SECTION 2

ALTERNATIVES

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MARKETING AND RISK MANAGEMENT

In the first chapter, the concept of integrated resource management was introduced. The management process was discussed in detail, and three areas causing risk and uncertainty which make the planning and management processes difficult were introduced. The three management areas causing risk and uncertainty are production, marketing and financial. This program is primarily concerned with the market or price risk area. This chapter will discuss the advantages and disadvantages of alternatives available to producers to help manage market or price risk.

WHY MANAGE RISK?

There are three general and perhaps related reasons why a manager would be interested in taking steps to reduce risk and uncertainty. The first is to reduce the variability of income over time. This allows more accurate planning for items such as debt payment, family living expenses, and business growth. Second, there may be a need to ensure some minimum income level to meet family living expenses and other fixed expenses. A third reason for minimizing risk is to enhance the survival of the business. Several consecutive years of low income may threaten business survival or result in bankruptcy. Some recent studies show many managers rate business survival as their most important goal. They are willing to accept a lower expected income if it reduces income variability and hence the risk of business failure.

PRODUCT DIVERSIFICATION

Many business firms produce more than one product to avoid having their income totally dependent on the production and price of one product. If profit from one product is poor, profit from producing and selling other products may prevent total profit from falling below acceptable levels. In agricultural production, diversifying by producing two or more commodities may reduce income variability if all prices and yields are not low or high at the same time.

To what extent will diversification reduce income variability in an actual farm or ranch situation? The answer depends on the price and yield correlation for the enterprises selected. If prices or yields for both of the enterprises tend to move up and down together, little is gained by diversifying. The less values tend to move together or the more they move in opposite directions, the more income variability will be reduced by diversifying. Additionally, the extent of the income being smoothed out depends somewhat on how much of the available resources are used to produce the different products and the corresponding proportion of total income which is derived from each product. For example, if two products are grown and the corresponding prices and yields move in opposite directions, income variability is not reduced unless

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a large proportion of the existing resources is committed to each product, and hence a chance exists for a large proportion of the income to be derived from each product.

Weather is the primary factor influencing crop yields. Crops with the same growing season experience the same weather, and their yields tend to have a strong positive correlation. The yield correlation for crops that have different growing seasons and are susceptible to different insects and diseases will be somewhat lower. Production rates among different types of livestock are less closely correlated, and there is little correlation between crop yields and livestock performance.

Most studies on the price correlations for major agricultural commodities show that pairs of commodities with a strong yield correlation often have a positive price correlation as well, since year-to-year production changes have a major impact on prices. Some specialty crops such as fruits and vegetables, however, may show a weak or even negative price correlation with some of the major field crops.

Diversification plans can include non-farm activities as well. Investing in stocks and bonds, carrying out a part-time business unrelated to agriculture, or holding a non-farm job can all improve the stability of family income. Diversification may mean giving up the benefits of specializing in one enterprise in order to gain the benefits from less variability in net income.

SOME THINGS TO CONSIDER WHEN DIVERSIFYING INTO A NEW ENTERPRISE

If you are adding a new enterprise to your operation, you may want to consider several factors. You may have to learn some new practices and requirements of producing a new commodity. There may be a learning curve associated with a new commodity or production approach. So you should recognize as you learn what works and what doesn't, the quality and quantity of the output may be below average the first few years. The amount of learning that is required will probably be related to how new and different the operation is for you. Market considerations are also important when adopting a new enterprise. You should find out specifics of who, what, when and how you can market the new product. Other considerations such as cash flow requirements, availability and timing of machinery, labor, management and other resources should also be considered. Most of these considerations should be done in the planning phase of the integrated management process.

PRICE AT DELIVERY - CASH MARKET

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Price at delivery is the primary marketing method used by producers selling grains and livestock. This type of market alternative basically just requires the producer deliver the product to the market location whenever the producer is ready to sell. The timing of the marketing decision is often linked to production operations such as harvest or weaning. In general, the producer delivers whatever quantity of product he/she wishes to sell and accepts the price dictated by the market. The producer usually has the option to accept or not accept the price offered. However, if the offer is refused, additional costs may be incurred due to transportation, interest, etc. while exploring other alternatives or waiting for a better price. Two examples of this alternative would be selling cattle at the local auction or selling grain at the local elevator.

AUCTIONS

Most auctions sell livestock just one or sometimes two days a week. A livestock owner who wishes to sell his animals through an auction market consigns his livestock with the auction barn. Though not a requirement, it is good business practice for an owner to contact the auction manager several days prior to sale and notify him of intentions to deliver. It is a common practice for auction managers or their representative to visit patrons on request, inspect their livestock, and advise the patron regarding the inspection, market conditions, and probable value of livestock.

Upon delivery, the livestock are penned or marked in a way to maintain identity of each individual owner. Auction operators usually follow a consistent order in sale by species. Within a given specie, most auctions follow the practice of presenting livestock for sale in the order in which they were received. Some auctions, however, have a considerably greater time lag from delivery to sale than do others, and this can be a factor in weight shrinkage.

The price discovery in auction markets is by public bidding in response to an auctioneer's chant. As the animals arrive in the ring, it is common practice for the manager, or his representative to provide a starting bid. Following the auctioneer's chant, bidding progresses to higher levels until no one is willing to advance the last offer, and the livestock is sold to the highest bidder. Depending upon local custom and/or class of livestock involved, the selling may be done on a per head basis or by weight.

The major costs of marketing at an auction are commission and yardage. Lesser deductions may be made for such items as insurance, feed, state inspection, state fees, National Livestock and Meat Board check-off, and brand inspection. A considerable variation exists nationally among auctions in the determination of commission charges. Some auctions assess commission on a per-head basis, others on

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a percentage of the proceeds, and some on a combination of the two. Other costs which must be considered by producers are shrinkage and transportation which are incurred prior to the livestock entering the auction ring.

GRAIN ELEVATORS

Most of our grain crop moves from on-farm storage or from farm fields to a local elevator for grading, conditioning and, in some cases, further storage. The local elevator concentrates the grain from many farms. In the process, grain is dried if necessary, sorted and blended into uniform grade lots as required before shipment. The local elevator is generally the first pricing point. It sells and arranges for shipment of grain to terminal elevators, processors, livestock and poultry feeders and other users. In areas where livestock are produced, the local elevator may also process grain into formulated mixed feeds.

A central feature of the pricing system for grain in the United States is the commodity futures markets. These markets act as central barometers of grain values. They also serve to focus and widely distribute information on grain prices and changing domestic and international supply and demand conditions. In addition to futures markets, grain prices overall are influenced by government programs which also play a part in the price discovery mechanism in the futures market.

Prices at local elevators are generally developed from some base established in futures markets. Local prices reflect differences associated with transportation costs, quality, holding costs, local supply and demand conditions and the extent of competition from other elevators or firms in the area. Producers take their grains to the elevator where such things as protein, moisture and weight are factors used to determine quality and price the elevator is willing to pay.

The major costs producers must consider when marketing grain at the elevator are transportation and shrinkage from loss of moisture. In the case of grains, elevators may dock prices for high moisture content. Storage and handling costs may be incurred if producers decide to speculate and store the grain for sale on a future date.

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ADVANTAGES & DISADVANTAGES OF PRICE AT DELIVERY

The price at delivery marketing alternative has some advantages. It is usually very easy and typically a familiar alternative for producers. Just deliver the commodity and take the price determined by the auction or offered at the elevator. Producers receive payment almost immediately after the commodity is sold. Producers also have great flexibility in the quantity they sell. Some alternatives such as futures contracts may specify a certain amount of product to be sold at one time. In the case of the auction, the market is considered to be price efficient. Price efficiency is concerned with how accurately, how effectively, how rapidly, and how freely the marketing system makes prices which measure product values to the ultimate consumer and reflects those values through the marketing system to the producer.

Unfortunately, from a risk management standpoint the price at delivery strategy increases price risk. In fact, the price at delivery alternative maximizes a producer's price risk. Producers can only control when they take the commodity to market, but they still accept the price given them at the time of delivery. Ultimately, this strategy compounds with production risks to increase income variability for the firm.

FORWARD CONTRACTS

Producers of some specialty crops such as seed corn and vegetables often sign a contract with a buyer or processor before planting the crop. This contract will usually specify certain management practices to be followed as well as the price to be received for the crop and possibly the amount to be delivered. A contract of this type removes the price risk as price is known at planting.

It is also possible to obtain a forward price contract for many field crops and some types of livestock. Many grain and livestock buyers will contract to purchase a given amount of these commodities at a set price for delivery in a later month. These contracts are often available during the growing season as well as after the crop has been harvested and stored. Contract sales remove price uncertainty but do not allow selling at a higher price if prices rise later in the year.

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CROP CONTRACTS

Contracts vary with companies and with crops. Here are several factors to consider when deciding on a crop contract. Remember, there is more to a contract than just price. Contracts are binding on both parties.

Make sure the company, buyer is licensed and bonded with the state. If in doubt, call your state Department of Agriculture. To receive a license, the dealer must meet criteria designed to protect you. The bond ensures that some minimal financial standards have been met, and hopefully reduces the chance of nonpayment.

All parties involved in the business should be identified in the contract. For example, if you have any partners in the business they should be specified in the contract. Additionally, production practices expected by the buyer should be specified in the contract such as pesticide use.

Be sure you understand your pricing choices, and make sure the contract spells out the pricing terms agreed upon between you and the buyer. Some examples of common pricing options might be, fixed price for the entire contracted production amount, fixed price on a set production per acre, guaranteed minimum price with possible final payment at the going market price, or price fixed at some point after the signing of the contract. These pricing choices have to be considered in terms of the risk you are willing to accept. If you want to minimize risk you will prefer a contract in which all production is priced. This will protect you from a drop in the market. Recognize, however, it also limits your opportunity to take advantage of a rise in the market. It is important to know your production costs before negotiating price so that you can better identify good pricing alternatives.

Other things should be considered such as who is responsible for transportation costs to the delivery point. Is the price quoted based on delivery to some location or is it FOB your location? If the price quoted is based on delivery to some other location you need to determine what the transportation will cost you when deciding whether the contract price seems fair. Are there discounts or possible rejection of the crop associated with quality differences stated in the contract? If so, make sure grades, specifications and testing procedures are stated clearly in the contract. Where the grading and testing procedures takes place needs to be considered. Make sure the testing is done by an unbiased third party if possible. Delivery date and delivery point need to be clearly specified as well. What happens in the event the buyer can't take delivery on the specified date? Is there a provision for storage of the crop and who pays? Make sure any specified storage by you as a grower provides you with a high enough price or additional payment over price which justifies your risk and costs

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associated with storage. Additionally, you'll want to consider whether storage delays payment and causes cash flow problems.

One last consideration is what happens in the event of crop failure due to weather. Is there a provision for crop failure? This is commonly referred to as an Act of God Clause. Unusual circumstances such as insects, mid-late season drought or hail where the crop may not be totally destroyed but is adversely affected to the point of not meeting minimum contract requirements are often considered Acts of God. You might also consider such things as crop insurance and pricing a portion of the crop in case you don't want to be exposed to the risk of non-performance by not meeting the agreed amount of contract production.

Even with a contract there are risks of non-performance or misinterpretation. These risks can be minimized by carefully reviewing terms of the contract and credibility of the buyer. Both buyer and seller need to understand all terms of the contract before signing the agreement. If you still have questions, it might be wise to have an attorney familiar with contract law review the agreement.

FEEDER CATTLE CONTRACTS

Direct sales of beef cattle can reduce transportation and handling problems, actual shrink (usually there is some pencil shrink though), and commission and yardage costs compared to selling cattle at an auction. In general, the buyer contracts for a certain quantity of cattle, weighing within a certain range, to be taken possession of at some future point in time for an agreed upon price. Many of the same considerations discussed in the crop contracts need to be considered in forward contracts for feeder cattle.

While the majority of cattle buyers are honest, previous experience indicates that some take advantage of unsuspecting sellers. Most problems involve non-payment for livestock. Many times the cattle are taken from the state of origin, making it difficult to repossess or to receive payment. In the past a verbal commitment and a handshake from a buyer you knew were sufficient. However, today's livestock seller should exercise more caution to ensure an equitable transaction is accomplished. Each year situations develop where some livestock producers are faced with non-payment when selling their cattle direct to buyers. The risk of non-payment, non-performance, or loss of title when selling direct to livestock buyers can be minimized by following a few guidelines.

Just as in the case of crop contracts, it is a good practice check out the legitimacy of the buyer. First determine the license status of the buyer or the dealer the buyer works for. Buyers who are employed by brokers and dealers generally buy

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under the dealer's license and must be individually bondable. Dealers or brokers applying for licensure must identify all buyers and must provide evidence that each buyer has been registered with a bonding agency. Each buyer is issued a buying a card. Sellers should inspect the buying card and note the number and expiration date if there is any question the legitimacy of a buyer who claims to be operating under the authority of someone else's license.

To receive a license, the dealer must meet certain criteria and post a performance bond. Individual states will have different requirements as to the type and amount of state department bonds. A $10,000 bond through the Packers and Stockyards Administration is usually also acceptable. The relatively low bond does not provide much protection to the seller, but it does ensure some minimal financial standards have been met. These rules and regulations vary from state to state, and can be determined for your state through your state Department of Agriculture. You might also ask for some financial references such as the buyer's banker. The financial reference can verify if the buyer does in fact have an account with the institution, and perhaps the reference might offer an opinion as to the legitimacy of the buyer as a business person.

The bill of sale can be useful to protect the seller's title to the livestock until payment is received. By retaining the bill of sale, the seller retains title to the livestock. Buyers have an understandable desire to receive the bill of sale at delivery because it is proof of purchase. It is possible to modify the bill of sale to include provisions to retain possession of title until payment is made.

By designating the document as a bill of sale and contract, it becomes more useful for both buyer and seller since it summarizes not only the sale transaction, but also the provisions of the sale. This can be extremely useful in the event the seller must later repossess and prove ownership, origin, or title to the livestock, or must initiate litigation against the buyer. It also is useful when establishing a claim on livestock which have been resold one or more times after the original sale.

Between states, the bill of sale requirements may vary. You may want to check with your state authorities concerning what information is and can be specified in the bill of sale.

Another consideration concerning direct sales of livestock is method of payment. Currently, a wire transfer is the payment method recommended by some financial institutions. If the seller withholds title until the transfer is confirmed, a wire transfer is virtually foolproof and practically eliminates payment risk for the seller. However, even this limited time lag may hinder its usefulness. Other methods that

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have a relatively low risk are cashier's check, certified check, or a letter of credit. The letter of credit is especially useful for recurring transactions. A cashier's check is good for out-of-state or unfamiliar buyers, but is not convenient for buyers. A certified check may not be convenient for buyers either because it is usually pre-drawn in a specific amount.

Other specifications or factors to be considered are any weight, sex and quality standards specified by the buyer. Usually the buyer has looked at your cattle and has drawn conclusions concerning quality, but since the cattle are to be delivered at some future point in time some of the expectations concerning weight and so on may need to be specified in the contract. Also, the provisions for any price premiums or discounts based on those specifications should be spelled out in the contract. For example, what happens if the cattle are expected to average 500 pounds upon weighing? If the cattle are heavier, the buyer may discount the price. The price discount or slide should be specified in the contract.

Transportation and shrinkage costs must also be considered when entering into a forward contract for livestock. Where are the cattle to be weighed and when? If they are to be weighed off your place, how much will transportation and shrinkage cost you? Additionally, a pencil shrink is often specified. What are the weighing specifications? For example, if the buyer asks for an overnight dry stand before weighing the cattle plus a pencil shrink, the buyer is discounting your cattle significantly through loss of payweight. Additionally, be sure who accepts liability concerning death loss on the truck. Normally it should be the trucking firm, but if there is any doubt, specify it in the contract.

These considerations can minimize potential risks livestock producers face concerning non-payment, non-performance, loss of title and unfair marketing costs when selling direct to livestock buyers. Be sure to verify the qualifications and financial adequacy of prospective buyers, insist on acceptable payment methods, retain title to the livestock until final payment has cleared the financial institution, and don't accept unfair practices which dock your payweight heavily.

ADVANTAGES & DISADVANTAGES

If you forward price all of your expected production through forward contracts you can minimize your price risk. However, you must recognize that there are some risks of non-performance associated with this method. There are some measures you can take to reduce those risks. Forward contracts offer you the advantages of being relatively easy, flexible in quantity and reducing your price risk.

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Some of the disadvantages include risk of non-performance, not being able to capture higher prices once the contract is signed, and it is not very price efficient. Before signing on the dotted line and agreeing to the buyer's price, check around with other buyers and your neighbors to make sure this price is reasonable. Also, check other marketing alternatives which you might use to forward price your production to see if this is a good pricing opportunity.

VIDEO AUCTIONS

Video auctions have gained wider acceptance as a method for marketing cattle. This method entails producing a videotape of the animals being sold. Then, after buyers have received written description of the cattle, an auction is held. The sale is conducted with buyers assembled in a room looking at TV monitors and/or beamed by satellite to other buyers who bid by telephone. Completed sales become cash forward contracts since all cattle are sold for future delivery.

DETAILED DESCRIPTION OF VIDEO CATTLE AUCTION

The following discussion comes from “Current and New Beef Marketing Technology (Electronic)” (reference in the appendix).

For illustrative purposes this section will use the Superior Livestock Auction. This does not endorse this auction, but uses it as an example of how a video auction works and its requirements. These will vary some among auctions. Video auction cattle presentations consist of two components-- the video or visual component and the sale catalog or written component. A $2.00/head videotaping fee is included in the sale commission unless the seller rejects the bid, in which case the seller forfeits the taping fee. The taping is done by one of Superior Livestock Auctions (SLA) regional representatives. Thus, the integrity of the video auction is heavily dependent on the integrity of its regional representatives. Sales catalog descriptions are prepared by the video auction company and the seller when the cattle are videotaped.

Videotapes of about two minutes in duration are shown while an auctioneer solicits bids. Buyers must register in advance of the sale and undergo a credit check in order to participate. Buyers may bid either in person or by telephone from any location where the satellite transmission can be received.

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The video auction representative oversees delivery. Although the video auction representative is responsible for ensuring contract compliance by both buyer and seller, buyers are permitted to be present at delivery.

Each video auction has its own set of terms. The following on how to become a buyer and terms and conditions are condensed from the *Catalog of Superior Livestock Auction, Brush, Colorado*. A buyer must register with the Auction prior to the sale, and be issued a buyer's number. Only qualified, pre-registered buyers with issued numbers are allowed to bid in the sale ring.

Terms and Conditions of the Sale

1. Each bidder must be properly registered and have a buyer's number to bid.

2. If any dispute arises between two or more bidders, the decision of the Auctioneer is final.

3. The Auctioneer reserves the right to reject any and all bids.

4. The record of sale kept by the Auctioneer and Clerk will be taken as final in the event of any dispute.

5. All purchases require a per head partial payment, due and payable at the conclusion of the auction. The amount can vary, but Superior requires $40.00 per head. Those buyers using satellite to purchase livestock will be required to wire transfer funds the following business day.

6. Acceptable payment is as follows: a check or wire transfer of funds. Any and all payments are made to the Livestock Auction Custodial Account.

7. All cattle are sold on a sliding scale. Example: Yearlings - Base Weight 700# (ave) at same sale price. If cattle weigh 720# (ave), price will be $69.60; 730#, $69.20, etc.

8. All cattle are weighed on a certified scales. Any cuts that are made on cattle that are weighed on the ground will be made after the cattle are weighed. All cattle sell FOB the ranch, unless otherwise stated.

9. Any heifers that are guaranteed open are pregnancy checked open prior to delivery at the seller's expense and will be accompanied by a certificate from a licensed veterinarian.

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10. Cows and heifers that are guaranteed bred and/or with a negative Bangs test will be pregnancy checked and blood tested prior to delivery and the buyer accepts cattle with a certificate from a licensed veterinarian. Buyer will be notified prior to testing and may be present at his option.

11. The Auction reserves the right to sign the Livestock Contract on behalf of any buyer that is not present at the auction.

12. Every effort is being made to assure the correctness of the catalog, but all announcements from the auction block take precedence over previously printed matter.

13. Bangs vaccination of heifer calves (if required) will be done at the seller's expense, unless otherwise stated.

ADVANTAGES & DISADVANTAGES

Some of the obvious advantages of this marketing alternative are the cattle are handled less, cattle remain on the place until sold and more competitive bids can be obtained than by just forward contracting with one buyer. The seller can determine desired delivery date. The forward price of the video auction reduces price risk. The video auction provides valuable services unavailable when negotiating a forward contract with a single buyer. For example, the auction guarantees buyer performance of the contract. The seller can also decide to no sale the cattle and faces less transportation costs than with the local auction or perhaps the forward contract alternative.

As in the case of forward contracting, one of the disadvantages of the video auction is that once the seller accepts the bid, he or she cannot benefit from price rises in the market for those cattle committed to the video sale. The video auction does have higher commission fees associated with it, but the transportation costs are typically less. Discounts are incurred for less than a full truckload of cattle. Length of time between videotaping of the cattle and the sale is sometimes a disadvantage. Frequency of video sales is less than that of regular auctions.

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HEDGING WITH FUTURES

WHAT IS A FUTURES CONTRACT?

A futures contract is a standardized agreement to buy or sell a commodity at a date in the future. It specifies:

- **Commodity** to be delivered (corn, soybeans, wheat, live cattle -- i.e. fed cattle, hogs, feeder cattle[1], etc.).
- **Quantity** of the commodity (number of bushels of grain or pounds of livestock as well as range of weight for individual animals).
- **Quality** of the commodity (specification based on U.S. grades).
- **Delivery point** (location at which to deliver commodity).
- **Delivery date** (within month that contract terminates).

The only aspect of a futures contract that is not specified is the price at which the commodity is to be bought or sold. The price varies. It is determined on the floor of the commodity exchange as traders buy and sell the contracts. The prices they offer and bid in the open outcry setting reflect their expectations of supply and demand conditions and price for the commodity at contract maturity.

As the delivery month on a contract approaches, the futures and cash prices converge. The convergence of the futures and cash prices is brought about because of the threat of delivery. If, for example, the futures price was way above cash price during the delivery month, hedgers might deliver their commodity rather than buy or sell like contracts to offset their position, or speculators might buy cattle in the cash market and merchandise them through the futures market. This means market actors could capture the higher futures price for their commodity. These market actors would continue to deliver on their futures contracts until the futures price did not offer an incentive to do so. This price convergence brought on by the threat of delivery is what makes the futures market a viable marketing alternative for producers who actually deal in the cash market for commodities.

[1] Note: Feeder cattle contracts can no longer be delivered upon. They are now cash settlement contracts. All positions remaining open at contract maturity are settled in cash based on the Chicago Mercantile Index.

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THE MECHANICS OF A SHORT HEDGE USING THE FUTURES MARKET

When a producer plans to sell a commodity, he/she can use a short hedge to lock in a price and protect against price decreases. It is important to remember that if you plan to sell the commodity in the future, you need to sell in the futures market when you take your initial position. Otherwise you will not be locking in a future sale price for your commodity.

The producer or holder of the a product must decide, at any point in time, whether the forward pricing opportunity being offered is acceptable. An acceptable price may mean deciding whether the current price offers an acceptable level of profit or an acceptable level of reduced losses. This decision on whether the price is acceptable is dependent on the producer's marketing plan and/or objectives (the subject of market plans will be discussed later). The expected **target** price can be calculated as follows:

EXPECTED TARGET PRICE = FUTURES PRICE + BASIS

If the hedger has decided the expected target price is acceptable. The following steps are involved.

- Sell (or go short) necessary number of contracts.
- Then offset position (go long).
- And sell commodity in cash market.

Selling or going short a commodity futures contract is hedging or forward pricing the underlying commodity, and the hedger is protected against the risk of falling cash prices after going short. Selling the futures contract is essentially a temporary substitute for selling the commodity at a later date in the cash market. For example, if you have a commodity to sell at a later date, you can sell a futures contract now. If prices fall, you sell your actual commodity at a lower cash price, but realize a gain in the futures market by buying back the futures contract at a lower price than you sold it for. If prices rise, your higher price in the cash market covers the loss when you buy back a futures contract at a higher price.

Now let's go through a simple example to illustrate how this works.

Example 1. Suppose you plan to have 65 steers coming off grass weighing an average of 800 pounds when you sell them in October. It's now April, and you are

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uncertain about the outlook for cattle prices. The October futures price is $78.00/cwt, and you expect the basis to be $2.00 under. This means your expected target price for these cattle would be $76.00/cwt ($78.00 - $2.00). Let's say your fears of falling prices are confirmed. By October, the futures price has fallen to $72.00/cwt when you lift the hedge, and you sell the steers at the local auction for $70.00/cwt. You buy back the futures contract and realize a gain of $6.00/cwt ($78.00-$72.00). The net price you receive is the cash price of $70.00 plus the $6.00 futures gain, or $76.00.

EXPECTED TARGET PRICE = FUTURES PRICE + EXPECTED BASIS
$76.00 $78.00 -$2.00

TRANSACTIONS IN CASH AND FUTURES MARKET

DATE	CASH MARKET	FUTURES MARKET
APRIL	Expect to sell 65 hd. in October	Short 1 Oct. Feeder contract @ $78.00
OCTOBER	Sell 65 head at Auction @ $70.00	Long 1 Oct. Feeder contract @ $72.00

NET PRICE FOR CATTLE = CASH PRICE + FUTURES GAIN
$76.00 $70.00 $6.00
ACTUAL BASIS = CASH PRICE - FUTURES PRICE
-$2.00 $70.00 $72.00

Notice that the lower price in the cash market is offset by the gain you realized in the futures market. Also notice that the net price received is the same as we expected because the basis was the same as our expectations.

Example 2. What happens if the market rises rather than falls? Assume the same scenario, but suppose cash price in October turns out to be $81.00/cwt, and the October futures price turns out to be $83.00/cwt when you lift the hedge and offset your position.

EXPECTED TARGET PRICE = FUTURES PRICE + EXPECTED BASIS
$76.00 $78.00 -$2.00

TRANSACTIONS IN CASH AND FUTURES MARKET

DATE	CASH MARKET	FUTURES MARKET
APRIL	Expect to sell 65 hd. in Oc-	Short 1 Oct. Feeder contract

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	tober	@ $78.00
OCTOBER	Sell 65 head at Auction @ $81.00	Long 1 Oct. Feeder contract @ $83.00

NET PRICE FOR CATTLE = CASH PRICE + FUTURES LOSS
$76.00 $81.00 -$5.00
ACTUAL BASIS = CASH PRICE - FUTURES PRICE
-$2.00 $81.00 $83.00

Notice in this example, the loss you experience in the futures market is offset by the higher price in the cash market.

This just gives us the basic mechanics behind hedging with futures contracts. This topic will be discussed in a little more detail in the next chapter when options are discussed at length. As we will see a little later, the options market is tied to the futures market and an understanding of the futures market will help us better understand the options market.

ADVANTAGES & DISADVANTAGES

The futures market offers the producer the opportunity to forward price his or her commodity. It also allows the producer the flexibility to forward price without negotiating a contract with a buyer. Thus, the producer can forward price production up to twelve months in advance and reduce price risk.

There are some disadvantages to using the futures market as well. In order to trade on the futures market a producer must get a broker and set up what is called a margin account. The margin account is used to cover losses on the futures position. In the case of a short hedge if prices rise above the price you get in, your account loses money and you may have to deposit money with the broker for your margin account. The important thing to remember is that if the futures market is rising, the cash market is likely also rising. So remember, even though you are losing in the futures market you are gaining in the cash market. Just as in the case of forward contracting, the producer cannot benefit from rising cash prices because the futures hedge has locked in a price subject to basis risk. So there is no benefit from an uptrending market. Additionally, the producer must pay a broker a commission fee for handling his market actions in the futures market. This is an added cost the producer must account for when comparing expected prices from different marketing alternatives. An additional cost to using this alternative would be interest costs associated with money borrowed to use in the margin account. Another possible disadvantage of using the futures market is that the contracts are standardized as to quantity. This reduces some of the

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quantity flexibility producers have with privately negotiated forward contracts. Overall, hedging in the futures market is more complex and requires more time managing its use as an alternative. However, hedging in the futures market is still a very valuable price risk management alternative.

USING AGRICULTURAL OPTIONS

WHAT IS AN OPTION?

An **option** contract is simply an agreement which allows the purchaser the opportunity, but not the obligation, to buy or sell a futures contract at a specified price. Since buyers of options have the "option" but not the "obligation" to exercise their right to buy or sell futures contracts at a specified price (referred to as the strike price), they are called "options."

An option is like an insurance policy. Just as a producer may purchase the right from an insurance agency to collect on a policy in case of a disaster, he or she may purchase the right to buy or sell a commodity (through a futures contract) at the strike price in case of a disastrous price move. As in the case of an insurance policy against fire, the producer must pay a **premium** to insure against commodity price declines or increases. A producer could collect on the option if the price moves in an unfavorable direction.

There are two types of options. They are the "PUT" option and the "CALL" option. The **put** option is purchased by the producer who wants to insure against price declines. The put option insures a minimum selling price for the option buyer who has a commodity to sell. It is called a "put" because the producer has a commodity to "put on the market." The **put** option gives the option buyer the right to **sell** a particular futures contract at a specified price. How this works will be explained in more detail later, but we'll introduce the basics of how to use a **put** option.

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USING A PUT OPTION

The advantage of using a **put** option is that you can protect yourself against falling prices, but you are not locked into a price if prices rise. That is because you have the option, but not the obligation to exercise the option into a futures position. For that reason, when you have a commodity to **sell**, you can buy a **put option** to lock in a **minimum selling price** and take advantage of prices if they rise. As the option holder, you have three choices once you buy the put. If prices fall you can **exercise** the option into a futures position. In this case you would be subject to margin calls just as if you had entered the futures market in the first place, but one of the advantages using the options market is being able to avoid margin calls. As futures price falls below the strike price in the case of a **put** the value of the put's premium increases. Therefore, as time passes, if futures continue to fall, the option becomes worth more. Just as was the case in the futures market, you can **offset** your option position. This would be done by selling a like put at the same strike price. Given the premium should have increased in value as the option futures continued to fall below the strike price (became more in the money), you can take a gain out of the options market by offsetting your put. If prices rise, then you are not locked into a position, the option becomes out-of-the-money. In this instance it is best to let the option **expire** worthless. It would make no sense to offset or exercise since you would lose money on the transaction. So to review, the put option holder can: 1) Offset: Sell put and get premium; 2) Exercise: Sell futures contract and buy back futures later; 3) Expire: Do nothing and lose premium.

Just as was the case for the futures market. The producer or holder of the commodity needs to decide whether the current options offer an acceptable forward pricing opportunity. In the case of the options market, however, it is important to remember that buying the put offers you a chance to lock in a minimum selling price. Therefore, the producer needs to estimate an acceptable minimum price and then calculate the **expected target price** using the various strike prices for the option of interest.

PUT: EXPECTED TARGET PRICE = STRIKE PRICE - PREMIUM + BASIS

Let's go through an example illustrating how purchasing a put can insure a minimum selling price without locking you in if prices rise.

Example 1. Suppose you plan to harvest 10,000 bushels of corn in late October. It's now July, and you are uncertain about the outlook for corn prices. You are having trouble reading the market and aren't sure whether prices are headed up or down. A local cattle feeder is offering a selling price of $1.80/bu delivered, but your target price is higher. If prices go down, you want some protection with a locked-in minimum

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price for December delivery of the corn. If prices go up, you'd like to be able to benefit. You decide to look at buying December corn put options.

Your first step is to set an acceptable target price for the corn. Remember to calculate the expected target price for a put equals **strike price - premium** + **expected basis**.

There are December Corn put options available at various strike prices, so you calculate a few target prices. You expect the basis in December to be $.25/bu under. The current December futures corn price is $2.20/cwt.

Strike Price$ 2.20	$ 2.30	$ 2.40	
Premium Cost	- 0.06	- 0.15	- 0.24
Expected Basis	+-0.25	+-0.25	+-0.25
Target Price	$ 1.89	$ 1.90	$ 1.91

All three options offer you the chance to set a minimum price that is higher than what the local feeder is offering. In the case of the 220, 230 and 240 puts they all offer a minimum price within two cents of each other, but the $2.20 put only costs you $.06/bu in premium. The $2.40 put would cost $.24/bu for a minimum price that is only $.02 higher. You choose the $2.20 put. The total premium cost for the two options you need is $600 ($.06/bu * 5,000 bu/contract * 2 contracts).

What happens if the market rises? Assume the cash price in November turns out to be $2.45/bu, and the December futures price turns out to be $2.70/bu the sale date in November. In this case we let the option expire worthless and capture some of the price rise in the cash market price.

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TRANSACTIONS IN CASH AND OPTIONS MARKET

DATE	CASH MARKET	OPTIONS MARKET
JULY	Expect to sell 10,000 bu in November	Buy 2 $220 December Corn Puts @ $0.06/bu
NOVEMBER	Sell 10,000 bu in November @ $2.45/bu	Let put option expire

NET PRICE FOR CORN = CASH PRICE - OPTIONS LOSS
$2.39 $2.45 $0.06
ACTUAL BASIS = CASH PRICE - FUTURES PRICE
-$0.25 $2.45 $2.70

In this example we see the advantage of the put was not being locked into price. We were able to capture a rise in prices which would not have been possible if a straight hedge in the futures market had been used. Also, we never had to exercise into the futures market and we avoided margin calls. Basis did as we expected in both the futures and options examples. It is important to remember that basis risk is faced by all producers using the futures and options, but basis risk is much less than the variability experienced in cash market prices alone. Options markets will be covered in much more detail in the next chapter.

ADVANTAGES & DISADVANTAGES

The options market offers some real advantages compared to forward contracts and the futures market. You are able to reduce price risk without facing margin calls in the futures market. Also, you are able to benefit from rising prices as you are not locked in if the market trends upward. The options market also offers many different strike prices or levels of price insurance.

The options market's advantages do not come without some disadvantages either. You pay a higher price for the insurance through the premium with this alternative than you would with just forward contracting or hedging in the futures market. Additionally, you pay a commission fee to a broker for executing your transactions in the options market. The commission fee is typically less for options transactions than futures transactions, however. As was the case with the futures market, the options market deals with standardized contracts and there are set quantities which reduces the flexibility for producers. Also, producers are subject to basis risk with this alternative just as in the futures market hedge.

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RETAINED OWNERSHIP OR CUSTOM FEEDING

RETAINED OWNERSHIP

Retained ownership is a management and marketing alternative where the cattle are owned through slaughter rather than selling as a calf or yearling. This alternative may allow producers the opportunity to add value to their calves and gain additional income to the operation. It may also offer you the chance to look at the performance of your livestock genetics. It is important to remember however, that these advantages are not without costs. Feeding out your cattle holds risks and management decisions which may be very different from your normal operation.

Perhaps the most important aspect of retained ownership is to first decide on your goals for the retained ownership program. What are all your options available for a feeding program? Are you planning to take your calves from grass to the packer, or are you planning to put your yearling steers on grass and then go to the feedlot? Are you thinking just about a winter feeding program for your calves, and what is your ultimate market for the cattle? Perhaps you are looking to feed your calves elsewhere because you can save money over raising your own feed at home. What is your marketing plan? Do you want to market some or all of your cattle from a feeding program? Your management plan should specify your goals for this alternative.

The next step in the planning process is to estimate cost and returns marketing your cattle as you currently do, and then estimate costs and returns for your alternative feeding programs which might meet your business goals. For example, you might want to compare the costs and returns of marketing weaned calves versus marketing the cattle at slaughter weight. The following is just an example of how you might estimate the return to feeding.

1. Value of cattle at weaning
   (600lb @ $.87)= $522.00

2. Value of finished cattle
   (1200lb @ $.72)= $864.00

3. Feed and yardage costs +
   interest on feed and yardage
   ($1.50/day * 180 days) $270.00

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4. Interest costs
   (Value of cattle placed in lot
   times % rate, divided by 365 days,
   times days on feed)
   ($522.00 * .12)/365=0.172
   0.172 * 180 days= $ 30.96

5. Death Loss (1%)=
   (Value of fats * 1%) $ 8.64

6. Marketing and Trucking
   ($1 checkoff, $10 trucking) $ 11.00

7. Return to feeding
   (#2-#1-#3-#4-#5-#6) $ 21.40

Once you decide whether or not the alternative of retained ownership might offer you a profit, you need to consider a number of factors such as number of cattle to feed, selecting a feedlot, marketing the fat cattle, financial management considerations, and delivery date and condition of cattle going to the feedlot.

How many cattle should you feed? Normally, one hundred head is the minimum pen size in commercial feedlots, but some feeders will consider larger or smaller loads of cattle. Also, the number of cattle you feed may be partially dependent on your cash flow requirements and financial considerations, particularly in the first year. The cattle should be closely matched with the lots you choose to feed. Sex, weight, body type and other considerations of consistency will be valuable when you are marketing the slaughter cattle.

There are a number of considerations when choosing the feedlot itself. You need to consider how far away from home you can afford to have your cattle fed. If the cattle are more than six hours away it is difficult to drive there, look at your cattle, make decisions and get home. It is important to look at your cattle and talk to the feeder at least every forty-five days. Balance your costs of trucking, personal time and cost of feeding with the quality of feeding, market opportunities, feeder commitment to your goals and overall price per head for feeding. You need to select a feeder that is honest, competitive and in good financial condition. Ask around in the local area and have your banker talk to the feeder's banker. Do your own personal inspection of the feedlot. Look at the general conditions of the pens, the cattle, the bunks, the feed and its preparation and how the sick cattle are cared for. Visit with the management and personnel to get a general impression of professionalism and desire to serve you as a customer. Find out how the feeding program is billed and frequency of billing, what all the costs are, and how the veterinary and death loss costs are handled.

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Given your understanding of the billing process and the fact you may be keeping cattle longer than you have in the past, financial management becomes a very important issue. How will you finance the program? How much will financing cost, and will your lender or your feeder finance you? You may want to consider your tax situation if marketing more than one calf crop per year.

When you have decided to go through with a retained ownership program, you need to consider delivery date and health program. Producers shipping cattle to a feedlot need to let the custom feeder know when the cattle will be shipped, whether the load is mixed with heifers and steers, and what type of vaccination program the cattle have had prior to shipping. Most feedlots will have a recommended vaccination schedule that should be followed prior to shipping. Cattle that are properly vaccinated before delivery should do better at avoiding sickness.

Perhaps one of the more complex set of decisions is those concerned with marketing the slaughter cattle after a feeding program. Slaughter cattle may not be a product you have much experience with in terms of marketing. The closer the cattle get to being "finished" the less marketing opportunity you will have. When the steer reaches slaughter weight, he is beginning to cost a lot of money to maintain and you must sell. Several marketing options are available to producers who have their cattle custom-fed. They can forward contract or forward price the cattle, sell the cattle on a liveweight basis, or sell on a carcass basis. Perhaps the feedlot will offer to market the cattle for you. In that case, you need to know such things as how many packers buy at the lot? Who shows the cattle to the packer buyer? Who deals and dickers over price? Are forward contracts available, and what are the terms? Does the feeder have any recommendations concerning marketing? You need to have a well developed marketing plan with the retained ownership alternative which fits your business goals and meets your risk preferences.

ADVANTAGES & DISADVANTAGES

Retained ownership provides the cattle producer an opportunity to realize additional profits beyond selling calves at the auction. It also provides producers the opportunity to get carcass information which can give them vital feedback on their feeding program and breeding and management at home. Unfortunately, these advantages come with added management responsibilities and complexities. You will have to spend additional time working with the feedlot and marketing the slaughter cattle. There are added risks associated with retained ownership that you would not be exposed to otherwise.

CONTRACT FEEDING OF CATTLE

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One marketing alternative for crop farmers is to market what they grow through custom feeding cattle. Contract feeding provides the farmer an opportunity to use feed, facilities and labor without large investments in cattle and equipment. Contract feeding can spread the risks for the farmer and can reduce total cost of gain for the cattle producer.

Farmers may contract to feed cattle because they: (1) have feed well suited for growing calves or wintering cows but which may not have a good cash market, (2) do not want to assume risk of cattle ownership, (3) do not have adequate capital to purchase cattle.

Ranchers may choose to contract feed to (1) defer sale for tax purposes, (2) hold for a higher market price (3) grow replacement heifers or winter cows when feed is inadequate or too expensive to grow their own feed given current resources, or (4) retain ownership of calves until slaughter.

A perfect contract may be impossible, but satisfied parties to a contract arrangement can exist only if (1) both parties are fully informed and (2) all important points are covered by the contract. One important point is the method of calculating payment from the cattle owner to the farmer feeder. Several methods can be used. They are feed costs plus yardage, feed markup (to cover yardage), price per pound of gain, price per head per day, and percentage contribution.

Feed cost plus yardage is used most often when feeders have the capability to weigh feed. Cost of feed may have a milling charge and handling charge added. The yardage charge usually includes charges for fixed and variable costs including labor and routine health care. Costs of veterinary services, medicines and vaccines are not included in the yardage charges.

Some lots use feed mark-up to cover milling costs, and yardage charges. Preferably the mark-up should be on a dry matter or 90% dry matter basis in order to compare yardage costs more accurately. Weight of feed varies widely with moisture content (particularly silages). In determining feed mark-up the low feed intake of light weight calves and the bulk of the ration should be considered. When high concentrate rations are fed to light weight calves returns to the feedlot may be low if the standard mark-up is charged.

Where facilities are not available for weighing feed an agreed upon price per pound of gain may be paid to the feeder. Such a contract may be advantageous to the owner of the cattle or the feeder depending on the details of the contract arrangement, the cattle, or weather factors. The feeder has an incentive to use the best management

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practices to obtain high rates of gain at least cost. This may also be advantageous to the cattle owner in that health problems and death loss may be minimal. On the other hand, bad and unhealthy or fleshy cattle may produce slow and high cost gains for the feeder. For the owner, too rapid gains may result in slow and high cost gains during the finishing phase for slaughter cattle. Contracts should specify in detail the agreement relating to weighing conditions before and after the feeding period, responsibility for death loss, veterinary costs, length of feeding period, weight of the cattle coming into lot, rate of gain for cattle intended to be fed for slaughter at a later time, partial payments during feeding period, and mortgages and liens on cattle.

Where the cattle owner is willing to accept rather low rates of gain a contract based on a flat price per head per day may be the best compromise, particularly for mature cattle being wintered. In this case, cattle may utilize crop residues, winter range and other feeds where daily feed intake and rate and cost of gain are difficult to estimate. Without modification this method does not provide incentives for the feeder to provide good management practices. It would be good to include an incentive program for low death loss and perhaps a bonus system for a minimum rate of gain.

Percentage contribution is a method where the feeder is willing to assume some risk. Animals, feed, labor, etc. are inventoried into the enterprise. Net income at the end of the feeding period is then divided between the cattle owner and the feeder in the same proportion as their contribution. This method requires complete confidence between owner and feeder and an accurate set of records.

If you are considering contract feeding as an enterprise to help market some of your crops and use excess labor you should keep several things in mind. Your reputation as being honest, having good quality feed and animal care will be very important for you when trying to attract customers. When starting out you might consider contacting the stockgrowers association and or other farmer feeders for names to contact as possible customers.

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ADVANTAGES & DISADVANTAGES

Contract feeding of cattle would be another alternative for marketing feed crops which may not have a good cash market nearby. Additionally, this type of enterprise might allow you to better utilize some of your resources such as labor in the winter during what normally might be slack time. If, however, you have little or no experience with livestock there will be a large learning curve. Also, you may have to incur some expenses to set up livestock handling facilities. The contracting of the feeding enterprise should not be as risky as owning the livestock yourself while adding income to your operation.

COMPARING ALTERNATIVES

RISK

This chapter started with a discussion concerning risk. The rest of the discussion focused on marketing alternatives, considerations using the alternatives, their pros and cons and their relationship to price risk. Product diversification maybe one strategy to level out income variability, but the problem may be in identifying an enterprise which will have price and yield variability which is not correlated to existing enterprises. Product diversification may also mean working with an enterprise which may have a significant amount of learning with it. Price at delivery, i.e. just delivering your cattle to the auction barn or your grain to the elevator and accepting the price offered, is an alternative which maximizes your price risk and increases your income variability. Forward contracting is a way to reduce your risk, but it also reduces your ability to capture gains from rising prices at a future point in time. Certain conditions should be written explicitly in the contract itself to reduce the risk of non-performance.

Video auctions for cattle are also a form of forward contracting except the cattle are videotaped and displayed to a number of buyers. This allows the producer an opportunity to expose the cattle to more buyers and perhaps get a more competitive price. The cattle are forward priced, reducing the price risk, but the cattle cannot be sold for a higher price at a future point in time if the cash market trends upward. The video auction also is responsible for contract performance by both parties. Hedging in the futures market offers an opportunity for producers to reduce price risk. This alternative is more complex, and requires margin deposits which are a disadvantage. The producer trades price risk for basis risk with this alternative. Using put options is another way a producer can reduce price risk. Put options can be used to set a minimum price for a commodity, but the producer can take advantage of price rises

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with this alternative. The put option offers some advantages over the futures market, but those advantages cost the option premiums. Producers are still subject to some basis risk with the option. Retained ownership and contract feeding are alternatives which can help producers increase profitability. Retained ownership is more complex and has added management and marketing responsibilities. Contract feeding may be a way for crop producers to market their crops, add income to their operation, and better utilize winter labor. Considerations concerning the contracting, payment method and management of livestock need to be explored with this alternative.

COSTS

When comparing these alternatives producers need to consider all the costs involved with each of these. When considering a new enterprise and diversifying your operation, a whole enterprise budget needs to be developed for planning and decision making in the management process. Costs associated with the cash market include transportation, shrinkage, commission and yardage fees, checkoff and inspection fees. Some of the costs associated with the forward contract alternative are negotiated into the contract, but in general, transportation, shrinkage and any quality inspection costs need to be considered. The major costs associated with the video auctions include a videotaping fee, commission fees, shrinkage and a sliding scale price if weight specifications aren't met. The commission fees tend to be higher with a video auction than a cash auction, but some of that cost may be offset with less transportation costs and less shrinkage costs depending on the individual's proximity to a cash auction and weighing facilities. Additional costs associated with the futures market include commission fees to the broker and interest on margin funds. Additional costs associated with options include premiums, broker fees and interest on borrowed premium funds. When considering retained ownership, an enterprise budget and marketing plan should be developed. Essentially you are growing a whole different product than a calf. The financial requirements will need to be considered carefully with this alternative. When first considering this alternative, the producer may forgo income or cash flow from the sale of calves until the slaughter cattle can be sold. If a crop producer is considering contract feeding as a way to market crops, an enterprise budget, flow of resources and financial requirements should be developed.

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