

Risk Management Education for Irrigated & Targeted Commodities

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Co-Sponsors: *Western Regional Risk Management Center*
Risk Management Agency & Billings Regional Office
Mountain States Beet Growers Marketing Association of MT
MSU Cooperative Extension Service



**Sidney, Miles City,
Hysham, Hardin, Huntley,
Montana**

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WORKSHOP OUTLINE

1. **Pre-Test**
2. **Production Risk**
 - a. **MPCI & IP Insurance Products**
 - b. **Specific Crops**
3. **Diversification Issues**
 - a. **Price Risk**
 - b. **Diversification**
4. **Product Availability**
5. **Evaluation**

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PRODUCTION RISK OUTLINE

- 1. Definitions**
- 2. Insurable Units**
- 3. Actual Production History (APH)**
- 4. Multiple Peril Crop Insurance**
- 5. Income Protection**
- 6. Specific Crops**
 - a. Sugarbeets**
 - b. Dry Beans**
 - c. Malting Barley**
- 7. General Crop Insurance Issues**

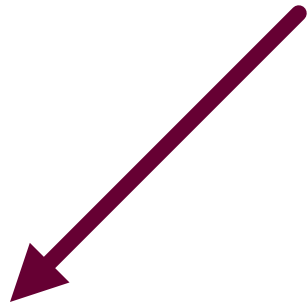
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Production Risk Management Options

Choices When RMA

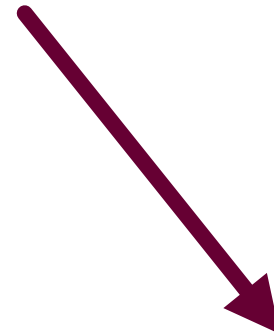
Offerings Are Available



Self-Insure



**Single-Peril
Insurance**



**RMA Multiple
Peril Offerings**

RMA Insurance Categories

Two Broad Categories



1. Yield Insurance
 - a. Indemnities Paid When Per Acre Yields Are Low

2. Revenue Insurance
 - a. Indemnities Paid When Per Acre Revenue Is Low

RMA Insurance Categories

	Individual Farm Plans (APH)	Group Plans (County Yield/Revenue)
Yield Insurance	MPCI	GRP
Revenue Insurance	IP CRC, RA, AGR	GRIP

PRODUCTION RISK OUTLINE

1. **Definitions**
2. **Insurable Units**
3. **Actual Production History (APH)**
4. **Multiple Peril Crop Insurance**
5. **Income Protection**
6. **Specific Crops**
 - a. **Sugarbeets**
 - b. **Dry Beans**
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7. **General Crop Insurance Issues**

Insurable Units

**May Be Able To Insure Different Areas
Within A County
Under Different Contracts**

1. **Optional Units**

a. **Land In Different Sections**

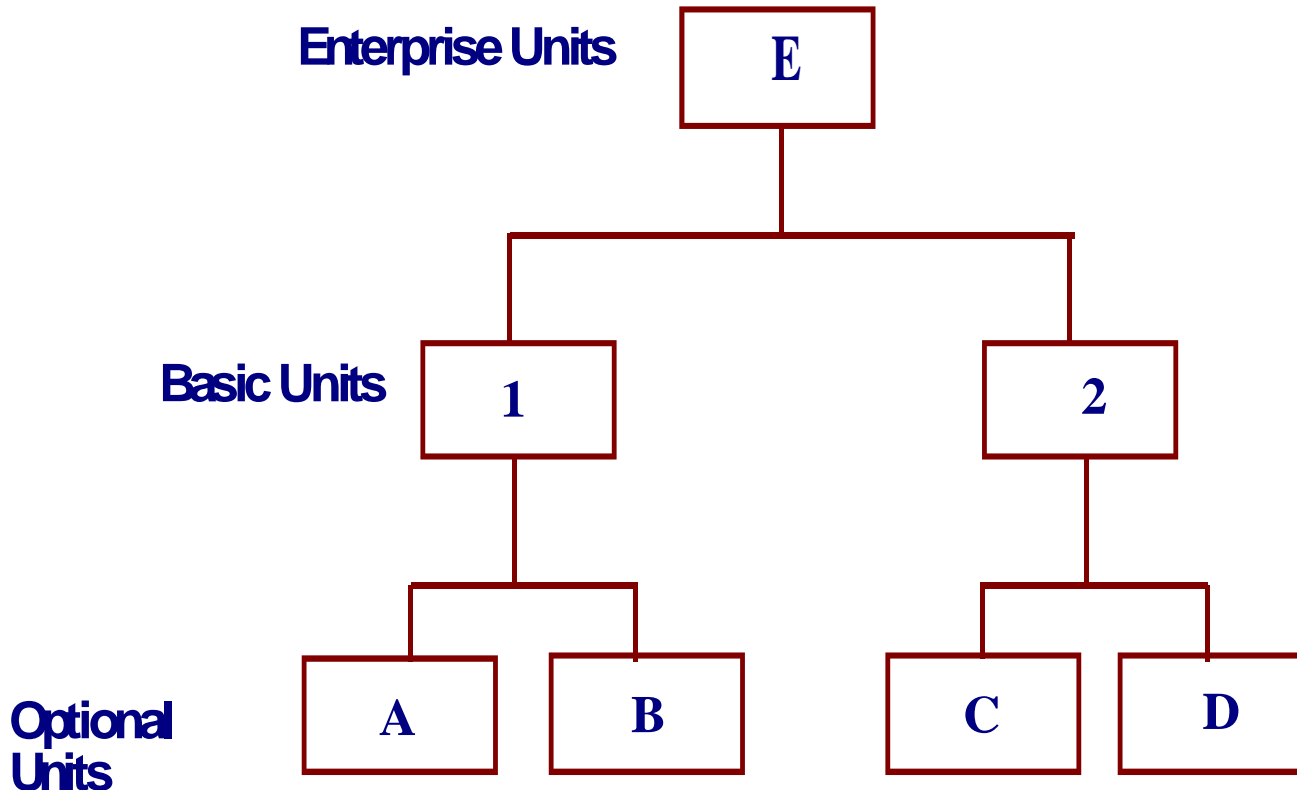
2. **Basic Units**

a. **Land Operated Under Same
Cost/Share Arrangements**

3. **Enterprise Units**

a. **All Of Your Land In The County¹⁰**

Insurable Units Pyramid



All four farms are in the same county.

A & B are operated under 100% crop share (may be owned or cash leased) but in separate sections.

C is leased from a landlord – 1/3 crop share.

D is leased from a different landlord – 1/3 crop share.

Comparing Optional And Basic Units (MPCI)

Contract Data	Optional Unit A	Optional Unit B	Basic Unit
Unit Size	100 acres	100 acres	200 acres
APH Yield	100 bushels	100 bushels	100 bushels
Coverage	70%	70%	70%
Trigger Yield	70 bushels	70 bushels	70 bushels
Elected Price	\$2/bushel	\$2/bushel	\$2/bushel

Problem 1: Comparing Optional And Basic Units

	Optional Unit A	Optional Unit B	Basic Unit
Trigger Yield	70 bushels	70 bushels	70 bushels
Elected Price	\$2/bushel	\$2/bushel	\$2/bushel
Unit Size	100 acres	100 acres	200 acres
Actual Yield Per Acre	60 bushels	80 bushels	
Per Acre Bushel Indemnity			
Total Dollar Indemnity			

Problem 1: Comparing Optional And Basic Units

	Optional Unit A	Optional Unit B	Basic Unit
Trigger Yield	70 bushels	70 bushels	70 bushels
Elected Price	\$2/bushel	\$2/bushel	\$2/bushel
Unit Size	100 acres	100 acres	200 acres
Actual Yield Per Acre	60 bushels	80 bushels	70
Per Acre Bushel Indemnity	10	0	0
Total Dollar Indemnity	\$2,000	0	0

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Actual Production History

Producers Must Establish APH For MPCI and IP



- 1. APH Must Be Established On Each Insurable Unit**
- 2. Based on Historical Proven Yields For The Past 4 to 10 Years**
- 3. This History Must Be For Consecutive Years**
- 4. Must Start With Most Recent Crop Year**

Establishing An APH When Records Are Available

Year	Producer A	Producer B
1993	--	104
1994	--	80
1995	--	60
1996	--	86
1997	--	105
1998	--	60
1999	90	90
2000	60	60
2001	75	75
2002	50	50
APH Yield	69	77

Incomplete APH History

1. **If You Have Less Than 4 Years Of Proven Yields**
 - a. **A Transition Yield (T-Yield) Is Established**
 - b. **Similar To The County Average**
2. **If You Are Unable To Supply Any Proven Production Information**
 - a. **Limited To 65% Of The T-Yield**¹⁸

Incomplete APH History

3. **If You Have Proven Yields For Only One Year**
 - a. **Can Use 80% Of The T-Yield For The Other Three Years**
4. **If You Have Proven Yields For Only Two Years**
 - a. **Can Use 90% Of The T-Yield For The Other Two Years**
5. **If You Proven Yields For Three Years**
 - a. **Can Use 100% Of The T-Yield For The Missing Year**

Establishing An APH When Records Are Not Complete

Year	Producer C	Producer C		Producer D	Producer D
1999	N.A.			N.A.	
2000	60	60		N.A.	
2001	75	75		N.A.	
2002	50	50		N.A.	
APH Yield	??			??	

Establishing An APH When Records Are Not Complete

Year	Producer C	Producer C		Producer D	Producer D
1999	N.A.			N.A.	
2000	60	60		N.A.	
2001	75	75		N.A.	
2002	50	50		N.A.	
APH Yield	??			??	

If The County T-Yield Was 80 Bushels Per Acre

Establishing An APH When Records Are Not Complete

Year	Producer C	Producer C		Producer D	Producer D
1999	N.A.	80		N.A.	
2000	60	60		N.A.	
2001	75	75		N.A.	
2002	50	50		N.A.	
APH Yield	??	66		??	

If The County T-Yield Was 80 Bushels Per Acre

Producer C: 100% Of 80 Bushels (1999)

Establishing An APH When Records Are Not Complete

Year	Producer C	Producer C		Producer D	Producer D
1999	N.A.	80		N.A.	52
2000	60	60		N.A.	52
2001	75	75		N.A.	52
2002	50	50		N.A.	52
APH Yield	??	66		??	52

If The County T-Yield Was 80 Bushels Per Acre

Producer D: 65% Of 80 Bushels (All Years)

APH Yields And Low Yields

1. **If You Have Had Some Years With Unusually Low Yields**
 - a. **You Can Replace Those Years With 60% Of The T-Yield**

APH Yields And Low Yields

Year	Producer E	Producer E
1993	104	104
1994	80	80
1995	15*	48
1996	86	86
1997	105	105
1998	25*	48
1999	90	90
2000	60	60
2001	75	75
2002	20*	48
APH Yield	66	74

If The County T-Yield Was 80 Bushels Per Acre

Producer E: 60% Of 80 Bushels (1995, 1998, 2002)

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MPCI

- 1. Original FCIC, Subsidized Crop Insurance**
- 2. Producer Establishes An APH**
- 3. Producer Chooses A Yield Election**
 - a. 50%-75% (Or 85%) Of APH**
- 4. Producer Chooses A Price Election**
 - a. 30%-100% Of FCIC Forecasted Harvest Price**
- 5. Premium Equals The Maximum Indemnity Multiplied By The Premium Rate**

MPCI Example

Contract Data	Value	Calculation
APH Yield	100 bu.	
Yield Election	70%	
Trigger Yield	70 bu.	0.70 x 100 bu.
FCIC Price Forecast	\$2.50/bu.	
Price Election	80%	
Elected Price	\$2.00/bu.	0.80 x \$2.50
Maximum Indemnity	\$140	70 bu. x \$2.00
Premium Rate	6%	
Premium	\$8.40/ac.	0.06 x \$140

MPCI Example

1. **Suppose You Actually Harvest 50 Bushels Per Acre**

2. **Will You Receive An Indemnity?**
3. **If So, Calculate The Indemnity In Bushels/Acre**
4. **Calculate The Indemnity In Dollars/Acre**

MPCI Example

1. Suppose You Actually Harvest 50 Bushels Per Acre



2. You Receive An Indemnity Because 50 Bushels Is Less Than Your Trigger Yield of 70 Bushels.

3. You Receive The Difference In Bushels

a. $70 - 50 = 20$ Bushels/Acre

4. Valued At Your Elected Price

a. $20 \times \$2.00 = \$40/\text{Acre}$

PRODUCTION RISK OUTLINE

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Income Protection (IP)

1. **Can Only Insure Enterprise Units**
2. **Producer Establishes An APH For Each Unit**
3. **Producer Chooses A Coverage Election**
 - a. **50%-75% (or 85%)**
4. **FCIC Establishes A “*Projected Harvest Price*”**

Income Protection (IP)

5. IP Revenue Insurance Guarantee
 - a. APH Yield x Coverage Election
x FCIC Projected Harvest Price
6. “Crop Value” Is Your Actual Harvest Yield Multiplied By The “FCIC *Actual* Harvest Price”
7. Producer Receives An Indemnity When
 - a. “Crop Value” Is Less Than the IP Revenue Insurance Guarantee

IP Example

Contract Data	Value	Calculation
APH Yield	100 bu.	N.A.
Coverage Election	70%	N.A.
FCIC Price Forecast	\$2.50/bu.	N.A.
IP Revenue Guarantee?		

IP Example

Contract Data	Value	Calculation
APH Yield	100 bu.	N.A.
Coverage Election	70%	N.A.
FCIC Price Forecast	\$2.50/bu.	N.A.
IP Revenue Guarantee	\$175/ac	100 bu. X 0.70 x \$2.50


IP Example 1: Price Constant

1. **Suppose You Actually Harvest 50 Bushels Per Acre (Yield Protection)**
2. **Suppose The Actual FCIC-Determined Harvest Price Is \$2.50/bushel**
3. **What Is Your “Crop Value”?**
4. **Will You Receive An Indemnity?**
5. **If So, Calculate The Indemnity**

IP Example 1: Price Constant

1. **Suppose You Actually Harvest 50 Bushels Per Acre (Yield Protection)**
2. **Suppose The Actual FCIC-Determined Harvest Price Is \$2.50/bushel**
3. **Your “Crop Value” Is**
 - a. **$50 \text{ bu} \times \$2.50 = \$125/\text{Acre}$**
4. **You Receive An Indemnity Of \$50/Acre Because \$125/Acre Is Less Than \$175/Acre**
 - a. **$\$175 - \$125 = \$50/\text{Acre}$**

IP Example 2: Price Increase

1. **Suppose You Actually Harvest 50 Bushels Per Acre**
2. **But, The Actual FCIC-Determined Harvest Price Increased To \$2.75/bushel (Rather Than The Projected Harvest Price of \$2.50/bu.)**

3. **What Is Your “Crop Value”?**
4. **Will You Receive An Indemnity?**
5. **If So, Calculate The Indemnity**

IP Example 2: Price Increase

1. Suppose You Actually Harvest 50 Bushels Per Acre
2. But, The Actual FCIC-Determined Harvest Price Increased To \$2.75/bushel (Rather Than The Projected Harvest Price of \$2.50/bu.)
3. Your “Crop Value” Is
 - a. $50 \text{ bu} \times \$2.75 = \$137.50/\text{Acre}$
4. You Receive An Indemnity Of \$37.50/Acre
 - a. $\$175 - \$137.50 = \$37.50/\text{Acre}$

IP Example 3: Price Decrease

1. **Suppose You Actually Harvest 85 Bushels Per Acre (Price Protection)**
2. **But, The Actual FCIC-Determined Harvest Price Decreased To \$2.00/bushel (Rather Than The Expected Harvest Price of \$2.50/bu.)**
3. **What Is Your “Crop Value”?**
4. **Will You Receive An Indemnity?**
5. **If So, Calculate The Indemnity**

IP Example 3: Price Decrease

1. **Suppose You Actually Harvest 85 Bushels Per Acre (Price Protection)**
2. **But, The Actual FCIC-Determined Harvest Price Decreased To \$2.00/bushel (Rather Than The Expected Harvest Price of \$2.50/bu.)**
3. **Your “Crop Value” Is**
 - a. **85 bu x \$2.00 = \$170/Acre**
4. **You Receive An Indemnity Of \$5.00/Acre**
 - a. **\$175 - \$170 = \$5/Acre**

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Sugarbeets: MPCCI

- 1. Insurable Units**
 - a. Must Insure All Your Acres In A County (But, They May Be Under Different Contracts)**
 - b. May Insure Under Optional, Basic, or Enterprise Units**
- 2. Yield Election -- 50%-85%**
- 3. Price Election For All Acres**
 - a. 30%-100% FCIC Projected Price**
 - b. Indemnity Based On Expected Sugar Production**

Sugarbeets: MPCCI

4. Replant Option

- a. **Payment Occurs If Remaining Stand Cannot Produce 90% of Trigger Yield**
- b. **Payment Becomes The Lesser Of**
 - **1 Ton Of Beets/Acre**
 - **10% Of Trigger Yield (For Trigger Yields Less Than 10 Tons/Acre)**
 - **Probably Not Applicable In This Area**

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Dry Beans: MPCCI

1. **Insurable Units**
 - a. **Must Insure All Your Acres In A County (But, They May Be Under Different Contracts)**
 - b. **May Insure Under Optional, Basic, or Enterprise Units**
 - c. **May Insure By Type (Variety)**
 - **Different Prices**
2. **Yield Election -- 50%-75%**
3. **Price Election For All Acres**
 - a. **30%-100% FCIC Price**

Dry Beans: MPCCI

4. Replant Option

- a. Payment Occurs If Remaining Stand Cannot Produce 90% of Trigger Yield
- b. Payment Becomes The Lesser Of
 - 120 Pounds Per Acre
 - 10% Of Trigger Yield

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Malting Barley: MPCFI

1. **You First Purchase A Feed Barley Contract**
2. **You Make Decisions Regarding**
 - a. **Units**
 - b. **Yield Election**
 - c. **Price Election**
3. **You May Elect To Purchase A Malting Barley Rider**
 - a. **Option A: Non-Contracted Malting Barley**
 - b. **Option B: Contracted Malting Barley**

Malting Barley: MPCFI

4. **Rider Applies To ALL Bushels Contracted For Delivery Regardless Of Selected Units**
5. **Indemnity Is Paid For Any Undelivered Bushels Below Your Trigger Yield**
6. **Option B: Indemnities Valued As**
 - a. **The Difference Between Malting Barley Contract Price and The FCIC Feed Barley Price Forecast (Adjusted For Quality)**

MPCI Example 1

Malting Barley: Option B

	Value	Calculation
APH Yield	100 bu.	
Yield Election	70%	
Trigger Yield	70 bu.	$0.70 \times 100 \text{ bu.}$
FCIC Price Forecast	\$2.50/bu.	
Price Election	80%	
Elected Price	\$2.00/bu.	$0.80 \times \$2.50$
Option B Rider	10,000 bu.	$100 \text{ ac} \times 100 \text{ bu}$
Contract Price	\$3.50/bu.	

MPCI Example 1

Malting Barley: Option B

1. **Suppose You Actually Harvest 50 Bushels Per Acre (Makes Malt)**
2. **You Receive An Indemnity For The Difference In Bushels**
 - a. **$70 - 50 = 20$ Bushels/Acre**
3. **Valued At Your Feed Barley Price Election**
 - a. **$20 \times \$2.00 = \$40/\text{Acre}$**
 - b. **Total = $\$40 \times 100 \text{ Acres} = \$4,000$**

MPCI Example 1

Malting Barley: Option B

- 4. You Were Only Able To Deliver 5,000 Bushels (50 bu/ac x 100 acres)**
- 5. Malting Barley Indemnity Is Based On Your Yield Election (70% Of 10,000 bu.)**
 - a. $7,000 - 5,000 = 2,000$ Bushels**
 - b. Those Bushels Are Valued As The Difference Between The The Malting Barley Contract Price and The FCIC Feed Barley Price Forecast (Quality Adjusted)**

MPCI Example 1

Malting Barley: Option B

6. Your Malting Barley Indemnity Is:

a. $\$3.50 - \$2.50 = \$1.00/\text{bu.}$

b. $\$1/\text{bu} \times 2,000 \text{ bu.} = \$2,000$

7. Total Indemnity Is:

a. $\$4,000 + \$2,000 = \$6,000 (\$60/\text{ac})$

MPCI Example 2

Malting Barley: Option B

1. **Suppose You Actually Harvest 100 Bushels Per Acre**
 - a. **All Rejected For Malt (Thins)**
2. **Will You Receive A Feed Barley Indemnity?**
 - a. **If So, Calculate The Indemnity**
3. **Will You Receive A Malting Barley Indemnity?**
 - a. **If So, Calculate The Indemnity**⁵⁵

MPCI Example 2

Malting Barley: Option B

- 1. Suppose You Actually Harvest 100 Bushels Per Acre**
 - a. All Rejected For Malt (Thins)**
- 2. You Receive No Indemnity For Feed Barley (100 bu. > 70 bu.)**
- 3. Your Malting Barley Indemnity Is:**
 - a. 7,000 Bushels Valued As The Difference Between The Malting Barley Contract Price And The FCIC Feed Barley Price Forecast (Quality Adjusted)**

MPCI Example 2

Malting Barley: Option B

4. Your Malting Barley Indemnity Is:
 - a. $\$3.50 - \$2.50 = \$1.00/\text{bu.}$
 - b. $\$1/\text{bu} \times 7,000 \text{ bu.} = \$7,000$
5. Total Indemnity Is \$7,000
 - a. Or \$70/Acre

Malting Barley: IP

1. **You First Purchase A Feed Barley Contract**
2. **You Make Decisions Regarding**
 - a. **Coverage Election**
3. **You May Elect To Purchase A Malting Barley Rider**
 - a. **Option A: Non-Contracted Malting Barley**
 - b. **Option B: Contracted Malting Barley**

Malting Barley: IP

4. Receive Indemnity When Per Acre Revenue Falls Below The Trigger Level
5. Feed Barley Price Is Determined At Harvest As 85% Of The CBOT Corn Price
6. Per Acre Revenues Are Calculated As Combinations Of Values Of Feed and Malting Barley Production


IP Example 1

Malting Barley: Option B

	Value	Calculation
APH Yield	100 bu.	
Coverage Election	70%	
Contract Price	\$3.50/bu.	
Trigger Revenue	\$245/ac.	100 bu x 0.70 x \$3.50
FCIC IP Forecast Feed Barley Price	\$2.50 bu.	0.85 x \$2.94 (CBOT Corn)

IP Example 1

Malting Barley: Option B

1. **Suppose You Actually Harvest 50 Bushels Per Acre (Makes Malt)**

2. **Calculate Your Crop Value**
3. **Calculate Your Indemnity**

IP Example 1

Malting Barley: Option B

1. **Suppose You Actually Harvest 50 Bushels Per Acre (Makes Malt)**

2. **Crop Value Is:**

a. **$50 * \$3.50 = \$175/\text{Acre}$**

3. **Indemnity Is:**

a. **$\$245 - \$175 = \$70/\text{Acre}$**

IP Example 2

Malting Barley: Option B

- 1. Suppose You Actually Harvest 80 Bushels Per Acre**
 - a. Some Hail Damage**
 - b. Some Crop Is Rejected For Malt**
 - c. On Average, 30 Bushels Of Malting Barley, 50 Bushels Of Feed Barley**
- 2. Say The Actual FCIC IP Feed Barley Harvest Price Was \$2.50**

IP Example 2

Malting Barley: Option B

3. Calculate Your Crop Value
4. Calculate Your Indemnity

IP Example 2

Malting Barley: Option B

3. Your Crop Value is:

a. $30 \text{ bu} \times \$3.50 = \$105/\text{Acre}$

b. $50 \text{ bu} \times \$2.50 = \$125/\text{Acre}$

4. Your Indemnity Is:

a. $\$245 - \$230 = \$15/\text{Acre}$

IP Example 3

Malting Barley: Option B

- 1. Suppose You Actually Harvest 100 Bushels Per Acre**
 - a. But All Rejected Because Of Thins (You Can Sell It For \$1.25/bu)**
- 2. The Actual FCIC-Determined Harvest Price Remained At The Expected Harvest Price of \$2.50/bu**

IP Example 3

Malting Barley: Option B

- 3. What Is Your “Crop Value”?**
- 4. Will You Receive An Indemnity?**
- 5. If So, Calculate The Indemnity**

IP Example 3

Malting Barley: Option B

3. What Is Your “Crop Value”?
 - a. **100 bu x \$2.50 = \$250/Acre**
4. Will You Receive An Indemnity?
 - a. **No! Because \$250 Is Greater Than Your IP Revenue Guarantee Of \$245/Acre**
5. Are You Happy?
 - a. **Probably Not Because You Only Realized 100 bu x \$1.25 = \$125/Acre**

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Crop Insurance Issues

1. **If You Insure Irrigated Barley, You Have To Insure Your Dryland Barley**
 - a. **However, They Are Different Contracts**
2. **IP Only Insures Enterprise Units**
3. **Usually, Though Not Always, Want to Insure Smaller Units**
4. **You Pay More For Smaller Units And Lower Deductibles**
5. **IP Is *Generally* Less Expensive Than MPCl In Higher-Yielding Areas**

Crop Insurance Issues

6. **Consider Local Feed Barley Price Relative To Your Expectations Of The FCIC IP Harvest Feed Barley Price**
 - a. **May Want To Increase Coverage**
7. **Why Are You Buying Insurance?**
 - a. **How Much Protection Do You Need?**
 - b. **Trying To Maximize Indemnities May Not Be An Optimal Strategy**
8. **Compare Premiums And Protection Across Products And Counties**

QUESTIONS?

