



Marketing Tools Workbook

IOWA STATE
UNIVERSITY
Extension and Outreach



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Chapter #1: Successful Market Planning

Crop marketing is difficult. Emotions can impact your choices on the timing and size of your marketing moves. Unpredictable events can shape the market, and the prices you receive, at any time. Volatile prices and uncertainty seem to be a given fact for the ag markets into the future. How do you make decisions in the noisy world of crop marketing? One helpful hint is to get back to the basics. Market information may have value, but the more essential marketing mindset is knowing the marketing tools and having a revenue perspective. Farmers need to have the goal of making money so that the farming operation can survive and thrive into the future.

Most people who have been farming for a while will admit that marketing can be a humbling experience. With the unpredictable nature of markets, expecting to “beat the market” is an unrealistic goal. The stakes are high -- a \$1 drop in corn price or a \$2 drop in soybean price can mean a change in net revenue of thousands of dollars. Plus, with the risk of high farming costs, the market can move enough to end a farming career.

What is Success in Marketing?

Successful marketing used to be defined by price. With all the volatility and the increasing farming costs, price is no longer an adequate measure of success. Marketing success should be measured in the same way that business success is -- surviving and growing the farm consistent with the farmer’s goals.

The first step is to set realistic goals based on revenue, not price. Once the goals are set, the task is to use the marketing tools available to achieve these goals. These goals and the marketing actions taken to achieve them should be recorded -- so that the plan and actions can be reviewed for reassurance in volatile times.

The tools themselves are not revenue sources, so success should not be measured in crop insurance indemnities or futures profits. Achieving pre-determined revenue goals is success, realizing that no plan, tool or strategy works all the time. Success is what keeps you in farming for the future and achieving your long-term farm goals.

Activity #1A: How do you define success?

★There are many ways to define success. This activity asks that you give some thought to crop marketing and list your answers to the question: What is successful marketing?

(Ideas to consider: Sell at margin goal, Be comfortable with my risk exposure, Having floor prices that reduce my risk, Knowing & achieving revenue goals, Obtaining enough revenue to protect my farm operation, etc.)

1. _____
2. _____
3. _____
4. _____

What is Marketing Planning?

As mentioned earlier, emotions impact marketing choices and the noise of the markets may make marketing success very difficult. Planning ahead of time can help provide the discipline to follow through to action when opportunities arise.

- Tool to manage the emotional job of crop marketing
- Set up the plan ahead of time designed for the operation's success.
- Can double as a transaction log
- Take action on the plan

A marketing plan should be personal and simple!

Personal: designed for the specific farm operation: costs, goals, needs.

Simple: simple enough to get implemented. A long 10-page marketing plan may be very detailed and complete . . . but it has a high probability of not being used because it is complicated.

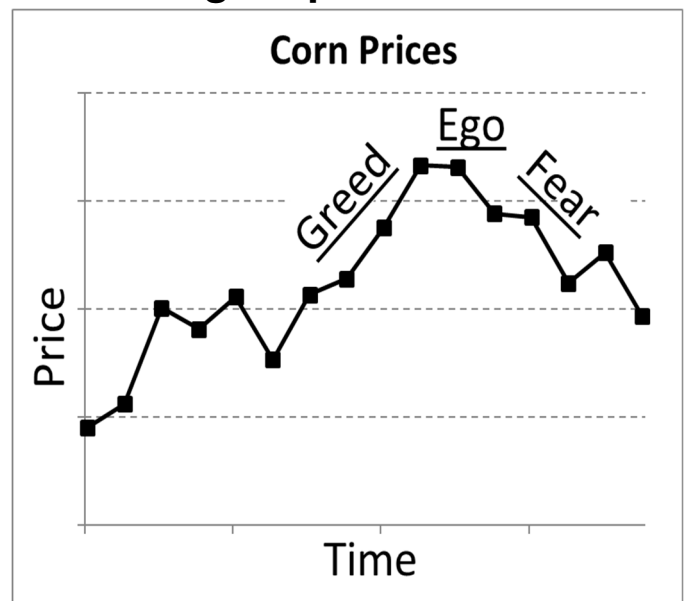
What emotions impact marketing crops?

- **Greed** of wanting even higher prices: Not taking advantage of good opportunities.
- Be careful that your **Ego** doesn't get in the way: Wanting to claim the market high sale!
- **Fear** of making a bad decision: Watching prices slip away as you wait.

Combat crop marketing emotions with a plan!

- To avoid letting greed, ego and fear dominate your marketing, have a plan and stick to it!!
- A marketing plan outlines your market strategy and your marketing objectives.
- It should examine marketing opportunities before and after harvest.

To combat the emotions and indecision, a crop marketing plan is needed. . . but there is not one single way to construct a plan! Just use a method that works for you!



A marketing plan should have key components to encourage implementation and track results:

Date, Bushels, Price (Futures or Cash), Basis, and the Reason for Action

Including the “Reason for Action” can create a great reminder for why the bushels were sold and this can be especially important in the emotional job of marketing. The plan can give reassurance that the marketing actions are designed to meet the operation’s goals.

Pre-determined crop marketing plans should be prepared well ahead of time to provide the discipline needed to be successful. Having the plan in the computer or on paper can psychologically help to make it a plan of action!

Share your plan with others involved in the farming operation . . . talk about methods, plans and goals so that your business partners can help provide additional discipline to execute the plan.

Marketing Plan:

- Outline realistic price targets
- Have periodic price targets and quantities to sell
- Use a variety of marketing tools
- Have patience and be willing to reevaluate price goals

Remember it’s hard to lose money when making a profit

Below is one example of how to construct a marketing plan (from Ed Usset, U. of Minnesota). The plan includes the key components and allows the marketer to choose the appropriate tool when the price or date occurs.

Corn Pre-Harvest Marketing Plan

Objective: Buy crop insurance to protect my production risk and have 75% of my anticipated corn crop (based on APH yield) priced by June.

Price 10,000 bushels at \$3.80 cash price (\$4.20 Dec. futures) using forward contract/futures hedge/futures fixed contract

Price 10,000 bushels at \$4.10c/4.50, or by Mar 28, pricing tool tbd

Price 10,000 bushels at \$4.40c/4.80f, or by Apr 26, pricing tool tbd

Price 10,000 bushels at \$4.70c/5.10f, or by May 29, pricing tool tbd

Price 10,000 bushels at \$5.00c/5.40, or by June 13, pricing tool tbd

Price 10,000 bushels at \$5.30c/5.70f, or by June 27, pricing tool tbd

Plan starts on January 1.

Ignore decision dates and make no sale if prices are lower than \$3.80 local cash price/\$4.20 December futures.

Exit all options positions by mid-September.

c = cash price; f = futures price

Note: Old crop & new crop marketing plan forms are available in the appendix of this workbook.

Old Crop and New Crop: Crop marketing is ordinarily divided into old crop and new crop – and this workbook follows that custom.

Old crop is the crop that has been harvested – old crop marketing is concerned with selling/merchandising existing bushels. **New crop** is the crop that is to be harvested – new crop marketing is concerned with selling/merchandising the crop before harvest or as it is growing.

The marketing tools in this book can be used for either old crop or new crop marketing.

Weekly Tracking Table

★ In the back of this workbook you will find an important table that can be used throughout this educational experience: The Weekly Tracking Table. This table will allow you to track cash (spot) markets, futures markets, forward cash contract prices, basis, and option premiums (we will define these terms as we move through the course). This is an ongoing activity throughout your learning experience, so every Wednesday, find the prices needed, pick up the book and complete the table. The tables for corn and soybeans are in the appendix and look like this:

Weekly Tracking Table (Old Crop)

Soybeans Location: _____

Date	Spot Cash Price	Futures Contract Price	Basis	Forward Cash Contract Price	Forward Cash Contract Basis	At the Money Option Strike Price	
						Put Option Premium	Call Option Premium

Chapter #2: Futures Price Movements

A futures contract is one tool farmers can utilize to reduce price risk. A futures contract is a standardized contract to exchange a set amount of crop at a chosen future date for a given price (the futures price). For corn and soybeans, these contracts are for 5,000 bushels. The price risk management strategy with futures is called hedging.

Hedging is defined as taking an equal and opposite position in the futures market than you have in the cash market. Another way to look at hedging is when a farmer hedges they are taking an action now in the futures market that they will take later in the cash market. If the farmer will sell bushels later in the cash market, the bushels can be sold now in the futures market to protect downside price risk. Hedging works as an effective price risk tool because futures contract prices and cash crop prices tend to move together.

Hedging does not increase risk – it transfers price risk to the futures market. As long as the futures position is opposite the cash position, it can be viewed as a temporary substitute for a cash transaction that will occur later.

A key concept in marketing is basis. Basis is defined as the difference between the cash price and the futures price. Many factors can influence basis, such as local supply/demand.

Basis is calculated as: **Cash Price minus Futures Price equals Basis**

For example, if cash corn for late February delivery is priced at \$3.20 and March corn futures are \$3.60, basis is at 40¢ under the March futures.

Cash Price – Futures Price = Basis

\$3.20 – \$3.60 = -\$0.40

Calculating Results: The results from hedging with futures can be calculated one of two ways. The merchandising approach is to take the original futures position and adjust for basis. Another method is to take the cash price received and adjust for profits/losses from the corresponding futures position to arrive at the result.

Note: Examples throughout the workbook do not include commission cost or interest cost of margin money. For your actual marketing tools and strategies, these costs should be factored into your decisions. They are excluded here to help teach basic concepts in a simpler way.

Futures Hedging Example

Hedging is using futures contracts as a temporary substitute for a later cash transaction. For example, a farmer can sell a futures contract in October as a temporary substitute for a March cash sale. Risk is not increased; in fact, risk is reduced since a transaction occurs ahead of time that substitutes for the later cash sale.

On the next page is a T diagram of a corn futures hedge from the 2015 marketing year for the following situation. In 2015, you had 5,000 bushels of newly-harvested corn that you planned to store for a few months. You planned on delivering these bushels in January 2016 and to protect yourself from price risk, you sold futures using the March

2016 futures contract. At the time, the March 2016 corn futures prices were \$3.90 per bushel and you estimated basis (the difference between the cash price and futures price) at -\$0.30 for January 2016 (this is often stated as the basis is 30 cents under futures). Given the hedge and your estimated basis, the cash target price was equal to \$3.60 per bushel (using the formula, Cash Price – Futures Price = Basis, to solve for the cash price, Futures Price + Basis = Cash Price).

In this workbook, T diagrams are used in examples to track three market components:

1. Cash
2. Futures
3. Basis

over the time period that the hedge is in place.

In January, you sold your corn on the cash market. With the hedge, you also bought back the futures contract you sold in October (think equal and opposite). The futures price had moved 37 cents lower at the time of delivery, so you bought back the futures contract for less than you sold it for and are making 37 cents on each bushel in the contract. But if the cash and futures markets have moved together, then the cash price is also 37 cents lower (to \$3.23) and is now below your target price. However, the hedge protects against that price drop. So the 37 cents lost in the cash market is offset by the 37 cents made in the futures market and you realize a crop return that is the same as the cash target price you had in October.

Historical Hedging Example from 2015/16

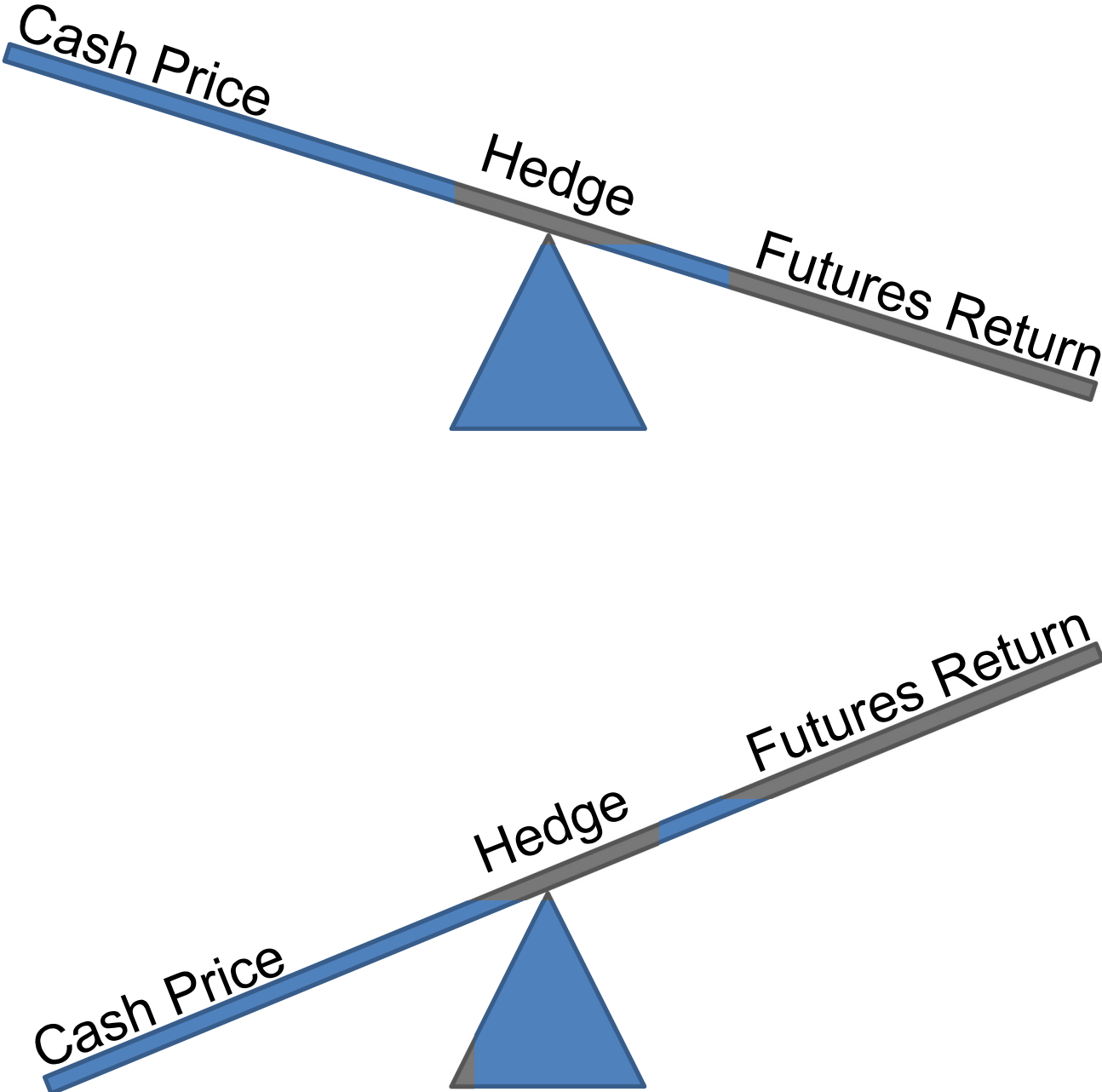
Date	Cash	Futures	Basis
October	Cash goal: \$3.60	Sell 1 March '16 Corn Futures Contract @ \$3.90	Estimated -\$0.30
Late January	Cash sale: \$3.23	Buy back 1 March '16 Corn Futures Contract @ \$3.53	Actual -\$0.30
Results:	-\$0.37	+\$0.37	0.00

Result (without commissions and interest cost):

1. Original Futures	less	actual basis	=	result
<u>\$3.90</u>	less	<u>-\$0.30</u>	=	<u>\$3.60</u>
2. Cash Sale to buyer	+/-	futures gain/loss	=	result
<u>\$3.23</u>	+/-	<u>+\$0.37</u>	=	<u>\$3.60</u>

One way to look at hedging with futures is that the cash and futures columns in the T diagram are to be equal and opposite. A farmer owns 5,000 bushel of corn in October that needs price protection, so he/she sells 1 contract of corn futures. At a later time, the farmer sells the cash corn and offsets the hedge by buying back the futures contract. The premise of hedging is that cash and futures prices move together. When they do, the futures hedge reduces the price risk the farmer faces because gains/losses on the cash market are directly offset by losses/gains on the futures market.

The following two activities show how hedges work when prices move up or down. Having a hedge in place is sort of like sitting in the middle of a teeter-totter (or see-saw), with the cash price on one end of the teeter-totter and the futures return on the other end. As one end of the teeter-totter goes up, the other end goes down. But the middle of the teeter-totter remains steady. Hedges provide steadier returns than strictly relying on cash markets.



Activity #2A: Sold Hedge, Market Lower

★ Fill out the following T diagram using these details. You have 5,000 bushels of corn just harvested that you plan to store for a few months. To protect yourself from price risk, you can sell futures using the March futures contract for these bushels planned for late February delivery. Use today's futures price and an estimate of basis (the difference between the cash price and futures price) of -\$0.30 at the time the cash crop is sold (this is often stated as the basis is 30 cents under futures) to fill out the cash price in the top portion of the diagram. By using a hedge and an estimated basis, the cash target price can be determined.

In late February, you are going to sell your corn on the cash market. With the hedge, you will also buy back the futures contract you sold in November (think equal and opposite). If the futures price has moved 45 cents lower at the time of delivery, then you are buying back the futures contract for less than you sold it for and are gaining 45 cents on each bushel in the contract. But if the cash and futures markets have moved together, then the cash price is also 45 cents lower and is now below your target price. Fill out the second portion of the T diagram and figure the results from the cash sale and futures hedge. How do the results compare to your target price?

Hedging Example

Date	Cash	Futures	Basis
November			Estimated -\$0.30
Late February			Actual -\$0.30
Results:	-\$0.45	+\$0.45	

Result (without commissions and interest cost):

1. Original Futures	less	actual basis	=	result
_____	less	_____	=	_____
2. Cash Sale to buyer	+/-	futures gain/loss	=	result
_____	+/-	_____	=	_____

Activity #2B: Sold Hedge, Market Higher

★Again, fill out the following T diagram using these details. You have 5,000 bushels of corn just harvested that you plan to store for a few months. To protect yourself from price risk, you can sell futures using the March futures contract for these bushels planned for late February delivery. Use today's futures price and an estimate of basis of $-\$0.30$ at the time the cash crop is sold to fill out the cash price in the top portion of the diagram. By using a hedge and an estimated basis, the cash target price can be determined.

In late February, you are going to sell your corn on the cash market. With the hedge, you will also buy back the futures contract you sold in November. If the futures price has moved 40 cents higher at the time of delivery, then you are buying back the futures contract for more than you sold it for and are losing 40 cents on each bushel in the contract. However, the cash price in February is also 40 cents higher. Fill out the second portion of the T diagram and figure out the results for the hedge. How do the results compare to your target price?

Hedging Example

Date	Cash	Futures	Basis
November			Estimated $-\$0.30$
Late February			Actual $-\$0.30$
Results:	$+\$0.40$	$-\$0.40$	

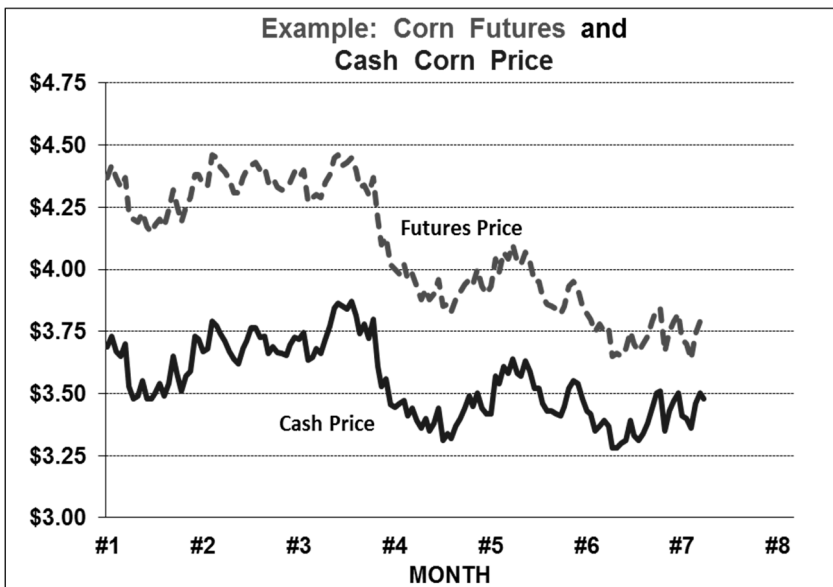
Result (without commissions and interest cost):

1. Original Futures	less	actual basis	=	result
_____	less	_____	=	_____
2. Cash Sale to buyer	+/-	futures gain/loss	=	result
_____	+/-	_____	=	_____

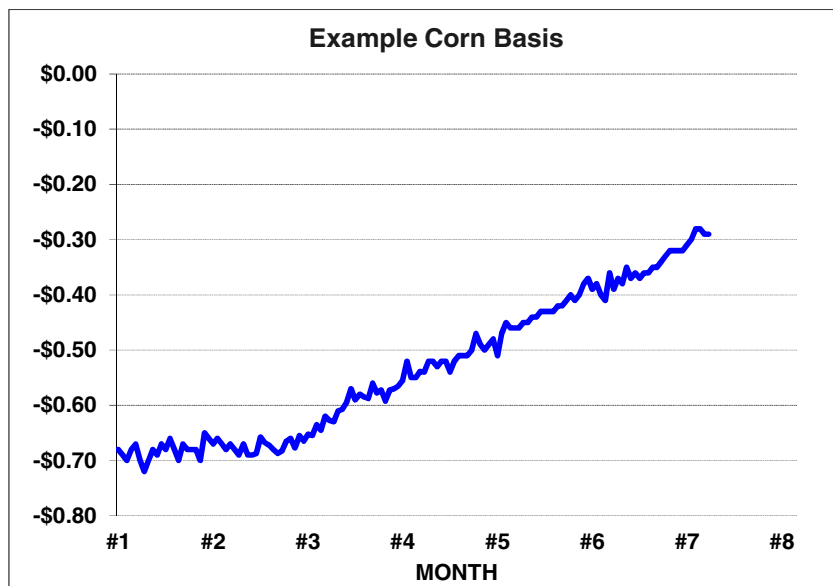
Chapter #3: Basis Movements

As we quickly defined in the previous chapter, basis is the difference between the cash price you see at your local market and the futures price listed on the Chicago Board of Trade. The basis is not a constant number. It moves with market conditions, local crop supplies and demands, and transportation costs. For the most part in Iowa, basis tends to be negative, implying that the futures price is greater than the cash price. This is because Iowa is a major corn and soybean producing state. As we have a lot of crop supplies and relatively less crop demands, our cash prices tend to be lower than the national average and the futures prices.

The top graph included here shows an example of both corn futures and cash price. **The basis in this graph is the space between the two lines.** See how the space between the lines changes over time: from a wide space early (wide basis) to a narrower space between the lines toward the end of the graph (narrow basis).



The basis can also be graphed as the basis graph to the right. Illustrated here is the simple difference between cash and futures – the upward sloping line is the basis. This basis trend shows that the basis is narrowing (moving closer to zero) over this 6-month period, which is often typical for corn from harvest through early spring.



In pricing your corn and soybeans, you can think of the cash price as having two components: the futures price and the basis. This can be an advantage as there are marketing tools that will allow you to manage price risk using futures. In addition,

basis can be locked in through accepting a spot cash price, using a forward cash contract, or a basis contract. Activity #3 will show the impact basis can have on your marketing.

Activity #3A: Sold Hedge, Market Lower

★ Fill out the following T diagram using these details. You have 5,000 bushels of corn just harvested that you plan to store for a few months. To protect yourself from price risk, you can sell futures using the March futures contract for these bushels planned for late February delivery. Use today's futures price and an estimate of basis (the difference between the cash price and futures price) of -\$0.30 at the time the cash crop is sold to fill out the cash price in the top portion of the diagram. By using a hedge and an estimated basis, the cash target price can be determined.

In late February, you are going to sell your corn on the cash market. With the hedge, you will also buy back the futures contract you sold in November (think equal and opposite). If the futures price has moved 50 cents lower at the time of delivery, then you are buying back the futures contract for less than the sale price and are gaining 50 cents on each bushel in the contract. However, the cash market in February is 30 cents lower than your target price. Fill out the second portion of the T diagram and figure out the results for the hedge. How do the results compare to your target price?

Hedging Example

Date	Cash	Futures	Basis
November			
Late February			
Results:	-\$0.30	+\$0.50	

Result (without commissions and interest cost):

1. Original Futures	less	actual basis	=	result
_____		_____	=	_____
2. Cash Sale to buyer	+/-	futures gain/loss	=	result
_____		_____	=	_____

The results show that a futures hedge does not guarantee a certain price. The basis can change, shifting the price you ultimately receive for your crop. In this case, that resulting price was higher than the target price (because basis was narrower than the expected basis).

Activity #3B: Sold Hedge, Market Higher

★Again, fill out the following T diagram using these details. You have 5,000 bushels of corn just harvested that you plan to store for a few months. To protect yourself from price risk, you can sell futures using the March futures contract for these bushels planned for late February delivery. Use today's futures price and an estimate of basis of $-\$0.30$ at the time the cash crop is sold to fill out the cash price in the top portion of the diagram. By using a hedge and an estimated basis, the cash target price can be determined.

In late February, you are going to sell your corn on the cash market. With the hedge, you will also buy back the futures contract you sold in November. If the futures price has moved 60 cents higher at the time of delivery, then you are buying back the futures contract for more than you sold it for and are losing 60 cents on each bushel in the contract. But the cash price is 50 cents higher than your target price. Fill out the second portion of the T diagram and figure the results from the cash sale and futures hedge. How do the results compare to your target price?

Hedging Example

Date	Cash	Futures	Basis
November			
Late February			
Results:	+\$0.50	-\$0.60	

Result (without commissions and interest cost):

- | | | | | |
|-----------------------|------|-------------------|---|--------|
| 1. Original Futures | less | actual basis | = | result |
| _____ | less | _____ | = | _____ |
| 2. Cash Sale to buyer | +/- | futures gain/loss | = | result |
| _____ | +/- | _____ | = | _____ |

The results above show that a futures hedge does not guarantee a certain price. The basis can change, shifting the price you ultimately receive for your crop. In this case, that resulting price was lower than the target price (because basis was wider than the expected basis).

Chapter #4: Using Crop Marketing Contracts

The marketing alternatives available at the elevator or processor are tools that can help with crop marketing risk management. Each marketing contract has special features that need to be studied and understood. History includes numerous instances when farmers entered contracts without understanding all the facets of the contractual agreement. In order to get the benefits offered by crop marketing contracts it is the responsibility of the farmer to fully understand the potential contract results regardless of the market movement after the contract is signed. Study the contract and ask your grain merchandiser any questions to increase your understanding!

Key Components of a Crop Marketing Contract:

While each marketing contract can have unique features, there are seven key components that should be present in all marketing contracts:

- 1.The quality (grade) of crop delivered or to be delivered,
- 2.The date by which delivery is to be completed,
- 3.The location for delivery,
- 4.The price or formula used in determining net price,
- 5.Price adjustments if unable to meet the specified grade,
- 6.The quantity being contracted,
- 7.Signatures of both parties and date of signing.



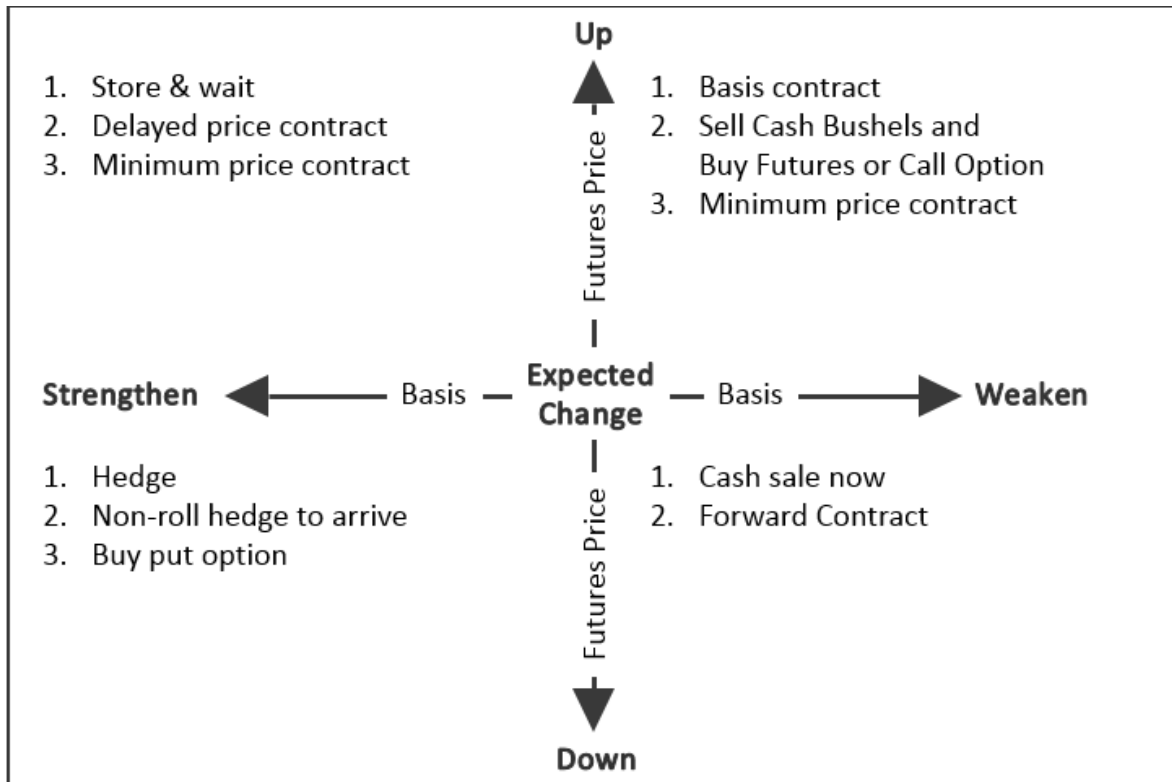
More complex types of contracts require additional details. Changes in delivery dates may affect price and risk exposure. The specific process for changing delivery dates should be spelled out. The delivery details are important to both farmers and grain elevators since delivery is required for completion of contractual obligations.

The type of contract that best fits your marketing objectives and risk management needs probably will vary with market conditions. Good business rules in grain contracting are

- (1) understand the contract before you sign it,
- (2) know and communicate with the firm or individual with whom you are doing business, and
- (3) understand the decision processes required for successfully using the contract you select.

Below is your first look at the Crop Marketing Matrix that includes many of the marketing tools that can be selected in a crop marketing plan. This Matrix will be repeated later in the workbook and much of the educational content in the workbook helps to explain these tools. Decide what you would like a tool to do and visit with a grain merchandiser to help with the selection.

Crop Marketing Matrix



To use the matrix, consider the two factors highlighted:

the expected change in futures price and the expected change in basis.

For example, if you would like to lock in basis to eliminate the risk of weaker basis, but are willing to keep the potential for higher futures prices, you would consider marketing tools in the upper right quadrant of the matrix.

What do marketing tools accomplish?

As mentioned earlier, each marketing contract has special features that need to be understood.

The adjacent table lists crop marketing tools and indicates which factor is set, remains open or if the tool establishes a price floor.

<u>Crop Marketing Tool</u>	Futures Price	Basis	Time	Location
Cash sale	Set	Set	Set	Set
Delayed price contract	Open	Open	Set	Set
Minimum price contract	Floor	Set	Set	Set
Basis contract	Open	Set	Set	Set
Hedge	Set	Open	Open	Open
Hedge-to-arrive	Set	Open	Set	Set
Forward contract	Set	Set	Set	Set
Options	Floor	Open	Open	Open

Chapter #5: Carrying Charge/Cost of Ownership

The cost of ownership of a crop includes the initial cash price you could have received on your crop at harvest plus the storage and opportunity costs (think about the interest costs you could have saved by using the proceeds of a harvest cash sale). Storing cash bushels for sale several months from now does have a cost of ownership. One of the benefits of holding your crop is the potential for higher crop prices, but there is a definite cost including both storage and interest that should be considered. With this activity, you can see that sometimes the highest price does not offer the highest return. You may be better off accepting a reasonable price soon after harvest if the cost of ownership is high and the basis is attractive.

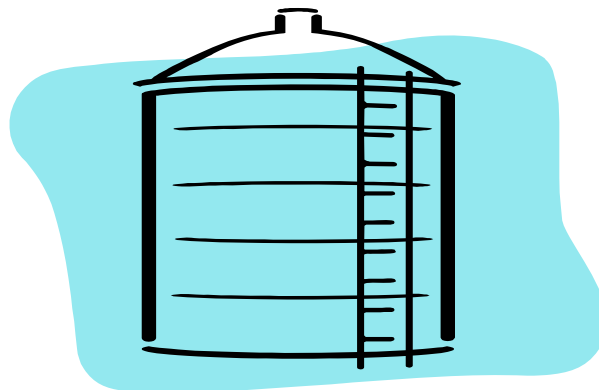
Carry in the Futures Markets

Futures prices for different delivery months usually sell for different prices. The amount of this difference is called carry. Carrying charges offered by the market should be compared to the costs to store the crop from one futures delivery month to another. These charges include interest and the cost of storage in commercial elevators that feed the crop delivery system.

The market uses carry to provide incentives for crop owners to either deliver or hold their inventory off the market. In times of excess supply, carry increases; it may approach, or even exceed, "full carry". This is when the price of deferred futures is great enough to pay for the cost of storing the crop to keep it off the market.

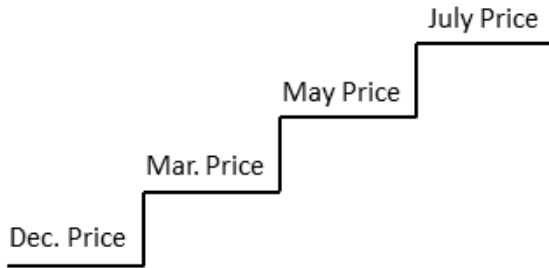
Carry: The difference between futures contract prices. Compare the carry offered by the market to the costs of storing grain from one delivery month to the next.

When crops are in short supply, carry decreases. It even may disappear altogether, and the futures contract for the nearest delivery month may actually sell for more than the deferred futures contract months (months further out in time). This is referred to as an "inverse" market. For example, the soybean market throughout much of 2013 was an inverse market as the drought of 2012 limited soybean supplies.

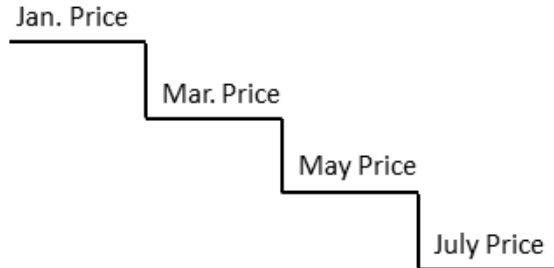


Examples of Carry and Inverse

Corn Futures Carry



Soybean Futures Inverse



Activity #5A: Current Market Structure

★ Complete the adjacent table to determine the current market structure.

<u>Corn</u>	<u>Soybeans</u>
December Futures Price _____	January Futures Price _____
March Futures Price _____	March Futures Price _____
May Futures Price _____	May Futures Price _____
July Futures Price _____	July Futures Price _____

★ What is the corn market structure (carry or inverse)? What is the price difference between December and July futures?

★ What is the soybean market structure (carry or inverse)? What is the price difference between January and July futures?

Cost of Ownership

Storing corn and soybeans beyond harvest is not free. Simply consider the difference between storing grain on-farm versus the cost of commercial storage. But storage costs are only part of the story. What if, in addition, you've borrowed money for operating expenses, machinery, or land? The proceeds from the sale of a crop could be used to reduce the interest cost. Consider that the opportunity cost of a sale. Both of these costs factor into the cost of ownership.

Storage costs, at a minimum, run 1¢/bushel per month for on-farm and 4¢/bushel per month for commercial storage. Interest charges can add more than 2¢/bushel per month for corn and 4¢/bushel per month onto the cost of ownership. So, the monthly cost of ownership for corn would be 3¢/bushel for on-farm storage and 6¢/bushel for commercial storage. Soybean monthly cost of ownership typically ranges from 4 to 8¢/bushel.

Interest Charge (or Cost):

The cost of not selling your crop, due to lost interest. The interest charge is calculated as the cash price times the interest rate divided by 12 (the # of months in a year). For \$4.00/bushel corn and 6% interest, the interest charge is 2¢/bushel per month.

The following is an example of a simple cost of ownership worksheet. In this case, we have assumed that the cost of ownership (the combined storage and interest costs) is 1.5 cents per bushel per week. In real crop marketing, cost of ownership can be more complex as you consider storage costs (with “in/out” fees, drying costs, and shrink costs), interest (the interest rates often depends on the amount being borrowed/invested), and the value of the crop.

Cost of Ownership Worksheet

Example cost of ownership for both corn and soybeans:

1½ ¢ per bushel per week

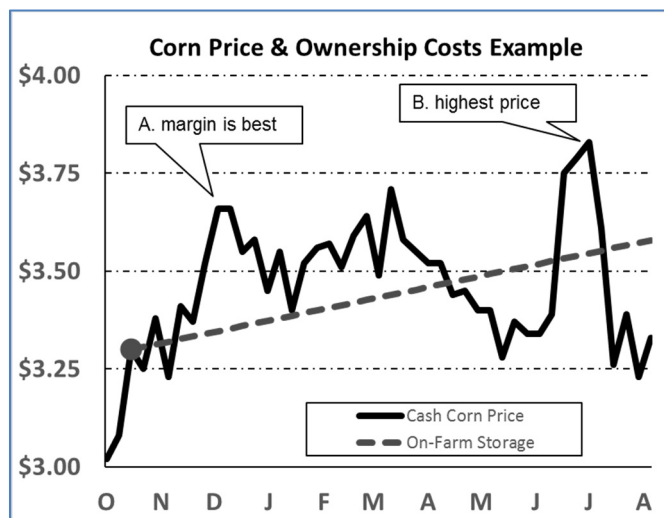
Wednesday Dates	Corn Cash Price	Price Needed to Recover Cost of Ownership	Soybean Cash Price	Price Needed to Recover Cost of Ownership
Nov. 5	3.25	3.25	9.20	9.20
Nov. 12	3.35	3.265	9.45	9.215
Nov. 19	3.30	3.28	9.40	9.23
Nov. 26	3.26	3.295	9.60	9.245

What is the objective once a crop is stored?

Knowing your cost of ownership is just a first step in merchandising a crop in storage. Once bushels are stored, what should your objective be?

If a high price is your objective, you might want to rethink! The highest price after a crop is stored is not necessarily the best objective. Because of the mounting ownership costs, the objective should be based on margin above accumulated ownership costs, not price!

The adjacent graph shows a recent cash corn market starting at harvest (dot) and an example cost of ownership line. The highest price (Point B) is 17 cents above Point A, yet the margin above cost of ownership per bushel at Point A is larger than the margin much later at Point B).



Activity #5B: Projecting Cost of Ownership

★Project the cost of ownership for corn and soybeans using the Monthly Cost of Storing Grain worksheet (the link for this Ag Decision Maker Excel sheet is on page 51 of the appendix.

Chapter #6: Forward Cash Contracts

A forward cash contract is an agreement between a buyer and a seller covering a quantity and quality of bushels to be delivered at a specified location and time in exchange for a specific price.

Cash contracts set all of the following:

- 1) Quantity
- 2) Quality
- 3) Delivery date and location
- 4) Cash price

As the forward cash contract sets the cash price, it effectively sets both the futures price and the basis together. Unlike exchange traded futures, cash contract terms may be more flexible in many respects. The normal harvest period for a geographic area can be specified, such as the first half of October. And while it is a cash contract, the pricing is still related to an underlying futures contract, such as November soybean futures or December corn futures at harvest.

Quantities are available in increments other than 5,000 bushels (for a futures contract); typical forward cash contract quantities are in 1,000 bushel increments, or approximately a semi-tractor trailer load. Producers should check with their local elevator, feedlot, or processor on the minimum contract size. Most importantly, delivery is made to a specific location. This helps the buyer fix both the futures and basis to offer a fixed cash price.

A forward cash contract allows a farmer to price grain ahead of delivery, both before and after harvest. These contracts set the actual price received, as well as other delivery terms, helping producers manage price risk.

For example, an elevator quotes a cash price of \$3.20/bu. delivered to the elevator during the last half of February, that's the price paid, subject to the normal adjustments for quality and moisture.

Forward cash contracts give farmers the ability to set a price, hopefully at a profit, with buyers they know. Forward cash contracts require the farmer to make delivery of a physical commodity. This may lead to penalties if the farmer doesn't deliver the amount contracted.

Forward cash contracts are one of the oldest cash crop marketing alternatives. Many understand these contracts well since they are the most widely used of marketing tools.

Forward cash contracts:

- Set cash price and delivery terms,
- Are available both before and after harvest, and
- Don't require margin deposits or premiums.

A forward cash contract is a binding transaction between the seller and the elevator or processor delivered at a later date. Certain conditions are set and known with each forward cash contract, which includes the quantity, the quality, delivery time, and price.



Activity #6: Forward Cash Contract vs. Futures Hedge

In Activities 3A and 3B, the basis moved from anticipated levels. Basis is important in evaluating forward cash contracts and futures hedges. In this activity, you will use the earlier activities (3A and 3B) and the Weekly Tracking Table to compare the two alternatives.

- 1) ★Look back to Activities 3A & 3B and enter the original cash target price in the appropriate box in the Answer column below.

- 2) ★Look back to the results from 3A & 3B. Record the results in the Answer column below.

- 3) ★What would the Forward Cash Contract Price have been if that alternative had been chosen. Look at the Corn Weekly Tracking Table initial entry and enter the forward cash contract price in the Answer column below.

<u>Activity 6 Table</u>	Answer column	<i>Hints/Source:</i>
Original Cash Target Price		<i>From 3A & 3B, this is the futures sale price less the estimated basis</i>
Result from narrower basis than estimated		<i>Result from 3A</i>
Result from wider basis than estimated		<i>Result from 3B</i>
Forward Cash Contract Price		<i>From Weekly Tracking Table</i>

★How do the results compare? _____

★Which results in the lowest price? Which results in the highest price? What is the reason?



Chapter #7: Futures Accounts and Margins

Futures contracts:

- Trade on exchanges
- Have uniform specifications
- Help buyers and sellers control risk

Farmers who use futures contracts must start by opening an account with a licensed futures broker. Sometimes, this broker will take the order to buy or sell from the farmer, and transmit it to an order desk, which in turn gives the order to a trader on the floor of the exchange. Often the order is entered and transacted in the electronic market and not on the exchange floor. The broker may also give the farmer marketing advice and recommendations. Brokers using this "full service" approach generally charge a higher commission on each trade.

So-called "discount" brokers feature lower commissions. In return, the farmer is responsible for initiating trades and must be comfortable with the language of placing orders. Often, orders are placed directly with a trading desk or through a secure Internet connection with the brokerage house.

Regardless of the type of broker used, a margin money deposit must back all futures trades. Margins vary according to the exchange and the commodity traded. Also, brokerages may increase margins at any time during particularly volatile periods, such as a summertime weather market. In some cases, margins for hedgers, like farmers, are lower than for speculators.

Margin money is "good faith" money that is deposited into the futures account.

- Performance bond
- Money that covers changes in the value of the contract position
- Minimum margins are set by the exchange, additional margin can be collected by the brokerage firm and margins are based on volatility and value.

contracts do not default. That helps ensure the smooth functioning of the markets as risk management tools.

Futures Contracts

Advantages

- Flexible, ease of entry and exit.
- Reduces price risk
- Can improve basis

Disadvantages

- Must understand margins calls
- Commissions
- Basis risk.

At the end of every trading day, accounts are "marked to the market." That is, any gains from a farmer's positions are credited to his account and losses deducted. If an account falls below specified limits (maintenance margin), the account holder is required immediately to post additional money to keep the positions.

Margin deposits act as a performance bond to ensure buyers and sellers of futures

Margin money flow example

Responding to margin calls can be an emotional occurrence if not understood. An overall perspective is helpful since if a margin call is received and the farmer has more crop to sell, it indicates that the unprotected bushels can now be sold at a higher price. In this way, a margin call can be a signal that the unpriced portion is achieving higher prices and signaling that overall gross revenue is actually higher. There are two key margin levels. One is the initial margin. The initial margin is the opening deposit in the margin account. The other is the maintenance margin. The maintenance margin is the minimum amount that must be kept in the account. If the balance in the account falls below the maintenance margin, then the account holder must either put in funds to bring the account back up to the initial margin or get out of their futures positions.

Let's follow the money in a simple example of 5,000 bushels of corn hedged in the March contract during harvest over 5 very volatile days! Example details: The initial margin is \$1,100 per contract and the maintenance margin is \$1,000 per contract.

The market starts and the futures hedge is sold at \$3.60. The market rallies to \$3.70, continues to rally to \$3.90, falls to \$3.50 and the hedge is offset at the time of cash sale at \$3.60. How does the margin account change with these contracts and this market movement?

Day #	Market Price	Change in Market Value from Previous Close	Computed Balance	Customer Deposits	Ending Balance
1	\$3.60	----	----	\$1,100	\$1,100
2	\$3.70	-\$500	\$600	\$500	\$1,100
3	\$3.90	-\$1,000	\$100	\$1,000	\$1,100
4	\$3.50	+\$2,000	\$3,100	----	\$3,100
5	\$3.60	-\$500	\$2,600	----	\$2,600

Notes: Day #1: \$1,100 is sent in as the initial deposit of margin money.

Day #2: The market has risen and triggered a margin call since the computed balance is below the maintenance margin. The margin call generated is enough to bring the balance up to the initial margin level.

Day #3: The market rises again and triggers another margin call since the computed balance is below the maintenance margin. The margin call brings the balance up to the initial margin level.

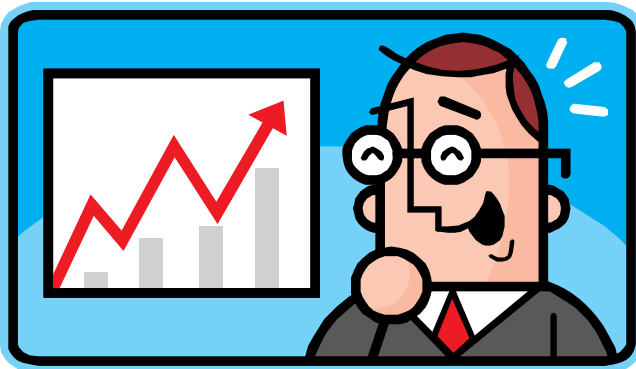
Day #4: The market falls drastically to \$3.50, the balance is now \$2,000 above the initial margin.

Day #5: The market rallies 10 cents and is back to where it started. The margin account balance is the \$1,100 initial margin + \$1,500 margin calls, the total money deposited.

Activity #7: Tracking Margin Requirements

★Construct a margin table below (like the previous example) using the first few weeks of corn markets from your Weekly Tracking Table. Use \$1,375 for the initial margin per contract (5,000 bu.) and \$1,250 for the maintenance margin per contract.

Date	Market Price	Change in Market Value from Previous Close	Computed Balance	Customer Deposits	Ending Balance



Chapter #8: Why Consider Options?

The grain market has two types of options:

1. **Put options**
2. **Call options**

An option is the right, but not the obligation, to buy or sell a futures contract. Users may be either buyers or sellers of an option. Option buyers get the right within the option; option sellers face the obligation. To offset an option, you must do the opposite of your original transaction. If you buy a put, the opposite is to sell a put. Note that puts do *not* offset calls and calls do *not* offset puts.

A **put** option conveys the right, but not the obligation, to **sell** futures at a predetermined “strike price”. The strike price is the per unit price that the buyer chooses to set as the buy or sell price. For example, buying a put with a \$4.00/bu. strike price gives the right to **sell** futures at \$4.00/bu.

A **call** option conveys the right, but not the obligation, to **buy** futures at a predetermined strike price. For example, buying a call with a \$4.00/bu. strike price gives the right to **buy** futures at \$4.00/bu.

With both put and call options, the buyer pays the option seller, or writer, a premium up front when the option position is opened. Currently, options on corn and soybean futures expire in the month before the delivery process for the futures contract begins. Up until the time an option expires it may be exercised. An options owner can exercise it to take the futures position specified by the option.

Users may also close out the option position, at a gain or a loss, before it expires. Options give farmers a variety of marketing alternatives. In addition to buying options, farmers may sell options or combine them with futures and cash contracts to fine-tune their risk management objectives. As

with futures contracts, options on futures must be traded through a licensed futures broker.

Put options protect against lower prices. With a put option, the option buyer has the right to sell futures at the specified strike price, if they so desire. The option seller has the obligation to buy the futures at the strike price. So if futures prices fall below the strike price, the option buyer would find it profitable to exercise the option, buying futures contracts at the futures price and selling those futures to the option seller at the strike price. As futures prices go lower, the return from the put option increases. As will be discussed in Chapter #9, put options are often used when the crop is being held in storage.

Most often, and in this workbook, farmers buy options. Buying an option limits risk as you pay a fixed amount (the option premium and the broker commission) for a possible payout. Selling an option does not limit risk as you receive a fixed amount (the option premium less the broker commission), but might have to payout an unknown amount later.

You might think of buying options as “Protection with Potential” since buying options offers: risk management against adverse price movement and potential for price improvement.

Call options protect against higher prices. With a call option, the option buyer has the right to buy futures at the specified strike price, if they so desire. The option seller has the obligation to sell the futures at the strike price. So if futures prices rise above the strike price, the option buyer would find it profitable to exercise the option, selling futures contracts at the futures price and buying those futures from the option seller at the strike price. As futures prices go higher, the return from the call option increases. As will be discussed in Chapter #9, call options are often used when the crop has been sold to capture higher prices after the cash sale, if they occur.

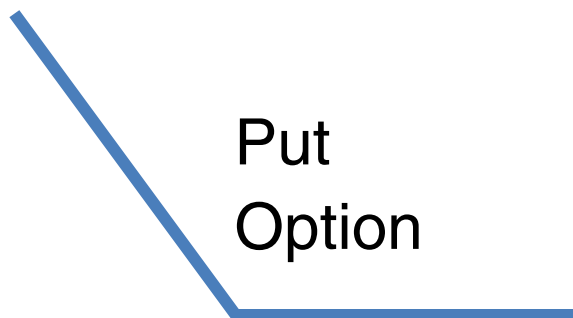
Buying an option has one primary advantage over futures: It limits a person's losses to only the premium paid for the option.

In contrast, when a person takes a position in the futures market, there may be unlimited losses if prices move against the futures position. **With an option, a person's maximum loss is limited to the premium paid in advance for the option. If prices move against the position, the farmer may simply let the option expire.**

Options on futures:

- Include calls and puts
- Require payment up front
- Specify "strike" price and duration
- Are purchased through licensed brokers

Options
Advantages
• Buying options can establish price floors or ceilings
• Not locked in to a particular buyer
• Flexible (you can get in and out)
Disadvantages
• Specific size of contract (example 5,000 bu.)
• Commissions
• Option premium cost



Activity #8: Comparing Futures and Options Costs

Let's use the margin example from section #6 (repeated below) and compare it to a put option strategy. How would the margin money required have compared to the put option premium with a premium of 45¢ per bushel?

Day #	Market Price	Change in Market Value from Previous Close	Computed Balance	Customer Deposits	Ending Balance
1	\$3.60	----	----	\$1,100	\$1,100
2	\$3.70	-\$500	\$600	\$500	\$1,100
3	\$3.90	-\$1,000	\$100	\$1,000	\$1,100
4	\$3.50	+\$2,000	\$3,100	----	\$3,100
5	\$3.60	-\$500	\$2,600	----	\$2,600

★Total Customer Deposits in above example: _____

★What would the total option premium be on a 5,000 bushel contract? _____

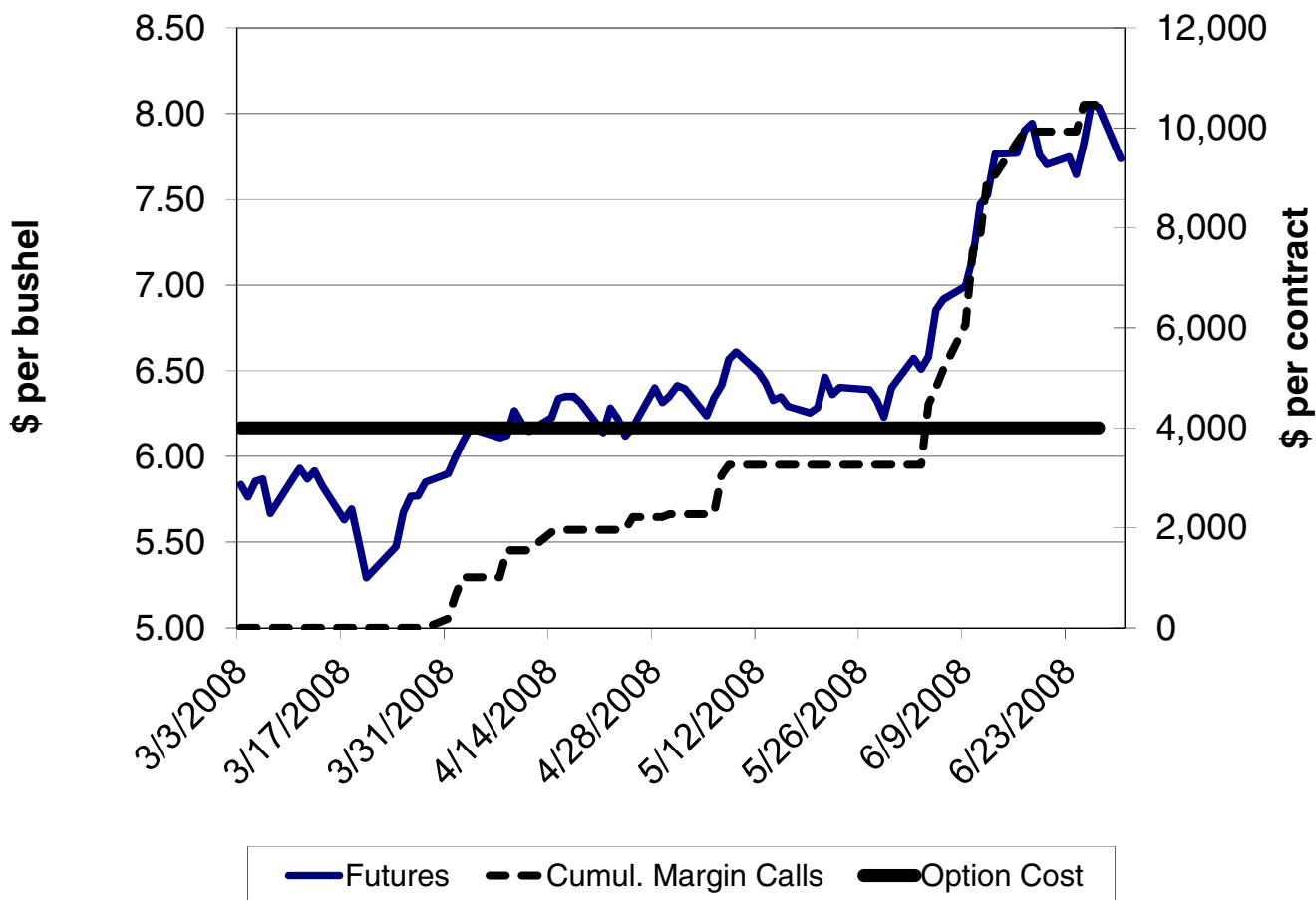
In this example, the money required for the put option would be less than the futures hedging strategy. The protection is not exactly the same, yet this illustrates that each marketing tool has a cost that should be factored into the decision. The random and unpredictable costs of margining futures should be considered when compared to the known costs of options.



Futures vs. option premiums: The accumulated margin requirements should be part of the plan when using futures. Often, it is best to have a lender as a part of the hedging team to supply the capital needed. The volatile markets of 2008 illustrate an example of the margin requirements of a hedge position contrasted with the cost of an option strategy.

In the graph, a hedge in the March 2009 corn contract and a put option for the same contract are illustrated. The solid line is the corn futures price for the March 2009 contract, the dashed line represents accumulated margin calls for a sold futures position at \$5.83 per bushel and the bold flat line represents the one time put option premium.

The accumulated margin calls reached more than \$10,000! The \$5.80 put option offered a floor established at the same time for a total cost of \$4,000. So options can offer comparable protection, sometimes at a much lower cost.



Chapter #9: Store Cash and Buy Put

A “store cash bushels and buy put option” strategy is a combination of a cash position (owning the cash bushels) and a risk management position (buying the put). The put option gains value as the market goes lower (as cash bushels lose value). If the market moves higher, the cash position gains value and the put option position loss is limited to the option premium paid. Remember to factor in cost of ownership in your real life decisions using this strategy. In these examples, these costs are excluded for simplicity.

Put option

A put option is the right, but not the obligation, to sell futures. The buyer of the option pays the premium for “price insurance” to the downside.

Market Lower: Put option gains value to offset cash loss.

Market Higher: Put premium is the only cost.

Here’s a simple equation for the estimated cash floor for storing cash bushels and buying a put:

Put Strike Price – Premium Paid + Estimated Basis = Estimated Floor Price

Example: At harvest, with the March corn futures market at \$3.60, a farmer wishes to store corn, manage downside risk, and maintain potential for better market in the spring. The corn is placed in storage and a March corn put option is purchased. The strike price chosen is \$3.60 and the premium is 18 cents. Basis is estimated to be 40 cents under futures in the spring.

Put Strike Price – Premium Paid + Estimated Basis = Estimated Floor Price

$$\underline{\$3.60} \quad - \quad \underline{0.18} \quad + \quad \underline{-0.40} \quad = \quad \underline{\$3.02}$$

Here is how the purchased option strategy performs at various futures price outcomes. See how the price floor develops?

Futures Market Outcome	<u>\$3.60 Put Option Worth</u>	Less Premium	Equals Net Futures	Basis Estimate	Equals Cash Estimate
\$4.60	0.00	0.18	\$4.42	-0.40	\$4.02
\$4.35	0.00	0.18	\$4.17	-0.40	\$3.77
\$4.10	0.00	0.18	\$3.92	-0.40	\$3.52
\$3.85	0.00	0.18	\$3.67	-0.40	\$3.27
\$3.60	0.00	0.18	\$3.42	-0.40	\$3.02
\$3.35	0.25	0.18	\$3.42	-0.40	\$3.02
\$3.10	0.50	0.18	\$3.42	-0.40	\$3.02
\$2.85	0.75	0.18	\$3.42	-0.40	\$3.02
\$2.60	1.00	0.18	\$3.42	-0.40	\$3.02

Activity #9: Put Options: Calculating A Floor Price

★Using information from the Weekly Tracking Table and an estimated basis of 40 cents under, figure the estimated cash price floor for a store cash corn and buy put option strategy by filling in the blanks in the simple equation below. Also, complete the table for a \$2.00 range of potential futures prices (start with the box right of “Today’s Futures” and expand the table up and down in price). Use the same put option that started the Weekly Tracking Table.

Estimated cash floor:

Put Strike Price – Premium Paid + Estimated Basis = Estimated Floor Price

_____ - _____ + _____ = _____

	Futures Market Outcome	_____ Option Worth	Less Premium	_____ + _____ = _____	equals Net Futures	Basis Estimate	Equals Cash Estimate
+\$1.00	\$ _____	_____	_____		\$ _____	_____	\$ _____
+75¢	\$ _____	_____	_____		\$ _____	_____	\$ _____
+50¢	\$ _____	_____	_____		\$ _____	_____	\$ _____
+25¢	\$ _____	_____	_____		\$ _____	_____	\$ _____
Today's futures	\$ _____	_____	_____		\$ _____	_____	\$ _____
-25¢	\$ _____	_____	_____		\$ _____	_____	\$ _____
-.50¢	\$ _____	_____	_____		\$ _____	_____	\$ _____
-.75¢	\$ _____	_____	_____		\$ _____	_____	\$ _____
-\$1.00	\$ _____	_____	_____		\$ _____	_____	\$ _____

Chapter #10: Sell Cash and Buy Call

Sell cash and buying a call option is a re-ownership strategy. Since price risk is not offset -- it is transferred from the cash to the options market, this strategy is not considered hedging. There is risk management with this position since the cash price is established and the known and limited risk is the call option premium. The re-ownership portion of the strategy is that the call option gains value as the market moves higher.

So this strategy, like the “Store Cash and Buy Put” strategy, establishes a price floor and allows for the potential for a higher return. The difference is where the returns are captured. For the “Store Cash and Buy Put” strategy, the potential for the higher return comes with higher cash prices that are captured when the cash crop is sold. For the “Sell Cash and Buy Call” strategy, the potential for the higher return come with higher futures prices that are captured when the call option is exercised or sold.

Usually, producers would be buying put options for downside price protection. In some cases, (if storage costs are too high, if basis is at an acceptable level at harvest) selling the cash bushels and re-owning call options is a reasonable strategy.

Call option

A call option is the right, but not the obligation, to buy futures. The buyer of the option pays the premium for “price insurance” to the upside.

Market Lower: Call premium is the only cost.

Market Higher: Call option gains value.

Special Note: This strategy is not considered hedging by the Internal Revenue Service & may be taxed differently than other marketing strategies. For questions, talk with your tax advisor.

As with the “Store Cash and Buy Put” strategy, there is a simple equation that can be used to calculate the cash floor for the “Sell Cash and Buy Call” strategy:

$$\text{Cash Sale Price} - \text{Premium Paid for Call Option} = \text{Floor Price}$$

Example:

At harvest with the July soybean futures market at \$10.00 and the cash price is \$9.40, a farmer wishes to sell cash soybeans and “re-own” the bushels by purchasing a call option. The strike price chosen is \$10.00 and the premium is 50 cents.

$$\underline{\text{Cash Sale Price}} - \text{Premium Paid for Call Option} = \underline{\text{Floor Price}}$$

$$\underline{\$9.40} - \quad \quad \quad \underline{0.50} \quad \quad = \quad \underline{\$8.90}$$

Review the following table to see how the purchased call option strategy performs at various futures price outcomes. See how the price floor feature develops?

Futures Market Outcome	Cash Sale Price	<u>\$10.00 Call</u> Option Worth	Less Premium	Equals Cash Estimate
\$12.00	\$9.40	2.00	-0.50	\$10.90
\$11.50	\$9.40	1.50	-0.50	\$10.40
\$11.00	\$9.40	1.00	-0.50	\$9.90
\$10.50	\$9.40	0.50	-0.50	\$9.40
\$10.00	\$9.40	0.00	-0.50	\$8.90
\$9.50	\$9.40	0.00	-0.50	\$8.90
\$9.00	\$9.40	0.00	-0.50	\$8.90
\$8.50	\$9.40	0.00	-0.50	\$8.90
\$8.00	\$9.40	0.00	-0.50	\$8.90



Activity #10: Call Options: Calculating Floor Price

★Using information from the Weekly Tracking Table, figure the cash soybean price floor for the sell cash bushels and buy call option strategy by filling in the blanks in the simple equation below. Also, complete the table on the below for a \$4.00 range of potential futures prices (start with the box right of “Today’s Futures” and expand the table up and down in price). Use the same call option that started the Weekly Tracking Table.

Cash floor:

Cash Sale Price – Premium Paid for Call Option = Floor Price

\$ _____ - _____ = \$ _____

	Futures Market Outcome	Cash Sale Price	_____ Option Worth	Less Premium	Equals Cash Estimate
+\$2.00	\$ _____	\$ _____	_____	_____	\$ _____
+\$1.50	\$ _____	\$ _____	_____	_____	\$ _____
+\$1.00	\$ _____	\$ _____	_____	_____	\$ _____
+50¢	\$ _____	\$ _____	_____	_____	\$ _____
Today's futures	\$ _____	\$ _____	_____	_____	\$ _____
-50¢	\$ _____	\$ _____	_____	_____	\$ _____
-\$1.00	\$ _____	\$ _____	_____	_____	\$ _____
-\$1.50	\$ _____	\$ _____	_____	_____	\$ _____
-\$2.00	\$ _____	\$ _____	_____	_____	\$ _____

Chapter #11: Option Values (Intrinsic and Time)

Option premiums change as the market changes and as time passes. Options are traded in the market, so the option premium is set by a market and can be considered as the cost of the price insurance that options offer.

Option premiums have two components: intrinsic value and time value.

$$\text{Premium} = \text{Intrinsic value} + \text{Time value}$$

Intrinsic value is the value of the option if it were exercised today. The intrinsic value depends on the futures price and the strike price of the option. For example, if you have a \$3.60 put option and the futures price is currently \$3.35, the intrinsic value of the put option is 25 cents. The intrinsic value is the positive difference between the strike price and the futures price. Put options have intrinsic value if the strike price is greater than the futures price; call options have intrinsic value if the strike price is less than the futures price.

Time value is the value of time in the option. That depends on the amount of time left before the option expires and the volatility in the futures market underneath the option. There is no direct formula for the time value of an option. To calculate the time value of an option, subtract the intrinsic value from the option premium. To explore the issues of intrinsic value and time value, let's look at the following example for soybean options.

Date:	Strike Price	Futures Close	Option Premium	Intrinsic Value	Time Value
October 1	\$9.00 Put	\$9.00	60 cents	0 cents	60 cents
October 8	\$9.00 Put	\$9.20	56 cents	0 cents	56 cents
October 15	\$9.00 Put	\$8.70	83 cents	30 cents	53 cents
October 22	\$9.00 Put	\$8.55	95 cents	45 cents	50 cents
October 29	\$9.00 Put	\$8.90	67 cents	10 cents	57 cents

As the table shows, the option premium is the sum of the intrinsic value of the option and the time value of the option. The intrinsic value moves with the market. If the futures price is at or above the strike price, the intrinsic value is zero. If the futures price is below the strike price, the intrinsic value is the difference between the two prices. The time value of the option tends to decrease over time. But it can jump if market volatility increases, as shown by the results in the last two weeks.

Activity #11A: Intrinsic and Time Value

★Construct an option table below (like the example above) using the first 5 weeks of soybean markets from the Soybean Weekly Tracking Table. This activity uses the initial put option strike price.


Computing Put Option Intrinsic and Time Value:

Date:	Strike Price	Futures Close	Option Premium	Intrinsic Value	Time Value



Different levels of price insurance: Option strike prices are predetermined at specific levels. Corn options are generally available in 10 cent increments; soybean options are available in 20 cent increments. Strike prices offer the ability to buy price insurance at a variety of levels.

If an option has intrinsic value, it is said to be “in-the-money”. The option with a strike price nearest the current futures price is called “at the money”. The options without intrinsic value are said to be “out of the money”:

Put Option Strike Prices	Example Futures Market Price	Call Option Strike Prices	
\$9.60 is 'In the Money'		\$9.60 is 'Out of the Money'	
\$9.40 is 'In the Money'		\$9.40 is 'Out of the Money'	
\$9.20 is 'In the Money'		\$9.20 is 'Out of the Money'	
\$9.00 is 'At the Money'		\$9.00	\$9.00 is 'At the Money'
\$8.80 is 'Out of the Money'			\$8.80 is 'In the Money'
\$8.60 is 'Out of the Money'			\$8.60 is 'In the Money'
\$8.40 is 'Out of the Money'			\$8.40 is 'In the Money'

Activity #11B: Price Insurance Levels

★Using the table above, which put option will achieve the highest floor price for downside risk management? _____

★Which put option will cost the highest premium? _____

★Does the highest floor always come at the highest premium price? _____

Why? _____

Chapter #12: Marketing New Crop

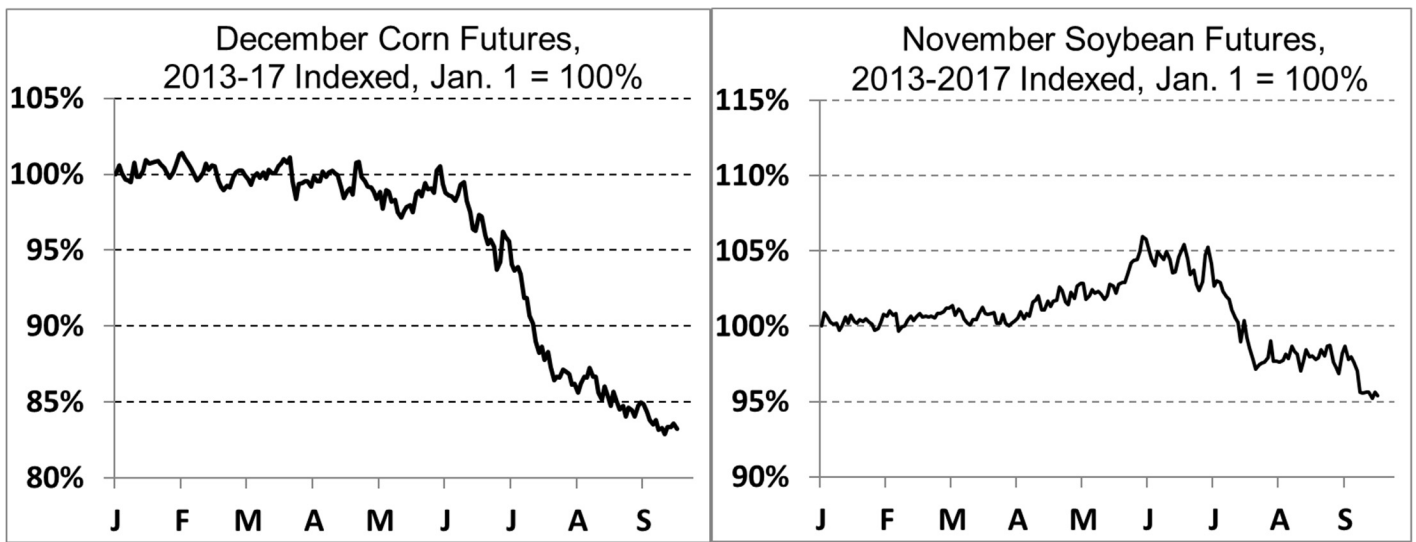
Crop marketing prior to harvest can be challenging. It would be easier to focus on production and wait to market the crop after harvest. However, due to a number of factors, it may be best to look at opportunities to market the crop early. Why wait until harvest and allow yourself access to only 11 months of prices (harvest until the bins must be empty for the next harvest) when you can expand your “marketing window” to include the many months before harvest?

The following are factors to consider in the decision to market before harvest.

- **Historical seasonal new crop price patterns**

Historically, one of the best times to price a portion of the corn or soybean crop has been in the spring or summer months prior to harvest. The market has a great degree of uncertainty about demand and supply at that time: What will demand be? What will the yield be? Planted acres? Uncertainty can lead to a certain amount of “risk premium” being built into new crop prices before the actual size of the crop is known.

The corn market seems to be maintaining this historical seasonal tendency. The soybean market has evolved into a less seasonal market, largely because of the emergence of the South American crop being such a major portion of world supplies. Any year, early opportunities to price a portion of the coming crop may be worthwhile in an overall risk management plan. (the graphs below are from Ed Usset, Grain Marketing Specialist, U. of Minnesota).



Activity #12A: Where are current new crop futures prices?

★ To assess the current new crop price opportunities, please complete this activity:

- Today's Date _____
- December corn futures price _____ November soybean futures price: _____
- How do the current opportunities compare to your historical marketing? Do they offer worthwhile risk management?

- **Focus on margins, costs of production**

The decision on pricing a crop is challenging. One factor to consider in the decision to market before harvest is the ability to market at profitable margins above costs. Margins or returns are important since crops are raised with the intention of being marketed at a profit. Margins are part of an income focus that can help farmers move away from price oriented marketing. The first step in using margins to make pricing decisions is to estimate the cost of production and use the estimate in creating profit goals. This knowledge is based in fact (what it actually costs to plant, care for and harvest a crop). Yet, with yield being uncertain, costs of production per bushel can only be estimated until yield is known at harvest.

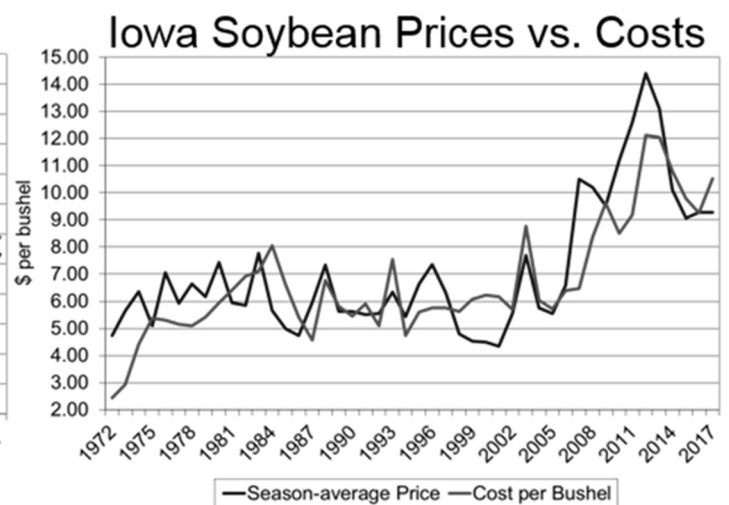
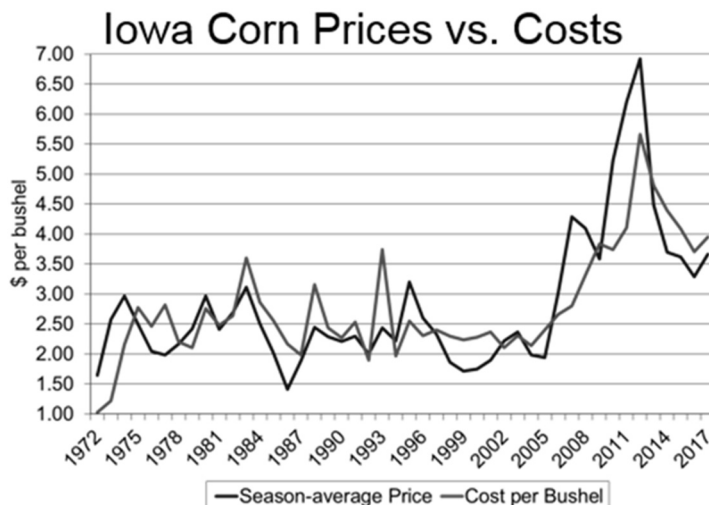
Iowa State University annually estimates costs of crop production. This is available at the Ag Decision Maker website as Estimated Costs of Crop Production -- A1-20. Below is an example of a top portion of the information (selected pages are available in the appendix of this book).

Corn Following Soybeans

	160 bu. per acre		180 bu. per acre		200 bu. per acre		Your Estimate
	Fixed	Variable	Fixed	Variable	Fixed	Variable	
Preharvest Machinery ^u	\$20.10	\$16.80	\$20.10	\$16.80	\$20.10	\$16.80	\$ _____
Seed, Chemical, etc.	Units		Units		Units		\$ _____
Seed @ \$3.70 per 1000 k.	25,000	\$92.70	30,000	\$111.20	35,000	\$129.70	\$ _____
Nitrogen @ \$0.40 per lb.	131	\$52.40	131	\$52.40	131	\$52.40	_____
Phosphate @ \$0.45 per lb.	60	\$27.00	68	\$30.60	75	\$33.75	_____
Potash @ \$0.35 per lb.	48	\$16.80	54	\$18.90	60	\$21.00	_____

(see cost of production sheets in appendix)

Another important perspective when focusing on margins is to understand historical margins. The graphs below show Iowa corn and soybean prices and estimated costs of crop production back to 1972. Note that margins come and go; costs exceed price often in history. This historical margin perspective can help spur marketing action when good margins occur. Good margins do not historically stay around forever and should be considered – even before harvest. Perhaps historical margins can be used in goal setting. There’s an old adage that says, “If you have a goal without a plan, all you have is a wish.”



Focus on Margins: Example

Farmer A has a corn cost of production of \$700 per acre, an estimated yield of 200 and an estimated basis at harvest of 20¢ under December corn futures, which are currently at \$3.60. What is the estimated net revenue and margin?

Margin Estimate Worksheet:

\$ \$3.60 futures price less \$0.20 cent basis = \$ \$3.40 estimated harvest cash price.

\$ \$3.40 est. harvest cash price X 200 yield est. = \$ \$680 est. gross revenue.

\$ \$680 est. gross revenue less \$ \$700 est. cost of production = \$ -\$20 est. net revenue

\$ -\$20 est. net revenue / 200 yield est. = \$ -0.10 per bushel margin

Activity #12B: Where are current new crop margins?

★ To assess the current new crop margin opportunities, please complete this activity using the following information:

Estimated corn basis at harvest = -25¢

Estimated soybean basis at harvest = -40¢

Estimated corn harvest yield = 180 bu. /acre

Estimated soybean harvest yield = 50 bu. /acre

Est. corn cost of production = \$719/acre

Est. soybean cost of production = \$533/acre

- Today's Date _____
- December corn futures price _____
- November soybean futures price: _____

Margin Estimate Worksheet (Corn example):

Date: _____

\$ _____ Dec. futures price less _____ cent basis = \$ _____ est. harvest cash price.

\$ _____ est. harvest cash price X _____ yield est. = \$ _____ est. gross revenue.

\$ _____ est. gross revenue less \$ _____ est. cost of production = \$ _____ est. net revenue

\$ _____ est. net revenue / _____ yield est. = \$ _____ per bushel margin

Margin Estimate Worksheet (Soybean example):

Date: _____

\$ _____ Nov. futures price less _____ cent basis = \$ _____ est. harvest cash price.

\$ _____ est. harvest cash price X _____ yield est. = \$ _____ est. gross revenue.

\$ _____ est. gross revenue less \$ _____ est. cost of production = \$ _____ est. net revenue

\$ _____ est. net revenue / _____ yield est. = \$ _____ per bushel margin

- **Reduce storage / drying costs**

The more bushels that can be sold and moved to market at harvest will result in less bushels to store (and less cost of ownership). Pricing crops before harvest can increase the chances that those bushels will be moved at harvest or closely following harvest and avoiding storage and perhaps drying costs.

For example, if you price and sell 10,000 bushels of soybeans for harvest delivery rather than store them until January, the cost savings may be:

<u>10,000 bu. valued at \$9.00/bu:</u>			
8 cent storage charge	+	3 months of 5% interest	
8¢	+	11¢	= 19¢ per bushel
19¢ X 10,000 bu. = \$1,900 savings!			

For corn, if the bushels are sold off the combine, perhaps drying costs and shrink can be saved. These costs would be saved in addition to any ownership costs as noted above. Also, savings are increased if the only alternative is commercial storage.

Note: On farm storage does not have to be used unless it makes economic sense. One alternative is to rent it out to a neighbor who enjoys paying ownership costs!

- **Pre-harvest plan can provide market discipline**

There are many emotions and unpredictable events involved in marketing your crops. Volatile prices and uncertainty seem to be a given fact for the commodity markets. How do you make decisions in the noisy world of crop marketing? Everyone seems to have an opinion about market direction – and many share that opinion with you! Emotions run high since family income and risk of loss are a part of the decisions.

One method to help take the emotions out of the marketing decisions is to develop a plan and set the plan for the right reasons (for example, the focus on margins earlier in this book). Once the plan is in place, the marketer can take action in a more deliberate fashion.

Another helpful hint is to get back to the basics. Market information may have value, but the more essential marketing mindset is knowing the marketing tools and having a revenue perspective. Farmers need to have the goal of making money so that the farming operation can survive and thrive into the future.

- **Generate fall cash flow needs**

In addition to a plan's ability to help with market discipline, a pre-harvest plan can help to sell bushels at harvest to generate needed fall cash flow to meet financial commitments. The plan needs to include the individual farm's cash flow needs such as crop insurance premiums, prepayment on inputs, year-end tax strategies, etc.

As noted earlier, the marketing tools in this workbook can be used for either old crop or new crop marketing. The cash position for old crop is harvested or stored crops; the cash position for new crop is a growing or anticipated crop.

Forward cash contracts, futures, options (described in previous chapters with old crop examples) can all be used to manage the risk of a growing or anticipated crop.

What is Success in Marketing?

As stated earlier, successful marketing used to be defined by price. Continue to give thought to your definition of success and how that may change with time and knowledge (see Chapter 1 for more).

Once success is considered and defined, it is time to set the plan in place. There are many ways to construct a pre-harvest marketing plan, but it's important the plan be simple so that it will be utilized.

Following is an example of a Marketing Plan and Transaction Log (blank copies are available in the appendix). This type of form can be used to plan out marketing and keep track of transactions.

Please note the far right column – the planner can use this to enter the reason for the marketing decision and as a reminder of the disciplined reason after the transaction!!

Market Planning and Transaction Log Soybeans: New Crop

Total bushels to market: 22,500 bushel

Forward Cash Contract and Futures:

Date	Bushels	Futures Price	Basis	Cash Price	Why? Reason for Action
3/23/16	5000	9.20	-0.50	8.70	Start sales at BE level
4/20/16	5000	9.60	-0.40	9.20	Timing goal, profit level
5/25/16	5000	10.00	TBD	TBD	Timing goal, wait on basis

Options:

Date	Bushels	Put or Call	Strike price	Premium	Basis	Estimated. Cash Floor	Why? Reason for Action
6/22/16	5000	P	10.00	0.40	TBD	TBD	Floor w/upside, wait on basis

Weekly Tracking Table (New Crop)

★ As with old crop, farm marketing records are important in new crop marketing. In the back of this workbook you will find a new crop Weekly Tracking Tables for corn and soybeans. These tables will allow you to track forward cash contract prices, futures markets, basis, and option premiums. As stated before, this is an ongoing activity throughout your learning experience, so every Wednesday, find the prices needed, pick up the book and complete the table. The new crop Weekly Tracking Tables for corn and soybeans are in the appendix and look like this:

Weekly Tracking Table (New Crop) Soybeans Location: _____

Date	Forward Cash Contract Price (October)	November Futures Contract Price	Contract Basis	At the Money Option Strike Price _____	
				Put Option Premium	Call Option Premium



Chapter #13: Conquer Marketing Concerns

If it is logical to consider pre-harvest marketing, what are the common concerns that keep farmers from taking action or perhaps even putting a plan together? Our experience is that these concerns can be summarized in two thought processes. Either one or a combination of the two can result in lack of action in pre-harvest marketing:

Common Concerns regarding Pre-Harvest Marketing:

My yield is not certain: *What if I sell and I don't raise enough bushels?*

Solution: Revenue Protection crop insurance is an answer – the coverage can provide the money to fulfill your cash marketing plan should a shortfall of contracted guaranteed bushels occur.

Seller's remorse: *What if I sell and the price goes higher?*

Solution: The plan can include scale-in selling and the use of minimum pricing that utilizes options or minimum price contracts.

Let's look at each of these solutions in more depth:

A risk management tool: Revenue Protection Crop Insurance

Most farms utilize a crop insurance product that provides a revenue guarantee on a percentage of their actual production history (APH). The most common product used by Iowa farmers is Revenue Protection (RP), which was used to cover more than 90% of Iowa's insured corn and soybean acres.

Using policies such as Revenue Protection (RP) or Revenue Protection with the Harvest Price Exclusion (RPE) guarantee both yield and price using farm level APHs. However, RPE does not offer a higher harvest guarantee should the harvest price (futures price average in October) be higher than the projected price (futures price average in February).

The Yield Protection (YP) is also a farm-level product, but does not trigger an indemnity unless a yield loss first occurs. The indemnity for both RPE and YP are limited to the projected price only.

Pre-harvest marketing strategies

Using 2016 as an example crop year, the projected price is \$3.86 per bushel for corn and \$8.85 per bushel for soybeans, respectively. Use of RP or RPE guarantees the farm's APH times the level of coverage. The bushel guarantee at these price levels are the farm's APH times a level of coverage elected (65%, 70%, 75%, 80%, or 85%). These are often referred to as the guaranteed bushels or the farm's insurance bushels.

Let's use an example to understand how the Revenue Projection (RP) product works. Say your farm's average APH is 180 bu./acre and you elect the 75 percent level of coverage; your guaranteed bushels are 135 bu./acre. To calculate the revenue guarantee you simply multiply the guarantee bushels (135 bu./acre) times the projected price of \$3.86/bu. to get \$521.10/acre. Using RP should provide a comfort level in selling bushels for delivery on a portion of your guaranteed bushels. Should a natural peril like drought, flood or hail occur, any shortfall in bushels below the 135 bu./acre should trigger an indemnity payment calculated at the \$3.86/bu. projected price.

Shortfall in harvest yield

Now the proverbial question: "What if I don't raise those bushels that I've committed to

Example: Revenue Protection (RP) Coverage Low Harvest Yield w/ High vs. Low Harvest Prices		
Category	High Harvest Price	Low Harvest Price
Farm's APH	180 bu./acre	180 bu./acre
Level of Coverage	75%	75%
Guaranteed Bushels	135 bu./acre	135 bu./acre
2016 Projected Price	\$3.86/bu.	\$3.86/bu.
Revenue Guarantee	\$521.10/acre	\$521.10/acre
Harvest Yield (est.)	100 bu./acre	100 bu./acre
Harvest Price	\$5.00/bu. (Dec. futures in Oct.)	\$3.00/bu. (Dec. futures in Oct.)
Harvest Guarantee	\$675.00/acre	No change: \$521.10/acre
Calculated Revenue	\$500/acre	\$300/acre
Indemnity	\$175.00/acre	\$221.10/acre

delivery?" Use the example and understand that the harvest yield estimated was only 100 bu./acre, but your guaranteed bushels were 135 bu./acre. Your indemnity will simply reflect those missing 35 bu./acre times \$3.86/bu. or \$135.10/acre. If you'd committed all 135 bu./acre to delivery, you'll still need to work with your grain merchandiser to "buy back" those extra bushels.

Many times there will simply be a charge of 10 to 20 cents per bushel since other merchandiser bushels can be substituted for your shortfall. Since you'll be collecting an indemnity payment following harvest reflecting at least \$3.86/bu., the impact of "buy back" bushels is negated. Should the harvest price (futures price average in October) be less than the futures price that you contracted bushels for delivery, the "buy back" will be even less and reward your pre-harvest marketing strategy.

Note this indemnity reflects a futures price average, which is to your advantage. That's because the futures prices in most Corn Belt locations tend to be higher than the cash price used for "buy back" bushels. This is especially true at harvest when basis (cash minus futures) tends to be the widest.

Revenue guarantee vs. harvest guarantee

Where many farms struggle in utilizing Revenue Protection insurance coverage and pre-harvest marketing of bushels for delivery is the ability to recalculate the revenue guarantee. The example includes two extreme harvest price estimates. The high harvest price is \$5.00/bu. and generates an indemnity of \$175.00/acre. The low harvest price is \$3.00/bu. but creates a larger indemnity totaling \$221.10/acre. That's because in the example, the actual harvest yield is multiplied times the higher of the projected or harvest price to create the calculated revenue. To determine the indemnity, subtract the calculated revenue from the harvest guarantee.

The \$5.00/bu. harvest price estimates allow for a new harvest guarantee to be calculated, since \$5.00/bu. is higher than the \$3.86/bu. projected price. Note this calculation is not available for the RPE product, since you have the harvest price is excluded on that product.

Selling guaranteed bushels

The key is the indemnity for any shortfall in bushels uses the projected price and has a minimum of \$3.86/bu. The advantage of RP over RPE is that should the harvest price be greater than the projected price, a new harvest guarantee is calculated.

If you choose to pre-harvest sell bushels for delivery, consider timing those sales when December corn futures or November soybean futures are higher than the projected price. This way you're guaranteed that if you come up short of bushels, you can collect a minimum of \$3.86 per bushel for corn or \$8.85 per bushel for soybeans, respectively, for this 2016 example. Remember that these prices change each year, based on crop insurance settings.

Summary: Revenue Protection Crop Insurance

The use of crop revenue insurance products such as Revenue Protection (RP) can easily be used in combination with a pre-harvest sales strategy that commits guaranteed insurance bushels to delivery.

Use of forward contracts and hedge-to-arrive contracts are common tools for selling these bushels. It's still important to understand how to use a variety of marketing tools. For bushels that you prefer not to commit to delivery, consider protecting the futures price with tools such as futures hedges and/or buying put options.

Activity #13A: Calculating a Crop Insurance Guarantee

★To learn how the spring guarantee for Revenue Protection crop insurance is calculated, use the following information and complete the activity:

- Example Farm's APH (Actual Production History) = 175 bu./acre
- Level of Coverage selected = 80%
- Spring Projected price = \$4.00/bu.

Calculate the Spring Revenue Guarantee (Corn example):

\$ _____ Farm's APH X _____ Level of Coverage = _____ Guaranteed bushels.

\$ _____ Guaranteed bu. X _____ Spring Projected price = \$ _____ Spring Rev. Guarantee.

Combating Seller's Remorse: What if I sell and the price goes higher?

It is human nature to attempt to achieve the highest price. Yet in agricultural marketing that is not a realistic goal. To fight against "Seller's Remorse" (What if I sell and the price goes higher? I will feel unsuccessful.), an overall revenue approach is key. Balancing the need for income with the need for risk management adds to the marketing perspective.

Other tools to fight against the urge to "wait for the high" are scale-in selling (breaking up your sales into smaller increments and selling over a price range) and using minimum pricing techniques (see options in this workbook). Either technique can have the marketer always cheering the market higher since there is greater overall revenue if the market goes moves up.

Activity #13B: Managing Negative Emotions of Marketing

★ Consider two scenarios.

#1 You price 25% of your guaranteed corn bushels and the price moves 50 cents higher.

#2 You do not price 25% of your guaranteed corn bushels and the price moves 50 lower.

Which makes you feel worse? Isn't the price difference the same? What factors are involved in how you feel with each outcome? Human nature can sometimes get in the way of effective marketing!



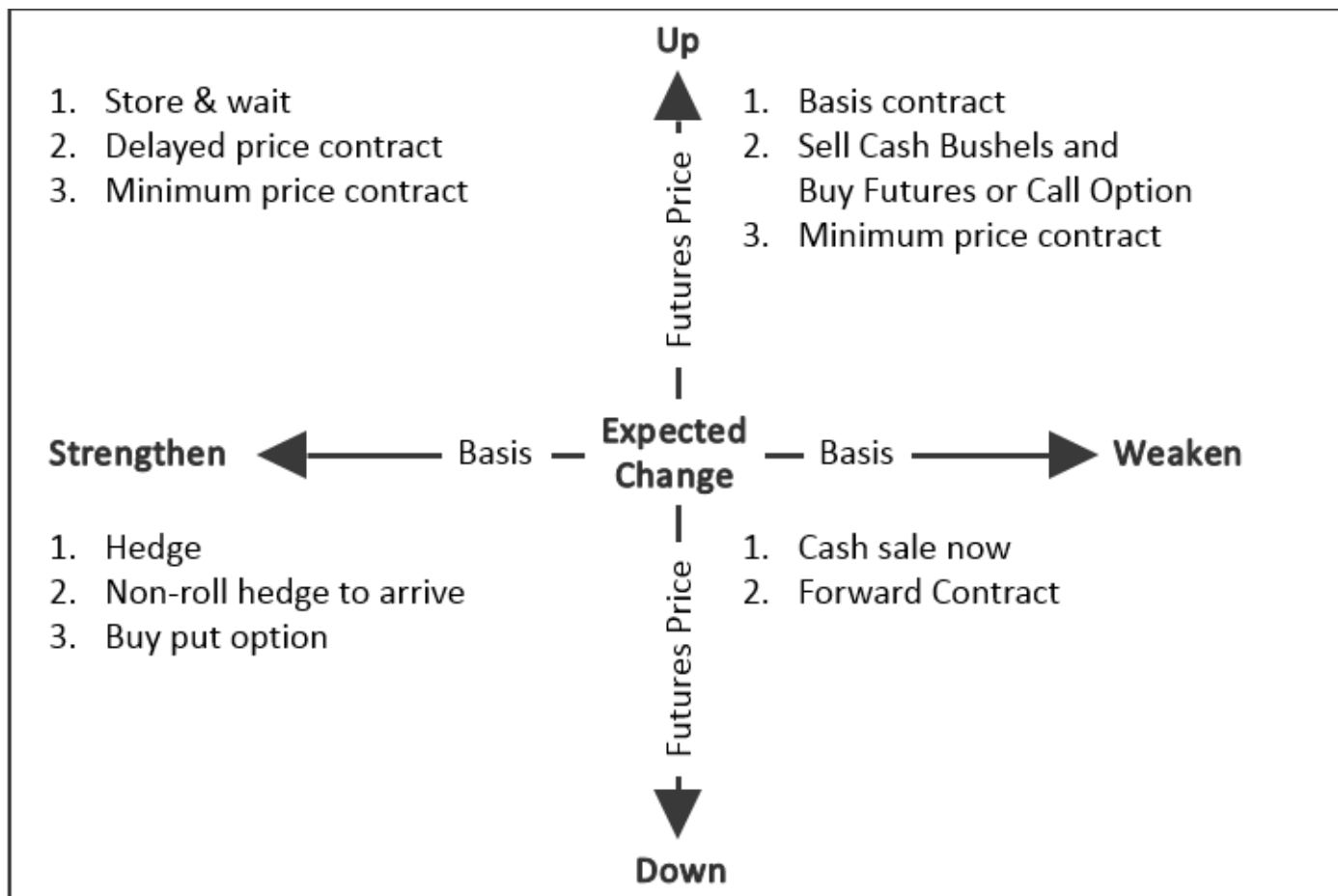
Chapter #14: Wrap-Up & Crop Marketing Matrix

This table shows advantages and disadvantages of the marketing tools outlined in this workbook. It can be a starting point when researching which contracts work best for your situation.

How Different Contracts Compare		
Contract	Advantages	Disadvantages
Futures	<ul style="list-style-type: none"> ▪ Locks in futures price ▪ Leaves basis, storage, and delivery decisions open 	<ul style="list-style-type: none"> ▪ Pay money in advance (margin) ▪ Locked in price (can't go higher)
Call Option (& Selling Cash Crop)	<ul style="list-style-type: none"> ▪ Protects against missing a rising market if farmer has sold grain ▪ Limits risk of margin calls <ul style="list-style-type: none"> ▪ Limits risk of losses 	<ul style="list-style-type: none"> ▪ Pay money in advance (premium) ▪ Lose premium if market moves lower
Put Option (& Storing Cash Crop)	<ul style="list-style-type: none"> ▪ Protects against falling prices for growing crops and/or stored grain ▪ Limits risk of losses 	<ul style="list-style-type: none"> ▪ Pay money in advance (premium) ▪ Lose premium if market moves higher (cash bushels gain value)
Forward Cash Contract	<ul style="list-style-type: none"> ▪ No margin deposit required ▪ Lock in price and delivery terms 	<ul style="list-style-type: none"> ▪ Penalties if cannot deliver the contracted amount <ul style="list-style-type: none"> ▪ Locked in price (can't go higher) ▪ Often receive a wider basis

The following graphic is a crop marketing matrix. This matrix indicates the range of tools that fits the market situations you face. Remember the market situation is summarized by the futures price and basis signals. And different marketing tools cover different risks and work well in some situations, but not in others. The activities in this workbook have shown how the marketing tools address risk management and work within a marketing plan.

Crop Marketing Matrix



Activity #14: Review: Goals and Weekly Tracking Table

★Review your definition of success in Activity 1. Have your marketing actions and the market movement moved you closer to your goals? _____

★Which is your favorite marketing tool? Do you see a benefit in learning about all the tools in the workbook? _____

Appendix

Glossary

At-the-money Option

An option that conveys the right to buy or sell futures at the current futures price.

Basis

The difference between the local cash price and the underlying futures price of a commodity. The local cash price is quoted as being over or under the futures price.

Bid

A proposal to buy at a specified price.

Broker

A person who is licensed to fulfill futures or options orders from customers.

CFTC – Commodity Futures Trading Commission

The governmental agency responsible for overseeing the conduct of the futures industry.

Call Option

An option that conveys the right, but not the obligation, to buy futures for a predetermined price in exchange for a premium paid in advance.

Carry

The difference between futures contract prices of the same commodity. Carrying charges should be compared to the costs to store grain from one futures delivery month to another.

Commission

The fee paid to a broker when a transaction is made in the futures or options market.

Deferred

A futures contract that covers any month later than the contract closest to delivery.

Delivery

The process of fulfilling the terms of a futures contract by giving the physical commodity to buyer.

Exchange

A place where regulated futures contracts and options are traded.

Forward cash contract

An agreement between a buyer and seller covering a quantity and quality of bushels to be delivered at a specified location and time in exchange for a specific price.

Futures contract

An exchange traded contract to buy or sell a specific quantity and quality of a commodity, to be delivered at a specific time at a specific location.

Globex Futures

The electronic trading system currently used for commodity futures by the Chicago Mercantile Exchange in the evening and early morning hours.

Hedger

A person or business that uses futures (options) to price a commodity actually used or produced.

Initial margin

The amount of funds required to be placed into a brokerage account to open a futures or short options position.

In-the-money Option

An option that, if exercised, would immediately have value.

Inverted

A grain market where contracts for nearby delivery sell for more than contracts for delivery later.

Maintenance margin

The amount of money that must be kept in a margin account once a futures or short options position is taken. Also, the amount that triggers a margin call.

Margin

Money that must be deposited into a brokerage account to open or maintain a futures position.

Nearby

The futures contract month that is closest to delivery.

Offer

A proposal to sell at a specified price.

Open outcry

The method of trading used traditionally at commodity exchanges, where buyers and sellers negotiate face to face on the floor of an exchange using voice and hand signals.

Open interest

The number of futures or options contracts that are currently open, which have not been liquidated by an offsetting transaction.

Option writer

A person or business that sells an option to the buyer when an option is initially opened. The option writer receives a premium, paid up front, from the option buyer, but must post margin money similar to a futures contract.

Out-of-the-money Option

An option that, if exercised, would not have value.

Premium

The amount paid to purchase an option.

Put Option

An option that conveys the right, but not the obligation, to sell futures for a predetermined price in exchange for a premium paid in advance.

Spot cash price

The cash bid for immediate delivery of grain.

Settlement price

The price used by an exchange that represents the final price of the day for a commodity, which is used to determine gains and losses in margin accounts.

Speculator

A person or business that buys or sells futures or options in hopes of making a profit from just the futures or options trades. Speculators do not have the commodity to back their futures or options trades.

Spread

The difference between two futures contract months.

Strike price

The price granted by an option at which a position in the futures market may be taken.

Trade option

A grain contract that has features similar to an option, but is negotiated between private buyers and sellers rather than traded on an exchange.

Volume

The number of futures or options contracts that change hands during a period.

Web Site Resources

Chicago Mercantile Exchange www.cmegroup.com

- Trading Tab
 - Click on Agricultural
 - Choose Commodity, (OPT = Options)
- Education: Click on Education Tab

Iowa Farm Bureau Federation www.iowafarmbureau.com

Iowa State University Extension

Ag Decision Maker

www.extension.iastate.edu/agdm

Ag Decision Maker: Commodity Challenge Information

www.extension.iastate.edu/agdm/info/icc.html or <http://tinyurl.com/iacrops>

Monthly Cost of Storing Grain worksheet

<https://www.extension.iastate.edu/agdm/crops/xls/a2-33.xlsx> or <http://tinyurl.com/storecost>

Iowa Farm Outlook & News

www.econ.iastate.edu/ifo

Dr. Chad Hart, Grain Marketing Information

www.econ.iastate.edu/~chart

Dr. Bob Wisner's Balance Sheets

www.extension.iastate.edu/agdm/info/outlook.html

University of Illinois

Farm Doc – Weekly Outlook Newsletter www.farmdoc.illinois.edu/marketing/index.asp

Kansas State University

Ag Econ News – Grain Outlook www.agmanager.info/news

Univ. of Minnesota

Center for Farm Financial Management www.cffm.umn.edu/GrainMarketing

Commodity Challenge: www.commoditychallenge.com.

Iowa Commodity Challenge webpage

<http://tinyurl.com/iacrops>

Videos and materials on the following topics:

1. Introduction to Crop Marketing
2. Successful Market Planning
3. Futures Hedging
4. Futures Hedging and Basis Movement
5. Using Crop Contracts (NEW)
6. Working with Your Grain Merchandiser
7. Basis, Carry and Cost of Ownership
8. Forward Cash Contracts
9. Margin Flows
10. Basic Options, Intrinsic and Time Value
11. Store Cash Bushels and Buy Put Option
12. Sell Cash Bushels and Buy Call Option
13. Marketing New Crop
14. Conquer Marketing Concerns
15. Comparing Storage to Other Marketing Strategies & Tools



PLUS the Marketing Tools Workbook, updated Weekly Tracking Tables and more!

Learn to use marketing tools from your home or farm office!

Monthly Cost of Storing Grain worksheet

<http://tinyurl.com/storecost>

Calculate your own cost of storage; Partial screenshot of **worksheet** below:

Monthly Cost of Storing Grain				
Ag Decision Maker -- Iowa State University Extension and Outreach				
<small>Cost of Storing Grain has more information on projecting the costs of storing grain past harvest in commercial storage or an existing farm facility.</small>				
<small>Place the cursor over cells with red triangles to read comments.</small>				
<small>Enter your input values in shaded cells.</small>				
Storage Type	Corn		Soybeans	
	On-Farm	Commercial	On-Farm	Commercial
Bushels to be stored		- bu.		- bu.
Cash grain price at harvest (\$/bu.)		\$0.00		\$0.00
Short-term interest rate (percent)		0.0%	0.0%	0.0%
Length of storage (months)		- months		- months
Commercial storage charge				
Base rate (\$/bu.)				
Base period (months)				
Rate per month after base period (\$/bu./month)				
Farm storage rent (leave blank for owned storage)				
Fixed rate (\$/bu.) for the year, or				
Rate per month (\$/bu./month)				
Moisture level for storage (%)				
Drying cost (variable costs, \$/point removed)				
Shrink factor (% per point removed)				
Extra handling cost into and out of farm storage (\$/bu.)				

Market Planning and Transaction Log: Old Crop Corn

Total bushels to market: _____ bushel

Forward Cash Contract and Futures:

Date	Bushels	Futures Price	Basis	Cash Price	Why? Reason for Action

Options:

Date	Bushels	Put or Call	Strike price	Premium	Basis	Estimated. Cash Floor	Why? Reason for Action

Weekly Tracking Table (Old Crop)

Corn Location: _____

Date	Spot Cash Price	Futures Contract Price	Basis	Forward Cash Contract Price	Forward Cash Contract Basis	At the Money Option Strike Price	
						Put Option Premium	Call Option Premium



Market Planning and Transaction Log

Corn: New Crop

Total bushels to market: _____ bushel

Forward Cash Contract and Futures:

Date	Bushels	Futures Price	Basis	Cash Price	Why? Reason for Action

Options:

Date	Bushels	Put or Call	Strike price	Premium	Basis	Estimated Cash Floor	Why? Reason for Action



Estimated Costs of Crop Production in Iowa - 2017

Ag Decision Maker

File A1-20

The estimated costs of corn, corn silage, soybeans, alfalfa, and pasture maintenance in this report are based on data from several sources. They include the annual Iowa Farm Business Association record summaries, production and costs data from the Departments of Economics, Agricultural and Biosystems Engineering, and Agronomy at Iowa State University, and a survey of selected agricultural cooperatives and other input suppliers around the state.

These cost estimates are representative of average costs for farms in Iowa. Very large or small farms may have lower or higher fixed costs per acre.

Due to differences in soil potentials, quantity of inputs used, and other factors, production costs will vary from farm to farm. Price shifts for inputs can change production costs in both the short and long run. The data reflect average cost of purchased inputs and a return to land and labor resources, but do not provide a margin for profit or a return to management. They reflect production costs only, and do not include costs of storage.

Labor has been treated as a fixed cost because most labor on Iowa farms is supplied by the operator, family, or permanent hired labor. However, when deciding among alternative crops, labor should be considered a variable cost. The wage rate used here is \$13.00 per hour. The hours assumed per crop are presented in the budgets. Hours have been adjusted downward in 2017 to reflect increased field capacity of farm machinery. ([AgDM File A3-24](#)) The hours per crop acre include not only the field work but also time for maintenance, travel, and other activities related to crop production. The land charge is based on rent equivalent. Owned land may require a greater or lesser cash outlay.

In the short run, cash income must be sufficient to pay cash costs, including seed, fertilizer, chemicals, insurance, cash rent, and hired labor, as well as machinery fuel and repairs, and interest on operating capital. In the long run, income

should be sufficient to pay all costs of production for resources to be used in their most profitable alternative.

Corn yields reflect rotation effects. Fertilizer rates have been adjusted to reflect current data on removal and application rates. Crop insurance costs reflect revenue crop protection at an 80 percent coverage level for a typical farm in Iowa.

Machinery costs reflect both new and used equipment. The machine operations assumed are based on the 2000 Crop Production Practices Survey conducted by the Iowa Agricultural Statistics Service and Iowa State University Extension and Outreach publication [PM 696](#), [Estimating the Field Capacity of Farm Machines \(AgDM File A3-24\)](#). The Estimated Machinery Costs table can be used to budget other tillage and harvesting systems.

Estimates represent typical costs and are only intended to be guidelines. Actual costs will vary considerably and can be entered in the column for "Your Estimates." Electronic spreadsheets for developing crop production budgets are available on the Ag Decision Maker website, www.extension.iastate.edu/agdm.

Budgets for alfalfa hay establishment with an oat companion crop and by direct seeding are included in this publication. Annual production costs for established alfalfa or alfalfa-grass hay as well as a budget for maintaining grass pastures are included. Additional pasture establishment budgets are published in ISU Extension and Outreach publication [AG-96](#), [Estimated Costs of Pasture and Hay Production \(AgDM File A1-15\)](#).

Two low-till budgets, one for corn and one for soybeans, are included. The major differences between the low-till and conventional budgets are the preharvest machinery, labor, herbicide, and seeding costs. The soybean budgets are for herbicide tolerant varieties. A strip-till budget is also included.

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Corn Following Corn

	145 bu. per acre		165 bu. per acre		185 bu. per acre		Your Estimate
	Fixed	Variable	Fixed	Variable	Fixed	Variable	
Preharvest Machinery ^{1/}	\$23.20	\$21.20	\$23.20	\$21.20	\$23.20	\$21.20	\$ _____
Seed, Chemical, etc.	Units		Units		Units		
Seed @ \$3.43 per 1000 k.	25,000	\$85.80	30,000	\$103.00	35,000	\$120.10	\$ _____
Nitrogen @ \$0.31 per lb.	186	57.66	186	57.66	186	57.66	_____
Phosphate @ \$0.34 per lb.	54	18.36	62	21.08	69	23.46	_____
Potash @ \$0.25 per lb.	44	11.00	50	12.50	56	14.00	_____
Lime (yearly cost)		9.34		9.34		9.34	_____
Herbicide		32.40		32.40		32.40	_____
Insecticide		20.30		20.30		20.30	_____
Crop insurance		9.00		10.00		10.80	_____
Miscellaneous		9.00		10.00		11.00	_____
Interest on preharvest variable costs (8 months @ 5.5%)		<u>10.05</u>		<u>10.91</u>		<u>11.74</u>	_____
Total		\$262.91		\$287.19		\$310.80	\$ _____
Harvest Machinery							
Combine	\$13.00	\$6.70	\$13.00	\$6.70	\$13.00	\$6.70	\$ _____
Grain cart	6.20	3.00	6.20	3.00	6.20	3.00	_____
Haul	6.28	5.49	7.14	6.24	8.01	7.00	_____
Dry (LP Gas @ \$0.95/gal.)	7.25	16.53	8.25	18.81	9.25	21.09	_____
Handle (auger)	2.53	2.81	2.88	3.20	3.23	3.59	_____
Total	\$35.26	\$34.53	\$37.48	\$37.95	\$39.69	\$41.37	\$ _____
Labor							
2.80 hours @ \$13.00	\$36.40		\$36.40		\$36.40		\$ _____
Land							
Cash rent equivalent	\$191.00		\$230.00		\$270.00		\$ _____
Total fixed, variable							
Per acre	\$285.86	\$318.63	\$327.08	\$346.34	\$369.29	\$373.38	Yield:
Per bushel	\$1.97	\$2.20	\$1.98	\$2.10	\$2.00	\$2.02	bu./acre _____
Total cost per acre	\$604.50		\$673.41		\$742.67		\$ _____
Total cost per bushel	\$4.17		\$4.08		\$4.01		\$ _____

^{1/}Chisel plow, tandem disk, apply N, field cultivate, plant, and spray. See the Estimated Machinery Costs table.

Corn Following Soybeans

	160 bu. per acre		180 bu. per acre		200 bu. per acre		Your Estimate
	Fixed	Variable	Fixed	Variable	Fixed	Variable	
Preharvest Machinery ^{1/}	\$19.60	\$17.30	\$19.60	\$17.30	\$19.60	\$17.30	\$ _____
Seed, Chemical, etc.	Units		Units		Units		
Seed @ \$3.43 per 1000 k.	25,000	\$85.80	30,000	\$103.00	35,000	\$120.10	\$ _____
Nitrogen @ \$0.31 per lb.	131	40.61	131	40.61	131	40.61	_____
Phosphate @ \$0.34 per lb.	60	20.40	68	23.12	75	25.50	_____
Potash @ \$0.25 per lb.	48	12.00	54	13.50	60	15.00	_____
Lime (yearly cost)		9.34		9.34		9.34	_____
Herbicide		32.40		32.40		32.40	_____
Crop insurance		9.00		10.00		10.80	_____
Miscellaneous		9.00		10.00		11.00	_____
Interest on preharvest variable costs (8 months @ 5.5%)		8.65		9.51		10.34	_____
Total		\$227.20		\$251.48		\$275.09	\$ _____
Harvest Machinery							
Combine	\$13.00	\$6.70	\$13.00	\$6.70	\$13.00	\$6.70	\$ _____
Grain cart	6.20	3.00	6.20	3.00	6.20	3.00	_____
Haul	6.93	6.05	7.79	6.81	8.66	7.57	_____
Dry (LP Gas @ \$0.95/gal.)	8.00	18.24	9.00	20.52	10.00	22.80	_____
Handle (auger)	2.80	3.10	3.15	3.49	3.50	3.88	_____
Total	\$36.92	\$37.09	\$39.14	\$40.52	\$41.35	\$43.94	\$ _____
Labor							
2.55 hours @ \$13.00	\$33.15		\$33.15		\$33.15		\$ _____
Land							
Cash rent equivalent	\$191.00		\$230.00		\$270.00		\$ _____
Total fixed, variable							
Per acre	\$280.67	\$281.59	\$321.89	\$309.29	\$364.10	\$336.33	Yield:
Per bushel	\$1.75	\$1.76	\$1.79	\$1.72	\$1.82	\$1.68	bu./acre _____
Total cost per acre	\$562.26		\$631.18		\$700.44		\$ _____
Total cost per bushel	\$3.51		\$3.51		\$3.50		\$ _____

^{1/}Apply N, tandem disk, field cultivate, plant, and spray. See the Estimated Machinery Costs table.

Herbicide Tolerant Soybeans Following Corn

	45 bu. per acre		50 bu. per acre		55 bu. per acre		Your Estimate
	Fixed	Variable	Fixed	Variable	Fixed	Variable	
Preharvest Machinery ^{1/}	\$21.10	\$18.80	\$21.10	\$18.80	\$21.10	\$18.80	\$ _____
Seed, Chemical, etc.	Units		Units		Units		
Seed @ \$52.70 per 140 k.	140	\$52.70	140	\$52.70	140	\$52.70	\$ _____
Phosphate @ \$0.34 per lb.	36	12.24	40	13.60	44	14.96	_____
Potash @ \$0.25 per lb.	68	17.00	75	18.75	83	20.75	_____
Lime (yearly cost)		9.34		9.34		9.34	_____
Herbicide ^{2/}		40.00		40.00		40.00	_____
Crop insurance		5.80		6.50		7.30	_____
Miscellaneous		9.00		10.00		11.00	_____
Interest on preharvest variable costs (8 months @ 5.5%)		6.05		6.22		6.41	_____
Total		\$152.13		\$157.11		\$162.46	\$ _____
Harvest Machinery							
Combine	\$8.30	\$4.10	\$8.30	\$4.10	\$8.30	\$4.10	\$ _____
Grain cart	6.20	3.00	6.20	3.00	6.20	3.00	_____
Haul	1.95	1.70	2.16	1.89	2.38	2.08	_____
Handle (auger)	0.79	0.87	0.87	0.97	0.96	1.07	_____
Total	\$17.23	\$9.67	\$17.54	\$9.96	\$17.84	\$10.25	\$ _____
Labor							
2.20 hours @ \$13.00	\$28.60		\$28.60		\$28.60		\$ _____
Land							
Cash rent equivalent	\$191.00		\$230.00		\$270.00		\$ _____
Total fixed, variable							
Per acre	\$257.93	\$180.60	\$297.24	\$185.87	\$337.54	\$191.51	Yield:
Per bushel	\$5.73	\$4.01	\$5.94	\$3.72	\$6.14	\$3.48	bu./acre _____
Total cost per acre	\$438.53		\$483.11		\$529.05		\$ _____
Total cost per bushel	\$9.75		\$9.66		\$9.62		\$ _____

^{1/} Chisel plow, tandem disk, field cultivate, plant, and two sprays. See the Estimated Machinery Costs table.

^{2/} Estimates do not include any insecticide or fungicide costs.

Low-till Corn and Soybeans

	<u>Corn Following Soybeans</u>			<u>Herbicide Tolerant Drilled Soybeans Following Corn</u>		
	180 bu. per acre		Your Estimate	50 bu. per acre		Your Estimate
	Fixed	Variable		Fixed	Variable	
Preharvest Machinery ^{1/}	\$15.00	\$13.90	\$ _____	\$13.50	\$11.40	\$ _____
Seed, Chemical, etc.	Units			Units		
Seed @ \$3.43 per 1000 k.	30,000	\$102.97	\$ _____			
Seed @ \$52.70 per 140 k.				160	\$60.20	\$ _____
Nitrogen @ \$0.31 per lb.	131	40.61	_____			
Phosphate @ \$0.34 per lb.	68	23.12	_____	40	13.60	_____
Potash @ \$0.25 per lb.	54	13.50	_____	75	18.75	_____
Lime (yearly cost)		9.34	_____		9.34	_____
Herbicide ^{2/}		34.00	_____		56.70	_____
Crop insurance		10.00	_____		6.50	_____
Miscellaneous		10.00	_____		10.00	_____
Interest on preharvest variable costs (8 months @ 5.5%)		9.44	_____		6.84	_____
Total		\$252.98	\$ _____		\$181.93	\$ _____
Harvest Machinery						
Combine	\$13.00	\$6.70	\$ _____	\$8.30	\$4.10	\$ _____
Grain cart	6.20	3.00	_____	6.20	3.00	_____
Haul	7.79	6.81	_____	2.16	1.89	_____
Dry (LP Gas @ \$0.95/gal.)	9.00	20.52	_____			
Handle (auger)	3.15	3.49	_____	0.87	0.97	_____
Total	\$39.14	\$40.52	\$ _____	\$17.54	\$9.96	\$ _____
Labor						
2.25 hours @ \$13.00	\$29.25		\$ _____			
1.70 hours @ \$13.00				\$22.10		\$ _____
Land						
Cash rent equivalent	\$230.00		\$ _____	\$230.00		\$ _____
Total fixed, variable						
Per acre	\$313.39	\$307.40	Yield:	\$283.14	\$203.29	Yield:
Per bushel	\$1.74	\$1.71	bu./acre _____	\$5.66	\$4.07	bu./acre _____
Total cost per acre	\$620.79		\$ _____	\$486.43		\$ _____
Total cost per bushel	\$3.45		\$ _____	\$9.73		\$ _____

^{1/} Apply N, cultivate, plant, and spray for corn. Disk, drill, and spray for soybeans. See the Estimated Machinery Costs table.

^{2/} Estimates do not include any insecticide or fungicide costs.