

Teaching and Educational Methods

Teaching Agricultural Marketing and Production Contracts in Undergraduate Courses in Agribusiness and Agricultural Economics Programs

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JEL Codes: A2, Q02, Q12, Q13

Keywords: agricultural contracts, price mechanisms, risk management

Abstract

This article presents lecture materials for teaching agricultural marketing and production contracts in undergraduate courses in agribusiness and agricultural economics programs. These materials can also be utilized as educational materials in Extension and outreach programs. The content includes: (1) discussion of the contracts' main terms; (2) introduction to marketing (forward) contracts as contracts for the sale of goods and overview of the design of their price mechanisms; (3) introduction to production contracts, the rationale for using them, compared to marketing contracts, and overview of the design of their payment systems; (4) caveats and practical advice; and (5) implementation guidance. The teaching note includes two real-world sample contracts, a milk supply agreement and a broiler production agreement, and two contract checklists to evaluate their terms. It also includes multiple-choice questions and answer keys for all assessments.

1 Introduction

The use of agricultural marketing and production contracts that are alternatives to traditional spot market transactions has increased in many agricultural industries in recent decades (Adjemian et al. 2016; Burns and MacDonald 2019; Prager et al. 2020; Davis et al. 2022). Using the food supply chain perspective, agricultural marketing and production contracts organize agricultural commodities' production and marketing (MacDonald et al. 2004). These contracts transfer agricultural commodities from the agricultural production stage to the downstream stages of the food supply chain (food processing, wholesaling, and retailing), facilitating the efficient flow of products and payments throughout the food supply chain. Using the perspective of firms, agricultural marketing and production contracts are legally binding agreements according to which agricultural producers sell their agricultural products and/or services to different buyers. These contracts are essential for proper business planning. In addition, they serve as important risk management mechanisms used to manage production, price, and income risks, as compared to spot market transactions.

This article presents lecture materials for teaching agricultural marketing and production contracts in undergraduate courses offered by agribusiness and agricultural economics programs. These teaching materials are suitable for a variety of undergraduate courses, such as Farm Business Management, Agribusiness Management, Agricultural Marketing, Supply Chain Management, and Agricultural Prices. They can also be used as educational materials in Extension and outreach activities.

The article is organized as follows. Section 2 discusses the structure (main terms) of both types of contracts. Section 3 introduces agricultural marketing (forward) contracts as contracts for the sale of goods and explains the design of their price mechanisms. Section 4 introduces agricultural production contracts, the rationale for using these contracts compared to marketing contracts and explains the design of their

payment systems. Section 5 discusses caveats and provides practical advice. Finally, Section 6 explains how this lecture topic fits into the curriculum and offers implementation guidance.

The teaching note includes two real-world sample contracts (a milk supply agreement and a broiler production agreement) and two contract checklists to evaluate the main terms of these contracts, multiple-choice questions, and answer keys for all questions. Table 1 summarizes student learning objectives.

Table 1. Student learning objectives

Student Learning Objective (SLO)	
SLO #1	Explain the main terms included in agricultural marketing and production contracts.
SLO #2	Explain the meaning of contracts for the sale of goods and the differences between agricultural marketing (forward) and spot contracts.
SLO #3	Discuss the designs of price mechanisms included in agricultural marketing contracts in representative agricultural industries.
SLO #4	Explain the meaning of agricultural production contracts and the primary responsibilities of contract parties.
SLO #5	Discuss the designs of payment systems included in agricultural production contracts in representative agricultural industries.
SLO #6	Using contract checklists, evaluate the structure (the main terms) of sample agricultural marketing and production contracts.

2 Agricultural Contracts: Structure

A contract is a legally binding agreement between at least two parties to do something or to refrain from doing something (Cornell Law School Legal Information Institute 2025). Using marketing contracts, agricultural producers sell agricultural commodities to different types of buyers (food processors, wholesalers, and retailers). Under production contracts, agricultural producers provide services of growing crops or raising animals and poultry for food processors (integrators). The main difference between the two types of contracts is whether agricultural producers are sellers of agricultural products or they are agricultural service providers, which would affect:

- which contract party owns the agricultural product during the production season.
- design of the payment (compensation) system included in the contract.
- responsibilities of contract parties.
- decisions each contract party makes.
- distribution of production, marketing, and price risks between the contract parties.

The following sections will discuss these issues in greater detail.

Box 1 summarizes the main terms that agricultural contracts should include and additional details on the price, quality, and quantity provisions.¹ Agricultural product prices are tied to measurable product quality characteristics. Agricultural product quality is determined using grades (quality designations) and standards available for many agricultural commodities. Agricultural product grades and grading (measuring/weighing) procedures are established in standards, many of which are federal regulations (USDA-AMS 2025a). Alternatively, a contract may establish a set of measurable product quality characteristics, for the presence (or absence) of which premiums (or discounts) are applied to the base price.

¹ The term “agricultural contracts” is used in this article to refer to both agricultural marketing and production contracts, and it can also be used to refer to spot market transactions that are briefly mentioned in this article (MacDonald et al. 2004).

Box 1. Agricultural Contracts: Main Terms**1. Contract parties**

- Names, locations, and addresses
- Type of business operation

2. Product (service) description**3. Product quantity and weighing/measuring procedure**

- Quantity is specified in physical units (bushels, pounds, acres, heads, etc.) or
- The quantity determination method to be used is explained
- The contract party responsible for weighing

4. Product quality and grading procedure

- Product quality is specified by referring to grades (quality designations) and grading procedures included in standards
- Relevant grades and standards are referenced
- A party performing grading: a third party or one of the contract parties

5. Price (compensation)

- Price (compensation) is specified in dollars per unit of output or
- The price (compensation) determination method to be used is explained
- Prices are tied to measurable product quality characteristics by referring to grades and standards, and/or
- Product quality characteristics with associated premiums and discounts to be applied to the base price are described in the contract

6. Delivery conditions

- Contract party responsible for product delivery (or pickup)
- Delivery (or pickup) location
- Delivery schedule

7. Product ownership

- The contract party that owns the product during the production process
- The moment of the product ownership (title) transfer from the seller to the buyer

8. Responsibilities and rights of each contract party**9. Other terms**

- Storage
- Contract duration
- Dispute resolution procedure
- Others

There are two approaches to specifying the product price and quantity. The first is to include a fixed price and/or a fixed quantity. The second is to describe a procedure that will be used to determine the product price and/or quantity in the future (e.g., to include a price formula).

Table A1 in the Appendix summarizes the main provisions of three sample contracts: a milk purchase agreement, a feed (high-moisture corn) contract, and a waxy corn contract.² An analysis of these contracts presented below demonstrates a variety of approaches used to specify contract provisions related to the product, quality, quantity, and prices.

Contract Parties and Product. According to the milk purchase agreement, a large dairy cooperative agrees to sell organic raw milk to a yogurt manufacturer (both located in California). According to the feed contract, a grain farm agrees to produce and sell high-moisture shelled corn to a dairy farm (both located in Wisconsin). According to the waxy corn contract, a corn grower agrees to produce waxy corn for a grain processor.³

Product Quality. The raw milk quality should be Grade A milk suitable for human consumption.⁴ The quality of high-moisture corn is determined in the contract by referring to two quality characteristics: the target moisture level of 25 percent (analogous to a 15 percent moisture level of dry shelled corn), and the test weight of one bushel (56 pounds). The buyer will not accept high-moisture corn with the moisture level below 22 percent.

The waxy corn quality is determined in the contract by referring to several corn quality characteristics: moisture (15 percent maximum), test weight (54 pounds per bushel maximum), foreign materials (2 percent maximum), damage (3 percent maximum), aflatoxin (smaller than 20 parts per billion), and odor (cool, sweet, and of merchantable quality).⁵ If the moisture level is above the limit or a test weight below the minimum level, waxy corn will be subject to rejection or discounts. The foreign material discounts are \$0.02 per bushel for each 1 percent from 2.1 to 4.0 percent. The damage discounts are \$0.01 per bushel for each 1 percent from 3.1 to 5.0 percent.

Product Quantity. The contract milk quantity is the one that satisfies all requirements of the buyer. The actual quantity is determined every week on Thursday of the week prior to the delivery. The high-moisture corn quantity is 420 tons (25 percent moisture level), equivalent to 15,000 bushels of dry shelled corn (15 percent moisture level). The waxy corn quantity is specified by using two approaches: corn acres and contracted bushels.

Product Price. The milk price is determined by using milk component prices (butterfat, non-fat-solids, and fluid carrier) using the procedure established by the California Department of Agriculture.⁶ The feed corn base price is \$2.40 per bushel at a 15 percent moisture level (dry basis), equal to \$75.65 per ton at a 25 percent moisture level. The final price adjustments for the moisture level are made using

² The sample contracts included in Stellato (1999), Pritchett (2004), and Hadfield (2009) were used to develop Table A1 and a discussion presented in this section. While the product prices included in some of these contracts are not current, the contract structures are straightforward to understand to learn various approaches to drafting the main terms of agricultural contracts.

³ Waxy corn is a special corn variety whose kernels are sticky when cooked (Wikipedia 2025). This is why waxy corn is used to manufacture starches as food thickeners.

⁴ There are two grades of raw milk in the US (Chite 1991). Grade A milk is used to produce fluid (beverage) milk products, and it is also used to produce manufactured dairy products (e.g., cheese, butter). Grade B milk is used to produce only manufactured dairy products. Grade A milk must meet higher health and sanitation requirements than Grade B milk.

⁵ US Standards for Corn establish three corn classes (White, Yellow, and Mixed), several corn grades (e.g., US No. 1, US No. 2), a set of measurable corn quality characteristics, and a procedure to use to measure these characteristics (USDA-AMS 1996). The analyzed contract is for waxy corn, which is not a commercial corn variety. Instead of referring to corn grades, the contract establishes a set of measurable quality characteristics for waxy corn.

⁶ Milk prices at the farm level in the US are determined within the system of Federal and State Milk Marketing Orders using a set of milk price formulas (Greene 2022). It is a common approach to determine contract prices for milk by referencing them to the government milk pricing system. For example, California Milk Pricing Formulas for the period relevant to the milk purchase agreement are explained in the CA Department of Food and Agriculture, Dairy Marketing Branch (2001).

the University of Wisconsin-Madison Extension chart titled “Equivalent Price per Ton of High Moisture Shelled Corn,” attached to the contract.

The waxy corn price depends on the delivery date, and it is referenced to the Chicago Board of Trade (CBOT) futures prices for corn. The premium of \$0.12 per bushel is added to the futures price to incentivize the grower to grow waxy corn.⁷ For example, if waxy corn is delivered in October or November, the price equals \$0.12 per bushel premium plus the December CBOT base price. The contract defines the latter as the settlement price for the CBOT corn contract on the lock-in day, which is further explained in the contract.

Inputs. The feed contract states that the grain farm is responsible for all variable and fixed costs, including seed, fertilizer, chemicals, fuel, labor, crop insurance, land rent, etc. The waxy corn contract requires the corn grower to use a particular variety of seeds. The hybrid names are listed, and their quantity is specified in the contract. The hybrid variety will affect waxy corn quality characteristics important for the corn processor.

Contract Duration. The initial term of the milk purchase agreement is for four years. This agreement is automatically renewed every year, unless one of the parties terminates it. The high-moisture corn contract is for the harvest period of a particular year for which the contract is signed. The waxy corn contract is for a single crop year.

3 Marketing (Forward) Contracts and Their Price Mechanisms

This section introduces agricultural marketing (forward) contracts as contracts for the sale of goods in light of the Uniform Commercial Code and explains the mechanics of these contracts by comparing them to spot contracts using corn as an example. In addition, this section discusses the design of price mechanisms included in marketing contracts for selected agricultural commodities (livestock, grains, and milk) by using real-world contract examples.

3.1 Marketing Contracts: Introduction

Marketing (forward) contracts are important marketing options for agricultural producers in many agricultural industries. According to these contracts, agricultural producers agree to sell specified quantities of agricultural products to their buyers (e.g., food processors, wholesalers, and retailers) at a specified future date in exchange for a payment. The latter is determined as the contract price multiplied by the product quantity accepted by the buyer.⁸

Marketing contracts are contracts for the sale of goods in light of the Uniform Commercial Code (UCC §2-106).⁹ Agricultural commodities (grains, livestock, milk, fruits, vegetables) are “goods” defined by UCC as all things that are movable at the time of identification to the contract for sale (UCC §2-105). UCC §2-106 defines a sale as “the passing of title from the seller to the buyer for a price,” which reflects the meaning of a market exchange (Bolotova 2022). The seller (agricultural producer) transfers the product and its title to the buyer (food processor, wholesaler, or retailer) in exchange for a price. The buyer becomes the owner of the product. UCC §2-106 distinguishes two sale types: a present sale and a contract to sell goods at a future time. The former are traditional spot market sales.¹⁰ The latter are marketing (forward) contracts.

⁷ The CBOT corn futures price is for corn graded as #2 Yellow (Chicago Mercantile Exchange 2025). The premium in the waxy corn contract incentivizes the corn grower signing the contract to grow waxy corn for the grain processor, compared to growing commercial corn and selling it in the spot market (e.g., to a local grain elevator).

⁸ The forward contract prices are often referred to as forward prices.

⁹ The Uniform Commercial Code (UCC) is a comprehensive set of laws regulating all commercial transactions in the US. The UCC is not a federal law but a uniformly adopted state law (Uniform Law Commission 2025).

¹⁰ A local livestock auction and a local grain elevator are examples of spot (cash) markets.

“Contract for sale’ includes both a present sale of goods and a contract to sell goods at a future time.

“A ‘present sale’ means a sale which is accomplished by the making of the contract.”

Figure 1 visualizes the mechanics of contracts for the sale of goods as a two-step process. The seller and the buyer sign their contract today (Step 1), and they execute it in the future (Step 2). There are two main differences between spot contracts and marketing contracts. The first is the period between the moment the contract is signed and the moment it is executed. This period is relatively short (a few to several days) for spot contracts and longer (several weeks, several months, etc.) for marketing contracts.

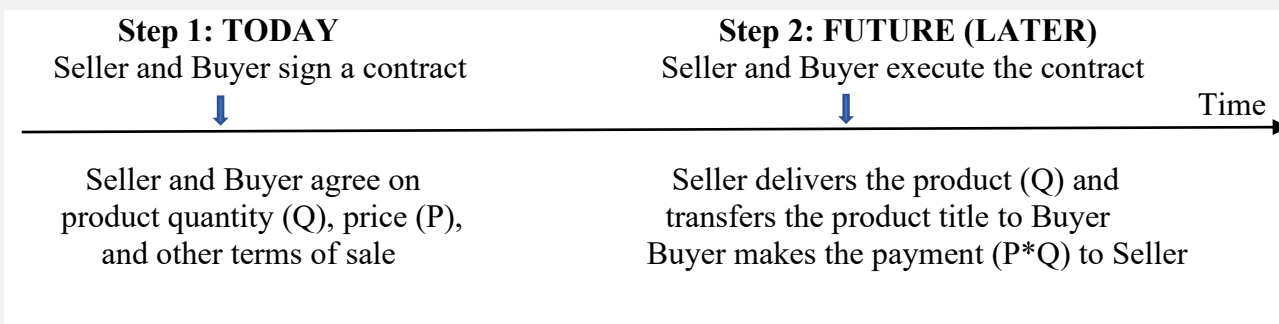


Figure 1. Mechanics of contracts for the sale of goods

Note: Q is measured in physical units, and P is measured in \$ per unit.

The second difference is whether a physical commodity must be available when the contract is signed. In the case of spot contracts, the seller must have the physical commodity available because the contract is to be executed on the spot (i.e., within a short period). In the case of marketing contracts, there is no requirement like this. Marketing contracts can be signed before, during, and after the agricultural production season (Heifner et al. 1993; Bolotova 2022). If these contracts are signed before or during the production season, they are often referred to as forward contracts.

Because agricultural producers own agricultural commodities that they sell using marketing contracts, they make production, marketing, and pricing decisions. In addition, as owners of agricultural commodities, agricultural producers generally incur all production, marketing, and price risks associated with these commodities.¹¹ Forward contracts may be used to manage (ideally to reduce) marketing and price risks. Therefore, they are also used as risk management tools.

For example, by signing a forward contract before or during the production season, an agricultural producer locks into the product quantity and price before the harvest. The agricultural producer delivers their product to the buyer after the harvest at a date (or during a delivery window) specified in the contract. The buyer pays a forward price agreed to with the agricultural producer when the contract was signed.¹² In this example, the agricultural producer reduced the marketing risk by securing a buyer and

¹¹ In the case of many agricultural industries, agricultural producers are eligible to sign up for government programs that aim to reduce production, marketing, and price risks of these producers. For example, agricultural producers in several industries (e.g., corn, soybeans, wheat, peanuts) are eligible for the Federal Marketing Assistance Loan (MAL) program that provides interim financing at the harvest when prices are typically low (USDA-FSA 2016; Congressional Research Service 2019). The MAL rates act as price floors, thus guaranteeing the minimum prices for these producers. Crop insurance subsidized by the federal government aims to reduce production risks of agricultural producers eligible for this program (USDA-RMA 2024).

¹² Bolotova (2022) presents an analytical framework explaining the mechanics of forward contracts, compared to spot contracts, and provides analytical problem sets demonstrating applications of this framework in traditional agricultural industry settings.

committing a specific product quantity to this buyer before the product was produced and harvested. In addition, the agricultural producer reduced the output price risk by locking into the output price before the product was produced and harvested.

Table 2 is a real-world price quote for corn and soybeans, demonstrating the difference between spot and forward contracts. The price quote was downloaded on February 24, 2025. The delivery window (delivery start and end) indicates whether the reported price is a spot or a forward price. Consider a corn grower with the previous harvest corn in storage. He checks this price quote to consider selling this corn. The relevant corn price is \$4.50 per bushel for the delivery window ending on February 28, 2025. If this grower signs the contract today, February 24, and agrees to deliver his corn on February 27, this would be a spot contract. The period between the moment the contract is signed and the moment it is executed is 3 days. In addition, the previous harvest corn is in the storage (physical corn is available).

Table 2. Cash grain bids: Key Cooperative (Nevada, Iowa, February 24, 2025)

Commodity	Price	Delivery Start	Delivery End
Corn (#2 Yellow) <i>Spot contract</i>	4.50 <i>Spot price</i>	2/1/2025	2/28/2025
Corn (#2 Yellow) <i>Forward contract</i>	4.26 <i>Forward price</i>	10/1/2025	10/31/2025
Soybeans (#2 Yellow) <i>Spot contract</i>	9.63 <i>Spot price</i>	2/1/2025	2/28/2025
Soybeans (#2 Yellow) <i>Forward contract</i>	9.82 <i>Forward price</i>	10/1/2025	10/31/2025

Notes: Explanations in italic font are provided by the author.
Source: Ag Web Farm Journal (2025).

Next, consider the same grower evaluating the same price quote. In February 2025, he begins planning his future corn production and marketing. He would like to reduce his market and price risk by selling a certain quantity of his future harvest corn today. This corn has not been planted yet. The relevant corn price to consider is \$4.26 per bushel for the delivery window beginning on October 1 and ending on October 31, 2025. If this grower signs the contract today, February 24, and agrees to deliver his future corn on October 25, this would be a forward contract. The period between the moment the contract is signed and the moment it is executed is several months, and corn has not been produced yet (physical corn is not available). Box 2 includes examples illustrating the mechanics of spot and forward contracts explained above.

3.2 Price Mechanisms

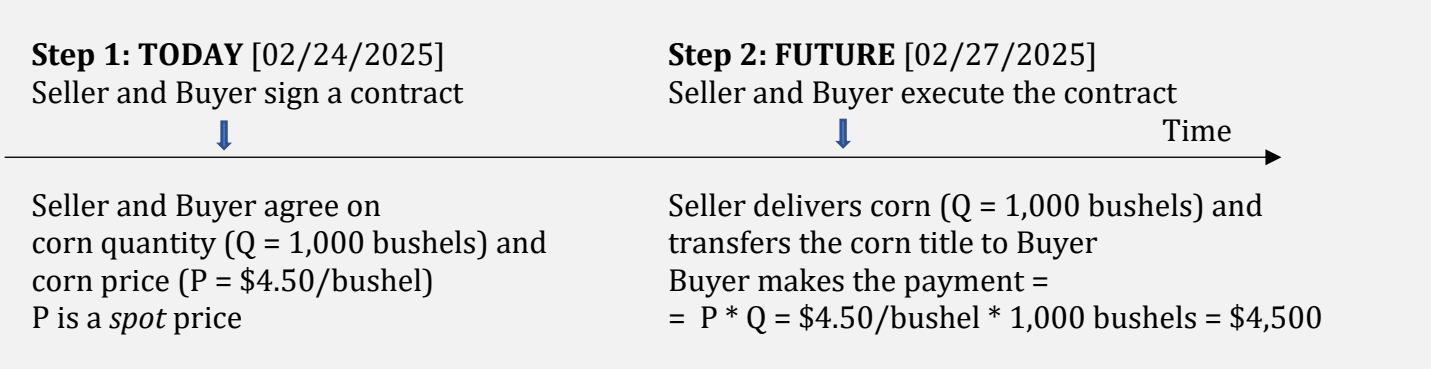
The price mechanisms in marketing contracts are most frequently designed using the following two approaches. The first approach is to include a fixed price for the agricultural product to be sold/purchased (Table 2 and Box 2). The second approach is to describe a price determination method to be used in the future (e.g., when the product is delivered to the buyer’s location). The price formulas are a common example of this approach. The price formulas often include a base price and adjustments to this price (premiums and/or discounts). The base price is typically publicly available. Market prices reported in the US Department of Agriculture Agricultural Marketing Service (USDA-AMS) reports and futures prices are examples of the base prices included in marketing contracts.

Box 2. Mechanics of Spot and Forward Contracts: Corn Example

Seller: A corn grower
Buyer: Key Cooperative (Nevada, IA location)

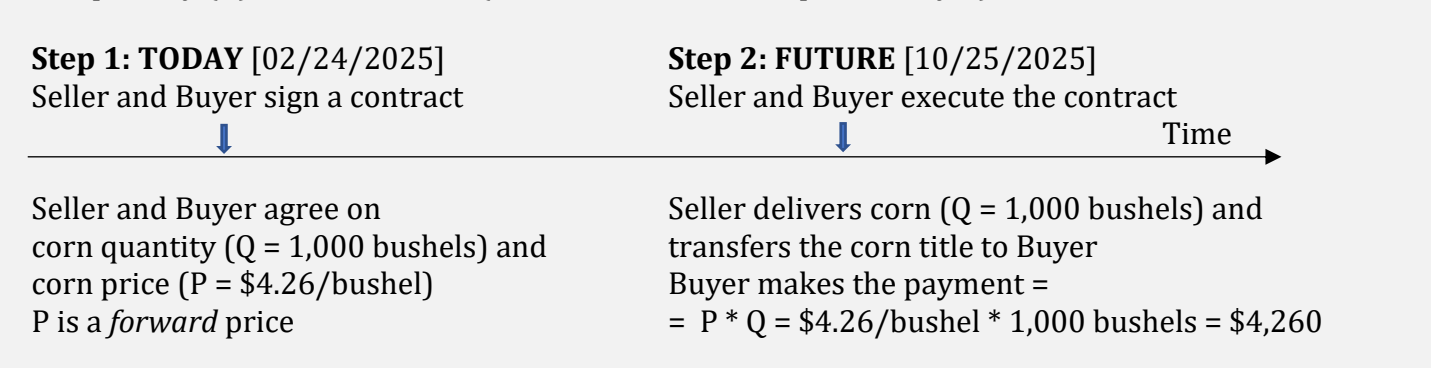
Example #1: A spot contract for corn

Today: 02/24/2025
 Future (delivery date): 02/27/2025 (within the delivery window ending 02/28/2025)
 Corn quantity (Q) = 1,000 bushels (this corn is currently in the grower’s storage)



Example #2: A forward contract for corn

Today: 02/24/2025
 Future (delivery date): 10/25/2025 (within the delivery window ending 10/31/2025)
 Corn quantity (Q) = 1,000 bushels (this corn has not been produced yet)



Notes: Data from Table 2 are used to develop these examples.

3.2.1 Livestock

Using the terminology common to the livestock markets, the category of marketing contracts in these industries includes forward and formula contracts (Adjemian et al. 2016; Greene 2019). Forward contracts use the Chicago Mercantile Exchange (CME) cattle and hog futures contract prices as the base (reference) prices to determine actual prices for fed cattle and hog producers later. Formula contracts use spot market prices as the base (reference) prices to determine actual prices for fed cattle and hog producers later. The spot market prices used in formula contracts are typically spot prices reported by the USDA-AMS (Adjemian et al. 2016; Greene 2019). Furthermore, the terminology used to distinguish different types of hog marketing contracts based on the specifics of payment systems includes swine or pork market formula purchases, other market formula purchases, and other purchase arrangements (Greene 2019; Parcell 2024). Box 3 includes several examples of swine price formulas in hog marketing contracts (USDA-AMS 2025c).

Box 3. Determination of Base Prices in Swine Marketing Contracts

1. Swine or Pork Market Formula

Example #1

LM_HG201, Producer Sold Negotiated Average Net Price, Day of Delivery

Base Price = 101% (Negotiated Average Net Price)

Example #2

LM_PK602, Pork Carcass Cutout Price, Day Prior to Delivery

Final Price = Cutout Percent * Cutout Price + Carcass Merit Adjustment

Cutout percentage 93%

Example #3

LM_HG201, Producer Sold Negotiated Average Net Price, Day Prior to Delivery

LM_PK602, Pork Carcass Cutout Price, Day Prior to Delivery

**Base Price = 50% (Negotiated Average Net Price) +
+ 50% (Cutout Percentage * Cutout Price) + Carcass Merit Adjustment**

Cutout Percentage: 92.72%

2. Other Market Formula

Example #1

Nearby Lean Hog Futures Contract, Lean Hog Futures Price, Last trading day prior to delivery

Base Price = CME Price + Basis; Basis: (\$5.00)

Example #2

Nearby Lean Hog Futures Contract, Lean Hog Futures Price, Last trading day prior to delivery

Base Price = CME Price + Basis + Carcass Merit Adjustment

Basis: Three-year average basis will be determined quarterly as the difference between 1) the weekly average of the daily closing prices for the nearest CME Lean Hog futures contract and 2) the Regional Market base price plus \$0.25.

3. Other Purchase Arrangement

Example #1

CBOT, Corn Futures Price, Average – 8 weeks prior to delivery

CBOT, Soybean Meal Futures Price, Average - 8 weeks prior to delivery

Base Price = [(8.5 Corn Price + 0.065 SBM Price)/1.963] + 40.59

Example #2

LM_HG201, Negotiated Average Net Price, Day Prior to Delivery

LM_PK602, Pork Carcass Cutout Price, Day Prior to Delivery

Floor Price (FP) = 87% Cutout Price; Ceiling Price (CP) = 92% Cutout Price

Market Price (MP) = Base Percentage * Net Price

If MP < FP, then Base Price = FP + Carcass Merit Adjustment

If MP > CP, then Base Price = CP + Carcass Merit Adjustment

If FP < MP < CP, then Base Price = MP + Carcass Merit Adjustment

Base Percentage: 99%

Notes: In these examples, the first rows are relevant USDA-AMS hog and/or pork reports and spot prices included in these reports, or relevant CME/CBOT futures contracts and futures prices. LM_HG201 National Daily Direct Hog Prior Day Report - Slaughtered Swine, LM_PK602 National Daily Pork Report FOB Plant - Negotiated Sales – Afternoon.

Source: USDA-AMS (2025c).

The swine or pork market formula contracts include swine price formulas where actual swine prices are tied to market prices for swine, pork, or pork products, excluding futures prices and options for hogs and pork. The other market formula contracts include swine price formulas where actual swine prices are tied to one or more futures prices or options for hogs and pork. The other purchase arrangements are those for which pricing mechanisms cannot be classified as swine or pork market formulas, other market formulas, or negotiated sales. For example, swine prices in swine price formulas included in other purchase agreements may be tied to futures prices for corn and soybean meal, feed prices, and hog prices at the same time, or the swine price formulas may include the minimum (floor) and maximum (ceiling) prices used to calculate the actual swine prices.

3.2.2 Grains

Marketing contracts for grain include a variety of price mechanisms (Johnson and Wisner 2020; Key Cooperative 2025b). Given a well-developed futures and options market for grains, cash prices, futures prices, basis, and options are used as the components of the grain pricing mechanisms included in marketing contracts.¹³ The pricing mechanisms may include futures price, basis, a combination of the futures price and basis, option, or a combination of the option with a cash price or a futures price, etc. The timing of signing these contracts and the grain delivery window are significant considerations for grain producers signing these contracts, because futures prices, basis, and options change regularly.

Table 3 presents a price quote demonstrating how a grain buyer determines cash (spot and forward) grain prices. The cash price depends on the delivery window. The cash price is the sum of the nearby futures price and the basis for a particular location. The futures price is for a futures contract, which expiration date coincides with or close to the grain delivery window. For example, as of May 19, 2025, the cash price for corn to be delivered in October 2025 is \$3.92 per bushel, the sum of December 2025 corn futures price (\$4.366 per bushel) and basis (-\$0.45 per bushel).

Table 3. Cash bids and futures prices: Key Cooperative (Nevada, Iowa, May 19, 2025)

Commodity	Delivery Start	Delivery End	Basis Month	Futures Price	Basis	Cash Price
Corn	05/01/2025	05/31/2025	Jul 2025	443-6	-32.00	\$4.12
Corn	06/01/2025	06/30/2025	Jul 2025	443-6	-32.00	\$4.12
Corn	07/01/2025	07/31/2025	Jul 2025	443-6	-28.00	\$4.16
Corn	10/01/2025	10/31/2025	Dec 2025	436-6	-45.00	\$3.92
Corn	12/01/2025	12/31/2025	Dec 2025	436-6	-37.00	\$4.00
Corn	01/01/2026	01/31/2026	Mar 2026	451-6	-45.00	\$4.07
Soybeans	05/01/2025	05/31/2025	Jul 2025	1047-6	-55.00	\$9.93
Soybeans	06/01/2025	06/30/2025	Jul 2025	1047-6	-51.00	\$9.97
Soybeans	07/01/2025	07/31/2025	Jul 2025	1047-6	-51.00	\$9.97
Soybeans	10/01/2025	10/31/2025	Nov 2025	1035-2	-67.00	\$9.68
Soybeans	01/01/2026	01/31/2026	Jan 2026	1047-0	-67.00	\$9.80

Notes: Futures prices and Basis are measured in cents per bushel. Cash Price = Nearby Futures Price + Basis.

Source: Key Cooperative (2025a).

¹³ Although grain pricing structures differ across grain marketing contracts, they all reflect the fundamental relationship between the spot price and the futures price for the same commodity: Spot Price = Futures Price + Basis. Consequently, basis is the difference between the local spot price and the nearby futures price. The basis is calculated for a specific location. In the case of grains, basis is affected by local demand and supply conditions, as well as storage, handling, and transportation costs (Hofstrand and Leibold 2022).

3.2.3 Milk

Dairy farmers have historically marketed their milk through dairy cooperatives. Many dairy farmers' milk marketing arrangements with dairy cooperatives are designed as marketing (forward) contracts (Ling and Liebrand 1996; Kinser and Cropp 1998; Shields 2011; Wolf 2012; Wolf and Olynk Widmar 2014).¹⁴ The design of milk price mechanisms included in forward contracts may be as simple as a fixed forward price or more complex when forward prices are tied to the CME futures prices for manufactured dairy products, such as cheese, butter, and nonfat dry milk. Given that milk prices that dairy farmers receive in the US are determined within the system of Federal and State Milk Marketing Orders (FSMMOs), forward contracts that dairy farmers sign with dairy cooperatives and forward contracts that independent dairy farmers and dairy cooperatives sign with private milk processors may use FSMMO milk component prices as base prices (Kinser and Cropp 1998; DFA (Dairy Farmers of America) Milk Supply Agreement 2006; Hadfield 2009).¹⁵ In addition, these contracts may establish premiums to be applied to the base milk prices, such as the fat and protein premiums, volume premiums, and quality premiums. An example of the milk pricing system is a milk price provision of the DFA Milk Supply Agreement (2006) included in Box 4.¹⁶

4 Production Contracts and Their Payment Systems

This section introduces agricultural production contracts by focusing on the product ownership and responsibilities of contract parties and explains the rationale for using these contracts compared to marketing contracts. In addition, this section discusses the design of payment systems included in production contracts for selected agricultural commodities (broiler chickens, hogs, and potatoes) by using real-world contract examples.

4.1 Production Contracts: Introduction

According to production contracts, agricultural producers agree to provide services (growing crops or raising animals and poultry) for food processors (integrators) in exchange for a payment (compensation). Processors typically (but not always) own agricultural products that producers produce for them. Consequently, processors make production, marketing, and pricing decisions. Agricultural producers are service providers who typically never get the title (ownership) of the agricultural products they produce for processors.

Under production contracts, processors are typically responsible for providing and paying for the main agricultural inputs (e.g., seeds, young birds and animals, medical supplies and veterinary services, transportation); they also determine agricultural production management practices (Roy 1963; Hamilton 1995; MacDonald et al. 2004). Agricultural producers are typically responsible for providing and paying for land, labor, housing facilities for poultry and animals, utilities, and following agricultural production management practices determined by processors. Box A1 in the Appendix summarizes typical responsibilities of producers and processors under production contracts.

Production contracts are signed before the agricultural production season begins. Production contracts establish product quantity and quality requirements comprehensively. Processors are large

¹⁴ Kinser and Cropp (1998) provide several examples of forward contract programs between dairy farmers and dairy cooperatives.

¹⁵ Federal Milk Marketing Orders (FMMOs) are geographically defined fluid milk demand areas, using which US Department of Agriculture determines minimum prices that regulated milk handlers (processors) have to pay for Grade A milk based on the end use of milk determined by four milk classes (Greene 2022). The USDA Agricultural Marketing Service calculates and publicly announces advanced prices and pricing factors monthly (USDA-AMS Dairy Program, 2025). Dairy cooperatives are allowed to negotiate over-order premiums, which are added to the FMMOs' minimum prices (Ling and Liebrand 1996). Over-order premiums are paid based on milk quality, volume, and milk assembling services provided by dairy cooperatives.

¹⁶ The teaching note includes the DFA Milk Supply Agreement, a contract check list to use to analyze its structure, and a set of related multiple-choice questions.

Box 4. DFA Milk Supply Agreement: Milk Pricing System

“2. Prices.

For all Demand Milk purchased and sold pursuant to this Agreement, Buyer agrees to pay to Seller, and Seller agrees to accept as payment in full, **the appropriate Class price based upon the announced component values by the Federal Milk Market Administrator (Market Administrator). Class price will be computed by the producer-weighted average butterfat times the Federal Order (FO) announced butterfat price, the producer-weighted average nonfat solids times the FO announced nonfat solids price, the producer-weighted average protein times the FO announced protein price, and the producer-weighted average somatic cell count times the FO announced somatic cell adjustment price.** In the event the FO price is no longer published, Buyer and Seller agree to negotiate in good faith a purchase price that similarly reflects the FO price under which Demand Milk is sold. **In addition, Buyer shall pay the appropriate premiums for the Demand Milk as set forth in Schedule A attached hereto and incorporated herein.”¹**

Milk Quality Specifications (Schedule C)

“Grade “A” Raw Milk (“Demand Milk”)

- 45° F or less
- Bacteria not to exceed 300,000 per mL
- No positive results on drug residue detection
- Somatic Cell Count not to exceed 750,000 per mL
- Titratable acidity not to exceed 0.16%”

Note: Emphasis added by the author.

Federal Milk Marketing Orders (FMMO) pricing system²

Milk Classes

Class I milk is used in fluid milk manufacturing (whole milk, reduced-fat milk, etc.).

Class II milk is used in soft dairy product manufacturing (yogurt, sour cream, etc.).

Class III milk is used in cheese manufacturing.

Class IV milk is used in butter and dry milk product manufacturing.

Milk Components

Butterfat; Nonfat Solids; Protein; Other Solids.

Advanced milk prices and pricing factors are calculated and announced monthly by the US Department of Agriculture Agricultural Marketing Service Dairy Program (USDA-AMS 2025b).

Source: DFA Milk Supply Agreement (2006).

¹ Schedule A Premiums is unavailable in public access [*Confidential Treatment Requested*].

² The FMMO pricing system note is provided by the author (for more details, see Greene 2022).

firms operating large processing plants. They sign similar contracts with many agricultural producers located in the same area. Processors are strict about product quality requirements and quantity. They aim to achieve consistent quality of raw agricultural products produced by agricultural producers to ensure a steady supply for their processing plants.¹⁷ For processors, the consistent quality of raw agricultural products (inputs) and their quantity are crucial for manufacturing food products (outputs) with desirable quality characteristics and of the required quantity.¹⁸ Box A2 in the Appendix summarizes the advantages and disadvantages of entering production contracts for producers and processors.

¹⁷ While agricultural production is seasonal, food products must be available on the retail shelves daily.

¹⁸ The issues of product quality and contract design are discussed by Hennessy and Lawrence (1999) in the hog industry; Hueth et al. (1999) in the California fruit and vegetable industries; Goodhue et al. (2003) in the California winegrape industry; and Sykuta and Parcell (2003) in identity-preserved soybean production.

The payment systems in production contracts are typically tied to product quality characteristics measured after agricultural products are produced and delivered to the processing plants. Product (output) quality characteristics are affected by agricultural production management practices and agricultural inputs.

4.2 Payment (Compensation) Systems

The design of payment systems in production contracts varies across industries. The degree of processors' control of agricultural inputs used by producers and the scope of the responsibilities of both contract parties differ across the industries where production contracts are widespread. Regardless of the industry, payment systems are complex because production contracts are signed before the production season begins, and the actual payments are calculated after the harvest when processors accept agricultural products.

Payment systems typically include base pay and a system of bonuses and penalties applied to the base pay. The bonuses are paid for desirable product quality characteristics or a certain desirable level of producers' performance and are added to the base pay. The penalties are imposed for undesirable product quality characteristics or a certain undesirable level of producers' performance and are deducted from the base pay. The system of bonuses and penalties incentivizes agricultural producers to produce agricultural products with the quality characteristics desirable by food processors.

4.2.1 Broiler Chickens

Under production contracts, broiler processors are responsible for providing young chicks, feed, veterinary supplies and services, and transportation of chickens to and from the farms; they also determine production management practices (MacDonald 2008; 2014). Broiler growers are responsible for providing chicken housing facilities, land, labor, utilities, farm operating expenses, and following production management practices determined by processors. Processors own broilers that growers raise for them.

The compensation system used in broiler production contracts—referred to as the tournament system—is based on the relative performance of individual broiler growers (USDA-AMS 2022; National Chicken Council Chicken Check In 2025). The payment to an individual grower is calculated based on this grower's performance relative to the group of growers. The individual grower's performance is compared to the "average performance," which is determined using all growers located in a specific area delivering broilers to the processor during a particular week.

Processors develop the performance measure (formula). The cost-based performance measure has been used in the industry in the last decades (Knoeber 1989; Knoeber and Thurman 1995; USDA-AMS 2022; Pilgrim's Pride 2005). The cost-based performance measure (dollars per pound of live broilers) is the ratio of costs attributed to young chicks, feed, and medications divided by the gross weight of broilers.¹⁹ The payments to growers are calculated as follows:

$$\begin{aligned} \text{Payment to broiler growers performing } \textit{above} \text{ average} &= \\ &= \text{base pay} + \text{bonus for the } \textit{above}\text{-average performance} \end{aligned}$$

$$\begin{aligned} \text{Payment to broiler growers performing } \textit{below} \text{ average} &= \\ &= \text{base pay} - \text{penalty for the } \textit{below}\text{-average performance} \end{aligned}$$

¹⁹ This cost-based performance measure (dollars per pound of live broilers) reflects the average variable costs of broiler processors at the broiler production stage of their vertically integrated operations. This performance measure reflects the feed-conversion ratio (the feed efficiency measure common in the industry), which is the feed quantity to broiler weight ratio.

The bonus (penalty) is typically the deviation of the performance measure calculated for an individual grower from the group average. Growers performing above the group average are low-cost growers for processors. Growers performing below the group average are high-cost growers for processors. Growers are compensated for high feed efficiency, low mortality rates, and the quantity of liveweight pounds of broilers delivered to processors (National Chicken Council Chicken Check In 2025). Growers with upgraded chicken housing facilities, who follow proper production management practices and raise healthy chickens, are typically rewarded under this payment system. Box 5 includes an example of a broiler grower compensation system in the Pilgrim's Pride Broiler Production Agreement (2005).²⁰

4.2.2 Hogs

Payment systems in hog production contracts vary across different types of contracts, reflecting different types of hog operations. The most common contract type is for finishing feeder pigs, according to which hog producers raise hogs supplied and owned by processors to a market-ready weight (Langemeier 1993; Lawrence et al. 2006; Harper 2009). Typically, pork processors are responsible for providing pigs, feed, veterinary and medical supplies and services, and transportation of pigs to and from the farms; they also determine production management practices (Davis et al. 2022). Hog producers are responsible for providing hog housing facilities, land, labor, utilities, farm operating expenses, and following production management practices determined by processors.

The payment system used in production contracts for finishing feeder pigs includes a fixed payment and adjustments to this payment, including bonuses and penalties tied to the hog producers' performance (Langemeier 1993; Lawrence et al. 2006; Harper 2009). The fixed payment may be specified in dollars per head, dollars per pound of weight gain, dollars per day, or dollars per pig space. Bonuses are typically paid to hog producers with feed conversion rates and death losses below the predetermined standards included in the contracts. Penalties may be imposed on hog producers with unmarketable hogs and death losses above these predetermined standards. Box 6 includes an example of a hog producer payment system in an Iowa Cooperative Grow/Finish Agreement (1996).

Production contracts are also used to produce feeder pigs. According to this type of contracts, integrators, at a minimum, provide breeding stock. At a minimum, hog producers provide labor, utilities, maintenance, and manure handling. The design of contracts used to produce feeder pigs, and their payment systems vary depending on the scope of responsibilities of integrators and hog producers (Lawrence et al. 2006). Typically, the payment system includes a fixed payment, bonuses, and penalties, as described above. In some cases, a shared revenue program is used, according to which the hog revenue is divided in proportion to the inputs provided by contract parties.

4.2.3 Potatoes for Processing into Frozen French Fries

Potato processors rely extensively on contracts with potato growers to procure raw potatoes for manufacturing processed potato products, including frozen french fries (Bolotova and Patterson 2009). These contracts are signed before the potato production season begins. Potato growers own potatoes that they grow for processors. The contracts specify a potato variety, Russet Burbank, that growers must purchase and plant. Russet Burbank is a potato variety that allows processors to manufacture frozen french fries with desirable quality characteristics (e.g., size, color, texture, taste, storability).

Potato contracts specify the base price and a complex system of bonuses (incentives) and penalties (disincentives) for the presence and absence of desirable raw potato quality characteristics. The contracts specify the minimum price as well. The bargaining associations of potato growers negotiate

²⁰ The teaching note includes the Pilgrim's Pride Broiler Production Agreement, a contract check list to use to analyze its structure, and a set of related multiple-choice questions.

with the processors the base price and other terms included in the contracts before the potato planting season begins.

Box 5. Pilgrim's Pride Broiler Production Agreement: Compensation System

1. The **Formula Cost** is calculated for each **individual grower (IG)**, and the **Group Average Cost** is calculated for a group of growers delivering broilers to Pilgrim's Pride during the same week.

IG Formula Cost (\$ per pound) =

$$= [\$0.085 \text{ per pound of feed} * Q \text{ feed (pounds)} + \\ + \$0.16 \text{ per chick} * \text{number of chicks} + \\ + \text{medication costs (\$)}] / \text{Gross weight (pounds) of broilers produced by IG}$$

All Growers Combined: Total Cost (\$) =

$$= \$0.085 \text{ per pound of feed} * Q \text{ feed (pounds)} + \\ + \$0.16 \text{ per chick} * \text{number of chicks} + \text{medication costs (\$)}$$

The Group Average Cost (\$ per pound) =

$$= \text{Total Cost} / \text{Gross weight (pounds) of broilers produced by all growers}$$

2. **IG Formula Cost is compared to the Group Average Cost to determine if IG performs above or below the average.**¹

If IG's Formula Cost < Group Average Cost

-> A low-cost grower for Pilgrim's Pride -> Above-average performance -> Bonus

If IG's Formula Cost > Group Average Cost

-> A high-cost grower for Pilgrim's Pride -> Below-average performance -> Penalty

3. **IG payment** is calculated as follows.

Payment to IG performing above average = Base pay + the deviation from the average

Payment to IG performing below average = Base pay - the deviation from the average

The Base pay is \$0.046 per pound. The minimum pay is set as well.

Example #1: IG #1 Formula Cost is \$0.003 per pound below the average

This is a **low-cost grower** for Pilgrim's Pride -> **Bonus [the deviation from the average]**

Payment to IG#1 = \$0.046 + \$0.003 = \$0.049 per pound

Example #2: IG #2 Formula Cost is \$0.003 per pound above the average

This is a **high-cost grower** for Pilgrim's Pride -> **penalty [the deviation from the average]**

Payment to IG#2 = \$0.046 - \$0.003 = \$0.043 per pound

Notes: Growers with extremely high formula cost (exceeding the group average by \$0.0180 per pound or more) are excluded from the group, and the average cost for the group is recalculated.

¹ Section 2 is the author's interpretation of growers' performance.

Source: Pilgrim's Pride (2005): Exhibit A.

Box 6. Iowa Cooperative Grow/Finish Agreement: Payment System

PRODUCER PAYMENT CALCULATION

PRODUCER PAYMENT =

$$= (\text{Production Cost of Gain Payment} + \text{Gain Per Head Payment}) * \text{Number of Hogs Marketed}$$

Where:

Production Cost of Gain Payment = (Production Cost of Gain per Cwt. * -0.25) + \$11.00

Production Cost of Gain per Cwt. = Cost of Supplies, including delivery, mixing, grinding, or other processing/Total Cwt. Gain¹

Total Cwt. Gain = Total Cwt. of Hogs Marketed – Total Cwt. of Pigs In

Gain Per Head Payment = (Total Cwt. Gain/Number of Hogs marketed) * \$3.00

Example

Assumptions:

Cost of Supplies	\$38,400.00
Total Cwt. of Pigs In	432
Total Cwt. of Hogs Marketed	2,232
Number of Hogs Marketed	930

Total Cwt. Gain = 1,800

= Total Cwt. of Hogs Marketed – Total Cwt. of Pigs In = 2,232 – 432

Production Cost of Gain per Cwt. = \$21.33

= Cost of Supplies/Total Cwt. Gain = \$38,400.00/1,800

Production Cost of Gain Payment = \$5.67

= (Production Cost of Gain per Cwt. * -0.25) + \$11.00 = (21.33 * -0.25) + 11.00

Gain Per Head Payment = \$5.81

= (Total Cwt. Gain/Number of Hogs marketed) * \$3.00 = (1,800/930) * 3.00

Producer Payment = \$10,676.40

= (Production Cost of Gain Payment + Gain Per Head Payment) * Number of Hogs Marketed = (5.67 + 5.81) * 930

Note: The minimum annual payment is \$30.00 per Pig Space.

¹ The minimum and maximum Production Cost of Gain Payments are \$4.75 and \$7.25, respectively.

Source: Iowa Cooperative Grow/Finish Agreement (Generation II Bonus) (1996).

The bonuses are paid for specific percentages (shares) of specified potato grades and sizes and specific physical internal and external characteristics of raw potato tubers crucial for producing frozen french fries (Bolotova and Patterson 2009). For example, the size of the potato tuber, its density and sugar content, and the absence of internal and external defects are important determinants of high-quality frozen french fries. Raw potato quality factors also determine overall product recovery: the pounds of final product per pound of raw product processed. The quality of potato tubers intended for processing into french fries also affects the extent to which frozen french fries can retain their quality during storage. Box 7 includes an example of the potato price mechanism in potato contracts discussed in this section.

Box 7. A Processing Potato Contract: Payment System

1. Potato variety: Russet Burbank

2. Potato grade: US No. 2 Processing (US Standards for Grades of Potatoes for Processing)

3. Potato tuber size: Not less than 2 inches in diameter or 4 ounces in weight

4. Base price: \$4.71 per hundredweight (cwt)

Adjustments (incentives and penalties) to the base price

5. Specific gravity (incentives and penalties are for each 0.001 of the specific gravity level within the indicated range, unless otherwise mentioned)

Incentives: \$0.05 per cwt. if above 1.079 to 1.088; \$0.45 per cwt. if 1.089 or 1.090;
\$0.40 per cwt. if 1.091, 1.092 and above

Penalties: \$0.05 per cwt. if below 1.078 to 1.074; \$0.10 per cwt. if below 1.074

6. Potato size: Ten-ounce or larger US No. 2 for processing or better (incentives and penalties are for each percentage point within the indicated range)

Incentives: \$0.02 per cwt. if above 21%; maximum payable at 45%

Penalties: \$0.02 per cwt. if below 21%

7. US No. 1 potatoes share: two inches or four-ounce minimum size (incentives and penalties are for each percentage point within the indicated range)

Incentives: \$0.01 per cwt. if above 60%; maximum payable for 85%

Penalties: \$0.01 per cwt. if below 60%

8. Bruise-free (incentives and penalties are for each percentage point within the indicated range)

Incentives: \$0.015 per cwt. if above 65%; maximum payable at 90%

Penalties: \$0.015 per cwt. if below 65%

9. Fry (sugar) color (penalties are for each percentage point of the fry color USDA #3 or darker within the indicated range)

Penalties: \$0.0075 per cwt. if above 8%

10. Dirt and foreign material (penalties are for each percentage point within the indicated range)

Penalties: \$0.01 per cwt. if above 1% and below 7%;

\$0.02 per cwt. if at 7% and above and below 11%

\$0.05 per cwt. if at 11 % and above

Source: Bolotova and Patterson (2009).

5 Caveats and Practical Advice

This section emphasizes the importance of paying attention to the agricultural product ownership while distinguishing between marketing and production contracts. In addition, this section briefly highlights relevant legal issues and provides practical advice on how to prepare for signing agricultural contracts.

5.1 Agricultural Product Ownership

Many contracts do not include “production” or “marketing” in their titles. There is no legal requirement to refer to a contract as a production or marketing (forward) contract. Agricultural producers have to understand the design of contracts by carefully evaluating their provisions before signing them.

Agricultural product ownership is the key issue. It affects the allocation of decision rights as well as production, marketing, and price risks between contract parties. The relevant issues to pay attention to before signing a contract are the following:

- Which contract party owns the product during the production season? Typically, this contract party would make the key production, marketing, and pricing decisions.
- If it is a marketing contract (a contract for the sale of goods), is the exact moment of the product ownership (title) transfer from the seller to the buyer specified in the contract? This can occur during the product pickup at the seller’s location, during the product drop-off at the buyer’s location, after the payment has been made, etc.
- If it is a marketing contract (a contract for the sale of goods), is the risk of product loss (damage) transferred from the seller to the buyer at the moment when the product title is transferred? The moment the product loss (damage) risk is transferred from the seller to the buyer must be specified in the contract, because it may or may not coincide with the moment of the product ownership transfer.

5.2 Legal Issues

The Uniform Commercial Code (UCC) establishes the rules governing contracts for the sale of goods. All marketing (forward) contracts are contracts for the sale of goods (assuming agricultural producers own the products they sell). Some production contracts may be interpreted as contracts for the sale of goods, if agricultural producers own agricultural products they produce for processors (e.g., potato contracts discussed in a previous section). If there are issues in executing contracts for the sale of goods (e.g., some terms are not discussed in a written contract), then the UCC rules apply.

For a contract for the sale of goods to be enforceable in court, the contract must be in writing if it covers a sale of goods valued at \$500 or more, and it has to be signed by the person the contract is being enforced against (UCC § 2-201). “Writing” means an e-mail, a fax copy, or a simple paper document in which references are made to the seller and the buyer, the product being sold/purchased, and its quantity.

Production contracts in which agricultural producers are service providers and do not own products they produce for processors are not subject to UCC, and the UCC rules do not apply to these contracts.²¹ The enforcement procedure of production contracts is very complex compared to contracts for the sale of goods and depends on a particular state’s legal rules used to enforce these contracts.

5.3 Practical Advice

In today’s market environment, agricultural product buyers (e.g., food processors and wholesalers) are the ones who develop contracts. Agricultural producers in many situations do not have bargaining power

²¹ Hamilton (1995) discusses legal issues associated with agricultural production contracts.

to negotiate the terms of contracts that they sign.²² Agricultural product buyers possess buyer market power that they can use to draft contract terms to their own benefits. Agricultural producers and business consultants representing them should do their due diligence before they sign (or recommend signing) a contract. Some of the rules to follow are summarized below:

- Talk to agricultural producers who have already signed similar contracts to collect their opinions about potential benefits, costs, and challenges associated with the contract.
- Talk to an Extension agent and/or a business consultant specializing in agricultural contracts.
- Search for information about the food processor and the contract type on the internet.
- In the case of production contracts, develop a budget: calculate the expected revenue (returns) and costs associated with entering the contract.
- Ensure you understand all contract provisions: use a contract check list to understand the contract better.
- Consult a lawyer if you believe it is necessary.

6 Topic Fit in the Curriculum and Implementation Guidance

This lecture topic is suitable for a variety of undergraduate courses, such as Farm Business Management, Agribusiness Management, Agricultural Marketing, Supply Chain Management, and Agricultural Prices. The teaching materials included in this article can be tailored to both introductory and upper-level undergraduate courses. No specific student background knowledge is required. However, students would benefit from taking an introductory microeconomics course before taking a course in which this topic is taught.

A teaching strategy to use depends on the course and the amount of time allocated to this lecture topic. The first teaching strategy is to allocate three class sessions to this topic, in which case, most of the material included in this article can be explained. The instructor should select only those contract and payment system examples that fit the students' interest (i.e., agricultural industries and contracts widespread in a region where the university is located) and the level of class (i.e., contracts and/or payment systems with a simpler structure to be explained in the introductory courses, and the ones with more complex structures to be explained in the advanced courses). The author of this article generally adheres to this teaching strategy in a 200-level Farm Business Management course taught at Iowa State University.

Following this teaching strategy, the first class is to be allocated to the introduction to agricultural marketing and production contracts and the overview of their structure (Section 2 of this article). The second class is to be allocated to marketing contracts and their price mechanisms (Section 3 of this article). The third class is to be allocated to production contracts and their payment systems (Section 4 of this article).

The second teaching strategy is allocating one or two classes to teaching selected materials. The author of this article generally adheres to this teaching strategy in a 200-level Introduction to Agricultural Markets course by introducing agricultural marketing (forward) contracts.

The teaching note includes multiple-choice questions for in-class assignments, homework assignments, quizzes, and exam questions (answer keys are provided). The teaching note also includes two real-world sample contracts: Dairy Farmers of America Milk Supply Agreement and Pilgrim's Pride

²² The Capper-Volstead Act (1922), a limited antitrust exemption to the Sherman Act (1890), allows agricultural producers to get involved in collective agricultural marketing activities through the properly formed organizations (e.g., cooperatives and associations). Collective agricultural marketing includes collective bargaining and pricing. For example, in the US potato and dairy industries, the organizations of agricultural producers negotiate with the processors contract prices and other terms of trade on behalf of individual farmer-members of these organizations (Ling and Liebrand 1996; Bolotova and Patterson 2009).

Broiler Production Agreement (already introduced in this article), two contract check lists to use to evaluate the main terms of these contracts, and multiple-choice questions specific to these two contracts (answer keys for the contract check lists and multiple-choice questions are provided). The teaching note also provides the dairy and broiler industry background that will facilitate effective learning of these contracts and additional guidance on using the assessment materials included in the teaching note.

Finally, the instructors can use the material and examples included in this article as guidance in developing their own teaching examples and assessment materials. It should be kept in mind that most recent agricultural contracts are not generally available in public access, as they are considered proprietary and confidential information. It is possible to locate less recent contracts still suitable for teaching activities. The following contract resources are available in public access:

- Contracts are available for public access on the internet. Google sample contracts using keywords (e.g., sale contract cattle).
- Sample contracts are available on the webpage of the Contract Farming Resource Center of the Food and Agricultural Organization of the United Nations (2025).
- Descriptions and summaries of selected hog and cattle marketing contract provisions are available in the recently introduced by USDA-AMS the Swine Contract Library (USDA-AMS 2025c) and Cattle Contracts Library (USDA-AMS 2025d).

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Acknowledgments: The author acknowledges constructive comments provided by AETR Editor, Jason Bergtold, and two anonymous reviewers.

Appendix

Table A1. Agricultural Contracts: Examples of Main Terms

Contract Term	Milk Purchase Agreement (Hadfield 2009)	Feed (high-moisture corn) Contract (Stellato 1999)	Waxy Corn Contract (Pritchett 2004)
Contract parties	Dairy cooperative [Seller] and yogurt manufacturer [Buyer]	Grain farm [Seller] and dairy farm [Buyer]	Corn grower [Seller] and corn processor [Buyer]
Product	Organic raw milk	High-moisture shelled corn	Waxy corn
Quality	Grade A milk for human consumption	The target moisture level is 25 percent; Buyer will not accept corn with a moisture level below 22 percent	Moisture: 15 percent max; Test weight: 54 pounds max; Foreign material: 2 percent max; Damage: 3 percent max; Aflatoxin: <20ppb; Odor: cool, sweet, and of merchantable quality; rejection conditions and quality discounts are specified
Quantity	All of the Buyer's requirements; the actual quantity is agreed every week on Thursday of the week prior to delivery	420 tons of high-moisture shelled corn, which is equivalent to 15,000 bushels of dry shelled corn at 15 percent moisture, with a test weight of 56 pounds per bushel	Waxy corn acres and contracted bushels are specified
Price	The price is determined by using the component prices for Butterfat, Solids Nonfat, and Fluid Carrier, as established by the California Department of Agriculture	The base price is \$2.40 per bushel on a dried basis at 15 percent moisture, which is equal to \$75.65 per ton at 25 percent moisture; final price adjustments for moisture are made using the U.W.-Extension chart	Price depends on the delivery date; price is the sum of a relevant month corn futures price and a premium; the latter is \$0.12 per bushel and is an incentive to grow waxy corn (as compared to commercial corn)
Inputs	Not applicable	Seller is responsible for providing all inputs and paying all costs	Waxy corn seed hybrids and their quantities are specified
Duration	The initial term is for four years; the agreement is renewed automatically every year, unless either party terminates it	The harvest period of the year for which the contract is signed	A single crop year

Box A1. Production Contracts: Typical Responsibilities of Food Processors and Agricultural Producers

Food Processors	Agricultural Producers
<p>1. Make production decisions:</p> <ul style="list-style-type: none"> • herd size and rotation, • crop planting area, • planting and harvesting schedule, • production management practices, • weed control methods. <p>2. Determine agricultural inputs to be used and provide and pay for all or some of these inputs:</p> <ul style="list-style-type: none"> • variety of seeds, • types of feed, • genetics of young birds and animals, • agricultural chemicals (pesticides, insecticides, etc.). <p>3. Control the production process:</p> <ul style="list-style-type: none"> • Teams of field men monitor the production process and provide consulting services. 	<p>1. Provide services for processors:</p> <ul style="list-style-type: none"> • grow crops, raise poultry or livestock, • follow production management practices determined by processors, • use agricultural inputs determined by processors. <p>2. Provide fixed assets and pay for them:</p> <ul style="list-style-type: none"> • land, • housing facilities for livestock and poultry, • agricultural machinery, • equipment. <p>3. Provide labor and may be responsible for some or all farm operating expenses.</p>

Sources: Roy (1963) and Hamilton (1995).

Box A2. Production Contracts: Advantages and Disadvantages for Food Processors and Agricultural Producers

Food Processors	Agricultural Producers
<p style="text-align: center;">Advantages</p> <ul style="list-style-type: none"> • Input supply control: consistent quality and required quantity of raw agricultural inputs to ensure the effective operation of food processing plants. • Lower input costs, as compared to alternative input procurement practices. • Control over production management practices leading to desirable agricultural product quality characteristics required to produce food products with desirable quality characteristics. 	<p style="text-align: center;">Advantages</p> <ul style="list-style-type: none"> • Risk-sharing: reduced production, marketing, and price risks (as compared to spot markets and marketing contracts). • Access to capital from the processor and/or financial institutions. • Access to technology otherwise not available. • Technical and management consulting. • Access to output markets otherwise not available. • Income stability (predictability).
<p style="text-align: center;">Disadvantages</p> <ul style="list-style-type: none"> • Complex decision-making. • There may be no other alternative to effectively procure raw agricultural commodities (spot market or marketing contracts can complement to a minor extent, but cannot substitute). 	<p style="text-align: center;">Disadvantages</p> <ul style="list-style-type: none"> • Contract commitment may limit access to alternative markets. • Complexity of payment systems; lack of transparency in the methods used to calculate individual compensations. • The quality of agricultural products is affected by the quality of agricultural inputs provided by processors. • Buyer market power of processors may lead to lower compensation than competitive compensation. • Dependence on the processor in terms of decision-making. • Significant investment risks (may be required to build expensive poultry or hog housing facilities).

Sources: Roy (1963), Hamilton (1995), and MacDonald et al. (2004).

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DOI: <https://doi.org/10.71162/aetr.554690>

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