
17 Ag Survivor

Dana Hoag and Jay Parsons

Ag Survivor is a simulation program developed by the RightRisk Education Team (www.RightRisk.org) to teach risk concepts and management strategies to agricultural producers in an experiential learning environment. This hands-on educational program lets producers test firsthand whether they are better off implementing newly learned risk management tools and strategies, like those learned in the Strategic Risk Management (SRM) program. This chapter has been included to encourage you to go to the Ag Survivor Web site and play the simulations as a way of solidifying some of the concepts that you have learned here. The simulations play like real life. If you take your time, you can use the scenario guides that come with each simulation to plot out your risk management strategy before playing. Build a payoff matrix. Practice using different decision rules. You may print the scenario guides straight from the Web site. An example scenario guide for EWS Farms is provided here to get you started. We wait until chapter 18 to show you how to use the Ag Survivor scenarios with SRM tools.

Ag Survivor can be played directly on the Web site (www.AgSurvivor.com) or at one of the RightRisk workshops (schedule shown at www.RightRisk.org). Realistic Ag Survivor scenarios present complicated risk management subject matter in an easily understood format. This is done by fully engaging users in a hands-on farm or ranch simulation. Participants use one of our eight different Ag Survivor scenarios that test everything from marketing to feed inventories.

We have worked hard to make the outcomes as realistic as possible. As a result, many of the scenarios take place in the Intermountain West, where we had access to the actual data required to develop the range of values and associated probabilities. However, we believe that producers from all regions of the country will be able to practice the risk management strategies using these scenarios. The following is a summary of these 10 scenarios, including a description of the different producer groups, risks, and lessons learned:

- **King Family Ranch:** This is a high mountain ranch typical of Colorado and Wyoming, with cattle and hay production. Participants manage hay inventory, pricing calves, and vaccinations.
- **Wheatfields:** In this scenario, participants manage 3,000 acres of wheat and 100 head of cattle. The decisions include managing hay inventory and pricing wheat and cattle.
- **Lazy U Ranch:** The Lazy U is a sheep and hay ranch reflective of the weather and risks associated with the Rocky Mountains in Colorado. Participants manage hay inventory, decide whether to supplement feed, or to hire extra labor during lambing, and how to price wool and lambs. Users also must decide whether to acquire more grazing land when rainfall is tight.

- **Public Lands:** This scenario was developed to represent cow/calf/hay operations along the Arizona and Utah border that rely heavily on grazing public lands. Managers oversee 650 mother cows and make decisions about feed, forward pricing yearlings, retained ownership, buying and selling cow/calf pairs, and leasing additional grazing resources.
- **Bar BQ Ranch:** The Bar BQ Ranch is much like the King Family ranch, but the decisions are centered on grazing intensity and revenue insurance. Participants in this simulation make decisions about feed and stocking rates, as well as whether they wish to buy Livestock Risk Protection Insurance.
- **EWS Farms:** EWS Farms is an irrigated and dryland farming operation, typical of northeastern Colorado. It is loosely based on the book case example, EWS Farms. The farm includes 500 irrigated acres of corn and 2,000 dryland acres (including 750 acres of wheat). The decisions include forward contracting and hedging wheat and corn.
- **Mountain View Farms:** Mountain View Farms is a dryland operation in southeastern Idaho that consists of 300 acres of contracted malt barley, 500 acres of feed barley, and 1,200 acres of winter wheat. Mountain View Farms also has a small, 100-head cattle operation. Decisions include forward pricing wheat, production of feed barley and calves, cross-hedging barley, and buying crop insurance for both wheat and barley.
- **Big Horn Basin Farms:** This farm grows 800 acres of crops, including 265 acres of malting barley, 250 acres of sugar beets, 105 acres of alfalfa, and 180 acres of corn in the Big Horn Basin of Wyoming. Risk management decisions include fertilization, crop insurance, the option to replant beets, and selling options for barley.
- **Oasis Ranch:** This cow/calf operation runs 800 cows on federal and private rangeland. The ranch is dealing with drought and whether it should purchase rainfall-based insurance.
- **High Plains Ranch:** This Rocky Mountain ranch runs 500 mother beef cows on 16,200 acres of public and private grazing lands. Ranchers also raise 350 acres of hay each year for winter feed.

Through friendly team competition, and interaction with trained RightRisk instructors, participants at workshops are able to experience a unique, interactive learning environment conducive to producing long-term growth in decision-making skills. RightRisk workshop participants are put in the role of a farm or ranch manager and asked to make decisions for the operation over a one- or multiyear time span in a simulated environment. This creates an energetic and interactive group learning experience, with many teachable moments. The discussions that take place within management teams as decisions are being made add tremendous value to the workshop experience.

Likewise, the discussions that take place between management teams as they compare their team performances create some interesting and lively conversations. Workshop participants are typically highly engaged and eager to repeat the experience.

Ag Survivor scenarios use real probabilities and impacts to depict risks. With this information, participants make risk management decisions for the operation as it progresses through several decision-making periods. In each period, a click of the button determines the random outcomes and moves the management team forward in time with updated prices, yield estimates, and inventories, among other information.

By the end of the simulation, each team or player will have progressed through one or more production years with the representative farm or ranch. Along the way, each management team will have experienced the same prices, weather, and other factors as the other management teams, but will have distinguished themselves by their unique set of input decisions. This provides the basis for a lively, slightly competitive conversation about the best outcomes.

Ag Survivor provides a platform for the participants to use several different measures to determine the best outcomes. For example, in a lot of ways, a single run through the simulation time period represents a combination of decision-making strategy and the luck of the draw. While a single simulation provides a good starting point, with the click of a button, the Ag Survivor software can rerun the model 100 times using random draws. This removes the element of luck. Outcomes can change with multiple iterations, and the results can add considerable depth to the conversation. Output from these 100 repeated runs include graphical measures such as bar graphs, and statistical measures such as mean, high, low, variance, and other factors as shown in Figure 17.1, which help the user to differentiate their luck from a single run from the overall worth of their strategy.

The results from Figure 17.1 are based on both random draws of the states of nature and the player's management decisions, which provides a measure of how well players manage risk. The histogram is a risk profile: how well you did will

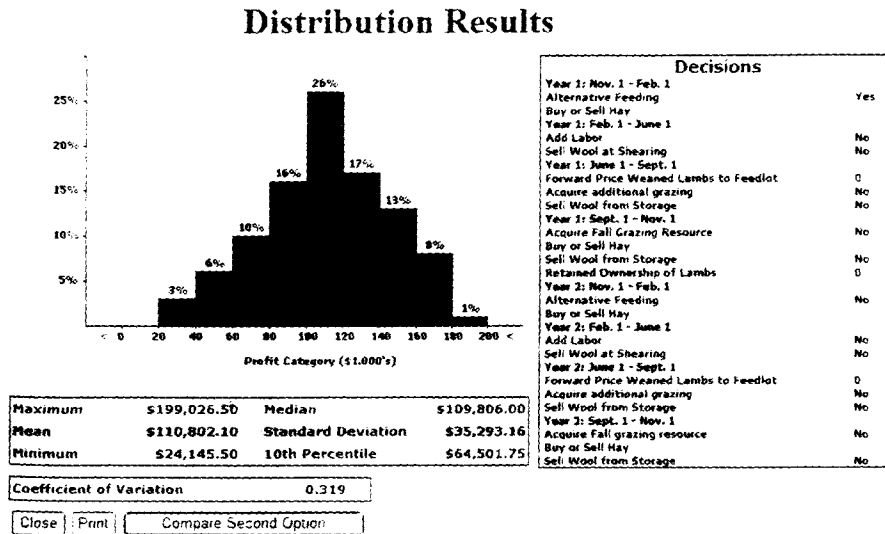


FIGURE 17.1 Graphical result of 100 runs in the Lazy U Ranch Ag Survivor scenario.

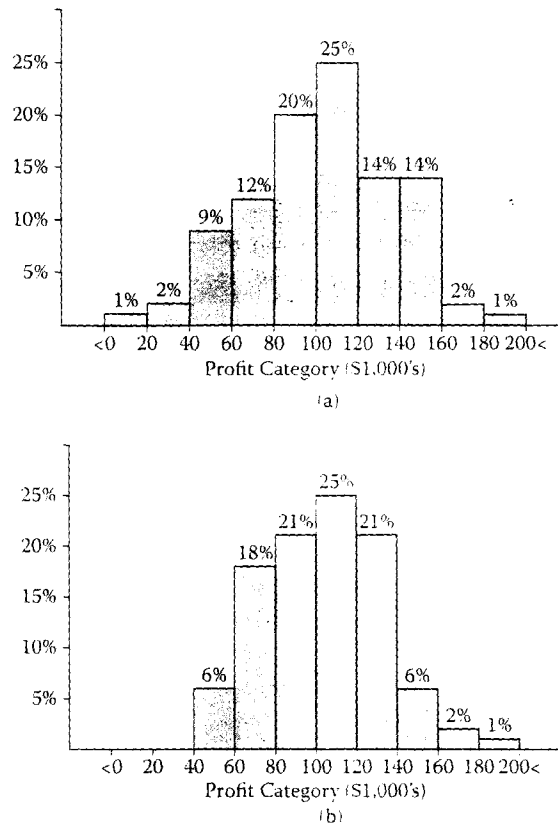


FIGURE 17.2 A comparison of two distributions for different playing styles: (a) no decisions; (b) forward price lambs.

depend on your risk personality. That is, you could look for the best mean, the best low, the smallest variance, or the highest high.

Players can also use Ag Survivor to quickly learn how different management options would have affected the results. By clicking on Compare Second Option you can change any decision made in the simulation, without having to replay the entire game. This provides a trial-and-error way to test how management options change distributions, as presented in Chapters 2 and 9. The new histogram reveals how the changes made an impact on risk. For example, contrast the two histograms, A and B, in Figure 17.2. Compare the change in the histogram when lambs are not forward priced, scenario A, to scenario B where they are. Note that the distribution with forward pricing is shifting to the right. There is a higher mean, higher low, and the same high with the new distribution. In this case, forward pricing is a good risk management tool.

To get the hang of the simulation exercises, it is best to first attend an Ag Survivor workshop. However, anyone can play any of the scenarios at any time by simply going to the Web site. The RightRisk Education Team encourages people to use the different scenarios, and playing the different scenarios provides good risk management

skill practice. We do caution people, however, that these scenarios reflect the "typical," and therefore may not represent a producer's specific situation. Ag Survivor should only be used as a starting point to learn lessons and never be used as a decision tool. This book and other more detailed sources should be used for such detailed and personalized planning.

Each scenario has a corresponding scenario guide that contains supporting documentation. Scenario guides are also available on the Web site. We provide the EWS Farms scenario guide since it is related to the book's case farm.

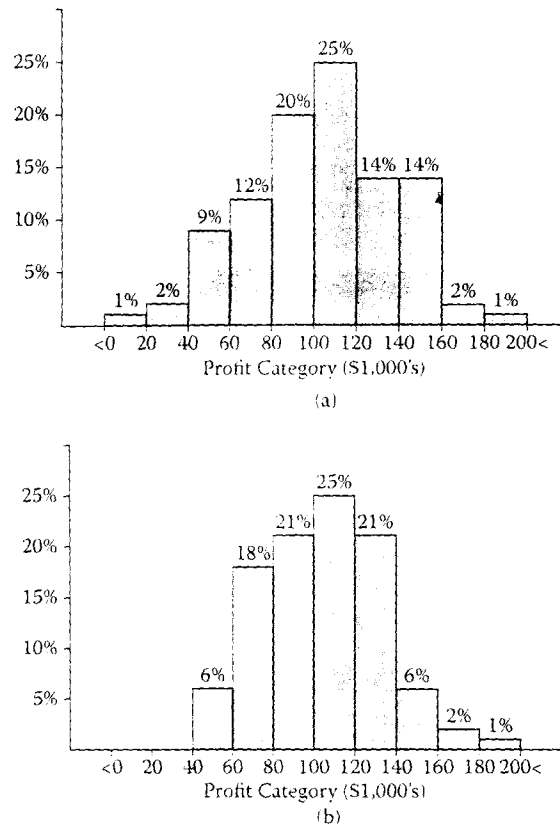


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RIGHT RISK

How Much Risk Is Right for You?

Scenario Guide

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EWS FARMS

A. Sprague, J. Pritchett, J. Parsons, D. Hoag, and J. Deering

EWS Farms is representative of an irrigated and dryland farming operation in northeastern Colorado. Irrigated corn, dryland corn, and dryland wheat are the three enterprises on this farm. Production practices, costs of production, market prices, production yields, and other information are based on data from the region in order to provide a realistic setting. The probabilities of risk events were also calculated using actual data where available. Slight modifications were sometimes made to maintain the workability and realism of the game.

The farm includes 500 irrigated acres and 2,000 dryland acres raising 750 acres of dryland wheat and 500 acres of dryland corn annually in a three-year rotation. Irrigated corn is grown on the remaining 500 irrigated acres. Production costs for the three enterprises include direct cash costs to the operation excluding factor payments to land, generally calculated as a percentage return to land value. These costs include the cash labor, maintenance, and replacement costs associated with a typical operation of this size. Average expected yields for the three enterprises are 35 bu/acre (dryland wheat), 50 bu/acre (dryland corn), and 200 bu/acre (irrigated corn) resulting in a total expected yield of 26,250 bushels of wheat and 125,000 bushels of corn to be marketed each year.

Each year, the farm chooses from three options to market their grain crops: (1) forward contract (corn/wheat) to the elevator for harvest delivery, (2) hedge (corn/wheat) against the (December corn/September wheat) futures contracts for harvest settlement, (3) sell all grain inventory at the harvest cash price.

Dryland Wheat Production

Crop Acres	750
Average Annual Yield	35 Bushels per Acre
Production Costs	\$96.77 per Acre
Average Market Price	\$2.98 per Bushel
Average Yearly Production	26,250 Bushels
Annual Government Payment	\$13,677

Dryland Corn Production

Crop Acres	500
Average Annual Yield	50 Bushels per Acre
Production Costs	\$113.50 per Acre
Average Market Price	\$2.25 per Bushel
Average Yearly Production	25,000 Bushels
Annual Government Payment	\$8,017

Irrigated Corn Production

Crop Acres	500
Average Annual Yield	200 Bushels per Acre
Production Costs	\$352.00 per Acre
Average Market Price	\$2.25 per Bushel
Average Yearly Production	100,000 Bushels
Annual Government Payment	\$16,811

Taking all of the above information into account, the farm expects to sell 125,000 bushels of corn and 26,250 bushels of wheat each year. Total revenues would equal net sales of \$318,920 (after subtracting the landlord's share on leased ground) and \$39,505 in government payments. Total farm operating expenses would total \$329,274 leaving a total return to land of \$29,151.

Expected Annual Net Farm Income

Expected Revenues		Expected Expenses	
Wheat	26,250 Bushels = \$78,225	Wheat	750 Acres = \$72,578
Dryland Corn	25,000 Bushels = \$56,250	Dryland Corn	500 Acres = \$56,750
Irrigated Corn	100,000 Bushels = \$225,000	Irrigated Corn	500 Acres = \$176,000
Lease Payments	-\$39,555	Cost Share	-\$32,760
Gov't Payments	\$39,505	Other Costs	\$56,706
Annual Total:	\$358,425	Annual Total:	\$329,274

Return to Land = \$29,151

DECISIONS

Period 1	Risk and Probability of Occurrence	Impact
	Ending Stocks Report High Medium Low	<ul style="list-style-type: none"> • Wheat prices will decrease with a higher than expected ending stocks report. • Wheat prices will stay relatively unchanged with an ending stocks report at or near normal or expected. • Wheat prices will increase with a lower than expected ending stocks report.
Risk Management Strategy Decisions		
	<p>Decision 1: Forward Contract Wheat You have the opportunity to forward contract all or part of your expected production of winter wheat at the posted contract price for harvest delivery. Keep in mind that actual production may differ from expected. Contracts not filled by actual production will be settled by buying grain at harvest at the cash market price.</p> <p>Decision 2: Hedge Wheat A hedge may be placed against the posted September Kansas City Wheat Futures price in 5,000 bushel increments. A "round-turn" commission of \$50 per contract will be charged to your account for this transaction. Basis at harvest (Cash - Futures) may be stronger or weaker than expected causing the realized price to differ from the expected market price. Variation in actual production from expected may cause you to be overhedged in poor production years.</p>	
Period 2	Risk and Probability of Occurrence	Impact
	Wheat Seedings Report High Medium Low	<ul style="list-style-type: none"> • Wheat prices will decrease with a higher than expected reported planted acreage. • Wheat prices will remain relatively unchanged with an average wheat seedings report. • Wheat prices will dramatically increase with a significantly smaller than expected planted acreage report.
	Prospective Plantings High Medium Low	<ul style="list-style-type: none"> • Corn prices will decrease with a higher than expected prospective plantings report. • Corn prices will remain relatively steady with an average prospective plantings report. • Corn prices will dramatically increase with a significantly smaller than expected prospective plantings report.
Risk Management Strategy Decisions		
	<p>Decision 3: Forward Contract Wheat You have the opportunity to forward contract all or part of your expected production of winter wheat at the posted contract price for harvest delivery. Keep in mind that actual production may differ from expected. Contracts not filled by actual production will be settled by buying grain at harvest at the cash market price.</p>	

Risk Management Strategy Decisions		
	<p>Decision 4: Hedge Wheat A hedge may be placed against the posted September Kansas City Wheat Futures price in 5,000 bushel increments. A "round-turn" commission of \$50 per contract will be charged to your account for this transaction. Basis at harvest (Cash – Futures) may be stronger or weaker than expected causing the realized price to differ from the expected market price. Variation in actual production from expected may cause you to be overhedged in poor production years.</p>	
	<p>Decision 5: Forward Contract Corn You have the opportunity to forward contract all or part of your expected production of corn at the posted contract price for harvest delivery. Keep in mind that actual production may differ from expected. Contracts not filled by actual production will be settled by buying grain at harvest at the cash market price.</p>	
	<p>Decision 6: Hedge Corn A hedge may be placed against the posted December Corn futures contract in 5,000 bushel increments. A "round-turn" commission of \$50 per contract will be charged to your account for this transaction. Basis at harvest (Cash – Futures) may be stronger or weaker than expected causing the realized price to differ from the expected market price. Variation in actual production from expected may cause you to be overhedged in poor production years.</p>	
Period 3	Risk and Probability of Occurrence	Impact
	<p>Crop Progress Report Excellent Good Poor</p>	<ul style="list-style-type: none"> • Wheat prices will decrease with a better than expected crop progress report. • Wheat prices will remain relatively unchanged with a crop progress report in line with expectations. • Wheat prices will dramatically increase with a poorer than expected crop progress report.
	<p>Cattle on Feed Far below Expectations In Line with Expectations Much Greater than Expected</p>	<ul style="list-style-type: none"> • Corn prices will decrease with a higher than expected cattle on feed report because of decreased corn demand. • Corn prices will remain relatively steady with an average cattle on feed report. • Corn prices will dramatically increase with a significantly smaller than expected cattle on feed report.
Risk Management Strategy Decisions		
	<p>Decision 7: Forward Contract Wheat You have the opportunity to forward contract all or part of your expected production of winter wheat at the posted contract price for harvest delivery. Keep in mind that actual production may differ from expected. Contracts not filled by actual production will be settled by buying grain at harvest at the cash market price.</p>	