Risk Management Tools & Strategies

For California Specialty Crop Production

University of California Agriculture and Natural Resources

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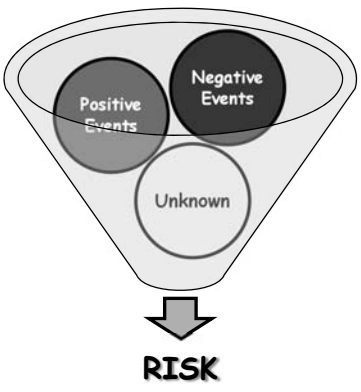
http://california.erightrisk.com

RightRisk RMA USDA

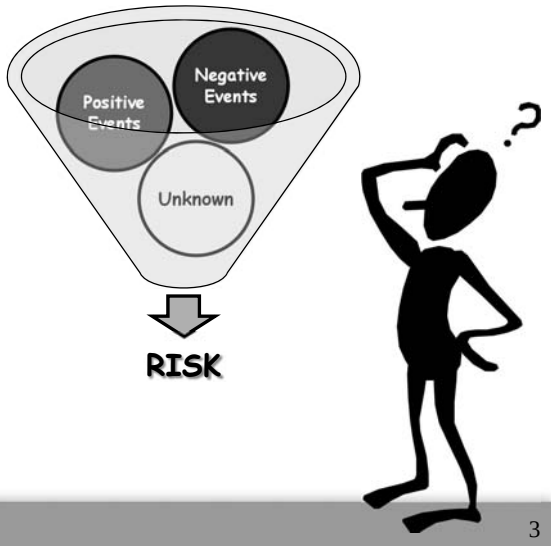
What is RISK?

- **Certainty**- lack of doubt
- **Uncertainty-** doubt about future events
- **RISK-** potential variation in the outcome of future events



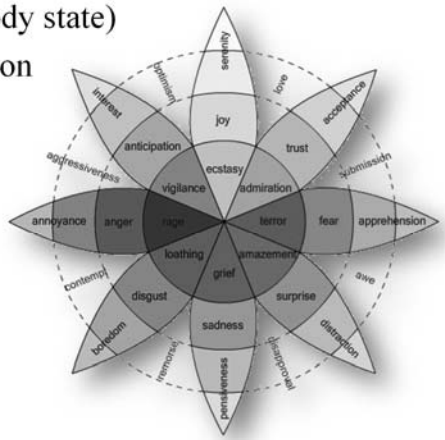
What is RISK?

- **Cost of Loss**
  - *Income*
  - *Resources*
  - *Productive capacity, etc.*
- **Cost of Uncertainty**
  - *Worry, doubt, fear, misallocation of resources, etc.*
  - *With potential for gain or loss comes moral or ethical implications*



HUMAN Dimension of Risk Management

- Emotions = physical state of our body as it responds to external stimuli
- Emotions are *separate* from our feelings
  - **Emotions**- result in us from our **actions** (body state)
  - **Feelings**- result in us from our **perspective** on our actions (consciousness)
- Emotions have been found by research to be ***necessary*** for decision making*



* *MIT Technology Review*, A. Damasio, 2014.

What is RISK?

- RISK: The effect of uncertainty on your objectives:
  - *Current profit level*
  - *Financial situation (equity position)*
  - *Satisfaction and well-being*

Personal Perspectives on Risk

- Generational differences
- Gender differences
- Life stage/family differences
- Life experiences

These are dynamic and change over time.

Risk Tradeoffs

Profits are returns for taking risks

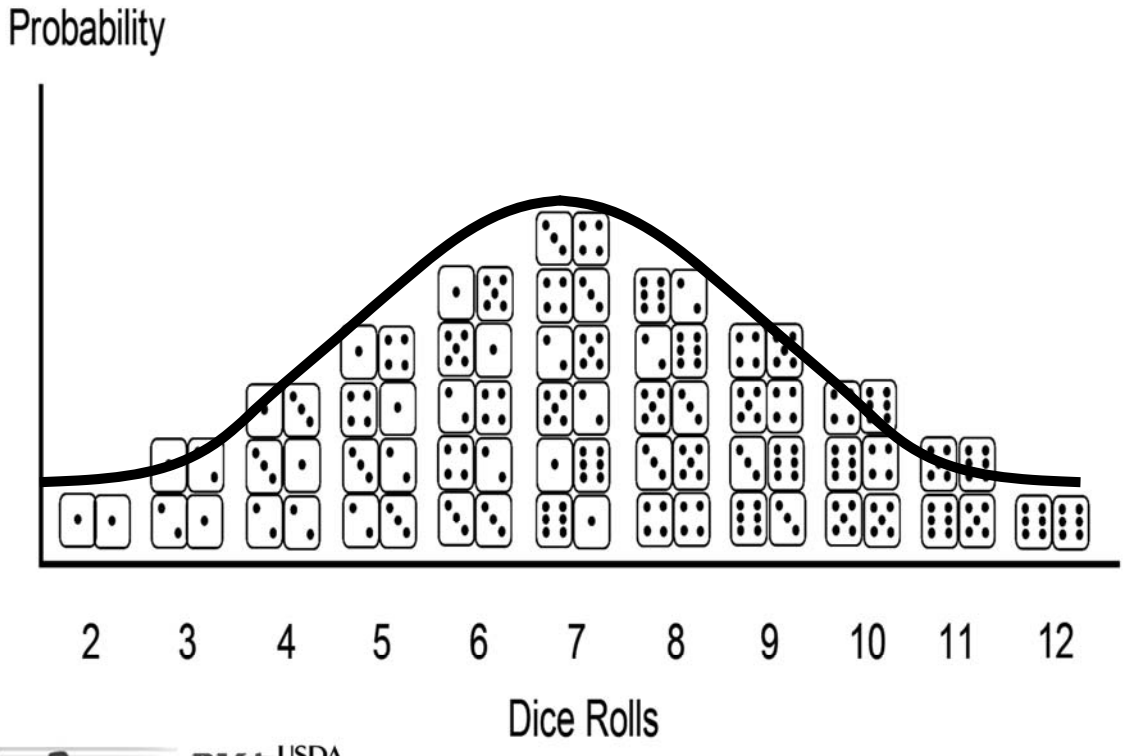
- **Upside**: Greater risk taking usually leads to greater wealth over time
- **Downside**: Losses from risk taking can potentially be devastating
- Managing risks are a matter of **evaluating tradeoffs**
- How much **risk** (uncertainty) are you willing to accept for **possible higher returns**?

Sources of Risk in Agriculture – *Ag Risk 5*

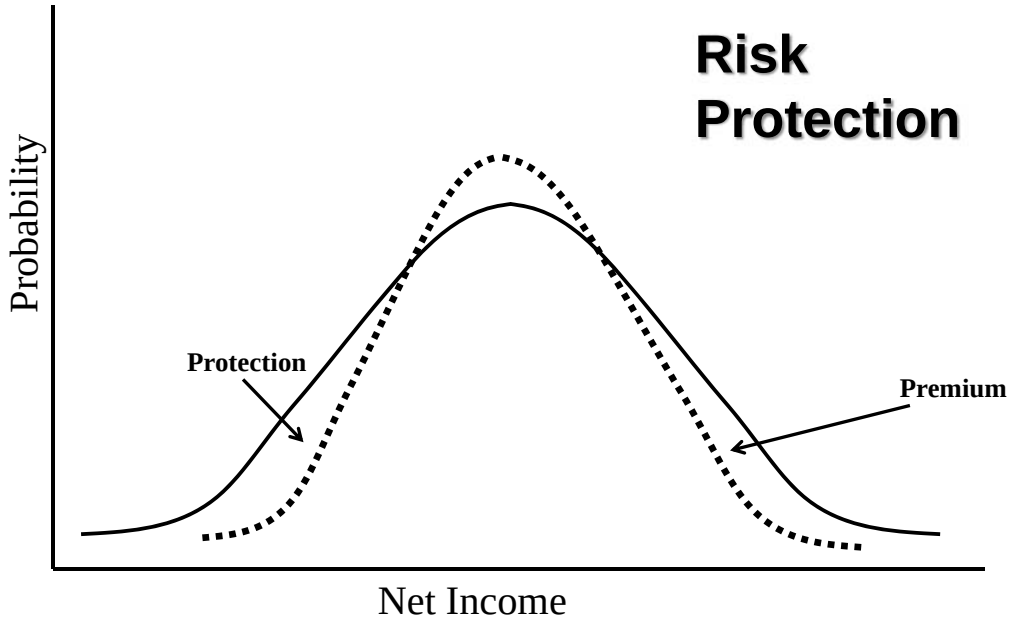
1. Marketing/Price Risk
2. Production Risk
3. Institutional/Legal Risk
4. Human Risk
5. Financial Risk

Strategies for Managing Risk

1. **Avoid it**
2. **Reduce it**
   a) Reduce the probability it will happen
   b) Reduce the impact if it does happen
3. **Transfer it outside the business**
   a) Insurance
   b) Contracting
4. **Increase capacity to bare**
   a) Increase reserves
   b) Maintain flexibility
5. **Accept it**



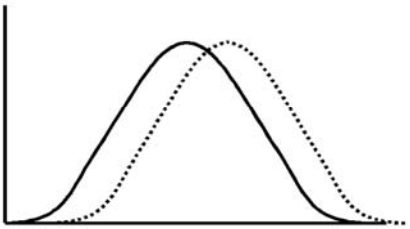
How much risk is right for you?



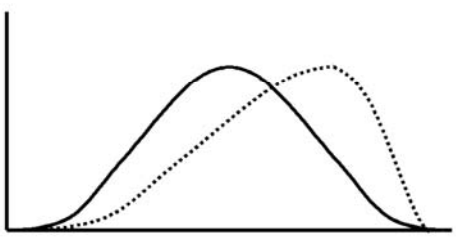
Strategy Impacts

Panel 1: Same Mean, Less Dispersion

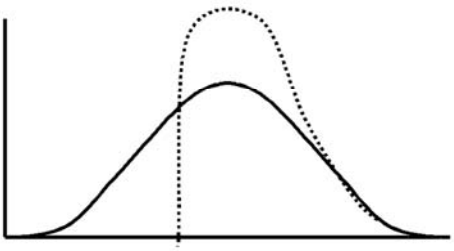
Panel 2: Same Dispersion, Higher Mean

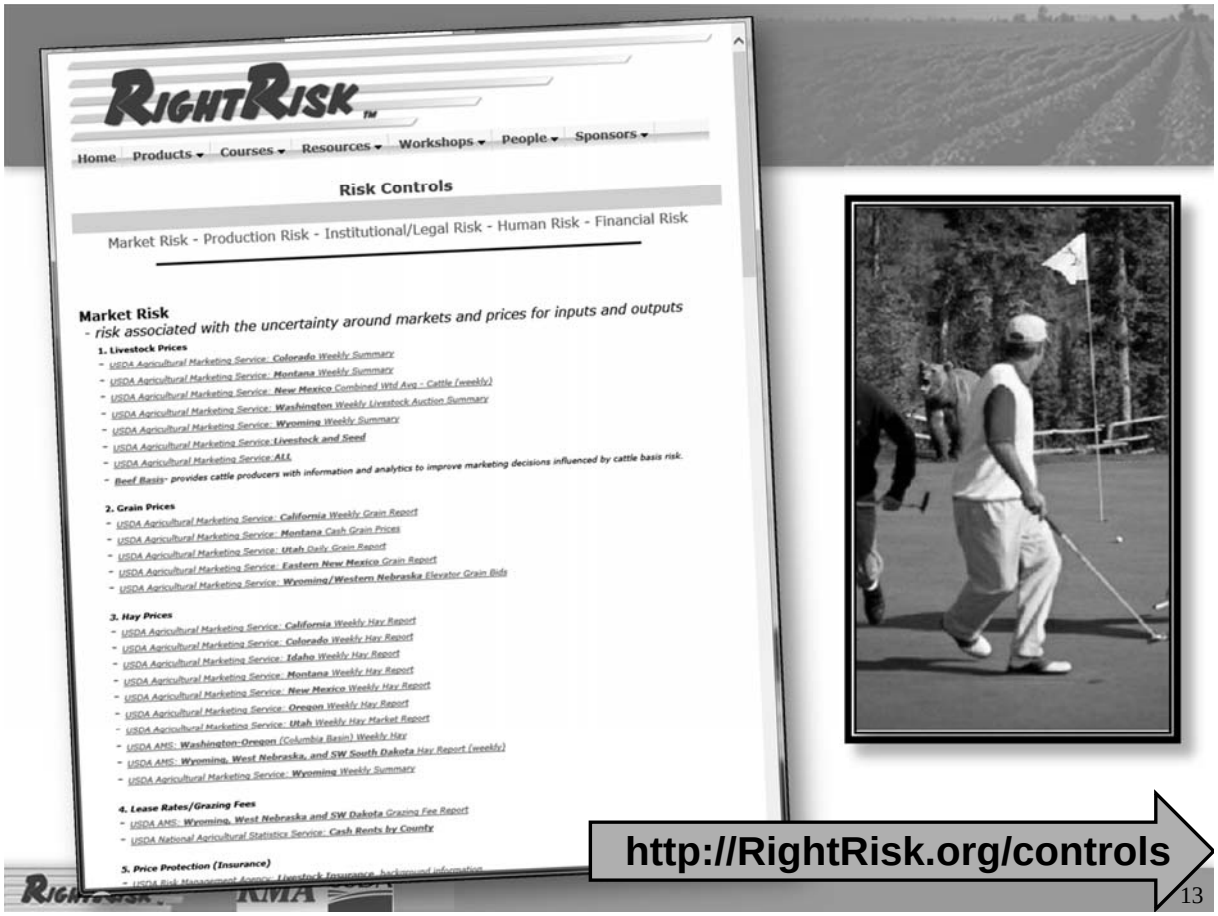


Panel 3: Skewing the distribution



Panel 4: Truncating the Distribution





http://RightRisk.org/controls

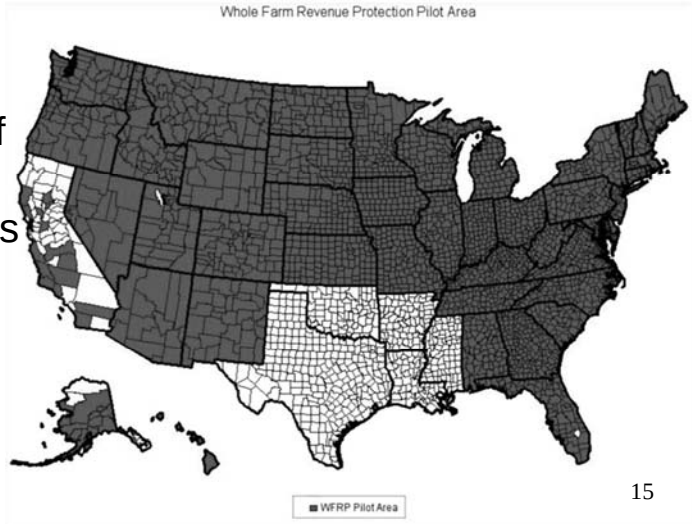
Insurance Plans Available in CALIFORNIA			
Insurable Crops	Insured Acres	Total Acres	Percent Insured
Alfalfa Seed	11,795	36,280	33%
Almonds	721,275	860,000	84%
Apples	5,562	15,200	37%
Avocados	36,130	55,261	65%
Barley	38,635	95,000	41%
Blueberries	3,771	4,542	83%
Cherries	29,063	40,414	72%
Citrus – 8 types of fruit	229,451	270,000	85%
Corn	184,830	430,000	43%
Cotton & ELS Cotton	309,372	315,000	98%
Beans (Dry)	25,972	47,500	55%
Figs	4,076	7,351	55%
Forage Production	144,193	930,000	16%
Grapes (Table)	81,427	95,000	86%
Grapes (Wine)	498,428	570,000	87%
Grain Sorghum	3,328	4,570	73%
Mint	1,641	2,000	82%
Oats	3,624	10,000	36%
Olives	25,557	42,779	60%
Onions	19,570	43,900	45%
Pears	8,455	11,600	73%
Pecans	1,370	3,600	38%
Pistachios	90,097	203,000	44%
Potatoes	23,680	33,500	71%
Prunes	45,972	50,000	92%
Rice	478,856	495,000	97%
Rice (Cultivated Wild)	12,444	13,000	96%
Safflower	35,268	55,000	64%
Stonefruit (Includes Plums)	70,125	102,073	69%
Strawberries	26	41,500	1%
Sugar Beets	4,454	24,500	18%
Tomatoes (Fresh)	11,313	28,000	40%
Tomatoes (Processing)	278,058	288,000	97%
Walnuts	148,497	290,000	51%
Wheat	271,829	585,000	46%
Dollar Liability Program		**Total Dollar Liability**	
Adjusted Gross Revenue			$35,427,458
Apiculture (Rainfall Index)			$28,811,523
Forage Seeding			$2,288,715
Livestock Gross Margin (LGM) Dairy			$58,023,160
Livestock Risk Protection (LRP) Feeder Cattle and Lamb			$11,994,519
Nursery			$140,832,241
Pasture, Rangeland, Forage (Rainfall Index)			$41,605,195
Raisins			$196,817,340

Crop Pilot Programs	
Program	County Availability
Adjusted Gross Revenue	Fresno, Kern, Riverside, San Diego, San Joaquin, San Luis Obispo, Tulare, and Ventura Counties
Apiculture (Rainfall Index)	All Counties
Avocados	Orange, Riverside, San Diego, San Luis Obispo, Santa Barbara, and Ventura Counties
Cherries	Butte, Contra Costa, Fresno, Kern, Kings, Madera, Merced, Placer, Sacramento, San Benito, Santa Clara, San Joaquin, Stanislaus, Sutter, Tulare, and Yuba Counties
Forage (Alfalfa) Seed	Kings and Fresno Counties
Strawberries	Fresno, Merced, Monterey, Santa Barbara, Santa Cruz, and Ventura Counties
Citrus Dollar (Navels)	Fresno, Kern, Madera, and Tulare Counties
PRF (Rainfall Index)	All Counties
Olives	Butte, Colusa, Fresno, Glenn, Tehama, Kern, Madera, San Joaquin, Shasta, Stanislaus, Sutter, Tulare, Yolo
Pistachios	Alameda, Butte, Colusa, Contra Costa, Fresno, Glenn, Kern, Kings, Madera, Merced, Riverside, San Benito, San Bernardino, San Joaquin, San Luis Obispo, Santa Barbara, Stanislaus, Sutter, Tehama, Tulare, Yolo, Yuba Counties

http://www.rma.usda.gov

Whole-Farm Revenue Protection

- A whole-farm insurance product that provides producers with risk management protection for all eligible commodities on the farm under **one insurance policy**
- WFRP is a combination of Adjusted Gross Revenue (AGR) and Adjusted Gross Revenue-Lite (AGR-Lite) policies



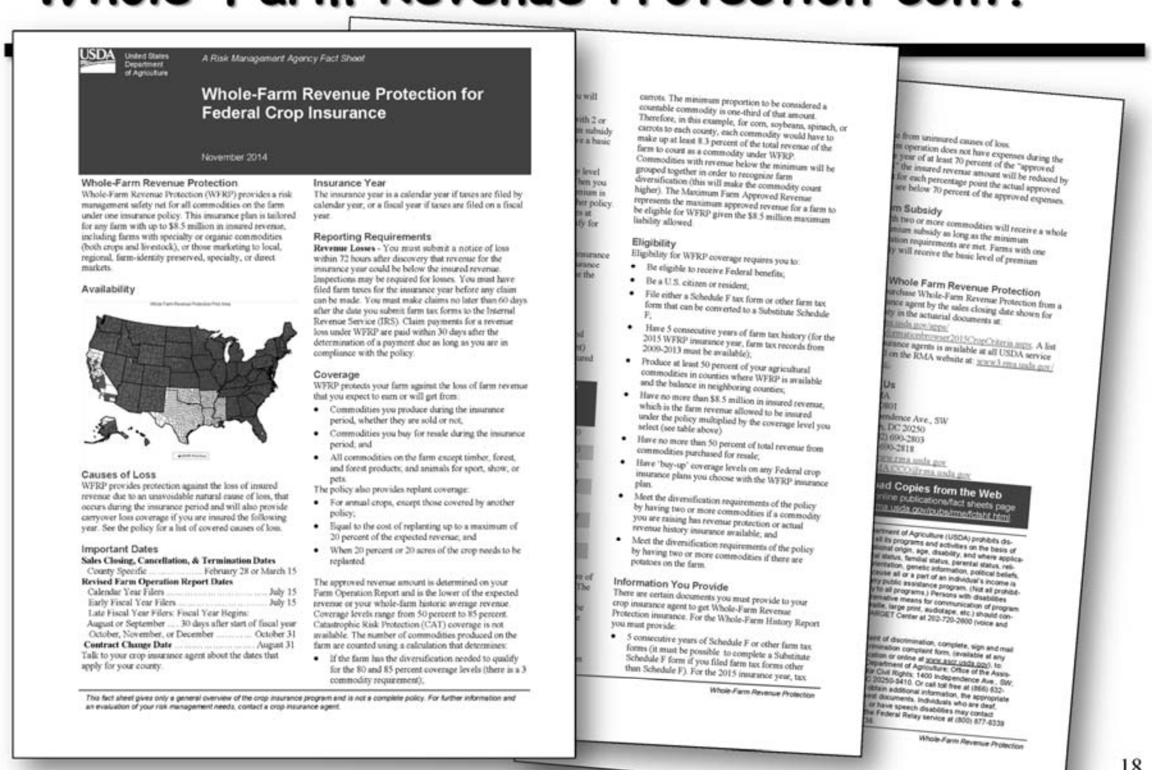
Whole-Farm Revenue Protection cont.

- Coverage is based on:
  - The operation's whole-farm **historic average revenue and expenses** using information from five consecutive tax years before the insurance year (adjusted according to the WFRP policy and procedures)
- An indemnity payment occurs when:
  - *Allowable Revenue* during the insurance year **falls below** the *Insured Revenue* (the amount of revenue the farm operation is expected to earn during the insurance year multiplied by the coverage level elected)

Whole-Farm Revenue Protection cont.

COMPARISON	WFRP	AGR-Lite	AGR
Liability Limit	$8.5 Million	$1 Million	$6.5 Million
Coverage Level	50-85 in 5% increments	65 ,75, 80*	65 ,75 , 80*
	3 Commodities for 80 and 85%	*3 Commodities	*3 Commodities
One Commodity	Not eligible for WFRP if only one commodity and that commodity has an MPCI revenue product available.	No Restriction	No Restriction
Payment Rate	None	75, 90	75,90
Animal or Animal Product Limit	35% of expected revenue or up to $1 million (Max)	None	35 % of Expected Income
Nursery and Greenhouse Limit	35% of expected revenue or up to $1 million (Max)	None	None
Potato Requirement	Minimum of 2 Commodities (with calculation)	Minimum of 2 Commodities (with calculation)	Minimum of 2 Commodities (with calculation)
Replant Payments	Up to 20 percent of expected revenue for annual commodity with 20 acres or 20 percent of crop needing replant. Not allowed if also insured under MPCI with replant provisions.	None	None
Other Federal Crop Insurance	Optional - MPCI -buy up coverage level only for both WFRP and MPCI. No CAT level MPCI allowed.	Optional	MPCI required if 50% of expected income from MPCI crops
Market readiness amounts in insured revenue	Yes	No	No
Expanding operations	Average allowable historic revenue increased by 10% if you can prove expansion and approved by AIP, to allow for minor farm growth that might not trigger indexing.	No	No
Cancellation/Termination	Same as sales closing date for county. (2/28, 3/15)	31-Jan	31-Jan
Contract Change	31-Aug	31-Aug	31-Aug
Sales Closing Date	In Actuarial Documents-same as dates for spring crops for county:	March 15 New	31-Jan
	2/28 and 3/15 depending on county	Jan 31 Carryover	
Rating Methodology	Same as AGR	Same as AGR	Rates revenue variability of individual commodities.

Whole-Farm Revenue Protection cont.



www.fsa.usda.gov/nap

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Noninsured Crop Disaster Assistance Program (NAP): ELIGIBLE crops

- ELIGIBLE CROPS:
  - *Any commercial agricultural crop (excluding livestock and their by-products), commodity, or acreage of a commodity **grown for food or fiber**, and commercial or industrial crops for which CAT or additional coverage is not available*
  - ***Biomass crops*** or feedstock crop grown for purpose of producing bio-based product
- CROPS **NOT** ELIGIBLE:
  - *Where CAT or additional level of insurance coverage **IS** available*
  - *Where Group Risk Protection insurance **IS** available*

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Noninsured Crop Disaster Assistance Program (NAP): Coverage Summary

- NAP available for 2015 through 2018 crop years:
  - **CAT-level** coverage 50/55, and
  - **Buy-up** coverage
    - 50, 55, 60 or 65 percent coverage at 100 percent of the established market price
- Protects against eligible causes of loss during the coverage period before or during harvest: drought, hail, excessive moisture, freeze, tornado, hurricane, excessive wind, insufficient chill hours (limited), earthquake, flood, volcanic eruption
- Market price established by FSA as an ***average market price*** for the eligible crop

Noninsured Crop Disaster Assistance Program (NAP): Coverage Updates

- Organic Crop Option
  - May receive payment based on an organic price if
    - RMA has established a separate organic price in the State
    - Producers elect the organic option on CCC-471
    - Acreage is certified organic or exempt from certification according to the National Organic Program regulations
    - A copy of organic system plan provided to FSA
- Direct Market Price Option
  - May receive payment based on an direct market price if
    - Buy-up coverage is elected with direct market price option
    - Sufficient data is available for FSA to approve separate average market prices within a State

Noninsured Crop Disaster Assistance Program (NAP): BUY-UP Coverage cont.

- **Premium calculation:**
  Eligible acres
  X Producer share
  X Approved yield
  X Coverage level
  X 100% of market price
  X 5.25 percent

❖ *NAP fees or buy-up premiums are reduced by 50 percent for:*
  – *Beginning farmers (BF)*
  – *Limited resource farmers (LR)*
  – *Socially disadvantaged farmers (SDA)*

- **Payment calculation:**
  Eligible acres
  X Producer share
  X Approved yield
  X Coverage level (50/55/60/65%)
  = Disaster level
  less Production to count
  = Net production for payment
  X Applicable market price
  X Price coverage (100% or 55%)
  X Harvest factor (100% or 60%)
  less Salvage value
  = calculated NAP payment

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Payment Limits

- **NO** person or legal entity, may receive directly or indirectly more than:
  – $125,000 total in payments under LFP, LIP, and ELAP combined
  – $125,000 total in payments under NAP
  – $125,000 total in payments under TAP
- An individual or legal entity is **ineligible** for payments where average adjusted gross income (AGI) exceeds $900,000
- A producer may receive benefits under a buy-up policy for crop insurance and LFP/LIP/ELAP/NAP/TAP, but combined benefits ***may not exceed the loss***

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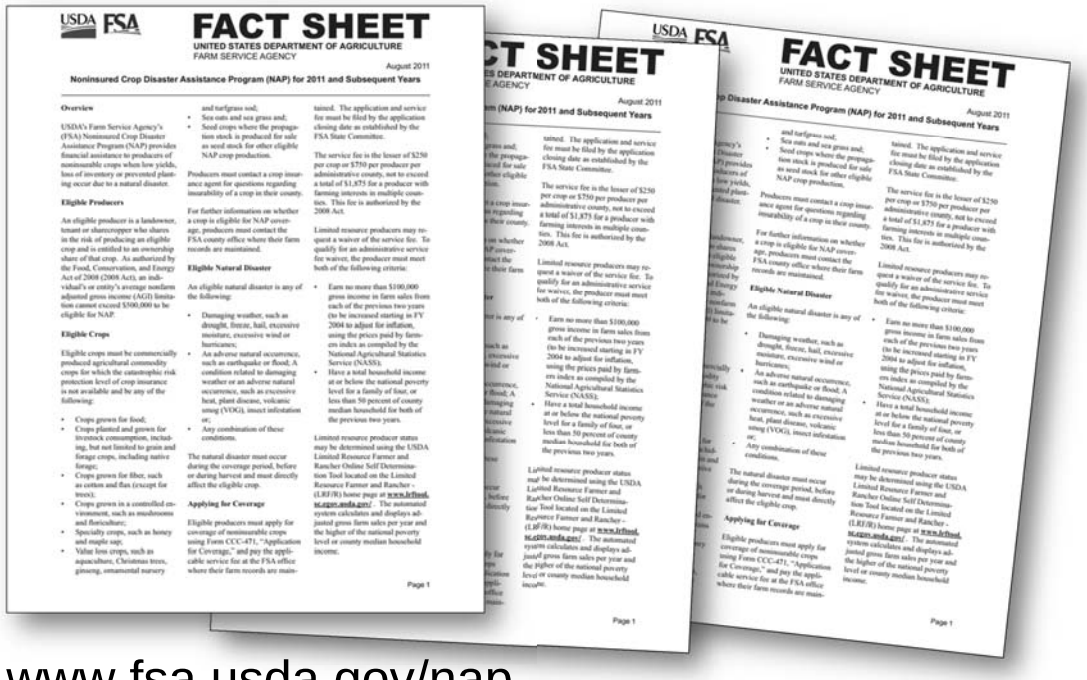
Farm Service Agency:
Noninsured Crop Disaster Assistance Program (NAP)



USDA FSA

FACT SHEET

UNITED STATES DEPARTMENT OF AGRICULTURE
FARM SERVICE AGENCY

August 2011

Noninsured Crop Disaster Assistance Program (NAP) for 2011 and Subsequent Years

Overview

USDA's Farm Service Agency's (FSA) Noninsured Crop Disaster Assistance Program (NAP) provides financial assistance to producers of noninsurable crops when low yields, loss of inventory or prevented planting occur due to a natural disaster.

Eligible Producers

An eligible producer is a landowner, tenant or sharecropper who shares in the risk of producing an eligible crop and is entitled to an ownership share of that crop. As authorized by the Food, Conservation, and Energy Act of 2008 (2008 Act), an individual's or entity's average nonfarm adjusted gross income (AGI) limitation cannot exceed $500,000 to be eligible for NAP.

Eligible Crops

Eligible crops must be commercially produced agricultural commodity crops for which the catastrophic risk protection level of crop insurance is not available and be any of the following:

- Crops grown for food;
- Crops planted and grown for livestock consumption, including, but not limited to grain and forage crops, including native forage;
- Crops grown for fiber, such as cotton and flax (except for trees);
- Crops grown in a controlled environment, such as mushrooms and floriculture;
- Specialty crops, such as honey and maple sap;
- Value loss crops, such as aquaculture, Christmas trees, ginseng, ornamental nursery and turfgrass sod;
- Sea oats and sea grass and;
- Seed crops where the propagation stock is produced for sale as seed stock for other eligible NAP crop production.

Producers must contact a crop insurance agent for questions regarding insurability of a crop in their county.

For further information on whether a crop is eligible for NAP coverage, producers must contact the FSA county office where their farm records are maintained.

Eligible Natural Disaster

An eligible natural disaster is any of the following:

- Damaging weather, such as drought, freeze, hail, excessive moisture, excessive wind or hurricanes;
- An adverse natural occurrence, such as earthquake or flood; A condition related to damaging weather or an adverse natural occurrence, such as excessive heat, plant disease, volcanic smog (VOG), insect infestation or;
- Any combination of these conditions.

The natural disaster must occur during the coverage period, before or during harvest and must directly affect the eligible crop.

Applying for Coverage

Eligible producers must apply for coverage of noninsurable crops using Form CCC-471, "Application for Coverage," and pay the applicable service fee at the FSA office where their farm records are maintained. The application and service fee must be filed by the application closing date as established by the FSA State Committee.

The 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. This fee is authorized by the 2008 Act.

Limited resource producers may request a waiver of the service fee. To qualify for an administrative service fee waiver, the producer must meet both of the following criteria:

- Earn no more than $100,000 gross income in farm sales from each of the previous two years (to be increased starting in FY 2004 to adjust for inflation, using the prices paid by farmers index as compiled by the National Agricultural Statistics Service (NASS);
- Have a total household income at or below the national poverty level for a family of four, or less than 50 percent of county median household for both of the previous two years.

Limited resource producer status may be determined using the USDA Limited Resource Farmer and Rancher Online Self Determination Tool located on the Limited Resource Farmer and Rancher - (LRFR) home page at www.lrftool.sc.egov.usda.gov/. The automated system calculates and displays adjusted gross farm sales per year and the higher of the national poverty level or county median household income.

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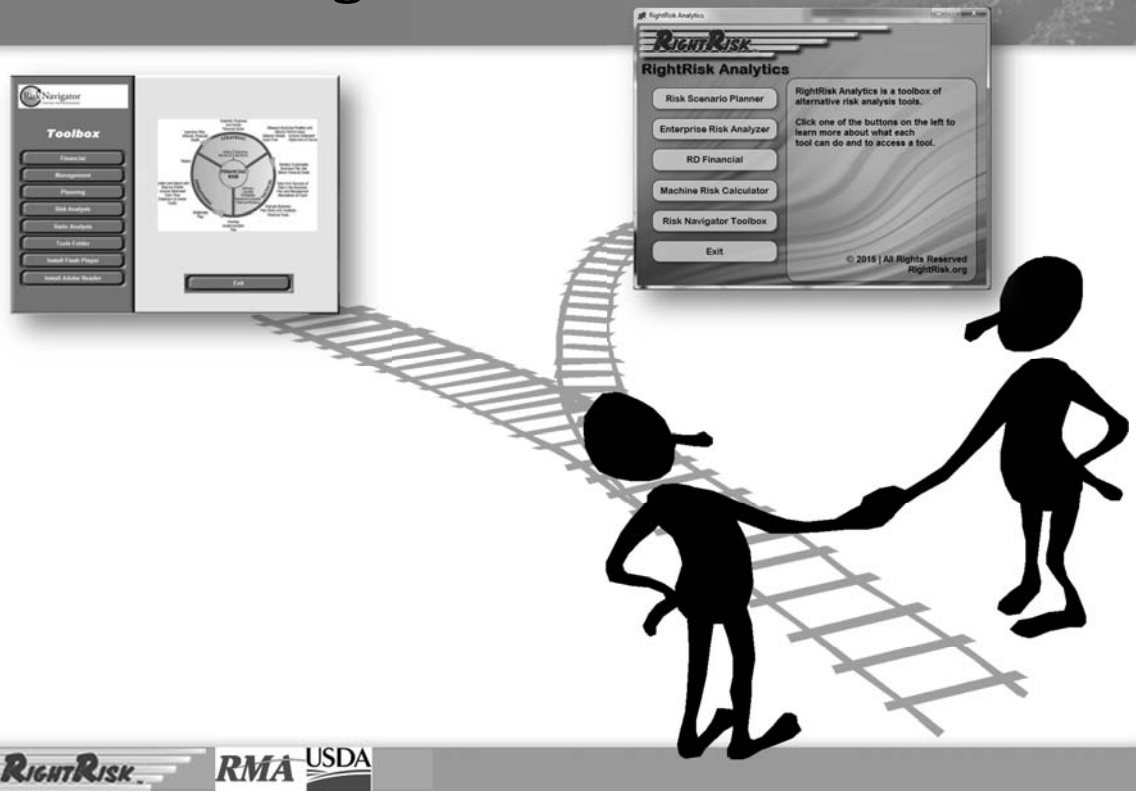
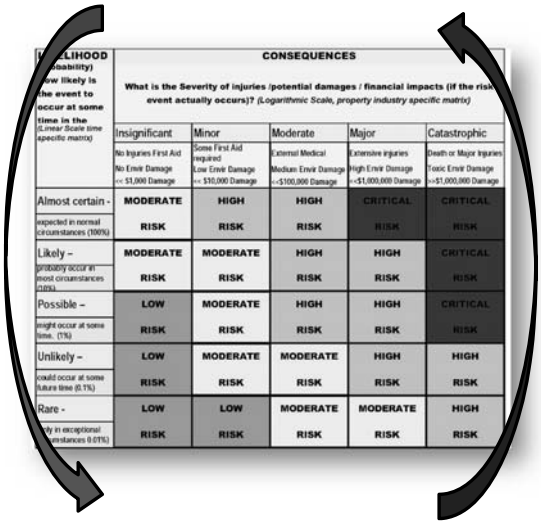
Evaluating Alternatives



Risk Treatment

- Selecting one or more ***options for modifying risks*** and implementing those options
- Involves a ***cyclical process*** of assessing a risk treatment and deciding whether residual risk levels are acceptable
- If not, then selecting a ***new risk treatment*** and assessing the effect of that treatment until the residual risk matches the risk goal(s)



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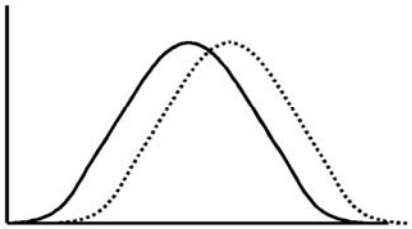

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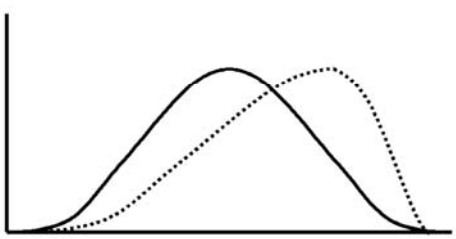

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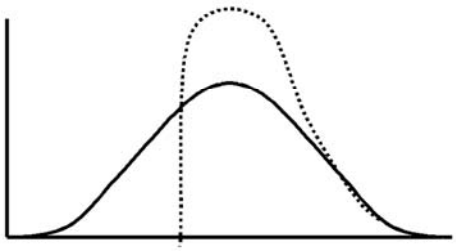
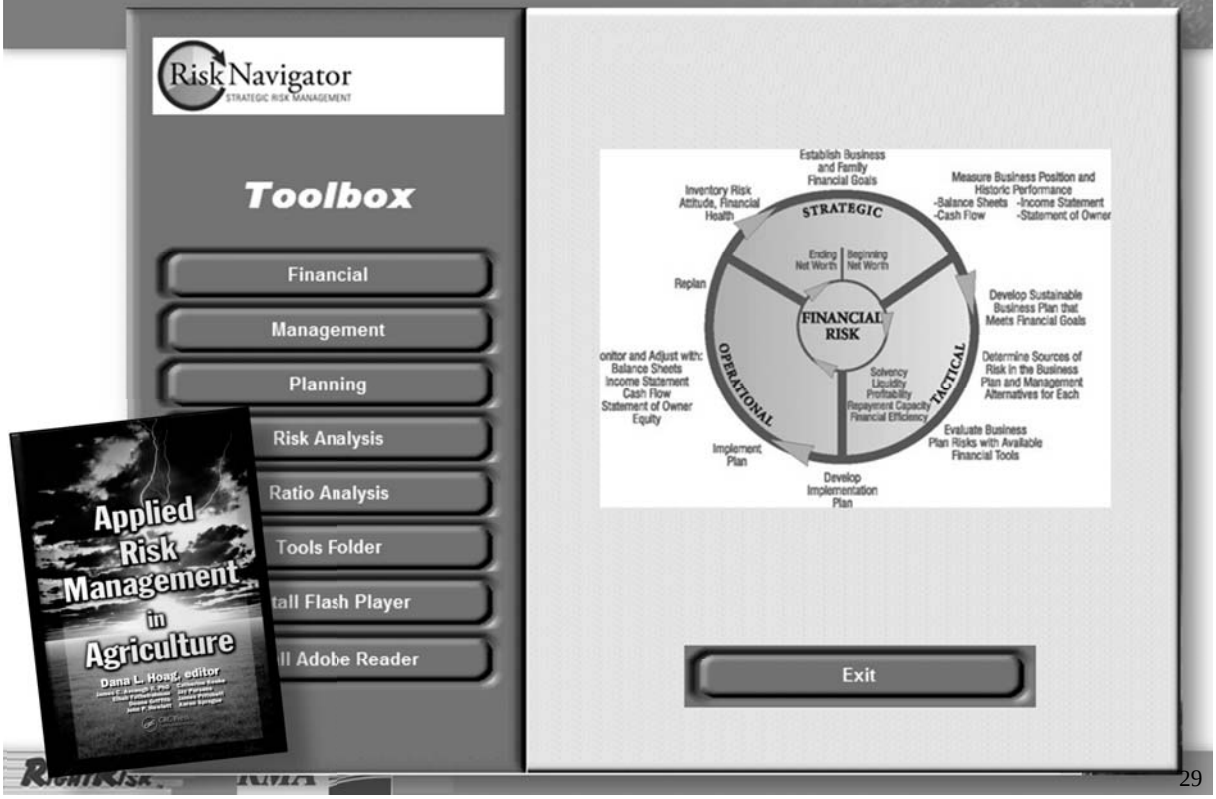
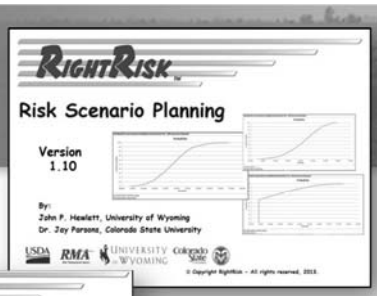


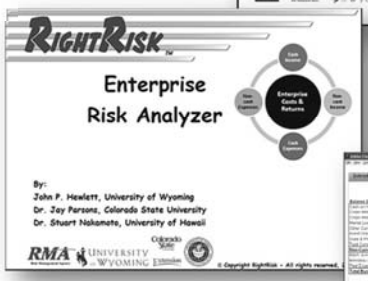
Risk Navigator Tool Box

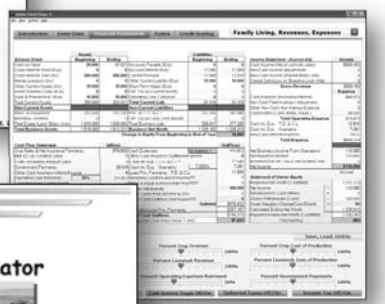


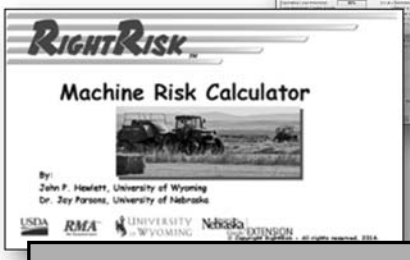
RightRisk Analytics

- **Risk Scenario Planner**
  - relatively minor changes
- **Enterprise Risk Analyzer**
  - larger changes
- **RDFinancial**
  - whole farm budget, *substantial changes*
- **Machine Risk Calculator**
  - estimating machinery and field operation costs









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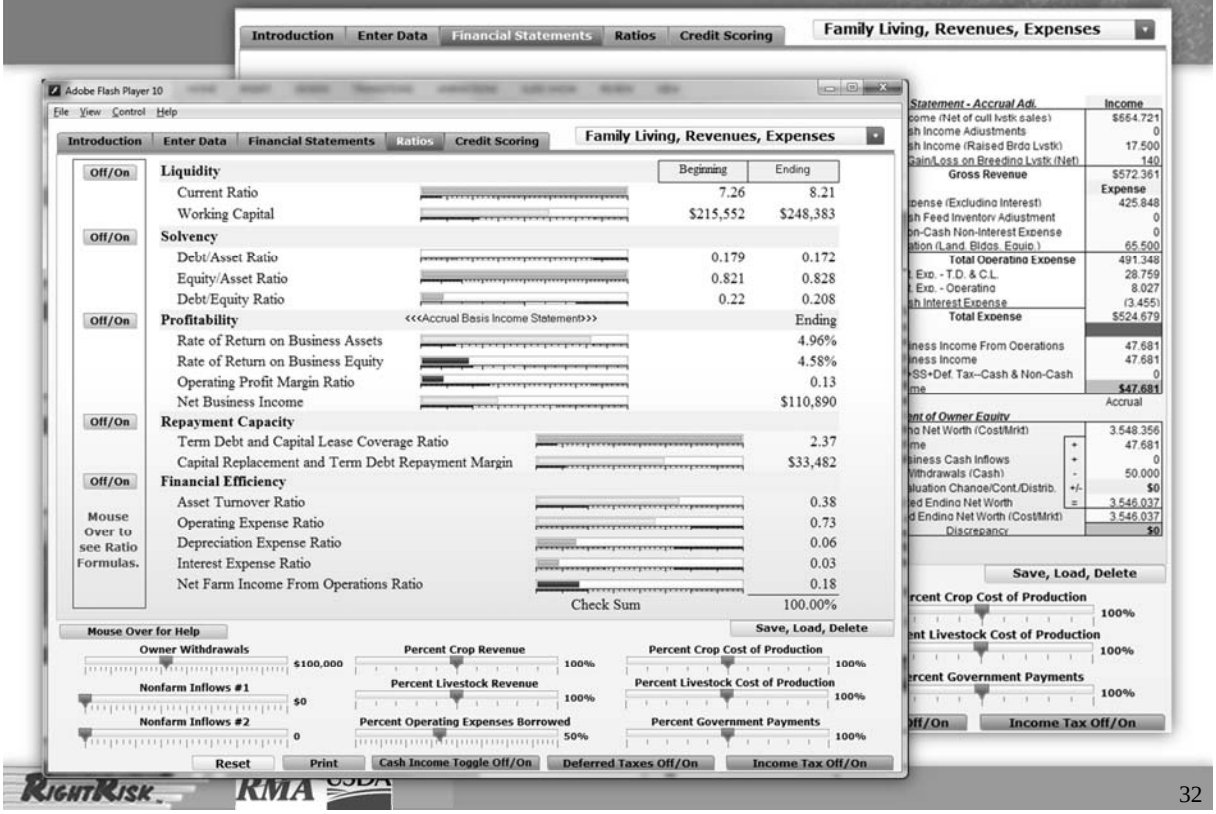
Risk Scenario Planner

Whole Farm Budget



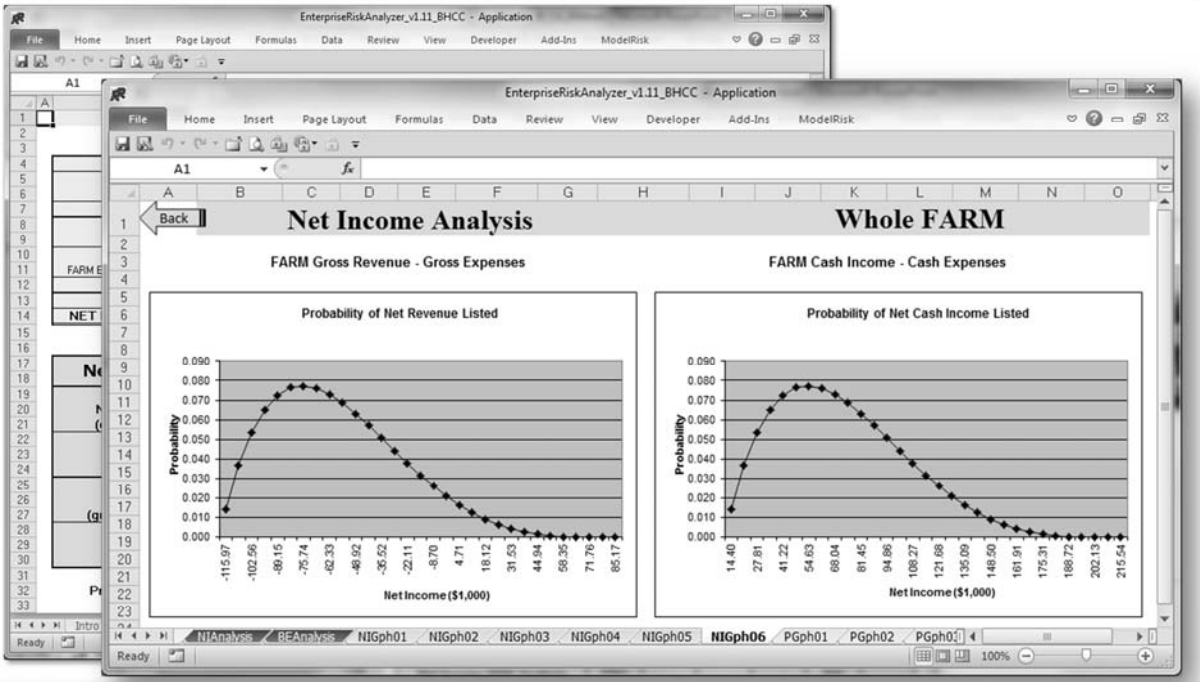
Enterprise Risk Analyzer

	Cow-Calf	Native Hay	Oat Hay	Alfalfa Establishment	Alfalfa - Baled
FARM REVENUE					
TOTAL FARM INCOME - CASH	121,759.00	12,380.00	2,802.00	2,306.00	25,040.00
TOTAL NON-CASH INCOME ADJUSTMENTS					
GROSS FARM REVENUE	121,759.00	12,380.00	2,802.00	2,306.00	25,040.00
FARM EXPENSES					
FARM EXPENSES - CASH	86,843.00	6,557.00	1,756.00	2,297.00	12,072.00
FARM EXPENSES - NON-CASH EXPENSE ADJUSTMENTS	98,550.00	11,245.00	2,709.00	2,536.00	15,331.00
GROSS FARM EXPENSES	185,393.00	17,802.00	4,465.00	4,833.00	27,403.00
NET FARM INCOME FROM OPERATIONS	**(63,634.00)**	**(5,422.00)**	**(1,663.00)**	**(2,527.00)**	**(2,363.00)**
Break-Even PRICE Analysis					
YIELD PER ENTERPRISE UNIT	**Cow-Calf**	**Native Hay**	**Oat Hay**	**Alfalfa Establishment**	**Alfalfa - Baled**
Maximum	400	1.75	4	4	4
Most Likely	**373.97**	**1.5**	**3**	**2.54**	**3**
Minimum	350	1	1.5	1.5	1.5
BREAK-EVEN PRICE - CASH EXPENSES					
Minimum	0.59	32.30	33.77	44.17	29.02
Most Likely	**0.64**	**37.68**	**45.03**	**69.56**	**38.69**
Maximum	0.68	56.53	90.05	117.79	77.38
BREAK-EVEN PRICE - GROSS EXPENSES					
Minimum	1.27	87.69	85.87	92.94	65.87
Most Likely	**1.36**	**102.31**	**114.49**	**146.37**	**87.83**
Maximum	1.45	153.47	228.97	247.85	175.66
Probability Analysis (*click button at right*)	Graph	Graph	Graph	Graph	Graph

RightRisk RMA USDA

Enterprise Risk Analyzer

Net Return Analysis



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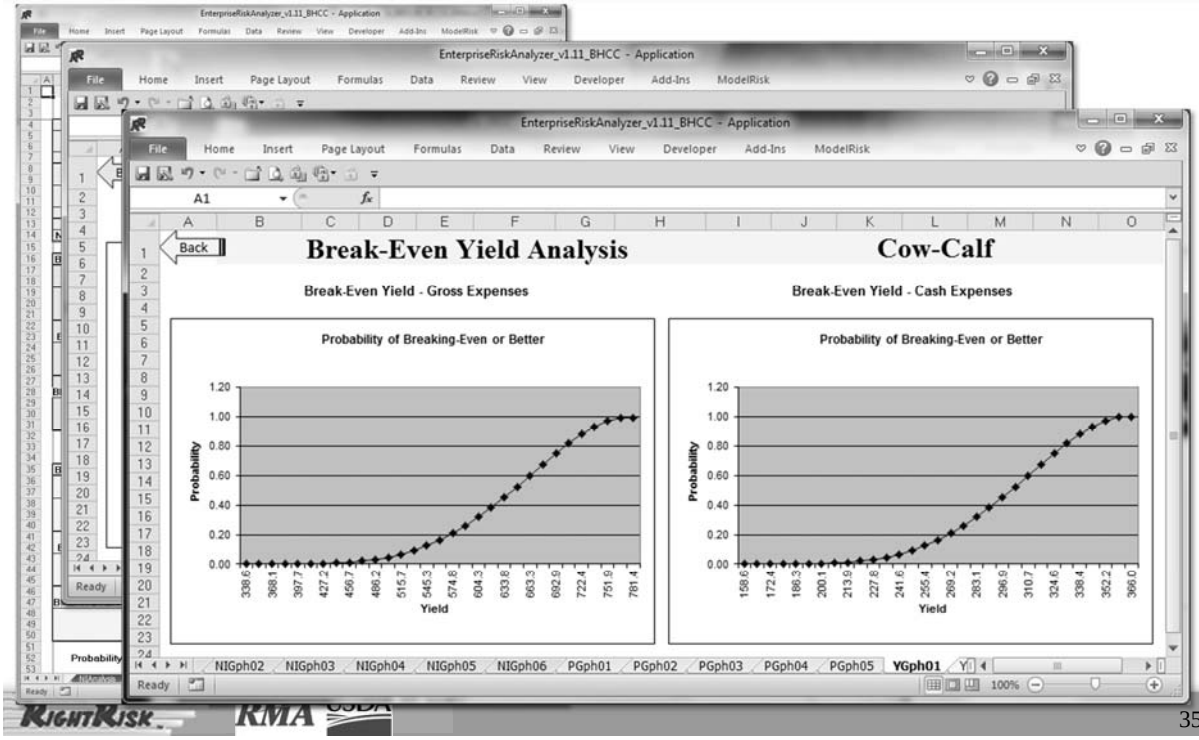
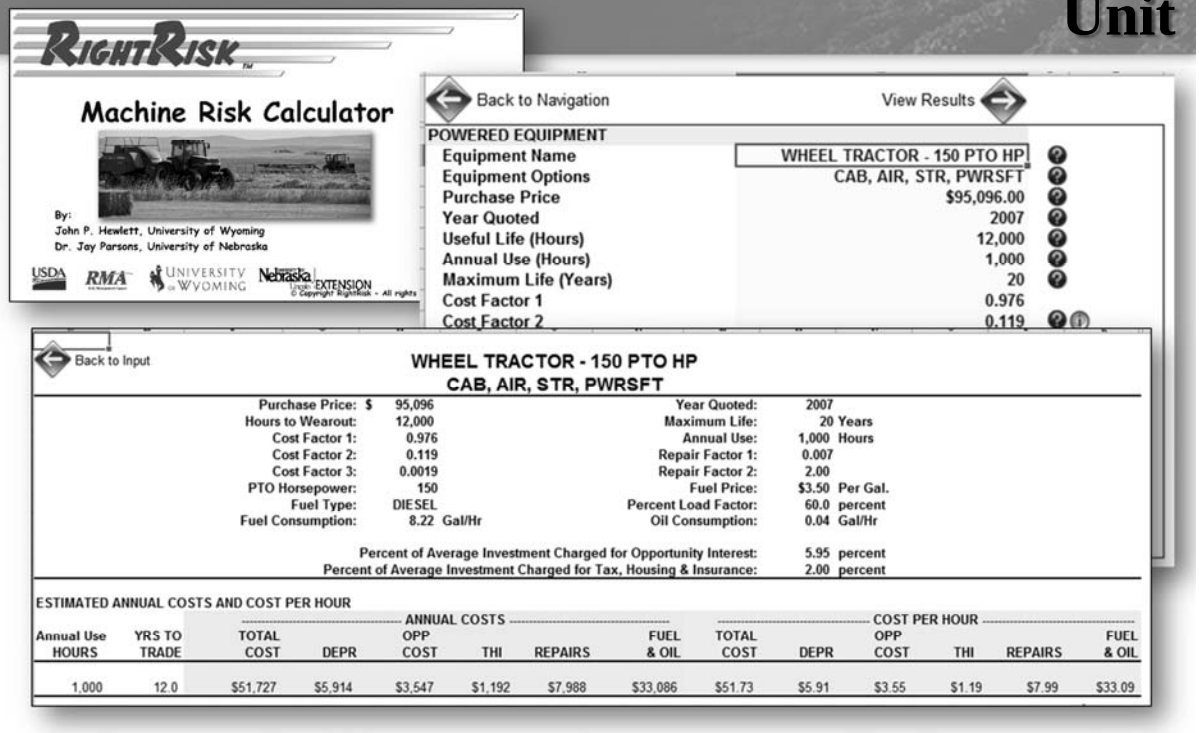
Enterprise Risk Analyzer

Breakeven Analysis



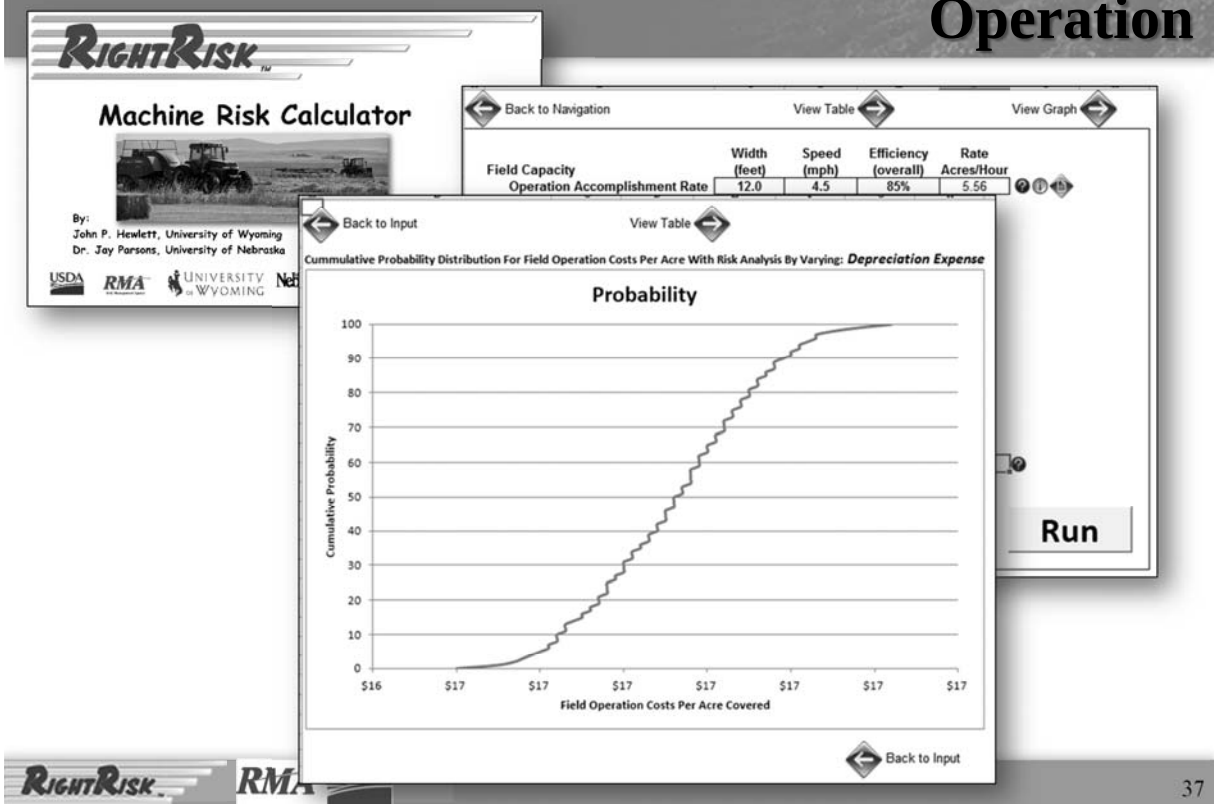
Machine Risk Calculator

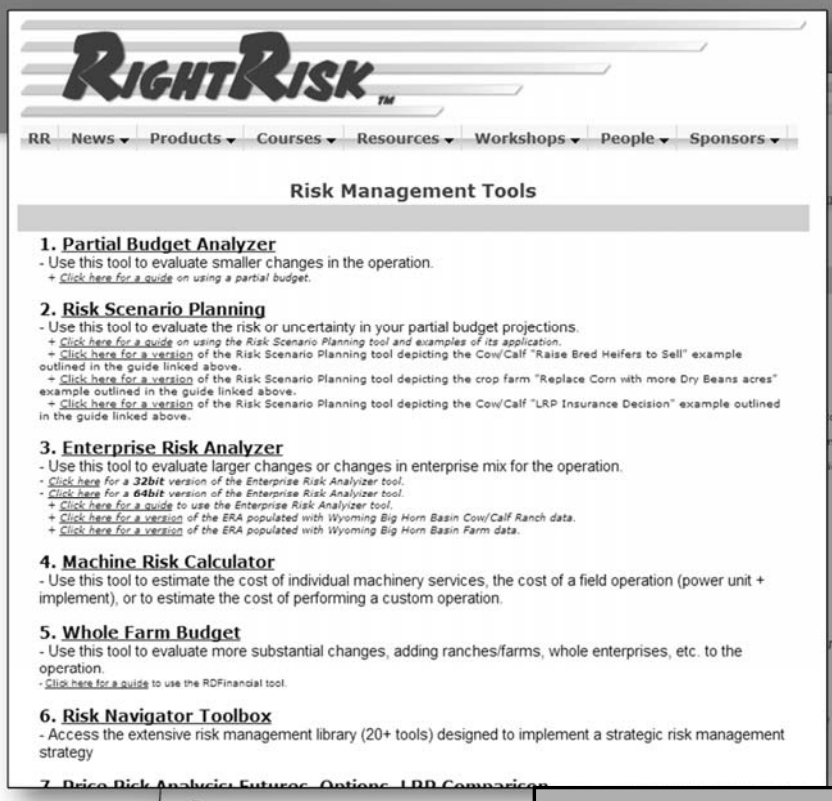
Power Unit



Machine Risk Calculator

Field Operation





http://RightRisk.org/tools

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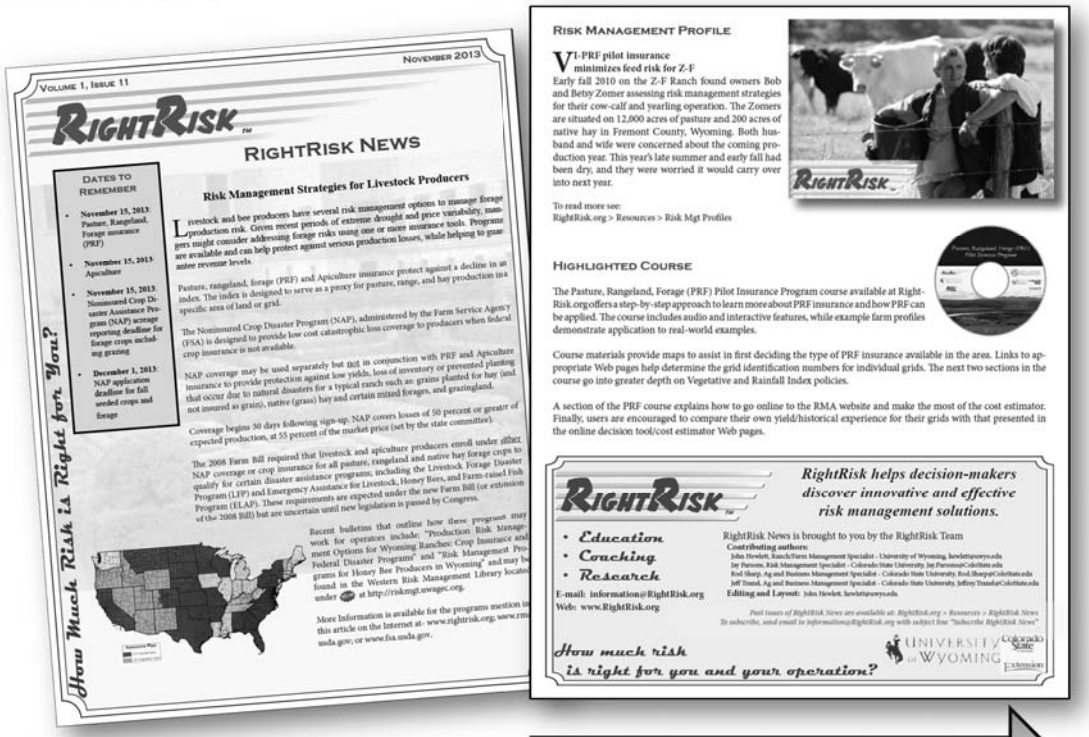

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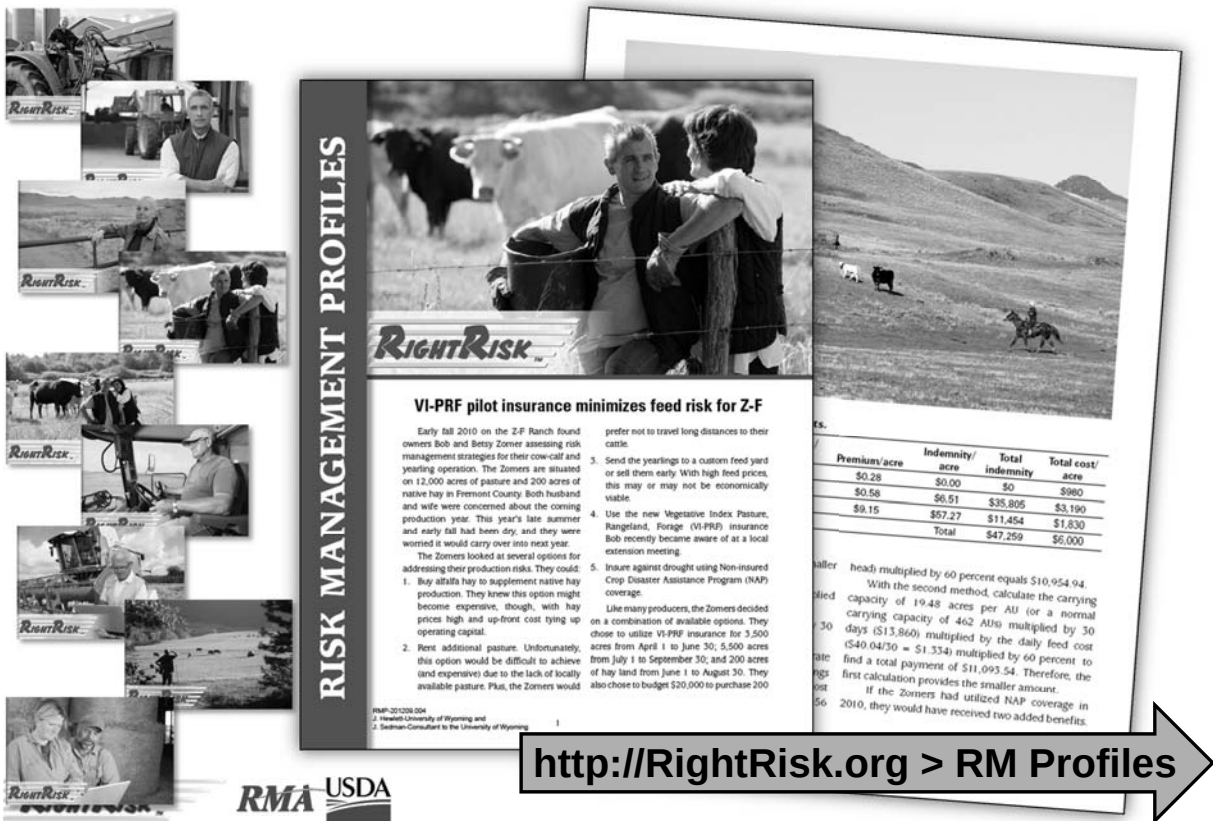
Risk Management Profiles



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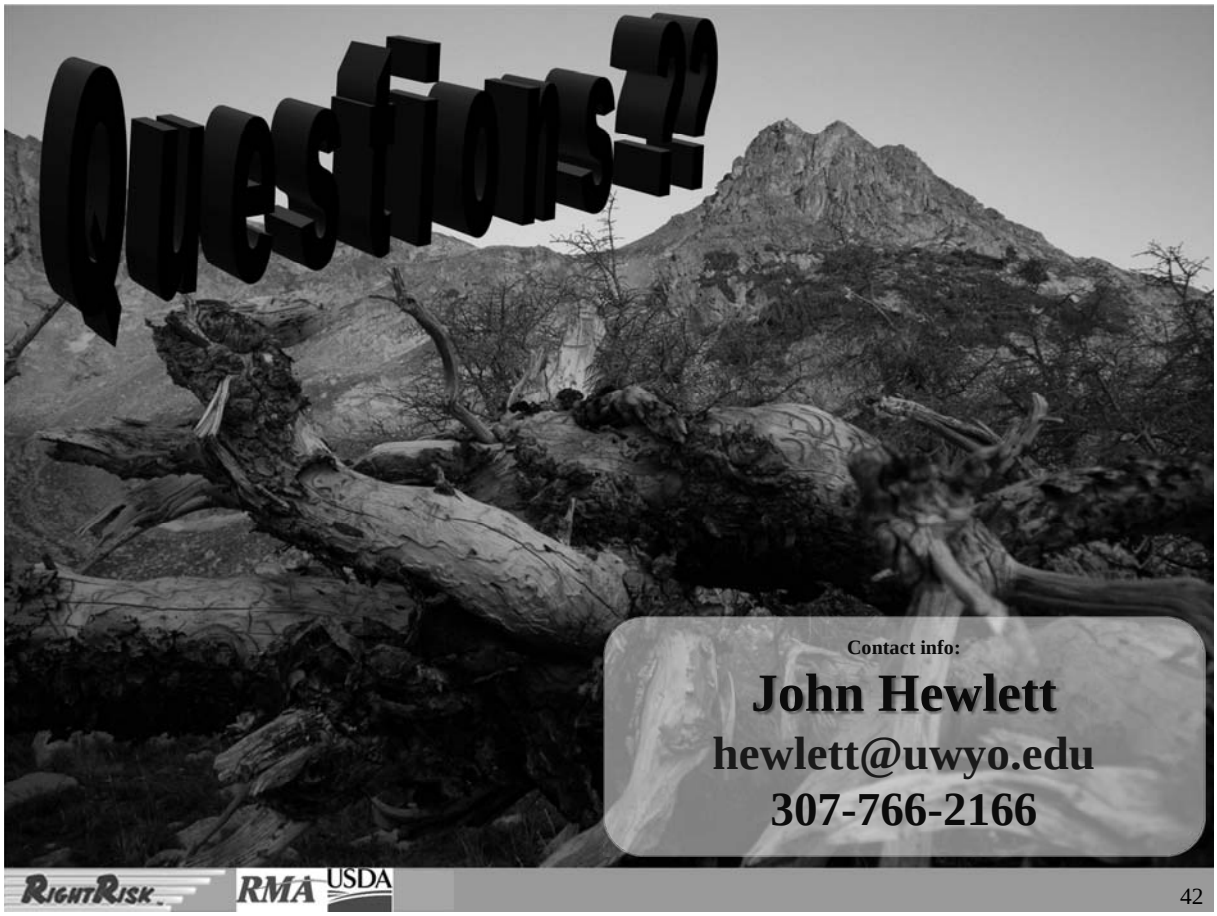
Questions??
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