

RIGHT RISK NEWS

Assessing Threats With A Risk Assessment Matrix

DATES TO REMEMBER

Forage Insurance
- September 30th

RI-PRF Coverage
November 15th, 2021 for 2022
crop year coverage

Acres Reporting
- November 15th

For more information see:
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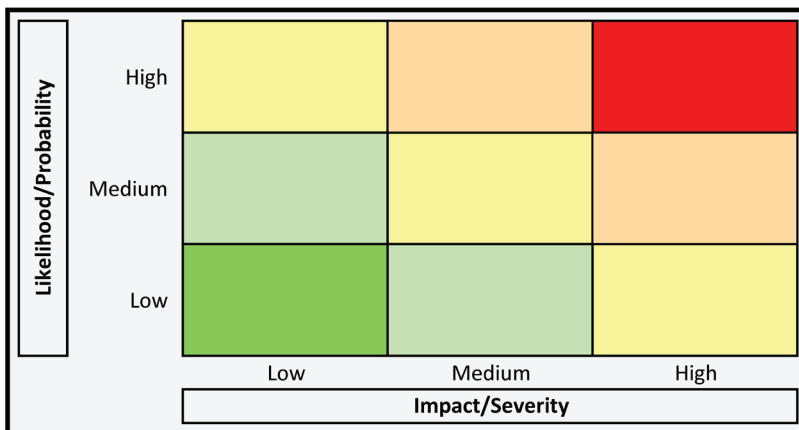
Risk management is an important task for farmers and ranchers. Business management becomes increasingly complex in a more uncertain and risky environment. While a manager must be aware of risk, not all threats can be addressed cost effectively. Instead, the manager must prioritize the threats of greatest concern.

A Risk Assessment Matrix is one method for evaluating both the probability and impact severity of a specific threat and its expected consequences. Degrees of probability might be arranged to include: frequent, likely, occasional, seldom or unlikely. Examples of severity might include catastrophic, critical, marginal, or negligible. Threats that are considered to be both frequent and catastrophic would be considered extremely high risk, while activities that are both unlikely and negligible would be considered low risk.



A Risk Assessment Matrix combines the probability and impact scores for each threat and ranks them in terms of priority for management. An Impact/Probability Matrix (Figure 1) is a two-dimensional graphic representation of the risks facing a given business, from an individual operation to an entire industry. The probability of a threat is plotted against the potential negative impact of each event.

Figure 1. Risk Impact/Probability Matrix



When designed properly, a Risk Assessment Matrix can:

- Identify outcomes that should be further investigated
- Help identify where threat reduction can be focused
- Provide a graphical representation of threats based on project or task
- Simplify the process of risk management
- Provide the basis for more detailed analysis of high-risk situations where needed

A Risk Assessment Matrix is typically constructed using either a 3x3 or 5x5 matrix. In a 3x3 matrix, the scale for impact typically includes:

low, medium and high. If it's a 5x5, more granular descriptors could include: Very Low, Low, Medium, High and Very High. Along the opposite axis, likelihood or probability can be described as: rare, unlikely, moderate, likely or very likely; or even more simply as low, medium and high.

How Much Risk is Right for You?



The basic format of a Risk Impact/Probability Matrix is shown in Figure 1. The corners of the chart have these characteristics:

- Low impact/low probability – Threats in the bottom left corner (shaded green) are low level, and you can often ignore these or leave them for later consideration.
- Low impact/high probability – Threats in the top left corner (shaded yellow) are of moderate importance – if these events happen, you might be able to cope and move on. However, you might consider reducing the likelihood that they will occur.
- High impact/low probability – Threats in the bottom right corner (shaded yellow) are of higher importance if they do occur, but they are unlikely to happen. For these, you might consider the alternatives for reducing the impact they would have if they occur and prepare contingency plans for managing the consequences.

- High impact/high probability – Threats towards the top right corner (shaded red) are of critical importance. These are your top priorities and represent risks that you must pay close attention to in the near future.

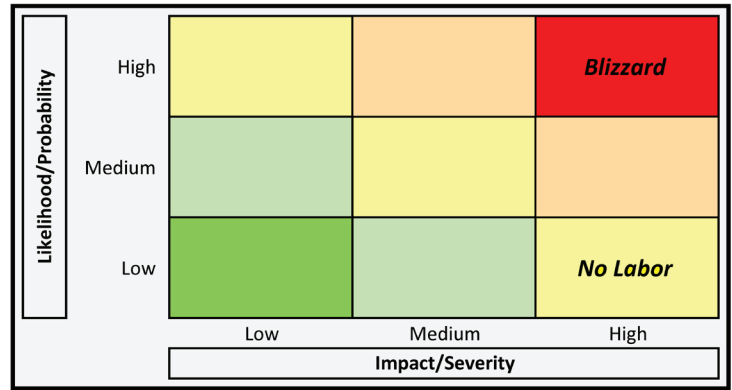
To use the Risk Impact/Probability Matrix:

1. List the threats that the farm or ranch faces. For example, precipitation, market price changes, labor, infertile bulls, or pest infestations.
2. Assess the probability of each threat. Additional data may be needed to estimate the likelihood and how soon negative effects might be expected. For example (when using a 3x3 matrix), the farm manager may need to research historical precipitation levels and might assign a score of 1 to above average annual precipitation and a 3 to below average precipitation, if below average levels are more common. Some threats are more likely to happen than others. We might assess the probability as: (1) not likely, (2) possible, and (3) probable.
3. Estimate the impact of the threat to the business. Similar to assigning a probability, a 1 to 3 scale might be used to evaluating the consequence severity. For example, a 1 (low score) would be assigned to a labor shortage if it would have little or no impact to the business and a 3 (high score) if a labor shortage would be catastrophic to the business. Risk severity might be limited to three possible levels as: (1) acceptable, the impact will be minimal if the risk occurs; (2) tolerable, the risk will be significant but the business or project will recover; and (3) unacceptable, the impact will be too great for the business or project to recover.
4. Map the ratings of the various threats in the Risk Impact/Probability Matrix. The impact and probability of occurrence should both be considered. For example, if a labor shortage has a low probability of occurring but the impact to the business would be very severe, the risk would be entered into the lower right cell of the matrix.
5. Assess the impact and possible management responses to the threatening event; i.e. how likely it is it to happen, how severe the consequences or cost would be, and what management actions might be taken. This is the bottom-line measure used to prioritize issues and identify red flags. Low-risk events aren't likely to happen and don't pose a serious threat to your business. They are best left at the bottom of your to-do list while you tackle bigger, more pressing issues. Medium-risk events might be viewed as speed bumps that could slow your progress. They don't get top billing, but a little mitigation will go a long way in helping the business run more smoothly. High risk events are those that will greatly impact the business and deserve swift and decisive action.
6. Develop a response to each threat, according to its position in the matrix. Threats in the bottom left corner (minor risks) are not of big concern but that does not mean that they are not important or should be ignored. Threats in the top right corner (critical or high priority risks) should receive the most time and attention and may need to be tackled immediately.



Consider a ranch facing various threats associated with winter weather conditions using a 3x3 matrix. Assume that historical weather records indicate there is a high probability that one blizzard will occur each year. Without a strategy for getting hay to the cattle, many cattle could die. The threat cannot be eliminated, so the objective should be to reduce the likelihood of the event occurring (moving downward in the matrix) or reduce the impact on the business when the event does occur (move leftward in the matrix).

Figure 2. Risk Impact/Probability Matrix - Weather Impact on Cattle Example



Another threat is the availability of labor to feed and care for the cattle. A shortage of labor rarely occurs (low probability), but the costs are quite high when cattle go unfed and not cared for (high impact).

According to the Risk Impact/Probability Matrix, the highest priority threat is a blizzard (high probability and high impact). A possible labor shortage can be addressed at a later time or with fewer resources because it has a low probability of occurring. Possible management strategies to mitigate the impact of a blizzard might include: having a greater inventory of hay, having access to labor skilled in monitoring and doctoring cattle, owning equipment sufficient to feed the cows during a blizzard, and using structures to protect the animals during the most severe weather. Some of these management strategies may indirectly address the lower priority of a labor shortage. For example, employees are more likely to work for a ranch if there is good equipment and useful animal protection structures.

Risk management is an important task for farm and ranch managers. While a farm or ranch operator must be aware of the threats, not all risks can be addressed cost effectively. Instead, the manager must carefully prioritize the threats under consideration.

A Risk Assessment Matrix is one method for evaluating both the probability and severity of a specific threat. A Risk Assessment Matrix can help identify outcomes that should be further investigated, help identify where threat reduction is possible, provide a graphical representation of the threats by project or task, simplify the process of risk management, and provide a more detailed analysis if needed for high-threat situations.

More information on identifying sources of risk and evaluating risk management strategies can be found in the online RightRisk courses entitled: *Understanding Risk in Agriculture* and *Evaluating Risk Strategies*.

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