

1974  
Census  
of  
Agriculture

Volume II  
**Statistics  
by Subject**

Part 9

# **Irrigation and Drainage on Farms**

Issued June 1978



**U.S. Department of Commerce**  
Juanita M. Kreps, Secretary  
Courtenay M. Slater,  
Chief Economist

**BUREAU OF THE CENSUS**  
Manuel D. Plotkin,  
Director



## BUREAU OF THE CENSUS

Manuel D. Plotkin, Director

Robert L. Hagan, Deputy Director

Shirley Kallek, Associate Director  
for Economic Fields

Richard B. Quanrud, Assistant Director  
for Economic and Agriculture Censuses

### AGRICULTURE DIVISION

Orvin L. Wilhite, Chief

Turbitt, now Associate Director for Administration and Field Operations, directed the early stages of planning for the census.

This report was prepared in the Agriculture Division under the general supervision of Orvin L. Wilhite, Chief, and Arnold L. Bollenbacher, Assistant Division Chief. Joseph A. Horak, Chief of the Irrigation and Drainage Branch, assisted by William R. Adams, was responsible for the overall planning and prepared text for this report. Mary E. Deas and Tami D. Jones were responsible for preparing the historical data tables and reviewing the data tabulations. Ralph A. Graham prepared computer specifications for the special tabulations and Sharon C. Spivey, Robert J. Harder, and Linda J. Hutton, under the direction of Stephen W. Schobel, performed the computer programming. Charles C. King of Systems Software Division was instrumental in providing liaison and coordinating the programming and tabulation phase. Harold V. Edwards coordinated production of clerical and computer tabulations. Bernadette J. Beasley and Evelyn M. Timmons provided editorial services and liaison in the publication area.

The computer processing facilities used were under the general supervision of Thomas C. DiNenna, Chief, Computer Services Division. Maps were prepared by the Geography Division under the direction of Jacob Silver, Chief, and supervision of Frederick R. Broome assisted by Henry Tom.

**ACKNOWLEDGMENTS**—Many persons participated in the various activities of the 1974 Census of Agriculture. Primary direction was by Shirley Kallek, Associate Director for Economic Fields. Her predecessor, James W.

Within the Publication Services Division, many individuals made significant contributions in the areas of publication planning and design, editorial review, composition, and printing procurement.

Members of various agencies of the U.S. Department of Agriculture provided advice and counsel during the planning, data collecting, and processing phases of the census and assisted farmers and ranchers who requested help in completing the report form.

Special tribute is paid to the millions of farm and ranch operators and other agriculture associated people who furnished the information requested in the census. Only through their cooperation was it possible to collect and publish the data in this report.

### Library of Congress Cataloging in Publication Data

United States. Bureau of the Census.  
1974 census of agriculture.

CONTENTS: v. 1. State reports. v.—v.2. Statistics by subject. v.—v. 3. Agricultural services. v.—v. 4. Special reports. v.

1. Agriculture—Economic aspects—United States—Statistics—Collected works. I. Title.  
II. Title: Census of agriculture.  
HD1753 1974.B87 1977 338.1'0973

76-608387

For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, or any U.S. Department of Commerce district office. Postage stamps not acceptable; currency submitted at sender's risk. Remittances from foreign countries must be by international money order or by draft on a U.S. bank. Stock No. 003-024-01594-3

## REPORTS OF 1974 CENSUS OF AGRICULTURE

**Preliminary Reports.** Four pages of data published separately for each county having 10 farms or more, and for each State, the four geographic regions, and the United States. *The statistics printed in these reports are superseded by those in the final reports, Volumes I through IV.*

**Volume I. State and County Data.** One for each State, the United States, Puerto Rico, Guam, and the Virgin Islands, covering the area and its subdivisions. The reports for the States contain data for all farms and farms with sales of \$2,500 and over. *Chapter I* contains detailed data at the State level classified by size of farm, tenure and age of farm operator, type of organization, value of products sold, and major type of farm; *Chapter II*, county data summarized by subject; *Chapter III*, county data by subject for miscellaneous crop and livestock items found in relatively few counties; *Chapter IV*, county data by county.

**Volume II. Statistics by Subject.** Nine parts containing data for the United States, geographic regions and divisions, and States, for all farms and farms with sales of \$2,500 and over.

**Volume III. Agricultural Services.** Data by county for each State covering establishments whose primary activities are providing agricultural services. Data at the U.S., State, and county levels for all establishments are presented for selected four-digit standard industrial classification codes by size and type of organi-

zation. Data shown include dollar volume of business, gross receipts from products provided, gross receipts, labor and payroll by type of service performed, capital expenditures, and expenditures for electricity, gasoline, petroleum, and other fuels.

### Volume IV. Special Reports.

**Part 1. Graphic Summary.** Profiles the Nation's agricultural system in a series of U.S. maps, a number of which are printed in color. The characteristics of America's farms in 1974 are illustrated for crops, livestock, and many other characteristics.

**Part 2. Ranking Counties and States.** Reports on the top ranking 100 counties and 10 States in descending order of importance for 88 selected items for 1974 with comparative data for 1969.

**Part 3. Coverage Evaluation.** Shows the completeness of the agriculture census for States, geographic divisions, and the United States. Data also show the characteristics of farms missed by value of sales and by selected standard industrial (type-of-farm) classifications. Sampling reliability of the estimate of coverage is shown by value of sales classifications.

**Part 4. Procedural History.** A comprehensive summary of the procedures used in conducting the 1974 Census of Agriculture. In the 50 States, Puerto Rico, Guam, and the Virgin Islands. The history explains the procedures used from early planning and testing through tabulation and publication of the final reports.

**Part 5. Corporations in Agricultural Production.** Presents U.S. and selected State data on farm production characteristics and nonfarm business activities for corporations reporting agricultural operations, including the proportions of business receipts from farm, farm-related, and nonfarm-related business activities. Where appropriate, production characteristics are related to corporate characteristics.

**Part 6. Partnerships in Agricultural Production.** Reports in depth on characteristics of farm partnerships for 1976 for the United States, with selected data for States. The survey data are based on a sample of partnerships selected from the 1974 Census of Agriculture. Where appropriate, related characteristics reported in the 1974 census are shown. The report has been prepared in cooperation with Economics, Statistics, and Cooperatives Service, U.S. Department of Agriculture.

**Part 7. Agricultural Production and Marketing Contracts.** Presents detailed information on eight commodities produced and/or marketed under production and marketing contracts in 1977: Feeder and stocker cattle, fattened cattle, feeder pigs, slaughter hogs, broilers, layers, tomatoes, and potatoes. Data are presented for groups of States comprising areas of concentration, based on samples of farms reporting contracts in the 1974 Census of Agriculture. The report has been prepared in cooperation with the Economics, Statistics, and Cooperatives Service, U.S. Department of Agriculture.

# CONTENTS

	Page
Introduction .....	V
 <b>CHAPTER I. Irrigation of Agricultural Lands</b>	
Availability of Data .....	I-1
Definitions and Explanations .....	I-1
Historical Comparability .....	I-1
Change in Farm Definition .....	I-2
Presentation of Data .....	I-2
Evaluation of Data .....	I-3
Office Processing .....	I-4
Conclusions .....	I-4
Irrigated Land in Farms .....	I-6
Crops by Acres Irrigated .....	I-6
Method of Irrigation Water Distribution .....	I-8
Crop Production on Irrigated and Nonirrigated Land .....	I-8
 <b>MAP</b>	
74-MP28—Irrigated Harvested Cropland as a Percent of Harvested Cropland: 1974 .....	I-6
74-MP27—Irrigated Land as a Percent of Land in Farms: 1974 .....	I-7
74-M67—Irrigated Land: 1974 .....	I-7
74-M69—Land Irrigated by Sprinklers: 1974 .....	I-8
 <b>TABLE</b>	
1. Irrigation of Agricultural Operations Qualifying as Farms by the 1959 Definition but Excluded by the 1974 Definition: 1974 and 1969 .....	I-4
2. Farms Not Irrigated During Census Year but Reporting Irrigation in the Previous 4 Years: 1974 and 1969 .....	I-5
3. Percent of Crops Irrigated, Acres Irrigated, and Acres Harvested, for Selected Crops: 1974 .....	I-6
4. Average Acre-Feet of Water Applied by Areas and Method of Application: 1974 .....	I-8
5. Index of Average Yield for Specified Harvested Crops From Wholly Irrigated Land: 1974 .....	I-9
6. Percent of Selected Items on Nonirrigated and Irrigated Farms: 1974 .....	I-9

**CHAPTER I Continued**

**TABLE**

**All Farms**

	Page
7. Trends in Irrigated and Nonirrigated Farms: 1974, 1969, and 1964 .....	I-10
8. Irrigated and Nonirrigated Farms, by Size of Farm: 1974 .....	I-12
9. Irrigated Farms by Acres Irrigated: 1974 and 1969 .....	I-16

**Farms With Sales of \$2,500 and Over**

10. Trends in Irrigated and Nonirrigated Farms: 1974, 1969, and 1964 .....	I-18
11. Irrigated Farms and Acres in Farms by Acres Irrigated: 1974 .....	I-20
12. Use of Irrigated Farmland: 1974 .....	I-24
13. Methods of Water Distribution on Irrigated Farms: 1974 .....	I-26
14. Estimated Quantity of Water Applied on Irrigated Farms by Method of Water Distribution: 1974 .....	I-27
15. Farms, Acres Irrigated, and Water Applied by Quantity of Water Applied: 1974 .....	I-29
16. Irrigation and Commercial Fertilizer Used on Pastureland and Harvested Crops: 1974 and 1969 .....	I-31
17. Production and Average Yield From Irrigated and Nonirrigated Cropland, by Selected Crop Harvested: 1974 .....	I-32
18. Specified Crops Harvested—Yield Per Acre Irrigated and Nonirrigated: 1974 .....	I-34
19. Selected Characteristics of Nonirrigated Farms, Irrigated Farms, and Irrigated Farms With All Harvested Cropland Irrigated: 1974 ..	I-52

**CHAPTER II. Drainage of Agricultural Lands**

Definitions and Explanations .....	II-1
Qualifications of the Data .....	II-1
Drainage Data in Other Reports .....	II-2
Conclusions .....	II-2
Map—74-MP29—Drained Land as a Percent of Land in Farms .....	II-3

**TABLE**

1. Drainage on Farms: 1974, 1969, 1930, and 1920 .....	II-2
2. Drained Farms and Acres Drained: 1974 .....	II-2
3. Average Size of Drained Farms and Acres Drained Per Farm: 1974 ..	II-2
4. Acres Drained by Value of Agricultural Products Sold: 1974 .....	II-3
5. Land Drained by Systems Installed During Census Years: 1974 and 1969 .....	II-3
6. Artificial Drainage on Farms: 1974 .....	II-4
7. Drained Land by Size of Farm: 1974 .....	II-5
8. Drained Land by Standard Industrial Classification of Farms: 1974 .....	II-8

---

# INTRODUCTION

## Authority, Area Covered, and History

The 1974 Census of Agriculture was taken in accordance with the provisions of title 13, United States Code, reaffirmed by section 818 of the Agriculture and Consumer Protection Act of 1973 (Public Law 93-86). Sections 142(a) and 191 of title 13 provide for a census of agriculture every 5 years in each State, the District of Columbia, Puerto Rico, Guam, and the Virgin Islands. The 1974 census is the 20th nationwide census of agriculture and the second conducted primarily by mail.

This report presents statistics for the United States and States based upon data from the 1974 census.

## Farm Definition

**1969 definition**—All 1969 statistics in this report are in accordance with the farm definition used in 1969, which was also the definition used in the 1964 and 1959 Censuses of Agriculture. These farms are places on which agricultural operations larger than a specified minimum were conducted at any time during the census year under the control of an individual management. Places of less than 10 acres were counted as farms if the sales of the agricultural products amounted, or normally would amount, to at least \$250. Places of 10 acres or more were counted as farms if the sales of agricultural products for the year

amounted, or normally would amount, to at least \$50.

**1974 definition**—All 1974 statistics in this report are in accordance with the 1974 farm definition, which differs from the earlier definition in only two respects:

1. The criterion for number of "acres in place" has been deleted.
2. The criterion for minimum value of agricultural products sold has been changed to \$1,000.

For a more detailed explanation of the change in definition and measures of the effect of the change, see appendix A of Volume I, State and County Data, or part 1 of Volume II, Statistics by Subject, of the published reports of the 1974 Census of Agriculture.

## Report Forms

Two basic census report forms were used for all States except Alaska and Hawaii: A regular form (A1) was used for farms with an expected value of sales of \$2,500 or more and a short version (A2) for farms with an expected value of sales of less than \$2,500. The short form covered only major items and omitted most of the detail found in the regular form.

In Alaska, the regular form was used for all farms. In Hawaii, a modified version of the regular form was used for all farms. The changes were principally in the crop sections to cover the specialized agriculture in the islands.

## Tabular Presentation

More detailed information was obtained for farms with sales of \$2,500 or more than for farms with less gross sales. Thus, some tables in this report present data for all farms and others present data for farms with sales of \$2,500 or more.

## Comparability of Data

In general, data for the 1974 census are directly comparable with data from the 1969 census only for farms with \$2,500 or more total value of sales, because the data for farms with less than \$2,500 sales were affected by the change in farm definition.

Dramatic changes in rates of farm expenditure and unit prices of products sold between the 1969 and 1974 censuses also affect the comparability of some census data. Between the two censuses, prices paid by farmers greatly increased. Prices received by farmers also increased but with wide fluctuations among commodities at different times during the census year of 1974.

## Abbreviations and Symbols

The following abbreviations and symbols are used throughout the tables:

- Represents zero.
- D Data withheld to avoid disclosing information for individual farms.
- X Not applicable.
- Z Less than half of the unit reported.
- NA Not available.