
One distinguishing difference between marketing contracts and production contracts is that producers using marketing contracts take greater responsibility for management decisions.

price risks when compared with risks on the open market. The combination of lower market risks and less variable incomes was a major reason cited by farmers for using production contracting in at least one survey (Rhodes and Grimes). This suggests that farmers are well aware of the risk-shifting capacity just illustrated. In addition, depending on contract terms, farmers can benefit from technical advice, managerial expertise, and access to technical advances (such as high-quality breeding stock) that may not otherwise be readily available (Perry, 1997).

Despite such advantages, however, production contracting has been criticized. Some observers argue that production contracting can limit the entrepreneurial capacity of growers, and others cite the risks of contract termination on short notice (Hamilton; Charlier; Harris). Contractors may require upgrades to buildings and other infrastructure that are unexpected by the grower, resulting in an investment risk. In addition, some growers under a relative performance system believe that they are at an unfair disadvantage, arguing that companies may not have the incentives to maintain strict accuracy in the accounting and allocation of inputs among growers, and that absolute standards (as in the “contracts-without-rounds” case) may be most equitable and transparent (Jenner). Issues between growers and integrators have led to lawsuits on various occasions, and Iowa, Kansas, and Minnesota have adopted some form of legislation regulating production contracting in agriculture (Johnson and Foster; Plain; Hamilton and Andrews).

Marketing Contracts

Marketing contracts are either verbal or written agreements between a buyer and a producer that set a price and/or an outlet for a commodity before harvest or before the

commodity is ready to be marketed (Perry, 1997). Since ownership of the commodity is generally retained by the grower while the commodity is produced, management decisions (such as varieties or breeds, or input use and timing) typically remain with the producer. This latter characteristic—responsibility for management decisions—is critical in distinguishing marketing contracts from production contracts (table 6).

Marketing contracts can take many forms. They are at times used by grain farmers to forward price a growing crop with a country elevator, where they are referred to as cash forward contracts. The contract terms vary across contracts, but typically establish a price (or contain provisions for setting a price at a later date) and provide for delivery of a given quality (or grade) within a specified time period. A “flat price” (or fixed price) forward contract may, for example, state that a farmer will deliver 10,000 bushels of No. 2 yellow corn to the local elevator at harvest for a price of \$3.25 per bushel. Premiums and discounts may be established for grain that does not meet specified quality standards. Flat price contracts are one of the most common types of forward contracts. The price typically is the elevator’s “bid price” for all farmer-delivered grain. This “bid price” is based on a current futures quote, less a “basis” adjustment that reflects marketing costs between the local elevator and the futures exchange location.⁹

⁹Country elevators entering into such marketing contracts generally hedge their positions using futures markets. Hedging provides an offset to any price-level changes associated with the marketing contracts that elevators negotiate with producers, and transfers price-level risk to basis risk (uncertainty in the relationship between futures and cash prices). See later discussion of price-level and basis considerations in the “hedging” section.

Table 6—Comparison of marketing and production contract characteristics

Marketing contracts	Production contracts
Contractor:	Contractor:
Buys a known quantity and quality of the commodity for a negotiated price (or pricing arrangement)	Arranges to have a specific quality and quantity of commodity produced
Doesn't own the commodity until it's delivered	Usually owns the commodity being produced
Has little influence over production decisions	Makes most of the production decisions
Contractee (operator):	Contractee (operator):
Has a buyer and a price (or pricing arrangement for commodities before they are harvested)	Provides a service and other fixed inputs (land, buildings, etc.) for a fee
Supplies and finances all or most of the inputs needed to produce the commodity	Supplies a small part of the total production inputs needed
Owns the commodity while it's being produced	Usually does not own the commodity
Makes all or most production decisions	Makes few, if any, of the production decisions
Assumes all risks of production but reduced price risk	Bears few price or market uncertainties and limited production risks
Receives largest share of total value of production	Receives a fee for production that does not reflect the full market value of the commodity

Source: Excerpted by ERS from USDA, NASS, *Costs and Returns Report Interviewer's Manual*, December 1996.

The variety of marketing contracts available to grain farmers has increased over time, and nomenclature and contract terms vary by location. Basis contracts, for example, are another type of marketing contract, which provide for the price to be determined by applying a specified difference (basis) to a particular futures contract price to be observed later, usually when desired by the farmer. This assures the farmer an outlet, for later ownership transfer, while allowing gains or losses from changes in the futures price. Other contracts transfer ownership immediately while postponing payment, such as delayed payment and delayed price contracts. These contracts may offer farmers tax advantages, while allowing the elevator to ship the grain and open up storage space. Among these contracts, delayed (deferred) payment contracts specify the price to be paid, while delayed price contracts (sometimes called “deferred price”

or “price later” contracts) provide that price will equal the elevator's bid price, or the futures price adjusted for basis at a time selected by the farmer.

In contrast, minimum-price contracts guarantee the producer a minimum price for harvest delivery, based on futures price quotes at the time the contract is established, with the incorporation of a pricing formula that gives farmers the opportunity to sell at a higher price if futures prices increase before the contract expires (Catania). When hedge-to-arrive (HTA) contracts are used, the futures price is fixed in the contract, but the basis is left undetermined until a later time. HTA's have effects similar to futures hedges for the farmer, except that no commissions or margin deposits are required and the farmer deals with a local buyer instead of a broker. (For a comprehensive listing of the different

Marketing contracts can vary in their treatment of price level risk and basis risk.

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types of contracts and areas of risk exposure, see Kemp; Wisner.)

Most types of contracts do not completely eliminate price risk (table 7). The exception is flat-price contracts, which establish an exact price to be paid to the grower upon delivery and thus completely eliminate price risk. In contrast, nearly all other forward marketing contracts fix either the basis (for example, 10 cents under the Chicago Board of Trade November soybean contract) or the level of the futures price at the time the contract is negotiated, but not both. For those contracts that establish the basis, the risk of price-level variation is retained by the producer until the time of crop delivery and final sale. Conversely, fixing only the futures price in the contract (as with HTA contracts) leaves the farmer with basis risk. When HTA's are rolled over to successive months, the producer also incurs the risk associated with spreads across different futures contract months.

Farmers who forward contract a growing crop bear yield risk in addition to price risk. As a result, farmers generally are advised to forward price substantially less than 100 percent of their expected crop until yields are well

assured.¹⁰ Difficulties associated with overcontracting arise if poor weather results in low yields, and producers contracting a large proportion of their crop need to buy "replacement" bushels at an uncertain cash price to meet the terms of delivery on their forward contract. If the farmer's shortfall is caused by a severe drought, cash prices at the time such replacement bushels must be purchased, either as part of contract renegotiation or to meet delivery terms, may be quite high. When the crop size is known, producers can safely forward contract up to 100 percent of their crop. Deferred (or delayed) price contracts usually are not negotiated until the grain is delivered to the country elevator (when yield risk no longer exists). When such contracts are used, however, both futures price and basis risks typically are faced by the producer (table 7).

To illustrate the risks associated with a simple forward contracting situation, consider a farmer with irrigated corn acreage who expects, with considerable certainty, a crop of 50,000 bushels. This

¹⁰The minimum-risk amount to cash forward contract typically is slightly larger than the minimum-risk futures hedge because basis risk is avoided. See subsequent discussion of optimal hedging.

Table 7—Most marketing contracts do not completely eliminate market risk¹

Type of marketing contact	Market risks remaining			Guaranteed minimum
	Futures	Basis	Spread	
Flat price ²				✓
Basis	✓			
Deferred price	✓	✓ ³		
Minimum price	✓ ⁴	4		✓
HTA (basic)		✓		
HTA (multiple crop)		✓	✓	

HTA= Hedge-to-arrive contract.

¹The extent to which yield risk is an issue depends on when the contract is entered. Deferred price contracts, for example, can be entered into before the crop is harvested (when yield risk is an issue) or after harvest (when crop size is known and yield risk is zero).

²For definitions of the different types of contracts, see the glossary.

³Some deferred price contracts specify the basis, which eliminates basis risk for farmers.

⁴Downside risk is eliminated.

Source: Adopted by ERS from Kemp, Todd E., editor, *Hybrid Cash Grain Contracts: Assessing, Managing, and Controlling Risk*, a White Paper by the Risk Evaluation Task Force on Hybrid Cash Contracts, National Grain and Feed Association, Washington, DC, 1996.

farmer is considering two options and plans to finalize his decision in a few days (the end of April), just before planting time. The options involve either (1) selling the crop in October, right after harvest, for the cash market price, or (2) entering a flat price contract with the local elevator for October delivery. The probability distribution of cash prices in October, based on the farmer's expectations, is shown in figure 6, and the elevator at the time of the decision is offering flat price contracts for harvest delivery. The fixed price offered under the contract is shown by the vertical line. The figure illustrates both the downside protection and the upside potential forgone if the farmer chooses the contracting approach. Because the farmer in this simple example has no yield uncertainty, 100 percent forward contracting completely eliminates revenue risk (since the price for the entire crop is fixed). If the producer forward contracts and cash prices turn out higher at harvest than the contract price, a profit opportunity has been lost, but income is no less than expected. (For other examples, see Jolly.)

Marketing contracts are used not only for pricing field crops, but also in the specialty crops sector (table 8). Among specialty crops, they appear most often in grower sales of fruits, fresh pre-cut vegetables, and processed vegetables (Powers). In the pre-cut vegetable industry, for example, prepackaged shredded lettuce and cabbage, diced celery, and sliced carrots are used in large quantities by food establishments, institutions, and retailers. Purchasing pre-cut fresh vegetables can reduce costs to these buyers if sufficiently less labor is required in food preparation. These buyers usually negotiate marketing contracts that specify a tentative free-on-board price, quality, and delivery schedule for a 6- to 12-month period. The tentative contract price is based on the expected price during the agreement's duration, and may be renegotiated if warranted by market conditions (Powers).

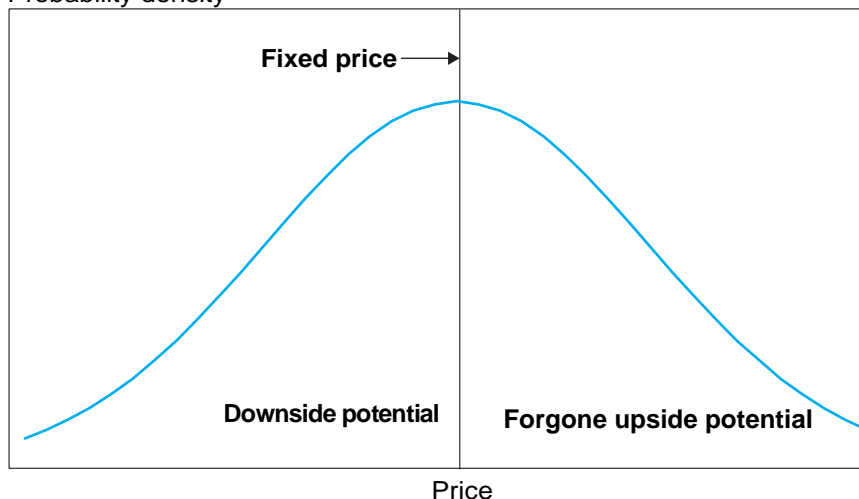
Although less common, marketing contracts are also used in the livestock sector. Fed cattle, for example, can be forward priced using a cash forward contract—an agreement, in this case, by a cattle feed-

Marketing contracts are used not only for pricing field crops, but also in the specialty crops and livestock sectors.

Figure 6

Flat price contracts provide downside protection, but forgo upside potential

Probability density



Source: Hypothetical example developed by ERS.

Table 8—Value of selected commodities produced under marketing contracts, 1997

Commodity	Value of production under marketing contracts	
	Percent	Million dollars
Barley	19	167
Canola	46	44
Cattle	9	2,735
Corn	8	1,720
Cotton	33	1,923
Dry edible beans	3	82
Eggs	6	131
Fruits	59	7,199
Oats	3	8
Peanuts	41	372
Peas	9	4
Potatoes	43	720
Rice	31	573
Sorghum for grain	6	86
Soybeans	9	1,672
Sugar beets	82	973
Sunflowers	8	51
Vegetables	24	3,374
Total value of production under marketing contracts, all commodities ¹	22	41,610

¹Includes \$21,323 million in the crop category and \$20,287 million in the livestock category. The total value of agricultural production is \$191,724 million.

Source: USDA, ERS, 1997 Agricultural Resource Management Study, special analysis.

One key issue for producers and contractors is that both understand the terms of the contract.

er to deliver a specified number of cattle, in a designated future month, to a packer. Two types of contracts are typically used. Similar to the situation for field crops, “flat price” contracts specify the price at the time the contract is negotiated between the two parties. In contrast, “basis” contracts specify the basis level (the cash price minus the futures price) at the time the contract is signed, allowing the cattle feeder to wait until a later time to fix the futures price, perhaps after the price level has increased. The final contract price is calculated by adding the basis specified in the contract to the futures price on the day the cattle are priced (Elam).

Although the price risks associated with the different types of marketing contracts vary, some types of risks are common to all contracts. All growers who enter into forward contracts face the risk of default by the merchandiser offering the contract, who may be unable to meet the financial obligation associated

with the contract. In addition, producers and merchandisers may have different understandings of the contract terms and the potential financial impact (Kemp). As a result, legal risks may be confronted by farmers, as was the case for numerous individuals who had entered into HTA contracts in 1995.

Few empirical analyses have examined the reduction in price risk associated with the use of different marketing contracts, partly because time-series data capturing contract prices are generally not available to researchers. However, futures price data for field crops and livestock are readily available from exchanges. Because of the structure of most forward contracts for field crops and livestock, the use of futures prices in estimating optimal hedging amounts and risk reduction provides a close approximation to the analogous estimates that would exist in an analysis of many forward contracting situations.