Pasture, Rangeland, Forage Vegetation Index Plan of Insurance

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

Introduction and Program Overview

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

Program Overview Purpose

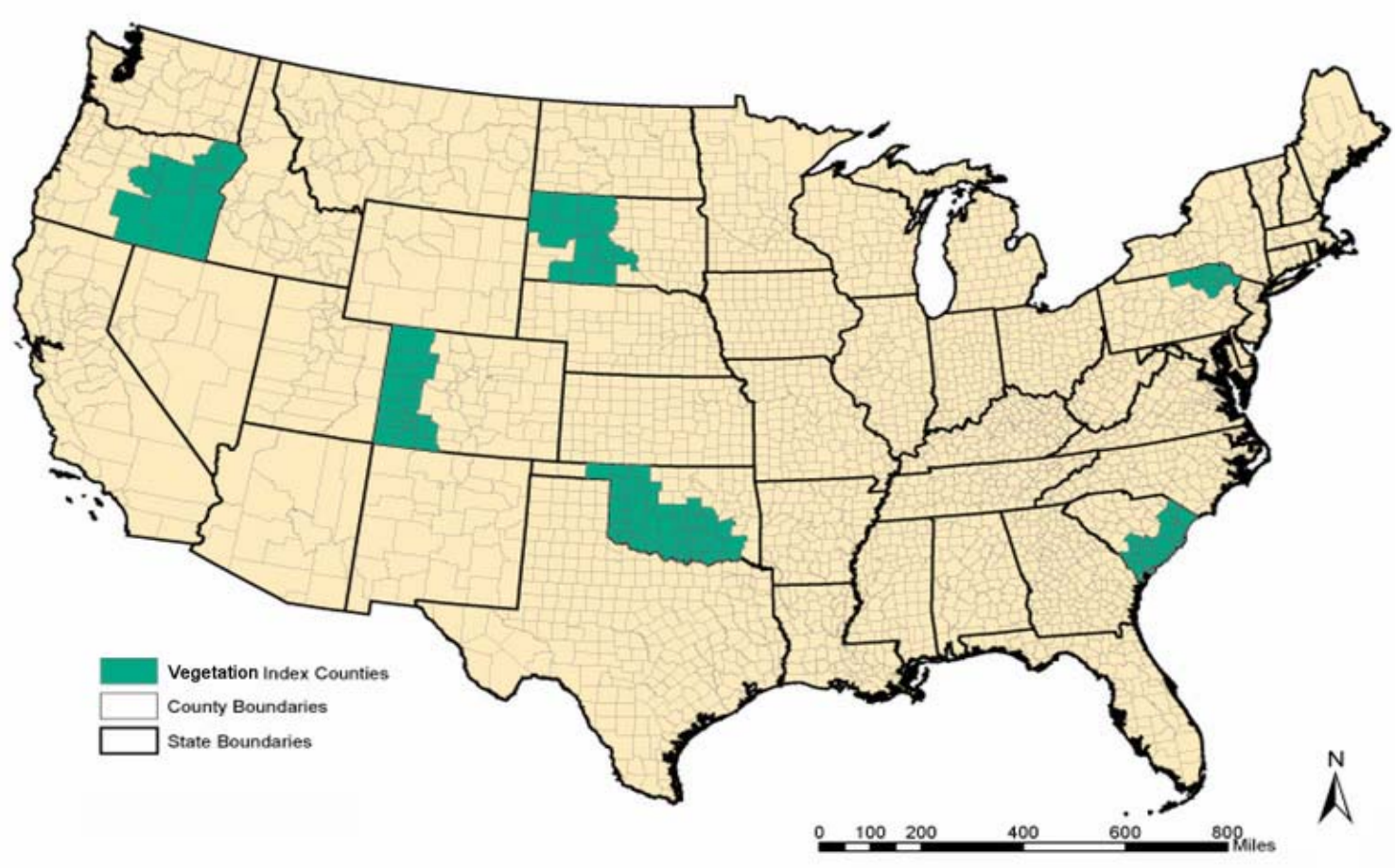
- The intent of this section:
  - Introduction to program and unique topics
  - Provide background and basic philosophy
- Details of the program provided in following sections

History

- History
  - The Agricultural Risk Protection Act of 2000 (ARPA) mandates programs to cover pasture and rangeland
  - Two new pilot programs approved for 2007 Crop Year
    - Pasture, Rangeland, Forage (PRF) – Vegetation Index
      - Covered in this training
    - Pasture, Rangeland, Forage (PRF) – Rainfall Index

Introduction

- Beginning with the 2007 CY



Program Potential

- Estimated acres covered by the pilot

State	Grazingland Acres	Hayland Acres
Colorado	6,999,791	250,480
Oklahoma	14,732,631	1,301,112
Oregon	12,479,419	551,819
Pennsylvania	218,386	285,480
South Carolina	251,952	38,302
South Dakota	21,827,464	788,963
Total	**56,509,643**	**3,216,156**

Source: 2002 Census of Agriculture for grazingland and Hayland plus 1997 Census of Agriculture data for Grazing Permit Acres for the County Data

Program Potential

- Estimated program potential:
  - (assume: Participation = 10%, Coverage Level = 75%...)

State	Estimated Average Rate	Estimated Premium Volume
Colorado	9.0%	$1,217,513
Oklahoma	6.3%	$2,580,173
Oregon	7.8%	$2,729,686
Pennsylvania	6.1%	$629,002
South Carolina	5.2%	$78,339
South Dakota	9.9%	$3,242,753
Total		**$10,477,466**

Source: 2002 Census of Agriculture for grazingland and Hayland plus 1997 Census of Agriculture data for Grazing Permit Acres for the County Data

Challenges

- 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 Information

- Crop
  - (0088) Pasture, Rangeland, Forage

- Crop Types
  - (064) Grazingland
  - (063) Hayland

Crop Types

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

Crop Types

- Hayland
  - Established acreage of perennial forage
  - Intended for haying
  - Acreage must be suitable for haying
    - Program covers all types of grazing and haying forage (i.e. not just for alfalfa)

Program Overview

- GRP program
  - Goal – utilize an existing policy type
    - Capitalize on current program familiarity
    - Increase marketability and effectiveness
  - The resulting design is based on the principles of the existing GRP program

Program Overview

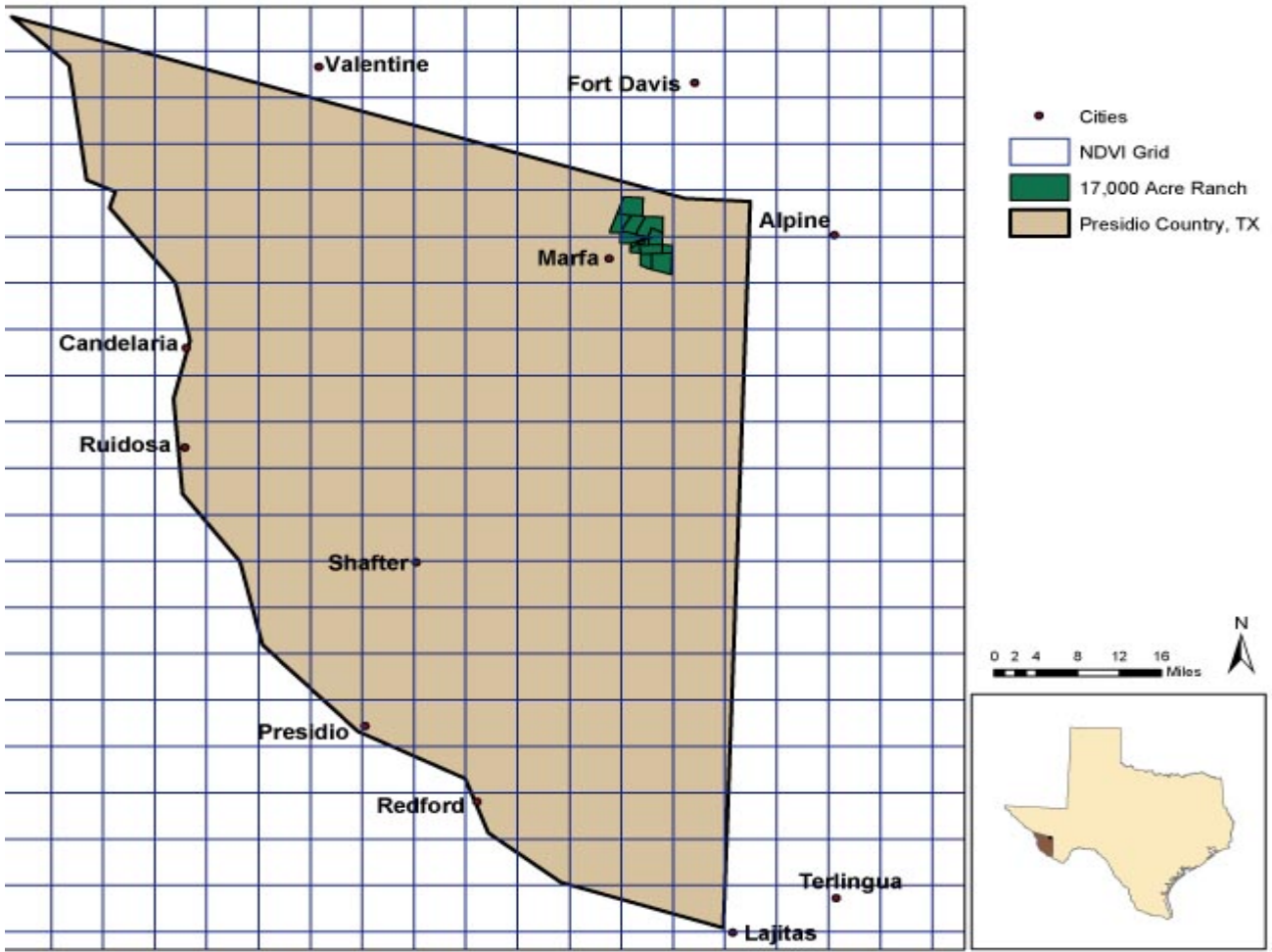
- Index background
  - Lack of actual producer/industry production data
  - No consistent and sound methodology for measuring production for the crop
  - The deviation from long-term normal NDVI is used to establish the index
  - Crop ‘greenness’ reflectivity has a high degree of correlation to forage production

Program Overview

- Index driven – EROS data (Earth Resources Observation and Science – USGS)
  - Primary index difference
    - Based on EROS data vs. NASS county yields
  - Reports NDVI data (Normalized Difference Vegetation Index – aka ‘greenness’)
  - Widely used source of NDVI information
  - Dependable source
  - Sufficient data history – since 1989
  - Consistent and universal coverage through a grid system
    - Grid boundaries vs. county boundaries

Program Overview

- Area of insurance = 8 x 8 km (~4.8 x 4.8 miles)



Program Overview

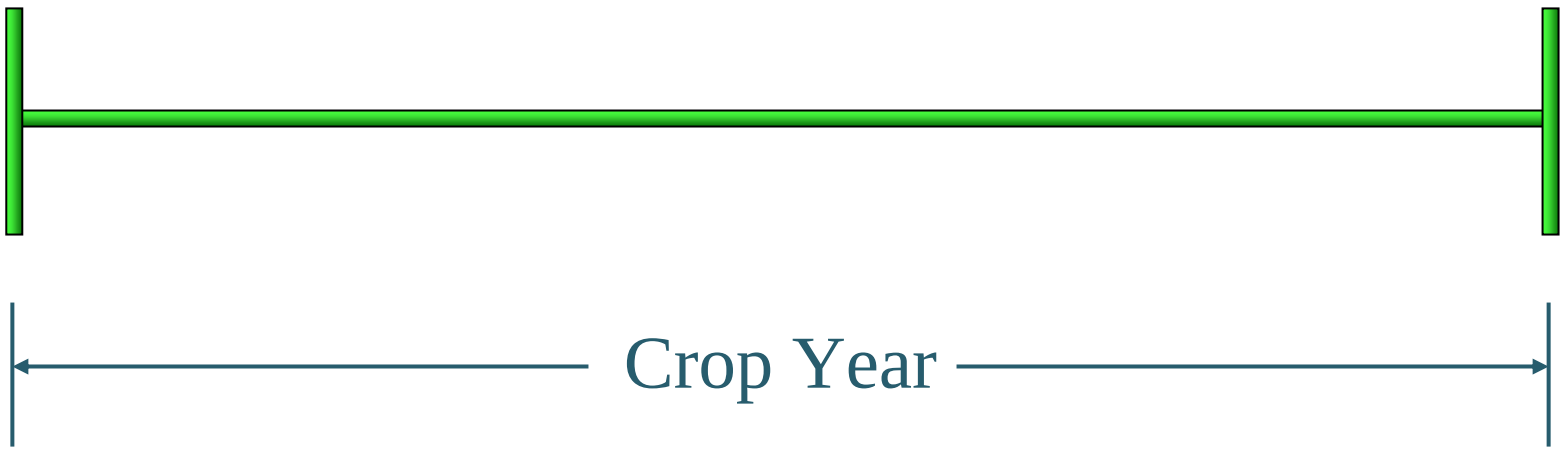
- Areas of insurance are grids (grids 8 x 8 km)
  - Grids vs. County
  - Grids are approximately 4.8 x 4.8 miles in size
  - Provides for a consistent program across the United States
  - Counties vary in size, but the grids do not
  - Grid size reduces basis risk vs. county size
    - Allows for closer correlation to individual experience
  - Grids will cross county and state lines

Program Overview

- Index Intervals
  - Multiple Intervals offered – 4
  - Crop Year divided into 4, 3-month intervals for each grid
  - Similar to Crop Practices
  - Ability for producers to manage appropriate timing risks
    - Correlate to individual growth patterns and production seasons
  - The 3-month intervals provide for greater reaction to forage reduction events vs. a yearly average

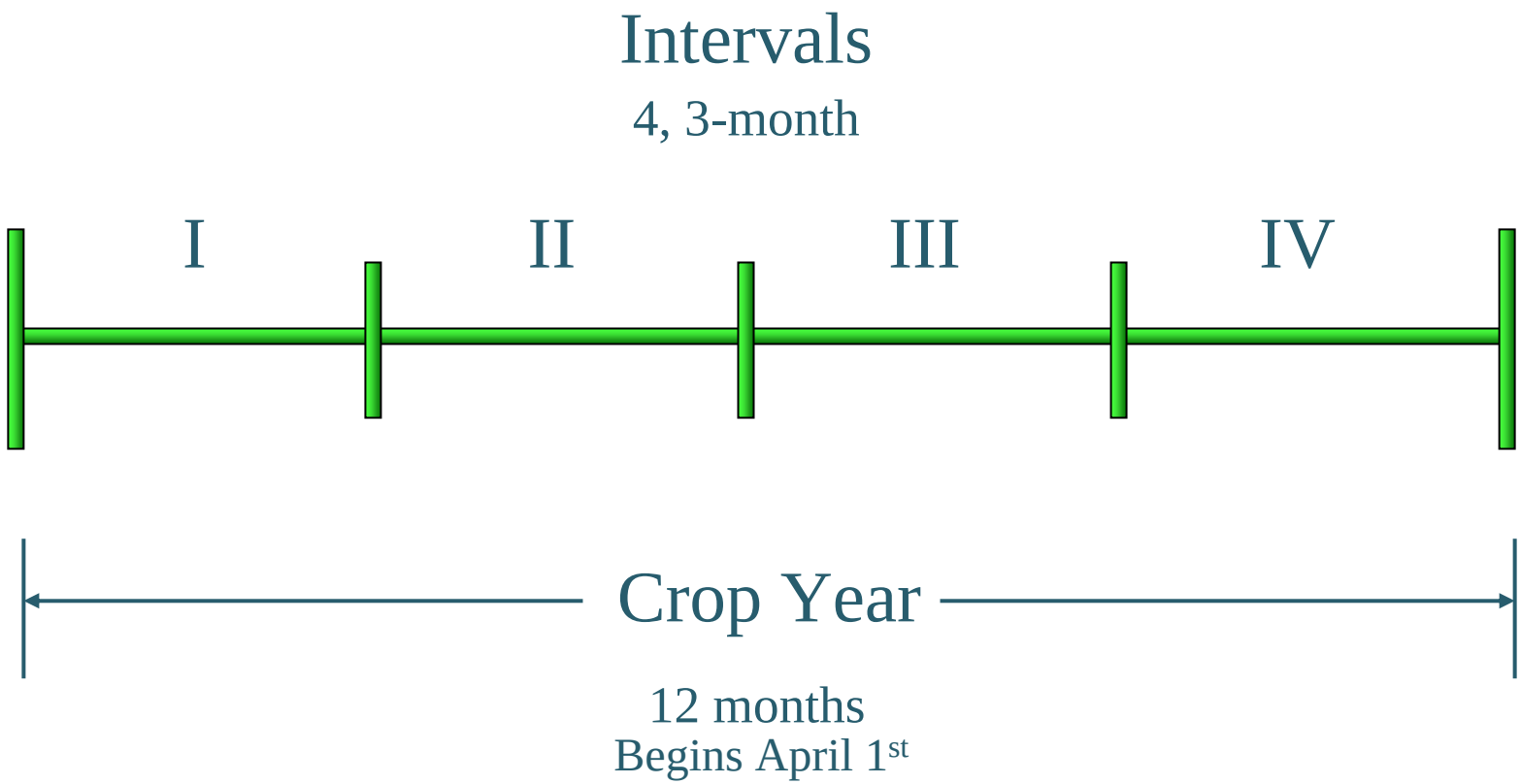
Program Overview

- Index Intervals



Program Overview

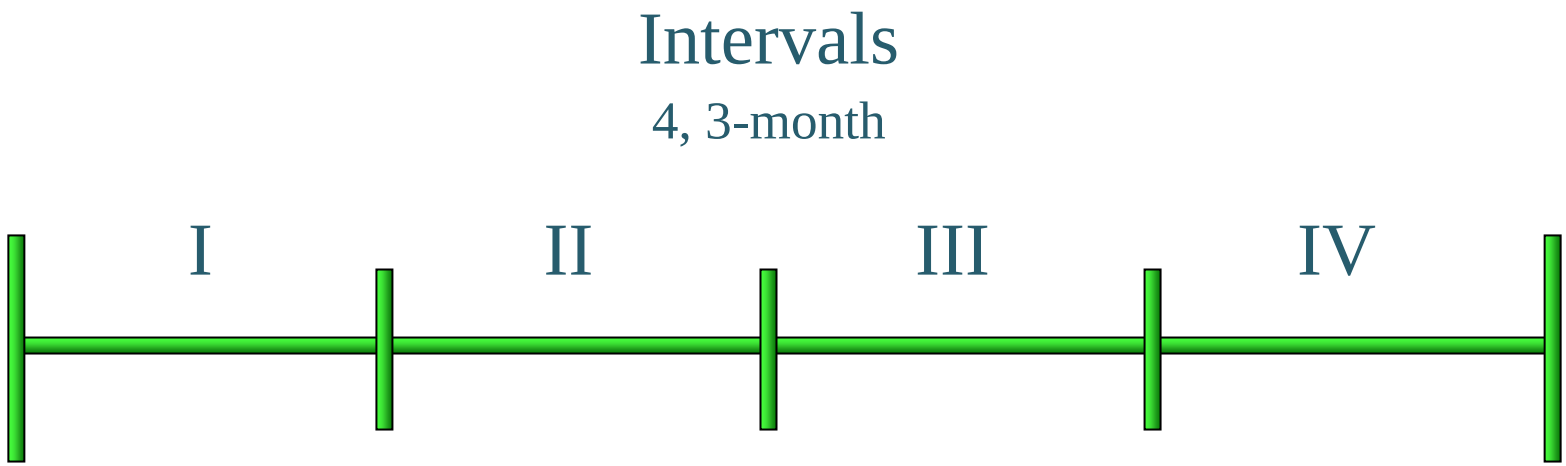
- Index Intervals



Note: Actual dates discussed in Program Basics

Program Overview

- Index Intervals



  - These Intervals act as ‘mini-insurance periods’
    - For example, indemnities payable on one Interval are not dependent on results from other Intervals

Program Overview

- 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

Program Overview

- Index Intervals
  - Producers may select more than 1 interval
    - The purpose of the program is to insure annual forage production
    - Minimum amount if more than one interval is selected is 10%

Program Overview

- 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

- Catastrophic Risk Protection (CAT)
  - Not currently available
  - Producers are still eligible for NAP coverage

Program Overview

- Rating
  - Each grid, index interval, and coverage level is individually rated
    - Minimizes adverse selection
      - No economic advantage of insuring in one scenario vs. another
      - Encourages producers to select a scenario that best mitigates their operation/production risks
    - Adequate data permits the individual rating
      - Allowing the rates to accurately reflect the risks of each scenario

Program Overview

- 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

- Sales Closing Date: November 30
  - Only one Sales Closing per year
  - Consistent with other programs' SCD
  - Minimizes possible forecasting and program abuse
    - 100+ day lag to the crop year
  - Note: *This is a change from earlier versions of the policy sent to the companies (originally set in December) – but was changed due to company feedback*

Program Overview

- 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 Vegetation indices
  - Allows access to all relevant data, materials, and tools associated with the program

Advantages

- Flexibility
- Covers predominant peril
- Provides for timely indemnities
- Index intervals are mutually exclusive
- Individual loss adjustments not needed
- Easily understood Index
- Production records not required
- Moral hazard and adverse selection minimized

Disadvantages

- Individual losses/experiences not covered
- Slight terminology differences from other GRP programs

Questions

Science and Technology Behind the Program

Crop Biology

- 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

Crop Biology

- Forage may be harvested directly by grazing animals, harvested for hay, or a combination of both:
  - Continual harvest and/or single haying
- Capacity to live and reproduce from year to year
- Because of the nature of forage-based systems the program is designed to insure the annual production

Program Technology

- Based on the Normalized Difference Vegetation Index (NDVI) data derived from satellites observing the changes in greenness of vegetation of the earth

- The plan does not explicitly predict individual forage production
  - It relates to the amount of vegetation on earth and the changes in greenness over time
  - This is correlated with forage production

Program Technology

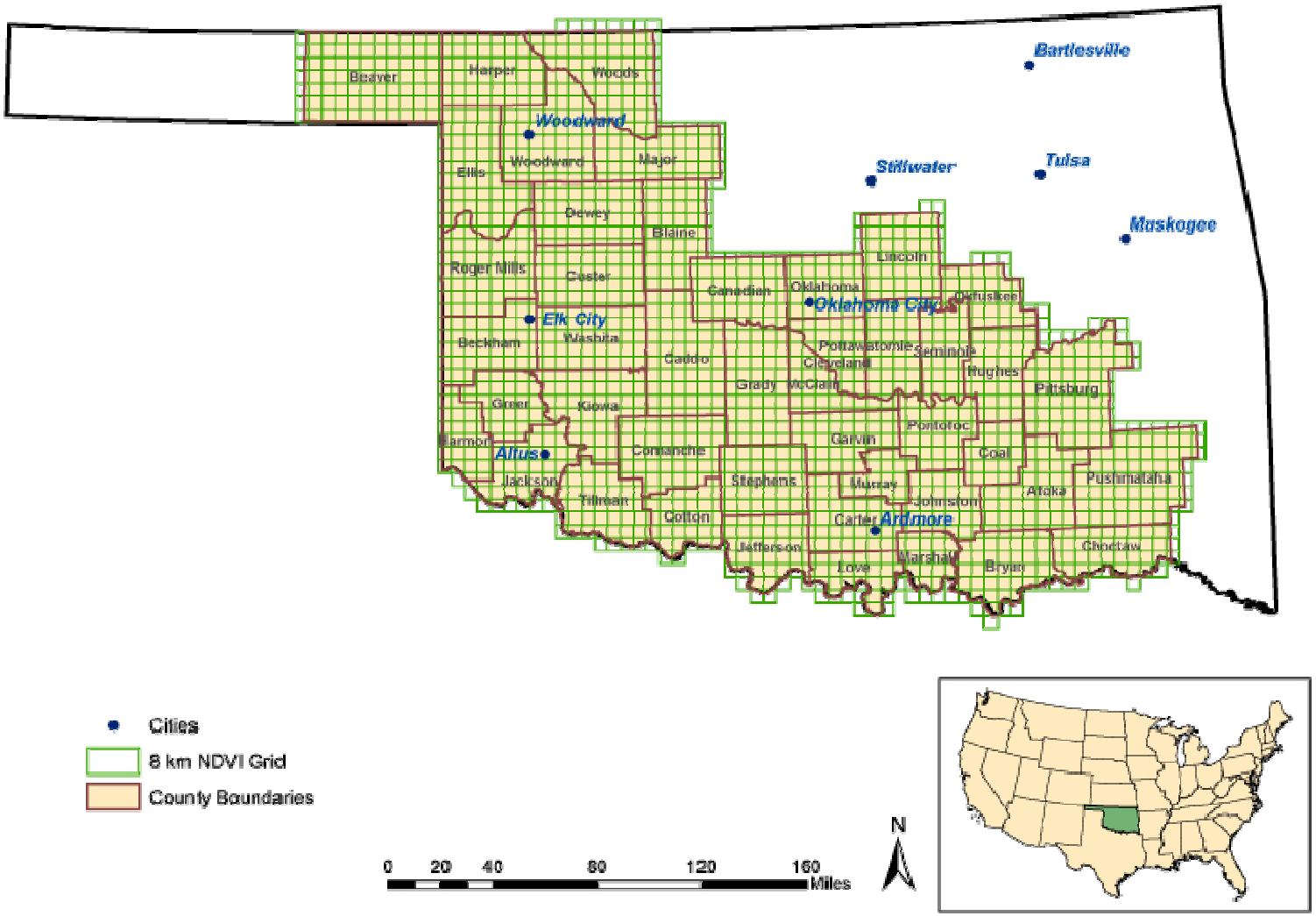
- Historical data since 1989
- Data updated every 14 days
- Grids are 8km
  - Data collected in 1km grids – aggregated up to 8km grids
  - ~ 4.8 x 4.8 miles in size, and used in many other national programs

Program Technology

- The Vegetation Index is derived from 2 data sources:
  - NDVI data from NASA and processed by EROS
  - NOAA gridded average daily temperature data

- NDVI captures vegetation ‘greenness’
- Temperature correction for excessive hot and cold temperatures suppressing growth even when plants are green

Grid Example



Questions

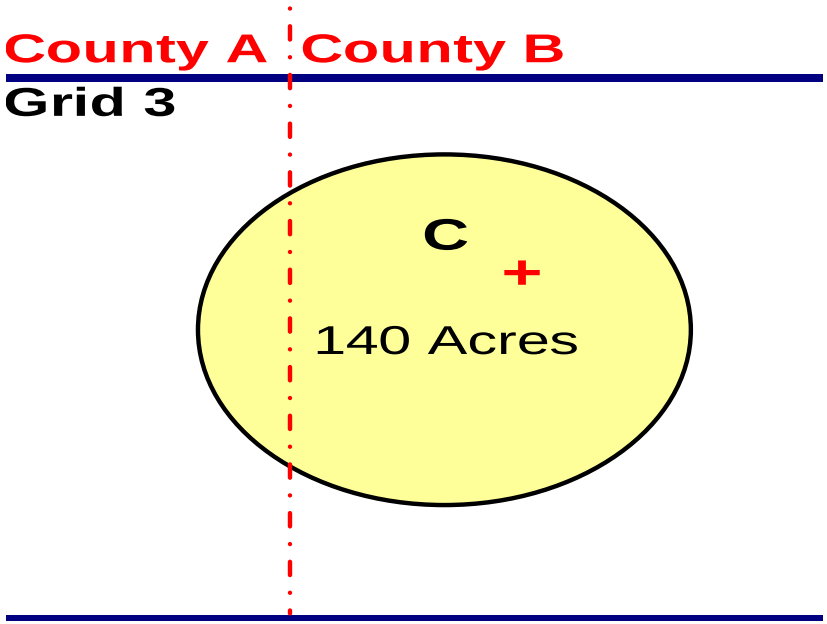
Program Basics

Terminology and Other Differences

- Grid and Grid ID versus County
- Insurable and Insured acres versus Planted acres
- Index versus Yields
- Accumulative NDVI based grid index versus NASS county yield index
- The program is web based
- No CAT coverage offered at this time
- Not required to insure 100% of acres
- Grid IDs, crop types, and index intervals will be determined prior to the Sales Closing Date

Basic Definitions

- ***County:*** may also include any acreage within a grid ID that crosses an adjoining county or state line where the acreage is contiguous



Basic Definitions

- ***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

- ***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

- ***Unit:*** The insured acres within or assigned to a grid ID for each crop type, and index interval
  - If there are multiple Grid IDs on a policy the index values are not added together, each unit and crop stands on its own
  - Basic Units only – no basic unit discount

Basic Definitions

- ***County Base Value:*** established production value of grazingland and hayland forage
  - Only one value per county for each crop type
  - Does not include GRP 1.5 multiplier
- ***Productivity Factor:*** A percentage multiplier allowing the insured to individualize coverage based on their individual crop productivity
  - Insured selects between 60 and 150%
    - Concept is the same as 'price election' in other GRP policies
    - **Only one** productivity factor may be selected per county and crop type

Basic Definitions

- ***Dollar Amount of Protection per Acre:*** The county base value (CBV) per acre, multiplied by the productivity factor (PF) (60% - 150%), multiplied by the coverage level (CL) (70% - 90%)

EXAMPLE:

$17.65 (CBV) *x* 1.20 (PF) *x* 0.85 (CL) = **$18.00** per Acre

  - **Only one** dollar amount of protection per acre <u>for each county and crop type</u>

Basic Definitions

- ***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 *x* 500 ac *x* 100% (share) = **$9,000**

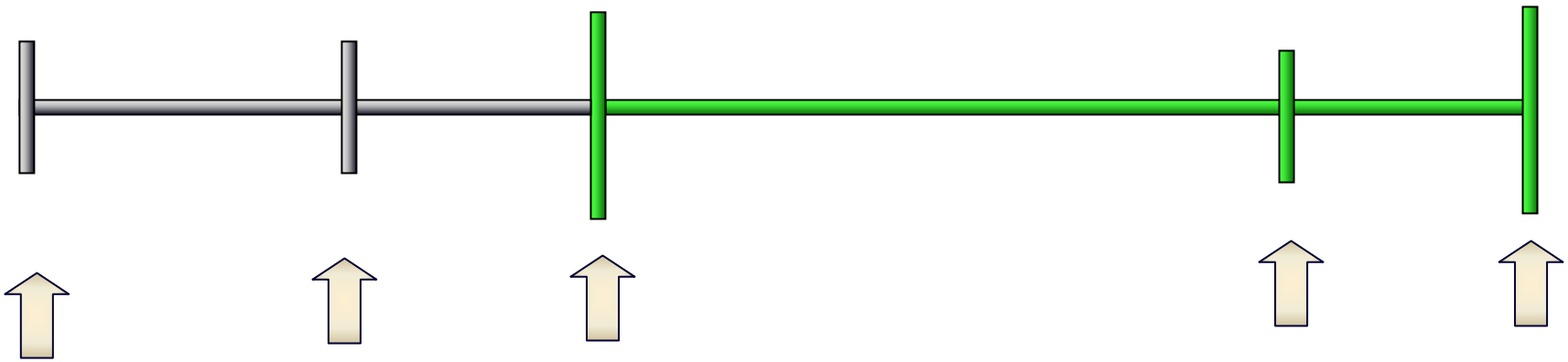
Index Interval III: $18.00 *x* 500 ac *x* 100% (share) = **$9,000**

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

Program Dates

- ***Crop Year:*** April 01 – March 31
- ***Sales Closing Date:*** November 30 (crop type, dollar amount of protection per acre, coverage, Grid ID, index intervals, and items relevant to acreage report)
- ***Acreage Reporting Date:*** November 30
- ***Contract Change Date:*** August 31
- ***Premium Billing Date:*** October 01

Program Dates



Coverage

- ***CAT***
  - Coverage currently not available

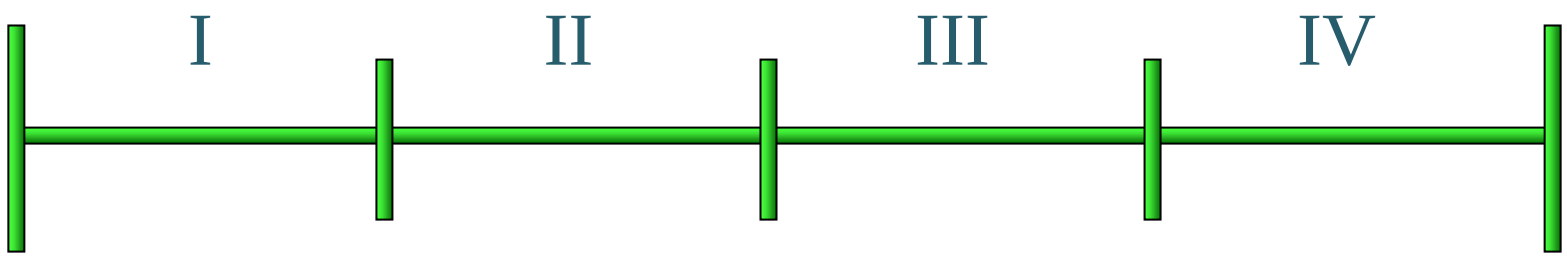
- ***Coverage Levels***
  - 70, 75, 80, 85, or 90%
  - **only one** coverage level for each of the insured crop types in the county
  - Consistent with other GRP RBUP

Index Intervals

- ***Index Interval:*** a specified period of time in which NDVI data is collected resulting in a grid index
  - Producer can insure in any interval
    - Can insure in 1, 2, 3, or all 4 intervals – or any combination
  - Minimum insurance = 10% in any chosen interval
  - Maximum insurance
    - There is no maximum amount of insurance per interval

Index Intervals

INDEX INTERVALS	START DATE	END DATE
(231) Index Interval I	April 1	June 30
(232) Index Interval II	July 1	September 30
(233) Index Interval III	October 1	December 31
(234) Index Interval IV	January 1	March 31



Index Definitions

- ***Expected Grid Index:*** Based on the historical mean accumulated NDVI values by Index Interval, expressed as a percentage; EGI = 100

- ***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

- ***Final Grid Index:*** Based on the current NDVI values for each Index Interval
  - If current data represents a 40% reduction, then FGI = 60

Rates and Premiums

- Premium Rate is applied to each Unit
  - All units independently rated
    - Each Grid ID, Crop Type, Coverage Level, and Index Interval
    - Minimizes adverse selection

  - Premium/unit (Index Interval) = $ amount of protection/acre
    x number of insured acres/unit
    x premium rate
    x adjustment factor of 0.01
    x share

Rates and Premiums

- ***Premium subsidy per unit =***

  Premium per unit *x* subsidy rate

- ***Producer premium per unit =***

  Premium per unit – Premium subsidy per unit

Rates and Premiums

- ***Total Policy Premium:***
  - The sum of all “premium per unit” values for the policy
- ***Total Subsidy:***
  - The sum of all “premium subsidy per unit” values for the policy
- ***Total Producer Premium:***
  - The sum of all “producer premium per unit” values for the policy

Trigger and Indemnity

- ***Payment Calculation Factor:***
  - Consistent with other GRP Programs
  - (Trigger Grid Index – Final Grid Index)/Trigger Grid Index) **for each Unit**
  - An indemnity may be made only if the Final Grid Index is less than the Trigger Grid Index
  - If indemnity is due, it will be issued not later than 60 days following the determination of the Final Grid Index
  - Indemnity =
    - Payment Calculation Factor *x* Policy Protection/Unit

Trigger and Indemnity Example

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 = No indemnity due (90 > 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***

Program Basics, Quick Review

- County – contiguous acreage can cross county/state lines
- Insurable and Insured acres
- Basic Units only
- Sales Closing Date: November 30th
- Productivity Factor
- Dollar Amount of Protection per Acre:
  - CBV *x* PF (60% - 150%) *x* CL (70% - 90%)

Program Basics, Quick Review

- 4 available Index Intervals (can select one to all four)
- Policy Protection per Unit:
  - $ Amount of Protection per Ac *x* Insured Acres *x* share
- Premium per Unit
  - $ amount of protection/acre
    x number of insured acres/unit
    x premium rate
    x adjustment factor of 0.01
    x share
- Payment Calculation Factor:
  - (Trigger Grid Index – Final Grid Index)/Trigger Grid Index)
- Indemnity:
  - Payment Calculation Factor *x* Policy Protection per Unit

Questions

Grid ID Selection

- ***Grid ID:*** A specific code associated with each grid
  - Number = typically 6 digits

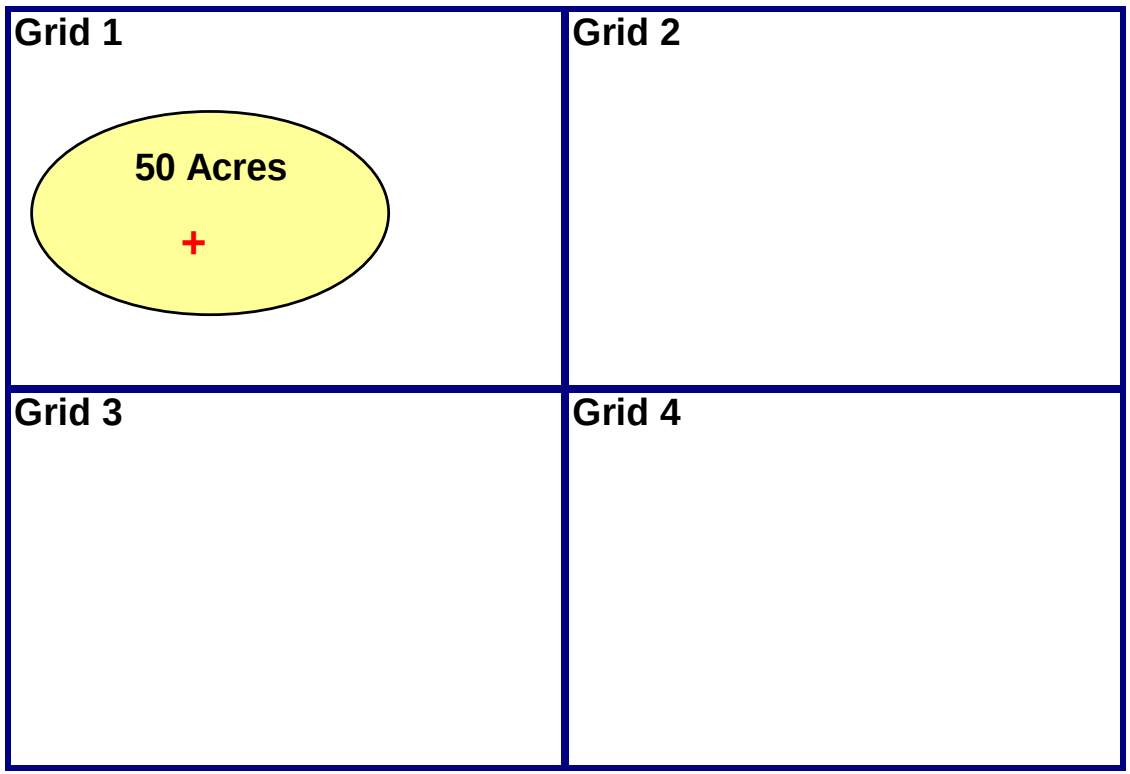
- ***Point of Reference:*** A designated point, identifiable by longitude and latitude
  - Selected by the insured
  - Point that best represents the insured acreage
  - This determines the Grid ID for insurance

Grid ID Selection

- 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

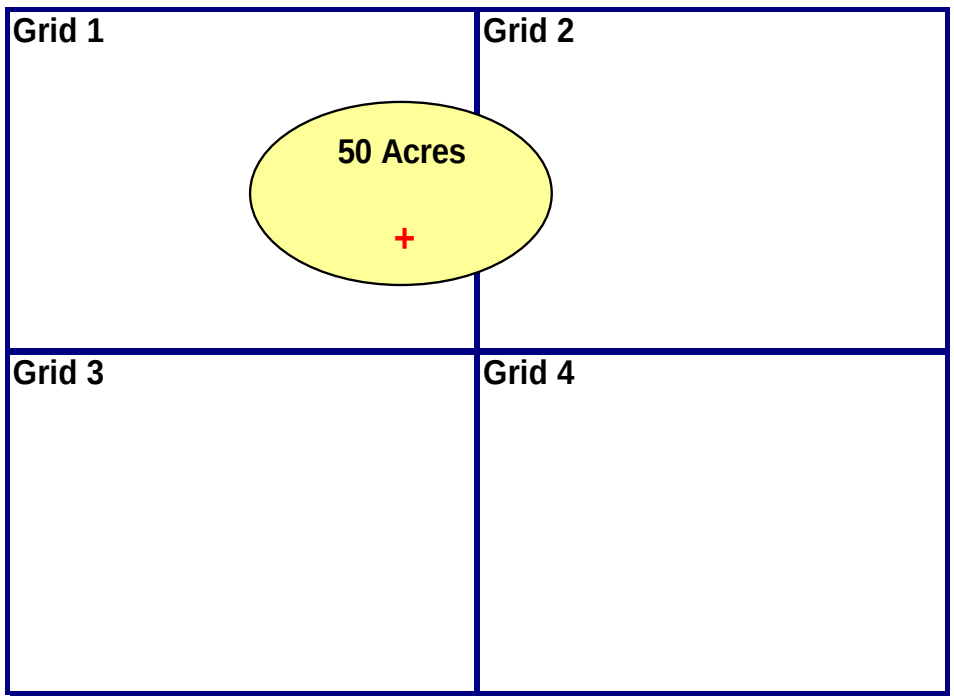
Examples of Determining Grid ID(s)

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



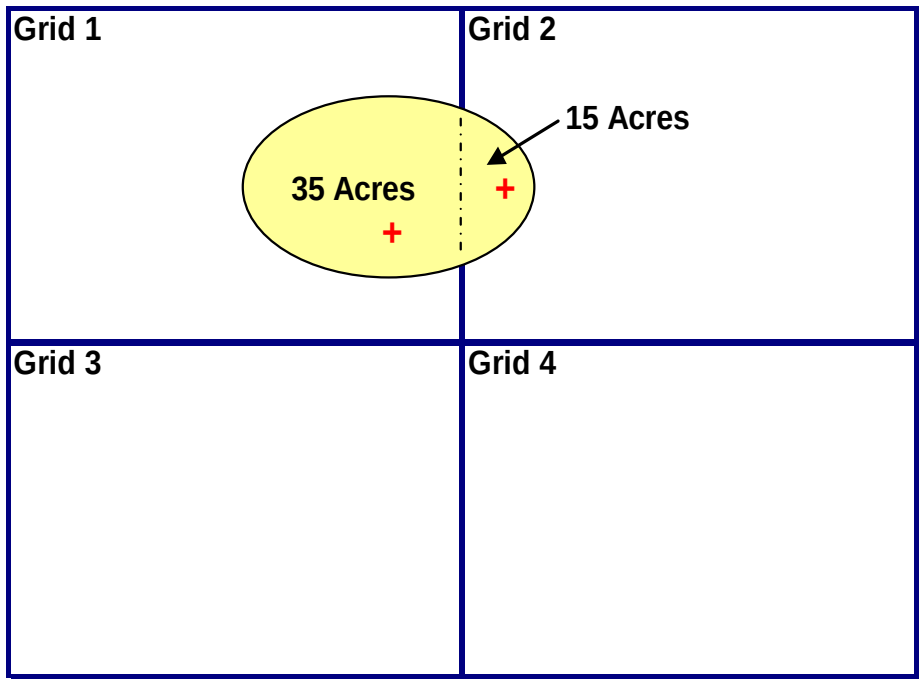
Examples of Determining Grid ID(s)

- 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

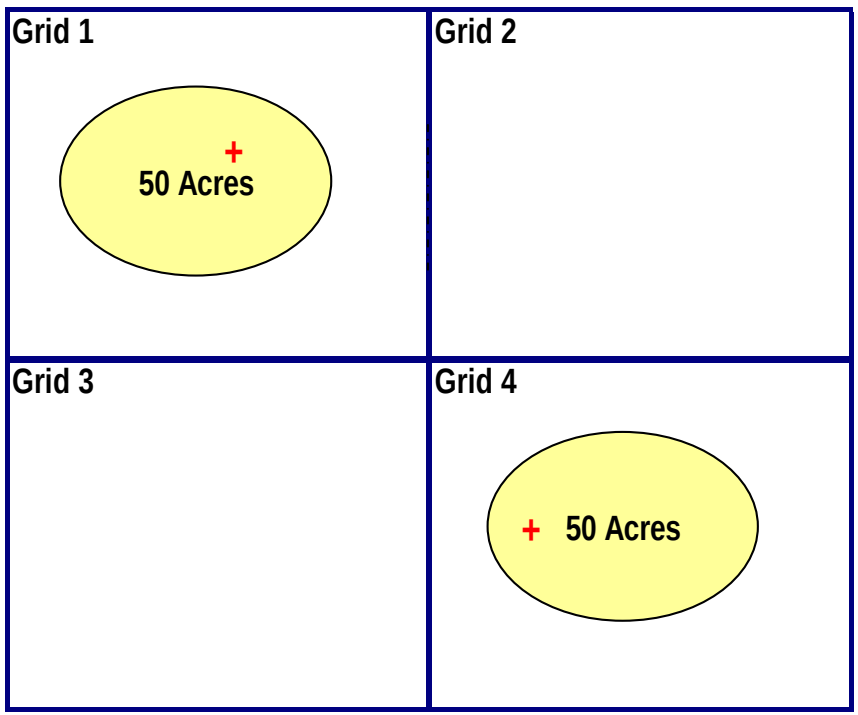


Examples of Determining Grid ID(s)

- 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

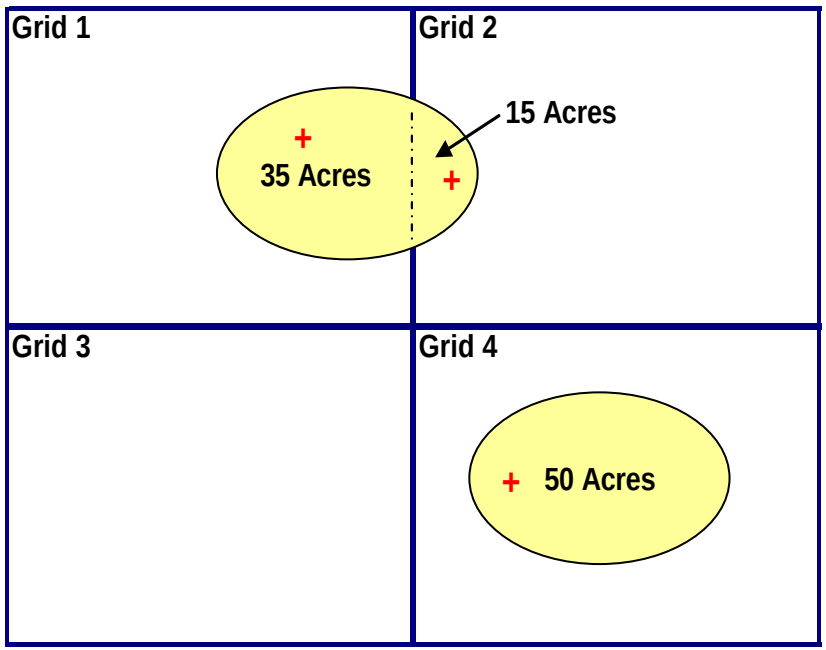
Examples of Determining Grid ID(s)

- 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



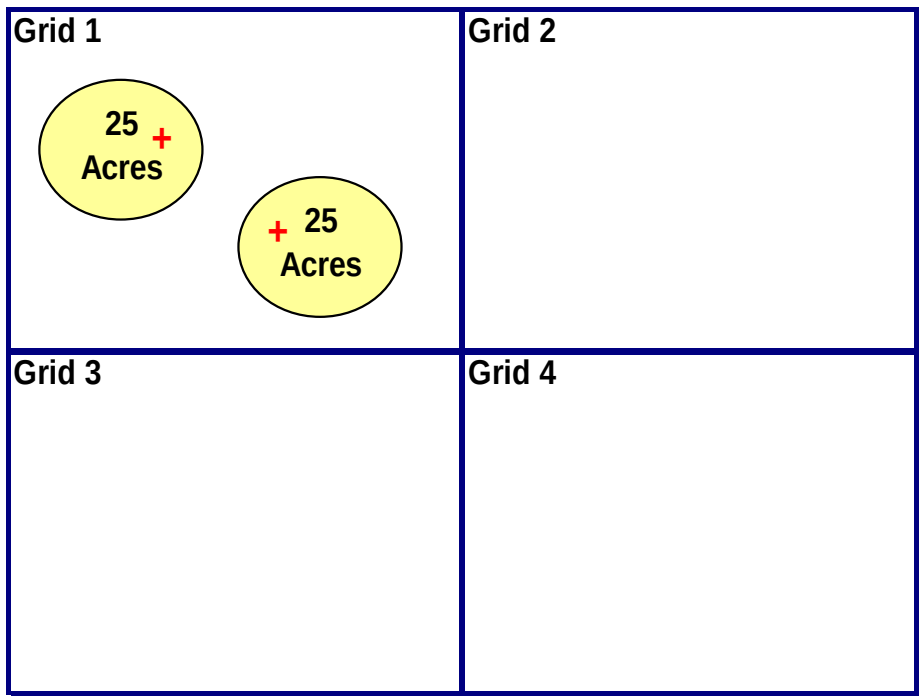
Examples of Determining Grid ID(s)

- 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)

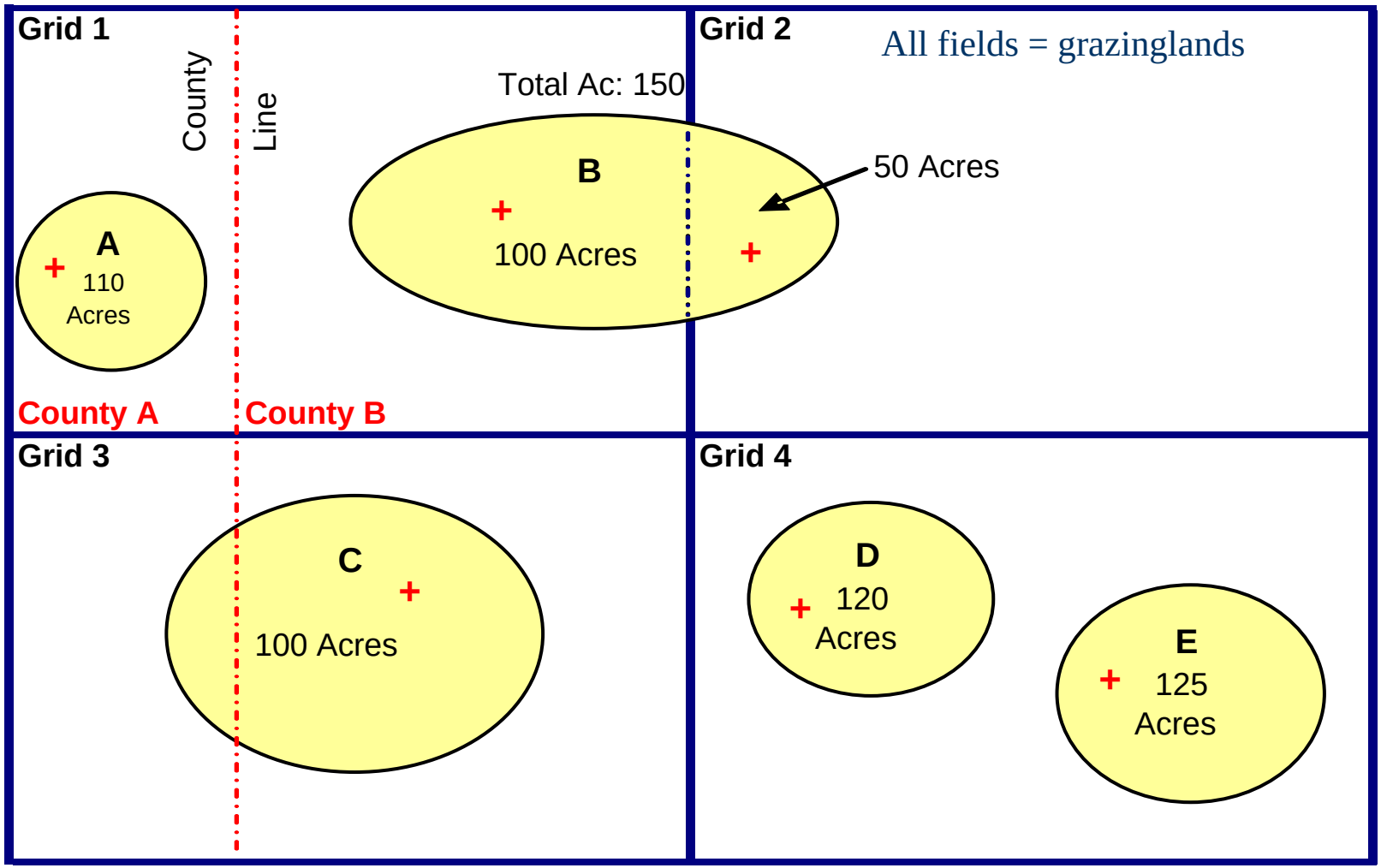
- If the non-contiguous acreage is located in the same grid
- The non-contiguous acreage will be combined and given a single Grid ID



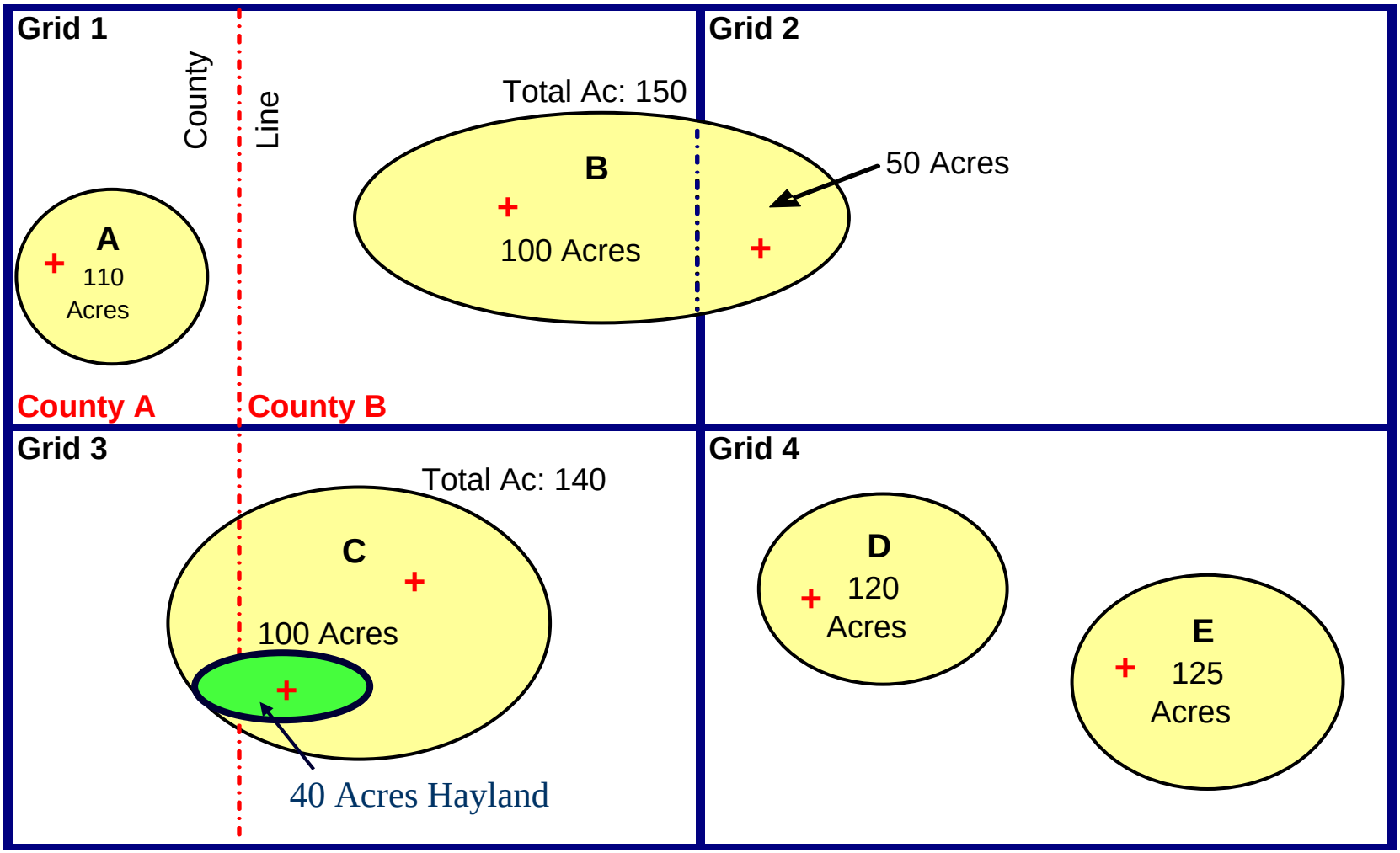
Review of Determining Grid ID(s)

Type of Acreage	Grid Information	Guideline
Contiguous Acreage	Single Grid	Choose one point of reference
Contiguous Acreage	Multiple Grids – Combined	Choose one point of reference
Contiguous Acreage	Multiple Grids – Separated	Choose one point of reference for each Grid
Non-Contiguous Acreage (multiple properties)		Choose one point of reference for each, separate, non-contiguous acreage in the county

Grid ID Selection Test



Grid ID Selection Test



Questions

Use of the Website and Information Needed

Determining Grid ID(s)

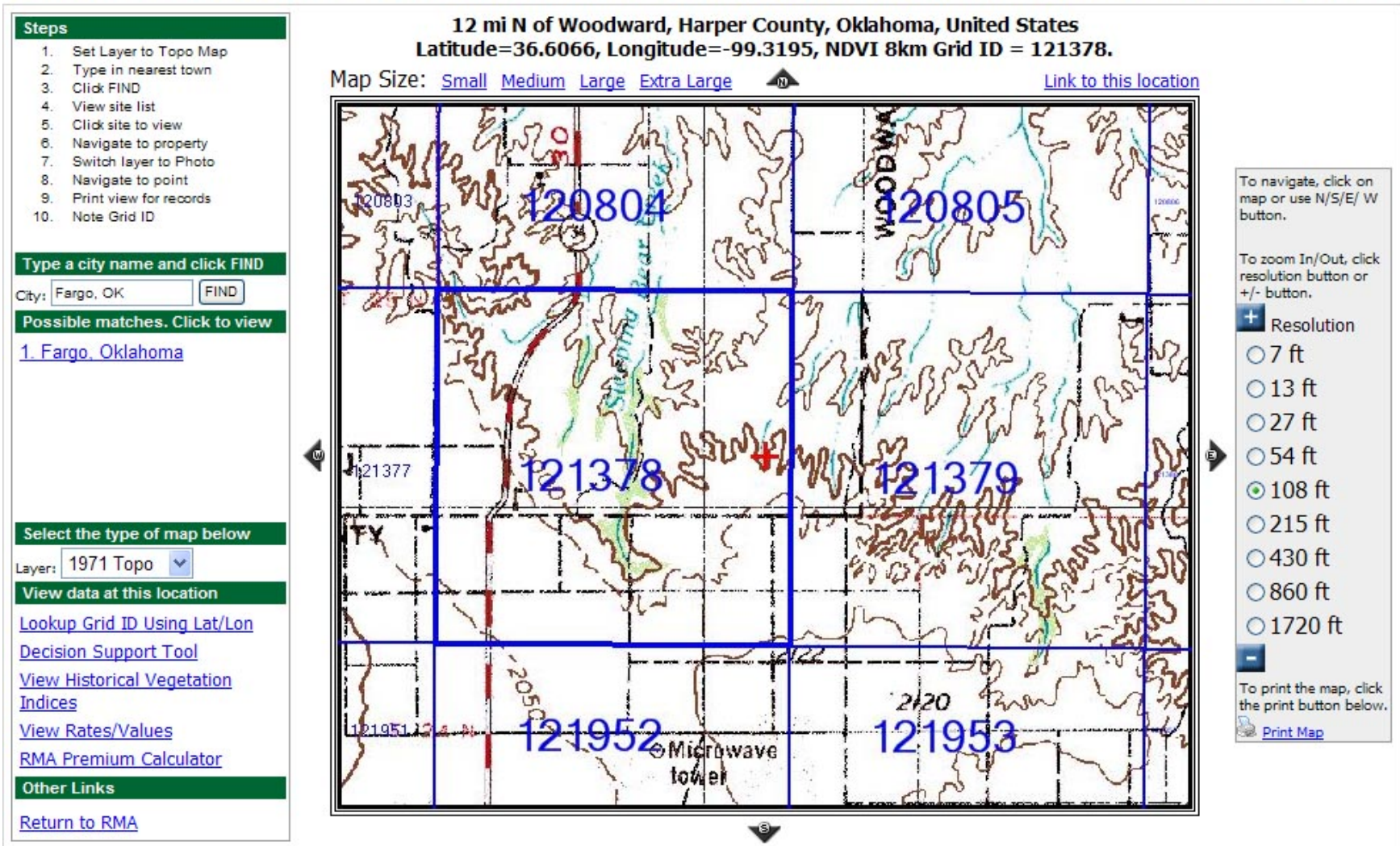
- Primary step:
  - Accurately identify the Grid ID(s)

Web address for determining Vegetation Index Grid ID(s):

http://prfvi-rma-map.tamu.edu/

Topographical Map

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



Determining Grid ID(s) – Basic Steps

- 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 Vegetation 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: Fargo, OK FIND

Possible matches. Click to view

1. Fargo, Oklahoma

Select the type of map below

Layer: 1995 Photo

View data at this location

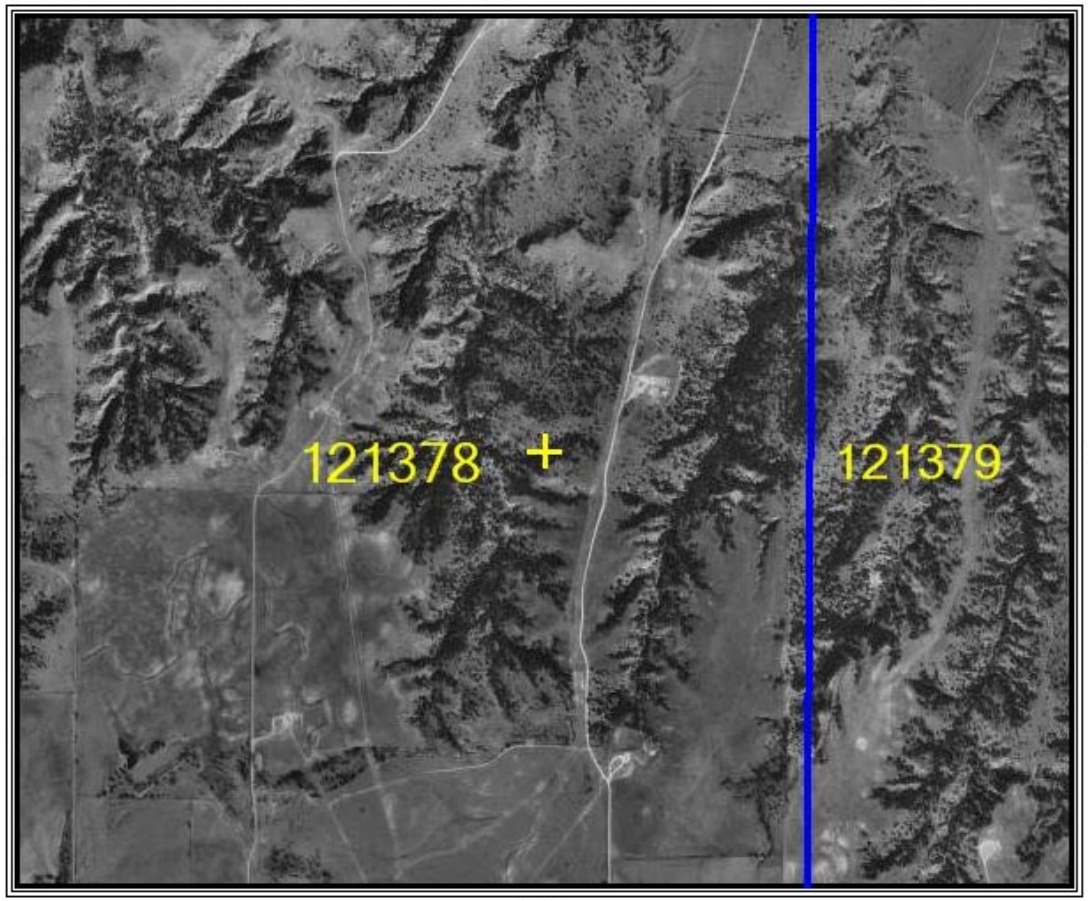
Lookup Grid ID Using Lat/Lon
Decision Support Tool
View Historical Vegetation Indices
View Rates/Values
RMA Premium Calculator

Other Links

Return to RMA

12 mi N of Woodward, Harper County, Oklahoma, United States
Latitude=36.6066, Longitude=-99.3195, NDVI 8km Grid ID = 121378.

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
- 860 ft
- 1720 ft

To print the map, click the print button below.

Print Map

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

- 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

Rate Tables

- County Base Values – Assessable at RMA website

County Base Value Report for Pasture, Rangeland, Forage

Crop Year: 2007 **State:** (08) Colorado **Insurance Plan:** (14) GRP VEGETATION INDEX

County	Type	Base Value	Total Acreage Allowed Per Interval	
Archuleta	GRAZINGLAND (064)	7.77	MIN: 10 %	MAX: 100 %
Archuleta	HAYLAND (063)	224.57	MIN: 10 %	MAX: 100 %

Criteria Page | Report Menu

Coverage, Rate, and Index Reports

- Rates - Accessible at RMA website

Premium Rate Report for Pasture, Rangeland, Forage

Crop Year: 2007 **State:** (08) Colorado **Insurance Plan:** (14) GRP Vegetation Index

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

				Unsubsidized Rates				
Grid ID	County	Interval	Type	70%	75%	80%	85%	90%
83392	Moffat	231 INDEX INTERVAL I	063 HAYLAND	0.87%	1.38%	2.03%	3.16%	4.67%
	Moffat	231 INDEX INTERVAL I	064 GRAZINGLAND	0.87%	1.38%	2.03%	3.16%	4.67%
	Moffat	232 INDEX INTERVAL II	063 HAYLAND	6.22%	7.91%	9.79%	11.77%	13.61%
	Moffat	232 INDEX INTERVAL II	064 GRAZINGLAND	6.22%	7.91%	9.79%	11.77%	13.61%
	Moffat	233 INDEX INTERVAL III	063 HAYLAND	5.53%	7.05%	8.65%	10.53%	12.58%
	Moffat	233 INDEX INTERVAL III	064 GRAZINGLAND	5.53%	7.05%	8.65%	10.53%	12.58%
	Moffat	234 INDEX INTERVAL IV	063 HAYLAND	7.34%	9.01%	10.93%	12.94%	15.03%
	Moffat	234 INDEX INTERVAL IV	064 GRAZINGLAND	7.34%	9.01%	10.93%	12.94%	15.03%

Criteria Page Report Menu

Coverage, Rate, and Index Reports

- Final Index, Payment Calculation Factors

Menu

Final Index and Payment Factor Report for Pasture, Rangeland, Forage

Crop Year: 2007 **State:** (08) Colorado **Insurance Plan:** (14) GRP Vegetation Index

					Payment Factors				
Grid ID	**County**	**Interval**	**Type**	**Final Grid Index**	**70%**	**75%**	**80%**	**85%**	**90%**
83392	Moffat	(231) INDEX INTERVAL I	063 HAYLAND	Final grid indices and payment factors not yet available for this interval.					
	Moffat	(231) INDEX INTERVAL I	064 GRAZINGLAND	Final grid indices and payment factors not yet available for this interval.					
	Moffat	(232) INDEX INTERVAL II	063 HAYLAND	Final grid indices and payment factors not yet available for this interval.					
	Moffat	(232) INDEX INTERVAL II	064 GRAZINGLAND	Final grid indices and payment factors not yet available for this interval.					
	Moffat	(233) INDEX INTERVAL III	063 HAYLAND	Final grid indices and payment factors not yet available for this interval.					
	Moffat	(233) INDEX INTERVAL III	064 GRAZINGLAND	Final grid indices and payment factors not yet available for this interval.					
	Moffat	(234) INDEX INTERVAL IV	063 HAYLAND	Final grid indices and payment factors not yet available for this interval.					
	Moffat	(234) INDEX INTERVAL IV	064 GRAZINGLAND	Final grid indices and payment factors not yet available for this interval.					

NOTE: Final Grid Indices and Payment Factors are made available following the end date of the Index Interval as defined by the Special Provisions of Insurance.

Information Agents Need to Collect

- Insurable Acres
- 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

Information for the Worksheet

PASTURE, RANGELAND, FORAGE VEGETATION INDEX WORKSHEET

1. Insured's Name: ______________________________ **2. Date:** ___ / ___ / _____ **3. State:** ________ (____) **4. County:** ________________ (____)

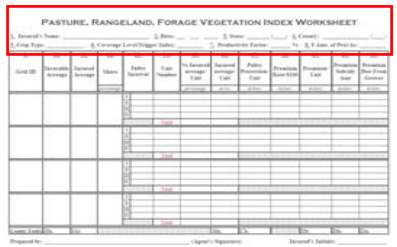
5. Crop Type: _____________ **6. Coverage Level/Trigger Index:** _________ **7. Productivity Factor:** _______ % **8. $ Amt. of Prot/Ac:** _________

9. Grid ID	10. Insurable Acreage	11. Insured Acreage	12. Share (*percentage*)	13. Index Interval	14. Unit Number	15. % Insured acreage/ Unit (*percentage*)	16. Insured acreage/ Unit (*acres*)	17. Policy Protection/ Unit (*dollars*)	18. Premium Rate/$100 (*dollars*)	19. Premium/ Unit (*dollars*)	20. Premium Subsidy Amt (*dollars*)	21. Premium Due From Grower (*dollars*)
				I								
				II								
				III								
				IV								
					Total							
				I								
				II								
				III								
				IV								
					Total							
				I								
				II								
				III								
				IV								
					Total							
				I								
				II								
				III								
				IV								
					Total							
County Totals	10a.	11a.					16a.	17a.		19a.	20a.	21a.

Prepared by: ____ **(Agent's Signature)** **Insured's Initials:** ________________

Worksheet Information

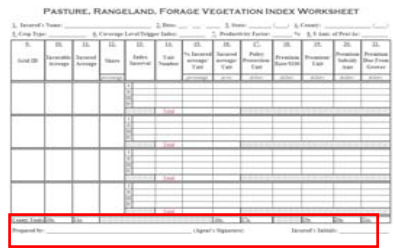
General policy information



1. Insured's Name: _____ 2. Date: __/__/____ 3. State: _____(___) 4. County: _____(___)

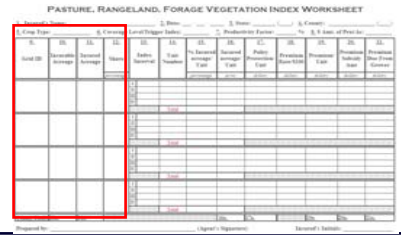
5. Crop Type: _____ 6. Coverage Level/Trigger Index: _____ 7. Productivity Factor: _____ % 8. $ Amt. of Prot/Ac: _____

Finish with name and grower initials



Prepared by:_____ (Agent's Signature) **Grower's Initials:** _____

Worksheet Information



9. Grid ID	10. Insurable Acreage	11. Insured Acreage	12. Share percentage
378811	100	100	100
378812	50	50	100
378813	100	100	50
378814	245	245	100
County Totals	10a. 495	11a. 495	

Insert the Grid ID
(determined from map and acreage location)

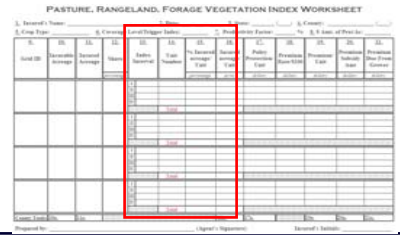
Insurable acres in the grid

Put the number of insured acres
(not required to insure 100%)

Insert share

Calculate totals

Worksheet Information


PASTURE, RANGELAND, FORAGE VEGETATION INDEX WORKSHEET

Insert Index Interval code

Insert unit number

Insert the percentage of acreage selected for each Index Interval

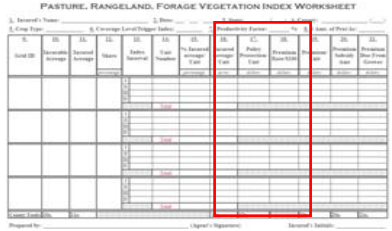
	13. Index Interval	14. Unit Number	15. % Insured acreage/ Unit	16. Insured acreage/ Unit
			percentage	*acres*
I	231	00100	100	100
II				
III				
IV				
		Total	100	100
I	231	00100	10	5
II	232	00200	50	25
III				
IV	234	00300	40	20
		Total	100	50
I	231	00100	50	50
II				
III				
IV	234	00200	50	50
		Total	100	100
I	231	00100	50	122.5
II	232	00200	30	73.5
III	233	00300	20	49
IV				
		Total	100	245
				16a. 495

Calculate the number of insured acres per Index Interval (Insured acres *x* percentage in #13)

Total acres (should equal total insured acres for the Grid ID)

Total in 14a should equal total insured acres

Worksheet Information


PASTURE, RANGELAND, FORAGE VEGETATION INDEX WORKSHEET

17. Policy Protection/ Unit	18. Premium Rate/$100	19. Premium/ Unit
dollars	*dollars*	*dollars*
1,800	12.00	216
90	13.50	12
450	13.00	59
360	12.00	43
450	13.00	59
450	12.00	54
2,205	13.00	287
1,323	14.00	185
882	15.00	132
17a. $8,010		19a. $1,047

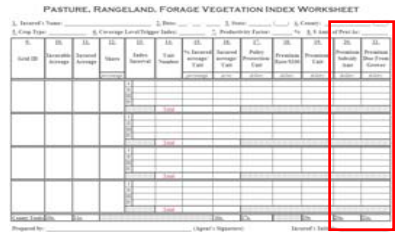
Policy Protection/Unit =
($ amt protection/ac *x* ac *x* share)

Look at the coverage and rate table to determine rate

Calculate the premium/unit =
($ amount of protection/acre
x number of insured acres/unit
x premium rate
x adjustment factor of 0.01
x share)

Sum the premium/units

Worksheet Information


PASTURE, RANGELAND, FORAGE VEGETATION INDEX WORKSHEET

20. Premium Subsidy Amt	21. Premium Due From Grower
dollars	*dollars*
127	89
7	5
35	24
25	18
35	24
32	22
169	118
109	76
78	54
20a. $617	21a. $430

Premium Subsidy/unit =
(Premium/unit *x* subsidy rate)

Producer Premium/unit =
Premium/unit - subsidy amount

Total Premium Subsidy =
Sum of premium subsidy amount/unit

Total Producer Premium Due =
Sum of Producer premiums/unit

Worksheet Information - Completed

PASTURE, RANGELAND, FORAGE VEGETATION 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	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
			percentage				*percentage*	*acres*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*
378811	100	100	100	I	231	00100	100	100	1,800	12.00	216	127	89
				II									
				III									
				IV									
						Total	100	100					
378812	50	50	100	I	231	00100	10	5	90	13.50	12	7	5
				II	232	00200	50	25	450	13.00	59	35	24
				III									
				IV	234	00300	40	20	360	12.00	43	25	18
						Total	100	50					
378813	100	100	50	I	231	00100	50	50	450	13.00	59	35	24
				II									
				III									
				IV	234	00200	50	50	450	12.00	54	32	22
						Total	100	100					
378814	245	245	100	I	231	00100	50	122.5	2,205	13.00	287	169	118
				II	232	00200	30	73.5	1,323	14.00	185	109	76
				III	233	00300	20	49	882	15.00	132	78	54
				IV									
						Total	100	245					
County Totals	10a. 495	11a. 495						16a. 495	17a. $8,010		19a. $1,047	20a. $617	21a. $430

Prepared by: _____ (Agent's Signature) Insured's Initials: _____

Worksheet Information - Completed

PASTURE, RANGELAND, FORAGE VEGETATION 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	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
			percentage				*percentage*	*acres*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*
378811	100	100	100	I	231	00100	100	100	1,800	12.00	216	127	89
				II									
				III									
				IV									
						Total	100	100					
378812	50	50	100	I	231	00100	10	5	90	13.50	12	7	5
				II	232	00200	50	25	450	13.00	59	35	24
				III									
				IV	234	00300	40	20	360	12.00	43	25	18
						Total	100	50					
378813	100	100	50	I	231	00100	50	50	450	13.00	59	35	24
				II									
				III									
				IV	234	00200	50	50	450	12.00	54	32	22
						Total	100	100					
378814	245	245	100	I	231	00100	50	122.5	2,205	13.00	287	169	118
				II	232	00200	30	73.5	1,323	14.00	185	109	76
				III	233	00300	20	49	882	15.00	132	78	54
				IV									
						Total	100	245					
County Totals	10a. 495	11a. 495						16a. 495	17a. $8,010		19a. $1,047	20a. $617	21a. $430

Prepared by: _____ (Agent's Signature) Insured's Initials: _____

Causes of Loss and Cancellations

- The reduction in the Final Grid Index must be due to natural occurrences
  - A cause other than a natural occurrence will result in the assignment of a value to correspond to the reduction due to natural occurrences only

How the Index is Reported

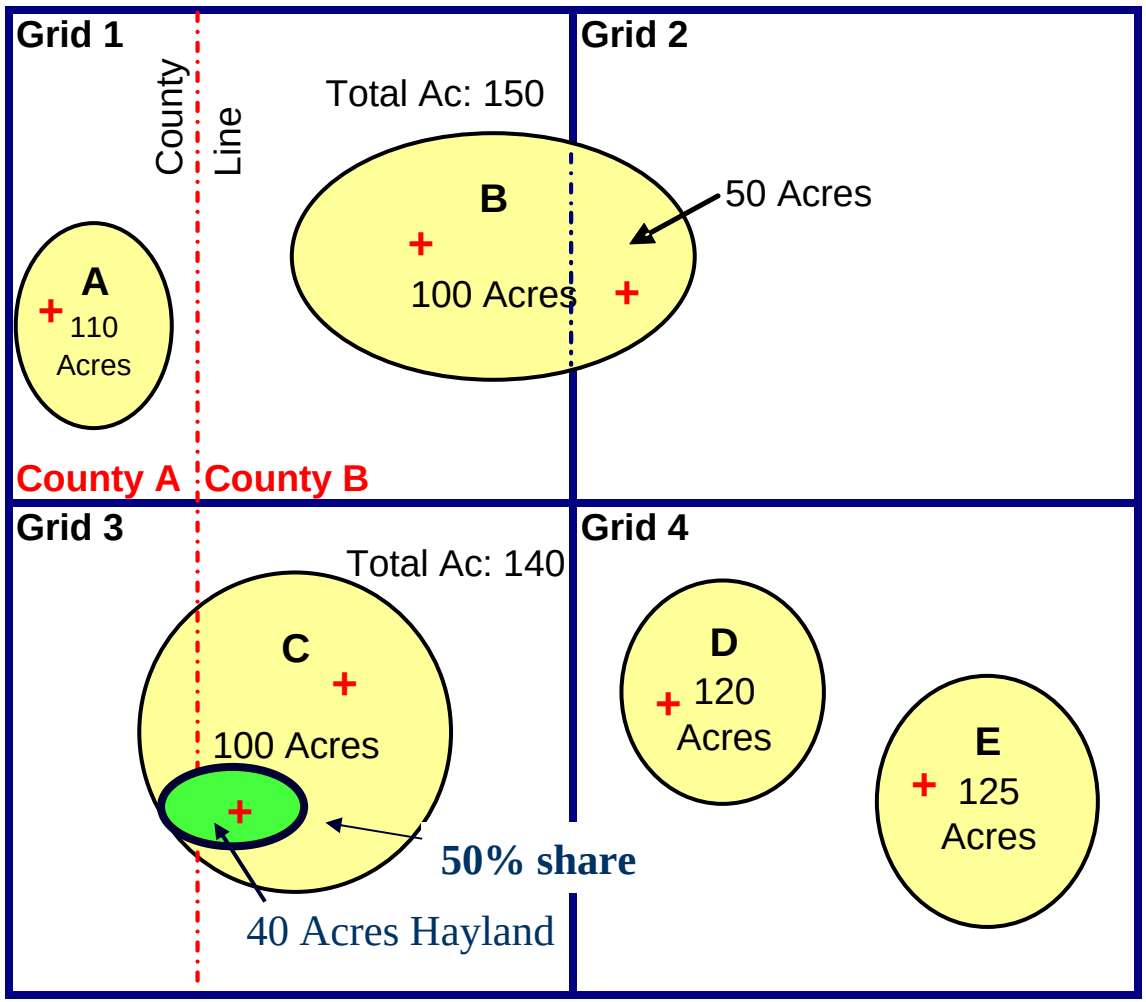
- The Final Grid Index will be available on the RMA website following the end date of each Index Interval

Questions

Joe Rancher Contacts His Agent

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 6 digits.

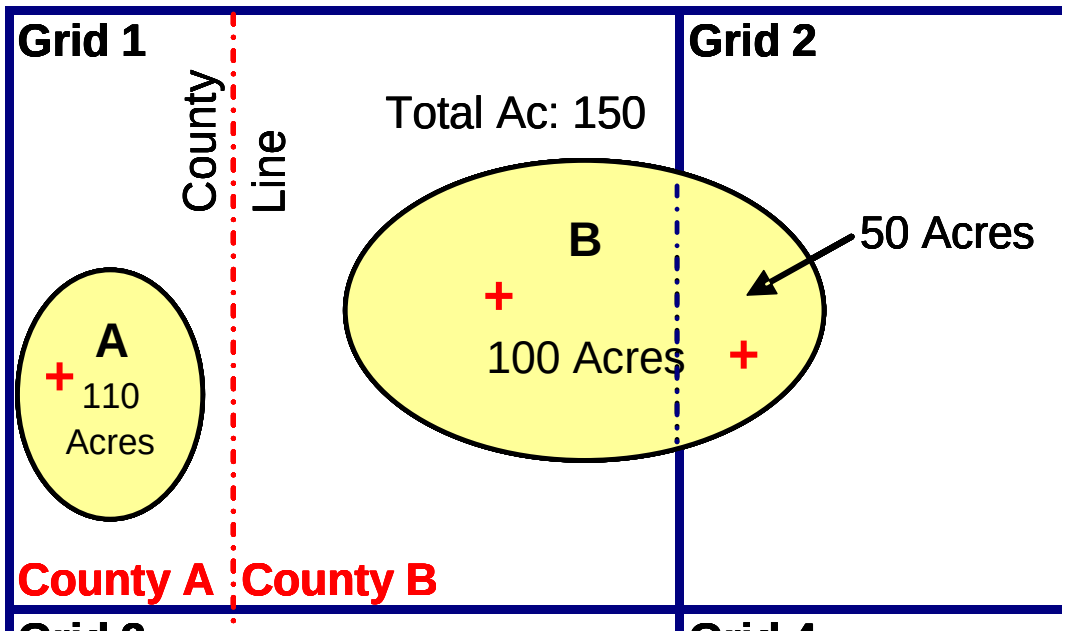
Decision

- 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.

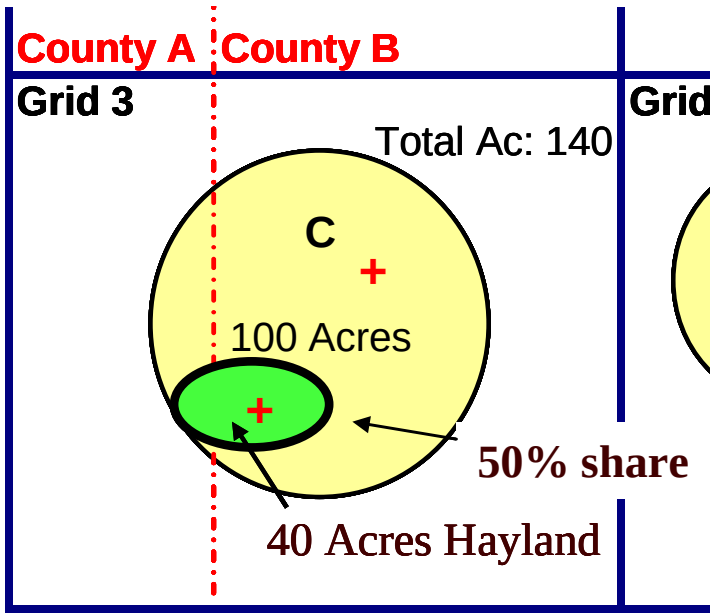
Decision

- 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



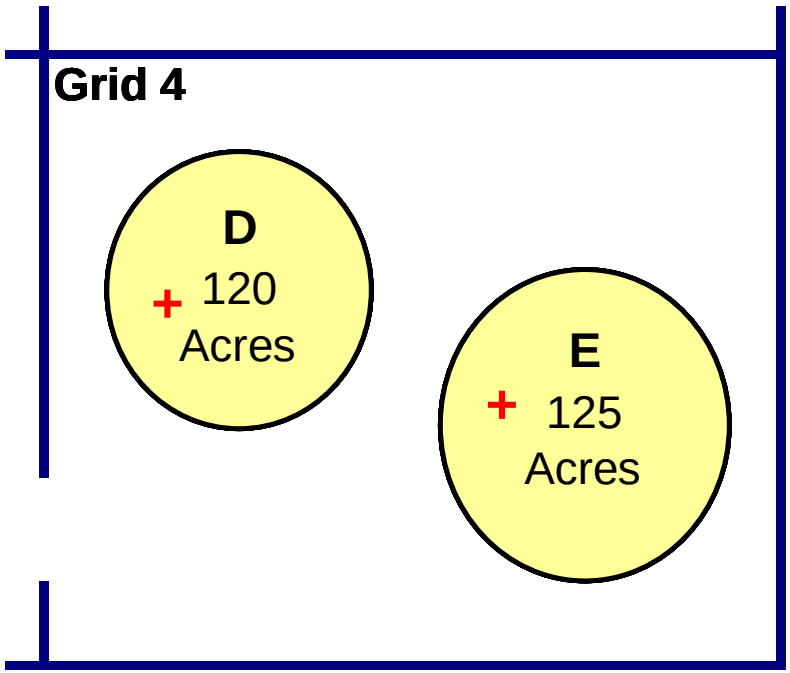
Decision

- 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

- 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. 377881)	B	100
Grid 2 (insert the actual Grid ID number for the insured, i.e. 377882)	B	50
Grid 3 (insert the actual Grid ID number for the insured, i.e. 388773)	C	100
Grid 4 (insert the actual Grid ID number for the insured, i.e. 388774)	D & E	245
Total		**495**

Joe Rancher selects for grazingland:

Coverage Level = 85%

Productivity Factor = 120%

County Base Value = $17.65

Dollar Amount of Production per Acre

= $17.65 *x* 0.85 *x* 1.20

= $18.00 per Acre

Summary

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

He can designate specific percentage of the insured acreage to more than one of the index intervals for each Grid ID.

He finds that if he chooses an interval he must place at least 10% of his insured acreage to that interval for that Grid ID.

Note: Interval selections do not have to be contiguous

Policy Protection per Unit (09 Units)

Grid ID	Index Interval	Unit Number	Policy Protection/Unit
Grid 1 **Insured acreage = 100** **100% share**	I ($18.00 X 100ac X 1.0)	00100	$1,800
	II		
	III		
	IV		
Grid 2 **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 ($18.00 X 20ac X 1.0)	00300	$360
Grid 3 **Insured acreage = 100** **50% share**	I ($18.00 X 50ac X 0.50)	00100	$450
	II		
	III		
	IV ($18.00 X 50ac X 0.50)	00200	$450
Grid 4 **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		
Policy Protection			**$8,010**

Premium

- Joe Rancher and his agent look up the applicable premium rate using the premium rate tables

- Premium/unit (Index interval) =
  - $ amount of protection/acre
  - *x* number of insured acres/unit
  - *x* premium rate
  - *x* adjustment factor of 0.01
  - *x* 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 x 100 ac x 1.0 share) = $1,800	$12.00	$216
		II				
		III				
		IV				
		Total		**$1,800.00**		**$216**
Grid 2	50ac 100% share	I	00100	($18.00 x 5 ac x 1.0 share) = $90.00	$13.50	$12
		II	00200	($18.00 x 25 ac x 1.0 share) = $450.00	$13.00	$59
		III				
		IV	00300	($18.00 x 20 ac x 1.0 share) = $360.00	$12.00	$43
		Total		**$900.00**		**$114**
Grid 3	100ac 50% share	I	00100	($18.00 x 50 ac x 0.50 share) = $450.00	$13.00	$59
		II				
		III				
		IV	00200	($18.00 x 50 ac x 0.50 share) = $450.00	$12.00	$54
		Total		**$1,800.00**		**$113**
Grid 4	245ac 100% share	I	00100	($18.00 x 122.5ac x 1.0 share) = $2,205.00	$13.00	$287
		II	00200	($18.00 x 73.5ac x 1.0 share) = $1,323.00	$14.00	$185
		III	00300	($18.00 x 49ac x 1.0 share) = $882.00	$15.00	$132
		IV				
		Total		**$4,410.00**		**$604**
Grand Totals				**$8,010**		**$1,047**

Premium Subsidy Amount

- 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 *x* subsidy percentage

    Example: $216 *x* 0.59 = $127

Premium Due from Producer

- The Premium due from Producer is the result of the Premium/unit minus the Subsidy/unit

- Premium per unit – Premium subsidy per unit

  Example: $216 - $127 = $89

- 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	$216	$127	$89
	II				
	III				
	IV				
Grid 2	I	00100	$12	$7	$5
	II	00200	$59	$35	$24
	III				
	IV	00300	$43	$25	$18
Grid 3	I	00100	$59	$35	$24
	II				
	III				
	IV	00200	$54	$32	$22
Grid 4	I	00100	$287	$169	$118
	II	00200	$185	$109	$76
	III	00300	$132	$78	$54
	IV				
Totals			**$1,047**	**$617**	**$430**

Worksheet with All Information

PASTURE, RANGELAND, FORAGE VEGETATION INDEX WORKSHEET

1. Insured's Name: Joe B. Rancher **2.** Date: 10/15/2006 **3.** State: CO (08) **4.** County: Archuleta (007)

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 (percentage)	13. Index Interval		14. Unit Number	15. % Insured acreage/ Unit (percentage)	16. Insured acreage/ Unit (acres)	17. Policy Protection/ Unit (dollars)	18. Premium Rate/$100 (dollars)	19. Premium/ Unit (dollars)	20. Premium Subsidy Amt (dollars)	21. Premium Due From Grower (dollars)
378811	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									
						Total	100	100					
378812	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									
						Total	100	50					
378813	100	100	50	I	221	00100	50	50	450	13.00	59	35	24
				II									
				III									
				IV									
						Total	100	100					
378814	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									
						Total	100	245					
County Totals	10a. 495	11a. 495						16a. 495	17a. $8,010		19a. $1,047	20a. $617	21a. $430

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

Final Grid Index and Indemnities

Final and Trigger Grid Indexes

Grid ID	Index Interval	Unit Number	Final Grid Index	Above or Below Trigger
Grid 1	I	00100	120	Above
	II			
	III			
	IV			
Grid 2	I	00100	110	Above
	II	00200	90	Above
	III			
	IV	00300	70	**Below**
Grid 3	I	00100	110	Above
	II			
	III			
	IV	00200	60	**Below**
Grid 4	I	00100	120	Above
	II	00200	70	**Below**
	III	00300	60	**Below**
	IV			

Trigger grid index is 85 for all grids and index intervals.

Calculating Indemnities

- ***Payment calculation factor*** =

$$\frac{\text{(trigger grid index – final grid index)}}{\text{trigger grid index}}$$

- ***Indemnity payment*** =

payment calculation factor

x Policy protection per unit

Example Calculations

- **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.

Payment calculation factor = (85 – 70) / 85
= .176
Indemnity payment = .176 x $1,323.00
= **$233**

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

Payment calculation factor = (85 – 60) / 85
= .294
Indemnity payment = .294 x $882.00
= **$259**

Summary of Yearly Policy in Example

- Joe Rancher insured 495 acres of grazingland in four separate Grid ID's
- Joe Rancher paid $430 in premium for $8,010 in protection
- A total indemnity of $687 will be due to Joe Rancher, for this County, for this crop year

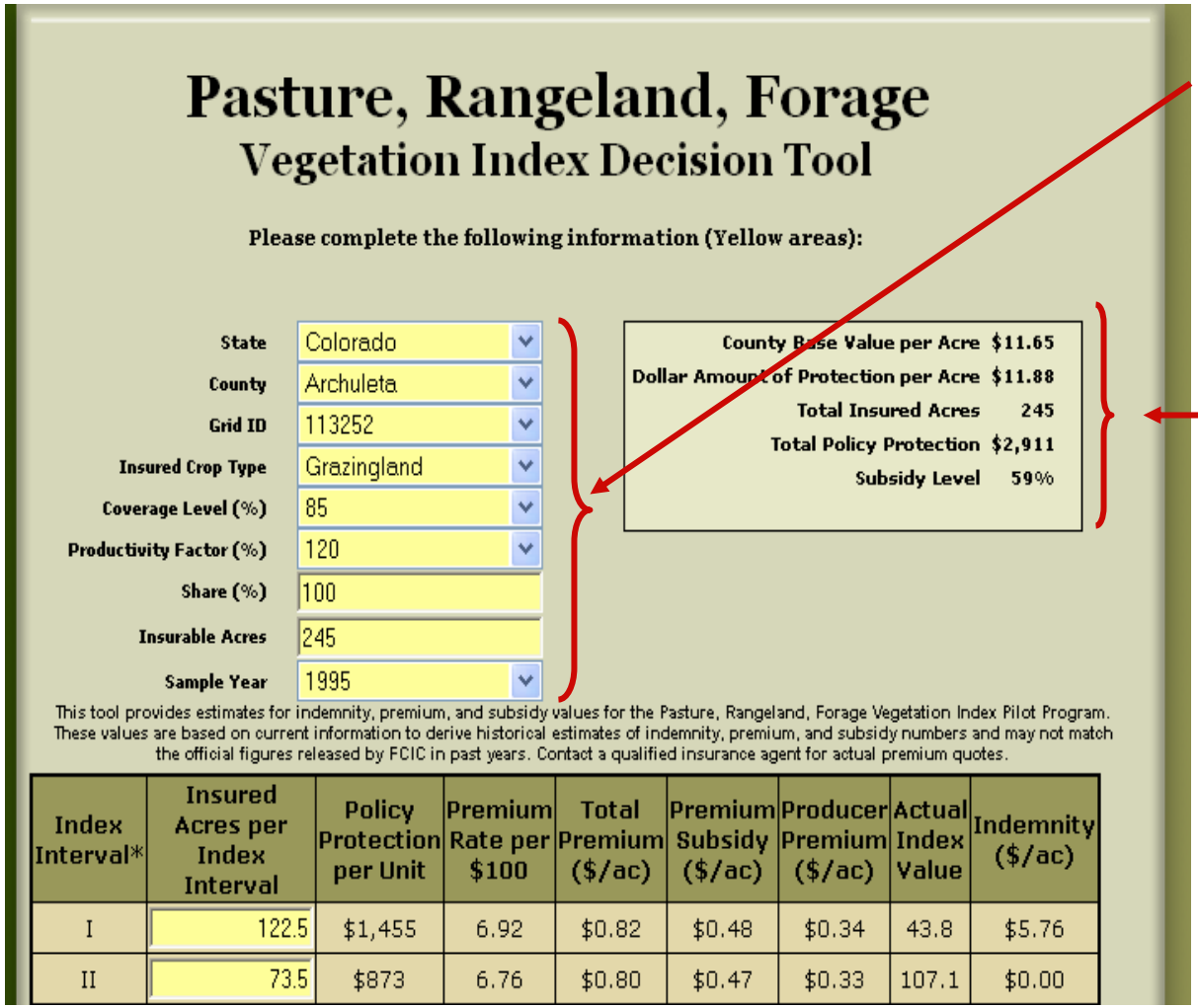
Questions

Additional Program Tools and Information

PRF – Vegetation Index Decision Tool

- 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
Vegetation Index Decision Tool

Please complete the following information (Yellow areas):

State	Colorado
County	Archuleta
Grid ID	113252
Insured Crop Type	Grazingland
Coverage Level (%)	85
Productivity Factor (%)	120
Share (%)	100
Insurable Acres	245
Sample Year	1995

County Base Value per Acre	$11.65
Dollar Amount of Protection per Acre	$11.88
Total Insured Acres	245
Total Policy Protection	$2,911
Subsidy Level	59%

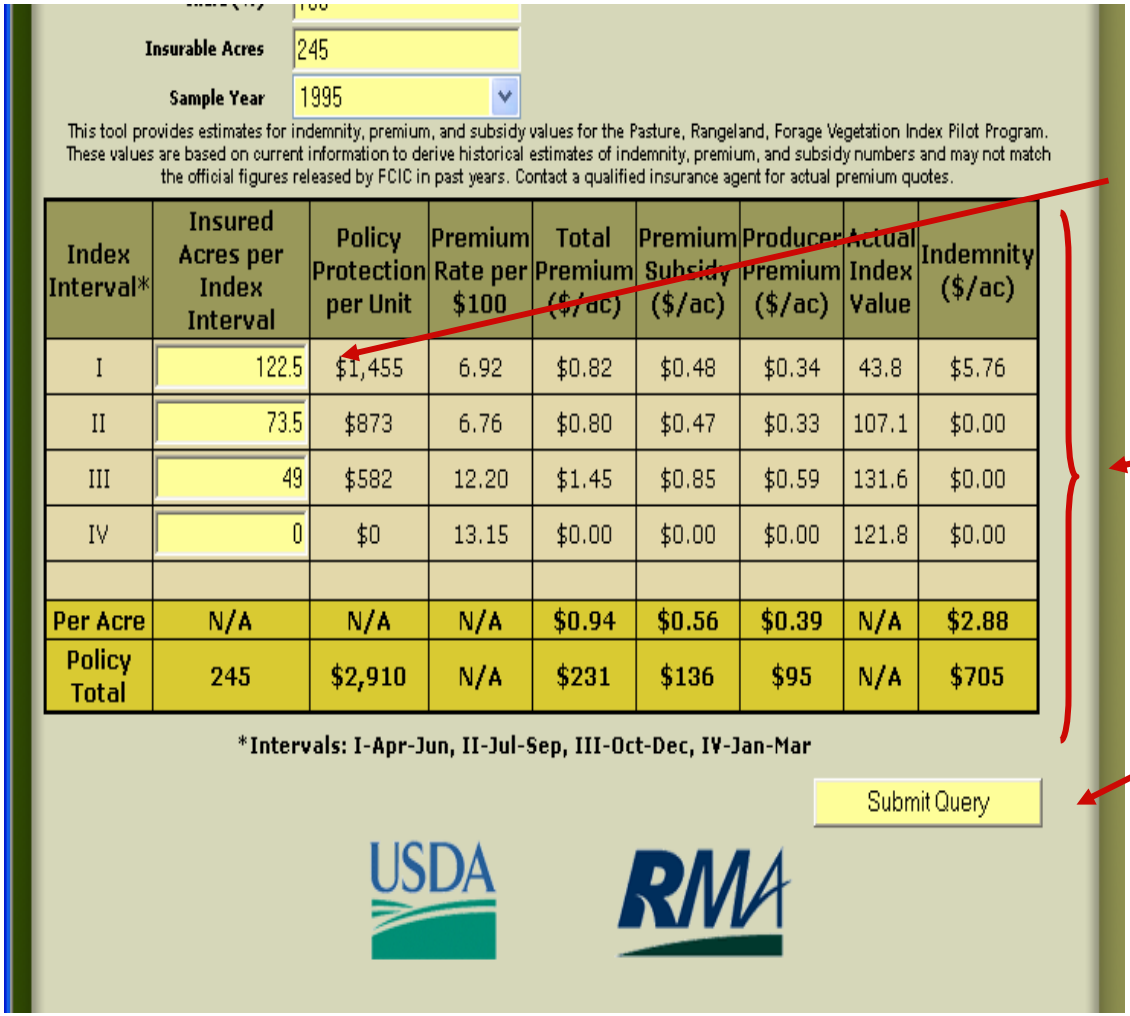
This tool provides estimates for indemnity, premium, and subsidy values for the Pasture, Rangeland, Forage Vegetation Index Pilot Program. These values are based on current information to derive historical estimates of indemnity, premium, and subsidy numbers and may not match the official figures released 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	122.5	$1,455	6.92	$0.82	$0.48	$0.34	43.8	$5.76
II	73.5	$873	6.76	$0.80	$0.47	$0.33	107.1	$0.00

Input information in all the yellow fields

Base information provided

Decision Tool: Example



Insurable Acres 245

Sample Year 1995

This tool provides estimates for indemnity, premium, and subsidy values for the Pasture, Rangeland, Forage Vegetation 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.

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II	73.5	$873	6.76	$0.80	$0.47	$0.33	107.1	$0.00
III	49	$582	12.20	$1.45	$0.85	$0.59	131.6	$0.00
IV	0	$0	13.15	$0.00	$0.00	$0.00	121.8	$0.00
Per Acre	N/A	N/A	N/A	$0.94	$0.56	$0.39	N/A	$2.88
Policy Total	245	$2,910	N/A	$231	$136	$95	N/A	$705

*Intervals: I-Apr-Jun, II-Jul-Sep, III-Oct-Dec, IV-Jan-Mar

Submit Query

USDA RMA

Insert the number of acres for each index interval (minimum percentages specified in the Special Provisions)

Results

Once information is entered, click Submit Query

(if any information is changed must resubmit query)

Additional Information

- Historical Data
  - Look up values since 1989
- Lookup Grid ID using Longitude/Latitude
  - Must be submitted in the correct data format
- RMA premium calculator

Summary

- 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 needs

Questions