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August 30, 1990

No. 321

MEASURING WISCONSIN'S AGRICULTURAL SECTOR

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Depending on how the sector is defined, Wisconsin's "agricultural" sector contained from less than one-tenth to nearly one-fourth of all employment in the state in 1987. In the nation, the comparable statistics show a range from 6.6 percent to 19 percent. Because funding decisions for agricultural programs at several levels of government are based at least in part on the size of the sector, the definition of what is the "agricultural" sector and how it is measured becomes an issue.

The Congress, state governments, school boards, and other local units of government all make policy and program decisions that directly affect farming and agriculture. For example, Congress must consider the importance of farming and other agricultural needs versus all the other demands for federal involvement when they develop farm commodity programs and other farm legislation.

Likewise, state legislators make decisions about the budget and scope of programs for their state departments of agriculture. They may also consider sales tax reductions on inputs farmers buy, funding special crop production loans, giving farm property tax reductions, or taking other actions helpful to farmers. Units within state government allocate funds for continuing education and higher education between agricultural education and all other competing uses. Even county governments and local school districts must decide how to allocate their limited budgets among farm and agriculturally related education and support programs, versus all other demands.

In making such choices, public decision-makers might consider several factors. These include the magnitude of the problems, the urgency of their resolution, the benefits to be gained from assistance, and the losses to be sustained if public sector help is not forthcoming, as well as the size of the sector, i.e. the number of persons affected. Thus, at various levels of government, the size of the farming and agricultural sectors compared to the rest of the economy is relevant to public policymakers and managers.

In this report we first discuss the concepts and weaknesses of two different ways of measuring the size of the farming and agricultural sectors of our economy. Then we focus on a measure based on the number of jobs, and report the data for the nation, Wisconsin, and Wisconsin counties.

"Farming" and "Agriculture"

First we turn to definitions. As components of our national economy "farming" and "agriculture" are distinctly different, although the terms are often used as synonyms. To be specific, the "farming sector" includes only

the producers of crops, livestock, and animals. Farmers, their family members, and hired farm workers operate these farm production establishments. They produce crops ranging from alfalfa, apples, asparagus -- through oats, oranges and orchids -- to vegetable seeds, watermelons, wheat, and zucchini. Their livestock and animal production includes a wide variety of enterprises -- beef cattle, bees, broilers, catfish, dogs, mink, milk, rabbits, worms, wool, and many other animals and animal products.

The farming sector is a subpart of the larger "agricultural sector". Besides farming, the agricultural sector also includes the industries that provide inputs to the farming sector and the processing and transportation industries that handle farm products after they leave the farm. A more inclusive definition of agricultural might also include the wholesale and retail trade of products made from materials raised on farms, e.g. grocery stores, clothing stores, restaurants, bars, etc.

While the U.S. Bureau of the Census definition of a "farm" and thus what is included in the farming sector is straightforward, the definition of the "agricultural sector" is not.^{2/} There are two reasons. First, some appropriate unit of measure must be found, and second, criteria are needed to clarify the nebulous areas where agricultural activity ends and other sectors begin.

What would be an appropriate unit to measure the size of the agricultural sector of our economy depends in part on the purpose of the measure. That is, what is the concern and to what use will the measure of size be put? Because the economic well-being of persons involved in a sector is a fundamental concern, measures such as the income earned by persons working in the sector, or the number of jobs in the sector, are relevant criteria. Researchers in the Economic Research Service (ERS), U.S. Department of Agriculture have used both earnings and jobs as the criterion in studies that involved identifying and measuring the farming and agricultural sectors. We turn next to their use of the earnings criterion.

Using Earnings to Measure the Farming Sector

When used as a measure of the size of a sector, "earnings" are calculated as the sum of wages, salaries, and proprietors' income earned by all persons employed in the sector. The ERS researchers used earnings in various sectors, including the farming sector, in their classification of

^{2/} The U.S. Department of Agriculture and the Department of Commerce have adopted a common definition of "farm", and most published scientific and popular reports use that definition. It is an inclusive definition -- a farm is "a place from which \$1,000 or more of agricultural products were produced and sold, or normally would have been sold, during the census year". Few would argue that the definition excludes any reasonable "farm" units. Using this definition, the 1987 Census of Agriculture found 75,131 farms in Wisconsin and 2,087,759 in the nation.

nonmetropolitan counties by principal economic base (Bender and others). For example, farming-dependent counties were classified as nonmetropolitan counties in which farming contributed a weighted annual average of 20 percent or more of total income during the 5-year period 1975-79. The ERS used similar measures of earnings to determine manufacturing-, mining-, and specialized government-dependent counties. Other classes of nonmetropolitan counties were determined by the presence of federally owned land or population characteristics.

For the 1980-84 period, 14 Wisconsin counties were classified as farming dependent. An additional 22 counties were classified as "farming important", with 10-19 percent of total earnings from farming. Additional ERS analyses using the earnings criterion examined levels of dependence on farming in Wisconsin (Salant and others) and changes in dependence on farming over time (Ahearn and others).

It can be argued that the impact of the farming sector in the economy goes beyond the earnings generated from the production of crops and animals on the farmstead. In addition to being a segment of consumer demand in the community, farm households also represent a business demand. For example, farmers' business purchases support nonfarm input industries such as fertilizer and farm machinery, and farm businesses help support the suppliers of lumber, tires, automobiles, utilities, and many others in their rural area. In addition, many persons earn their livelihood from the processing and transportation of farm products once they leave the farm, for example, as milk haulers or in canning factories. Finally, many farm households are involved in the local labor markets, as suppliers of labor to the local nonfarm economy or, on the other hand, as employers of labor for the farm business. For these reasons, while the farm earnings criterion reflects the economic well-being of farm households and their role as consumers in the rural community, it does not adequately measure the size or economic role of the broader "agricultural" sector.

At the time of this writing, research was underway in the Economic Research Service that describes this broader, agricultural sector as a part of our national economy. The analysis uses employment data for 1987, the most recent year for which data are available, and complements previous ERS studies (Hines and others). The work uses the number of jobs instead of earnings as the unit of measure, and it identifies and counts jobs both on the farm and in farm-related industries. We build on the ERS analyses in the remainder of this report.

Using Jobs to Measure the Agricultural Sector

In concept, the ERS measurement of employment in farm and farm-related industries is straightforward, but in practice it is not. First, it is necessary to identify which industries have some connection with farming or agriculture. Then a decision that is at least partially subjective must be made, that is, whether or not the connection is such that the industry can appropriately be considered "farm or farm-related". There may be disagreement, and parties may present logical but opposite opinions.

For example, there would probably be no disagreement in classifying dairy farming as a farming industry. In addition, there would probably be little disagreement that the milk hauler that transports the product from the farm to the milk plant and the establishments that manufacture cheese are in farm-related industries. Reasonable persons may disagree, however, whether retail grocery stores, eating places, and drinking places should or should not be considered farm-related industries.

The statistical material presented later in this report contains information about what industries have been included so that the readers can make their own decisions regarding what is appropriate to include for their purposes.

The next step in the ERS employment measure is to determine how many jobs are located in the industries that are classified as being farm or farm-related. That total, compared to total jobs in the economy, provides a measure of size of the farm and farm-related industries sector. However, users should note that when an industry is classified as farm or farm-related, all jobs in that industry are counted. That should not be a problem in the dairy farming industry as all jobs on dairy farms are farm related. It may become a problem, however, when it is not so clear that all jobs in the industry are agriculturally relevant. For example, if eating and drinking places are included as farm-related industries, then all jobs in such establishments are counted, including not only food preparers but entertainers and custodians as well.^{3/}

Data Development

Special analyses of the ERS employment data were made for use in this Wisconsin report. The data are based on the Standard Industrial Classification (SIC) system, which is the classification standard used in all Federal statistical reports pertaining to industry (U.S. Office of Management and Budget). The system covers all facets of the U.S. economy, and defines industries as groups of establishments similar in the type of primary activities in which they are engaged. Industries are classified and assigned four digit code numbers, and grouped with related industries. For example, food processors primarily engaged in the canning of fruits and vegetables are assigned the SIC number 2033. They are grouped with other food processors (SIC 203), which are further grouped with all other establishments manufacturing or processing foods and beverages (SIC 20). Finally, these

^{3/} Another point that is more technical than substantive is that employment estimates based on the number of jobs may differ from the number of persons employed. That is, surveys that use payroll data to estimate jobs count both part-time and full-time positions. The number of jobs in the economy or a sector may deviate somewhat from the number of persons employed, as one person may hold more than one job.

farm-related industries are contained in the manufacturing division (Division D), which includes all establishments engaged in the transformation of materials into new products.^{4/}

The U.S. Office of Management and Budget (OMB) publishes a 650 page book to cover the description of every group of establishments so classified as an "industry". From the listed industries, ERS researchers used the national input-output model to classify industries as farm or farm-related if they used at least 50 percent of their work force in production necessary to satisfy the domestic final demand for food and fiber in 1972. They then aggregated the industries into related groups, identified as a) farm production and services, b) agricultural input industries, c) agricultural processing and marketing, d) wholesale and retail trade, and e) indirect agribusiness. The titles are reasonably descriptive, but readers should examine carefully the description given later in this report or in the OMB text of the kinds of establishments that are included in each group.

The ERS estimates of jobs and employment in each industry were based principally on County Business Patterns (CBP) data from the U.S. Bureau of the Census and supplemented by information from the U.S. Department of Commerce, Bureau of Economic Analysis (BEA). The CBP employment data are obtained from administrative records of the Internal Revenue Service and include all persons employed by an establishment that has filed a Treasury Form 941. Form 941 is used only by employers covered, at least partially, by the Federal Insurance Contributions Act (FICA). Data for employees of establishments totally exempt from FICA are excluded, as are data from self-employed persons. In addition, the Census Bureau does not include data in the CBP file that, when listed separately, may disclose the operations of an individual employer. To account for nondisclosed jobs, CBP data used by the ERS are enhanced, that is, employment estimates are made for those industries in which data are suppressed.

Because many workers in agricultural production, particularly farm proprietors, are not contained in the CBP data, the ERS used data from the BEA to estimate the number of these agricultural jobs. The BEA employment data are based on information from various state administrative records, including State unemployment insurance files, IRS tax files, and USDA farm proprietors surveys.

Farm and Farm-Related Industries Employment

Farm Production and Services There were 132,273 jobs that fell into this group in 1987, 6.0 percent of the total jobs in Wisconsin. The majority were farm operators and hired farm workers, and the remainder were jobs in establishments providing farm services. These included jobs involved with

^{4/} Further examples of industries and their SIC code numbers include meat packing plants (2011), cheese manufacturing plants (2022), agricultural credit institutions (6131), grocery stores (5411), department stores (5311), bowling alleys (7933), museums and art galleries (8411), etc.

veterinary services, dairy herd improvement associations, artificial insemination services, farm management services, the custom application of agricultural chemicals, corn detasseling, custom crop harvesting, and lawn and garden services.

We report this section first because it is most clearly "agricultural". Farm producers are central to the agricultural sector. Public policies at federal, state and local levels of government have been directed toward the economic well-being of persons in farming for decades. That concern and public interest in the agricultural production sector are likely to remain high on the public agenda.

Agricultural Input Industries This group has the most apparent economic linkage with the farming sector, and is the most clearly dependent on the economic success of farmers. This group contained 16,260 jobs in 1987, 0.7 percent of total employment in the state. The largest segments were the manufacturing and wholesale trade of farm and garden machinery and equipment and the wholesale agricultural supplies industries. Together they involved 15,035 jobs. Agricultural credit institutions added 736 jobs, and jobs in establishments that manufactured agricultural chemicals contained 489.

Agricultural input industries are directly affected by economic conditions in the farming sector. Low farm production and income reduce the demand for farm inputs. During the difficult farm financial years of the mid-1980s farmers' purchases of new farm machinery and equipment fell substantially, for example. Federal farm policies that affect the amount of land taken out of crop production also affect this sector.

Agricultural Processing and Marketing These industries deal with farm products after they have left the farmstead. They are less affected by economic conditions on farms than are the farm input industries. That is, as long as the farming sector produces and sells farm products, the processing and marketing industries have the inputs they need.

While the marketing and processing industries are only loosely related to economic conditions on farms, these industries are impacted by government policies that affect the quantity or price of farm commodities that they purchase as inputs.

There were 65,221 jobs in this group in Wisconsin in 1987, 2.9 percent of total state employment. In this group, the largest industries (and their number of jobs) were the manufacturing of dairy products (15,986), meat products (11,384), apparel and textile manufacturing (7,088), canned and preserved fruits and vegetables (6,887), leather manufacturing (6,600), and beverage manufacturing (5,195). Other industries in rank order included bakeries, grain mills, confectionery products, wholesale trade in raw farm products (such as grain, livestock, and livestock products), warehousing, fats and oils products, and miscellaneous food processing.

These three groups -- farm production and services, agricultural inputs, and agricultural processing and marketing industries -- together accounted for 9.6 percent of all jobs in the Wisconsin economy and 6.6 percent in the

national economy in 1987. In our judgement they include the establishments about which there would be the most agreement that they are appropriately designated farm and farm-related industries. We have grouped Wisconsin counties into quartiles based on the proportion of these three groups of industries to total jobs in each county, and present that information in the first figure.

The total number of jobs in these three industries was 213,754 in Wisconsin in 1987. In the second figure we have grouped Wisconsin counties into quartiles based on the number of these jobs in each county.

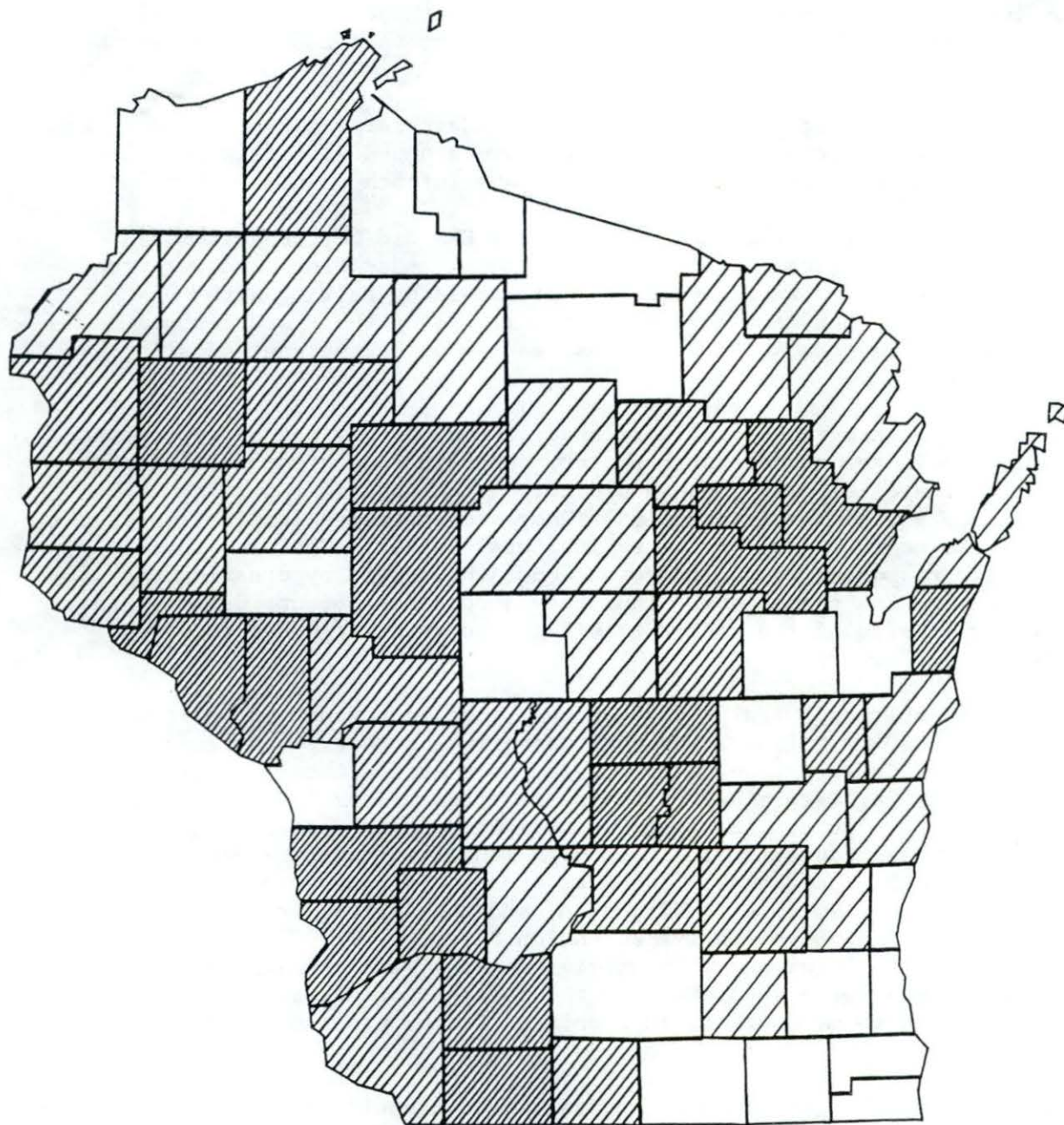
Government and Education The data developed by ERS did not separately identify jobs in agriculturally related government, education, and research functions. We made our own estimates for Wisconsin by talking with administrators and other knowledgeable persons. Using these sources we estimated that there were 4,435 such jobs, making up 0.2 percent of all jobs in Wisconsin in 1987.

While they are agriculturally related, it may or may not be appropriate to include them in the agricultural sector, depending on the purpose of the employment estimates. These jobs should not be included if reporting the magnitude of an agricultural "problem". They are instead an indication of the public response to the needs of the agricultural sector. That is, the government has responded to the concerns about the sector by creating the programs that involve these jobs. Thus they should not be considered as part of the sector if size of the sector is being used as an argument for allocation of public funds.

These agriculturally related government jobs were found in various agencies of the USDA, including the Soil Conservation Service, Agricultural Stabilization and Conservation Service, Wisconsin Agricultural Statistics Service plus some regulatory and marketing services. Jobs in the Wisconsin Department of Agriculture, Trade and Consumer Protection were also counted. Jobs in agricultural education included high school agriculture departments, some programs in the Vocational, Technical, and Adult Education System, the three colleges of agriculture in Wisconsin, and the agriculture and agribusiness portion of the Cooperative Extension Service. U.S. Department of Agriculture research farms and laboratories dealing with cereals, forages and forest products that were separate from the colleges of agriculture were also identified and included. Workers in displaced farmer programs were included as well.

Wholesale and Retail Trade The ERS analysis also identified industries that were involved in wholesale or retail trade of merchandise that had a component that had been produced on a farm, that is, some material of plant or animal origin. Examples in this group of industries included jobs in the wholesale or retail trade of men's, women's, and children's clothing and apparel, piece goods and dry goods, sewing and hair accessories, handbags, knit goods, footwear, groceries, confectionery, seafoods, tea, coffee, beer, wine, soft drinks, and tobacco. The retail jobs also included those in all eating and drinking places.

PERCENT OF ALL WISCONSIN JOBS IN FARMING, FARM INPUTS & SERVICES, AND FARM PRODUCT MARKETING & PROCESSING, 1987.



□ Less than 10% ▨ 10 to 18.9%
▩ 19 to 25.9% ▧ 26% or more

Wisconsin Average = 9.6%

Source: Economic Research Service, U.S. Department of Agriculture.

NUMBER OF ALL WISCONSIN JOBS IN FARMING, FARM INPUTS & SERVICES, AND FARM PRODUCT MARKETING & PROCESSING, 1987.



□ Less than 1400	▨ 1401 to 2800
▩ 2801 to 4200	▧ More than 4200

Wisconsin Total = 213,754

Source: Economic Research Service, U.S. Department of Agriculture.

There were 235,465 such jobs in Wisconsin in 1987, more than in the combined total of the four other groups of agricultural industries described so far. They comprised 10.6 percent of all jobs in the state in 1987. In our opinion, linkages between some of these jobs and the farming sector are nebulous. For example, only some clothing and apparel contains fibers of farm or ranch origin. Footwear sold in the United States contains relatively little material originating on domestic farms or ranches. Jobs in bars, discotheques, night clubs, and other drinking places have little connection with what takes place on farms or in farm-related industries.

Indirect Agribusiness This final group in the ERS data set contained 83,209 jobs or 3.8 percent of all employment in Wisconsin in 1987. Included are a wide variety of establishments with connections to agriculture that (in our opinion) range from very indirect and peripheral to inconsequential.

The businesses included were engaged in manufacturing prefabricated and portable metal buildings (including metal silos); pumps and pumping equipment for general industrial use; coated, pleated, or decorative textile fabrics; wood containers; paper and paperboard products, paper bags and wood pulp products; cellulosic and synthetic organic fibers; printers ink; wire and nails; cold rolled steel, steel pipes, and tubes; metal cans and bottle caps; metal foil and leaf; food products machinery; artificial trees and plant parts; buttons, needles, and pins; and signs and advertising displays.

The indirect agribusinesses also included general and automotive welding repair shops; paper and paperboard mills; and secondary smelting of nonferrous metals. Aspects of the printing, publishing and allied industries were included that related to newspapers, periodicals, miscellaneous publications, commercial printing, typesetting, photoengraving, and lithographic platemaking.

A final group of indirect agribusinesses contains a miscellaneous group of repair shops and related services that included tractor, farm machinery, engine, harness, and saddler repair shops and horseshoeing. However, the group contained some eighty other specialized repair shops ranging alphabetically from aircraft instrument, antique, and awning repair through typewriter, umbrella, venetian blind, and window shade repair shops.

Conclusions

These six groups of industries with agricultural connections together accounted for 24.2 percent of all jobs in Wisconsin in 1987. Their distribution among counties is presented in Table 1. In the third figure counties are grouped into quartiles based on the proportion of these six groups of industries to total jobs in their county.

Readers likely will differ in their views of what jobs are appropriately included in measuring the size of the "agricultural sector". The detail provided here should help in making judgments regarding additions or deletions. In addition, readers that are familiar with the local economy of their own county may be able to make appropriate adjustments in the county data we have presented to better serve their own use of this information.

Table 1. Jobs in Agriculturally Related Industries and Total Jobs, Wisconsin Counties, 1987

Item	Agriculturally Related Industries ^{1/}						All Industries ^{2/}
	Farm Production and Services	Input Industries	Processing and Marketing	Government and Education	Wholesale and Retail Trade	Indirect Agribusiness	
Wisconsin	132,273	16,260	65,221	4,435	235,465	83,209	2,217,165
Adams	631	0	47	6	295	140	3,097
Ashland	409	42	214	4	823	125	6,916
Barron	2,782	242	2,026	28	1,561	163	16,971
Bayfield	638	0	10	6	420	17	3,245
Brown	2,583	259	3,819	25	10,313	7,104	101,997
Buffalo	1,673	134	117	17	360	10	5,280
Burnett	583	4	86	6	424	50	3,781
Calumet	1,827	276	864	19	1,045	86	12,601
Chippewa	2,962	192	1,090	30	1,778	339	19,689
Clark	3,864	300	746	39	813	160	12,700
Columbia	2,393	194	790	25	2,285	551	16,931
Crawford	1,548	50	65	16	665	52	6,245
Dane	5,561	1,042	3,399	3,060	22,708	2,883	207,282
Dodge	3,875	370	1,859	40	2,647	982	27,692
Door	1,612	85	115	16	1,140	73	12,057
Douglas	472	0	257	5	2,246	238	14,826
Dunn	2,662	160	334	27	1,388	80	12,380
Eau Claire	1,755	47	821	18	5,714	949	39,395
Florence	130	0	0	2	112	7	868
Fond du Lac	3,182	485	1,780	32	4,470	837	41,115
Forest	193	0	15	2	209	12	2,169

Table 1. Jobs in Agriculturally Related Industries and Total Jobs, Wisconsin Counties, 1987

Item	Agriculturally Related Industries ^{1/}						All Industries ^{2/}
	Farm Production and Services	Input Industries	Processing and Marketing	Government and Education	Wholesale and Retail Trade	Indirect Agribusiness	
Grant	4,214	396	301	85	1,800	274	19,890
Green	2,611	306	758	27	1,533	231	14,212
Green Lake	1,035	94	1,069	11	782	297	7,534
Iowa	2,448	187	346	25	643	22	8,346
Iron	86	2	38	2	322	8	1,705
Jackson	1,290	67	89	13	634	44	5,614
Jefferson	2,760	399	2,192	28	2,961	2,297	29,650
Juneau	1,178	85	216	12	606	39	7,729
Kenosha	1,028	135	914	11	5,037	933	42,564
Kewaunee	1,959	281	104	20	562	103	7,200
La Crosse	1,362	170	1,905	14	7,754	1,176	52,478
Lafayette	2,435	159	395	25	283	32	5,649
Langlade	1,003	143	113	10	796	96	6,612
Lincoln	851	61	474	8	1,018	905	10,068
Manitowoc	2,850	319	1,045	29	3,511	549	35,252
Marathon	5,145	554	1,452	53	5,425	3,110	51,579
Marinette	1,191	366	159	12	1,596	1,435	17,217
Marquette	864	51	258	9	299	4	3,231
Milwaukee	981	408	10,823	10	51,813	15,949	498,501
Monroe	2,520	793	273	25	1,503	318	16,476
Oconto	1,772	83	615	18	824	101	9,281
Oneida	216	3	67	3	1,607	774	12,023

Table 1. Jobs in Agriculturally Related Industries and Total Jobs, Wisconsin Counties, 1987

Item	Agriculturally Related Industries ^{1/}						All Industries ^{2/}
	Farm Production and Services	Input Industries	Processing and Marketing	Government and Education	Wholesale and Retail Trade	Indirect Agribusiness	
Outagamie	3,060	362	2,526	28	6,460	6,810	63,423
Ozaukee	912	69	771	9	2,903	1,068	27,450
Pepin	794	126	104	8	227	19	2,867
Pierce	2,072	386	201	65	1,324	118	11,299
Polk	2,347	141	304	21	1,173	127	11,712
Portage	1,886	141	1,135	24	3,628	1,270	26,903
Price	722	19	38	18	455	687	6,242
Racine	1,555	1,692	1,466	16	7,687	2,509	74,400
Richland	1,858	111	446	19	517	55	6,187
Rock	2,497	336	2,424	27	6,570	1,314	58,544
Rusk	1,137	58	111	12	495	53	5,639
St. Croix	2,634	167	420	27	1,699	680	15,986
Sauk	2,824	330	370	29	2,661	295	21,385
Sawyer	326	19	31	3	435	19	3,409
Shawano	3,116	165	471	31	1,328	347	13,014
Sheboygan	2,224	190	2,815	22	4,863	1,426	49,437
Taylor	1,723	112	795	18	599	20	7,875
Trempealeau	2,402	308	564	23	872	77	10,631
Vernon	3,318	240	303	31	840	38	9,152
Vilas	88	0	30	2	907	140	5,364
Walworth	1,687	222	776	15	3,891	159	30,024
Washburn	558	39	68	6	697	51	4,601

Table 1. Jobs in Agriculturally Related Industries and Total Jobs, Wisconsin Counties, 1987

Item	Agriculturally Related Industries ^{1/}						All Industries ^{2/}
	Farm Production and Services	Input Industries	Processing and Marketing	Government and Education	Wholesale and Retail Trade	Indirect Agribusiness	
Washington	1,770	1,059	1,301	18	3,641	1,384	33,104
Waukesha	2,093	419	1,734	19	14,875	6,511	150,495
Waupaca	2,279	227	1,977	22	2,095	886	19,213
Waushara	1,274	55	63	13	480	40	4,797
Winnebago	1,811	72	953	18	7,886	6,897	76,111
Wood	1,863	251	964	18	3,532	5,214	37,192

SOURCE: Special analyses made by the Economic Research Service, U.S. Department of Agriculture.

^{1/} See text for description.

^{2/} Including agriculturally related industries.

Appendix A. Standard Industrial Classification (SIC) Codes

The SIC codes by the industry groupings used in this report are reported in this appendix.

<u>Industry Groupings and Industries</u>	<u>SIC Code</u>
Farm Production and Services:	
Agricultural Production	5/
Agricultural Services, Forestry, Fisheries	07-09
Agricultural Input Industries:	
Chemicals and Fertilizer Mining	147, 1492
Agricultural Chemicals	287
Farm Machinery	3523
Farm Supply and Machinery Wholesale Trade	5083, 5191
Farm Credit Agencies	613, 622
Agricultural Processing and Marketing:	
Warehousing	4221, 4222
Meat Products	201
Dairy Products	202
Fruits and Vegetables Products	203
Grain Mill Products	204
Bakery Products	205
Sugar and Confectionery Products	206
Fats and Oils Products	207
Beverages	208
Miscellaneous Foods	209
Tobacco	21
Apparel and Textiles	221, 223-5, 2261, 2269, 228, 2292, 2298-9, 231-8, 2397
Leather	31
Farm-Product Raw Materials Wholesale Trade	515

5/ County Business Patterns data do not include information about the employment of self-employed persons (including farmers) or about wage and salary employment in agricultural production (SIC 01-02). Therefore, ERS researchers obtained data about farm proprietors and wage and salary workers on farms from the Bureau of Economic Analysis of the U.S. Department of Commerce.

Government and Education:	6/
Wholesale and Retail Trade	
Wholesale Trade	513-4, 518,
Retail Trade	54, 56, 58
Indirect Agribusiness:	
Prefabricated Metal Buildings	3448
Pumps and Pumping Equipment	3561
Miscellaneous Repair Shops	7692, 7699
Miscellaneous Textile Products	2295, 2393, 2395
Containers, Paper Products, Pulpwood Products	2441, 2449, 262, 263, 2641, 2643, 2645-6, 2651-5, 3221, 3262, 3274
Chemicals	2823-4, 2893
Primary and Fabricated Metal Products	3315-7, 334, 3411, 3466, 3497
Food Products Machinery	3551
Miscellaneous Manufacturing	3692-4, 3993
Printing and Publishing	271-2, 274, 2751-2, 2754, 2791, 2793-5

6/ We made our own estimates of the number of jobs in agriculturally related government, education, and research activities as these jobs were not reported separately from their non-agricultural counterparts in the ERS data.

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