



ALABAMA AGRICULTURAL & MECHANICAL UNIVERSITY SMALL FARMERS RESEARCH CENTER

FACT SHEET

Production Risk

Any production related activity or event that is uncertain is a production risk. Agricultural production implies an expected outcome or yield. Variability in outcomes from those expected creates risks to your ability to achieve financial goals.

Farmers have three choices in dealing successfully with production risks. One, they can control or minimize risk through management practices by doing a better job of what they currently do. Two, they can reduce production variability by making changes such as diversifying, integrating, applying technology, etc. Or three, they can transfer production risk to someone else through contracting, purchasing insurance, etc.

For decades, agricultural risk has been synonymous with production risk. Reducing variability in expected yields has been a major focus of farm managers. Over time, improvements in technology and production practices have helped decrease agronomic risks and increase yields. For example, genetic engineering has produced new seed varieties that are disease and drought resistant, commercial petroleum-based fertilizers were manufactured increasing yields, effective herbicides and insecticides were developed controlling weeds and bugs, and a whole host of improved production and management practices have been disseminated.

The same underlying changes that are driving the increase in economic risks are also changing the nature of production risks. Not only is yield variability still a formidable production risk, but also the industrialization of agriculture is impacting the entire agricultural production sector. Changes that initially started in the livestock sector are now starting to revolutionize the grain industry. These structural shifts mean that farmers are vulnerable not only to the vagaries of weather and Mother Nature, but are vulnerable to economic forces that exacerbate traditional production risks.

MANAGEMENT ALTERNATIVES

Farmers have three choices in dealing with production risks

The first is to essentially continue farming as before, but try to control or minimize risk through management practices. This includes such things as being timelier in performing operations, practicing preventative maintenance, and monitoring production activities more closely to ensure problems are detected early enough to take corrective measures.

The second choice is to reduce production variability. Generally, this means reconfiguring the farm by adding or changing enterprises through diversification or integration, and applying improved technology as appropriate. Remaining flexible is essential to being able to respond to changing economic conditions more easily. A big part of reducing production variability is to actively plan for the future and prepare a contingency plan so one knows what to do when undesirable events take place.

The third alternative in managing production risk is to transfer some or all of the risk to someone else. Contracting and insurance are two effective tools to transfer risk.

CONTROL OR MINIMIZE RISK

There are numerous examples of how risk can be minimized or controlled through improved management practices. Chemical and fertilizer use is all about controlling (or reducing) the variability in production. Irrigation is very effective in minimizing the effects of low rainfall or drought.

Timeliness of operations has a very large impact on most production activities. Frequently, about the only difference between successful farmers and less successful farmers, who engage in the same production enterprises, is that the successful farmer is timelier in getting things done.

Practicing preventative maintenance is typical of farmers who do a good job of managing production risks through minimizing or controlling as best as possible the likelihood of negative events taking place. Because some risks are so difficult to anticipate and control, controlling those risks one can, takes on added importance.

REDUCE VARIABILITY

Diversification

Diversification is an effective way of reducing income variability. It is the combining of different production processes. Effective diversification occurs when low income from one enterprise is offset by satisfactory or high incomes from other enterprises. It typically reduces large year-to-year variations in income and may ensure adequate cash flow for meeting production costs, debt obligations, and family living needs. However, acquiring new overall knowledge about an alternative business, new crop production expertise, and new equipment for a new crop may be costly. Expanding into new areas or experimenting with new crops will increase capital investment requirements. For instance, diversification can include different crops, combinations of crops and livestock, different end points in the same production process (such as different selling weights), or different types of the same crop.

Through crop diversification, as a production risk management tool, farmers and ranchers may acquire another marketing tool, providing another way to enhance profitability. Direct marketing of the diversified crop to consumers is becoming much more common,

including farmers' markets, roadside stands, and community-supported agriculture arrangements.

The benefits of diversifying income sources depend on the variability of returns faced by a producer. Diversification can also be achieved by having several income sources, such as on-farm businesses and off-farm income (employment, investments or savings), to help counter negative fluctuations in farm income.

Flexibility

Farmers commonly attempt to maintain flexibility in their operations as a production response to variability. Increasing specialization of livestock facilities and equipment limits flexibility among types of livestock, and often there is a similar situation with respect to crops. Farmers are likely to maintain flexibility more in their marketing and financial decisions than in the type and size of production activities. Often the costs associated with flexibility in production are higher than most farmers are willing to incur.

Integration

Vertical integration includes all of the ways that output from one stage of production is transferred to another. Vertical integration on the farm is accomplished by altering the mix of enterprises the farm is engaged in. It is more common in livestock and specialty crop industries than in field crops because field crops typically require more processing, and cost effective integration is difficult to achieve except on a large scale.

To a certain degree, vertical integration runs counter to the concept of specialization. The early farms of pioneer settlers were in essence totally vertically integrated. Every aspect of the production process was connected and performed on the single farm. Most farms today are a blend of integration and specialization. For example, a modern family dairy farm typically engages in the integrated enterprises of feed production, milk production, and replacement heifer production. These enterprises are easy to integrate and generally make sense. However, some dairy farmers may specialize to a greater degree on milk production and elect to purchase all of their feed and replacement heifers.

Apply Technology

There are countless opportunities to apply new technology in managing production risk on the farm. This includes the physical technology (high tech) often referred to as precision agriculture. Precision agriculture takes advantage of advances in computers and mechanical engineering to make better, more efficient, machines and equipment.

Biotechnology research continues to advance on many fronts with the goal of making crop production more efficient. Scientists are developing crop varieties that can withstand environmental stresses such as drought, flood, frost, or extreme temperatures. A related area of research is adapting crops to regions where they are not normally grown because

of climate, altitude, or rainfall. Biotechnology is also being used against plant pests such as weeds, insects, and diseases.

Animal agriculture also is being affected by biotechnology. Safer, more effective vaccines are already in use. Biotechnology is being used to develop diagnostic tests for a wide range of diseases and viruses.

The key to applying technology in managing risk is to do so in a way to lower total farm risk. Sometimes new technology may increase risk, or the increased cost for the corresponding reduction in risk is prohibitive.

TRANSFER RISK TO SOMEONE ELSE

Contracting

A contract is usually defined as a written or oral agreement between two or more parties involving an enforceable commitment to do or refrain from doing something. In agriculture, contracts between farmers and agribusinesses specify certain conditions associated with producing and/or marketing an agricultural product. By combining various market functions, contracting generally reduces participants' exposure to risk. In addition to specifying certain quality requirements, contracts also can specify price, quantities to be produced, and services to be provided.

Farmers enter into contracts for various reasons, including income stability, improved efficiency, market security, and access to capital. Processors enter into contracts to control input supplies, improve responses to consumer demand, and expand and diversify operations. All of these reasons reflect efforts to bring a more uniform product to market. Production contracts can take many forms, depending upon the commodities being contracted and the economic needs of the parties entering into the contract. Generally, producers give up some management independence and decision making for a more stable income and less variability.

Insurance

Insurance can be an effective mechanism of transferring large risks to someone else. To be insurable, objects must be important enough to cause economic hardship to the insured if they are damaged and of sufficient number and quality to allow a reasonably close calculation of probable loss. Also, the potential loss must be accidental and unintentional, and, when an adverse event occurs, the amount of the loss must be capable of being determined and measured.

By definition, insurance is the means of protecting against unexpected loss. Everyone has insurance; either you buy insurance from an insurance company, or you insure yourself. When you self-insure there are no premiums to pay, but in the event of a loss you pay the full amount. In other words, with self-insurance you have a policy with a 100 percent deductible.

The three types of insurance that all farmers should carry are: 1) property and casualty insurance, 2) health, life, and disability insurance, and 3) liability insurance.

Crop insurance is a very important type of property insurance that can be used very effectively in conjunction with marketing plans to also reduce marketing risk. Crop insurance can guarantee a level of production, thus removing the risk associated with forward pricing or selling bushels that are yet to be produced. Crop insurance will provide the bushels to deliver on a contract should the insured producer suffer a loss prior to harvest.

Medical expenses due to a serious illness or injury can wreak economic havoc on a family. Farmers are more likely to be disabled than killed in accidents and a good disability policy is as important as life insurance and is a good risk management tool.

A liability policy protects a farmer against claims or lawsuits brought by persons whose property or person has allegedly been injured by the farmer's negligence.

REFERENCES

There are numerous sources of outstanding materials on all aspects of farm production and managing production risk. Contact your local Cooperative Extension office for assistance and direction.

The Risk Management Education web site maintained by the University of Minnesota is an excellent starting point. This vast and current library of information can be accessed at: www.agrisk.umn.edu