

Agricultural Use of Production and Marketing Contracts

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Production and marketing contracts governed about 36 percent of the value of U.S. agricultural production in 2001, compared with 28 percent in 1991. Contracts now govern much of the production of a few commodities, including broilers, hogs, sugar beets, processing tomatoes, and tobacco, but a relatively small share of others such as corn, soybeans, and wheat. The use of contracts for individual commodities can expand quite rapidly. Contracts covered two-thirds of hog production in 2001, up from one-third just 5 years before. Virtually nonexistent in tobacco marketing in 1999, contracts covered half of 2001 production. Large farms use contracts much more than other farms.

Farmers have long used formal contracts when obtaining land, credit, and equipment, and also when organizing the production and marketing of some farm commodities, such as vegetables for processing. However, formal commodity contracts cover a growing share of agricultural production. Commodity contracts governed about 36 percent of the value of U.S. agricultural production in 2001, versus 28 percent in 1991. Aggregate data indicate slow but steady growth in contract use in agriculture. But aggregate data can mask changes in some sectors; for example, in just a few years contracting became the primary method of organizing transactions in hog production and in tobacco marketing.

The use of contracts varies widely by commodity. Contracts govern much of the production of broilers, hogs, sugar beets, processing tomatoes, and tobacco, while a combination of contracts and vertical integration dominates turkey and sugar cane production. Contracting covers a substantial share of the production of cotton, rice, and peanuts, but a much smaller share of traditional field crops such as corn, soybeans, and wheat. Larger farms are far more likely to use contracts than smaller farms, and the growth of these farms has contributed to the increased share of production governed by contracts.

What Are Agricultural Commodity Contracts?

Contracts governing the production of agricultural commodities can be broadly classified as marketing contracts or production contracts.

Marketing contracts usually set a price (or pricing mechanism) and an outlet for the commodity, under agreements set before harvest or, for livestock, before the livestock is ready to be marketed. The pricing mechanisms often limit a farmer's exposure to wide price fluctuations, and the contracts often specify product quantities and delivery schedules. The farmer retains

substantial control over major management decisions since the farmer maintains ownership of the commodity and provides all inputs used during production, with limited direction from the contractor.

Production contracts detail specific farmer and contractor responsibilities for provision of necessary production inputs and practices. For example, the farmer provides labor, equipment, and housing under many livestock production contracts, while the contractor provides feed, veterinary and transportation services, and young animals. Production contracts often specify particular inputs, set production guidelines, and allow for contractor technical advice and field visits, leaving the farm operator with less control over input choices. Compensation is often a fee for service, with the farmer's payment based on input costs, the quantity of production, or both. Contractors, not farmers, often retain ownership of the commodity during production. Because of the nature of the agreement, production contracts are finalized before the farmer commences production of a commodity.

Why Are Contracts Used?

Contracts offer potential benefits to both buyers and sellers of agricultural commodities. Farmers can obtain a guaranteed market for their production with a known price or pricing system. Buyers can obtain an assured and timely supply of product with desired attributes.

Contracts Can Provide Risk Sharing

Farmers face several different kinds of business risks. They face yield risks. Favorable weather may lead to unusually large crops, while bad weather may reduce the amount of a crop that can be sold. Bad weather may cause animals to put on weight more slowly or to suffer high mortality rates, while good weather may lead to faster and larger weight gains and increased meat production.

Farmers also face price risks. Spot market producers have little control over commodity prices, which can fluctuate widely over time. Forces broadly affecting supply lead to price changes. On the other hand, forces narrowly affecting individual farmers' production, costs, or product quality may not cause market prices to change, but may significantly affect farmers' financial condition. Unexpected market developments may raise or lower prices substantially above or below the price that a farmer expected when making production decisions. Farmers may also face risks from fluctuations in prices for inputs, such as fertilizers or feeds.

Price and yield risks combine to produce income risks. Some contracts limit the income risks faced by farmers by shifting price and (sometimes) yield risks to processors and other market participants who are better positioned to bear risks, and in some cases by controlling and thereby reducing risks.

However contracts can also introduce a new set of strategic risks for farmers. For example, once a farmer has contracted to produce a crop or

livestock variety that is specific to the needs of a single buyer, the farmer faces risks of failure by the buyer/contractor, with attendant risks to market access and payment and the potential loss of investment in highly specialized equipment and facilities. The farmer also faces the risk of harvesting crops or producing animals that fall below contracted quality or quantity requirements—with subsequent penalties for noncompliance.

Buyers Get Assured Supply With Desired Attributes

Contracts can reduce farmer risks, but that does not appear to be the primary reason for their growth. Contracts can reduce processor costs by ensuring large and steady flows of uniform agricultural products. Moreover, buyers are increasingly demanding products with specific product or production process attributes. A product attribute would be high-oil corn that has specific nutritional characteristics, while a production process attribute would be milk produced according to organic standards.

Producers may not be able to store perishable products such as tomatoes until the processor is ready to accept the harvest, and processors may not be able to test for specific attributes (such as freedom from pesticide residues) and still have the crop at peak freshness. In such cases, contracts may help firms procure specific attributes by specifying production, harvest, and/or marketing practices. Farm inspections are often used to monitor compliance with these practices. Processors obtain desired attributes through contractual control of practices instead of post-harvest testing and measurement in spot markets.

Buyers are increasingly interested in identity-preserved products, such as organically produced commodities or specialty grains, with attributes that are kept segregated throughout the marketing chain. Identity preservation requires substantial investments in testing, monitoring, and physical separation, and contracts may reduce those costs by controlling production and harvesting practices and by requiring investments in information and measuring at the stages where they are most effective. Again, attribute certification would be met through contractual control and onsite inspection of practices, rather than through producer provision of information and warranties.

Use of Contracts Is Related to Farm Size

While 36 percent of the value of all agricultural commodity production was carried out under a production or marketing contract in 2001, the use of contracts varied widely across the collapsed farm typology groups (see box, “Collapsed Farm Typology Group Definitions”).¹ For example, contracts governed 42 percent of production value on commercial farms, versus 24 percent and 13 percent on intermediate and rural residence farms (table 5-1). Contracting is more important among larger commercial farms: those with sales above \$500,000 are more likely to have a contract, and to have more of their production under contract, than those with sales between \$250,000 and \$500,000 (table 5-2).

¹ The collapsed typology was developed by USDA (see U.S. Dept. of Agriculture, Sept. 2001) to facilitate comparisons between three groups of farms that differ in farm business and other characteristics.

Collapsed Farm Typology Group Definitions

The collapsed typology combines farms from the eight typology groups (see box, “Farm Typology Group Definitions,” p. 2) into three groups:

Rural residence farms

- Limited-resource farms
- Retirement farms
- Residential/lifestyle farms

Intermediate farms

- Farming-occupation/low-sales farms
- Farming-occupation/high-sales farms

Commercial farms

- Large family farms
- Very large family farms
- Nonfamily farms

Table 5-1—Production value and contract use by farm typology group, 2001

| Item | Rural residence farms | Intermediate farms | Commercial farms | All farms |
|---------------------------------|---------------------------------|--------------------|------------------|-----------|
| | <i>Percent within group</i> | | | |
| Farms with contracts | 3.6 | 16.0 | 41.7 | 11.0 |
| Production value under contract | 13.3 | 24.2 | 42.2 | 36.4 |
| | <i>Percent across all farms</i> | | | |
| Farms with contracts | 19.6 | 44.6 | 35.8 | 100.0 |
| Production value under contract | 2.3 | 14.4 | 83.2 | 100.0 |
| All farms | 59.8 | 30.7 | 9.5 | 100.0 |
| Value of production | 6.4 | 21.7 | 71.8 | 100.0 |

Source: USDA, Economic Research Service, 2001 Agricultural Resource Management Survey, Phase III.

Table 5-2—Use of contracts by farm size in 2001

| Farm size (gross sales) | Farms with contracts | Value of production under contract |
|-------------------------|----------------------|------------------------------------|
| | <i>Percent</i> | |
| Less than \$250,000 | 7.7 | 19.1 |
| \$250,000-\$499,999 | 47.9 | 31.2 |
| \$500,000-\$999,999 | 60.9 | 45.7 |
| \$1,000,000 or more | 61.5 | 46.6 |

Source: USDA, Economic Research Service, 2001 Agricultural Resource Management Survey, Phase III.

Contracts Cover a Growing Share of Agricultural Production

Large farms use contracts much more than other farms, and in the last two decades, large farms have handled large and rapidly growing shares of agricultural production (Hoppe and Korb, 2002). From 1991 to 2001, the share of the largest farms (sales of \$500,000 or more) and their corresponding shares of production and contract production have grown (table 5-3).² The share of farms with sales of at least \$1 million (in 2001 dollars) doubled (from 0.6 to 1.2 percent) by the end of the decade. Since the aggregate number of farms remained fairly stable over time, the percentage growth in farm numbers matched the growth in share. In turn, farms with annual sales below \$250,000 accounted for a declining share of total and contract production value, while farms with \$1 million or more in sales (2001 dollars) accounted for an increasing share, particularly in recent years.

Contracts covered about 12 percent of production value in 1969, increasing to 28 percent in 1991 and 36 percent in 2001 (fig. 5-1).³ The share of farms using contracts grew more slowly, from 6 percent of farms in 1969 to 11 percent in 2001. While the share of production covered by **production** contracts grew from 10 percent of the value of production in 1978 to 16 percent in 2001, the share of farms with production contracts remained stable, at about 2 percent (fig. 5-2).

The share of farms using marketing and/or production contracts remained relatively constant during 1991-2001 (fig. 5-3) (table 5-4). The growth in the share of the value of production under contract was largely attributable to increases in contract activity for livestock, particularly hogs.

Table 5-3—Distribution of U.S. farms and production by farm size, 1991-2001

| Farm size (gross sales) | 1991-93 | 1994-95 | 1996-98 | 1998-2000 | 2001 |
|--|---------|---------|---------|-----------|------|
| <i>Percent of farms</i> | | | | | |
| Less than \$250,000 | 94.3 | 93.8 | 93.2 | 92.7 | 92.7 |
| \$250,000-\$499,999 | 3.7 | 3.7 | 4.1 | 4.1 | 4.0 |
| \$500,000-\$999,999 | 1.4 | 1.5 | 1.7 | 2.0 | 2.2 |
| \$1,000,000 or more | 0.6 | 0.9 | 0.9 | 1.2 | 1.2 |
| <i>Percent of value of production</i> | | | | | |
| Less than \$250,000 | 43.8 | 40.7 | 38.4 | 31.4 | 28.3 |
| \$250,000-\$499,999 | 17.2 | 16.0 | 18.1 | 15.6 | 14.3 |
| \$500,000-\$999,999 | 13.0 | 13.8 | 15.2 | 15.4 | 15.8 |
| \$1,000,000 or more | 26.0 | 29.4 | 28.3 | 37.6 | 41.6 |
| <i>Percent of value of contract production</i> | | | | | |
| Less than \$250,000 | 22.3 | 22.4 | 22.1 | 13.7 | 14.9 |
| \$250,000-\$499,999 | 16.8 | 13.5 | 15.2 | 12.4 | 12.0 |
| \$500,000-\$999,999 | 17.6 | 29.5 | 20.9 | 19.3 | 20.1 |
| \$1,000,000 or more | 43.3 | 44.6 | 41.8 | 54.7 | 53.0 |

Source: USDA, Economic Research Service, 1991-2001 Farm Costs and Returns Surveys
Agricultural Resource Management Surveys.

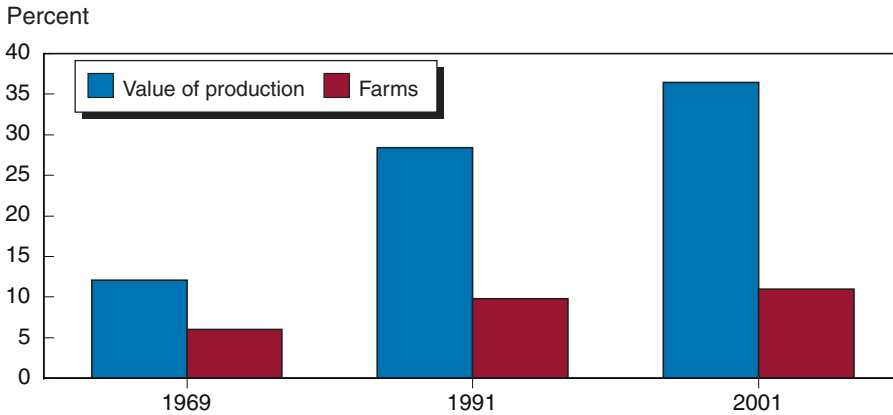
² To account for the effects of overall inflation, which will increase sales through price increases even if physical outputs remain unchanged, farm sales were adjusted using the Producer Price Index for farm products (which is also the USDA/NASS index of prices received by farmers). All sales values are expressed in 2001 dollars.

³ The share of production under contract in 1969 is overstated because the census of agriculture reported all the value of production of a commodity as contract value if the farm reported a contract for that commodity, not just the share of production covered by the contract.

Figure 5-1

Use of contracting, 1969-2001

The share of the value of agricultural production under contract increased to 36 percent in 2001

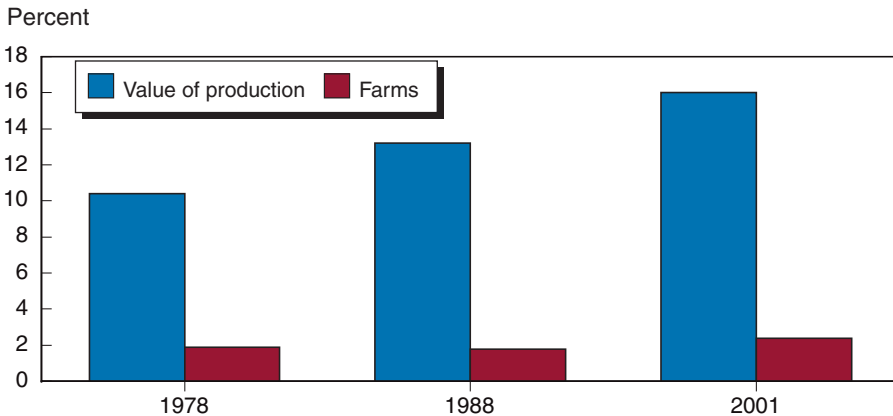


Sources: 1969, U.S. Department of Commerce, Agricultural Census; 1991 USDA, Farm Costs and Returns Survey; 2001, USDA, Agricultural Resource Management Survey, Phase III.

Figure 5-2

Use of production contracts, 1978-2001

The value of agricultural production under production contracts increased to 16 percent in 2001



Sources: 1978, U.S. Department of Commerce, Agricultural Census; 1988, Farm Finance Survey, Agricultural Economics Land Ownership Survey; 2001, USDA, Agricultural Resource Management Survey, Phase III.

Commodities and Contracting

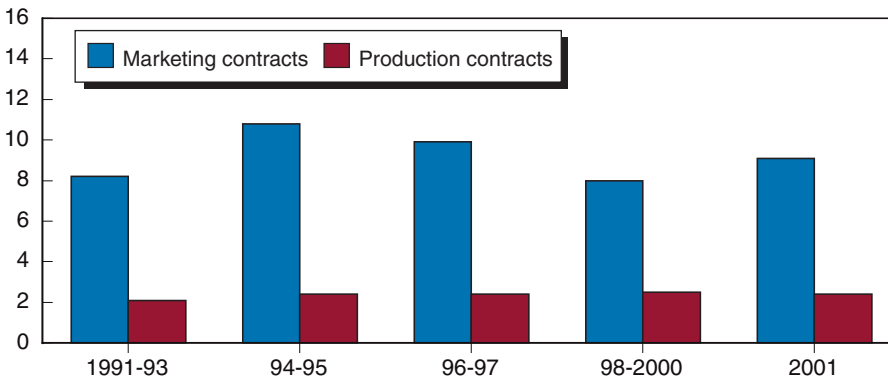
Contracts are used more often for some commodities than for others. Contracts now cover nearly one-half of all livestock production (up from one-third in 1991-93), and they cover just over one-quarter of crop production (with no apparent trend) (table 5-5). Production contracts are used less often in crops—while marketing contracts are widely used in both crops and livestock.

Contracts dominate production and exchange relationships in poultry and eggs (88 percent of the value of production in 2001), and accounted for 61

Figure 5-3

Farms with contracts by contract type*The share of farms using contracts has remained relatively constant*

Percent



Sources: 1969, U.S. Department of Commerce, Agricultural Census; 1991, USDA, Farm Costs and Returns Survey; 2001, USDA, Agricultural Resource Management Survey, Phase III.

Table 5-4—Use of contracts for selected years

| Item | 1991-93 | 1994-95 | 1996-97 | 1998-2000 | 2001 |
|--|----------------|---------|---------|-----------|-------|
| | <i>Percent</i> | | | | |
| Share of farms with contracts: | | | | | |
| Any contract: | 10.1 | 13.0 | 12.1 | 10.6 | 11.0 |
| Marketing contract | 8.2 | 10.8 | 10.2 | 8.4 | 9.1 |
| Crop | 6.6 | 8.0 | 8.3 | 6.5 | 7.2 |
| Livestock | 1.6 | 3.0 | 2.0 | 2.0 | 1.9 |
| Production contract | 2.1 | 2.4 | 2.2 | 2.5 | 2.4 |
| Crop | 0.6 | 0.7 | 0.6 | 0.6 | 0.5 |
| Livestock | 1.6 | 1.7 | 1.6 | 1.9 | 1.8 |
| Share of value of production under contract: | | | | | |
| Any contract | 28.9 | 34.2 | 32.1 | 37.3 | 36.4 |
| Marketing contract | 17.0 | 21.2 | 21.5 | 20.4 | 20.3 |
| Crop | 11.0 | 12.2 | 12.2 | 11.3 | 11.8 |
| Livestock | 6.0 | 8.9 | 9.2 | 9.1 | 8.5 |
| Production contract | 11.8 | 13.0 | 10.6 | 16.9 | 16.0 |
| Crop | 0.9 | 1.0 | *1.0 | *2.1 | *1.4 |
| Livestock | 10.9 | 12.1 | 9.6 | 14.7 | 14.6 |
| Share of production value under contract: | | | | | |
| Heartland | 11.1 | 12.6 | 15.6 | 25.1 | 27.3 |
| Northern Crescent | 17.4 | 34.0 | 29.5 | 32.6 | 32.6 |
| Northern Great Plains | *22.7 | 14.8 | 15.7 | 26.3 | *25.1 |
| Prairie Gateway | 29.3 | 33.6 | *26.2 | 36.6 | 28.9 |
| Eastern Uplands | 40.4 | 57.7 | 45.6 | 45.6 | 46.8 |
| Southern Seaboard | 43.9 | 52.3 | 56.3 | 59.5 | 68.4 |
| Fruitful Rim | 49.4 | 52.7 | 47.1 | 47.1 | 40.5 |
| Basin and Range | 28.1 | 20.0 | 37.9 | *32.2 | *30.5 |
| Mississippi Portal | 24.6 | 22.4 | 23.9 | 31.6 | 35.2 |

* = Standard error is between 25 and 50 percent of the estimate.

Source: USDA, Economic Research Service, 1991-2001 Farm Costs and Returns Surveys, Agricultural Resource Management Surveys, Phase III.

Table 5-5—Share of commodity value produced under contract

| Item | 1991-93 | 1994-95 | 1996-97 | 1998-2000 | 2001 |
|--|---------|---------|---------|-----------|--------|
| <i>Percent of value under contract</i> | | | | | |
| All crops and livestock | 28.9 | 34.2 | 32.1 | 37.3 | 36.4 |
| Crops | 24.7 | 25.8 | 22.9 | 26.7 | 26.2 |
| Corn | 11.4 | 13.9 | 13.0 | 12.9 | 12.8 |
| Soybean | 10.1 | 10.0 | 13.5 | 10.3 | 8.7 |
| Wheat | 5.9 | 6.2 | 9.1 | 7.0 | 5.5 |
| Rice | 19.7 | 25.2 | 25.8 | 30.5 | 38.5 |
| Peanut | 47.5 | 58.3 | 34.2 | 45.1 | **21.2 |
| Tobacco | **0.3 | *0.6 | **0.3 | *1.9 | 48.6 |
| Cotton | 30.4 | 44.5 | 33.8 | 42.9 | 51.7 |
| Fruit | na | 64.2 | 56.8 | 65.4 | 59.0 |
| Vegetable | na | 55.0 | 38.4 | 39.7 | *36.9 |
| Other crop | 7.9 | 11.3 | 17.1 | 24.0 | *17.9 |
| Livestock | 32.8 | 42.9 | 44.8 | 48.0 | 46.8 |
| Cattle | na | 19.0 | *17.0 | 24.3 | 20.9 |
| Hog | na | 31.1 | 34.2 | 55.1 | 60.6 |
| Poultry and egg | 88.7 | 84.6 | 84.0 | 88.8 | 88.1 |
| Dairy | 36.8 | 56.7 | 58.2 | 53.6 | 53.1 |
| Other livestock | *0.2 | *9.3 | 4.9 | 10.8 | *9.3 |

* = Standard error is 25 to 50 percent of the estimate.

** = Standard error is 51 to 75 percent of the estimate.

na = not available.

Source: USDA, Economic Research Service, 1991-2001 Farm Costs and Returns Surveys, Agricultural Resource Management Surveys, Phase III.

percent of the value of hog production in 2001, nearly double the share in 1994-95. Contracts are used far less often in cattle production. Contract use also varies significantly across different crops, ranging from 5.5 percent of wheat production, to more than half of fruits and cotton, to almost all sugar beet production. While the use of contracts for cotton and rice production has increased substantially in recent years, the largest shifts have occurred in tobacco and hogs.

Spot, or cash, auction markets had been the dominant method of marketing tobacco since the 1800s. Auctions were used because tobacco leaf cannot be easily graded into homogeneous categories through moisture samples or leaf color; rather, leaf quality is distinguished by a variety of less tangible characteristics, and buyers may require markedly different leaf characteristics, depending on final use.

Cigarette manufacturers proposed to replace auctions with contract marketing, arguing that contracts could better enable them to acquire sufficient quantities of the specific leaf qualities that they require. Contracts accounted for only 9 percent of flue-cured tobacco leaf deliveries, and 28 percent of burley tobacco, in the 2000 marketing year that ended in June 2001. But markets then changed quite quickly: marketing contracts covered 81 percent of 2001's flue-cured tobacco, and nearly two-thirds of burley sales. This shift had a strong impact on the traditional marketing infrastructure. Over half of North Carolina's 129 warehouses closed before the 2001 season began, and many other auction warehouses will likely close as the volume of auction leaf becomes too limited to support a network of auction markets (Capehart, 2002).

A survey of meatpackers found that they acquired 87 percent of their hogs in spot markets in 1993, with 11 percent acquired through marketing contracts and 2 percent owned by packers or sold through marketing contracts between packers and producers (Hayenga et al., 1996). The shares changed substantially in following surveys. Use of cash markets fell to 43 percent of hog marketings by 1997, and fell again to 26 percent in 2000 (Lawrence and Grimes, 2001). About one-quarter of the market hogs in 2000 were packer-owned, while about half were sold through marketing agreements.

Moreover, the shift to marketing contracts coincided with a decided shift toward the use of production contracts, under which integrators—often other hog producers—arranged for the production of market hogs that were then transferred to slaughter facilities under marketing contracts between integrators and packers. The expansion of contracting in hogs was partly driven by product differentiation: processors wanted greater control over the characteristics of the livestock they were buying, so that they in turn could provide a consistent quality of meat to consumers and better control processing costs.

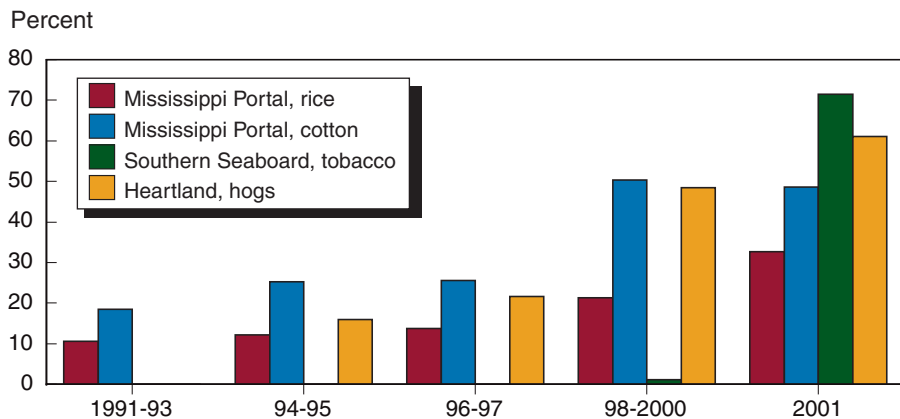
Contracting Expands in Distinctive Regional Patterns

For many agricultural commodities, contracting initially spreads among producers within a particular region, and only then spreads to other regions (Reimund et al., 1980). Figure 5-4 illustrates part of this process, capturing developments in selected farm resource regions (see box, “U.S. Farm Resource Regions”) in the 1990s for four commodities with significant increases in contracting—cotton, rice, tobacco, and hogs.

Hog contracting emerged initially in the Southern Seaboard, particularly in North Carolina during the late 1980s and the 1990s. It spread rapidly throughout the Heartland in the late 1990s, with contracts covering 60 percent of hog production (by value) in 2001, up from 20 percent only 5 years before.

Figure 5-4

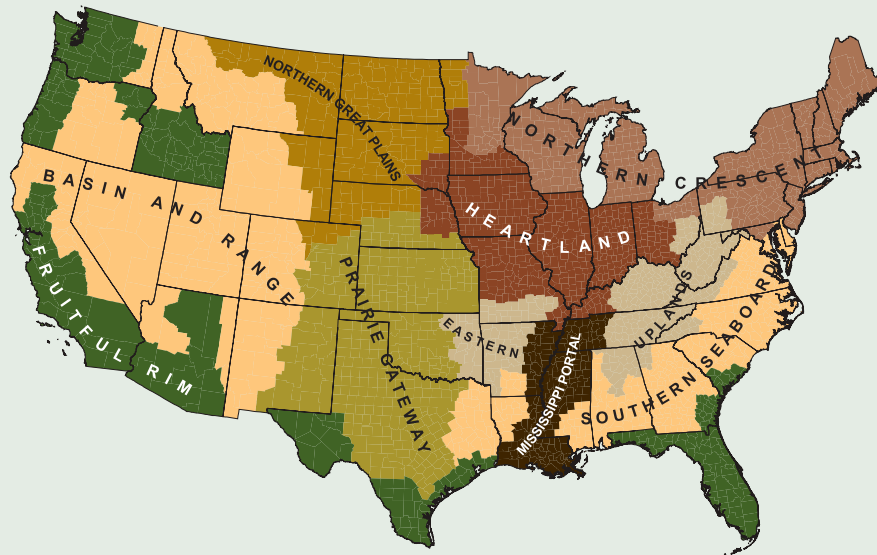
Value of production under contract for selected regions and commodities



Source: 1991-1995, USDA, Farm Costs and Returns Survey; 1996-2001, USDA, Agricultural Resource Management Survey, Phase III.

U.S. Farm Resource Regions

Farm resource regions are based on geographic specialization



Source: USDA, Economic Research Service.

The use of contracting increased substantially for two Mississippi Portal region crops—cotton and rice. There, contracts covered half of cotton production and one-third of rice production in 2001, up from a fifth and a tenth a decade before. Finally, the dramatic recent change in tobacco contracting occurs mostly in the Southern Seaboard.

At a point in time, the regional pattern of contracting largely reflects regional commodity differences. Four ERS resource regions encompass nearly three-fourths of farms with contracts, (table 5-6). Fruits and vegetables are important in the Fruitful Rim, hog and poultry production in the Southern Seaboard, dairy in the Northern Crescent, and hog production in the Heartland. By contrast, contracting is relatively unimportant in the cash grain areas of the Northern Great Plains.

Summary and Conclusions

Contracts have governed the production and marketing of some commodities like broilers and processing vegetables since the 1950s. Over the last 40 years, the growth in contract-governed production of other commodities has been slow and steady in the aggregate, and contracts now control much of the production of a few commodities, including broilers, processing vegetables, hogs, sugar beets, and tobacco. A combination of contracts and vertical integration dominates turkey and sugar cane production.

Contract and spot market production frequently coexist—for example, both cover large volumes of sales in fed cattle, cotton, and rice. However, the recent rapid shifts to contract production in hogs and tobacco suggest the same possibility for other commodities.

Table 5-6—Distribution of farms and contract value by farm resource region, 2001

| Item | Heartland | Northern Crescent | Northern Great Plains | Prairie Gateway | Eastern Uplands | Southern Seaboard | Fruitful Rim | Basin and Range | Mississippi Portal | 48-State total |
|---|-----------|-------------------|-----------------------|-----------------|-----------------|-------------------|--------------|-----------------|--------------------|----------------|
| All farms (number) | 399,794 | 314,627 | 106,589 | 300,956 | 345,096 | 233,298 | 249,119 | 76,401 | 123,803 | 2,149,683 |
| <i>Percent</i> | | | | | | | | | | |
| All farms | 18.6 | 14.6 | 5.0 | 14.0 | 16.1 | 10.9 | 11.6 | 3.6 | 5.8 | 100.0 |
| Farms with contracts | 22.9 | 18.7 | 3.9 | 8.7 | 8.3 | 12.1 | 19.4 | 2.0 | 3.9 | 100.0 |
| Marketing | 22.9 | 20.3 | 4.5 | 10.2 | 4.8 | 9.0 | 22.6 | 2.2 | 3.6 | 100.0 |
| Crop | 26.5 | 12.2 | 5.1 | 11.0 | 4.7 | 9.6 | 26.3 | 0.7 | 3.9 | 100.0 |
| Livestock | 9.7 | 50.5 | 2.4 | 7.3 | 5.0 | 6.8 | 8.5 | 7.7 | *2.2 | 100.0 |
| Production | 27.2 | 15.4 | *1.4 | 1.6 | 20.4 | 22.9 | 5.1 | d | *5.0 | 100.0 |
| Crop | 38.7 | 38.2 | d | d | d | d | 13.3 | d | d | 100.0 |
| Livestock | 24.5 | 8.9 | 0.7 | 1.5 | 25.5 | 29.1 | d | d | *5.9 | 100.0 |
| Value of production: | | | | | | | | | | |
| Share of total value | 22.4 | 11.8 | 5.7 | 12.1 | 6.5 | 7.8 | 26.9 | 3.3 | 3.5 | 100.0 |
| Share of contract value | 16.8 | 10.6 | 3.9 | 9.6 | 8.3 | 14.6 | 30.0 | 2.8 | 3.4 | 100.0 |
| Marketing | 9.9 | 15.0 | *3.2 | 7.2 | 1.6 | 6.0 | 49.4 | 4.6 | 3.2 | 100.0 |
| Crop | 10.4 | 6.8 | 3.2 | 5.8 | *1.6 | 6.3 | 59.5 | 1.5 | 4.9 | 100.0 |
| Livestock | 9.1 | 26.3 | **3.1 | 9.0 | 1.7 | 5.5 | 35.4 | 9.0 | *1.0 | 100.0 |
| Production | 25.7 | 5.1 | *4.9 | 12.7 | 16.9 | 25.6 | 5.3 | *0.4 | 3.5 | 100.0 |
| Crop | d | *11.0 | d | d | d | *0.1 | *31.3 | d | d | 100.0 |
| Livestock | 22.8 | 4.5 | *5.3 | 13.8 | 18.4 | 28.1 | 2.8 | *0.4 | 3.8 | 100.0 |
| Share of farms in category with: | | | | | | | | | | |
| Contracts | 13.6 | 14.1 | 8.8 | *6.8 | 5.7 | 12.3 | 18.5 | *6.1 | 7.5 | 11.0 |
| Marketing | 11.2 | 12.6 | 8.1 | *6.6 | 2.7 | 7.5 | 17.7 | *5.6 | 5.6 | 9.1 |
| Crop | 10.2 | *6.0 | 7.3 | *5.6 | 2.1 | 6.3 | 16.2 | *1.4 | 4.9 | 7.2 |
| Livestock | *1.0 | 6.7 | *0.9 | *1.0 | *0.6 | *1.2 | 1.4 | *4.2 | **0.7 | 1.9 |
| Production | 3.4 | *2.5 | **0.7 | *0.3 | 3.0 | 5.0 | *1.0 | a0.7 | **2.0 | 2.4 |
| Crop | 1.1 | *1.4 | d | **0.1 | d | a0.0 | *0.6 | d | d | 0.5 |
| Livestock | 2.4 | *1.1 | d | *0.2 | d | 4.9 | **0.4 | d | d | 1.8 |
| Share of value of production in category: | | | | | | | | | | |
| Under contract | 27.3 | 32.6 | *25.1 | 28.9 | 46.8 | 68.4 | 40.5 | *30.5 | 35.2 | 36.4 |
| Marketing | 9.0 | 25.7 | **11.3 | 12.1 | *5.1 | 15.6 | 37.3 | *28.5 | 19.0 | 20.3 |
| Crop | 5.5 | 6.8 | *6.6 | 5.7 | **2.9 | 9.6 | 26.1 | *5.4 | 16.6 | 11.8 |
| Livestock | *3.5 | 19.0 | a4.7 | *6.4 | 2.2 | *6.0 | 11.2 | *23.1 | **2.4 | 8.5 |
| Production | 18.4 | *6.9 | **13.7 | *16.8 | 41.7 | 52.9 | 3.2 | a1.9 | *16.2 | 16.0 |
| Crop | **3.5 | *1.3 | D | **0.1 | d | **0.0 | *1.7 | d | d | *1.4 |
| Livestock | 14.9 | *5.6 | **13.7 | *16.7 | 41.5 | 52.8 | *1.5 | a1.9 | *16.1 | 14.6 |

d = Data suppressed due to insufficient observations. * = Standard error is 25 to 50 percent of the estimate.
 ** = Standard error is 51 to 75 percent of the estimate. a = Standard error is greater than 75 percent of the estimate.
 Source: USDA, Economic Research Service, 2001 Agricultural Resource Management Survey, Phase III.

Emerging food safety concerns may require processors to trace food products back to their agricultural sources. Processors may also come under greater regulatory and market pressure to warrant that their products are free of some substances or that they contain others. If processors cannot identify agricultural qualities with quick and inexpensive tests at the point of purchase, they may form more tightly controlled supply chains, organized through contracts, to better control the agricultural production process.

Contracts can reduce farmer risks, but that does not appear to be the primary reason for their growth. Contracts can reduce processor costs by ensuring steady large flows of uniform agricultural products. Moreover, buyers are increasingly demanding products with specific product or production process attributes.