

Risk Management Education for Alternative Crops

Business Risk; Production Risk; Price Risk

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Risk Management Education for Alternative Crops

Business Risk and Strategic Issues

Related to the Adoption of Alternative Crops

November 2001

OUTLINE

1. **Managing Business Risk**
 - a. **Specialty Crops?/Farm Programs**
 - b. **Economic Considerations For Expanded Crop Rotations**
 - c. **Income Diversification**
2. **Managing Strategic Risks**

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Managing Business Risk

Specialty Crops?

1. **Why Consider Producing Specialty Crops?**
 - a. **Increase Net Farm Income**
 - b. **Also, Want To Limit Risk Exposure**
 - c. **Can Both Be Done?**
 - d. **Can Diversification Be Achieved?**

Managing Business Risk

Specialty Crops?/Farm Programs

1. **Farm Program Considerations**
 - a. **1990 FACT Act**
 - b. **15% Normal Flex Acres**
 - c. **10% Optional Flex Acres**
 - d. **Allowed For Sunflower Seed, Safflower, Canola, Mustard Seed, Flax Seed Production**

Managing Business Risk

Specialty Crops?/Farm Programs

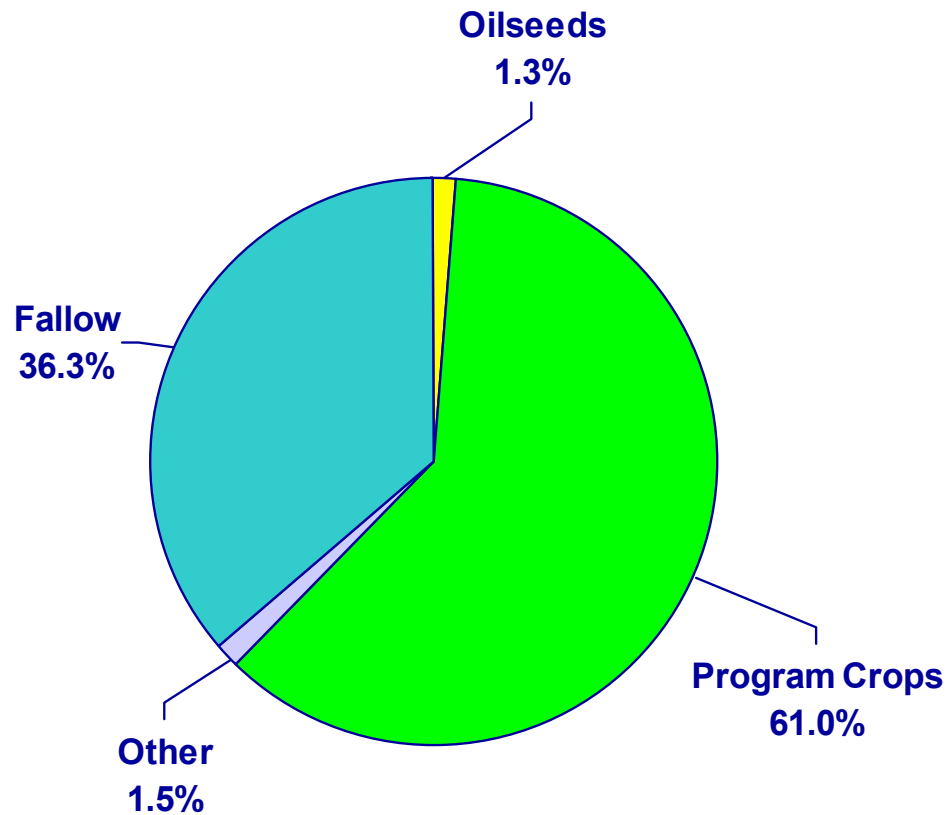
1. **Farm Program Considerations**
 - a. **1996 FAIR Act**
 - b. **Near Total Planting Flexibility**

Managing Business Risk

Specialty Crops?/Farm Programs

1. **Results of This Flexibility?**
 - a. **Only Minor Changes in Cropping Acreages Have Occurred In Wyoming**

2000 Crop And Fallow Acreages In Montana



Oilseeds:

Flaxseed
Canola
Mustard
Safflower
Sunflower

Program Crops:

Winter Wheat
Spring Wheat
Barley
Corn
Oats

Other:

Dry Beans
Pinto Beans
Chickpeas
Lentils
Dry Peas

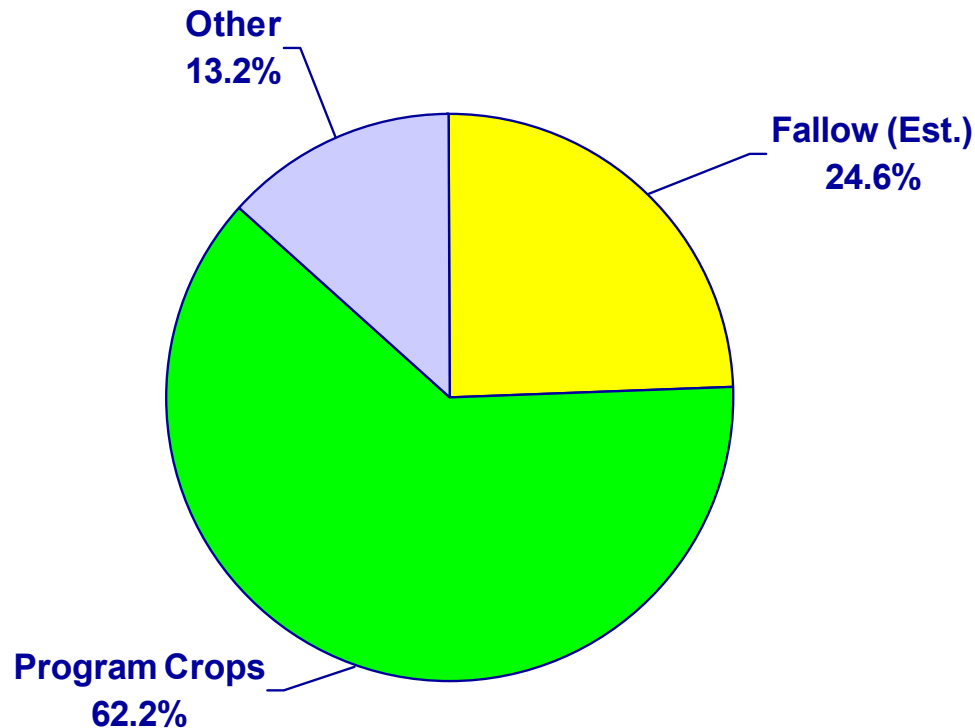
2000 Crop And Fallow Acreages In Wyoming

Program Crops:

Winter Wheat
Spring Wheat
Barley
Corn
Oats

Other:

Dry Beans



Other Oilseeds:

Flaxseed
Sunflower

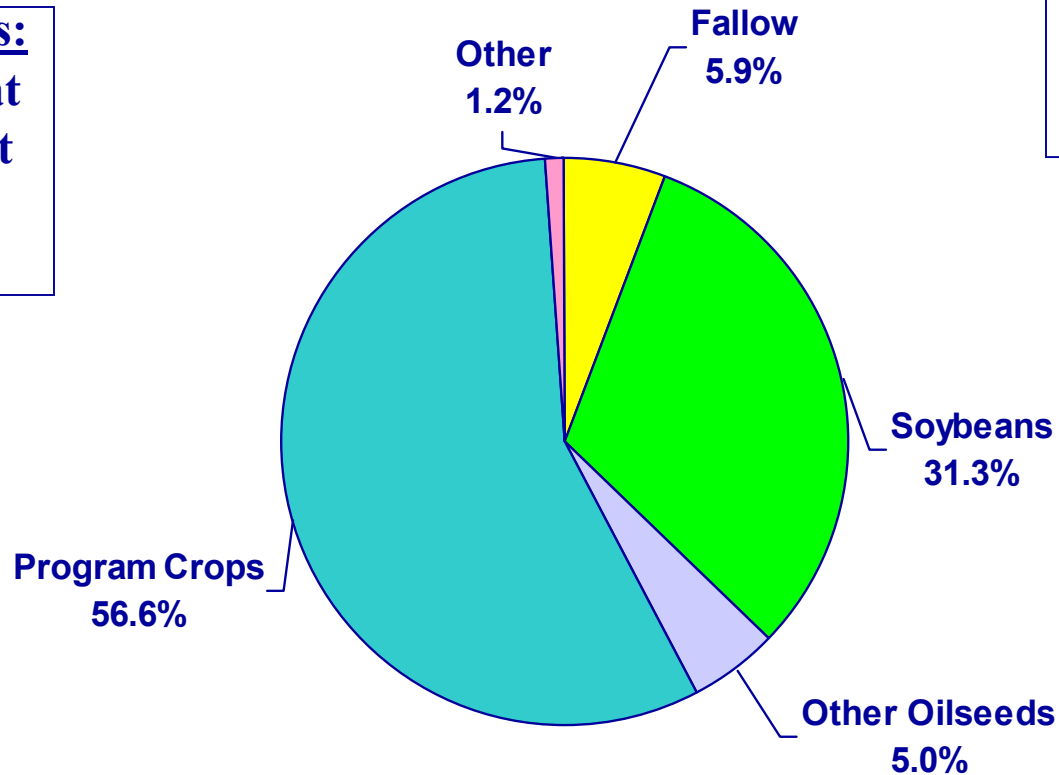
2000 Crop And Fallow Acreages In South Dakota

Program Crops:

Winter Wheat
Spring Wheat
Barley
Corn

Other:

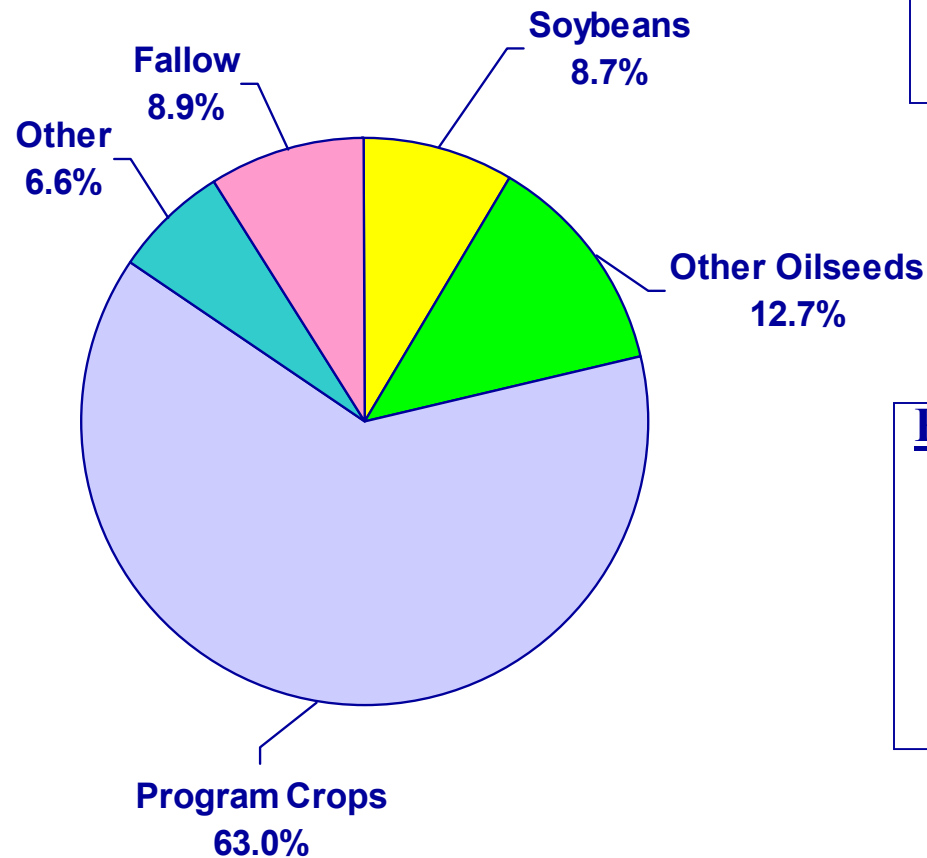
Rye
Sorghum
Sunflower Seed



Other Oilseeds:

Flaxseed
Sunflower

2000 Crop And Fallow Acreages In North Dakota



Other Oilseeds:

Flaxseed
Canola
Sunflower

Other:

Dry Beans
Potatoes
Rye
Lentils
Dry Peas
Sugar Beets

Program Crops:

Winter Wheat
Spring Wheat
Barley
Corn
Oats

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Managing Business Risk

Economic Considerations

1. **Is It Profitable To Produce Specialty Crops?**
 - a. **Production Costs/Income?**
 - b. **Market Prices?**

Managing Business Risk

Consider Returns Over Operating and Machinery Costs on a 2,000 Acre Farm

<u>Land Use</u>	<u>Acres</u>	<u>Net Returns</u>	
		<u>Per Acre</u>	<u>Per Crop</u>
WW (fallow)	220	\$55.75	\$12,265
WW (recrop)	120	36.46	4,375
SW (fallow)	520	59.03	30,696
SW (recrop)	100	28.73	2,873
Barley (fallow)	100	33.92	3,392
Barley (recrop)	100	13.44	1,344
Fallow	<u>840</u>	(19.62)	<u>(16,480)</u>
Totals	2,000		\$38,465

Managing Business Risk

Enterprise Budget For Exotic Peas

<u>Income/Cost</u>	<u>Price</u>	<u>Quantity</u>	<u>Amount</u>
Gross Income	\$0.06/lb	1,800lbs	\$108.00
Input Cost			39.56
Mach Oper Cost			19.30
Oper Interest			<u>2.94</u>
Total Operating			61.80
Machinery Ownership			<u>28.28</u>
Returns			<u>17.92</u>

Breakeven Yield @ \$0.06/lb 1,500lb/ac

Breakeven Price @ 1,800lbs \$0.05/lb

Managing Business Risk

Consider Returns Over Operating and Machinery Costs on a 2,000 Acre Farm with Peas

<u>Land Use</u>	<u>Acres</u>	<u>Net Returns</u>	
		<u>Per Acre</u>	<u>Per Crop</u>
WW (fallow)	220	\$55.75	\$12,265
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Barley (fallow)	100	33.92	3,392
Peas (recrop)	100	17.92	1,792
Fallow	<u>840</u>	(19.62)	<u>(16,480)</u>
Totals	2,000		\$38,913

Managing Business Risk

Economic Considerations

1. **Is It Profitable To Produce Specialty Crops?**
 - a. **Production Costs/Income**
 - **Net Returns Over Operating And Machinery Costs Are Almost Identical (\$38,465 versus \$38,913)**

Managing Business Risk

Economic Considerations

1. **Is It Profitable To Produce Specialty Crops?**
 - a. **Production Costs/Income?**
 - b. **Market Prices?**

Managing Business Risk

Economic Considerations

1. **Where Do We Obtain Credible Market Price Information?**
 - a. **Oilseeds Prices Are Available (AGWEEK)**
 - b. **Other Crops: Internet Sites, Direct Buyer Contacts**

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Managing Business Risk

Diversification Issues

1. **Actions Which Reduce Risk Without Loss of Mean Returns**
2. **Is the Adoption of an Additional Crop a Diversification Strategy?**
3. **Maybe:**
 - a. **Stock Portfolio Example**

Managing Business Risk

1. **Two Diversification Aspects of Additional Crop Enterprises**
 - a. **Rotational Effect: Can *Enhance* Returns and Productivity**
 - » **Improve Soil Characteristics**
 - » **Break Weed/Insect Cycles**
 - » **Reduce Disease Vectors**
 - » **Source of Nitrogen**

Managing Business Risk

b. Diversification Effects:

- » **Additional Enterprises can Reduce the *Variation* of Returns While Maintaining Average Returns**
- » **But, Diversification Can Increase Costs**
 - **Machinery Complements**
 - **Timeliness**
 - **Learning Curves**

Managing Business Risk

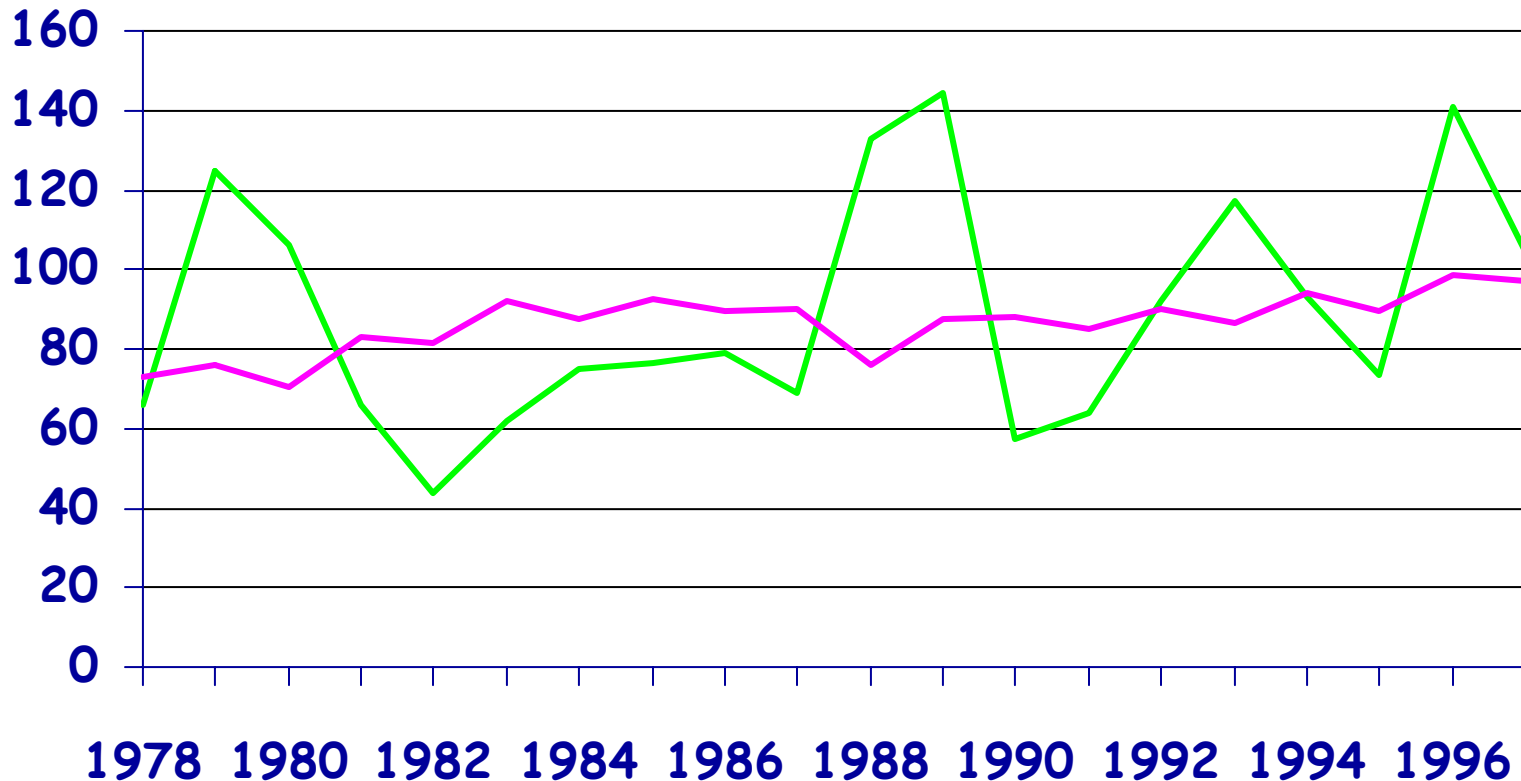
Example:

1. **Consider Returns to Land from 2 Crops**
 - a. *Exotic Peas*: \$89/acre
 - b. **Malting Barley**: \$86/acre
2. **Own a 200 Acre Farm**
 - a. **Rent to a Producer of Malting Barley?**
 - b. **Rent to a Producer of Both in the Interest of Diversification?**

Returns to Specific Crops

Returns to Land (\$/acre)

\$/acre



— Exotic Peas — Malting Barley

Managing Business Risk

Average Returns For the Farm

1. **200 Acres of Malting Barley**
 - a. **$\$86 * 200 \text{ Acres} = \$17,200$**

2. **100 Acres of Malting Barley and 100 Acres of Exotic Peas**
 - a. **$(\$86 * 100) + (\$89 * 100) = \$17,500$**

3. **About the Same Returns**

Managing Business Risk

Variance of Returns

1. 200 Acres of Malting Barley

a. $V(k_1 Y_1) = k_1^2 * \sigma_1^2$

b. $(200)^2 * 56 = 2,240,000$

Managing Business Risk

Variance of Returns

1. **100 Acres of Malting Barley and 100 Acres of Exotic Peas**

a. **Linear Combination of Random Variables**

$$2. \quad V(Y_1 Y_2) = (k_1^2 * \sigma_1^2) + (k_2^2 * \sigma_2^2) + (2k_1 k_2 \sigma_{12})$$

a. Where σ_{12} is the covariance of $Y_1 Y_2$

b. $(100^2 * 56) + (100^2 * 845) + (2 * 100 * 100 * 0.204)$

c. Which Equals **8,510,080**

3. **Approximately 4 times the Variation of Malting Barley Only**

Managing Business Risk

Variance of Returns

1. **200 Acres Malting Barley = 2,240,000**
2. **100 Acres of Malting Barley and
100 Acres of Exotic Peas = 8,510,080**
3. **180 Acres of Malting Barley and
20 Acres of Exotic Peas = 2,153,869**

Managing Business Risk

Why Is Income Variability Increased?

1. **Many Crops Face Similar Production Risks**
 - a. **Must Consider The Ability To Manage Production Risk**
 - **Crop Insurance?**
 - **Herbicides?**
 - b. **Must Consider Opportunities To Manage Price Risk**
 - **Futures Markets?**
 - **Contracting?**
 - **Storage?**

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Managing Strategic Risk

1. **In Competitive Markets, Entry and Exit of Firms**
 - a. **Causes Industries to Earn Normal Returns**

2. **However, Within Industries**
 - a. **Some Firms Earn Below-Average Returns**
 - b. **Some Firms Earn Above-Average Returns**

Managing Business Risk

1. **What Determines The Difference?**
 - a. **Luck**
 - b. **Capitalization**
 - c. **Innovation**
 - d. **Management Expertise**
 - e. **Selected Management Strategy**
2. **Strategic Business Management is Used to Generate a Competitive Advantage**
 - a. **Generate Above-Average Returns**

Managing Business Risk

1. **Three Strategies That Can Lead to a Competitive Advantage**
 - a. **Low-Cost Producer Strategy**
 - b. **Differentiated Product Strategy**
 - c. **Focus Strategy**

Managing Business Risk

Low-Cost Producer Strategy

1. **Requires That a Firm Be THE Lowest Cost Producer (*Private Label Bread*)**
 - a. **Adoption of Technology**
 - b. **Increase Productivity**
 - c. **Reduce Costs**
 - d. **Typically Employed By Agricultural Producers**
 - e. **The Reason Why Real Commodity Prices Continue to Decline**

Managing Business Risk

Differentiation Strategy

1. **Produce a Truly Differentiated Product**
(Sweetheart Bread)
 - a. **Quality**
 - b. **Convenience**
 - c. **Consistency**
 - d. **Service**
 - e. **Not Typically Used by Agricultural Producer**
2. **Differentiation is Costly and Risky**

Managing Business Risk

Focus Strategy

1. **Concentrating on a Specific (Niche) Market (*Wheat Montana Bread*)**
 - a. **Provider of Specialty Products to a Market Segment**
 - » **Differentiated**
 - » **Low-Cost**
2. **Increased Risk Comes with Dependence**
 - a. **Single-Source Suppliers**
 - b. **Single-Source Buyers**

Managing Business Risk

BEST Strategy?

1. **Depends**
 - a. **Type of Industry**
 - b. **“Life Cycle” of the Industry**
 - c. **Number of Market Participants**
 - d. **Number of Competitors**
 - e. **Size of Industry**

Managing Business Risk

WORST Strategy?

1. **Anything “In The Middle”**
2. **Can’t Out-Compete Anyone**



Managing Business Risk

Defending a Strategic Position

1. **Developing and Implementing Strategic Plans is Costly and Risky**
2. **Doing So Without Considering Defensive Positions is a Recipe for Failure**
3. **Must Develop a Defensive Strategy**
 - a. **Agricultural Producers are Certainly Not Used to Considering This**

STRATEGIC MANAGEMENT

Purposes of a Defensive Strategy

1. **Make It Difficult for Others to Compete**
2. **Strengthen Current Market Position**
3. **Protect Developed Competitive Advantages**
4. **Maintain Present Market Share**

SUMMARY

- 1. Adoption Of Specialty Crops May Provide For Income Diversification**
- 2. Producers Must Be Able To Manage (Or Accept) Additional Business, Production, and Price Risks**
- 3. Strategic Management Considerations**

QUESTIONS?

