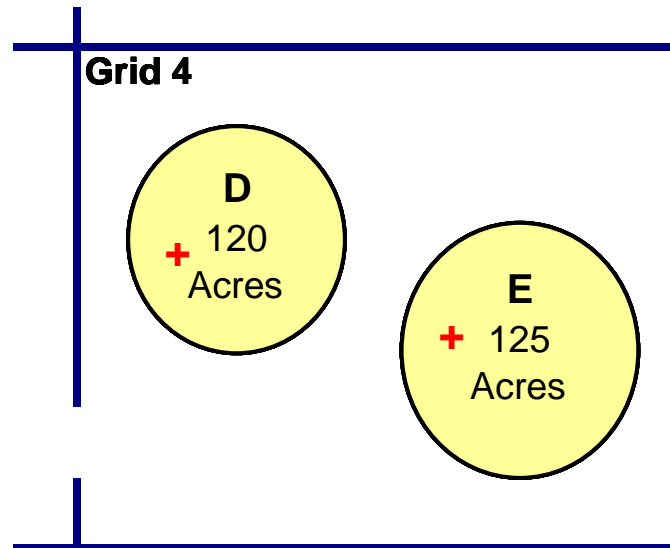
- Property C – Contiguous acreage spread into more than one county, which contains two crop types (both grazingland and hayland with 50% share)
  - Decides to pick a point of reference in County B and use that point of reference to represent all the contiguous insurable grazingland acreage (100 acres) in both County A and County B (decides not to insure haylands)



# Decision

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- Property D and E – Non-Contiguous acreage located in a single grid (both grazingland with 100% share)
  - Joe Rancher combines Properties D and E and insures all 245 acres under Grid ID 4



# Summary

Insured Acreage, Grid ID, Coverage Level, Productivity Factor, \$ of Protection/Ac

Grid ID	Property	Insured Acreage
Grid 1 (insert the actual Grid ID number for the insured, i.e. 37881)	B	100
Grid 2 (insert the actual Grid ID number for the insured, i.e. 37882)	B	50
Grid 3 (insert the actual Grid ID number for the insured, i.e. 38773)	C	100
Grid 4 (insert the actual Grid ID number for the insured, i.e. 38774)	D & E	245
<b>Total</b>		<b>495</b>

Joe Rancher selects for grazingland:

Coverage Level = 85%

Productivity Factor = 120%

County Base Value = \$17.65

Dollar Amount of Production per Acre

=  $\$17.65 \times 0.85 \times 1.20$

= \$18.00 per Acre

# Summary

Grid ID	Index Interval	Unit Number	% Protection	Number of acres
Grid 1 Insured acreage = 100	I	00100	50%	50 ac
	II	00200	50%	50 ac
	III			
	IV			
	V			
	VI			
	<b>Total</b>			<b>100%</b>
Grid 2 Insured acreage = 50	I	00100	10%	5 ac
	II	00200	50%	25 ac
	III			
	IV			
	V			
	VI	00300	40%	20 ac
	<b>Total</b>			<b>100%</b>
Grid 3 Insured acreage = 100	I	00100	50%	50 ac
	II			
	III			
	IV			
	V			
	VI	00200	50%	50 ac
	<b>Total</b>			<b>100%</b>
Grid 4 Insured acreage = 245	I	00100	50%	122.5 ac
	II	00200	30%	73.5 ac
	III	00300	20%	49 ac
	IV			
	V			
	VI			
	<b>Total</b>			<b>100%</b>

Designates specific percentage of the insured acreage to at least two of the Index Intervals for each Grid ID

He finds that he can place no more than 50% of his insured acreage to any one Index Interval

Note: Interval selections do not have to be contiguous

# Policy Protection per Unit (10 Units)

Grid ID	Index interval	Unit Number	Policy Protection/Unit
<b>Grid 1</b> Insured acreage = 100 100% share	I (\$18.00 X 50ac X 1.0 )	00100	\$900
	II (\$18.00 X 50ac X 1.0)	00200	\$900
	III		
	IV		
	V		
	VI		
<b>Grid 2</b> Insured acreage = 50 100% share	I (\$18.00 X 5ac X 1.0)	00100	\$90
	II (\$18.00 X 25ac X 1.0)	00200	\$450
	III		
	IV		
	V		
	VI (\$18.00 X 20ac X 1.0)	00300	\$360
<b>Grid 3</b> Insured acreage = 100 50% share	I (\$18.00 X 50ac X 0.50)	00100	\$450
	II		
	III		
	IV		
	V		
	VI (\$18.00 X 50ac X 0.50)	00200	\$450
<b>Grid 4</b> Insured acreage = 245 100% share	I (\$18.00 X 122.5ac X 1.0)	00100	\$2,205
	II (\$18.00 X 73.5ac X 1.0)	00200	\$1,323
	III (\$18.00 X 49ac X 1.0)	00300	\$882
	IV		
	V		
	VI		
<b>Policy Protection</b>			<b>\$8,010</b>





# Premium

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- Joe Rancher and his agent look up the applicable premium rates using the premium rate tables
  
- Premium/unit (Index Interval) =
  - \$ amount of protection/acre
  - $\times$  number of insured acres/unit
  - $\times$  premium rate
  - $\times$  adjustment factor of 0.01
  - $\times$  share

# Summary of Premium

Grid ID	Insured Acreage & Share	Index Interval	Unit Number	Policy Protection/unit	Premium Rate/\$100	Premium
Grid 1	100ac 100% share	I	00100	$(\$18.00 \times 50 \text{ ac} \times 1.0 \text{ share}) = \$900.00$	\$12.00	\$108
		II	00200	$(\$18.00 \times 50 \text{ ac} \times 1.0 \text{ share}) = \$900.00$	\$14.00	\$126
		III				
		IV				
		V				
		VI				
		<b>Total</b>		<b>\$1,800.00</b>		<b>\$234</b>
Grid 2	50ac 100% share	I	00100	$(\$18.00 \times 5 \text{ ac} \times 1.0 \text{ share}) = \$90.00$	\$13.50	\$12
		II	00200	$(\$18.00 \times 25 \text{ ac} \times 1.0 \text{ share}) = \$450.00$	\$13.00	\$59
		III				
		IV				
		V				
		VI	00300	$(\$18.00 \times 20 \text{ ac} \times 1.0 \text{ share}) = \$360.00$	\$12.00	\$43
		<b>Total</b>		<b>\$900.00</b>		<b>\$114</b>
Grid 3	100ac 50% share	I	00100	$(\$18.00 \times 50 \text{ ac} \times 0.50 \text{ share}) = \$450.00$	\$13.00	\$59
		II				
		III				
		IV				
		V				
		VI	00200	$(\$18.00 \times 50 \text{ ac} \times 0.50 \text{ share}) = \$450.00$	\$12.00	\$54
		<b>Total</b>		<b>\$1,800.00</b>		<b>\$113</b>
Grid 4	245ac 100% share	I	00100	$(\$18.00 \times 122.5 \text{ ac} \times 1.0 \text{ share}) = \$2,205.00$	\$13.00	\$287
		II	00200	$(\$18.00 \times 73.5 \text{ ac} \times 1.0 \text{ share}) = \$1,323.00$	\$14.00	\$185
		III	00300	$(\$18.00 \times 49 \text{ ac} \times 1.0 \text{ share}) = \$882.00$	\$15.00	\$132
		IV				
		V				
		VI				
		<b>Total</b>		<b>\$4,410.00</b>		<b>\$604</b>
<b>Grand totals</b>				<b>\$8,010</b>		<b>\$1,065</b>



# Premium Subsidy Amount

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- Joe Rancher and his agent refer to the GRP subsidy tables
  - For the coverage level of 85%, the applicable subsidy percentage is 59%
  
- Premium Subsidy/Unit =
  - Premium/unit  $\times$  subsidy percentage
  - Example:  $\$108 \times 0.59 = \$64$



# Premium Due from Producer

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- The Premium due from Producer is the result of the Premium/unit minus the Subsidy/unit
- Premium per unit – Premium subsidy per unit  
Example:  $\$108 - \$64 = \$44$
- They sum the Subsidy and Producer Premiums to determine the Totals

# Summary of Premium, Subsidy, and Producer Premium

Grid ID	Index Interval	Unit Number	Premiums	Premium Subsidy	Producer Premium
Grid 1	I	00100	\$108	\$64	\$44
	II	00200	\$126	\$74	\$52
	III				
	IV				
	V				
	VI				
Grid 2	I	00100	\$12	\$7	\$5
	II	00200	\$59	\$35	\$24
	III				
	IV				
	V				
	VI	00300	\$43	\$25	\$18
Grid 3	I	00100	\$59	\$35	\$24
	II				
	III				
	IV				
	V				
	VI	00200	\$54	\$32	\$22
Grid 4	I	00100	\$287	\$169	\$118
	II	00200	\$185	\$109	\$76
	III	00300	\$132	\$78	\$54
	IV				
	V				
	VI				
<b>Totals</b>			<b>\$1,065</b>	<b>\$628</b>	<b>\$437</b>

# Worksheet with All Information

## PASTURE, RANGELAND, FORAGE RAINFALL INDEX WORKSHEET

1. Insured's Name: Joe B. Rancher 2. Date: 10/15/2006 3. State: TX (48) 4. County: Andrews (003)  
 5. Crop Type: Grazingland 6. Coverage Level/Trigger Index: 85 7. Productivity Factor: 120 % 8. \$ Amt. of Prot/Ac: 18.00

9. Grid ID	10. Insurable Acreage	11. Insured Acreage	12. Share  <small>percentage</small>	13. Index Interval	14. Unit Number	15. % Insured acreage/ Unit	16. Insured acreage/ Unit	17. Policy Protection/ Unit	18. Premium Rate/\$100	19. Premium/ Unit	20. Premium Subsidy Amt	21. Premium Due From Grower		
						<small>percentage</small>	<small>acres</small>	<small>dollars</small>	<small>dollars</small>	<small>dollars</small>	<small>dollars</small>	<small>dollars</small>		
37881	100	100	100	I	221	00100	50	50	900	12.00	108	64	44	
				II	222	00200	50	50	900	14.00	126	74	52	
				III										
				IV										
				V										
				VI										
				<b>Total</b>						100	100			
37882	50	50	100	I	221	00100	10	5	90	13.50	12	7	5	
				II	222	00200	50	25	450	13.00	59	35	24	
				III										
				IV										
				V										
				VI	226	00300	40	20	360	12.00	43	25	18	
				<b>Total</b>						100	50			
37883	100	100	50	I	221	00100	50	50	450	13.00	59	35	24	
				II										
				III										
				IV										
				V										
				VI	226	00200	50	50	450	12.00	54	32	22	
				<b>Total</b>						100	100			
37884	245	245	100	I	221	00100	50	122.5	2205	13.00	287	169	118	
				II	222	00200	30	73.5	1323	14.00	185	109	76	
				III	223	00300	20	49	882	15.00	132	78	54	
				IV										
				V										
				VI										
				<b>Total</b>						100	245			
<b>County Totals</b>		10a. 495	11a. 495				16a. 495	17a. \$8,010		19a. \$1,065	20a. \$628	21a. \$437		

Prepared by: Big Boy Agent (Agent's Signature) Insured's Initials: JBR

# **Final Grid Index and Indemnities**

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# Final and Trigger Grid Index

Grid ID	Index Interval	Unit Number	Final Grid Index	Trigger (Above or Below)
Grid 1	I	00100	120	Above
	II	00200	100	Above
	III			
	IV			
	V			
	VI			
Grid 2	I	00100	110	Above
	II	00200	90	Above
	III			
	IV			
	V			
	VI	00300	70	<b>Below</b>
Grid 3	I	00100	110	Above
	II			
	III			
	IV			
	V			
	VI	00200	60	<b>Below</b>
Grid 4	I	00100	120	Above
	II	00200	70	<b>Below</b>
	III	00300	60	<b>Below</b>
	IV			
	V			
	VI			

Trigger Grid Index is 85 for all grids and Index Intervals



# Calculating Indemnities

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- *Payment calculation factor* =  
$$\frac{(\text{trigger grid index} - \text{final grid index})}{\text{trigger grid index}}$$
- *Indemnity payment* =  
payment calculation factor  
 $\times$  Policy protection per unit

# Example Calculations

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- **Grid 4 – 245 Acres**
- **Index Interval I:** The final grid index of 120 is above the trigger grid index of 85. No indemnity is due

- **Index Interval II:** The final grid index of 70 is below the trigger grid index of 85

$$\begin{aligned}\text{Payment calculation factor} &= (85 - 70) / 85 \\ &= 0.176\end{aligned}$$

$$\begin{aligned}\text{Indemnity payment} &= 0.176 \times \$1,323 \\ &= \mathbf{\$233}\end{aligned}$$

- **Index Interval III:** The final grid index of 60 is below the trigger grid index of 85

$$\begin{aligned}\text{Payment calculation factor} &= (85 - 60) / 85 \\ &= 0.294\end{aligned}$$

$$\begin{aligned}\text{Indemnity payment} &= 0.294 \times \$882 \\ &= \mathbf{\$259}\end{aligned}$$



## Summary of Yearly Policy in Example

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- Joe Rancher insured 495 acres of grazingland in Four separate Grid ID's
- Joe Rancher paid \$437 in premium for \$8,010 in protection
- A total indemnity of \$687 will be due to Joe Rancher for this County and Crop Year

# Questions

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