

The Wheatfields

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The **Wheatfields** is representative of wheat/fallow dryland farming operations on the eastern plains of Colorado. Production practices, costs of production, market prices, weather patterns, and other information were 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 Wheatfields farm 6000 acres of dryland crops in a wheat/fallow rotation. Normal annual yield is 35 bushels per acre on 3000 harvested acres. Production costs, including fallow costs, are \$75.00 per acre harvested. When you begin the simulation, there is no wheat in inventory. This will also be the case at the end of the simulation as all wheat will be sold before calculating your final bank balance. The initial cash market price for wheat is \$3.12 per bushel.

Wheat Production

Total Crop Land	6000 acres
Land in Annual Production	3000 acres
Normal Annual Yield	35 bushels per acre
Production Costs	\$75.00 per acre
Initial Market Price	\$3.12 per bushel

The Wheatfields also run 100 mother beef cows with annual productions costs of \$320 per cow. Calving typically occurs in March-April and weaned calves are sold in October. The Wheatfields historically have a 95 percent weaning percentage and replace 15 percent of their cows. This leaves 80 calves (100%-5%-15%) to sell, weighing 500 pounds (for steers and heifers, alike). Cull cows weighing 1,100 pounds are sold at the end of each year for \$45.00 per hundredweight. Hay must be purchased as feed for the cows during the winter months. Under normal circumstances, 165 tons or 1.65 tons per head is needed on an annual basis. The simulation begins with an initial market price for hay of \$80 per ton.

Beef Cattle Production

Quantity	100 head
Production costs per unit	\$320 per cow
Weaning Percentage	95%
Average Net Sale Weight	500 pounds per weaned calf
Initial Market Price	\$95.00 per hundredweight
Annual Hay Consumption	1.65 tons per cow
Replacement percentage	15%
Sale weight per cull unit	1,100 pounds per cow
Net Sale Price	\$45.00 per hundredweight

The Wheatfields Farm expects to sell 105,000 bushels of wheat, 80 weaned calves, and 15 cull cows on an annual basis. Including an annual government payment of \$52,920, this will generate \$425,945 in revenues

Expected Annual Net Ranch Income

Expected Revenues

Weaned Calves	80 head = \$38,000
Cull Cows	15 head = \$7,425
Hay	105000 bushels = \$327,600
Government Payment	\$52,900
Annual total:	\$425,945

Expected Expenses

Wheat	3000 acres = \$225,000
Cows	100 cows = \$32,000
Hay	165 tons = \$13,200
Annual total:	\$270,200

Profit = \$155,745 per year

each year. The Wheatfields will have \$225,000 in expenses for producing 3000 acres of wheat. They will also have \$32,000 of expenses for the cow herd plus \$13,200 for purchased hay. The Wheatfields expect their farm to generate \$155,745 of profits each year or \$311,490 over the two years in which the game is played.

DECISIONS

Year 1	Risk and Probability of Occurrence	Impact	Risk Management Strategy Decision
Period 1	<p><u>U.S. planted wheat acres report</u> > 75 million acres (25%) 70-75 million acres (50%) < 70 million acres (25%)</p> <p>.....</p> <p><u>U.S. corn production</u> > 9.5 billion bushels (20%) 8.5 – 9.5 billion bushels (55%) 8.0 – 8.5 billion bushels (20%) < 8.0 billion bushels (5%)</p>	<ul style="list-style-type: none"> • A high number of acres planted to wheat will decrease the cash market price for wheat in anticipation of increases in future supply. • Otherwise, wheat prices increase due to normal market price seasonality. • A low number of acres planted to wheat will increase the cash market price for wheat in anticipation of decreases in future supply. <p>.....</p> <ul style="list-style-type: none"> • Hay prices decrease and calf prices increase when production of a competitive feed alternative (corn) increases. • There is no impact on calf prices and hay prices increase slightly due to seasonal effects when corn production is as expected. • Hay prices increase and calf prices decrease if corn production falls below expected levels. 	<p>Decision 1: Buy hay</p> <p>You can buy hay now at the current cash price. Consider that you begin the simulation with no hay in inventory. For simplicity, all hay fed during the winter is subtracted from inventory during Period 2 of each year. Hay may be purchased now to increase feed inventory for the upcoming winter. Consider expected feed usage and probabilities of increases or decreases in price between and the beginning of the next period. You will be offered another opportunity to purchase hay at the beginning of Period 2.</p>
Period 2	<p><u>Winter conditions</u> Severe winter (20%) Normal winter (60%) Milder than normal winter (20%)</p> <p>.....</p> <p><u>Global production reports</u> High wheat and corn numbers (10%) Normal wheat, high corn numbers (30%) Normal wheat and corn numbers (50%) Low wheat and corn numbers (10%)</p>	<ul style="list-style-type: none"> • In severe winters, hay prices increase due to 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. <p>.....</p> <ul style="list-style-type: none"> • High global production numbers will decrease crop prices. • Low global production numbers will increase crop prices. 	<p>Decision 1: Forward price wheat</p> <p>Forward price any quantity of wheat you would like for harvest delivery at the current contract price. Any forward priced wheat must be delivered at harvest. If you forward contract more than you produce, RightRisk will purchase what you need at current prices to fulfill the contract.</p> <p>Decision 2: Buy hay</p>
Period 3	<p><u>Risk of late freeze</u> Late freeze (12%) No late freeze (88%)</p> <p>.....</p> <p><u>Wheat crop condition report</u> Poor crop conditions (17%) Average crop conditions (66%) Excellent crop conditions (17%)</p>	<ul style="list-style-type: none"> • A late freeze is a local weather condition that can severely impact your yield and have a mild impact on prices. <p>.....</p> <ul style="list-style-type: none"> • The crop condition report is a national report that heavily influences prices. • Poor crop conditions will increase crop prices and decrease calf prices. • Excellent crop conditions will decrease crop prices and increase calf prices. 	<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. If you forward contract more than you produce, RightRisk will purchase what you need at October cash prices to fulfill the contract. All non-contracted calves will be sold in October on the cash market.</p> <p>Decision 2: Forward price wheat.</p> <p>Decision 3: Buy or sell hay.</p>

Period 4	<u>Late hail storm</u> Severe hail (6%) Scattered hail damage (17%) No hail (77%) <u>National export news</u> Good export numbers (15%) Mixed export numbers (30%) Average export numbers (40%) Poor export numbers (15%)	<ul style="list-style-type: none"> • Hail is a local weather condition that can severely impact crop yield and affect prices. <ul style="list-style-type: none"> • Better than expected export numbers can have a positive influence on market prices. • Poor export numbers will have a negative influence on market prices. • Price seasonality trends downward. 	Decision 1: Forward price wheat. Decision 2: Forward price calves.
Year End	Sell wheat		Decision 1: Sell wheat. You can sell wheat in inventory at the current cash price.
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: Purchase crop insurance for wheat. You can choose among six crop insurance alternatives. Decision 3: Apply supplemental Nitrogen fertilizer. You can add extra nitrogen fertilizer to your wheat crop. Yield impact will depend upon precipitation levels.
Period 2	Same as Year 1.	Same as Year 1.	Decision 1: Forward price wheat Decision 2: Buy or sell hay. Decision 3: Sell wheat.
Period 3	<u>Precipitation risk</u> Poor precipitation (15%) Average precipitation (69%) Good precipitation (12%) Too much precipitation (4%) <u>Corn planting intentions</u> > 80 million acres (17%) 70-80 million acres (66%) < 70 million acres (17%)	<ul style="list-style-type: none"> • Poor precipitation will have a negative impact on crop yields and a positive impact on prices. • Good precipitation will have a positive impact on crop yields and a negative impact on prices. • Yield impact will be affected by fertilizer rates. • Too much precipitation causes diseases. <ul style="list-style-type: none"> • High corn planting intentions will negatively influence the price of alternative feeds and positively influence calf prices. • Low corn planting intentions will positively influence the price of alternative feeds and negatively influence calf prices. 	Decision 1. Forward price calves. Decision 2: Forward price wheat Decision 3: Buy or sell hay.
Period 4	<u>Late hail storm</u> Same as Year 1. <u>U.S. wheat production</u> Higher than expected (10%) As expected (60%) Slightly lower than expected (25%) Significantly lower than expected (5%)	Same as Year 1. <ul style="list-style-type: none"> • Better than expected production numbers will have a negative influence on wheat prices. • Poor production numbers will have a positive influence on wheat prices. • Price seasonality trends upward for hay. 	Decision 1. Forward price calves. Decision 2: Forward price wheat Decision 3: Buy or sell hay.
Year End	Hay, wheat, and calf inventories are automatically adjusted to zero by selling (or buying) at the current cash price.		



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