AN INTRODUCTION TO CROP INSURANCE

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Maryland Crop Insurance Education Program:

Maryland Crop Insurance Education Partners

This institution is an equal opportunity provider
Risk Management for farmers

- Farmers face a lot of uncertainty.
  - They plant crops in the spring when they don’t know what the price will be at harvest.
  - They plant crops not knowing if the weather will be good or bad, or whether there will be diseases.
- And a lot of farmers have loans. Crop insurance is one tool for managing risk.
Risk vulnerability is related to indebtedness and indebtedness is growing.
Risk vulnerability is related to the extent to which farms are dependent on farm income, and dependence on farm income is shrinking.

Source: ERS, “2016 Farm Income Forecast,” August 30, 2016. All values are nominal, that is, not adjusted for inflation. 2016 is forecast.
How does crop insurance work?

Yield insurance example.

- Farmer provides evidence of “normal” yield – average yield over the past 10 years – for a specific crop on a specific farm.
  - Example: the 10 year average yield for corn on a particular farm is 150 bushels per acre.
- Farmer chooses a “level” of insured loss – 50, 55, 60, etc., up to 85%, of “normal” yield for that crop on that farm.
  - Example: the farmer chooses 75% coverage. 75% of 150 is 112.5. So the farmer will receive a payment from the insurance company if yield this year falls below 112.5. The “insured yield” in this example is 112.5.
- The size of the indemnity payment is related to how far actual yields are below the insured level.
  - Example: if actual yield is 100, payment is based on a shortfall of 112.5 - 100 = 12.5 bushels.
How does crop insurance work?

Yield insurance example.

- The trigger for an indemnity payment is based on whether the yield on your farm is “sufficiently” below the “normal” or average yield on your farm.
- The definition of “sufficiently” below is made by the farmer. The farmer can decide that “sufficiently means:
  - 15% below normal;
  - 20% below normal;
  - 25% below normal; etc. Down to 50% below normal.
- In other words, if my “normal average” yield is 150 b/acre, I can choose to get a payment if my actual yield falls below:
  - 85 % of normal (150*0.85 = 127.5 b/a); or
  - 80% of normal (150*0.80 = 120 b/a); or
  - Etc., down to 50% of normal meaning that the insurance kicks in only if yields fall below 75 b/a.
How does crop insurance work?

• If actual yield on your farm is below the “trigger” that you have chosen, there will be an “indemnity” payment.
• The size of the indemnity payment (assuming actual yield is below the insured yield level) depends on the expected harvest price (expected at the time of planting), and the “price election” decision made by the farmer.
  • Example. The expected price at harvest is $4, and the farmer chose a 70% price election – the revenue shortfall will be paid at 70% of $4 or $2.80.
  • Completing the example: Insured yield is 112.50, actual yield is 100; yield shortfall is 12.5; indemnity price is $2.80: indemnity payment will be $2.80 x 12.5 = $35 per acre. If the farmer insured 100 acres of corn, the indemnity payment would be $3500.
• Premiums need to cover expected indemnity payments, so premiums are higher with higher yield coverage levels or with higher price election levels.
Revenue Insurance

• The difference between “revenue insurance” and “yield insurance”.
  • The trigger for an indemnity payment is not based on whether or not your actual (this year’s) yield falls below your “normal” or average farm yield, but on whether or not your actual (this year’s) revenue falls below your “expected” revenue per acre.

• But how is “expected” revenue per acre calculated?
  • Expected revenue equals “expected yield” times “expected price.”
    • “Expected yield” is the average 10 year yield on your farm.
    • “Expected price” is the futures price (at planting time) for a harvest month. For example if the price for September corn futures is $4, during late March, that means that at the time of planting (March), the expected price of corn was $4.
Revenue Insurance

• Calculate “expected crop revenue” (per acre) by multiplying historical average yield for the farm times “expected” harvest price at time of planting.

• Example: farm historical average yield 150 bushels/acre. The price (in March) of the September futures contract is $4. Expected revenue is $600 per acre (150 x $4).

• Choose insured level. Example: 75% of 600 = $450.

• Indemnity paid if actual revenue per acre falls below 450.

• Example: actual yield is 130, actual harvest price is $3. Actual revenue is 130 x $3 = $390. Indemnity paid is $450 - $390 = 60 per insured acre.
Premiums need to cover expected indemnity payments.

- But crop insurance premiums are subsidized by the federal government. The amount of the subsidy is largest for the lowest levels of insurance protection.

<table>
<thead>
<tr>
<th>Item</th>
<th>50</th>
<th>55</th>
<th>60</th>
<th>65</th>
<th>70</th>
<th>75</th>
<th>80</th>
<th>85</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coverage Level</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Premium Subsidy</td>
<td>67</td>
<td>64</td>
<td>64</td>
<td>59</td>
<td>59</td>
<td>55</td>
<td>48</td>
<td>38</td>
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<tr>
<td>Your Premium Share</td>
<td>33</td>
<td>36</td>
<td>36</td>
<td>41</td>
<td>41</td>
<td>45</td>
<td>52</td>
<td>62</td>
</tr>
</tbody>
</table>

For 75% protection, government pays over half (55%) of the premium.

http://www.ctfarmrisk.uconn.edu/index_139_3163852435.pdf
Premium subsidies did increase to about 60% of total premiums.

Table 2: Premiums and Premium-Rate Subsidies, 1981–2009

<table>
<thead>
<tr>
<th>Period</th>
<th>Total Premiums (Billions)</th>
<th>Producer-Paid Premiums (Billions)</th>
<th>Government-Paid Premiums (Billions)</th>
<th>Average Premium Subsidy Rate*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1981–84</td>
<td>$0.373</td>
<td>$0.298</td>
<td>$0.075</td>
<td>20.11%</td>
</tr>
<tr>
<td>1985–88</td>
<td>$0.405</td>
<td>$0.309</td>
<td>$0.096</td>
<td>23.68%</td>
</tr>
<tr>
<td>1989–92</td>
<td>$0.788</td>
<td>$0.586</td>
<td>$0.202</td>
<td>25.65%</td>
</tr>
<tr>
<td>1993–96</td>
<td>$1.274</td>
<td>$0.691</td>
<td>$0.583</td>
<td>45.76%</td>
</tr>
<tr>
<td>1997–2000</td>
<td>$2.127</td>
<td>$0.978</td>
<td>$1.149</td>
<td>54.03%</td>
</tr>
<tr>
<td>2001–2004</td>
<td>$3.378</td>
<td>$1.367</td>
<td>$2.011</td>
<td>59.54%</td>
</tr>
<tr>
<td>2005–2009</td>
<td>$6.778</td>
<td>$2.785</td>
<td>$3.993</td>
<td>58.91%</td>
</tr>
</tbody>
</table>

* The average premium subsidy rate is the ratio of producer-paid premiums to total premiums.

SOURCE: USDA RMA.
Subsidies have increased farmer use of crop insurance.

Figure 1: Total Insured Acres, 1981–2010

SOURCE: Data on insured acres were obtained from the US Department of Agriculture (USDA) Risk Management Agency (RMA); data on annual acres planted to crops were obtained from the USDA National Agricultural Statistical Service.
The basic case for crop insurance

- Provides a source of income when you need it the most.
- The substantial impact of government subsidies.

Auto insurance in a recent year:
- Maryland drivers pay $4 billion in premiums to insurance companies.
- Insurance companies pay about $2.7 billion in payments to Maryland drivers to cover insured losses.
- 64 cents of indemnities for every dollar of premiums.

Crop insurance cumulative since 2000:
- Maryland farmers pay $147 million in premiums to insurance companies.
- Insurance companies pay $250 MILLION to Maryland farmers to cover insured losses.
- $1.70 of indemnities for every dollar of premiums.
And Subsidies have reduced “ad hoc” disaster payments.

Risk in on one farm may differ from risk on another farm: Example 400 acre grain farm.

<table>
<thead>
<tr>
<th></th>
<th>&quot;normal year&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>corn revenue</td>
<td>135000</td>
</tr>
<tr>
<td>soybean revenue</td>
<td>80000</td>
</tr>
<tr>
<td>crop costs (ex loans)</td>
<td>90000</td>
</tr>
<tr>
<td>net farm income (ex loans)</td>
<td>125000</td>
</tr>
<tr>
<td>non-farm income</td>
<td>25000</td>
</tr>
<tr>
<td>household income</td>
<td>150000</td>
</tr>
<tr>
<td>basic living expenses</td>
<td>35000</td>
</tr>
<tr>
<td>other living expenses</td>
<td>20000</td>
</tr>
<tr>
<td>loan payments</td>
<td>70000</td>
</tr>
<tr>
<td>college tuition</td>
<td>20000</td>
</tr>
<tr>
<td>household costs</td>
<td>145000</td>
</tr>
<tr>
<td>savings/ buffer</td>
<td>5000</td>
</tr>
</tbody>
</table>

On this example farm:

- Corn yield: 150 b/acre
- Corn price: $4.50
- Soybean yield: 40 b/acre
- Soybean price: $10

non-farm income
What if corn yield falls to 60% of normal?

<table>
<thead>
<tr>
<th></th>
<th>&quot;normal year&quot;</th>
<th>low corn yield year</th>
</tr>
</thead>
<tbody>
<tr>
<td>corn revenue</td>
<td>135000</td>
<td>81000</td>
</tr>
<tr>
<td>soybean revenue</td>
<td>80000</td>
<td>80000</td>
</tr>
<tr>
<td>crop costs (ex loans)</td>
<td>90000</td>
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<tr>
<td>net farm income (ex loans)</td>
<td>125000</td>
<td>71000</td>
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<td>non-farm income</td>
<td>25000</td>
<td>35000</td>
</tr>
<tr>
<td>household income</td>
<td>150000</td>
<td>106000</td>
</tr>
<tr>
<td>basic living expenses</td>
<td>35000</td>
<td>35000</td>
</tr>
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<tr>
<td>college tuition</td>
<td>20000</td>
<td>0</td>
</tr>
<tr>
<td>household costs</td>
<td>145000</td>
<td>106000</td>
</tr>
<tr>
<td>savings/buffer</td>
<td>5000</td>
<td>0</td>
</tr>
</tbody>
</table>

Revenues down by $54,000.

Increase off farm work by $10,000.

Reduce living expenses by $19000
Reduce tuition payments by $20000

Reduce savings by $5000
The nature of “risk” is that it requires substantial changes in lifestyle.

Examples on the last slide:

- The necessity of working more hours at an off-farm job.
- The necessity of cutting living expenses to the bone (no vacation?, put the new car up for sale?, etc.)
- The necessity of cutting support for child’s college tuition (more college loans?, drop out of school?)
How does crop insurance help?

<table>
<thead>
<tr>
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<td>1000</td>
</tr>
<tr>
<td>loan payments</td>
<td>70000</td>
<td>70000</td>
</tr>
<tr>
<td>college tuition</td>
<td>20000</td>
<td><strong>17250</strong></td>
</tr>
<tr>
<td>household costs</td>
<td>145000</td>
<td>123250</td>
</tr>
<tr>
<td>crop insurance premiums</td>
<td>5000</td>
<td>5000</td>
</tr>
<tr>
<td>crop insurance indemnities</td>
<td>0</td>
<td><strong>20250</strong></td>
</tr>
<tr>
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<td>0</td>
<td>0</td>
</tr>
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Revenues down by $54,000.

Increase off farm work by $10,000.

Reduce living expenses by $19000.

But tuition payments are nearly covered.

Premiums are owed in good years and bad.
NON-INSURED CROP DISASTER ASSISTANCE PROGRAM (NAP)

A GOVERNMENT PROGRAM (NOT PRIVATE INSURANCE PRODUCT) AVAILABLE WHERE PRIVATE CROP INSURANCE IS NOT AVAILABLE.
NAP Coverage

• 2014 Farm Bill changed coverage option:
  • Prior to 2014 FB, coverage 50% of expected production
  • Changed now to allow buy-up coverage at 5% increments from 50% to 65%
NAP “Premium” – payment to government for coverage.

- Lesser of $250/crop or $750/producer/county, $1,875 Max.

- Premium of 5.25 percent of liability.

- Beginning (first 10 years), limited resource and socially disadvantaged farmers. Waiver of service fee and 50% premium discount (CAT level of NAP is free and buy-up costs 2.63%).
NAP Payment Limitations

• ‘14 Farm Bill changed
  payment limitation amount
  to $125,000 per entity

• This amount is
  separate from other
  commodity program
  payments you may
  also receive.
Example from USDA/FSA


- Basic assumptions:
  - 5 acres of peaches,
  - 181 bushels/acre average yield.
  - Market price $17.75 per bushel
  - Farmer chooses 65% NAP coverage level.

- Insurance coverage:
  - $16,064 x 0.65 = $10,442 revenue guarantee

Premium calculation: $10,442 x 5.25% = $548 premium.
Service fee: $250 per crop.
For beginning farmers, limited resource farmers, socially disadvantage farmers:

- Service fee will be waived.
- Buy up premiums will be reduced by 505.

- So in our peach example: instead of:
  
  \[250 + 548 = 798\]

Beginning farmer costs would be:

\[\$10,442 \times 2.63\% = \$274.62 + \$0 = \$274.62\]
What a farmer needs to do for NAP:

• File with local FSA office before applicable deadline.

• File with FSA notice if noticing a problem that may result in a NAP payment.

• Apply for the NAP payment at harvest time.

• Report crop production for covered commodities each year with your local office.
WHOLE FARM INSURANCE
Whole Farm Revenue Protection

- WFRP provides a risk management tool for all commodities on farms with up to $8.5 million in insured revenue.

- It will be used primarily by specialty crop growers and diversified farms.
Whole Farm Revenue Protection

• WFRP will protect farms against loss of expected farm revenue.

• Sales closing date is either:
  • Mar. 15 for calendar year and early filers
  • Nov. 20 for late filers
How Does It Work?

- Designed for diversified specialty crop, mixed grain, organic, or livestock producers

- Coverage levels range from 50 to 85 percent levels
How Does It Work

• Protects against loss of expected farm revenue from:

  • either crops produced during the insurance period (whether sold or not),

  • commodities bought for resale during the insurance period,

  • all commodities on the farm, but excludes timber, forest, forest products, and animals for sport, show, or pets
Also Excluded:

- Revenue from animals grown under contract
- Delmarva poultry growers will have revenue from poultry contracts excluded
- Non-contract livestock is okay
Covered Revenue

- Lesser of expected revenue or whole-farm historic average revenue

- Expected Revenue calculated on your “Farm Operation Report”

- Historic average revenue is 5 consecutive tax years’ Schedule Fs minus the year immediately before the insurance year
  - Ex: In 2017, you use 2011 – 2015
Covered Revenue

• Losses occur when the farm’s “Allowable Revenue,” or the farm revenue the IRS requires to be reported on farm tax records, falls below the insured revenue.

• Your insured revenue is at $1,000,000, you grow two crops, and insure at the 75-percent coverage option. During the insured year, your expected approved revenue is $650,000. Based on this, you would experience protection or a covered loss of $100,000 (or $1,000,000 * .75 - $650,000).
ORGANIC CROP INSURANCE
Organic Crop Insurance

- Crop insurance program seeing changes for organic insurance since 2014.
- Four changes:
  1. allow organic producers growing crops under contract to use the contract price as their “price election” (if authorized on the actuarial table for the crop in the county);
  2. begin to evaluating emerging organic crops for new organic price elections;
  3. establish new organic transitional yields (T-yield) for the 2014 crop year and forward; and
  4. no longer charge organic producers a 5 percent surcharge on their organic crop insurance policies.
Contract Price Option

• Now able to use prices established in contracts as the election price

• Allows for price more reflective of the actual value of their crops.

• Organic producers will have the option to choose between their personal contract price as their price election or an existing crop insurance price elections where this option is available.
Organic Price Election

• In 2017, 56 crops nationally have organic price election.

• Premium organic price elections will be available only in certain locations and for certain types of crops given the availability of data.
Organic Price Election

In Maryland:
• apples,
• barley
• corn,
• corn silage,
• fresh market sweet corn,
• fresh market tomatoes,
• grain sorghum,
• green peas,
• oats,
• potatoes,
• peaches,
• processing beans,
• soybeans,
• sweet corn,
• tomatoes, and
• wheat.
Adjusted Organic Transitional Yields (T-Yields)

- Since the 2014 crop year, organic T-yields have been changed to reflect the actual organic farming experience.

- T-yields prior to 2014 will not be changed and can be used in production yield histories.

- Generally, every 3 years T-yields will be updated to reflect changes that occur over time.
THANKS
ANY QUESTIONS?

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