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# The Role of Contracts in the Organic Supply Chain: 2004 and 2007

Carolyn Dimitri  
Lydia Oberholtzer  
Michelle Wittenberger





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# The Role of Contracts in the Organic Supply Chain: 2004 and 2007

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**Lydia Oberholtzer**

**Michelle Wittenberger**

## Abstract

Organic food products are excellent candidates for contract production and marketing because they are produced using a distinct process and are in high demand. This report summarizes survey data on contracting in the organic sector, addressing the extent of contracting, the rationale for using contracts, and contract design for select commodities. The central survey data were collected from certified organic handlers (intermediaries) in the United States who marketed and procured organic products in 2004 and 2007. Contracting is widespread in the organic sector, and, in 2007, firms used contracts most frequently to secure organic products essential to their business and to source products in short supply. Large firms were more likely to use contracts for procurement, and these firms contracted for a larger share of their procurement needs. Nearly all contracts required suppliers to provide evidence of organic certification. Firms using contracts rarely assisted suppliers with obtaining organic certification or the transition to organic. Most contracts include provisions regarding quality, and quality verification was an essential component of these contracts. Prices were determined in a variety of ways and, in some cases, depended on delivered quality.

**Keywords:** Organic supply chain, contracts, organic marketing, organic procurement, intermediaries, certified organic handlers, contract design, certified organic

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## Summary

Contracts are widely used for marketing agricultural products, particularly when buyers seek products with specific attributes. Economic research indicates that, under certain circumstances, both suppliers and buyers can benefit from using contracts. The production, handling, and marketing of organic products follow a distinct process, as specified by the National Organic Standards. For products to carry an “organic” label, their production and handling processes must be certified by an accredited third-party inspector. Retail sales of organic products have been increasing rapidly, and the market has faced periodic shortages of some organic products.

### What Is the Issue?

Contracts can be designed to provide suppliers with incentives to deliver products with attributes desired by buyers. Conditions in the organic sector suggest that organic handlers (i.e., processors, distributors, manufacturers, repackers), as well as their suppliers (i.e., producers or other handlers), may potentially benefit from contracts, given growth in demand for organic products, short supplies, and the need for certification. Previous research, however, has not investigated the use of contracts in the organic sector. Data from two Economic Research Service (ERS) surveys of certified organic handlers (or intermediaries) provide insight into the extent of contracting in the organic sector, the rationale for using contracts, and reasons for contract termination. Other key questions relate to specific terms of contracts, including whether buyers offer suppliers assistance, how quality is specified in contracts and then measured, how prices are determined, and the frequency of contract termination.

### What Did the Study Find?

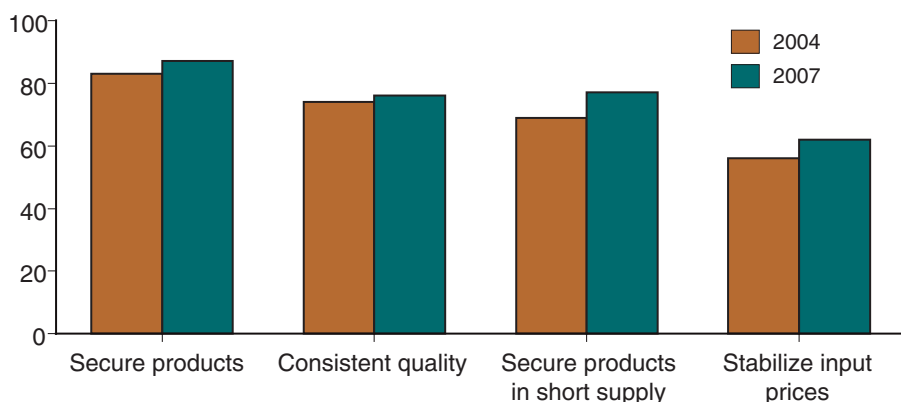
In 2007, contracts were used chiefly to procure needed products, particularly those in short supply. The next factor leading to contract use is the desire to source products with specific quality attributes. Large firms were more likely to use contracts for procurement. Assistance offered by contractors to suppliers typically included transportation or technical advice on organic standards. Contractors rarely assisted suppliers with obtaining organic certification or with the transition to organic.

Exploring contract use for a group of 13 commodities, the analysis examines provisions on quality, organic certification verification, and pricing. Nearly all contracts required firms to provide evidence of organic certification. Most contracts included provisions regarding quality, with the most common provision being minimum quality standards. Best management practices, which can have a significant impact on final product quality, are specified in some contracts for nearly all products (except for nuts). Some contracts impose a penalty for low quality (typically in corn, soybean, and seed contracts, such as those used by farmers for raising crops), while others offer a premium for high quality (typically in milk, coffee, and wheat contracts).

## Top reasons handlers use contracts

*Issues critical for handlers in 2004 became even more so in 2007*

Percent of firms



Source: USDA, Economic Research Service.

Quality verification was an essential component of contracts, and the verification method depended largely on whether quality was observable. Grain quality has both observable and unobservable attributes, so verification consists of both physical observation and testing for specific attributes. Because the quality attributes for coffee and milk are largely unobservable, nearly all quality verification is done through testing.

The methods for determining contract-specified prices paid to suppliers vary by product. The market price for organic products was specified most often in contracts for apples/pears, coffee, and seeds. Quantity discounts were part of contracts for nearly all products, except for berries, and were most common in seed, wheat, rice, and tomato contracts. Flat prices were specified most often for onions/garlic, poultry, and grains. Flat prices that depended on the supplier's past performance were most prominent for seeds, coffee, apples/pears, berries, grapes, onions/garlic, and tomatoes.

## How Was the Study Conducted?

The analysis is based on data collected when ERS conducted nationwide surveys of certified organic processors, manufacturers, and distributors for 2004 and 2007 practices. The surveys were funded by a cooperative agreement with USDA's Risk Management Agency and were developed in conjunction with a group of organic stakeholders.





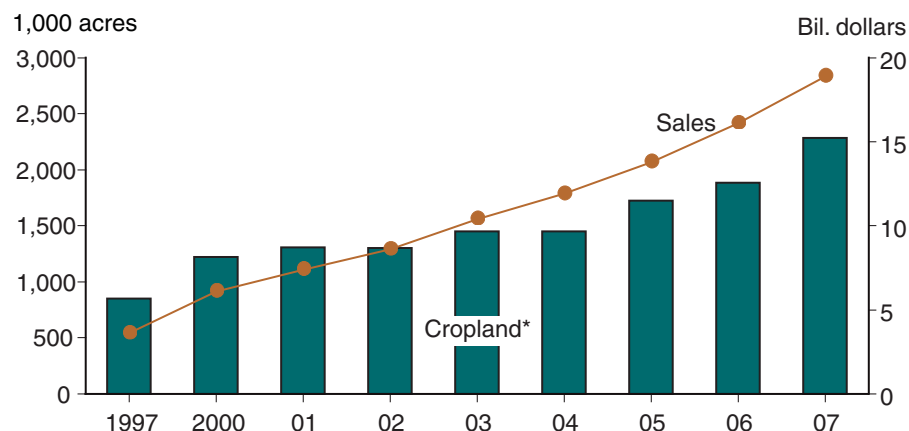
## Introduction

Much of the production and marketing of agricultural products relies on contracts to facilitate sales between buyers and sellers. In 2005, contracts covered approximately 40 percent of the value of agricultural production in the United States, with the remaining share sold on the spot market via auctions, wholesale markets, or direct negotiation between buyers and sellers (MacDonald and Korb, 2008; MacDonald et al., 2004). Contract usage varies across products, with contracting occurring more often for some products, such as poultry, eggs, sugar beets, fruit, and dairy, and less frequently for others, such as corn, wheat, and soybeans (MacDonald and Korb, 2008). Most researchers agree that contracting for agricultural products occurs when spot markets fail to produce enough of the commodity with attributes consumers desire, particularly in markets experiencing short supply or increased demand for a distinct process (MacDonald et al., 2004). In such cases, to ensure that the correct quality and quantity of agricultural inputs are received, manufacturers and other intermediaries directly contract with suppliers (Drabenstott, 1994).

Several characteristics of organic food products make them prime candidates for agricultural contracts, as they satisfy the criteria spelled out by MacDonald et al. (2004): (1) Organic food is produced using a distinct process; (2) consumer demand for organic products has increased, resulting in an expansion of retail sales from \$3.5 billion in 1997 to \$22.2 billion in 2009; and (3) organic products have also experienced periodic supply shortages. These shortages may be due to the fact that certified organic cropland, in comparison with retail sales, has not grown quickly enough (fig 1). Shortages have resulted in empty supermarket shelves for some products—milk in particular—due, in part, to processor unwillingness to raise prices high enough to clear markets (Oberholtzer et al., 2008). While past organic milk shortages were largely eased by the end of 2008, industry reports suggest that scarcity of organic livestock feed and grains still persists (Oliver, 2006; Weinraub and Nicholls, 2005; Organic Valley, 2009; Clarkson, 2009).

Figure 1

### Growth of retail sales and certified organic cropland, 1997-2007



\*Excludes certified organic pasture land.

Sources: USDA, Economic Research Service, 2010; *Nutrition Business Journal*, 2010.

The analysis reported here is the first systematic exploration of contract use in the organic sector. The findings rely on data obtained from a national survey that was administered twice to collect data for the years 2004 and 2007 of firms certified to handle (i.e., process, distribute, manufacture, or repack) organic products in accordance with National Organic Standards. In addition to addressing the extent of contracting in the organic sector, we explore handlers' reasons for using contracts in order to understand the benefits of contracts to the organic sector. The study's findings further provide insight into the design of typical contracts for a number of organic products, with an emphasis on how contracts are designed so that handlers receive products with attributes suited to their needs.<sup>1</sup> The products covered in this analysis include produce (apples/pears, onions/garlic, grapes, berries, and tomatoes), grains (corn, rice, soybeans, and wheat), and other products (coffee, nuts, poultry, seeds, and milk). This selection of commodities is representative of the products purchased by organic intermediaries and includes those most often procured via contract.

<sup>1</sup>MacDonald et al. (2004) provides an economic discussion of contracting in agriculture, including the risk-sharing, transaction cost, and market power of contract use.

## Survey Methodology

To gain a deeper understanding of the supply chain for organic products, ERS studied how organic products are marketed and procured, including contracting, by firms certified as “handlers” in accordance with the National Organic Standards (see <http://ers.usda.gov/Briefing/Organic/Certification.htm> for more information on organic certification). Organic handlers process and distribute organic products, playing an intermediary role between the farm and retail levels. We also collected primary data from firms holding certificates to handle organic products in 2004 and 2007.

Two Nationwide Surveys of Organic Processors, Manufacturers, and Distributors were funded through a cooperative agreement with USDA’s RMA and authorized by the U.S. Office of Management and Budget (control number 0563-0078). The survey instrument was developed by ERS with stakeholder input and collaboration with the Social and Economic Sciences Research Center at Washington State University (WSU).<sup>2</sup> The methodology followed Dillman’s Tailored Design Method (TDM) and, in accordance with the TDM procedure, all firms holding certificates to handle organic products were prenotified of the survey by postcard (Dillman, 1999). This communication was followed by a letter from Administrators at USDA’s ERS and RMA (dated September 2005 for the 2004 survey and February 2008 for the 2007 survey) and support letters from the Organic Trade Association and the Organic Farming Research Foundation. The survey was sent by first-class mail with a \$5 incentive and was followed up by additional mail and phone communication. For 2007, \$5 incentives were sent to approximately half the population.

Different techniques were used to identify the population of firms holding certificates to handle organic products for the 2 years covered. In 2004, 2,790 certified organic handling facilities were identified by contacting 56 domestic accredited certified agents. Because most firms are certified at the facility level, each facility was surveyed separately, regardless of whether it belonged to a larger company or was independent. Of the total 2004 population, 1,393 certified organic firms completed the 16-page survey, representing a 63-percent return rate of eligible facilities. In 2007, the population increased to 3,225 certified organic handling facilities. Identification of the firms in the population relied primarily on the list of certified entities available through USDA’s National Organic Program (NOP), but was then modified using lists supplied by domestic accredited certifying agents, as well as with lists kept by the researchers. Of the total 2007 population, 1,408 facilities completed the 16-page survey, representing a 44-percent return rate of eligible facilities.

While the entire population of handlers was surveyed for 2004 and 2007, there is no way to link each firm’s responses over the two periods. As a result, tracking changes in handler behavior by individual firm over the period is not possible. Characterizing nonrespondents is also not possible, which prevents us from making conjectures about the direction of nonresponse bias.

<sup>2</sup>For more detail on the survey methodology and for a report of the baseline findings for 2004, see <http://www.ers.usda.gov/Publications/EIB36/>.

# Moving Products Through the Organic Supply Chain

In many ways, the organic food supply chain is consistent with that for conventionally produced food products. Both conventional and organic food products pass through many hands as they move from the farm to the consumer. Organic products, however, are produced and distributed according to the National Organic Standards, which, in addition to specifying production and handling practices, require that organic and conventional products do not commingle. The standards for organic products are promulgated by the Government and administered by USDA's NOP. By late 2010, 97 third-party certifiers had been accredited by USDA to certify, to the NOP's standards, farmland and handling facilities across the world (USDA, AMS, 2010).

The organic supply chain consists of certified organic farms, which produce organic commodities; certified organic handlers, who distribute, manufacture, and process organic products; and retailers, who sell organic food products to consumers. With the exception of direct sales, farm products generally move along the supply chain with the assistance of a handler (fig. 2).

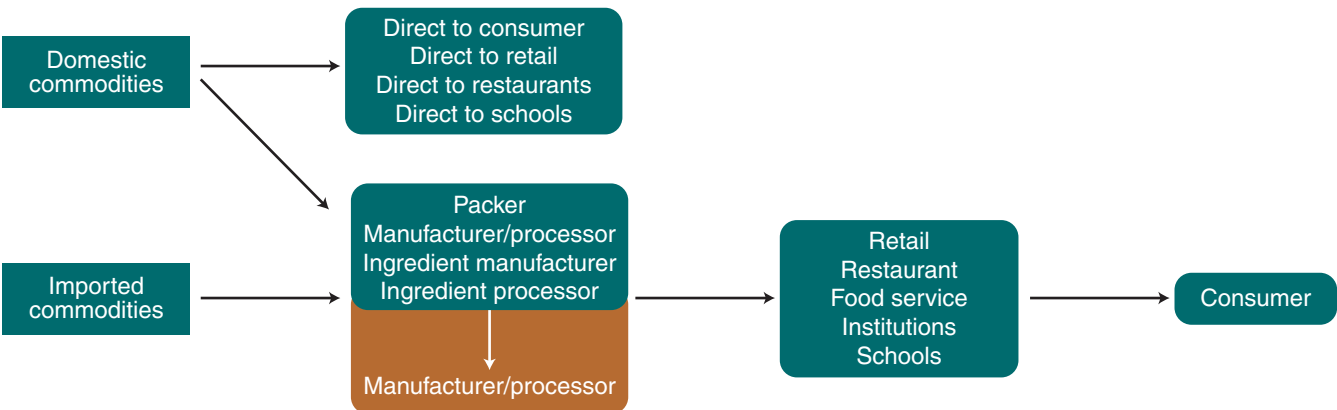
As agricultural products are produced, processed, manufactured, distributed, and retailed, buyers and sellers incur costs and face risks (fig. 3). Some of these costs and risks are common to all agricultural products. Farm-level risk results from uncertainty regarding the amount of output a given plot of land will yield, as well as the final quality of output. Separate from production decisions and outcomes, there are costs buyers and sellers incur each time they exchange an agricultural commodity. These "transaction costs" result from searching for products or buyers, locating products with specific quality attributes, measuring the quality of the good being exchanged, establishing a price, and enforcing the agreement.

For conventional and organic agricultural products, many risks begin at the farm level and are transmitted along the supply chain. Farm-level risk has a

Figure 2

## The organic food supply chain

*Products travel along the supply chain with the assistance of wholesalers, distributors, and brokers*

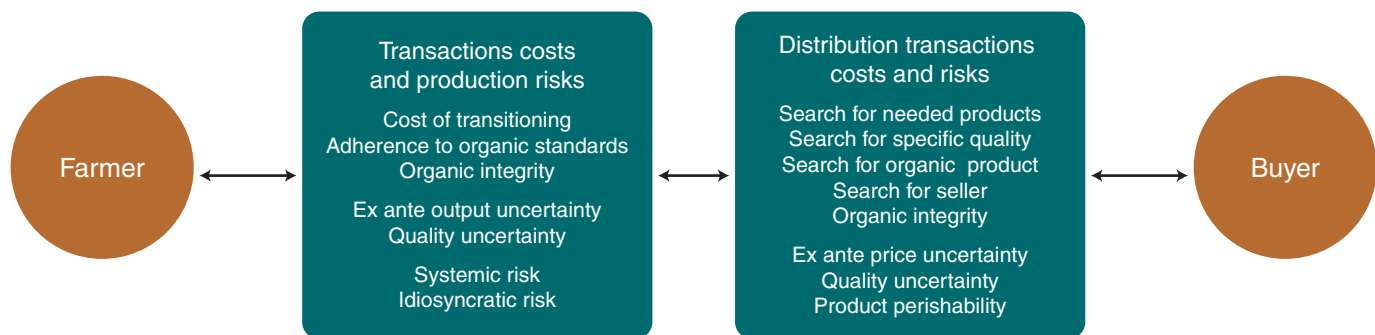


Source: USDA, Economic Research Service.



Figure 3

### Risks and transaction costs associated with buying and selling agricultural products



Source: USDA, Economic Research Service.

common component, or systemic risk, which affects many producers (e.g., a drought, freeze, or pest infestation that can adversely impact all producers in a region), and an idiosyncratic component (e.g., managerial skill or onfarm soil quality) that affects just one producer. Farmers can affect product quality and quantity of output from their land, given certain inputs, by using best management practices and undertaking a sufficient amount of effort (Milgrom and Roberts, 1992). Onfarm output uncertainty may translate into price uncertainty for farmers.

Organic commodities face unique challenges related to maintaining organic integrity along the supply chain, and thus may have higher transaction costs than those for conventional products. At the intermediary level, because organic products make up a small percentage of total agricultural production, search costs for organic products are relatively high. These costs may increase along with growth in demand for organic products. As organic products move along the supply chain, they must be handled in accordance with organic regulations to maintain their organic status. For example, handlers are required to keep organic products from commingling with conventional products. Thus, certified organic handlers incur additional transaction costs. Buyers, such as retailers, processors, and other intermediaries, incur costs to ensure that purchased products satisfy the requirements of the organic regulation. While organic standards likely reduce many of these transaction costs, the standards do not eliminate all transaction costs associated with marketing organic products.

Available data on the organic sector provide only a partial understanding of the structure of the organic supply chain. At the farm level, 10,903 farms and 4.1 million acres of crop and pastureland were certified as organic in the United States for 2008 (USDA, NASS, 2010). The data suggest that the composition of farm-level sales of organic products differs from that of conventional products. For example, organic produce and milk account for a higher share of farm-level sales than conventional produce and milk, while organic grains and livestock account for a smaller share (table 1).

Table 1

**Farm-level sales of organic and conventional products**

Category	Organic 2008	Conventional 2007
<i>Percent</i>		
Vegetables and melons	22	5
Fruits and tree nuts	13	6
Grains, oilseeds, dry beans, and peas	16	26
Livestock	3	27
Poultry and eggs	12	12
Milk from cows	24	11
Other	10	12

Sources: USDA, National Agricultural Statistics Service, 2010; USDA, National Agricultural Statistics Service, 2009.

Once the products leave the farm, they are either sold direct to consumers or other entities, or they enter distribution/processing/manufacturing channels. Data from the 2008 Organic Production Survey (USDA, NASS, 2010) and the 2007 Census of Agriculture (USDA, NASS, 2009) reveal differences here as well. In 2008, approximately 7 percent of organic farm sales went direct to consumers, 10 percent went direct to retailers, and approximately 83 percent went into wholesale markets. In the conventional sector, only 0.4 percent of the value of agricultural commodities went direct to consumers.

Organic products that enter the distribution channel are most likely to be handled by a certified organic handler (3,225 domestic handlers in 2007). Findings from the Nationwide Survey of Organic Manufacturers, Processors, and Distributors make it possible to estimate the proportion of organic products flowing through the firms that sit in the middle of the supply chain. Based on the responses to the 2007 survey, approximately \$3 billion worth of organic products were handled by the certified organic handlers, an increase of 17 percent over the amount handled in 2004. Because the survey did not have a 100 percent response rate, sales values are a lower bound on the amount handled by intermediaries. Of this amount, manufacturing made up 62 percent of the value of sales; 18 percent of sales moved through wholesalers, distributors, and brokers; 13 percent of sales were handled by packers and shippers; restaurants accounted for 2 percent of sales; and the remaining 5 percent were classified as other.

The next stage of the supply chain consists of food service or retail venues. While organic food is available in restaurants, schools, hospitals, and other food service establishments, there are no estimates indicating the value of these sales. Ultimately, however, retail outlets are where most organic products are purchased. Industry estimates suggest that organic food was available in 82 percent of retail food stores in 2007 (Food Marketing Institute, 2008), and retail sales brought in \$21.1 billion in 2008 (*Nutrition Business Journal*, 2010).

## Functions, Suppliers, and Marketing Outlets for Organic Handlers

The middle of the organic supply chain, like the conventional supply chain, has largely been unexplored by researchers. The lack of research in this area could be due to proprietary data that describe product flow. Results from the 2004 and 2007 surveys characterized the firms that are certified to handle organic products. According to respondents, most organic intermediaries are “split operations” that handle both organic and conventional products. In 2007, 39 percent of firm sales came from organic products, a significant increase<sup>3</sup> from the 34 percent reported for 2004. In both 2004 and 2007, approximately 20 percent of firms were exclusively organic. Most firms converted or expanded their businesses to include organic products, although a declining share converted from conventional. In 2007, 62 percent of firms reported that their roots were in the conventional sector, a significant decrease from the 73 percent reported for 2004.

Most certified organic handlers manufacture or process certified organic products; between 2004 and 2007, the percent of firms that manufactured or processed increased from 65 to 73 (table 2). Further, organic products comprised a larger percent of their total sales, increasing from slightly more than half to 64 percent, suggesting that organic products are a growing part of their businesses. While the percent of firms distributing organic products increased from 20 to 26 percent, the organic portion of their businesses decreased, as exemplified by the decline in their share of organic sales from 20 percent in 2004 to 16 percent in 2007.

Organic handlers, as “middlemen” in the organic supply chain, both procure and market organic products. As buyers, organic handlers purchase from a wide range of suppliers, including growers and other intermediaries. In 2007, an average of 10 growers and 4 manufacturers/processors supplied product to the handlers who responded to the survey (table 3). The number of suppliers in

Survey reveals basic characteristics

<sup>3</sup>All statistical tests of significance were conducted by applying t-test to the sample estimate of the difference between the two means.

Table 2

### Percent of facilities and sales, by function

	2004		2007	
	Percent of facilities <sup>1</sup>	Share of sales that is organic <sup>2</sup>	Percent of facilities <sup>1</sup>	Share of sales that is organic <sup>2</sup>
All facilities				
Manufacturer/processor	65	51	73	64
Distributor, broker, and wholesaler	20	20	26	16
Packer and shipper	15	11	14	10
Restaurant and retailer <sup>3</sup>	NA	NA	9	4
Other	11	12	9	7

NA = Not available.

Note: Sample size 1,371 in 2004 and 1,333 in 2007.

<sup>1</sup>Refers to the share of facilities reporting sales in the corresponding function. Many facilities reported more than one function; thus, the percent of facilities column sums to more than 100 percent.

<sup>2</sup>Refers to the share of sales that is organic; the two columns do not sum to 100 percent due to respondent error in filling out the surveys.

<sup>3</sup>Data were not collected for restaurants and retailers in 2004; these firms reported their functions as “other.”

Source: USDA, Economic Research Service.

each category for 2004 does not statistically differ from those in 2007, where they increased or decreased, on average, by only one or two per category.

After packing, manufacturing, and processing organic products, handlers sell their products to firms in the next level of the supply chain. The unique nature of this section of the supply chain is made evident by the range of marketing outlets available to organic intermediaries, where handlers can sell their products (such as cheese) direct to a consumer at a farmers' market or to a large conventional supermarket. Handlers market most of their products to three types of outlets: manufacturers/processors, distributors, and retailers (table 4). Retailers encompass a wide range of venues, including natural product chains (e.g., Whole Foods), independent natural product stores (e.g., My Organic Market in the DC metropolitan area), conventional chains (e.g., Safeway), and club/discount stores (e.g., Costco). In 2004, distributors accounted for the largest average share of sales, followed by retailers (when considering all types), and then manufacturers. In 2007, retailers accounted for the largest average percent of sales, followed by wholesalers and distributors. Between 2004 and 2007, the share of sales made to club stores increased, while the percent of sales made to distributors decreased.

Table 3

**A handler's average number of suppliers, by type**

Type of supplier	2004	2007
<i>Number</i>		
Growers	12	10
Marketing or grower cooperative	3	2
Manufacturer/processor	3	4
Wholesaler/distributor	2	3
Agent/broker	2	2

Source: USDA, Economic Research Service.

Table 4

**Organic handler sales to different market outlets**

Market outlet	2004	2007
<i>Percent of sales</i>		
Retailers:		
Natural product chains	14	9
Natural product independents	7	10
Conventional grocery	10	13
Club/discount stores	2	7
Total retailing	33	39
Wholesale/distribution	45	32
Manufacturers/processors	15	16
Other outlets:		
Direct to consumer	3	4
Restaurants and institutions	2	2
Growers and producers	NA	1
Other	2	6

NA=Not available.

Notes: Use of growers as a marketing outlet was included in the 2007 survey but not the 2004 survey; in 2004, respondents listed growers in the "other" category. Respondents that filled in "other" indicated a wide range of outlets, including mail order, Internet sales, gift shops, and other categories.

Source: USDA, Economic Research Service.

# Contract Use in the Organic Sector

As products move from one level of the supply chain to another, transactions are either made in the spot market (e.g., via wholesaler or a broker) or arranged in advance by contract. In general, informal contracts, which may be written or verbal, may be used when it is less critical for the “quid pro quo” to be immediate (Hart and Holmstrom, 1987). Formal contracts, which are written negotiated agreements, often impose costs or penalties on growers or firms who fail to honor contract terms. Informal contracts usually persist over time because firms have repeated interactions, have developed reputations, and/or desire long-term relationships. Contract sales result from various arrangements, including those agreed upon between farmers and intermediaries; farmers and retailers; ingredient suppliers and processors; wholesalers and retailers; or manufacturers and retailers. With the exception of those made directly between farmers and retailers, a contract typically has an intermediary or handler as one party to the agreement. In most cases, contracts help reduce transaction costs and/or risk (MacDonald et al., 2004).

Survey findings suggest that handlers rely on contracts to procure organic ingredients and commodities. In 2007, 67 percent reported using verbal or written contracts for procurement, a significant decrease from 76 percent in 2004. The percent of the volume of organic products under contract, however, remained largely unchanged between 2004 and 2007 (table 5). In 2007, an average of 46 percent of organic products purchased was obtained by written, negotiated contracts; 24 percent were procured through verbal agreements or ongoing implicit relationships between suppliers and handlers. The remaining 27 percent of organic products were acquired through spot markets; these shares are largely unchanged from 2004.

Research on contracting in the conventional sector has shown that large farms are most likely to contract, and that larger farms produce and market a greater share of their output under contract (MacDonald et al., 2004). Handlers responding to the survey indicated that this relationship also holds true for organic intermediaries. Large handlers (i.e., those with more organic sales) were more likely to use contracts than small firms (fig. 4) and use contracts to procure a greater portion of their input needs. The smallest firms in the organic sector had sales of less than \$500,000 per year, and those using contracts procured approximately 50 percent of their supply through contracts. Intermediate sized firms had organic sales in the \$5 million to \$15 million range, and those using contracts procured an average of 70 percent via contract. Similar results were reported by organic handlers in 2004.

Survey reveals the extent of use of contracts, the reasons for their use, and the assistance provided.

Table 5  
Percent of volume of commodities, by procurement method

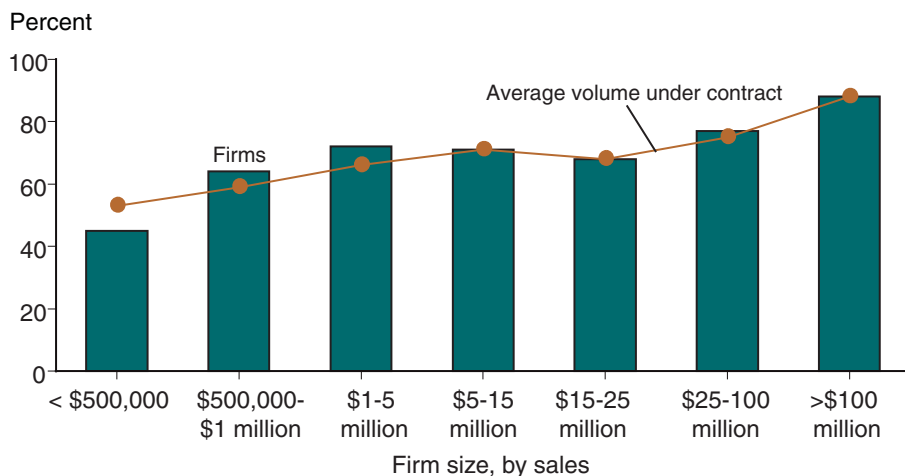
	2004	2007
	<i>Percent of volume</i>	
Written contract	46	43
Verbal contract	24	22
Spot market	27	29
Other	3	6

Note: Sample size 1,393 for 2004 and 1,408 for 2007.  
Source: USDA, Economic Research Service.



Figure 4

### Percent of handlers using contracts and average percent of volume procured by contract, by firm size, 2007



Notes: The percent of volume under contract is for firms that use contracts; N=653. The sales categories represent total organic sales of firms. The sizes reported contain a fairly large number of categories in order to reflect the range of sizes for different handler types in the organic sector.

Source: USDA, Economic Research Service.

Handlers may provide their contract suppliers with resources, including physical goods (e.g., seeds or chicks) or services (e.g., labor for harvesting or packaging or transportation). In conventional farming systems, for example, broiler processors provide growers with flocks; hog processors provide feed; and floriculture wholesalers provide seedlings and technical advice (MacDonald et al., 2004). According to survey findings, organic handlers provided a broad range of assistance to their suppliers (table 6). Transportation assistance, while the most common form of contract supplier assistance in both years, was offered less in 2007 than in 2004. Suppliers or intermediaries were least interested in providing organic contract suppliers with labor or organic certification in either period.

Contracts may promote long-term relationships between buyers and suppliers. For a multitude of reasons, however, buyers may decide to terminate rather than renew a contract (table 7). The survey responses regarding contract termination indicated essentially no changes in the sector between the two periods, and overall, more than half of handlers had not terminated contracts. For those who did terminate contracts, it was typically due to quality and supplier performance.

Handlers have a variety of reasons for using contracts. Survey respondents were asked to indicate which factors influenced their decision to use contracts. Risk management is one rationale for contracting, and terms are intended to ameliorate the effects of risk by lowering procurement costs and stabilizing input prices and suppliers' prices. In 2007, 62 percent of handlers reported that stabilizing input prices was a very important reason for the use of contracts, while half indicated that lowering procurement costs was a very important reason for using contracts (fig. 5). The percent of handlers using contracts to stabilize input prices significantly increased between 2004 and

Table 6

**Assistance provided to organic contract suppliers by handlers, 2004 and 2007**

	2004	2007
	<i>Percent of firms</i>	
Transportation	45	38
Technical advice on organic standards	29	28
Onfarm production advice	24	24
Inputs	19	16
Assistance/incentives with transition to organic	14	11
Labor	11	9
Organic certification	14	9

Notes: The data refer to the percent of handlers who use contracts; N=729 in 2004 and 653 in 2007.

Source: USDA, Economic Research Service.

Table 7

**Stated reasons for contract termination, 2004 and 2007**

	2004	2007
	<i>Percent of handlers</i>	
Unsatisfactory quality	22	19
Inability to deliver	17	15
Supplier unreliability	17	17
Failure to produce certification	8	9
Other	5	5
Have not terminated contracts	55	57

Notes: The data refer to the percent of handlers who use contracts; N=729 in 2004 and 653 in 2007.

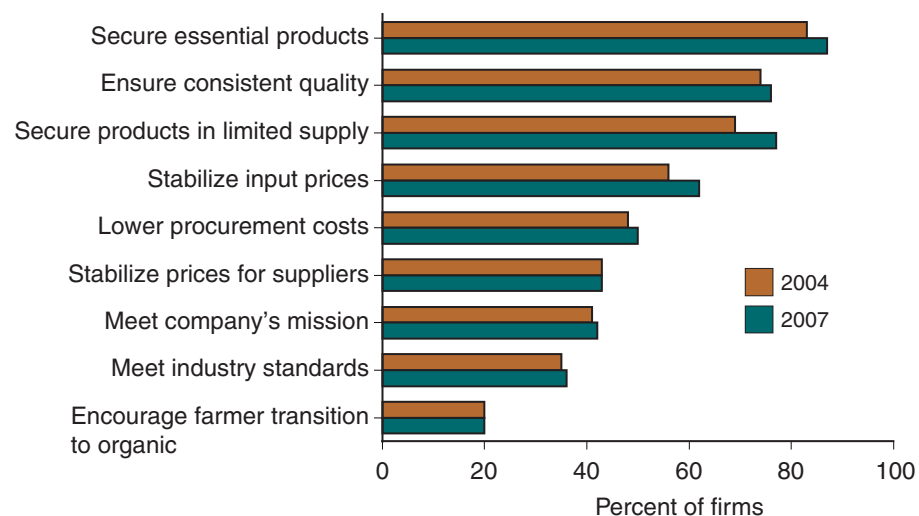
Source: USDA, Economic Research Service.

2007, suggesting that price volatility likely became a greater issue between 2004 and 2007.

Transaction cost factors are related to search costs, enforcement costs, and product quality. In 2007, 87 percent of firms using written or verbal contracts stated that securing essential organic products was a very important reason for contracting, which is a significant, albeit slight, increase over 83 percent in 2004. Seventy-seven percent of firms in 2007 reported using contracts to procure products that are limited in supply, which is a significant increase from 69 percent in 2004. In 2007, 76 percent of respondents reported that procuring products of consistent quality was a very important reason for using contracts, essentially unchanged from 2004. Procuring products that meet specific quality standards in order to meet a company mission such as “fair trade” “or socially responsible” was a very important reason for contracting to approximately 40 percent of firms in both 2004 and 2007. Firms were much less likely to use contracts to encourage growers to transition to organic agriculture.

Figure 5

# **Reasons handlers use contracts, 2004 and 2007**



Notes: This chart reflects the share of handlers who use contracts that stated these were "very important" reasons for contracting. N=620 in 2004 and 653 in 2007.

Source: USDA, Economic Research Service.

## **The Economics of Contract Design: Quality, Verification, and Pricing**

Once buyers and sellers decide to enter into a contract, the specific form of the contract is negotiated. In practice, the actual form of an agricultural contract, such as the length, complexity, and provisions, may vary widely by the company offering the contract, by product, and by geography. Underlying the specific structure of all contracts is an information problem between the buyer and the seller, which takes one of two forms (or a combination of the two). In the first case, the seller knows the quality of the product being sold and the buyer does not (i.e., the classic adverse selection problem). In the second case, the buyer wants the seller to undertake a specific action that is unobservable to the buyer, but affects the buyer's profits (i.e., the standard moral hazard problem) (Salanié, 1997). An optimal contract addresses these information problems in two ways. First, the terms of the contract must be at least as good as the supplier's other available opportunities. Otherwise, the supplier will not agree to the contract (participation constraint). The second aspect of an optimal contract is designed so that the seller will truthfully reveal quality or will exert the level of effort the buyer specifies in the contract (incentive compatibility).

Contract terms usually address some of the following aspects: quality, quantity, best management practices, time and date of delivery, prices and payment, and actions taken if the contract provisions are not met. The survey questioned handlers about these aspects of the typical contract for the product they most often procure via contract. The selected commodities include produce (apples/pears, onions/garlic, grapes, berries, and tomatoes), grains (corn, rice, soybeans, and wheat), and other products (coffee, nuts, poultry, seeds, and milk). In the following sections, the data are explored with regard to select commodities to study more closely quality and verification of quality, as well as pricing and compensation mechanisms, of contracts in the organic sector. Select data are also included in the appendix, with additional data concerning contracting in the organic sector available at [www.ers.usda.gov/Data/OrganicHandlers](http://www.ers.usda.gov/Data/OrganicHandlers).

### **Contracting for Quality Is Essential for the Organic Sector**

The relationship between price and quality is often a key component in contracts, given that sales and prices of agricultural products are typically contingent on quality (Vaugh, 1928). This relationship creates a conflict between buyers and sellers because, while buyers are generally willing to pay higher prices for higher quality, producers (all else equal) usually must incur greater costs to produce higher quality products. Quality verification is essential, because when buyers cannot observe quality, producers are unwilling to undertake needed activities to sell high-quality products, resulting in low-quality merchandise being sold in the marketplace (Akerlof, 1970). This phenomenon has been observed repeatedly in agricultural markets and has led to the legislation of Federal grades, standards, and quality inspections for fruits, vegetables, and grains (Dimitri, 2002). Two separate contracting issues are related to quality: how to structure incentives so that the desired quality will be produced; and how to observe or measure quality.

Encouraging suppliers to deliver high-quality products can be done by linking price with delivered quality, by placing production and handling requirements on suppliers, or by a combination of both. The importance of quality to organic buyers is readily apparent by the dominance of quality provisions in contracts; nearly all contracts include quality provisions (table 8). Minimum quality standards for delivered quality, which set a lower bound on quality so that anything delivered below this level will be rejected by the buyer, appear with the greatest frequency. In 2007, grain contracts specified a minimum quality standard most often. Over three-quarters of handlers indicated that their seed, milk, onions/garlic, wheat, soybeans, corn, and grape contracts specified minimum quality standards.

In addition to setting a minimum quality, contract provisions often tie price and quality by offering incentives for high quality or penalties for low quality. Incentives for high quality typically take one of two forms: a premium for high quality output; or a two-part price, where the price has a fixed component and a component that increases with quality. In the organic market, buyers tend to offer a price premium for high quality. Other contracts penalize a supplier for delivering a low-quality product. Some products are more likely to be penalized for low quality (e.g., corn, soybeans, and tomatoes), while others are more likely to offer a premium for high quality (e.g., milk, coffee, and wheat). Nearly all survey respondents indicated that their contracts did not explicitly set prices as a fixed price plus a variable component that explicitly depends on quality.

Table 8

**Quality provisions in contracts with organic suppliers, select commodities, 2004 and 2007**

Product	Minimum quality standards		Premium for high quality		Penalty for low quality		Best management practices	
	2004	2007	2004	2007	2004	2007	2004	2007
<i>Percent of handlers that use contracts</i>								
Produce:								
Apples/pears	72	46	31	15	37	19	19	23
Berries	73	64	9	21	18	21	20	14
Grapes	64	79	22	26	42	26	37	37
Onions/garlic	100	85	17	38	67	31	40	15
Tomatoes	75	67	27	33	30	50	17	17
Grains:								
Corn	78	80	26	10	39	39	30	22
Rice	77	71	21	18	21	12	23	24
Soybeans	87	84	27	19	36	30	13	19
Wheat	85	85	54	41	44	15	13	11
Other:								
Coffee	73	54	38	38	11	*	16	15
Nuts	81	71	24	21	30	25	25	*
Poultry	50	64	22	*	33	14	44	21
Milk	73	78	34	43	21	30	23	17
Seeds	88	80	24	27	52	33	30	20
All products	78	67	27	21	29	20	23	18

\* Indicates that less than 10 percent of handlers reported using a specific clause or term.

Source: USDA, Economic Research Service.



Some contracts include stronger provisions intended to control quality through adoption of best management practices. While exact practices vary by region and crop, best management practices cover many aspects of farming, including soil, water, and pest management, to increase output, reduce costs, minimize environmental pollution, or increase quality (Hassell et al., 2005; Daane et al., 2005). From a contracting perspective, contracts that provide a large amount of risk-sharing often remove farmer incentives to undertake good management practices, and specifying best management practices may be an effort to offset this effect (MacDonald et al., 2004). According to survey findings, best management practices were part of all contracts for all commodities except those for nuts, but were used most often in contracts for grapes and rice, followed by apples/pears, corn, and poultry.

## **Quality Verification in Contracts With Organic Suppliers**

Verification of quality ensures that the delivered product meets the standards specified in the contract and is an essential part of contracts. Thus, contracts that contain provisions relating to quality also stipulate the method of verification. The timing of quality measurement, as well as the verification method, varies widely in the organic sector. In many cases, buyers observe or measure quality prior to paying for a delivery. Even when quality is observable, however, ascertaining quality of an entire delivery is cost prohibitive. While most firms test a sample of the delivered product, this method is prone to measurement error (Hueth et al., 1999). At times, when quality characteristics are not perceivable until the commodity has traveled farther downstream, quality measurement occurs after delivery (Hueth and Ligon, 1999).

The quality measurement technique depends on how suppliers and handlers define quality. For some products (e.g., apples), quality is defined by size, color, and freedom from visible blemishes. When attributes of quality can be observed, the buyer can evaluate samples at the time of delivery. Quality of wheat and specialty grains, however, maybe be defined by moisture, protein, or fat content. In such cases, quality is unobservable, so quality verification requires that samples of the product be tested. Some products may have qualities defined by both observable and unobservable attributes, so quality verification may require a combination of observation and testing. In other cases, when attributes cannot be measured even with testing, (e.g., cocoa labeled “fair trade,” tuna labeled “dolphin friendly,” or products labeled “organic”), a buyer may require third-party certification of the supplier’s process to ensure quality standards are satisfied.

The most commonly used quality measurement provisions are presented in table 9 for select commodities. Nearly all contracts specify that the supplier provide the buyer with a copy of an organic inspection certificate. The organic certificate ensures that the seller and the buyer are exchanging a product that satisfies the national organic standards and means that the product was produced on a farm that was certified organic by a USDA-accredited certifying agent and processed and distributed by an organic handler with similar certification. Handlers may also request third-party certification for other quality attributes, such as for “fair trade” or “kosher” attributes.

Table 9

**Verifying quality for select commodities in contracts with organic suppliers, 2004 and 2007**

Product	Observation		Testing		Third-party certification		USDA grades		Organic certificate	
	2004	2007	2004	2007	2004	2007	2004	2007	2004	2007
<i>Percent of handlers that use contracts</i>										
Produce:										
Apples/pears	67	50	55	46	9	31	21	42	71	65
Berries	45	71	73	57	27	21	18	29	82	79
Grapes	17	37	61	58	0	21	26	21	77	89
Onions/garlic	50	62	33	46	17	15	17	46	83	85
Tomatoes	57	44	43	56	13	22	35	17	91	83
Grains:										
Corn	57	59	61	76	37	27	46	29	88	93
Rice	64	47	50	82	21	35	36	47	85	82
Soybeans	71	68	83	70	36	35	24	24	89	95
Wheat	39	59	78	78	22	30	36	30	97	85
Other:										
Coffee	66	46	78	85	36	27	11	*	83	75
Nuts	64	46	45	46	27	17	50	38	73	88
Poultry	38	57	38	43	13	29	50	36	75	86
Seeds	50	53	65	80	15	53	19	13	71	87
Milk	33	22	69	74	24	*	11	13	78	87
All products	56	52	62	63	26	24	25	23	84	82

\* Indicates that less than 10 percent of handlers that use contracts reported using a specific clause or term.

Notes: Third-party certification differs from providing an organic certificate. Third-party certification covers attributes of quality other than "organic," while the organic certificate covers only the attribute "organic."

Source: USDA, Economic Research Service.

USDA grading standards, which provide a shorthand definition for quality, were used more frequently for some crops in 2007 (e.g., rice, onions/garlic, apples/pears, nuts, and poultry) than for others, reflecting the importance of their usage for conventional crops. Conventional rice sales, for example, often rely on USDA grades.

For most agricultural products (including those raised and handled under organic management), quality verification relies on both observation and testing. Fresh produce relies equally on observing quality and testing quality, likely because many quality attributes for fruits and vegetables can be readily observed. Grain quality has both observable and unobservable attributes of quality. As a result, the definition of grain quality is complex, where verification consists of observation for some attributes and testing for others. Wheat quality, for example, depends on a number of visible attributes, such as the amount of shrunken and/or broken kernels and heat-damaged kernels, the presence of foreign material, smut damage, insect damage, frost damage, germ damage, and mold damage. Unobservable quality attributes, such as moisture, protein content, weight, and kernel hardness, can also be tested using equipment developed specifically for this purpose. Contracts often include specifications for such attributes (U.S. Wheat Associates, 2007).

Because quality attributes for coffee and milk are largely unobservable, nearly all quality verification is done through testing. Coffee bean quality is tested at both the green stage and the roasted stage. Quality tests include a cup test, which considers brewed coffee aroma and flavor; a roast test, which

indicates whether the coffee was roasted at the proper temperature; and a measure for moisture content (Coffee Quality Institute, 2009). Assessing milk quality involves analyzing the milk for fat and nonfat milk solids, gathering somatic cell counts, and testing for various residues (FDA, 2009). Milk quality tests are based on samples taken on farm or from milk products after they have been processed or manufactured.

## **Pricing and Compensation in Contracts With Organic Suppliers**

A crucial part of the contract is supplier compensation, which includes how prices are determined and the timing of payment. An appropriately set price will keep the buyer and the seller from breaking the contract and using the spot market to buy or sell their products. Optimal contract theory indicates that, at a minimum, a contract needs to compensate a supplier by at least as much as the next best alternative. In some cases, buyers will try to cultivate long-term relationships with growers through the contract and price specification. While some prices are fixed at a flat rate in advance, pricing can be more complex and can be calculated in a variety of ways, such as equal to market prices or dependent on a supplier's past performance. Past performance generally influences current prices when the buyer and seller have an established long-term relationship or when it is costly for the supplier to switch from one crop to another (Fama, 1990). Performance-based pricing provides the supplier with some risk sharing and, by basing current prices on past performance, a supplier will not be severely punished for a bad crop in the current year.

Pricing can be structured in many ways, and there is no dominant method of price determination in the organic sector. Contracts between different pairs of suppliers and buyers, even for the same product, likely specify prices in several ways. The timing of payment varies, as well, with the two most common provisions specifying that the supplier is paid on delivery or after a specified number of days. In 2007, prices were negotiated at the time of transaction (versus in advance when the contract is signed) most often for organic soybeans, wheat, berries, and nuts. The provision that suppliers receive the market price for organic products at the time of delivery is specified most often in contracts for apples/pears, coffee, and seeds (table 10). By committing in advance to the market price, the supplier does not have an incentive to breach the contract and sell the product in the market. Quantity discounts—receiving a lower price in exchange for the purchase of a large quantity—are part of contracts for nearly all products except for organic berries and are most common in organic seed, wheat, rice, and tomato contracts.

Flat prices (i.e., those that do not explicitly vary with quantity or quality) are specified most often in contracts for organic onions/garlic, poultry, and grains. The least frequently used price mechanism is one linking prices to the supplier's past performance, which rewards suppliers for consistently delivering high-quality products to the handler. This provision most often covers organic seeds, coffee, apples/pears, berries, grapes, onions/garlic, and tomatoes. These products have characteristics that encourage long-term relationships between suppliers and buyers. For example, coffee, berry, grape, and apple/pear production occurs on perennial plants or trees and represents

a long-term investment for growers. In such cases, growers often prefer long-term relationships with buyers. Prices that consider a supplier's production history will encourage that relationship. While onions/garlic and tomatoes are annual crops, their production requires a high level of skill, particularly for processing varieties, so buyers are willing to compensate their long-term providers based on past performance.

Nearly all contracts specify that payment be made to suppliers after a specified number of days for all products, except for soybeans and poultry when payment is made at the time of delivery.

Table 10

**Handlers' use of compensation clauses in contracts with organic suppliers for select commodities, 2004 and 2007**

Product	Flat price		Organic market price		Negotiated at time of transaction		Prices based on past performance		Quantity discount	
	2004	2007	2004	2007	2004	2007	2004	2007	2004	2007
<i>Percent of handlers that use contracts</i>										
Produce:										
Apples/pears	16	12	NA	65	44	*	*	*	22	15
Berries	36	14	NA	29	64	36	*	14	*	*
Grapes	43	26	NA	21	17	21	11	26	10	*
Onions/garlic	33	54	NA	15	17	15	*	23	33	15
Tomatoes	35	22	NA	33	35	22	*	17	23	33
Grains:										
Corn	56	39	NA	32	27	24	14	*	36	24
Rice	43	47	NA	24	29	29	*	*	21	35
Soybeans	45	32	NA	27	35	41	17	*	28	11
Wheat	38	33	NA	30	41	37	13	*	12	44
Other:										
Coffee	18	13	NA	47	40	24	15	10	30	18
Nuts	32	29	NA	13	27	33	*	*	19	25
Poultry	25	43	NA	29	13	*	11	*	11	21
Seeds	67	*	NA	40	11	27	21	13	20	47
Milk	44	22	NA	17	23	13	*	*	16	*
All products	40	30	NA	30	32	23	11	*	26	22

NA=Not available.

\* Indicates that less than 10 percent of handlers who use contracts reported using a specific clause or term.

Note: The 2004 survey instrument did not ask handlers to report whether contracts included a price clause for organic market price.

Source: USDA, Economic Research Service.

## Conclusions: Contracts in the Organic Sector

This report provides the first systematic exploration of contract use in the organic sector, assessing the extent of contracting in the organic sector and providing insight into contract design for different organic commodities. The findings indicate that there is widespread use of contracting in the organic sector and that securing supplies of a highly differentiated product is less costly when using contracts than when relying on the spot market. Most contracts include quality standards and specific quality testing protocol; these provisions are similar to those included in contracts for conventionally produced agricultural commodities.

This report does not address the controversy over contract use in the conventional sector, where processor market power over suppliers is an issue, particularly in the livestock sector. While the source of tension between processors and suppliers in some conventional sectors is not fully understood, economic research suggests that the link between contracts and market power is weak (MacDonald et al., 2004). At the time this report was written, evidence did not indicate such concerns in the organic sector. Nonetheless, the research and survey instrument did not directly address market power in the organic sector.

While there was a decline in the percent of handlers using contracts between 2004 and 2007, the average percent of volume procured under contract remained constant. We hypothesized that as the market grows and competition for scarce products increases, more handlers would rely on contracts and a greater share of volume would be procured under contract. This contradiction could be the result of respondent bias in the data, but also that suppliers may be less willing to agree to contracts if selling their products will be more profitable on the spot market. Missing data on prices and product availability would allow for analysis of this question, as would information on why organic suppliers use contracts, providing a comparative analysis that identifies which factors lead to the use of contracts in general, and whether measurable differences exist between the factors leading to contract use in the organic and conventional sectors. Future research might also examine sectors, such as poultry, where contracts dominate the conventional sector but are rarely used in the organic sector. Information on the use of contracts by intermediaries in the conventional sector is not currently available—nearly all research focuses on contracting from the producer’s perspective.

Whether the share of certified organic handlers using contracts continues to decline will depend on the interplay of many factors. First, the industry is adapting to the recent slowing of demand growth. For nearly 15 years, the industry has operated on a model that anticipates approximately 20 percent growth per annum, with periodic severe product shortages. The organic market now appears—for the first time—to be affected by the same cyclical conditions that face the entire agricultural sector. Growth in retail sales between 2007 and 2008 was 12 percent, and growth between 2008 and 2009 was even lower, at 5 percent (*Nutrition Business Journal*, 2010). As growth in the organic market slows in response to changing macroeconomic conditions, handlers and suppliers must adapt their business strategies, including procurement and



contracting, to remain profitable through downturns in the business cycle. Changing expectations about future supply needs may result in changes in the frequency of contract usage, as well as different contract terms. Such changes are visible in the terms of organic milk contracts, which were subject to temporary mandatory quota reductions in early 2010, which have since eased. These changes in contract terms were implemented by one major milk processor specifically to reduce supply to prevent a decline in organic milk prices.

However, the impact of these changes on the use of contracts in the organic sector is not predictable. Handlers may increase their reliance on contracts, in order to ensure they secure an adequate supply of top quality products. It is equally plausible that handlers may seek to contract for fewer products and rely on the spot market instead. Whether these changing market realities in the organic sector result in a widespread increase or decrease in contracting is an empirical question that can only be answered over time.

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## Appendix: Contract Data

Appendix table 1

### Wheat contract terms between handlers and suppliers, 2004 and 2007

	2004	2007
	Percent of contracts	
Contract form:		
Written	77	67
Verbal	23	33
Contract length:		
Seasonal	35	19
Yearly	47	59
Pricing terms:		
Flat price	38	33
Organic market price	NA	30
Negotiated at time of transaction	41	37
Quantity discount	12	44
Quality premium	54	41
Penalty for low quality	44	15
Prices depend on past performance	13	*
Fixed price plus quality premium	NA	11
Measurement of delivered quality:		
Observe quality	39	59
Test quality	78	78
Third-party certification	22	30
USDA grades	36	30
Payment terms:		
Payment on delivery	85	44
Payment after specified number of days	NA	59
Standard clauses:		
Verification of certification	97	85
Minimum quality standards	85	85
Output of specified number of acres	36	33
Reject if contract terms not met	79	74
Automatic contract renewal	15	*
Other action if terms not met	61	59
Delivery place	81	78
Delivery time	64	59
Best management practices	13	11
Exclusive supply	17	*

NA= data were not collected in 2004.

\* Indicates that less than 10 percent of handlers reported using a specific clause or term.

Source: USDA, Economic Research Service.

Appendix table 2

**Corn contract terms between handlers and suppliers, 2004 and 2007**

	2004	2007
	<i>Percent of contracts</i>	
<b>Contract form:</b>		
Written	82	87
Verbal	18	13
<b>Contract length:</b>		
Seasonal	40	44
Yearly	38	46
<b>Pricing terms:</b>		
Flat price	56	39
Organic market price	NA	32
Negotiated at time of transaction	27	24
Quantity discount	36	24
Quality premium	26	10
Penalty for low quality	39	39
Prices depend on past performance	14	*
Fixed price plus quality premium	NA	10
<b>Measurement of delivered quality:</b>		
Observe quality	57	59
Test quality	61	76
Third-party certification	37	27
USDA grades	46	29
<b>Payment terms:</b>		
Payment on delivery	61	41
Payment after specified number of days	NA	59
<b>Standard clauses:</b>		
Verification of certification	88	93
Minimum quality standards	78	80
Output of specified number of acres	34	34
Reject if contract terms not met	72	71
Automatic contract renewal	*	*
Other action if terms not met	55	39
Delivery place	84	76
Delivery time	76	61
Best management practices	30	22
Exclusive supply	21	*

NA= data were not collected in 2004.

\* Indicates that less than 10 percent of handlers reported using a specific clause or term.

Source: USDA, Economic Research Service.



Appendix table 3

**Soybean contract terms between handlers and suppliers,  
2004 and 2007**

	2004	2007
	Percent of contracts	
Contract form:		
Written	72	66
Verbal	28	34
Contract length:		
Seasonal	32	26
Yearly	54	51
Pricing terms:		
Flat price	45	32
Organic market price	NA	27
Negotiated at time of transaction	35	41
Quantity discount	28	11
Quality premium	27	19
Penalty for low quality	36	30
Prices depend on past performance	17	*
Fixed price plus quality premium	NA	*
Measurement of delivered quality:		
Observe quality	71	68
Test quality	83	70
Third-party certification	36	35
USDA grades	24	24
Payment terms:		
Payment on delivery	67	49
Payment after specified number of days	NA	38
Standard clauses:		
Verification of certification	89	95
Minimum quality standards	87	84
Output of specified number of acres	36	32
Reject if contract terms not met	72	68
Automatic contract renewal	*	*
Other action if terms not met	50	43
Delivery place	71	73
Delivery time	68	70
Best management practices	13	19
Exclusive supply	23	*

NA= data were not collected in 2004.

\* Indicates that less than 10 percent of handlers reported using a specific clause or term.

Source: USDA, Economic Research Service.

Appendix table 4

**Milk contract terms between handlers and suppliers, 2004 and 2007**

	2004	2007
	Percent of contracts	
Contract form:		
Written	68	70
Verbal	32	30
Contract length:		
Seasonal	*	*
Yearly	43	48
Pricing terms:		
Flat price	44	22
Organic market price	NA	17
Negotiated at time of transaction	23	13
Quantity discount	16	*
Quality premium	34	43
Penalty for low quality	21	30
Prices depend on past performance	*	*
Fixed price plus quality premium	NA	30
Measurement of delivered quality:		
Observe quality	33	22
Test quality	69	74
Third-party certification	24	*
USDA grades	11	13
Payment terms:		
Payment on delivery	49	*
Payment after specified number of days	NA	87
Standard clauses:		
Verification of certification	78	87
Minimum quality standards	73	78
Output of specified number of acres	13	*
Reject if contract terms not met	66	70
Automatic contract renewal	36	26
Other action if terms not met	32	43
Delivery place	59	57
Delivery time	47	48
Best management practices	23	17
Exclusive supply	28	13

NA= data were not collected in 2004.

\* Indicates that less than 10 percent of handlers reported using a specific clause or term.

Source: USDA, Economic Research Service.

Appendix table 5

**Tomato contract terms between handlers and suppliers,  
2004 and 2007**

	2004	2007
	Percent of contracts	
Contract form:		
Written	35	56
Verbal	43	25
Contract length:		
Seasonal	*	*
Yearly	43	48
Pricing terms:		
Flat price	35	22
Organic market price	NA	33
Negotiated at time of transaction	35	22
Quantity discount	23	33
Quality premium	27	33
Penalty for low quality	30	50
Prices depend on past performance	*	17
Fixed price plus quality premium	NA	*
Measurement of delivered quality:		
Observe quality	57	44
Test quality	43	56
Third-party certification	13	22
USDA grades	35	17
Payment terms:		
Payment on delivery	49	*
Payment after specified number of days	NA	61
Standard clauses:		
Verification of certification	91	83
Minimum quality standards	75	67
Output of specified number of acres	25	22
Reject if contract terms not met	75	61
Automatic contract renewal	10	*
Other action if terms not met	40	28
Delivery place	70	56
Delivery time	57	56
Best management practices	17	17
Exclusive supply	*	*

NA= data were not collected in 2004.

\* Indicates that less than 10 percent of handlers reported using a specific clause or term.

Source: USDA, Economic Research Service.

Appendix table 6

**Nut contract terms between handlers and suppliers, 2004 and 2007**

	2004	2007
	<i>Percent of contracts</i>	
<b>Contract form:</b>		
Written	70	87
Verbal	30	13
<b>Contract length:</b>		
Seasonal	50	25
Yearly	32	63
<b>Pricing terms:</b>		
Flat price	32	29
Organic market price	NA	13
Negotiated at time of transaction	27	33
Quantity discount	19	25
Quality premium	24	21
Penalty for low quality	30	25
Prices depend on past performance	*	*
Fixed price plus quality premium	NA	*
<b>Measurement of delivered quality:</b>		
Observe quality	64	46
Test quality	45	46
Third-party certification	27	17
USDA grades	50	38
<b>Payment terms:</b>		
Payment on delivery	41	33
Payment after specified number of days	NA	50
<b>Standard clauses:</b>		
Verification of certification	73	88
Minimum quality standards	81	71
Output of specified number of acres	19	13
Reject if contract terms not met	48	67
Automatic contract renewal	15	17
Other action if terms not met	35	33
Delivery place	70	58
Delivery time	67	46
Best management practices	25	*
Exclusive supply	*	*

NA= data were not collected in 2004.

\* Indicates that less than 10 percent of handlers reported using a specific clause or term.

Source: USDA, Economic Research Service.

Appendix table 7

**Apple/pear contract terms between handlers and suppliers,  
2004 and 2007**

	2004	2007
	<i>Percent of contracts</i>	
<b>Contract form:</b>		
Written	55	67
Verbal	45	33
<b>Contract length:</b>		
Seasonal	45	23
Yearly	33	55
<b>Pricing terms:</b>		
Flat price	16	12
Organic market price	NA	65
Negotiated at time of transaction	44	*
Quantity discount	22	15
Quality premium	31	15
Penalty for low quality	37	19
Prices depend on past performance	*	*
Fixed price plus quality premium	NA	*
<b>Measurement of delivered quality:</b>		
Observe quality	67	50
Test quality	55	46
Third-party certification	*	31
USDA grades	21	42
<b>Payment terms:</b>		
Payment on delivery	39	19
Payment after specified number of days	NA	38
<b>Standard clauses:</b>		
Verification of certification	71	65
Minimum quality standards	72	46
Output of specified number of acres	*	*
Reject if contract terms not met	33	50
Automatic contract renewal	24	31
Other action if terms not met	36	31
Delivery place	57	38
Delivery time	46	27
Best management practices	19	23
Exclusive supply	*	*

NA= data were not collected in 2004.

\* Indicates that less than 10 percent of handlers reported using a specific clause or term.

Source: USDA, Economic Research Service.

Appendix table 8

**Coffee contract terms between handlers and suppliers, 2004 and 2007**

	2004	2007
	<i>Percent of contracts</i>	
<b>Contract form:</b>		
Written	84	81
Verbal	16	19
<b>Contract length:</b>		
Seasonal	41	41
Yearly	18	22
<b>Pricing terms:</b>		
Flat price	18	13
Organic market price	NA	47
Negotiated at time of transaction	40	24
Quantity discount	30	18
Quality premium	38	38
Penalty for low quality	11	*
Prices depend on past performance	15	10
Fixed price plus quality premium	NA	19
<b>Measurement of delivered quality:</b>		
Observe quality	66	46
Test quality	78	85
Third-party certification	36	27
USDA grades	11	*
<b>Payment terms:</b>		
Payment on delivery	75	44
Payment after specified number of days	NA	48
<b>Standard clauses:</b>		
Verification of certification	83	75
Minimum quality standards	73	54
Output of specified number of acres	*	*
Reject if contract terms not met	73	51
Automatic contract renewal	*	*
Other action if terms not met	36	16
Delivery place	54	44
Delivery time	64	49
Best management practices	16	15
Exclusive supply	*	*

NA= data were not collected in 2004.

\* Indicates that less than 10 percent of handlers reported using a specific clause or term.

Source: USDA, Economic Research Service.



Appendix table 9

**Poultry contract terms between handlers and suppliers,  
2004 and 2007**

	2004	2007
	<i>Percent of contracts</i>	
<b>Contract form:</b>		
Written	67	62
Verbal	33	38
<b>Contract length:</b>		
Seasonal	22	14
Yearly	44	57
<b>Pricing terms:</b>		
Flat price	25	43
Organic market price	NA	29
Negotiated at time of transaction	13	*
Quantity discount	11	21
Quality premium	22	*
Penalty for low quality	33	14
Prices depend on past performance	11	*
Fixed price plus quality premium	NA	*
<b>Measurement of delivered quality:</b>		
Observe quality	38	57
Test quality	38	43
Third-party certification	13	29
USDA grades	50	36
<b>Payment terms:</b>		
Payment on delivery	89	50
Payment after specified number of days	NA	36
<b>Standard clauses:</b>		
Verification of certification	75	86
Minimum quality standards	50	64
Output of specified number of acres	22	*
Reject if contract terms not met	44	64
Automatic contract renewal	13	14
Other action if terms not met	56	50
Delivery place	100	57
Delivery time	75	36
Best management practices	44	21
Exclusive supply	22	*

NA= data were not collected in 2004.

\* Indicates that less than 10 percent of handlers reported using a specific clause or term.

Source: USDA, Economic Research Service.

Appendix table 10

**Seed contract terms between handlers and suppliers, 2004 and 2007**

	2004	2007
	Percent of contracts	
Contract form:		
Written	76	87
Verbal	24	13
Contract length:		
Seasonal	41	31
Yearly	48	54
Pricing terms:		
Flat price	67	*
Organic market price		40
Negotiated at time of transaction	11	27
Quantity discount	20	47
Quality premium	24	27
Penalty for low quality	52	33
Prices depend on past performance	21	13
Fixed price plus quality premium	NA	13
Measurement of delivered quality:		
Observe quality	50	53
Test quality	65	80
Third-party certification	15	53
USDA grades	19	13
Payment terms:		
Payment on delivery	54	20
Payment after specified number of days	NA	73
Standard clauses:		
Verification of certification	71	87
Minimum quality standards	88	80
Output of specified number of acres	55	47
Reject if contract terms not met	83	47
Automatic contract renewal	*	13
Other action if terms not met	40	33
Delivery place	81	53
Delivery time	62	53
Best management practices	30	20
Exclusive supply	26	13

NA= data were not collected in 2004.

\* Indicates that less than 10 percent of handlers reported using a specific clause or term.

Source: USDA, Economic Research Service.

Appendix table 11

**Grape contract terms between handlers and suppliers, 2004 and 2007**

	2004	2007
	Percent of contracts	
Contract form:		
Written	90	89
Verbal	10	11
Contract length:		
Seasonal	41	31
Yearly	48	54
Pricing terms:		
Flat price	43	26
Organic market price	NA	21
Negotiated at time of transaction	17	21
Quantity discount	10	*
Quality premium	22	26
Penalty for low quality	42	26
Prices depend on past performance	11	26
Fixed price plus quality premium	NA	16
Measurement of delivered quality:		
Observe quality	17	37
Test quality	61	58
Third-party certification	*	21
USDA grades	26	21
Payment terms:		
Payment on delivery	22	26
Payment after specified number of days	NA	74
Standard clauses:		
Verification of certification	77	89
Minimum quality standards	64	79
Output of specified number of acres	55	68
Reject if contract terms not met	62	53
Automatic contract renewal	41	32
Other action if terms not met	39	42
Delivery place	64	79
Delivery time	40	53
Best management practices	37	37
Exclusive supply	12	*

NA= data were not collected in 2004.

\* Indicates that less than 10 percent of handlers reported using a specific clause or term.

Source: USDA, Economic Research Service.

Appendix table 12

**Berry contract terms between handlers and suppliers, 2004 and 2007**

	2004	2007
	Percent of contracts	
Contract form:		
Written	70	57
Verbal	30	43
Contract length:		
Seasonal	45	43
Yearly	45	29
Pricing terms:		
Flat price	36	14
Organic market price	NA	29
Negotiated at time of transaction	64	36
Quantity discount	*	*
Quality premium	*	21
Penalty for low quality	18	21
Prices depend on past performance	*	14
Fixed price plus quality premium	NA	*
Measurement of delivered quality:		
Observe quality	45	71
Test quality	73	57
Third-party certification	27	21
USDA grades	18	29
Payment terms:		
Payment on delivery	91	36
Payment after specified number of days	NA	43
Standard clauses:		
Verification of certification	82	79
Minimum quality standards	73	64
Output of specified number of acres	20	14
Reject if contract terms not met	80	57
Automatic contract renewal	11	21
Other action if terms not met	44	43
Delivery place	82	64
Delivery time	70	36
Best management practices	20	14
Exclusive supply	*	*

NA= data were not collected in 2004.

\* Indicates that less than 10 percent of handlers reported using a specific clause or term.

Source: USDA, Economic Research Service.

Appendix table 13

**Rice contract terms between handlers and suppliers, 2004 and 2007**

	2004	2007
	Percent of contracts	
Contract form:		
Written	86	94
Verbal	14	6
Contract length:		
Seasonal	21	24
Yearly	57	65
Pricing terms:		
Flat price	43	47
Organic market price	NA	24
Negotiated at time of transaction	29	29
Quantity discount	21	35
Quality premium	21	18
Penalty for low quality	21	12
Prices depend on past performance	*	*
Fixed price plus quality premium	NA	*
Measurement of delivered quality:		
Observe quality	64	47
Test quality	50	82
Third-party certification	21	35
USDA grades	36	47
Payment terms:		
Payment on delivery	62	35
Payment after specified number of days	NA	59
Standard clauses:		
Verification of certification	85	82
Minimum quality standards	77	71
Output of specified number of acres	31	24
Reject if contract terms not met	69	65
Automatic contract renewal	*	*
Other action if terms not met	42	41
Delivery place	85	76
Delivery time	54	41
Best management practices	23	24
Exclusive supply	*	*

NA= data were not collected in 2004.

\* Indicates that less than 10 percent of handlers reported using a specific clause or term.

Source: USDA, Economic Research Service.

Appendix table 14

**Onion/garlic contract terms between handlers and suppliers,  
2004 and 2007**

	2004	2007
	<i>Percent of contracts</i>	
<b>Contract form:</b>		
Written	100	75
Verbal	0	25
<b>Contract length:</b>		
Seasonal	100	50
Yearly	0	50
<b>Pricing terms:</b>		
Flat price	33	54
Organic market price	NA	15
Negotiated at time of transaction	17	15
Quantity discount	33	15
Quality premium	17	38
Penalty for low quality	67	31
Prices depend on past performance	*	23
Fixed price plus quality premium	NA	15
<b>Measurement of delivered quality:</b>		
Observe quality	50	62
Test quality	33	46
Third-party certification	17	15
USDA grades	17	46
<b>Payment terms:</b>		
Payment on delivery	50	*
Payment after specified number of days	NA	69
<b>Standard clauses:</b>		
Verification of certification	83	85
Minimum quality standards	100	85
Output of specified number of acres	67	62
Reject if contract terms not met	80	62
Automatic contract renewal	*	*
Other action if terms not met	67	46
Delivery place	100	85
Delivery time	67	62
Best management practices	40	15
Exclusive supply	20	23

NA= data were not collected in 2004.

\* Indicates that less than 10 percent of handlers reported using a specific clause or term.

Source: USDA, Economic Research Service.