

Report No. S1

Farm-based National Totals

1. Definition of the Commodity Flow Data Gap

1.1. General Description

The 2002 Commodity Flow Survey (CFS) collects data from business establishments with paid employees that are located in the United States. These establishments are classified using the North American Industrial Classification System (NAICS). In terms of agricultural products, the CFS includes shipments from food manufacturing, beverage and tobacco product manufacturing, as well as wholesale trades. However, due to its sampling frame design, the CFS does not capture farm-based agricultural shipments that occur prior to the storage elevators (e.g., grain) or distribution/processing centers (e.g., fruit, livestock). Note that agricultural shipments outbound from these storage elevators and processing centers are captured by the CFS.

Based on prior CFS surveys and reports, farm-based agricultural shipments are known to be one of the most significant out-of-scope areas excluded from the CFS data collection effort.

1.2. Commodities involved in the data gap

In 1993, the U.S. Bureau of Census used the Standard Transportation Commodity Codes (STCC) as its commodity classification system for the CFS. The STCC has evolved since the 1960s and is used primarily for analyses involving the railroad industry. Realizing the limitations in the STCC system, as well as seeking to provide better detail of commodities not typically carried by rail and better comparability with the Harmonized System (HS) used worldwide for international trade, statistics agencies in the United States and Canada jointly developed the Standard Classification of Transported Goods (SCTG). Since 1997, the CFS has used the SCTG system for its commodity reporting.

Commodities involved in the CFS 2002 data gap for farm-based agricultural shipments are briefly discussed in the following sections.

1.2.1. SCTG codes

Three major 2-digit-SCTG codes are most likely to be impacted by this CFS data gap. They are:

01 Live animals and live fish

- 02 Cereal grains (including seed)
- 03 Other agricultural products (except for animal feed)

While the shipment of commodity code 04 - animal feed and products of animal origin – is also a part of agricultural transportation activities, it is assumed that shipments of this type are captured within the CFS because of processing requirements (e.g., not harvested or raised at a farm).

1.2.2. STCC codes

Under the STCC system, commodity groups that are impacted by this CFS data gap are:

- 01 Farm products
- 09 Fresh fish or other marine products

1.3. Establishments involved in the data gap

As mentioned above, CFS collects data from business establishments in the United States. Beginning in 2002, establishments were sorted into industry sectors using the NAICS. The Standard Industrial Classification (SIC) system was used in the 1993 and 1997 CFS. Because farms are excluded from the CFS survey frame, farm-based agricultural shipments are out-of-scope for the CFS under both SIC and NAICS classification systems. Specifically for this data gap, the missing shipments are agricultural products that are shipped from a farm site to the first point of processing or storage, i.e. processing center or terminal elevator. As stated previously, CFS does cover the shipments of these products from the initial processing centers or terminal elevators onward (e.g. to the market or for exports).

1.3.1. NAICS codes

Establishments classified under the entire NAICS code 11 (i.e., Agriculture, Forestry, Fishing and Hunting) were not included in the CFS survey-sampling frame. A detailed listing of these establishments under the 2002 NAICS definitions can be found at the Census website:
<http://www.census.gov/epcd/naics02/naicod02.htm>.

Specifically, the farm-based agricultural shipments impact the following 3-digit NAICS codes that relate to the out-of-scope shipments discussed in this report:

- 111 Crop Production
- 112 Animal Production
- 115 Support Activities for Agriculture and Forestry (e.g., crop harvesting)

1.3.2. NAICS-SIC conversion issues

The conversion from SIC to NAICS does not impact this data gap. Farms were excluded under both SIC and NAICS definitions of industry sectors.

2. Importance of the Data Gap

2.1. Value and tonnage as a share of national shipments

Based on a similar CFS-related study, total tonnage from farm-based agricultural shipments was estimated at over 1 billion tons in 1997. This accounted for over 7% of the estimated total national tonnages being moved in the United States during 1997. Similarly, its total value was estimated at approximately \$197 billion, which accounted for over 2% of the national total in the same year. Along with shipments made by foreign establishments (i.e., imports) and crude petroleum, farm-based agriculture is one of the three most significant missing components for the CFS in terms of tons.

Although statistics on total freight activities in the United States for 2002 will not be produced until estimates on all CFS data gaps are completed, a similar level of importance (as in 1997) can be expected. Preliminary estimates for this CFS-out-of-scope component indicate that a total of 1,051 million tons, with value of approximately \$201 billion, were shipped from farm to their first point of storage or processing locations in 2002. To put this in perspective, the national total of freight shipments captured by the 2002 CFS is 11,668 million tons and valued at over \$8,397 billion. That is, the estimated amount for farm-based agricultural shipments is about 9 percent in weight, and about 2 percent in value, of what CFS has captured in 2002.

2.2. Value and tonnage as a share for individual modes

Since most farm-based agricultural shipments of concern are likely to be local activities, it is reasonable to assume all farm-based agricultural shipments are transported by truck. Under this assumption, the estimated tonnage for this out-of-scope component (i.e. 1,051 million tons) is about 13 percent of the CFS-captured truck shipment tonnages (totaled at about 7,843 million tons). Similarly, when comparing in dollar values, the amount from this data gap (i.e. \$201 million) is at the level of approximately 3 percent of total CFS truck freight (about \$6,235 billion).

A more detailed discussion on this mode-of-transportation assumption is provided in the next section.

2.3. Geographic concentration: dispersed versus concentrated, local versus long distance

According to the finding of a 2001 survey conducted by the Upper Great Plains Transportation Institute (UGPTI) with assistance from nine state elevator organizations (including Colorado, Kansas, Minnesota, Montana, Nebraska, North Dakota, Oklahoma, South Dakota, and Texas), on average, grain elevators purchase about 72% of the grain they handle from a draw area within a radius of 29 miles or less around the elevator.¹ Regarding equipment employed for inbound grain deliveries (i.e. from farm site to elevator), the study also found that the majority of the grain delivered to elevators responding to this survey arrived via semi-truck and trailer. In fact, this survey found that only about 2 percent of inbound grain deliveries were delivered via equipment other than single-axle, tandem-axle, tri-axle, or semi-tractor and trailer.

Although the UGPTI grain elevator study only considered a limited type of farm-based agricultural shipments (corn, wheat, and soybeans) in 9 states, the findings confirmed the assumptions used by ORNL in estimating farm-based shipments.² They are (1) most farm-based agricultural shipments are local activities and (2) most of these shipments are transported by truck.

Based on information derived from the Vehicle Inventory and Use Survey (VIUS) 2002 data, of all truck operators indicating agricultural-related products as their “principal products carried,” over 90 percent reported that they primarily operated within their home base state³ during 2002. Four major agricultural products are included in the VIUS; they are: live animals and fish, animal feed, grains, and other agricultural products. The percentages of “operating mostly within home base state” varied slightly, ranging from 90% to 95%, when the four major agricultural product groups are analyzed separately. Nevertheless, this reconfirms that almost all farm-based agricultural shipment activities are local.

Furthermore, depending on the commodity type, the geographic concentration of these farm-based agricultural freight activities could either be dispersed or concentrated. For example, only 4 states (CA, FL, TX, and AZ) harvest oranges, but many more states grow apples. However, at the 2-digit SCTG level (e.g. oranges and apples are both included under SCTG 03) the geographic concentration of farm-based agricultural shipments is expected to be more dispersed.

¹ See <http://www.ndsu.edu/ndsu/ugpti/DPpdf/DP143.pdf>.

² A personal communication with Kimberly Vachal of the UGPTI at the North Dakota State University also concluded that these assumptions are realistic and reasonable.

³ Home base state in VIUS refers to “the location where the vehicle was usually parked when not on the road, such as a home, farm, terminal, etc.” See item H of Form TC-9502, 2002 Economic Census, Vehicle Inventory and Use Survey.

2.4. Importance to international trade

As discussed previously, this CFS data gap covers shipments originating from a U.S. farm site to the first point of storage or processing location. For this reason, this data gap has no bearing on international imports. On the other hand, some of these farm-based agricultural shipments could eventually be shipped overseas or across the border to Canada or Mexico. Direct exports by farmers are possible but are expected to be quite small. Therefore, this data gap is assumed to have very little impact on exported international trade.

Furthermore, since most of these farm-based shipments are captured by the CFS at their first points of storage or processing centers, which are likely to be in-scope for the CFS, shipments intended for foreign destinations will most likely have been reported as exports by those shippers. Aside from the fact that CFS undercounts exports, the direct impact from farm-based agricultural shipments on international trade (i.e., tons and value exported) is likely to be small. In other words, to avoid double counting, the farm-based agricultural shipments (movements inbound to storage elevators or processing centers) should be considered as domestic shipments only.

3. Data Sources

3.1. Coverage in CFS

Farm-based agricultural shipments are an out-of-scope data gap of the CFS. None of this type of shipment is captured by the CFS.

3.2. Coverage in other data sources

The main data sources used in filling this farm-based agricultural shipment data gap were: the 2002 *Census of Agriculture* and the 2004 *Agricultural Statistics*; both are published by the U.S. Department of Agriculture (USDA).

2002 Census of Agriculture

The Census of Agriculture is a census conducted every five years by the USDA. It is the leading source of facts and statistics about U.S. agricultural production. The Census of Agriculture provides statistical information at the national, state, and county (or county equivalent) levels. All agricultural production establishments (e.g., farms, ranches, nurseries, greenhouses, etc.) are included. The latest available data from the Agriculture Census is 2002.

Agricultural Statistics 2004

Agricultural Statistics is an annual publication prepared by the National Agricultural Statistics Service (NASS) of the USDA. It provides information on agricultural production, supplies, consumption, facilities, costs, and returns. Weights, measures, and conversion factors are published in this reference book. The latest publication is *2004 Agricultural Statistics*, which includes preliminary estimates for 2002 and projection estimates for 2003.

With the above USDA data, tonnage and dollar value of farm-based agricultural shipments can be estimated. Ton-mile estimates, on the other hand, required the use of an additional data source and assumptions. Several pieces of information from the 2002 VIUS were used to derive the ton-mile estimates needed for this study.

2002 VIUS

As a part of the Economic Census, the Bureau of Census collects information on the physical and operational characteristics of the private and commercial truck population in the United States. The VIUS survey is conducted in the same year as the CFS (also a part of the Economic Census). The latest data is for 2002, which was released recently on CD-ROM.

3.3. Data quality

The main source of data used in estimating ton and value for this data gap are from the USDA Agriculture Census. Because this is a Census, it is not subject to sampling errors. Non-sampling errors might exist, but should be relatively small. Shipment mileage was estimated using VIUS data from the U.S. Census along with some simple assumptions (e.g. truck, local). The national estimates of tons, value, and ton-mile are expected to be relatively reliable. However, estimates at the sub-state geography level (which will be needed for regional level estimates) may be subject to a higher degree of uncertainty, particularly the ton-mile estimates.

3.4. Other issues

The assumptions used in estimating ton-miles require information on the location in which the truck operates. Due to the lack of better data, the VIUS home base state was assumed to be the operating-state for the purpose of estimating average trip length.

Another possible issue is whether “shipments” from feedlots and stockyards to processing facilities are captured under this study. The concern is that, rather than a single leg from the farm to the first point-processing center as discussed earlier, some live stock shipments may involve a 2-legged operations (e.g. from farm to feedlot and from feedlot to slaughter house).

Based on information obtained from the Livestock Division of the NASS/USDA⁴, farmers may “place” cattle or calves on feedlots for later sale but rarely “sell” them to feedlots. USDA surveys include all types of farms⁵, ranging from family-owned small farms to large corporations and cooperative owned farms. Specifically, to avoid possible double counting, large corporations are asked to report only livestock that are raised by the company and not those purchased from farmers. The sale of cattle and calves reported in the Census of Agriculture, therefore, includes those raised and sold by farmers (either directly to market/slaughter houses, or by placing them in a feedlot and sold later to markets/slaughter houses) and those raised and sold by corporations.

Therefore, further investigation regarding this feedlot and stockyard issue is not recommended.

4. Estimation Methods

4.1. General description of estimation method

The dollar value of this out-of-scope data gap can be estimated directly with information obtained from the *2002 Census of Agriculture* publication. Specifically, data provided under the category of “Market value of agricultural products sold”⁶ was used as an estimate for total farm-based agricultural shipments. The estimation of tonnages for these out-of-scope shipments is not as straightforward, however.

Statistics in the *2002 Census of Agriculture* as published by the USDA are typically in different units of measurement (e.g., pounds, bushels, hundredweight, barrels, tons, etc). Therefore, unit conversions are necessary. This conversion is not a trivial matter. In many cases, different conversion factors are needed for different commodities even though the “same” unit is used. For example, the approximate net weight for a bushel of wheat is 60 pounds, while a bushel of corn is 70 pounds for husked corn on the ear, and 56 pounds for shelled corn. All conversion factors used in this study are based on information obtained from *Agriculture Statistics 2004*.

Once all data are converted into the same unit of measurement (i.e. pounds), estimates of the total shipment tonnages are computed based on its 2-digit SCTG categories. Note that the USDA does not use the SCTG code for its commodity categorization. All data on farm-based agricultural commodities extracted for the purpose of this study (see Appendix of this report) are regrouped into SCTG categories, to the extent that is possible and reasonable.

⁴ Personal communication with Mr. Bill Weaver of the Livestock Division staff in the NASS/USDA.

⁵ The definition of a farm in the Census of Agriculture is “any place from which \$1,000 or more of agricultural products were produced or sold, or normally would have been sold, during the census year.”

⁶ The “Market value of agricultural products sold” category represents gross market value before taxes and production expenses of all agricultural products sold or removed from the place in 2002, regardless of who received the payment. It is equivalent to total sales. Appendix A, Volume 1, Geographic Area Series, Part 51, AC-02-A-51, *2002 Census of Agriculture*, National Agricultural Statistics Service, USDA, June 2004.

4.2. Method for estimating national totals

The estimates of national total value and tonnage for farm-based agricultural shipments can be obtained using the method described above. The results are presented in Table 1 below. Itemized farm-based agricultural products included in the national totals are provided in the Appendix of this report.

Table 1: National Total for Farm-based Agricultural Shipments in 2002

SCTG	Commodity Description	Weight (thousand ton)	Value (\$ million)
01	Live animal and live fish	90,929	\$105,494
02	Cereal grains	795,382	\$39,958
03	Other agricultural products	164,974	\$55,194
Total		1,051,285	\$200,646

In order to estimate ton-miles for farm-based agricultural shipments, information on the length of movement for these shipments (or haul length) is needed. Since this mileage information is not readily available, it has to be estimated. In general, trip distance would vary depending on the type of commodities, where the product is harvested or raised, where the processing center or storage facility is located, and how it is shipped. Estimating haul distances at this level of detail would be cumbersome.

As mentioned previously, VIUS is the main source of data used in this study for estimating shipment mileages. VIUS micro data furnished information on the typical area of operation of trucks carrying agricultural products. This information is given in categories such as: off-the-road; 50 miles or less; 51 to 100 miles; 101 to 200 miles; 201 to 500 miles; 501 miles or more; not reported; and not applicable (vehicle not in use). Because the primary interest of the Freight Analysis Framework (FAF)⁷ is on those utilizing the national transportation systems, off-road activities are not included in this study. Furthermore, with the exception of the State of Alaska and possibly Texas, the within-state operating range for all other states in the United States should all be within 500 miles. Therefore, the category of “501 miles or more” is also eliminated from this study. Using mid-points of the remaining range categories and the distribution of operating ranges, a weighted average trip length is estimated for each of the three SCTG commodity-carrying truck groups (i.e. principal product carried). These national weighed-average lengths of haul estimates are shown in Table 2.

Table 2: Estimated length of haul at national level

SCTG	Average length of trip
01 – Live animal & live fish	55.5 miles
02 – Cereal grains	35.7 miles
03 – Other agricultural products	41.1 miles
All agriculture combined	44.0 miles

⁷ See http://www.ops.fhwa.dot.gov/freight/freight_analysis/faf/index.htm for further information.

A brief discussion of a similar average trip-length estimation procedure, at the state level, can be found in a 1998 *Journal of Transportation and Statistics* article⁸. Applying tonnage estimates as shown in Table 1 to trip length estimates presented in Table 2, the preliminary total national ton-miles can then be estimated (see Table 3).

Table 3: Preliminary ton-mile estimates for farm-based agricultural shipments in 2002

SCTG	Ton-miles (million)
01 – Live animal & live fish	5,047
02 – Cereal grains	28,395
03 – Other agricultural products	6,780
Total farm-based agricultural shipments	40,222

Note that these preliminary ton-mile estimates (as shown in Table 3) will be refined once regional flows are determined. It is expected that regional flow assignments will provide a more realistic mileage estimate for these shipments. Summing all ton-miles estimated for the sub-state geographic regions should then generate the estimate of national total ton-miles.

4.3. Proposed method for estimating regional flows

Please refer to Report No. 5 Methodology for FAF Regionalization of Selected Out-of-Scope Truck Commodity Flows.

4.4. Expected quality of the estimates

Estimates of tons and value are directly computed based on data obtained from the USDA. The expected quality of these estimates is therefore as good as those of the original USDA data. Estimates of ton-miles, however, require the use of VIUS data and assumptions. As pointed out previously, VIUS data have limitations on geographic details, sample coverage, and are subjected to other sampling errors. Mileage estimates produced from this process, therefore, have a higher degree of uncertainty. Consequently, ton-mile estimates for this data gap may be less accurate than those for tons and value.

5. Implications for the Scope and Content of the 2007 CFS

Unless the CFS sample frame is changed to include farms, farm-based agricultural shipments will continue to be a missing component for the 2007 CFS. Because data from the USDA provide reliable and sufficient information (ton and value) to supplement CFS for this specific data gap, it is not necessary for the 2007 CFS to change its sample frame

⁸ Chin, S. M., J. Hopson, and H. L. Hwang, "Estimating State-Level Truck Activities in America," *Journal of Transportation And Statistics*, Volume I, No. 1, pp 63-74, January, 1998.

to include farms. Although VIUS-based mileage estimates seem reasonable, it may be beneficial to conduct small-scale surveys to gather information on farm-based shipment distances, especially for SCTG categories 01 (live animal and live fish) and 03 (other agricultural products).

6. Other Issues

None.

7. References

Vachal, Kimberly and Denver Tolliver, *Regional Elevator Survey: Grain Transportation and Industry Trends for Great Plains Elevators*, Upper Great Plains Transportation Institute, North Dakota State University, August, 2001.

Chin, S. M., J. Hopson, and H. L. Hwang, "Estimating State-Level Truck Activities in America," *Journal of Transportation And Statistics*, Volume I, No. 1, pp 63-74, January, 1998.

2002 Vehicle Inventory and Use Survey, Form TC-9502, U.S. Bureau of Census.

2002 Census of Agriculture, Volume 1, Geographic Area Series, Part 51, AC-02-A-51, National Agricultural Statistics Service, USDA, June 2004.

Appendix: Itemized Weight Estimates

Item description	Total units	Pound per unit	Total weight (ton)
<i>Live animal & live fish</i>			
Calves sold (number)	14,134,147	335	2,367,470
Cattle sold (number)	59,375,018	1,177	34,942,198
Hogs and pigs sold (number)	184,997,686	256	23,679,704
Any poultry sold, layers 20 weeks old and older sold	202,947,490	5	507,990
Any poultry sold, pullet chicks	174,916,701	5	420,649
Any poultry sold, broilers	8,500,313,357	5	20,550,900
Any poultry sold, turkeys sold (number)	283,247,649	24	3,396,638
Sheep and lambs sold (number)	5,426,904	133	360,889
Horses and ponies, sales (number)	470,423	1,050	246,972
Mink and their pelts, sales (number)	2,506,819	1	627
Ducks, sales (number)	24,143,066	6	72,429
Geese, sales (number)	200,564	15	1,504
Pigeons or squab, sales (number)	1,160,364	1	290
Pheasants, sales (number)	7,206,460	4	14,413
Quail, sales (number)	19,157,803	2	19,158
Other poultry, sales (number)	3,143,264	4	6,287
Poultry hatched, sales (number)	10,186,919,783	1	3,820,095
Mules, burros, and donkeys - sales (number)	17,385	550	4,781
Goats, total sales (number)	1,314,310	150	98,573
Rabbits and their pelts -sales (number)	886,841	8	3,547
Catfish, pounds (1,000)	608,925	1,000	304,463
Trout, pounds (1,000)	40,384	1,000	20,192
Hybrid Striped Bass, pounds (1,000)		1,000	0
Other fish, pounds (1,000)	72,670	1,000	36,335
Crawfish, clam, mussels, oysters, snails, pounds (1,000)	73,603	1,000	36,802
Other aquaculture products, pounds (1,000)	33,012	1,000	16,506
<i>Cereal grains (include seeds)</i>			
Corn for grain or seed (bushels), harvested	8,613,061,814	70	301,457,163
Sorghum for grain or seed (bushels), harvested	333,485,523	56	9,337,595
Wheat for grain, total (bushels), harvested	1,577,005,140	60	47,310,154
Barley for grain (bushels), harvested	214,800,035	48	5,155,201
Buckwheat (bushels), harvested	960,589	48	23,054
Canola and other rapeseed (pounds), harvested		1	0
Canola (pounds), harvested	1,446,267,120	1	723,134
Other rapeseed (pounds), harvested	1,084,170	1	542
Emmer and spelt (bushels), harvested	896,203	40	17,924
Flaxseed (bushels), harvested	10,738,434	56	300,676
Mustard seed (pounds), harvested	94,395,859	1	47,198
Oats for grain (bushels), harvested	109,840,449	32	1,757,447
Popcorn (pounds, shelled), harvested	945,158,986	1	472,579

Item description	Total units	Pound per unit	Total weight (ton)
Proso millet (bushels), harvested	3,810,986	54	102,897
Rice (hundredweight), harvested	210,358,014	100	10,517,901
Rye for grain (bushels), harvested	7,253,118	56	203,087
Safflower (pounds), harvested	270,105,054	1	135,053
Sunflower seed (pounds), harvested	2,042,510,240	1	1,021,255
Triticale (bushels), harvested	890,690	56	24,939
Wild rice (cwt), harvested	285,594	100	14,280
Cotton (bales), harvested	17,145,345	480	4,114,883
Tobacco (pounds), harvested	873,350,412	1	436,675
Soybeans for beans (bushels), harvested	2,707,719,216	60	81,231,576
Dry edible beans, excluding dry limas (hundredweight)	29,687,475	100	1,484,374
Dry limas beans (hundredweight), harvested	1,072,859	100	53,643
Dry edible peas (hundredweight), harvested	4,780,492	100	239,025
Dry cowpeas and dry southern peas (bushels), harvested	236,666	60	7,100
Lentils (hundredweight), harvested	2,448,940	100	122,447
Potatoes, excluding sweet potatoes (hundredweight), harvested	451,405,823	100	22,570,291
Sweet potatoes (hundredweight), harvested	13,651,312	100	682,566
Sugar beets for seed (pounds), harvested	9,542,593	1	4,771
Sugar beets for sugar (tons), harvested	27,793,126	2,000	27,793,126
Sugarcane for seed (tons), harvested	1,726,198	2,000	1,726,198
Sugarcane for sugar (tons), harvested	35,319,767	2,000	35,319,767
Peanuts for nuts (pounds), harvested	3,137,586,781	1	1,568,793
Alfalfa seed (pounds), harvested	58,020,460	1	29,010
Austrian winter peas (hundredweight), harvested	207,915	1	104
Bahia grass seed (pounds), harvested	2,274,519	1	1,137
Bentgrass seed (pounds), harvested	4,634,289	1	2,317
Bermuda grass seed (pounds), harvested	16,757,215	1	8,379
Birdsfoot trefoil seed (pounds), harvested	418,343	1	209
Bromegrass seed (pounds), harvested	5,000,215	1	2,500
Crimson clover seed (pounds), harvested	2,002,569	1	1,001
Fescue seed (pounds), harvested	323,023,498	1	161,512
Foxtail millet seed (pounds), harvested	910,125	1	455
Kentucky Bluegrass seed (pounds), harvested	76,414,727	1	38,207
Ladino clover seed (pounds), harvested	938,510	1	469
Lespedeza seed (pounds), harvested	5,413,440	1	2,707
Orchardgrass seed (pounds), harvested	18,660,986	1	9,330
Red clover seed (pounds), harvested	9,284,591	1	4,642
Redtop seed (pounds), harvested	97,292	1	49
Ryegrass seed (pounds), harvested	459,929,090	1	229,965

Item description	Total units	Pound per unit	Total weight (ton)
Sudangrass seed (pounds), harvested	10,476,796	1	5,238
Sweetclover seed (pounds), harvested	30,700	1	15
Timothy seed (pounds), harvested	4,310,826	1	2,155
Vetch seed (pounds), harvested	956,272	1	478
Wheatgrass seed (pounds), harvested	3,268,256	1	1,634
White clover seed (pounds), harvested	1,149,776	1	575
Other seeds (pounds), harvested	11,582,288	1	5,791
Hay-alfal, other tame, small grain, wild, grass silage grass (tons)	137,858,890	2,000	137,858,890
Corn for silage or green chop (tons, green), harvested	97,132,738	2,000	97,132,738
Sorghum for silage or green chop (tons, green), harvested	3,904,834	2,000	3,904,834
<i>Other agricultural products</i>			
Vegetables harvested, harvested (acres)	3,698,744	23,251	43,000,242
Fruits Total Production in 1,000 tons	33,456	2,000,000	33,456,000
Dill for oil (pounds), harvested	117,271	1	59
Ginger root (pounds), harvested	5,330,284	1	2,665
Ginseng (pounds), harvested	963,768	1	482
Guar (pounds), harvested	13,963,533	1	6,982
Sesame (pounds)	1,358,364	1	679
Herbs, dried (pounds), harvested	3,473,232	1	1,737
Hops (pounds), harvested	58,575,519	1	29,288
Joboba harvested (pounds), harvested	88,578	1	44
Mint for oil (pounds of oil), harvested	9,919,641	1	4,960
Mungbeans for beans (pounds), harvested	973,166	1	487
Pineapples harvested (tons), harvested	314,626	2,000	314,626
Salt hay (tons), harvested	1,396	2,000	1,396
Sorghum for syrup (pounds), harvested	1,125,201	1	563
Sweet corn for seed (pounds), harvested	9,065,451	1	4,533
Taro (pounds), harvested	4,564,494	1	2,282
Sweet rice (cwt) harvested	1,057,875	100	52,894
Sheep and lambs shorn (pounds of wool)	39,798,847	1	19,899
Honey, sales (pounds)	134,551,490	1	67,276
Milk and milk fat (million pounds)	176,012	1,000,000	88,006,000
Mohair, sales (pounds)	2,416,376	1	1,208
TOTAL Tons			1,051,285,368