Managing Risk

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In the previous session we learned about the various categories of Risk in agriculture. Of course the whole point of talking about risk in this educational series is so that we can talk about managing risk. Remember, managing risk is not about trying to reduce or get rid of all risk, it is about choosing strategies that "optimize" the degree of risk that a particular operation chooses to take on.

General Risk Management Strategies

- Avoid
- Reduce
- Retain
- Transfer
- Obtain More Information

So how do we respond to risky prospects? The answer, of course, depends on the situation. There are some risks that we want to avoid all together. Events that are likely to happen often (high probability), and have a large impact on the business when they happen. An example might be planting a crop that has a history of failure in your area a large percentage of the time. Costly to put out (big impact), and happens often (high probability). We just avoid that risk by not planting that particular crop. For events that happen less frequently, an appropriate management response might be to try to reduce the impact if it does happen. For example, we try to keep equipment in good repair, and we keep some spare parts on hand so if we have a common breakdown we can fix it quickly and reduce the "downtime" impact. We employ sound production practices, vaccinate livestock, etc. to reduce the impact if a certain disease hits our area. We do have to decide how much risk we want to "retain" so that we have some chance of earning a profit (we don't spend more than we have any potential of making just trying to shed all risk potential). We know that there is a chance that even the most reliable crops for our area will not perform well if we have an exceptionally bad year, but that doesn't mean we don't plant anything. We know that there is a chance we could have a severe drought and not have any forage for our cattle, but we still go about our business and start the year with our cow herd intact (we may have to make some changes mid year if things start to go bad in either example. The general idea is that we retain risks associated with events that don't have a large impact on the business, especially if those events are not very likely to happen. In other words, we retain the risks that we think we can afford to weather, or that we can manage through as they

evolve. Another management strategy is to transfer risk to others. Of course the most common example of this is buying insurance. We buy insurance to protect against high impact events that could happen, like a building fire, or a complete crop failure. Events that would financially severely impact our business. Another example of risk transfer is forward price contracting, or many of the commodity hedging strategies.

One generic overall risk management strategy that pertains to about everything is obtaining more knowledge about the potential source of risk. The more we know about things, the better we are able to assess probabilities, assess impacts, and develop specific management strategies.

Management Strategies

- Production Risk
  - Enterprise Choice
  - Technology
  - Yield Insurance
  - Revenue Insurance
  - Contract Production
  - Diversification
  - Geographic Dispersion
  - SWOT analysis, Management changes
- Marketing Risk
  - Marketing Plan, review often
  - Futures Contracts
  - Options Contracts
  - Cash Contracts
  - Revenue Insurance
  - LRP
  - Contract Production

Under each general category of risk, we can list specific courses of action or things that we can do to help either manage, transfer, or reduce exposure to that particular risk if we determine that is what is needed. For example, Production risk can be “managed” by choosing enterprises that are more or less risky, by equipment or technology adoption choices, by purchasing various levels of Yield or Revenue insurance (actually crop insurance choices are becoming more and more complex in terms of the number of choices available. Its not only level, but unit structure, choosing to replace yields in the history or not, etc.) Depending on the type of contract, production contracts can be a way of managing certain types of production risk, but be careful because again depending on the type of contract it could actually expose one to more production risk (having to fill a contract when there is a production shortfall). Diversification in terms of enterprise mix may yield some risk reduction, but will be of most benefit if the enterprises are not similar, so when conditions are unfavorable for production of one enterprise it is less likely to impact the other. In statistical terms we say that in order to get the maximum risk reduction benefit from diversification we want to choose enterprises that are “uncorrelated” Geographic dispersion can help, as weather events may not impact all of your farm locations the same. The strategic SWOT analysis discussed in an earlier segment can help identify management changes that can be made to improve production certainty.

The over arching way to manage marketing risk is to have a plan. Set marketing targets, with timing objectives and triggers clearly spelled out to take the emotion out of the marketing function. Futures, Options, Cash contracts, Revenue insurance, LRP for

livestock producers, and certain types of production contracts are all ways to transfer some marketing risk to other parties. Of course the management strategies have a cost associated with them.

Management Strategies

- Financial Risk
  - Debt Management (comfort level, credit reserves, etc.)
  - Record Keeping and Analysis (often)
  - Off Farm Income Sources (emergency sources)
  - Interest Rate Hedging
  - Insurance
- Financial Risk (cont)
  - Family Living Cost
  - Overall Business Plan
  - Enterprise Diversification
  - Transition and Estate Planning
  - Advisors (help navigate financial obstacles)

Note that we have devoted an entire slide to strategies for managing financial risk. Remember in the previous session we pointed out that producers often under-estimate the importance of financial risk, so we want to be sure to emphasize it here. Debt level decisions are a perfect example of the choice regarding how much risk to " retain" As debt levels increase of course the impacts of low income years are magnified because debt payments still have to be made. One way to keep on top of financial risk is to keep financial records up to date and use the tools discussed in other segments of this educational series to evaluate financial position and performance often (essentially on an on-going basis). The ability to detect evolving problems early and develop response strategies early is a characteristic of successful managers. Of course one way to manage the financial risk inherent in any family business, is to have other income or sources of funds that can be tapped if things go south (temporarily) in the business. The vast majority of U.S. farms and ranches have off farm income sources, the issues how large are those sources relative to the potential cash shortfalls that may occur on the farm. Similarly, there may be some opportunity to manage the level of family living withdrawals from the farm business when things get a little tough. Some components of financial risk can be transferred to others through insurance, or through interest hedging or locking in, for example. That last one is on the minds of a lot of producers right now, what will happen to interest rates in the near future? Enterprise diversification can help manage not only production risk, but financial risk as well. Finally, having a sound overall business, plan, or longer-term having sound transition and or estate planning components of that overall business plan, and constantly monitoring progress toward the

goals and objectives spelled out in those plans along with the help of an appropriate team of advisors is a way to manage the risks inherent in a family business.

Management Strategies

- Institutional Risk
  - Actively participate in Trade Associations, etc.
  - Develop Good Relationships in Community
- Legal Risk
  - Contracting
  - Insurance
  - Important Documents
  - Compliance
- Human Resource Risk (both categories)
  - Work Load Planning
  - Transition and Estate Planning
  - Organizational Chart and Communication
  - Cross Training for Critical Tasks
  - Labor Backup Plan

Institutional risk, or the risk that some policy will be imposed or changed that will impact your business, is a difficult one to manage. Sometimes the best you can do is develop contingency plans so that you have thought about how you will respond in advance. Some things you can include being actively involved in trade associations or farm groups that advocate and speak on your behalf at the policy level, and locally maintain good relationships and be known as a "good community citizen" so when local policies such as zoning are being discussed you will not automatically be seen as the "bad" guy.

The impact of bad things happening in the legal category can be managed by having well written contracts for all multi-party transactions such as leases or sales agreements. Maintaining the appropriate level of liability insurance is important, and knowing where all important documents are kept, and making sure they are all up to date is also important. Make sure your business is in compliance with all the regulations that pertain to it. This is an increasingly difficult task in this era of increasing regulations.

The keys to mitigating the impacts of human risks (both personal, and personnel) are communication and planning. Having that organizational chart in place that we talked about in an earlier session, that spells out who is responsible for what, and who reports to who else within the operation, along with open communication channels can go a long way toward avoiding human resource disasters. Having a workload planning calendar, and a labor backup plan such as family members or others who can be called upon at the last minute to perform critical tasks is important. Having more than one

person within the organization trained to perform every task is essential. Finally, from a long-term perspective, having a sound management transition plan in place will serve the family business well.

Which Strategies Are Right For You?

- Depends on
  - Ability to bear risk
  - Willingness to bear risk

Now the hard part, which is figuring out how much risk you want to retain, vs how much you want to manage in some way (reduce, transfer, avoid, etc.) in each category. In other words, which of the previously mentioned strategies (or others that we did not cover in our list of examples) do you want to employ, and to what degree.

The answer to that question is different for every farm business, and every individual for that matter. It depends on two criteria.

Your ability to bear risk

And your willingness to bear risk

Ability to Bear Risk

- Ability to Bear Risk
  - Depends on:
    - financial reserves
    - cash flow commitments
  - In general, farms with a low debt to asset ratio and high current ratio have more ability to bear risk.

I simplistically think of "ability to bear risk" as the thickness of your wallet. How much money you have that you could potentially afford to lose. A function of your cash or cash equivalent reserves, and how much of that cash is already committed to pay others.

As a general rule, farms that are in a low debt position, that also are in a very strong liquidity position have more "ability" to bear risk. They can afford to lose more without putting the business at risk.

However, that does not mean that they want to put all that they have available at risk. That is the second question or criteria.

Willingness to Bear Risk

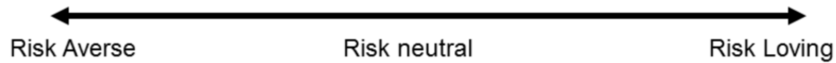
- Risk attitudes or Preferences
  - Individuals differ concerning their attitudes toward bearing risk.
  - These attitudes are a key factor in explaining why individuals choose different strategies when faced with similar risky decision problems
  - Risk preference surveys are available to help you get a handle on your risk preference

How willing are different individuals to take on (retain) risk? That is a question of willingness to bear risk, also known as risk attitude or risk preference.

This is the harder component to quantify, because everyone is different. When faced with the same risky decision, different individuals may make very different choices because they think differently about engaging in risk behavior. If you search online you can find a variety of different surveys and other tools to try to help figure out where you fall on the continuum from very risk averse to extremely risk loving.

Risk Preferences

- Individuals can be categorized based upon their attitudes toward bearing risk



- Risk preferences/attitudes really need to be thought of as a continuum

It is a continuum, however even the same person may not be at the same spot on the line all the time for all situations.

With that said most of us probably have a fairly good idea of where we fall relative to others we know for the common decisions we face. Most (but certainly not all) people are slightly to somewhat risk averse in most decision make situations, meaning they are willing to take on (retain) some risk, but only if there is some expected payoff (reward, or profit potential) for doing so. There is at least some reasonable chance that they will make a profit from taking the risk. It is the magnitude of this expected reward or payoff relative to the size of the overall risky proposition that determines the degree of risk preference or aversion. Are we talking about spending a few dollars to experiment with a new crop or production practice on a small piece of land, or are we talking about spending hundreds of thousands on a new business venture.

Risk Preferences

- Willingness to Bear Risk
  - Factors that influence the amount of risk farmers are willing to take:
    - age
    - equity
    - financial commitments
    - past financial experiences
    - the size of gains and losses involved
    - familiarity with the risky proposition
    - personal characteristics of manager

Personal characteristics such as age, generation, past financial experiences, wealth, and a whole list of other things help determine any given individual's general attitude toward risk.

Ability and willingness become a little bit co-mingled here because the magnitude of other financial commitments that need to be paid in order for the business to survive is listed as a criterial both here for willingness to bear risk, and also for ability to bear risk as mentioned earlier. Certainly if suffering a large loss if things go bad would put the business in severe hardship, the manager will become more risk averse and employ risk management strategies to help assure that would not happen in a particular situation.

For individual situations, the degree of willingness to bear risk may also change depending on the magnitude of the risky situation. For example, an individual may be willing to take a risk if the maximum loss that could possibly occur if things go bad is only a few dollars, but that same person may become very risk averse and employ a variety of risk management strategies if the maximum loss that could occur without any mitigation strategies in place is thousands, or hundreds of thousands of dollars (lose the entire value of the wheat crop if drought or freeze wipes it out, for example). Finally, as individual learn more about a risky proposition, they in general tend to be willing to

take on a little more risk.

Management Strategies

- Evaluation of benefits
  - Determine the degree to which risk can be reduced
  - Valuation of reduction in risk
    - Strongly risk averse: high value
    - Slightly risk averse: low value
- Evaluation of costs

In all cases from a management decision perspective it boils down to comparing expected benefits vs expected costs. The stronger the degree of risk aversion, the higher the value that will be placed on the ability to reduce, transfer, or avoid the risky situation. The costs of risk mitigation strategies are generally more straight forward. (what does it cost to purchase this particular level of insurance coverage, for example).

As a general rule, we employ risk management strategies to in some way mitigate the risks that we don't think we can afford to retain internally. If the benefits of risk reduction appear to outweigh the costs of a particular risk management strategy, we employ that strategy. In reality, farm managers are faced with so many different risky decisions that they need to become skilled at making these benefit vs cost choices fairly quickly in many cases, so that they save an adequate amount of their valuable management time to formally collect information and evaluate the really big choices.

Downside Risk In Agriculture

- In Reality, Managers Think About Risk Differently Than Analysts
- Downside Risk
  - Focuses on low outcomes rather than total variability.
  - Example Measures:
    - Probability that enterprise return to labor and management is negative.
    - Probability that return on equity is negative (# of years out of ten, for example).

As a final thought for this session, and to expand a little bit on a point made earlier, surveys and other research has confirmed what may be obvious when we stop and think about it. That is, the way a business manager thinks about risk is a little different than the way an analyst or a statistician might think about risk. The analyst is likely thinking about the total range or variability of possible outcomes, including observations that might be better than expected as well as observations that might be worse than expected. Business managers may be well aware that this is how risky situations are described, but in reality they may also only really be concerned about the outcomes on the negative side of the range of possibilities. For example, in a given year maybe we expect calf prices to be $2.00 per pound, with a 25% chance they could be above $2.50 and a 25% chance they could be below $1.50. Managers sometimes don't worry too much about employing risk management strategies to mitigate the impact on their business if prices are above $2.50, but rather thy focus on what would happen if prices were below $1.50. I some cases the strategies they employ to manage the downside impacts might also negate the chance of gain if the outcome is abnormally positive (straight hedging, or flat price contracting, for example), but in other cases not. It might be perfectly logical for the manager to pay a premium for a risk management strategy that mitigates the downside risk, while leaving some ability to capture the benefits of a positive outcome.

These sessions have just been an overview. Many other resources are available to assist managers in the difficult task of evaluating and managing risks appropriately.