

# The Enterprise Risk Analyzer



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<http://california.erightrisk.com>

# 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*

# Sources of Risk in Agriculture – *Ag Risk 5*

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

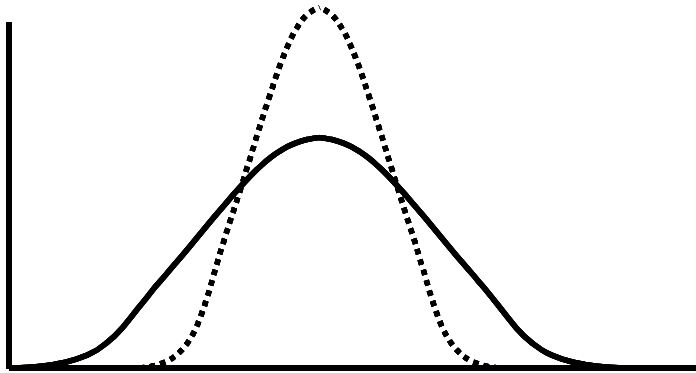


# Strategies for Managing Risk

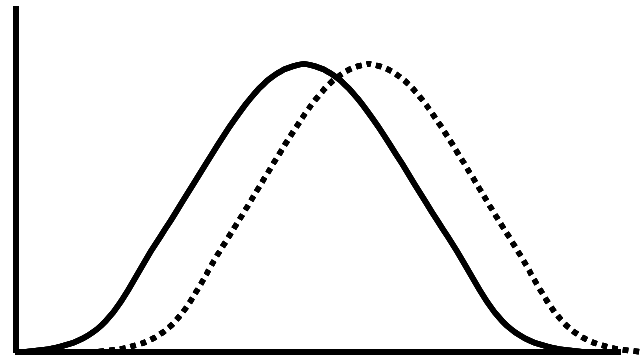
1. Avoid it
2. Reduce it
  - a) *Reduce the probability it will happen*
  - b) *Reduce the impact if it does happen*
3. Transfer it outside the business
  - a) *Insurance*
  - b) *Contracting*
4. Build your internal capacity to bear
  - a) *Increase reserves*
  - b) *Maintain flexibility*
5. Accept it

# Strategy Impacts

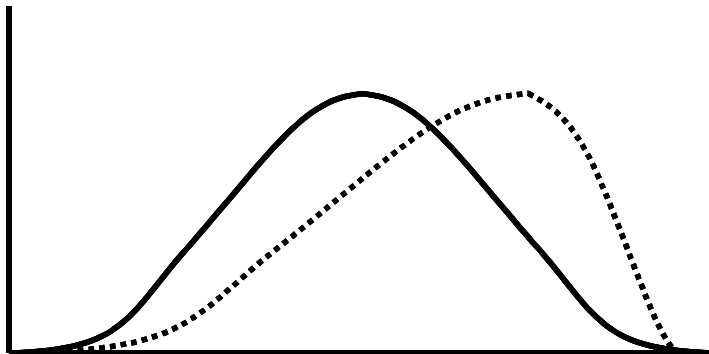
Panel 1: Same Mean, Less Dispersion



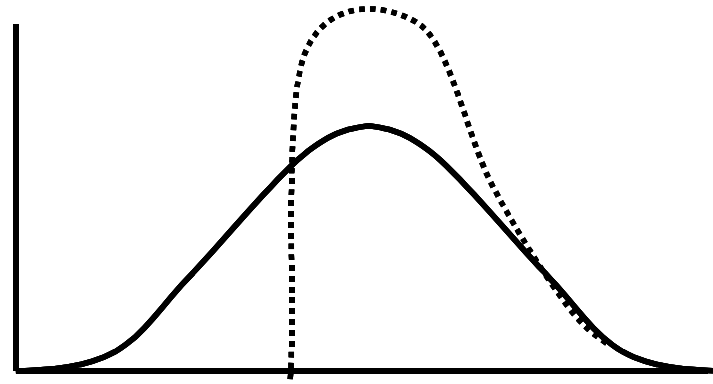
Panel 2: Same Dispersion, Higher Mean



Panel 3: Skewing the distribution



Panel 4: Truncating the Distribution



# Risk Tradeoffs

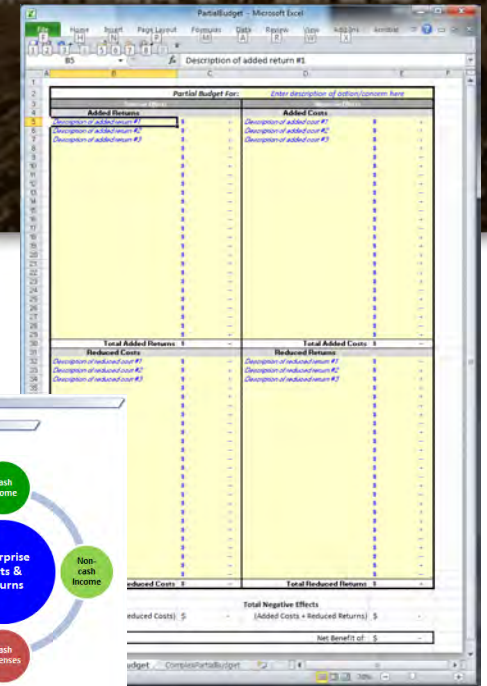
Profits are  
the returns for  
taking risks



- 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 and how much stress are you willing to endure to potentially achieve higher returns?

# Tools to Evaluate Alternatives

- Partial Budget  
*relatively minor changes*
- Enterprise Budget  
*larger changes*
- Whole Farm Budget  
*substantial changes*



Balance Sheet		Liabilities		Income Statement - Accrual AdJ.	
Beginning	Ending	Beginning	Ending		Income
Cash on Hand	25,000	Accounts Payable (E&I)	0	Cash Income (net of outflow sales)	950,453
Crops Held for Sale (E&I)	0	Accounts Payable (E&I)	13,281	Non-Cash Income Adjustments	0
Crops Held for Sale (E&I)	200,000	Current Current Liability (E&I)	11,990	Non-Cash Income (Revised E&I) (Loss)	0
Market Livestock (E&I)	0	Other Current Liability (E&I)	10,000	Capital Gains/Loss on Breeding Livestock	0
Other Current Assets (E&I)	15,000	Short Term Notes (E&I)	0	<b>Gross Revenue</b>	950,453
Invest Owned Crops (E&I)	0	Diff. Tax on Current Assets	0	Cash Expense (Breeding Interest)	444,913
Build & Personal Exp. (E&I)	10,000	Depreciable Livestock Purchase	0	Non-Cash Interest Adjustment	0
Total Current Assets	250,000	Total Current Liab.	34,441	Other Non-Cash Non-Interest Expense	0
Non-Current Assets	292,810	Non-Current Liabilities	25,989	Depreciation (Lump, E&I, E&I)	88,550
Land & Equipment	225,000	Port on T.D. & C.L.	25,989	<b>Total Operating Expense</b>	479,413
Breeding Livestock	0	Diff. Tax on Long Term Assets	0	Cash Int. Exp. - C.C. & C.L.	12,940
Real Estate (Land, Bldg, Impr)	1,040,000	Total Business Liab.	207,647	Cash Int. Exp. - Operating	7,261
Total Business Assets	1,418,000	1,813,910	1,738,047	Non-Cash Interest Expense	1,611
		Change in Equity From Beginning to End of Year	10,890	<b>Total Expense</b>	543,825

<http://RightRisk.org> > Tools  
<http://canifornia.engr.risk.com>

# Enterprise Budget Analysis

**RIGHT RISK**

## Enterprise Risk Analyzer

Version 1.11

[Click Here to Begin](#)

By:  
John P. Hewlett, University of Wyoming  
Dr. Jay Parsons, Colorado State University  
Dr. Stuart Nakamoto, University of Hawaii



	A	B	C	D	E	F	G
1							
2							
3							
4		<b>FARM REVENUE</b>					
5		TOTAL FARM INCOME - CASH	121,759.00	12,380.00	2,802.00	2,306.00	25,040.00
6		TOTAL NON-CASH INCOME ADJUSTMENTS					
7		<b>GROSS FARM REVENUE</b>	121,759.00	12,380.00	2,802.00	2,306.00	25,040.00
8							
9		<b>FARM EXPENSES</b>					
10		FARM EXPENSES - CASH	86,843.00	6,557.00	1,756.00	2,297.00	12,072.00
11		FARM EXPENSES - NON-CASH EXPENSE ADJUSTMENTS	98,550.00	11,245.00	2,709.00	2,536.00	15,331.00
12		<b>GROSS FARM EXPENSES</b>	185,393.00	17,802.00	4,465.00	4,833.00	27,403.00
13							
14		<b>NET FARM INCOME FROM OPERATIONS</b>	<b>(63,634.00)</b>	<b>(5,422.00)</b>	<b>(1,663.00)</b>	<b>(2,527.00)</b>	<b>(2,363.00)</b>
15							
16		<b>Break-Even PRICE Analysis</b>					
17							
18		<b>YIELD PER ENTERPRISE UNIT</b>					
19		<i>Maximum</i>	400	1.75	4	4	4
20		<i>Most Likely</i>	<b>373.97</b>	<b>1.5</b>	<b>3</b>	<b>2.54</b>	<b>3</b>
21		<i>Minimum</i>	350	1	1.5	1.5	1.5
22							
23		<b>BREAK-EVEN PRICE - CASH EXPENSES</b>					
24		<i>Minimum</i>	0.59	32.30	33.77	44.17	29.02
25		<i>Most Likely</i>	<b>0.64</b>	<b>37.68</b>	<b>45.03</b>	<b>69.56</b>	<b>38.69</b>
26		<i>Maximum</i>	0.68	56.53	90.05	117.79	77.38
27							
28		<b>BREAK-EVEN PRICE - GROSS EXPENSES</b>					
29		<i>Minimum</i>	1.27	87.69	85.87	92.94	65.87
30		<i>Most Likely</i>	<b>1.36</b>	<b>102.31</b>	<b>114.49</b>	<b>146.37</b>	<b>87.83</b>
31		<i>Maximum</i>	1.45	153.47	228.97	247.85	175.66
32							
33		<b>Probability Analysis (click button at right)</b>	<a href="#">Graph</a>	<a href="#">Graph</a>	<a href="#">Graph</a>	<a href="#">Graph</a>	<a href="#">Graph</a>
34							



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# Enterprise Risk Analyzer

# RIGHT RISK™

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**RMA**  
Risk Management Agency



UNIVERSITY  
OF WYOMING

Colorado  
State  
University  
Extension



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# Current Federal Insurance Options

## 2012 California Crop Insurance Profile

Insurance Plans Available in California			
Insurable Crops	Insured Acres	Total Acres	Percent Insured
Alfalfa Seed	8,863	39,710	22%
Almonds	861,184	780,000	84%
Apples	8,074	17,500	35%
Avocados	38,082	51,764	60%
Barley	86,423	120,000	54%
Blueberries	1,914	3,900	49%
Cherries	24,591	29,000	85%
Citrus - 8 types of fruit	224,782	269,400	83%
Corn	238,151	610,000	39%
Cotton & ELS Cotton	324,463	367,000	88%
Beans (Dry)	22,704	58,500	39%
Figs	4,593	8,045	57%
Forage Production	133,074	950,000	14%
Grapes (Table)	79,908	85,000	94%
Grapes (Wine)	480,299	506,000	94%
Grain Sorghum	1,034	17,000	6%
Mint	2,214	3,700	60%
Oats	12,598	25,000	50%
Olives	21,830	44,000	49%
Onions	3,404	43,300	8%
Pears	8,295	14,000	59%
Pecans	307	3,600	9%
Pistachios	83,239	153,000	54%
Potatoes	20,458	29,000	71%
Prunes	50,799	58,000	88%
Rice*	458,425	575,000	84%
Rice (Cultivated Wild)	13,879	15,000	93%
Safflower*	35,205	53,000	66%
Stonefruit (Includes Plums)	88,718	115,000	77%
Strawberry	421	38,000	1%
Sugar Beets	3,852	24,500	27%
Tomatoes (Fresh)	14,416	30,000	48%
Tomatoes (Processing)	240,958	260,000	93%
Walnuts	136,397	227,000	60%
Wheat*	382,264	750,000	51%
Dollar Liability Program		Total Dollar Liability	
Adjusted Gross Revenue		\$50,875,841	
Apiculture (Rainfall Index)		\$2,840,438	
Forage Seeding		\$3,317,586	
Livestock Gross Margin (LGM) Dairy		\$111,499,097	
Livestock Risk Protection (LRP) Lamb		\$13,964,099	
Nursery		\$226,227,112	
Pasture, Rangeland, Forage (Rainfall Index)		\$9,159,898	
Raisins		\$173,169,530	
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	Contra Costa, Fresno, Kern, Sacramento, San Benito, Santa Clara, San Joaquin, Stanislaus and Tulare Counties		
Forage (Alfalfa) Seed	Kings and Fresno Counties		
Strawberries	Fresno, Merced, Monterey, Santa Barbara, Santa Cruz		
Citrus Dollar (Navels)	Fresno, Kern, Madera and Tulare Counties		
PRF (Rainfall Index)	All Counties		
Olives	Butte, Colusa, Fresno, Glenn, Tehama, Kern, Madera, San Joaquin, Sutter, Tulare, Yolo		
Pistachios	Alameda, Butte, Colusa, Contra Costa, Fresno, Glenn, Kern, Kings, Madera, Merced, Riverside, San Benito, San Joaquin, San Luis Obispo, Santa Barbara, Stanislaus, Sutter, Tehama, Tulare, Yolo, Yuba		

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Data as of January 2013

<http://>

[www.rma.usda.gov/pubs/2013/stateprofiles/](http://www.rma.usda.gov/pubs/2013/stateprofiles/)

### California Fifteen Year Crop Insurance History

Year	Policies Earning Premium	Net Acres Insured	Liability	Gross Premium	Losses	Loss Ratio
1998	24,068	3,526,388	2,124,396,498	109,881,653	118,272,047	1.08
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	4,010,128	2,690,254,801	142,519,940	117,359,758	0.82
2002	27,200	3,920,007	2,833,818,262	148,356,279	79,069,948	0.54
2003	28,471	3,990,438	2,951,841,797	150,191,677	79,386,135	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	3,858,867,941	188,617,268	88,508,353	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	3,911,845,612	197,920,945	89,455,031	0.45
2009	24,723	3,932,306	4,848,316,411	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	24,728	4,062,207	4,792,588,280	248,898,972	110,209,054	0.44
2012	25,441	4,583,228	5,358,332,573	259,128,046	91,451,022	0.35

\* 2012 numbers are incomplete



**Insurance Plans Available in California**

Insurable Crops	Insured Acres	Total Acres	Percent Insured
Alfalfa Seed	8,663	39,710	22%
Almonds	661,184	780,000	84%
Apples	6,074	17,500	35%
Avocados	36,082	51,794	69%
Barley	86,423	120,000	54%
Blueberries	1,914	3,900	49%
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<b>Program</b>	<b>County Availability</b>		
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Apiculture (Rainfall Index)	All Counties		



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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.*

# 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

 United States Department of Agriculture  
 **RMA**  
Program Aid Number 1906

*A Risk Management Agency Fact Sheet*

## Adjusted Gross Revenue (AGR)

November 2010

**Adjusted Gross Revenue (AGR)** crop insurance provides producers with protection against low revenue from natural causes and market fluctuations. The insurance covers income from agricultural commodities, as well as income from animals, animal products, and aquaculture species reared in a controlled environment.

**Adjusted Gross Revenue:**

- Uses your historical Internal Revenue Service (IRS) tax form (Schedule F or equivalent forms) information and an annual farm report as a base;
- Provides insurance for multiple agricultural commodities in one product;
- Establishes revenue as a common denominator for the production of all agricultural commodities.

**AGR Timeline**

**Sales Closing Date:** You must buy or cancel your policy on or before January 31.

**Beginning of Insurance:** 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.

**Contract Change Date:** You must make any and all changes to your insurance contract on or before August 31.

**Insurance Year:** Defined as a calendar year in which the sales closing date occurs and includes both calendar-year and fiscal-year filings (corresponding to the policyholder's IRS tax period).

**Claims:** Claims are settled after taxes are filed for the insurance year.

**Availability**

AGR insurance is available in: California (selected counties), Connecticut, Delaware, Florida (selected counties), Idaho (selected counties), Maine, Maryland (selected counties), Massachusetts, Michigan (selected counties), New Hampshire, New Jersey, New York (selected counties), Oregon (selected counties), Pennsylvania (selected counties), Rhode Island, Vermont, Virginia (selected counties), and Washington (selected counties).

**Eligibility**

To meet the eligibility criteria for AGR coverage, you must:

- Be a U.S. citizen or resident;
- File a calendar-year or fiscal-year farm tax return;
- Produce agricultural commodities primarily in pilot counties (may include income from contiguous non-pilot counties);
- Have liability not exceeding \$6.5 million;
- Have had same tax entity for 7 years (filed 5 consecutive years of Schedule F tax forms, plus previous year and insurance year) unless a change in tax entity is reviewed and approved by your insurance provider;
- Purchase traditional Federal crop insurance, if available, when more than 50 percent of your expected income is from insurable commodities (when you purchase both AGR and other crop insurance plans, the AGR premium will be reduced); and
- Earn no more than 35 percent of expected allowable income from animals and animal products.

**Insured Causes of Loss**

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. No payment will be made for losses due to negligence, mismanagement, or wrongdoing by the policyholder, the policyholder's family, household members, tenants, employees, or contractors; crop abandonment; bypassing of acreage; or other causes listed in the insurance policy.

**AGR Application Information**

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);
- An annual farm report for the insurance year listing each commodity to be produced, the expected quantity of the commodity to be produced, and the expected price for the commodity;
- Beginning inventories, if applicable; and
- An indication of changes that will result in lower income for the insurance year than the historical average.

This fact sheet gives only a general overview of the crop insurance program and is not a complete policy. For further information and an evaluation of your risk management needs, contact a crop insurance agent.

## California County Availability

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

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Getting on Track:  
Better Management Through  
Basic Ag Records

Insuring Success for  
Wyoming Agriculture 2006  
Pasture, Rangeland, Forage (PRF)  
Pilot Insurance Program

Getting on Track:  
Better Management Through Basic  
Financial Statements

Getting on Track:  
Understanding  
Financial Performance

## Applied Risk Management in Agriculture

Dana L. Hoag, editor  
James C. Ascough II, PhD  
Elhab Fathelrahman  
Duane Griffith  
John P. Howlett  
Catherine Keske  
Jay Parsons  
James Pritchett  
Aaron Sprague

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### Risk Navigator

STRATEGIC RISK MANAGEMENT

- Home
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- Textbook
- Toolbox
- Example Farm
- Ag Survivor
- Instructors
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# QUESTIONS?

University of California  
Agriculture and Natural Resources

**Thank You!**

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