Risk Management: An Introduction to Crop Insurance

Dr. S. Aaron Smith, Extension Crop Marketing Specialist and Assistant Professor, Department of Agricultural and Resource Economics, University of Tennessee Institute of Agriculture

aaron.smith@utk.edu
May 31, 2018, Memphis, TN

Crop Economics: http://cropeconomics.tennessee.edu/
Overview

• Risk
• Crop Insurance Basics
• Common Crop Insurance Products
  – Multi-Peril Crop Insurance (MPCI)
  – Whole-Farm Revenue Protection (WFRP)
  – Non-insured disaster Assistance Program (NAP)

TAKING RISK
There's a fine line between taking a calculated risk and doing something dumb.
Nine Steps in Risk Management Planning

1. Identify Risks
2. Measure Risks
3. Assess Risk Bearing Capacity
4. Evaluate Risk Tolerance and Preference
5. Set Risk Management Goals
6. Identify Effective Risk Management Tools
7. Select Professional Assistance
8. Make a Decision and Implement the Plan
9. Evaluate the Results
Identifying Risks In Agriculture

• Production
  – Variability in yield
    • Ex: weather, climate changes, pests, diseases, technology, genetics, machinery efficiency, theft, and the quality of inputs.

• Marketing
  – Variability in output and input prices
  – Access to markets.

• Financial
  – The cost and availability of capital
  – The ability to meet cash flow needs in a timely manner
  – The ability to maintain and grow equity
  – The ability to absorb short-term financial shocks.

• Legal
  – Contractual arrangements
  – Business organization
  – Laws and regulations
  – Tort liability
  – Public policy and attitudes.

• Human
  – Human health and well-being
  – Family and business relationships
  – Employee management
  – Transition planning.
Crop Insurance Basics: Understating Important Concepts

- Yield vs. Revenue
- Production Practices
- Unit Structure
- Coverage Level
- Premiums and Subsidies
- Claims and Indemnities

"I think you misunderstood. The million dollar umbrella policy only covers you for claims involving an umbrella."

Real. Life. Solutions.
Revenue vs. Yield Guarantee

• Yield Guarantee = Yield X Coverage Level
  – Yield is determined by historical yield (individual field or other defined area)
  – Coverage level is selected by the producer

• Revenue Guarantee = Gross Revenue (typically Price x Yield) x Coverage Level
  – Typically price is determined when the policy is purchased (may be adjusted at harvest depending on policy)
Production Practices

• Irrigated vs. non-irrigated
• Organic vs. conventional

• Check availability for crops in your county!
  – Check annually (new products continually enter the market)
Unit Structure

• Basic/Optional
  – All tracks, commodities, production practices in a county can be insured separately.

• Enterprise
  – Combines acres of a single crop into one unit.

• Whole Farm
  – Combines all acres for all crops into one unit.

• Evaluate scenarios based on the county(s) you farm.
Coverage Level (Buy Up)

- Determines the amount of coverage (relative to the yield or revenue guarantee).
  - Typically ranges from 50-85%
  - Catastrophic (CAT) coverage
  - As coverage level increases premiums increase

Example: Percent of Premium Paid by Federal Government (MPCI)

<table>
<thead>
<tr>
<th>Coverage Level/Buy-Up</th>
<th>Basic &amp; Optional (%)</th>
<th>Enterprise (%)</th>
<th>Whole Farm (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>67</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>55</td>
<td>64</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>60</td>
<td>64</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>65</td>
<td>59</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>70</td>
<td>59</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>75</td>
<td>55</td>
<td>77</td>
<td>80</td>
</tr>
<tr>
<td>80</td>
<td>48</td>
<td>68</td>
<td>71</td>
</tr>
<tr>
<td>85</td>
<td>38</td>
<td>53</td>
<td>56</td>
</tr>
</tbody>
</table>
Premiums and Subsidies

• Premiums increase as buy-up coverage increases
• Premiums increase with more finite specified unit structure
• Subsidies are higher for lower coverage levels
• Beginning farmers, limited resource, and socially disadvantaged farmers may be eligible for additional subsidies.
Claims and Indemnities

• Claims must be filed in a timely manner and adhere to the rules /requirements of the policy
  – Documentation to prove the cause of loss
  – Attention to detail is important when filing a claim

• Indemnity (payment received by a producer from a crop insurance policy) is paid if actual revenue or yield falls below the revenue or yield guarantee.
WHOLE FARM REVENUE PROTECTION (WFRP)
Whole Farm Revenue Protection (WFRP)

- WFRP provides a risk management safety net for all commodities on the farm under one insurance policy.
- Maximum of $8.5 million in insured revenue.
- Can include revenue from both crops and livestock.
  - Including farms with specialty or organic commodities, or those marketing to local, regional, farm-identity preserved, specialty, or direct markets.
WFRP- Introduction

• WFRP provides protection against the loss of insured revenue due to an unavoidable natural cause of loss which occurs during the insurance period and will also provide carryover loss coverage if you are insured the following year.
• Coverage is provided for the duration of the producer’s tax year.
• Approved revenue amount is determined on your Farm Operation Report and is the lower of the expected revenue or your whole-farm historic average revenue.
• Coverage levels range from 50 percent to 85 percent.
WFRP- Dates Shelby County, TN

• Important Dates
  – Sales Closing, Cancellation, & Termination Dates
    • Calendar Year and Early Fiscal Year Filers ……March 15
    • Late Fiscal Year Filers …………………November 20
  – Revised Farm Operation Report Dates ……July 15
  – Premium Billing Date ……………………August 15
  – Contract Change Date …………………August 31

• Talk to your crop insurance agent about the dates that apply for your county.
  – Locate a Crop Insurance Agent in your county at:
    https://www.rma.usda.gov/tools/agent.html
WFRP - Coverage

• WFRP protects your farm against the loss of farm revenue that you earn or expect to earn from
  – Commodities you produce during the insurance period, whether they are sold or not (need to conduct accrual inventory adjustments)
  – Commodities you buy for resale during the insurance period
  – All commodities on the farm except timber, forest, and forest products; and animals for sport, show, or pets.

• The policy also provides replant coverage
  – For annual crops, except those covered by another Federal crop insurance policy
  – Equal to the cost of replanting up to a maximum of 20 percent of the expected revenue
  – When 20 percent or 20 acres of the crop needs to be replanted.
WFRP – Commodity Count

• To qualify for the 80 and 85 percent coverage levels there is a 3 commodity requirement.
• The amount of premium rate discount you will receive is based on commodity count.
• Farms with 2 or more commodities will receive a whole-farm subsidy and farms with one commodity will receive a basic subsidy.
• For a commodity to count it must be responsible for an approved contribution to total revenue.
WFRP - Approved Revenue

• Your crop insurance agent and AIP will determine the farm’s ‘approved revenue’ using the following information:
  – Whole-Farm History Report
  – Farm Operation Report
  – Information regarding growth of the farm
  – The coverage level you choose (50-85 percent)

• Revenue needs to be adjusted for inventory carryover from one year to the next (accrual adjustments)
WFRP – Documents to take to your Crop Insurance Agent

• 5 consecutive years of Schedule F or other farm tax forms
  – If you qualify as a Beginning Farmer or Rancher you may qualify with 3 consecutive years of Schedule F or other farm tax forms if you also farmed during the past year.

• Information supporting expansion if you want the farm to be considered as an expanding operation.

• Any supporting information required, including other signed tax forms, to show the farm tax forms are accurate and were filed with the IRS.
WFRP- Reporting Requirements

• Reporting Requirements
  – Revenue losses - You must submit a notice of loss within 72 hours after discovery that revenue for the policy year could be below the insured revenue.
    • Inspections may be required
  – You must have filed farm taxes for the policy year before any claim can be made. You must make claims no later than 60 days after the date you submit farm tax forms to the IRS.
  – Claim payments for a revenue loss under WFRP are paid within 30 days after the determination of a payment due as long as you are in compliance with the policy.
## WFRP Subsidies - Shelby County Tennessee

<table>
<thead>
<tr>
<th>Subsidy Factor</th>
<th>Coverage Level (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50</td>
</tr>
<tr>
<td>Basic Subsidy (1 Commodity)</td>
<td>67</td>
</tr>
<tr>
<td>Whole-Farm Subsidy (2 Commodities)</td>
<td>80</td>
</tr>
<tr>
<td>Whole-Farm Subsidy (3+ Commodities)</td>
<td>80</td>
</tr>
</tbody>
</table>
WFRP - Premium Calculations

• Actuarial Information Browser

• Premium Estimator
Example: WFRP Insurance Producer Premium for Different Buy-up Levels

<table>
<thead>
<tr>
<th>Liability Amount</th>
<th>85%</th>
<th>80%</th>
<th>75%</th>
<th>70%</th>
<th>65%</th>
<th>60%</th>
<th>55%</th>
<th>50%</th>
</tr>
</thead>
<tbody>
<tr>
<td>42,500</td>
<td>40,000</td>
<td>37,500</td>
<td>35,000</td>
<td>32,500</td>
<td>30,000</td>
<td>27,500</td>
<td>25,000</td>
<td></td>
</tr>
<tr>
<td>Total Premium</td>
<td>8,445</td>
<td>7,118</td>
<td>6,034</td>
<td>5,077</td>
<td>4,279</td>
<td>3,620</td>
<td>3,084</td>
<td>2,499</td>
</tr>
<tr>
<td>Subsidy</td>
<td>5,397</td>
<td>5,425</td>
<td>5,044</td>
<td>4,244</td>
<td>3,577</td>
<td>3,026</td>
<td>2,578</td>
<td>2,089</td>
</tr>
<tr>
<td>Producer Premium</td>
<td>3,048</td>
<td>1,694</td>
<td>990</td>
<td>833</td>
<td>702</td>
<td>594</td>
<td>506</td>
<td>410</td>
</tr>
</tbody>
</table>

• Assumptions:
  - 3 commodities (blackberries, other fruits, and other vegetables)
  - Revenue 2012-2016: 50k, 40k, 60k, 30k, & 70k = Average of 50k/year
  - Shelby County Tennessee
  - 2018
  - Calendar year filer
WFRP- Claims and Indemnities

• Claims are settled after taxes are filed for the policy year
• Indemnity is paid if “actual revenue” is less than the WFRP insured revenue
  – To determine “actual revenue” gross revenue must be adjusted for inventory produced in an earlier year (sold in the current year) and inventory carried over to next year.
• If the farm operation does not have expenses during the insurance period of at least 70 percent of the “approved expenses” the insured revenue amount will be reduced by 1 percent for each percentage point the actual approved expenses are below 70 percent of the approved expenses.
WFRP – Accrual Adjustment Example

- Adjusts revenue for the year the production occurred not the year the cash sale occurred
- Adjusted Farm Income = Cash Farm Income + Current year Inventory – Previous year Inventory

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grain in Storage</td>
<td>$0</td>
<td>$10,000</td>
<td>$15,000</td>
<td>$0</td>
</tr>
<tr>
<td>Cash Farm Income</td>
<td>$0</td>
<td>$25,000</td>
<td>$10,000</td>
<td>$35,000</td>
</tr>
<tr>
<td>Adjusted Farm Income</td>
<td>$0</td>
<td>$35,000</td>
<td>$15,000</td>
<td>$20,000</td>
</tr>
</tbody>
</table>
NON-INSURED DISASTER ASSISTANCE PROGRAM (NAP)
Noninsured Disaster Assistance (NAP) Basics

• Provides financial assistance to producers of non insurable crops to protect against natural disasters that result in lower yields or crop losses, or prevents crop planting.
• Insurance purchased on a crop-by-crop basis.
• Cannot purchase for corn, cotton, soybeans, wheat, grain sorghum, or peaches in Shelby County Tennessee.
NAP - Eligible Cause of Loss

- Damaging weather, such as drought, freeze, hail, excessive moisture, excessive wind or hurricanes;
- Adverse natural occurrences, such as earthquake or flood; and
- Conditions related to damaging weather or adverse natural occurrences, such as excessive heat, plant disease, volcanic smog or insect infestation.
NAP - Ineligible Causes of Loss

- Failure to carry out good farming practices
- Variance from normal temperatures unless due to an eligible cause of loss
- Deviation from best planting practices & proper containment devices in aquaculture
- Failure to follow organic farming practices
- Weeds
- Negligence or mismanagement
- Chemical drift (https://tn.driftwatch.org/map)
NAP - Coverage Levels

• Catastrophic level risk protection plan of insurance coverage, which is based on the amount of loss that exceeds 50 percent of expected production at 55 percent of the average market price for the crop. (application fee) – 27.5% of benchmark revenue.

• Higher levels of coverage ranging from 50 to 65 percent of production, in 5 percent increments, at 100 percent of the average market price. (additional premium).
NAP - Service Fees and Premiums

• For all coverage levels, the NAP service fee is the lesser of $250 per crop or $750 per producer per administrative county, not to exceed a total of $1,875 for a producer with farming interests in multiple counties.

• Producers electing higher coverage levels must pay an additional premium.

\[
\text{Premium} = \text{Share of crop} \times \text{Acres} \times \text{Approved yield} \times \\
\text{Coverage level} \times \text{Average market price} \times \\
\text{A 5.25\% premium fee}
\]
How to Estimate your Premium

- Go to this website: [http://fsa.usapas.com/NAP.aspx](http://fsa.usapas.com/NAP.aspx)
- Select “Tennessee” from the drop down menu
- Select your county
- Select your crop type (if it isn’t listed, then RMA doesn’t cover it and you are eligible for coverage)
- Click the tab titled “NAP Crop Information”

Beginning, limited resource, and targeted underserved farmers or ranchers are eligible for a waiver of the service fee and a 50 percent premium reduction.
How to Estimate your Premium cont…

- From the drop down menu, select your crop
- Select Crop Type
- Select Practice
- Select Intended Use
- Select Planting Period
- This will give you the market price, expected yield, unit of measure, the application closing date, the date that the acreage must be reported by and the unharvested factor %
Information Required to Remain Eligible for NAP

- To be eligible for NAP assistance, the following crop acreage information must be reported:
  - Name of the crop (lettuce, clover, etc.);
  - Type and variety (head lettuce, red clover, etc.);
  - Location and acreage of the crop (field, sub-field, etc.);
  - Share of the crop and the names of other producers with an interest in the crop;
  - Type of practice used to grow the crop (irrigated or non-irrigated);
  - Date the crop was planted in each field; and
  - Intended use of the commodity (fresh, processed, etc.).
Applying for Coverage

- Eligible producers must apply at their local FSA office (not Crop Insurance Agent)
- Service fees are due at the time the application is submitted
- Application closing dates will vary depending on crop type
- [https://www.fsa.usda.gov/state-offices/Tennessee/index](https://www.fsa.usda.gov/state-offices/Tennessee/index)
# NAP 2018 Application Closing Dates

<table>
<thead>
<tr>
<th>Crops</th>
<th>Application Closing Date</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursery</td>
<td>May 1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>Ornamental &amp; non-ornamental shrubs, trees, &amp; foliage</td>
</tr>
<tr>
<td>Barley, Canola, Christmas Trees, Grass, Oats, Peas, Radishes, Rye,</td>
<td>September 1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>Grass for Sod, Peas for Grazing, &amp; Daikon Radishes &amp; Radishes marketed as Fresh or Seed</td>
</tr>
<tr>
<td>Strawberry, Triticale, Wheat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apples, Blueberries, Caneberries, Cherries, Grapes, Peaches, Plums</td>
<td>November 1&lt;sup&gt;st&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>Honey</td>
<td>December 1&lt;sup&gt;st&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>Beets, Broccoli, Cabbage, Carrots, Cauliflower, Greens, Onions,</td>
<td>January 31&lt;sup&gt;st&lt;/sup&gt;</td>
<td>Hybrid Radishes marketed as Fresh</td>
</tr>
<tr>
<td>Radishes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turnips</td>
<td>February 1&lt;sup&gt;st&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>Sunflowers</td>
<td>February 28&lt;sup&gt;th&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>Alfalfa, Beans, Cantaloupes, Corn, Eggplant, Grass, Leeks, Lespedeza,</td>
<td>March 15&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Grass for Forage &amp; Grazing &amp; Peas for Fresh, Seed, &amp; Forage</td>
</tr>
<tr>
<td>Millet, Mixed Forage, Okra, Peas, Peppers, Potatoes, Sweet Potatoes,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pumpkins, Scallions, Sorghum Forage, Soybeans, Squash, Tomatillos,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tomatoes, Vetch, Watermelon</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* This list is not all inclusive for every crop or commodity that may be covered under NAP
* All crops are not covered in all counties
* Some crops may be covered for certain uses but not for others (i.e., corn used for grain is not covered in the majority of counties whereas corn marketed as fresh corn is covered)
* For more information, contact your local FSA office. To find your local FSA office, follow this link: [https://offices.sc.egov.usda.gov/locator/app?state=us&agency=fsa](https://offices.sc.egov.usda.gov/locator/app?state=us&agency=fsa)
Notice of Loss and Application for Payment must be completed within 15 calendar days of the earlier of:

- A natural disaster occurrence;
- The final planting date if planting is prevented by a natural disaster;
- The date that damage to the crop or loss of production becomes apparent; or
- The normal harvest date.
NAP Indemnity Payment

• The NAP payment is calculated by unit using:
  – Crop acreage;
  – Approved yield;
  – Net production;
  – Coverage level elected by the producer;
  – An average market price for the commodity established by the FSA state committee; and
  – A payment factor reflecting the decreased cost incurred in the production cycle for a crop that is not harvested or prevented from being planted.
NAP Example: Apples

• Assumptions:
  – Apples / common / fresh / non-irrigated
  – Approved yield 250 bu/acre
  – 10 acres
  – FSA Market Price $13.77/bu
NAP Example: Apples

- Indemnity is triggered if actual revenue falls below the revenue guarantee.
- Factors in premiums and fees to get net indemnity.
CONCLUDING THOUGHTS

*Take home message*
Why Purchase Crop Insurance?

• Can be a good tool to help manage production, financial, and marketing risk.
  – Helps cover the cost of inputs used.
  – Can assist in obtaining financing.
  – Provides a level of revenue certainty.
  – Protects against a cause of loss that is outside of your control.
Maintain Good Records!

Good records are essential for producers to make informed management decisions.

Have a data management system that allows for:

• Collection
• Organization
• Analysis
• Implementation
• Quantify Results
Get Professional Advice

• Work with a qualified insurance agent that understands the risks your business faces
• Federal crop insurance products are homogeneous; the difference is the relationship/service you receive
Additional Resources

• USDA FSA
  – NAP Home:
    https://www.fsa.usda.gov/programs-and-services/disaster-assistance-program/noninsured-crop-disaster-assistance/index

• USDA RMA
  – WFRP Home:
    https://www.rma.usda.gov/policies/wfrp.html

• University of Tennessee Extension
  – Crop Economics:
    http://cropeconomics.tennessee.edu/
Thank you!

Questions?

Thank you!

This project is funded in part by a cooperative agreement with USDA Farm Service Agency in Tennessee #FA-TN-7-038

This material is based upon work supported by USDA/NIFA under Award Number 2015-49200-24228

Questions?

Thank you!

Real. Life. Solutions.