

The Enterprise Risk Analyzer



How to Evaluate
Crop Alternatives and Risk?

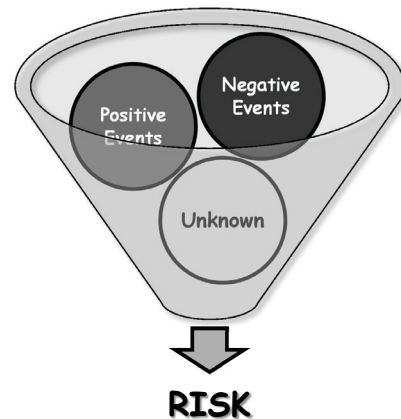
John P. Hewlett, University of Wyoming

Dr. Jay Parsons, University of Nebraska-Lincoln

<http://california.erightrisk.com>

What is RISK?

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



What is RISK?

- **RISK**: The uncertainty or potential variation in the outcome of future events that can negatively impact your:
 - *Current profit level*
 - *Financial situation (equity position)*
 - *Satisfaction and well-being*

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

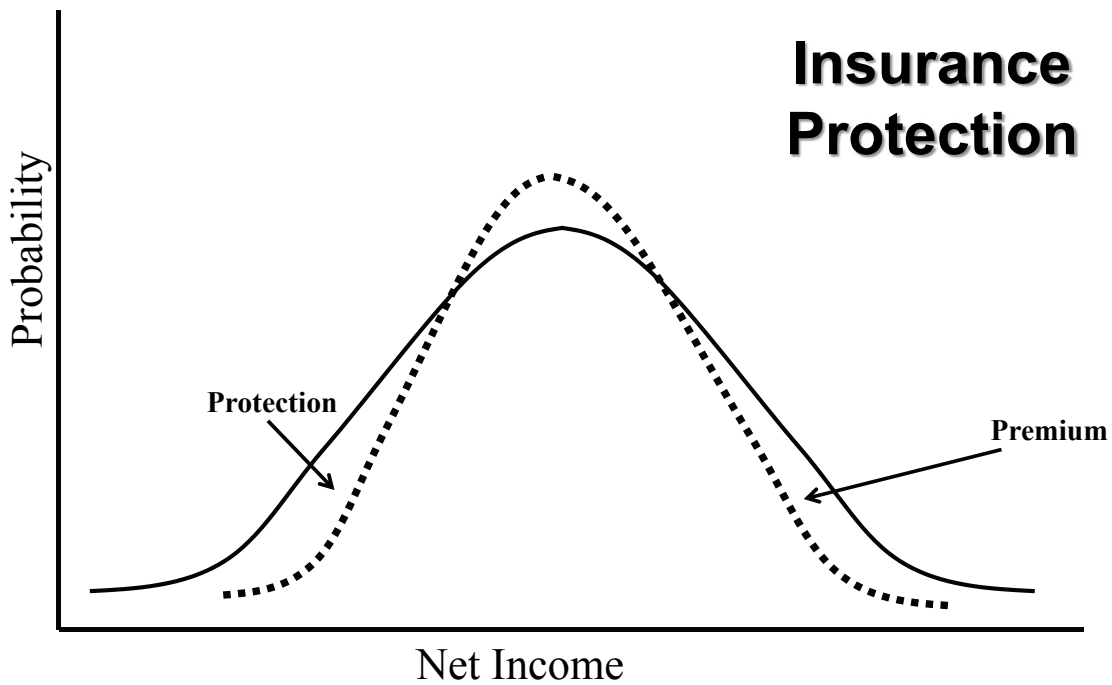


Strategies for Managing Risk

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**



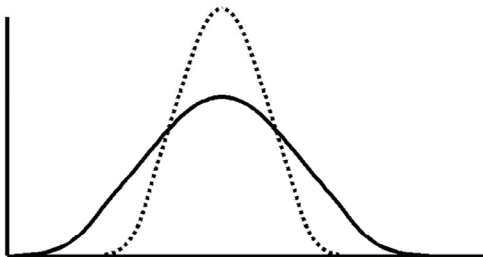
How much risk is right for you?



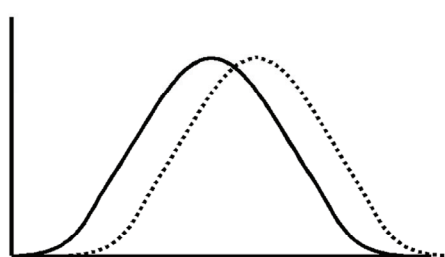
Strategy Impacts



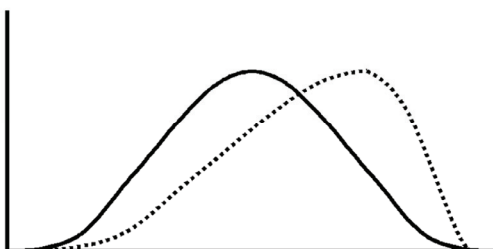
Panel 1: Same Mean, Less Dispersion



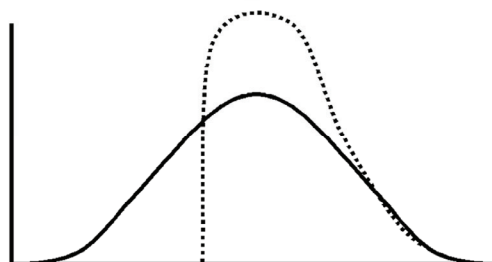
Panel 2: Same Dispersion, Higher Mean



Panel 3: Skewing the distribution



Panel 4: Truncating the Distribution



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?**



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Current Federal Insurance Options

Insurance Plans Available in CALIFORNIA			
Insurable Crops	Insured Acres	Total Acres	Percent Insured
Alfalfa Seed	10,416	29,223	35%
Almonds	692,001	876,195	79%
Apples	5,684	13,026	32%
Avocados	36,147	53,559	68%
Barley	49,202	100,000	49%
Blueberries	2,216	3,000	74%
Cherries	28,852	39,173	74%
Citrus - 9 types of fruit	227,953	257,382	89%
Corn	232,551	500,000	47%
Cotton & ELS Cotton	263,497	280,000	94%
Beans (Dry)	17,911	49,000	37%
Eggs	4,216	8,048	52%
Forage Production	136,188	921,910	15%
Grapes (Table)	84,951	92,197	92%
Grapes (Wine)	484,439	587,000	83%
Grain Sorghum	803	6,240	13%
Mint	1,849	3,200	58%
Oats	3,200	6,829	47%
Olives	25,131	44,000	57%
Onions	4,239	56,145	8%
Pears	8,999	14,000	64%
Pecans	300	3,600	8%
Pistachios	87,957	178,000	49%
Potatoes	18,404	33,000	56%
Prunes	48,882	61,988	79%
Rice	463,402	553,110	84%
Rice (Cultivated Wild)	13,239	16,000	83%
Safflower	34,558	57,000	61%
Stonefruit (Includes Plums)	56,543	126,698	45%
Strawberries	136	36,000	1%
Sugar Beets	3,094	24,500	13%
Tomatoes (Fresh)	13,139	30,000	44%
Tomatoes (Processing)	252,574	250,000	98%
Walnuts	140,353	289,809	48%
Wheat	344,519	558,153	62%
Dollar Liability Program		Total Dollar Liability	
Adjusted Gross Revenue			\$59,257,037*
Agriculture (Rainfall Index)			\$10,414,576
Forage Seeding			\$2,266,423
Livestock Gross Margin (LGM) Dairy			\$86,047,453
Livestock Risk Protection (LRP) Lamb			\$8,971,853
Nursery			\$180,545,014
Pasture, Rangeland, Forage (Rainfall Index)			\$19,808,133
Rainfall			\$214,109,813
Crop Pilot Programs			
Program	County Availability		
Adjusted Gross Revenue	Fresno, Kern, Riverside, San Diego, San Joaquin, San Luis Obispo, Tulare and Ventura Counties		
Agriculture (Rainfall Index)	All Counties		
Almonds	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		
Citrus (Native)	Fresno, Kern, Madera and Tulare Counties		
Forage (Alfalfa) Seed	Kings and Fresno Counties		
Olives	Butte, Colusa, Fresno, Glenn, Tehama, Kern, Madera, San Joaquin, Shasta, Stanislaus, Sutter, Tulare and Yolo Counties		
Strawberries	Fresno, Merced, Monterey, Santa Barbara, Santa Cruz and Ventura Counties		
PRF (Rainfall Index)	All Counties		
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 and Yuba Counties		

2013 California Crop Insurance Profile

Davis Regional Office
Contact: Jeff Yasui, Director
Address: 430 G Street
#4165
Davis, CA 95618
Phone: (530) 792-5870
Fax: (530) 792-5893
E-Mail: jeff.yasui@rma.usda.gov

Western Regional Compliance Office
Contact: Susan Choy, Director
Address: 430 G Street
#4167
Davis, CA 95618
Phone: (530) 792-5850
Fax: (530) 792-5865
E-Mail: susan.choy@rma.usda.gov

Data as of January 2014

<http://www.rma.usda.gov/pubs/2014/stateprofiles/california13.pdf>

California Fifteen Year Crop Insurance History

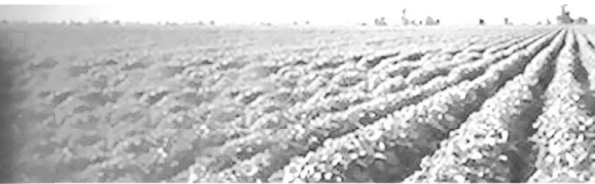
Year	Policies Earning Premium	Net Acres Insured	Liability	Gross Premium	Losses	Loss Ratio
1999	28,590	4,023,277	2,494,656,258	130,826,215	133,134,448	1.02
2000	29,191	4,278,811	2,796,253,781	143,343,081	92,359,660	0.64
2001	27,958	4,010,129	2,690,254,801	142,519,840	117,359,758	0.82
2002	27,200	3,920,007	2,633,618,262	146,355,279	79,069,948	0.54
2003	26,471	3,990,438	2,951,841,797	150,191,677	79,366,135	0.53
2004	25,629	3,908,123	3,153,568,412	157,913,694	83,152,323	0.53
2005	24,859	3,818,813	3,317,832,621	168,995,411	92,497,107	0.55
2006	24,490	3,732,668	3,658,867,941	186,617,268	88,506,353	0.47
2007	24,207	3,780,829	3,708,288,115	187,455,253	154,139,100	0.82
2008	24,074	3,810,375	3,911,645,612	197,620,945	89,465,031	0.45
2009	24,723	3,932,306	4,648,316,411	243,273,227	177,694,925	0.73
2010	24,649	3,752,230	4,493,432,544	219,282,609	111,142,020	0.51
2011	24,726	4,062,207	4,792,588,260	249,899,972	110,209,054	0.44
2012	25,462	4,600,044	5,384,444,735	260,903,031	112,207,209	0.43
2013*	25,470	5,233,794	6,097,497,679	286,604,558	82,422,389	0.29

* 2013 numbers are incomplete



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Corn	232,551	560,000	42%
Cotton & ELS Cotton	263,497	280,000	94%
Beans (Dry)	17,911	46,000	37%
Figs	4,216	8,045	52%
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Pears	8,699	14,000	62%
Pecans	300	3,600	9%
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Prunes	48,682	61,988	79%
Rice	463,402	553,110	84%
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Safflower	34,558	57,000	61%
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Pasture, Rangeland, Forage (Rainfall Index)			\$19,606,133
Raisins			\$214,106,513



<http://www.rma.usda.gov>



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Adjusted Gross Revenue (AGR)



- Adjusted Gross Revenue (AGR) crop insurance provides producers with protection against low revenue from natural causes and market fluctuations.
 - Uses your historical IRS tax form (Schedule F or equivalent forms) information and an annual farm report as a base;
 - When completing an AGR application, you must submit a history calculation worksheet, including 5 years of allowable income and expense data from IRS tax returns (Schedule F or equivalent forms) plus an annual farm report for the insurance year listing expectations.
 - Provides insurance for multiple agricultural commodities in one product;
 - Establishes revenue as a common denominator for the production of all agricultural commodities.

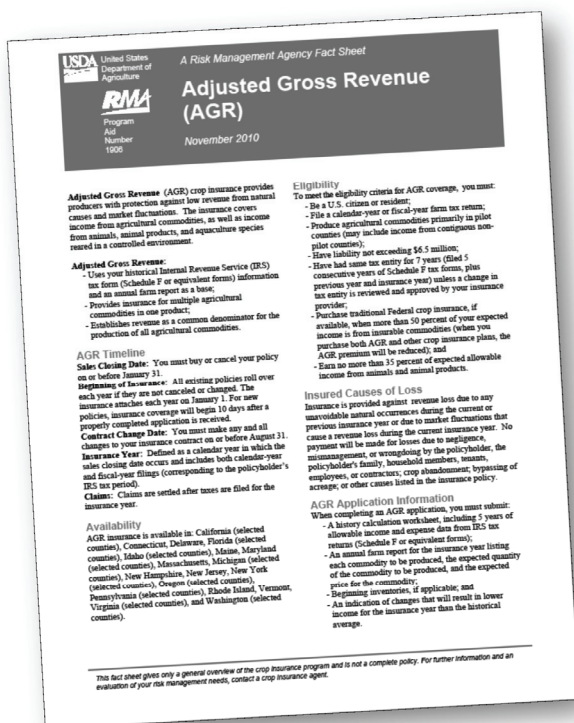


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Adjusted Gross Revenue (AGR)

- Insurance is provided against revenue loss due to any unavoidable natural occurrences during the current or previous insurance year or due to market fluctuations that cause a revenue loss during the current insurance year.
- You must buy or cancel your policy on or before January 31.
- All existing policies roll over each year if they are not canceled or changed. The insurance attaches each year on January 1. For new policies, insurance coverage will begin 10 days after a properly completed application is received.
- You must make any and all changes to your insurance contract on or before August 31.
- Claims are settled after taxes are filed for the insurance year.

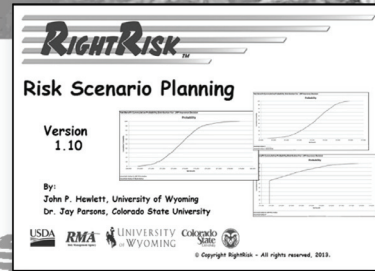
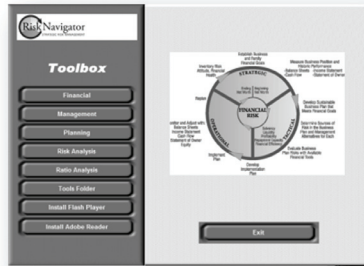
RMA AGR Fact Sheet



County Availability

Fresno, Kern, Riverside, San Diego, San Joaquin, San Luis Obispo, Tulare and Ventura

Evaluating Alternatives

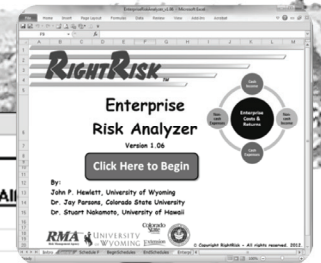


RIGHT RISK WYOMING

<http://california.erightrisk.com>

Enterprise Risk Analyzer

	A	B	C	D	E	F
1						
2						
3			Cow-Calf	Native Hay	Oat Hay	Alfalfa Establishment
4		FARM REVENUE				All
5		TOTAL FARM INCOME - CASH	121,759.00	12,380.00	2,802.00	2,306.00
6		TOTAL NON-CASH INCOME ADJUSTMENTS				
7		GROSS FARM REVENUE	121,759.00	12,380.00	2,802.00	2,306.00
8						25,040.00
9		FARM EXPENSES				
10		FARM EXPENSES - CASH	86,843.00	6,557.00	1,756.00	2,297.00
11		FARM EXPENSES - NON-CASH EXPENSE ADJUSTMENTS	98,550.00	11,245.00	2,709.00	2,536.00
12		GROSS FARM EXPENSES	185,393.00	17,802.00	4,465.00	4,833.00
13						
14		NET FARM INCOME FROM OPERATIONS	(63,634.00)	(5,422.00)	(1,663.00)	(2,527.00)
15						
16		Break-Even PRICE Analysis				
17		YIELD PER ENTERPRISE UNIT	Cow-Calf	Native Hay	Oat Hay	Alfalfa Establishment
18		<i>Maximum</i>	400	1.75	4	4
19		Most Likely	373.97	1.5	3	2.54
20		<i>Minimum</i>	350	1	1.5	1.5
21						
22		BREAK-EVEN PRICE - CASH EXPENSES				
23		<i>Minimum</i>	0.59	32.30	33.77	44.17
24		Most Likely	0.64	37.68	45.03	69.56
25		<i>Maximum</i>	0.68	56.53	90.05	117.79
26						
27		BREAK-EVEN PRICE - GROSS EXPENSES				
28		<i>Minimum</i>	1.27	87.69	85.87	92.94
29		Most Likely	1.36	102.31	114.49	146.37
30		<i>Maximum</i>	1.45	153.47	228.97	247.85
31						
32						
33		Probability Analysis (click button at right)	Graph	Graph	Graph	Graph
34						



RIGHT RISK WYOMING

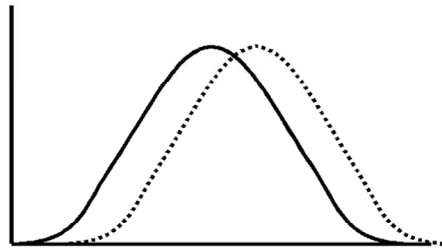
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Strategy Impacts

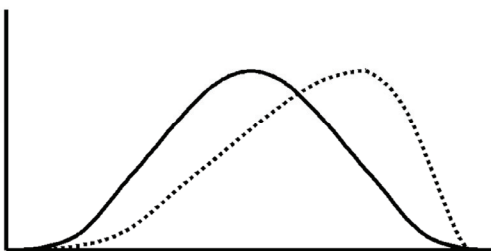
Panel 1: Same Mean, Less Dispersion



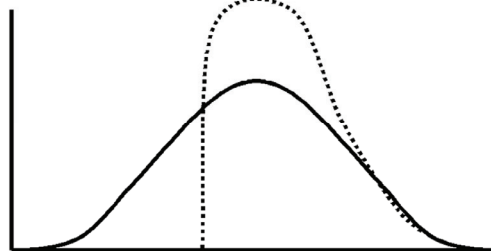
Panel 2: Same Dispersion, Higher Mean



Panel 3: Skewing the distribution



Panel 4: Truncating the Distribution



RIGHT RISK

<http://california.erightrisk.com>

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Tools to Evaluate Alternatives

- **Risk Scenario Planner**
relatively minor changes

- **Enterprise Risk Analyzer**
larger changes

- **RD Financial - Whole Farm Budgeting**
substantial changes

<http://RightRisk.org/tools>
<http://california.erightrisk.com>

RIGHT RISK

Applied Risk Management in Agriculture
Dana L. Hoag, editor
James C. Ascough II, PhD
James P. Parsons
Elaine Griffith
John F. Howett
CRC Press

AG SURVIVOR
Scenario Selection

Risk Navigator
STRATEGIC RISK MANAGEMENT

Insuring Success for Wyoming Agriculture 2006
Feasibility of Alternative Rural Enterprises Course

Insuring Success for Wyoming Agriculture 2008
Insurance and Risk Management Course

Insuring Success for Wyoming Agriculture 2006
Taxes for Agricultural Enterprises Course

Pasture, Rangeland, Forage (PRF) Pilot Insurance Program

Getting on Track: Better Management Through Basic Ag Records

Getting on Track: Understanding Financial Performance

Getting on Track: Better Management Through Basic Financial Statements

<http://RightRisk.org> > Courses

RightRisk Newsletter

VOLUME 2, ISSUE 2

RIGHTRISK NEWS

AGR-Lite Protects Against Low Revenues

Adjusted Gross Revenue-Line (AGR-Lite) is a streamlined whole-farm revenue protection product and establishes revenue as a common denominator for the insurance of all agricultural commodities. AGR-Lite can stand alone or be used in conjunction with other Federal crop insurance plans. However, the maximum liability of coverage is \$1 million.

To be eligible for AGR-Lite coverage, a producer must be a U.S. citizen or resident; file a calendar year or fiscal year farm tax return; and have appropriate IRS tax forms available for the previous 5 years or fiscal year farm tax return, and have appropriate IRS tax forms available for the previous 5 years or fiscal year farm tax return, and have appropriate IRS tax forms available for the previous 5 years or fiscal year farm tax return, and have appropriate IRS tax forms available for the previous 5 years or fiscal year farm tax return.

AGR-Lite Levels of Insurance Coverage Level	Payment Percentage
65%	75%
70%	80%
75%	85%
80%	90%

Assume a producer had an approved AGR-Lite income of \$500,000 and wanted to insure revenues at the 80 percent coverage level at 90 percent payment rate. Further assume adjusted gross income minus out to be \$215,000.

Step 1: Calculate the loss inception point (approved AGR times the coverage level) => \$500,000 x 0.80 = \$400,000

Step 2: Calculate the loss of revenue (loss inception point less actual revenues) => \$400,000 - \$215,000 = \$185,000

Step 3: Calculate the indemnity due (lost revenue times payment percentage) => \$185,000 x 90% = \$166,500

AGR-Lite insurance can be purchased from private insurance agents. A list of crop insurance agents is available at a USDA Service Center or on the RMA web site. <http://www.fsa.usda.gov/toolset/agents/> or the RMA web site. <http://www.fsa.usda.gov/toolset/agents/>

Also, more information about AGR-Lite is available at <http://RightRisk.org>.

RISK MANAGEMENT PROFILE

Juan and Suzanne were sitting in their kitchen one January afternoon getting information ready to take to their tax preparer. Check stubs, invoices, receipts, weigh tags from the local co-op, and sale bills were scattered across the table. Suzanne was frustrated with the mess and with the amount of information Juan kept in his head. They both knew they would have a better handle on their finances, keep their banker happier, and be better prepared for their tax preparer if they maintained good financial records throughout the year. To read more see: <http://RightRisk.org> > Resources > Risk Mgt Profiles

HIGHLIGHTED COURSE

The interactive AGR-Lite course was designed for producers at both ends of the crop insurance knowledge spectrum—whether they already use and are accustomed to crop insurance programs or they are new to the programs available and just beginning to determine their risk management needs. The course is interactive and has lessons at the end of each section to help participants apply what they have learned to their own situation. It also provides electronic tools to help producers assess how the program may fit with their operation.

The course is divided into six sections. The first two sections cover general risk management and an overview of the AGR-Lite program. The basic concepts of risk management and the five sources of agricultural risk are discussed using real-life examples and situations. The overview of the AGR-Lite program includes a breakdown of individual farming operations eligible for coverage under the program as well as other eligibility requirements.

The third section discusses the application process for AGR-Lite. This includes the necessary information as well as determining the variables and adjustments that go into determining a farm's adjusted gross revenue (the basis for the insurance coverage). It also provides information on how to determine the variables and adjustments that go into determining a farm's adjusted gross revenue (the basis for the insurance coverage). It also provides information on how to determine the variables and adjustments that go into determining a farm's adjusted gross revenue (the basis for the insurance coverage).

For more information on the AGR-Lite course, see <http://RightRisk.org> > courses.

RightRisk helps decision-makers discover innovative and effective risk management solutions.

RightRisk News is brought to you by the RightRisk Team

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<http://RightRisk.org>

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University of California
Agriculture and Natural Resources

