Risk Management Education for Alternative Crops

Production Risk Management

November 2001

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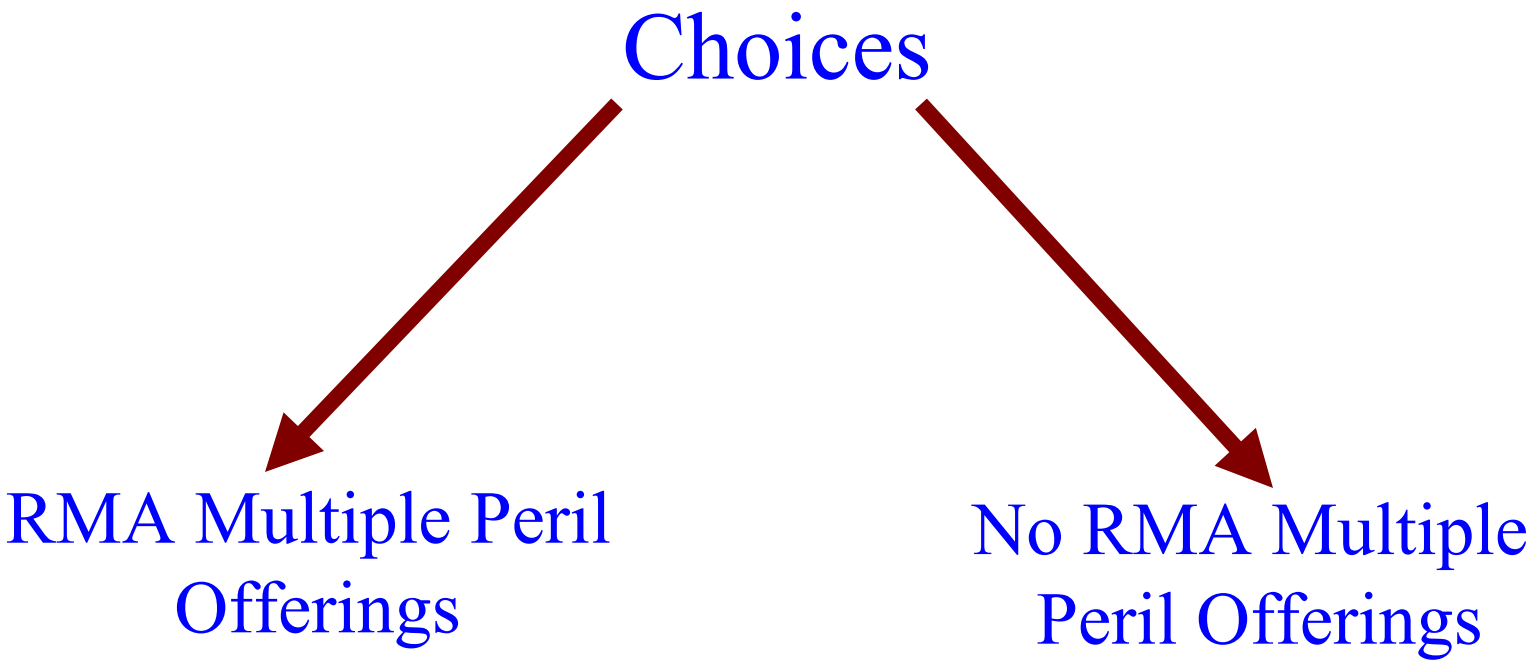
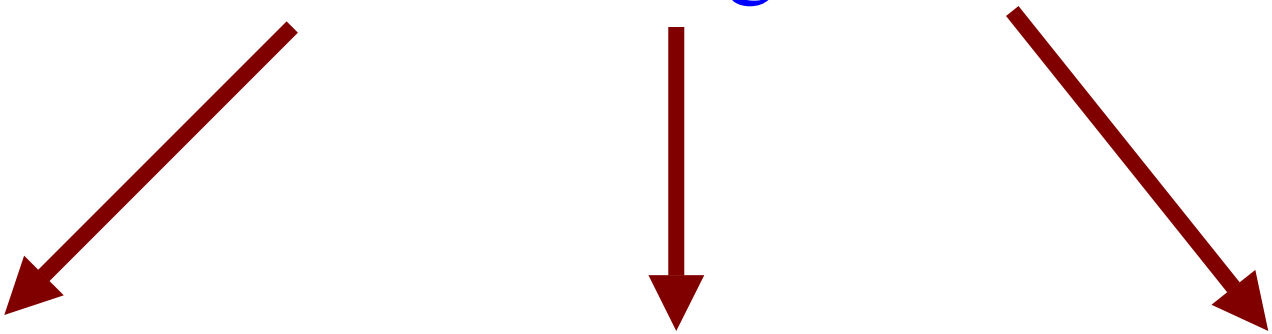


Choices

when

RMA Offerings Available



Self-Insure

Single-Peril Insurance

Choose RMA Multiple Peril Offerings

Federally Subsidized Insurance Options

Two Broad Categories:

Yield Insurance:

Indemnities paid when per acre yields are low.

Revenue Insurance:

Indemnities paid when per acre revenues are low

Individual and Group Contracts

Two Alternative Levels of Insurance

Individual Insurance:

Based on the farm's actual production history and losses triggered by actual farm level production and estimated farm level revenues.

Group Insurance:

Based on the county-wide production history and losses triggered by actual county-wide production and estimated revenues.

FCIC Insurance Contract Acronyms

MPCI	Multiple Peril Crop Insurance
CRC	Crop Revenue Coverage
RA	Revenue Assurance
IP	Income Protection
GRP	Group Risk Plan
GRIP	Group Revenue Insurance Plan
AGR	Adjusted Gross Revenue

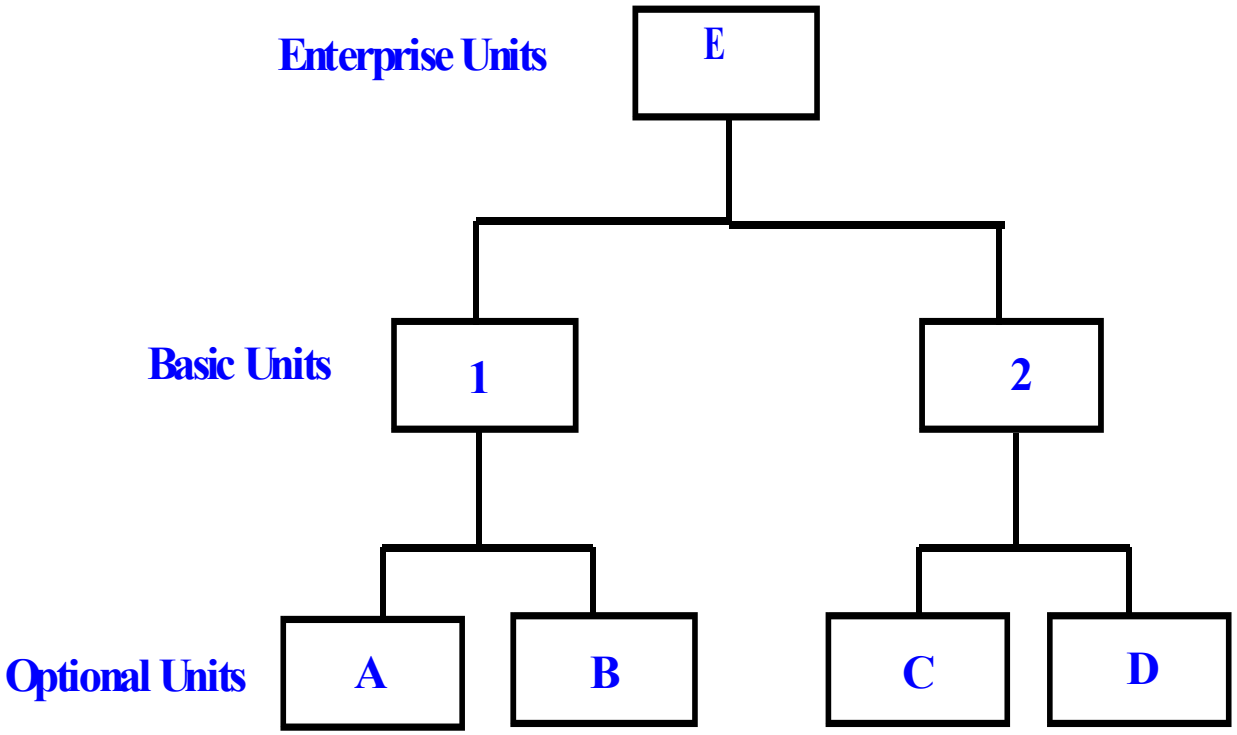
"Standard" FCIC Contracts

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

Insurable Units

1. A producer can insure different areas within a county under different contracts (with different approved yields) or under the same contract (with the same APH).
2. There are three types of units:
   a. Optional units - must generally be located in separate sections
   b. Basic units - must be operated under the same cost share arrangements
   c. Enterprise units - all acres in a county

The Units Pyramid



Optional Unit and Basic Unit Coverage under a 65% MPCI Contract

Contract Data	Optional Unit 1	Optional Unit 2	Basic Unit
Unit Size	100 acres	100 acres	200 acres
APH Yield	40 bushels	40 bushels	bushels
Coverage Option	65% APH	65% APH	65% APH
Trigger Yield	26 bushels	26 bushels	26 bushels
Elected Price	$4/bushel	$4/bushel	$4/bushel

Optional Unit and Basic Unit Coverage under a 65% MPCI Contract (cont.)

Yield and Coverage Data	Optional Unit 1	Optional Unit 2	Basic Unit
Trigger Yields	26 bushels	26 bushels	26 bushels
Actual Yields	20 bushels	32 bushels	26 bushels
Bushel Indemnity	6 bushels	0 bushels	0 bushels
Elected Price	$4/bushel	$4/bushel	$4/bushel
Unit Size	100 acres	100 acres	200 acres
Total Indemnity	$2,400	$0	$0

Individual Farm-Based Contracts: Actual Production History

1. These include both yield (MPCI) and revenue farm level contracts (CRC, RA, and IP).
2. The farmer must establish an approved average yield for each crop on each insurable unit.
3. Often the approved average yield is based on a producer's approved production records for the previous four to ten years.
4. The years to be used must be consecutive and begin with the most recent completed crop year data.

Computing APH Yields When Acceptable Production Records Are Available

Crop Year	Producer A Proven Yield	Producer B Proven Yield
1991-92	NA	52
1992-93	NA	22
1993-94	NA	8
1994-95	NA	43
1995-96	NA	52
1996-97	NA	30
1997-97	45	44
1998-99	5	6
1999-2000	34	38
2000-01	16	15
APH Approved Yield	**25**	**27**

Individual Farm-Based Contracts
Actual Production History (cont.)

5. Sometimes producers do not have approved yield history data for some of the previous four years.

6. In that case, they can get an APH based on the FCIC Transition or T-yield for the county.

7. If they have no yield history data, their approved average yield is simply 65 percent of the county average yield.

Computing APH Approved Yields with Transition Yields:
For NA substitute 65% of the T-Yield

Crop Year	Producer C Proven Yield (bushels)	Producer D Proven Yield (bushels)	County T-Yield (bushels)
1997-1998	NA	NA	30
1998-1999	36	NA	30
1999-00	28	NA	30
2000-01	34	NA	30
	29.38	**19.5**	

MPCI Contracts

MPCI contracts formed the original Federally subsidized insurance program

- The producer establishes an approved average yield
- The producer selects a yield election (50 to 75% of the approved yield) and a trigger yield (equal to the yield election multiplied by the approved yield).
- The producer receives an indemnity if the actual yield is less than the trigger yield.
- The indemnity is equal to the difference between the trigger yield and the actual yield, valued at an elected price.
- The elected price is a proportion of an FCIC predicted price.

MPCI Contracts (cont.)

6. The premium paid is equal to the maximum indemnity payable under the contract multiplied by the premium rate.
7. The premium rate, which is subsidized, is higher for higher yield election. The proportion of the premium rate that is subsidized is lower for higher yield elections.
8. Lower premium rates are charged for insuring basic units than optional units. Enterprise units have even lower premium rates.

MPCI Contracts: Example

Approved Yield = 40 bushels per acre

Yield Election = 75 percent

Trigger Yield = 30 bushels per acre (40 bushels *x* 0.75)

FCIC forecast price = $4 per bushel

Price election = 75 percent

Elected Price = $3 per bushel ($4 x 0.75)

Maximum Indemnity = 30 bushels x $3 = $90 per acre

Producer's Premium Rate = 7 percent

Premium = $6.30 per acre ($90 x 0.07)

Catastrophic Coverage

Catastrophic Risk Protection (CAT) endorsements may be obtained.

1. The producer is covered for losses under a 50 percent yield election/60 percent price election contract.

2. The producer only pays a $100 administrative fee for each crop in each county.

3. The fee maybe waived if the producer is designated as a limited resource farmer.

4. No longer required.

Income Protection (IP)

1. The producer must establish an approved average yield for each unit insured.
2. Producers must insure all acres of a crop in a county under the same contract.
3. Producers generally can elect between 50 and 75% of their approved average yield as the basis for IP coverage in increments of 5 percentage points.

Income Protection (cont.)

4. An FCIC ***projected harvest price*** for the crop is established at time of planting. The IP ***Revenue Insurance Guarantee*** is:

   Yield election x APH Approved yield

   x Projected Harvest Price

5. The producer receives an indemnity when the crop value (actual FCIC harvest price x actual crop yield) is less than the IP Revenue Insurance Guarantee

Income Protection (IP) Example

Example:

The producer's APH is 100 bushels per acre, the projected harvest price is $2.50, and the producer selects a 70 percent yield election.

The producer's actual yield is 50 bushels and the actual FCIC harvest price is $3.00

IP Revenue Guarantee = 100 bushels per acre x 0.70 x $2.50

= $175 per acre

Income Protection (IP) Example

Example (cont.)

IP Revenue Guarantee = 100 bushels per acre x 0.70 x $2.50
= $175 per acre

Crop Value = 50 bushels per acre x $3 = $150 per acre

Indemnity = $175 - $150 = $25 per acre.

Crop Revenue Coverage (CRC)

1. The producer must establish an approved average yield for each unit insured.
2. Producers generally can elect between 50 and 75 % of their approved average yield as the basis for CRC coverage.
3. An FCIC base price for the crop is established at time of planting.
4. The producer selects one of two price elections (95 percent and 100 percent).
5. The **Minimum Revenue Guarantee** for the producer on each acre is:

   Yield election x Approved yield x Base price x Price election

Crop Revenue Coverage (Cont.)

6. There is a (potentially) higher harvest revenue guarantee. The base price is established at time of planting. The harvest price (as determined by FCIC for each crop through a prescribed procedure) may be higher.
7. If the harvest price is higher than the base price, then the producer's per acre revenue guarantee is increased (there are caps to the increase).
8. The producer receives an indemnity if the producer's actual yield multiplied by the FCIC harvest price is less than the producer's CRC revenue guarantee.

Crop Revenue Coverage (Examples)

Example:

APH Approved Yield	=	100 bushels
Yield Election	=	70 percent
Base Price	=	$2.50 per bushel
Price election	=	95 percent

Minimum Revenue	=	APH approved yield x Yield Election
Guarantee	x	Base Price x Price Election
	=	$166.25 per acre

CRC Example (Cont.)

Case 1.

Harvest Price of $3 per bushel exceeds base price and producer's actual yield is 50 bushels:

1. Harvest Revenue Guarantee = APH approved yield x Yield election x Harvest price x Price Election
   = $199.50 per acre

2. Producer's *"Crop Value"* = Actual yield x harvest price = 50 bushels per acre x $3 = $150 per acre

3. Producer's Indemnity = Harvest Rev. Guarantee – Crop Value
   = $49.50 per acre

CRC Example (Cont.)

Case 2.

Harvest Price of $1.80 per bushel is less than the base price and the producer's actual yield is 70 bushels:

1. Producer's Minimum Revenue Guarantee is chosen because the harvest price is less than the base price of $2.50.

2. Producer's *"Crop Value"* = Actual yield x harvest price
   = 70 bushels per acre x $1.80
   = $126 per acre

3. Producer's Indemnity = Min. Rev. Guarantee – Crop Value
   = $166.25 - $126
   = $40.25 per acre.

CRC Premiums

1. A base premium rate (tied to the yield election), a high price factor, and a low price factor are used to establish CRC premium rates.

2. As with MPCI, federal subsidies are provided.

Revenue Assurance Contracts (RA)

1. The producer must establish an approved average yield for each unit insured.
2. Producers must insure all acres of a crop in a county.
3. Producers generally can elect between 50 and 75 % of their approved average yield as the basis for RA coverage in increments of 1 percentage points.
4. An FCIC ***projected harvest price*** for the crop is established at time of planting. The RA **Basic Revenue Guarantee** for the producer on each acre is:

   Yield election x Approved yield x Projected Harvest Price

Revenue Assurance Contracts (RA)

5. The producer may choose a *harvest price option*. This option gives the producer coverage similar to that available under CRC. If the FCIC determined *harvest price* is greater than the *projected harvest price* then the harvest price option gives the producer a higher *Harvest Revenue Guarantee*.
6. The Harvest Revenue Guarantee is:

   APH Approved Yield x Yield Election x Harvest Price

Revenue Assurance Examples

The APH average yield = 100 bushels per acre

Yield Election = 70 percent

Projected harvest price = $2.50

Basic Revenue Guarantee = APH average yield x Yield election x projected harvest price

= 100 x (0.7) x $2.50

= $175 per acre

Revenue Assurance Examples

Case 1:

The producer's actual yield is 50 bushels per acre and the harvest price is $3 per bushel.

a. Harvest Rev. Guarantee = 100 bushels x 0.7 x $3
= $210 per acre.

b. Crop Value = 50 bushels x $3 = $150 per acre

c. Indemnity = Harvest Rev. Guarantee – Crop Value
= $210 - $150 = $60 per acre.

Revenue Assurance Examples

Case 2:

The producer's actual yield is 70 bushels per acre and the harvest price is $1.80 per bushel. The *actual* harvest price is less than the *predicted* harvest price. Thus the basic revenue guarantee is used.

a. Basic Revenue Guarantee = APH average yield x Yield election x projected harvest price
= 100 x (0.7) x $2.50
= $175 per acre

b. Crop Value = 70 bushels x $1.80 = $126 per acre

c. Indemnity = Harvest Rev. Guarantee – Crop Value
= $175 - $126 = $49 per acre.

Group Risk Plan

1. This is a program in which indemnities are determined by county wide yields. The producer's actual and APH average yields are ***not*** elements in the contract.
2. Producers must insure all acres of a crop in a county under the same GRP contract.
3. The FCIC computes an average county yield for the crop based on long term trends in yields.
4. The producer selects a proportion of the county yield (a yield election), against which to insure.
5. There are 5 yield elections (70, 75, 80, 85, and 90 percent).

GRP (cont.)

6. The GRP trigger yield is the expected county yield multiplied by the producer's yield election.
7. The producer receives an indemnity when the actual county yield falls below the trigger yield.
8. The indemnity depends on the ***per acre*** dollar amount of protection purchased by the producer.
9. The producer can select between 60 and 100 percent of the maximum per acre dollar amount of protection available.
10. The indemnity is determined by the ***Payment Calculation Factor*** (PCF) where:

PCF = (Trigger Yield – Actual Yield)/Trigger Yield

GRP Example

Example:

The expected county yield is 100 bushels per acre and the maximum dollar amount of protection is $240. The producer selects a 90 percent yield election and 80 percent of the maximum dollar amount of protection. The actual county yield is 60 bushels.

Trigger Yield = Yield election x Expected County Yield

= 0.9 x 100 bushels = 90 bushels

Dollar Amount of Protection = protection election x maximum dollar of protection

= 0.8 x $240 = $200

GRP Example (cont.)

Example (cont.)

PCF = (Trigger Yield – Actual Yield)/Trigger Yield

= (90 - 60)/90 = 0.33

Per Acre Indemnity = PCF x Dollar Amount of Protection

= 0.33 x $200

= $66.67 per acre

GRP Example (cont.)

Premium Rates and Payments

The premium rate is determined by the producer's yield election. The before subsidy dollar premium is equal to the premium rate multiplied by the dollar amount of protection. If the premium rate for a 90 percent yield election is 7 percent then:

Pre-subsidy premium = Premium Rate x Dollar Amount of Protection

= 0.07 x $200 = $14 per acre

If the per acre federal subsidy is $5, the producer's premium payment is:

Pre-Subsidy Premium – Subsidy = $14 - $5

= $9

Summary

1. For major crops and some specialty crops, FCIC subsidize a wide array of crop insurance products.
2. The over-riding principle in selecting between these contracts is:
   a. Compare expected protection with premium payments
   b. Expected protection involves both the expected size and frequency of indemnities
3. Group risk products sometimes work well for individuals whose yields and revenues closely track NASS county yields. (You can check if you have good historical yield data.)
4. Insuring basic or enterprise units rather than optional units depends on the difference in premium payments and the extent to which optional unit yields move in phase.