

The King Family Ranch

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The **King Family Ranch** is representative of mountain valley cow/calf and hay ranches in the Rocky Mountain west. Production practices, costs of production, market prices, weather patterns, 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, however slight modifications were sometimes made to maintain the workability and realism of the game.

The ranch runs 500 mother beef cows with annual productions costs of \$350 per cow. Calving typically occurs in March-April and weaned calves are sold in October. The King Family historically has a 94 percent weaning percentage and replaces 14 percent of their cows. This leaves 400 calves (100%-6%-14%), weighing 550 pounds (for steers and heifers, alike), to market for \$95.00 per hundredweight. Cull cows weighing 1,111 pounds are sold at the end of each year for \$45.00 per hundredweight.

Beef Cattle Production

Quantity	500 head
Production costs per unit	\$350 per cow
Weaning Percentage	94%
Average Net Sale Weight	550 pounds per weaned calf
Initial Market Price	\$95.00 per hundredweight
Annual Hay Consumption	1.65 tons per cow
Replacement percentage	14%
Sale weight per cull unit	1,111 pounds per cow
Net Sale Price	\$45.00 per hundredweight

The King Family Ranch also raises 350 acres of hay each year and uses most of it as winter feed for their 500 cows. Normal annual yield is 2.5 tons per acre, which costs \$60.00 per acre to produce. When you begin the simulation, there are 875 tons in inventory with a market value of \$80 per ton. Space limitations prevent the Kings from having more than 1,000 tons of hay in inventory.

Crop Production

Crop Acres	350 acres
Normal Annual Yield	2.5 tons per acre
Production Costs	\$60.00 per acre
Initial Inventory	875 tons
Initial Market Price	\$80.00 per ton

The King Family Ranch expects to sell 400 calves at weaning, 70 cull cows, and 50 tons of hay. Total sales will generate \$247,997 in revenues each year. The Kings will have \$21,000 in expenses for producing 350 tons of hay. They will also have \$175,000 of expenses for the cow herd. The Kings expect their Ranch to generate \$51,997 of profits each year or almost \$104,000 over the two years in which the game is played.

Expected Annual Net Ranch Income

Expected Revenues		Expected Expenses	
Weaned Calves	400 head = \$209,000	Cows	500 cows = \$175,000
Cull Cows	70 head = \$34,997	Hay	350 acres = \$21,000
Hay	50 tons = \$4,000		
Annual total:	\$247, 997	Annual total:	\$196,000

Profit = \$51,997 per year

DECISIONS

Year 1	Risk and Probability of Occurrence	Impact	Risk Management Strategy Decision
Period 1	<p><u>Winter Conditions</u> Severe Winter (1/6) Normal Winter (2/3) Milder Than Normal (1/6)</p> <p>.....</p> <p><u>Corn Planting Intentions</u> > 80 million acres (1/6) 70 - 80 million acres (2/3) < 70 million acres (1/6)</p>	<ul style="list-style-type: none"> • In severe winters hay prices increase from greater demand. Weaning percentages decrease due to increased death losses. • If it is a normal winter, hay prices decrease due to normal market price seasonality. • In a mild winter, hay prices decrease further due to reduced demand. • If planting intentions are higher than expected, hay prices fall because corn is a competitive feed alternative. • Hay prices fall from normal market price seasonality when intentions are as expected. • Hay prices rise when planting intentions are lower than expected. 	<p>Decision 1: Buy or sell hay</p> <p>Hay may be purchased to increase feed inventory or sold to generate cash income. Consider current inventory, possible feed usage and probabilities of increases or decreases in price. You may not carry a negative inventory and there is a 1,000-ton maximum for inventory. Any shortages are automatically covered by additional purchases at the prevailing market price.</p> <p>The impact of a severe winter on weaning percentages is dependent upon the amount of hay that you have to buy during the winter to meet feeding requirements. Click 'View' in the risk impact table for more details.</p>
Period 2	<p><u>Corn Crop Conditions Report</u> Excellent (1/6) Normal (2/3) Poor (1/6)</p>	<ul style="list-style-type: none"> • Hay prices will fall and calf prices will rise when crop conditions are excellent because corn is a competitive feed alternative. • Hay prices and calf prices decrease due to routine market price seasonality when the corn crop is normal. • Hay prices increase and calf prices decrease when the corn crop condition is poorer than expected. 	<p>Decision 1: Forward price calves</p> <p>Forward price any number of head you would like for October delivery at the current contract price. Any forward priced calves must be sold in October, others may be retained for backgrounding if desired. If you forward contract more than you own, RightRisk will purchase what you need at current prices to fulfill the contract.</p>
Period 3	<p><u>Summer Precipitation</u> Poor (1/6) Average (2/3) Good (1/9) Too much (1/18)</p>	<ul style="list-style-type: none"> • Hay prices rise with poor precipitation because of reduced hay and grass production. Weaning rates fall and death rates rise. • No price changes due to typical hay and grass production. • With good precipitation, hay prices fall due to increased production and increased weaning percentages. • When there is too much precipitation, hay prices rise due to reduced hay production and decreased weaning percentage (from increased sickness and limited ability of animals to graze all parts of pastures). 	<p>Decision 1: Forward price calves</p> <p>Decision 2: Buy or sell hay.</p>

Period 4	<u>Exposure to IBR</u> Herd exposed (7/18) Herd not exposed (11/18) <u>U.S. Corn Production</u> > 9.5 billion bushels (1/36) 8.5-9.5 billion bushels (7/18) 8.0 - 8.5 billion bushels (5/9) < 8.0 billion bushels (1/36)	<ul style="list-style-type: none"> • Weaning percentage decreases due to reduced pregnancy rates. <ul style="list-style-type: none"> • Hay prices decrease and calf prices increase when production of competitive feed alternatives grows. • There is no impact on hay and calf prices when corn production is as expected. • Hay prices increase and calf prices decrease due to expected reductions in the production of competitive feed alternatives. • Hay prices increase and calf prices decrease when corn production falls well below expected levels. 	Decision 1: Forward price calves Decision 2: Buy or sell hay. Decision 3: Vaccinate cows with IBR/BVD vaccine. The cost to vaccinate cows is \$2 per cow. Consider the risk of exposure to IBR and subsequent impacts on profits.
Year End	Retained Ownership	<ul style="list-style-type: none"> • Expect these background calves to gain 100 lbs. (to 650 lbs.) by the end of next quarter. The cost is \$40 per head and they will be sold in April. All cost for feed are included in the \$40. You will not need to use your cow's hay. 	Decision 1: Retain ownership of calves. Alternatively, sell calves now as weaned calves.
Year 2	Risk and Probability of Occurrence	Impact	Risk Management Strategy Decision
Period 1	Same as Year 1.	Same as Year 1.	Decision 1: Buy or sell hay. Decision 2: Forward price calves. Decision 3: Forward price background calves.
Period 2	<u>Corn Crop Conditions Report</u> Excellent (1/6) Normal (2/3) Poor (1/6) <u>Demand Shock</u> Food safety scare (1/18) No scare (8/9) Strong exports (1/18)	<ul style="list-style-type: none"> • Impacts of the corn crop conditions report are the same as in Year 1, Period 2. <ul style="list-style-type: none"> • Calf prices decrease due to lower domestic and export demand. • No changes if there is not a scare. • Calf prices increase due to higher demand for exports. 	Decision 1: Forward price calves Forward price any number of head you would like for October delivery at the current contract price.
Period 3	Same as Year 1.	Same as Year 1.	Decision 1. Forward price calves. Decision 2. Buy or sell hay.
Period 4	Same as Year 1.	Same as Year 1.	Decision 1. Forward price calves. Decision 2. Buy or sell hay. Decision 3. Vaccinate cows with IBR/BVD vaccine.
Year End	Hay inventory must be at 875 tons. Hay is automatically bought or sold at the current price. All calves (this year and previous year) are automatically sold if remaining in inventory.		



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