

Preface

NASS maintains a program of independent external review of its Agricultural Statistics Programs. In April 2008, USDA NASS asked the Council on Food, Agriculture & Resource Economics (C-FARE) to assemble a panel of expert social scientists from academia, government, and the private sector to conduct an “independent, comprehensive, and objective review” of the Agricultural Prices Program. The purpose of the review was to identify the strengths and weaknesses of the program and to recommend changes. One of the five key findings the C-Fare panel documented was that increased transparency is essential to all aspects of the Agricultural Prices Program. It is important that the purposes and conceptual basis for price statistics be apparent to users. The following documentation has been prepared to meet that need.

Other reviews of the NASS program can occur when requested. These include the Government Accounting Office (GAO) and the Office of Inspector General (OIG) program audits. The authority for government audits is provided through the following:

- Departmental Regulation (DR) 1700-1 (2/9/89), Basic Office of Inspector General Investigation (OIG)/Audit Organization and Procedures
- DR 1700-2 (6/17/97), OIG Organization and Procedures
- DR 1720-1 (3/8/90), Audit Follow-up, Management Decisions and Final Actions
- Office of Management and Budget Circular NO. A-50, Audit Follow-up

The GAO and OIG audit reports are limited to “OFFICIAL USE” of departmental and agency officials. Authority for making or approving additional releases of OIG reports is reserved to the Assistant Inspector General, Administration, and OIG. The Research, Education, and Economics Liaison Officer for audits oversees requests made for OIG and GAO audit reports on a “need to know” basis and coordinates any requests for audit reports by interested parties.

These audits seek to document accountability and accuracy of Government statistics. The NASS price data is key agricultural economic data required by law and is subject to such audits. NASS price data is used in many Government programs. The impacts can be substantial for both producers and the Government when the data is incorrect. It is critical that the NASS price program be a sound one. The NASS Price Program has undergone several audits through history. The last audit occurred in the early 1980s for the prices received for grains program. Cotton prices were reviewed by the OIG in the 1990s.

Chapter One. Overview of the NASS Price Program

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The purpose of the National Agricultural Statistics Service (NASS) is the collection and dissemination of timely, relevant, accurate, and useful agricultural statistics. The structure of farming and the agricultural industry has changed dramatically over the 145 year history of agricultural data collection. However, the NASS mission has remained the same over time.

Farmers, ranchers, producers and others involved in agriculture require reliable information on production, supplies, marketings, prices, weather, and a vast array of other inputs. To meet their needs, NASS maintains a network of 46 State field offices, serving all 50 States and Puerto Rico through cooperative agreements with State departments of agriculture and universities. The State field offices regularly survey thousands of farm and ranch operators, and agribusinesses who voluntarily provide information on a confidential basis. Statisticians consolidate the collected reports with field observations, objective yield measurements, and other data to produce State estimates. The State estimates are forwarded to NASS headquarters in Washington, D.C. to establish and release national level data.

NASS issues nearly 500 national and thousands of State reports each year. NASS reports cover virtually every facet of U.S. agriculture, including:

- Production and supplies of food and fiber
- Prices received and paid by farmers
- Farm labor and wages
- Farm income and finances
- Chemical use
- Demographic data

Several NASS reports contain agricultural price data such as: *Crop Values* (February), *Annual Vegetables* (January), *Annual Non-Citrus Fruits and Nuts* (July), *Meat Animals Production, Disposition, and Income (PDI)* (April), *Poultry Production and Value* (April), *Milk PDI* (April), *Potatoes* (September), *Citrus Fruits* (September), *Peanut Prices* (Weekly), *Dairy Products Prices* (Weekly), and *Monthly Agricultural Prices*. The content and month published of *Monthly Agricultural Price* reports are in Appendix A. Each report is released on a fixed schedule according to an annual calendar of release dates. See [http://www.nass.usda.gov/Publications/catalog .pdf](http://www.nass.usda.gov/Publications/catalog.pdf) for the annual calendar. Strict security measures are followed to ensure that no one gains premature access to the data.

One set of particularly important data are the price data because those provide a link between agricultural production and distribution. Three distinct price series are presented in this document, in the order in which they originated. The series are: Prices Received (Chapter Two), Prices Paid (Chapter Three), and Parity Program (Chapter Four). This document provides users of agricultural price data with extensive details of NASS's estimation program for prices that farmers receive for commodities produced and the prices paid for production goods and services. Federal regulations require that NASS publish parity prices, indexes, and relevant price data monthly in *Agricultural Prices*.

History of NASS

Price data provide a link between agricultural production and distribution. In colonial days agricultural leaders recognized this, especially as it pertained to the tie between farming and market-

ing. Realization of the farmers' dependence upon prices as guides for planning their production and selling their products led by the Federal Government, after the Civil War, to supply such information. Price information was introduced as one of a series of services provided to farmers as means for encouraging production, especially for export, to pay for debts acquired during the war. Agricultural production also represented the best alternative to obtain foreign exchange to aid industrial development.

In succeeding decades, additional agricultural price information was provided as a public service to help guide farmers in expanding agricultural markets and to help them cope during periods of adversity. The need for price information was accentuated as farming spread and became more commercialized. Efforts on the part of the Federal Government to meet this need were stepped up with the outbreak in Europe of World War I, and received even greater impetus when the U.S. entered the conflict and acquired greater responsibility for supplying food and fiber.

The recession following World War I, with its heavy impact upon agriculture through curtailment of exports, placed still greater stress upon price information for both current management and for future plans for agricultural output. Agricultural reform and Government policies instituted during that period, calling for reliable price guides, reached a pinnacle during the depression of the 1930s. The concept of parity prices became a symbolic outcome.

Government programs adopted during World War II, to encourage expansion in contrast to the contraction of farm production in the two preceding decades, called for even more detailed

price statistics. Additional data requirements were also necessary because of the trend toward larger, more specialized, and mechanized farms. Subsequent growth of vertically integrated agriculture, requiring greater cohesion between farming operations' and marketing agents' supplying factors of production, processing, and distribution services, necessitated modifications in the means for acquiring and reporting price information without any relaxation in the dependence placed upon it. The price series have changed over the years, reflecting the radical changes that have occurred in agriculture.

In their present form, the series represent the current adaptation of federally supplied price information to meet the needs of agriculture. In view of the rapid technological, organizational, and structural changes that are occurring, the adaptation is incomplete. Imperfections are clearly apparent and prospects for adequate adjustments are unfavorable in the immediate future. Consequently, it is important that users of these price statistics are aware of the scope and methods employed in their construction so the information is used judiciously in analyzing the current market situation, agricultural policy, and other issues facing the agricultural sector.

As technology and agriculture advances, the market basket of goods and services needed to measure price changes also requires updating. These technological advances result in the index being revised periodically to keep abreast of current agricultural practices. The last overall revision and update to the indexes of prices paid and prices received by farmers used in the computation of parity prices occurred in 1995. Similar changes in the prices paid and prices received indexes were adopted with the 1995 revision to maintain consistency in the construction of the indexes and their joint use in parity price computations.

The universe for agricultural commodities is all sales from producers to first buyers. Prices for points of first sale are obtained either from producers or first buyers. NASS collects price information from buyers rather than sellers as a single buyer can provide data from many transactions. Buyers also are more likely to be active market participants on a continuing basis. Individual producers normally market commodities only a few times during the year.

NASS does conduct some surveys directly through producers. Surveys of growers, packers, and processors for the end-of-season estimates for fruits, nuts, and vegetables are conducted annually. The survey data are used to calculate market year average (MYA) prices. NASS also conducts a hay sales survey every other year in all monthly program States. Some States conduct the survey during even number crop years only and other States conduct the survey during odd number crop years. The biennial hay survey data are used for setting monthly revisions and final MYA prices.

State field offices maintain universe lists of operations which purchase grain, oilseeds, rice, peanuts, dry beans, pulse crops, or cotton directly from producers in addition to establishments that sell production inputs. Each operation on the list must be appropriately classified for samples to be properly drawn and to allow for correct expansion of data to provide representative price indications for setting State and national estimates.

The relationship of the NASS' price program to agribusinesses, producers, and data users is discussed for each these areas. Each area provides useful and needed information for assembling statistically reliable prices and indexes to serve the agricultural industry.

Overview of Scope, Data Sources and Data Collection

NASS collects prices received and prices paid from producers to calculate indexes from those prices. It also uses the data that are collected to determine parity prices and parity indexes. Chapters Two and Three provide the methodology for the collection of the prices paid and prices received data. Chapter Four provides details about the parity program. Following is a short overview of the scope, data sources and collection methods that are used to collect the price information. More detail on these topics will be provided in the chapters that follow.

Scope

Prices Received statistics cover relevant statistical data for principal crops, livestock, livestock products, indexes of prices received, and parity prices. Prices paid statistics cover pertinent statistical data for indexes of input components, livestock and poultry feed price ratios, and production input items prices. For prices received, the universe for agricultural commodities is all sales from producers to first buyers. The universe for prices paid is agribusinesses.

Data Sources

Prices for points of first sale are obtained either from producers or first buyers. For prices received, NASS collects price information usually from buyers rather than sellers because a single buyer can generally report on many transactions. Buyers also are more likely to be active market participants on a continuing basis. Individual producers normally market commodities few times

during a year. For similar reasons, NASS generally obtains prices paid from sellers.

To collect information from buyers, it is necessary to have a list of the potential buyers of farm products. State field offices take responsibility for updating and maintaining the list of operations that purchase grain, oilseeds, rice, peanuts, dry beans, pulse crops or cotton directly from farmers in addition to the establishments that sell to farmers. Each operation on the list must be appropriately classified for samples to be properly drawn and to allow for correct expansion of data to provide representative price indications for setting State and national estimates. The classification of sampling units in a population is by homogeneous groups. The NASS prices sampling frame is classified based on operation control data, such as grain storage capacity, commodities produced, and items sold or purchased.

Grain elevators, both private and cooperative, are agribusinesses buying commodities directly from farmers and ranchers. These facilities have equipment for the handling and storage of grains, dried beans, and other seed crops. Ethanol plants or facilities constructed to produce ethanol by converting crops such as corn, sugarcane, or wood into alcohol sugar purchase directly from producers. An ethanol plant can range in size from a backyard operation to a large factory. Terminal markets are establishments in a city or market where large quantities of production are brought for sale and distribution.

Additional price data are obtained from dealers or cooperatives. A dealer is a person or firm buying commodities for speculative purposes. The commodities are for immediate resale and are usually held for only a short time. Dealers take

title to the commodity. Cooperatives are voluntarily organized associations which are controlled by its members or patrons that pool their resources and share in the profits. Dealers and cooperatives provide price data for fruits, vegetables, milk, cotton, grains, retail seeds, machinery, fertilizer, chemicals, and feed.

Administrative data are also used in setting mid-month prices rather than relying solely on mid-month data directly from buyers and sellers. The data are used for setting national price estimates for fruits, vegetables, livestock, poultry, and feeder livestock. See Chapter Two for information about the administrative data used in the Prices Received program. Prices paid items such as autos, trucks, building materials, supplies, repairs, fuel, and services also use administrative data to measure price changes. See Chapter Three for information about the administrative data used in the Prices Paid program.

Administrative sources provide adequate price coverage when resources limit data collection. Administrative sources utilized include commodity associations, market orders, and government (State and Federal) agencies. The administrative data are documented and approved according to agency policy to meet the needs of the price program.

Other coverage sources for collecting price data include producers and manufacturers of input items needed to produce agricultural food and fiber, agricultural services, such as fertilizer and farm equipment manufacturers and dealers, wholesalers, processors, transporters, marketers, and retail outlets. Auction houses or auction pools where commodities are sold through competitive bidding to the highest bidder also provide prices

that producers receive. An auction pool is a cooperative method of marketing where individually owned products are pooled and sold to the highest bidder.

Data Collection

Prices Received Surveys are primarily self administered surveys (mail, fax, and electronic data reporting). Phone enumeration is used when necessary to ensure adequate coverage and a good response rate. Field enumeration is used for certain phases and when a respondent requests a personal visit.

Prices received for products sold by producers are collected with voluntary cooperation of buyers and sellers. Buyers can provide information covering transactions of many sellers and is the preferred contact for collecting prices received data.

Prices Paid Surveys are primarily telephone enumerated surveys. Farm input prices paid are collected annually through a survey of establishments selling production input items to producers. Monthly data sources are administrative.

Administrative data are also used to set mid-month prices rather than using mid-month data directly from buyers and sellers. The data are used for setting national price estimates for fruit, vegetables, livestock, poultry, feeder livestock, and fuel. Several prices paid items incorporate administrative data. See the Prices Paid, Chapter Three, for more details. Administrative sources provide adequate price coverage when resources limit data collection. Administrative sources in-

clude commodity associations, market orders, and government (State and Federal) agencies. The administrative data are documented and approved to meet the price program needs according to agency policy.

Price Indexes

Calculation of the Price Indexes

The Prices Received Index aggregates the individual prices received together into one measure. The Prices Paid Index aggregates the individual prices paid together into one measure. A price index is a tool that simplifies the measure of movements in a numerical series.

Prices received and prices paid by farms indexes currently have a 1990-1992 reference base. NASS sets the average index level (representing the average price level) for the 36-month period covering the years 1990, 1991, and 1992 equal to 100. For example, an index of 105 means there was a 5 percent increase in price since the reference period; similarly, an index of 95 means there was a 5 percent decrease. Movements of the index from one month to another can be expressed as changes in index points, but the percent changes of an index will be more useful to express the movements of the price level. This is because index points are affected by the level of the index in relation to its base period, while percent changes are not.

The indexes of prices received and prices paid are based on five-year average weights. Index weights are updated every year to capture the continual shift in agricultural commodities sold and agricultural inputs bought. The annual weight base

is derived from farm's cash receipts and expenditures series. The years used to construct weights are the latest five years of data available from cash receipts and farm expenditures.

The formula for the prices received index is a modified Rothwell formula. The formula used to calculate prices paid indexes is a modified Young index. Details about the formulas are in Chapters Two and Three, respectively.

Analytical Ratios Produced from the Data

Several analytical ratios are calculated from the agricultural price indexes. A ratio measures the relationship of one price (or price index) to another price (or price index). For example, the ratio of prices received to prices paid by producers is a measure of the prices received index relative to the 1990-1992 = 100 base reference period. A ratio of 80 means the level of prices received by producers is 20 percent lower than the level of prices paid by farms in comparison to the 1990-1992 ratio.

Price Index Limitations

Factors such as changes in quality, utilization, and movement of old and new crops affect month to month price changes. Shifting areas of marketing, world markets, trade policies, and changing market functions performed by the producer affect longer term price analysis. New varieties or breeds, specialized uses of products, and changing market arrangements are all reflected in the average prices received by farmers. Analysts should keep these factors in perspective when analyzing the data series on prices received by farm-

ers. Analysts should also understand that the comparison between month to month price changes based on the prices received indexes may not represent the same market basket. The market baskets may differ each month of the year with seasonal crop development changes. A more consistent comparison of the price received indexes is the relationship for the same month across different years.

Price data based on statistical surveys are subject to sampling and nonsampling errors. Sampling errors are defined as differences between the population estimates from different samples and the population value. They measure the probability of an estimate's departure from the values obtained with a complete enumeration. Sampling errors can be measured statistically based on probability samples. For major commodities, standard errors for NASS price estimates at the U.S. level are generally in the one to two percent range. Efforts are made to control the level of sampling errors by list stratification and increased sample size as resources and respondent burden permit.

Nonsampling errors include nonresponse errors introduced when survey respondents refuse to cooperate or cannot be located during the survey period; errors introduced by an interviewer's "leading" the respondent or otherwise influencing the respondent's answer; and errors resulting from incorrectly recording or transferring data, whether done manually or with data processing equipment. Errors may also arise from the questionnaire when questions are unclear, definitions are imprecise, or the order of questions is not logical. Nonsampling errors are minimized through standardized questionnaires, instruction manuals, training, manual review of reported data, and automated edit checks during summarization.

The prices paid index does not adjust for changes in item quality or other product enhancements. The quality and enhancements of input products can change significantly over time. With farm machinery, for example, the basic functions have not changed, but current models are much different from those 30 or 40 years ago. Prices for items producers sell used in the received index represent all grades, qualities, and classes. No modifications are made to these prices.

Forecast Uses

NASS has maintained the historical price index series, 1910-1914=100, as prescribed by permanent legislation. These indexes have been linked to the current base period of 1990-1992=100 which maintains the usefulness of the NASS price indexes for forecasting. Economists, analysts, and researchers often times require a consistent long time price index series for forecasting and modeling. Almost all series, except the Rent index are available from 1975 to current for the base period of 1990-1992=100. Most major indexes series can be traced back to 1910 for the base reference period 1910-1914=100. Price index data from 1997 to current for both base periods are available from NASS's online Quick Stats data base. Data prior to 1997 which are not currently available from the online data base are available on request.

Users of the Price Statistics Price Program Relationship to the Producers

Commodity prices are essential economic statistics for farm operators. Producers use price data when making decisions on purchases, sales, capital investments, and annual production contract agreements. Agricultural price data provide reliable information to keep farmers on equal footing with agribusinesses, bankers, credit associations, and policy makers. Price data are the link between production and distribution.

In addition, price data are used to formulate government policy which governs any subsidy payments a farm receives. Current government price support programs and Federal marketing orders use NASS price data in setting market standards and level of program payments. Prices Received for grains, oilseeds, rice, peanuts, and cotton data are used to establish payments to producers for those commodities.

In today's ever changing environment, producers must constantly keep abreast of prices. The data assist farmers and managers in determining the best time to buy seed, fertilizer, chemicals, and other farm inputs as well as assisting in marketing decisions. Price data also helps producers to determine when and if they should expand or scale back their operation.

Farmers, government agencies, and policymakers use prices paid data to evaluate the costs of inputs used in agriculture compared to other sectors of the economy. Economists and farm operators alike use these data to adjust agricultural productivity, to analyze net gains or losses from agricultural production, and to measure alternative

input production costs. Analysts use the statistics to project current trends, interpret their economic implications, and evaluate courses of action to aid in making farm management decisions.

Reliable reports on agricultural prices are an invaluable aid to financial institutions in serving agricultural credit needs. Available credit can be used more effectively if lending institutions can monitor trends in the agricultural sector. Banks, the Farm Credit Service, and other lending institutions use prices paid data as they determine loan requirements and develop production budgets for agricultural producers seeking credit.

Firms and individuals actively involved in the production, distribution, processing, and marketing of farm products use prices paid data to determine market potential and allocation of research and advertising funds. The location of a new dealership or the potential of a new product is contingent upon an evaluation of future income. NASS price data provide the only unbiased source of agricultural input prices to serve the Nation's needs.

Price Program Relationship to Data Users

NASS is part of the Federal Statistical System of the U.S. government. NASS data have a variety of uses. Forecasts of expected production of crops and livestock enable commodity markets to operate efficiently as price discovery mechanisms. End-of-year price estimates establish commodity values used to measure the farm economy and its economic impact.

The U.S. Government is a major consumer of NASS price program data. USDA Economic

Research Service (ERS) uses price data in estimating and forecasting farm income. The farm income data are then used by the Bureau of Economic Analysis (BEA) to measure the size and change in the size of the U.S. economy.

Other USDA agencies use NASS price program data to administer market orders, distribute income loss payments, and gauge the health of the farm economy. The monthly publication containing the price data of the NASS Price Program is entitled *Agricultural Prices*. The report is part of the Principal Federal Economic Indicators as designated by the Office of Management and Budget.

Organizations outside the U.S. are users of the NASS Price Program data. The Food and Agriculture Organization (FAO) of the United Nations uses the data to provide comparative analysis among countries. The Agricultural Division of Statistics Canada referenced the methodology of the NASS Price Program in redesign of their price index.

Private sector firms and individual farmers and ranchers are also users of the data. Commodity production contracts are written that use price program data to establish prices each growing season. Farmers and ranchers use the data to help with their commodity marketing decisions. Researchers use the data to study farm cost trends, farm income trends, and dozens of other macro and micro agricultural issues. The banking and finance services industry, which is critical to U.S. agriculture, also uses price data in their business forecasts. Literally, every business that is involved directly or indirectly with U.S. agriculture reviews agricultural price data in planning their own business needs as well as the products and services they provide.

Research

NASS is committed to improving the price program, recognizing the importance of the price program and the need for continuous improvement to keep pace with the rapidly changing agricultural sector. The research component of the price program strives to identify its strengths and weaknesses and to recommend changes to make the published statistics more accurate and useful.

The research plan incorporated areas recognized in the Council on Food, Agricultural, and Resource Economics (C-FARE) report (C-FARE, 2009). Potential survey methodology areas for research are use of administrative data, sample and questionnaire design, edit and imputation, and estimation procedures. Future research projects include investigating economic issues such as indexes, weights, seasonality, and quality adjustments. To further develop the research agenda, the price program research team investigated the research areas by feasibility, budget, importance to the price program, and resources available. NASS continuously seeks expertise from other resources outside of NASS such as a cooperative agreement with the National Institute of Statistical Sciences (NISS). Information about NISS can be found at <http://www.niss.org/>. The collaboration between the outside sources along with NASS resources seeks to pool expertise to carry out the price program research agenda.

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Appendix A: Commodity Prices Published by Month

Calendar of Prices Received Features in the 2010 Agricultural Price Reports

Annual or Marketing Year Average Prices	Month Published
Austrian Winter Peas, United States	September
Barley, United States	June
by State and United States	August
Broilers, by State and United States.....	April
Canola, by State and United States	November
Cattle, by State and United States	February
Chickens, Other by State and United States	April
Chickpeas, by State and United States.....	November
Corn, United States	September
by State and United State	November
Cotton, by Type, State and United States	October
Cottonseed, by State and United States	October
Dry Beans, by State and United States	November
Dry Edible Peas, United States	September
Eggs, by State and United States	April
Flaxseed, by State and United States	November
Goats, by State and United States	February
Hay, by State and United States.....	August
Other Hay, 3-year Average by Region	February
Hogs, by State and United States	February
Hops, by State and United States	December
Lentils, United States	September
Milk, Sold to Plants, by Grade, Price and Fat Test, b State and United States.....	April
Mohair, by State and United States.....	February
Mustard Seed, United States	November
Oats, United States.....	June
by State and United States.....	August
Peanuts, by State and United States	August
Potatoes, by State and U.S., Preliminary	February
Proso Millet, by State and United States.....	November
Rapeseed, United States.....	November
Rice, United States (year-to-date)	August
by State and United States, by Length of Grain	January
Safflower, United States	November
Sheep and Lambs, by State and United States	February
Sorghum, by State and United States.....	September
Soybeans, by State and United States	September
Sweetpotatoes, by State and United States, Preliminary	January
Final and Revised	June
Sugarbeets, United States.....	July
Sugarcane, United States	July
Sunflower, by State and United States.....	November
Turkeys, by State and United States	April
Wheat, by Class, United States	June
by State and United States	August
Wool, by State and United States.....	February

Calendar of Prices Received Features in the 2010 Agricultural Price Reports

Monthly Prices Received - Revised	Month Published
Austrian Winter Peas, United States	September
Barley, by State and United States.....	August
Broilers, United States	April
Cattle, by State and United States.....	February
Chickens, by State and United States.....	April
Chickpeas, by State and United States.....	November
Corn, by State and United States	November
Cotton, by Type, State and United States	October
Cottonseed, by State and United States	October
Dry Beans, by State and United States	November
Dry Edible Peas, United States	September
Eggs, by State and United States	April
Flaxseed, by State and United States	November
Hay, by State and United States.....	August
Hogs, by State and United States.....	February
Hops, by State and United States	December
Lentils, United States	September
Milk, Sold to Plants, by Grade, Price and Fat Test by State and United States.....	April
Milk Cows, by Quarter, by State and United States	February
Oats, by State and United States	August
Peanuts, by State and United States	August
Potatoes, by State and United States, Preliminary	February
Rice, United States (year-to-date)	August
by State and United States, by Length of Grain	January
Sheep and Lambs, by State and United States	February
Sorghum, by State and United States.....	September
Soybeans, by State and United States	September
Sunflower, by State and United States.....	November
Wheat, by State and United States	August

Calendar of Prices Received Features in the 2010 Agricultural Price Reports

Monthly Marketing Percents	Month(s) Published
Austrian Winter Peas, United States	September
Barley, United States	June
by State and United States	August
Chickpeas, by State and United States	November
Corn, United States	September
by State and United States	November
Cotton, Upland, by State and United States	October
Dry Beans, by State and United States	November
Dry Edible Peas, United States	September
Flaxseed, by State and United States	November
Hay, by State and United States	August
Lentils, United States	September
Oats, United States	June
by State and United States	August
Peanuts, by State and United States	August
Rice, United States (year-to-date)	August
Final	January
Sorghum, by State and United States	September
Soybeans, by State and United States	September
Sunflower, by State and United States	November
Wheat, United States	June
by State and United States	August

Prices Received Index Numbers - Revised

Index of Prices Received by Farmers, United States, by Month and Year Jan, Apr, Jul, Oct

Milk and Egg Prices Received, Adjusted for Seasonal Variation

Seasonally Adjusted Prices, Revised, United States

Seasonal Adjustment Factors, United States, program change

Parity Prices

Method of Computing

Average Prices Used for Parity Computations

Manufacturing Milk: Method of Computing Parity Price Equivalent

Average Price Received, United States

Indexes (1910-1914=100)

PPITW, PITW, Production Items, Component Items, Interest, Taxes and

Wage Rates, Family Living, Farm and Non-Farm Origin, Crop and

Livestock Sectors, Adjusted for Productivity, Ratio, Parity Ratio

and Adjusted Parity Ratio

Annual Average (2006-2010)

By Month (2006-2010)

United States Current Month, Previous Month, Previous Year

Calendar of Prices Received Features in the 2010 Agricultural Price Reports

Indexes (1990-1992=100)	Month(s) Published
PPITW, PITW, Production Items, Component and Subcomponent Items, Interest, Taxes and Wage Rates, Family Living Farm and Non-Farm Origin, Crop and Livestock Sectors, Adjusted for Productivity, Ratio, Parity Ratio and Adjusted Parity Ratio	
Annual Average (2006-2010)	Jan, Apr, Jul, Oct
By Month (2006-2010)	Jan, Apr, Jul, Oct
United States Current Month, Previous Month, Previous Year	Monthly
Feed and Feeder Livestock & Poultry Annual Average, United States (2005-2010)	December

Prices Paid

Farm Machinery, United States	April
Feed, by Region and United States	April
Feed, United States (2005-2010)	December
Feeder Livestock, United States	Monthly
Poultry, Chicks and Poults, Annual Average	April
Fertilizer Materials, Mixed Fertilizer and Agricultural Limestone, by Region and United States	April
Field Seeds, Retail United States	April
Fuels, by Region and United States	April
Agricultural Chemicals, United States	April

Feed-Price Ratios

United States by Months and Annual Average, (Jan 2007- May 2010)	May
United States Current Month, Previous Month, Previous Year	Monthly

Prices Paid Program Overview

Prices Paid Survey Months, Month Published and Geographic Levels of Estimates	January
Prices Paid Regions, and States Included	April
Private Non-Irrigated Grazing Fee Rates, by State and Region (Data for 2008-2010)	January
Prices Paid Index for Beef Cattle Production (1964-68=100)	December
Beef Cattle Prices Received, Selected Regions (November-October)	December
Other Hay Prices Received, Selected Eastern Regions	February

Appendix B: Monthly Schedule for Commodity Prices

The National Agricultural Statistics Services (NASS) publishes current month, previous month, and previous year prices in the monthly *Agricultural Prices* release. In addition, index revisions, monthly price revisions, marketing year average prices, monthly marketing percentages, and other related information for many commodities are published as soon as possible after the end of the marketing year. The following schedule shows the month in which these additional data are featured.

<p>January</p> <p>Rice, Noncitrus Fruit, Sweetpotatoes, Vegetables, Parity Prices, Grazing Fees, and Index Revisions</p>	<p>May</p> <p>Tobacco and Feed Price Ratios</p>	<p>September</p> <p>Citrus, Potatoes, Soybeans, Sorghum, Dry Edible Peas, Lentils, Austrian Winter Peas, and US MYA Corn</p>
<p>February</p> <p>Other Hay, Meat Animals, Potatoes, Noncitrus Fruit, and <i>Crop Values</i>*</p>	<p>June</p> <p>US MYA Wheat, US MYA Barley, US MYA Oats, Sweet potatoes</p>	<p>October</p> <p>Cotton, Cottonseed, and Index Revisions</p>
<p>March</p> <p>None</p>	<p>July</p> <p>Noncitrus Fruit, Onions, Cranberries, Sugarbeets, Sugarcane, Seasonal Adjustment Factors, and Index Revisions</p>	<p>November</p> <p>Corn, Sunflower, All Dry Beans, Chickpeas, and Flaxseed</p>
<p>April</p> <p>Poultry, Milk, Farm Machinery, Feed, Feeder Livestock, Fertilizer, Field Seeds, Fuels, Ag Chemicals, Seasonally Adjusted Prices, and Index Revisions</p>	<p>August</p> <p>Wheat, Oats, Barley, Rye, Peanuts, Hay, and US MYA Rice (year-to-date)</p>	<p>December</p> <p>Prices Paid Index for Beef Cattle Production, Hops, and Public Lands Grazing Fees</p>

Appendix C: Selected International Agricultural Price Programs

Other countries with long robust histories of agricultural prices and indexes are Australia, Canada, and the European Union. How does the NASS price program compare to the programs of these other countries? The following briefly highlights differences without going into any detailed analysis. Information about each country's agricultural price program is provided for quick reference.

International Agricultural Price Program Comparisons

Canada has a centralized statistical agency, Statistics Canada, with emphasis on compatibility of all economic statistics programs. Statistics Canada's philosophy is to keep the Farm Product Price Index (FPPI) series comparable with other published price indexes. The statistical programs between Canada and the U.S. differ in this respect for agricultural price indexes.

A guide to the redesign of the Statistics Canada Farm Product Price Index (FPPI) was the 1995 reconstruction of the U.S. Prices Received Index. Improvements in the U.S. index followed in the Statistics Canada redesign were:

- Seasonal weighting pattern for the 12 months of the year for all commodities,
- Update of the index basket every year based on marketings for the last five years prior to the previous year, and
- Increase in commodity coverage for the index.

The FPPI is a chain index with a new annual basket linked into the index every year. The link is at the previous year and month and not the previous month. The NASS index has a new annual basket every year without linking. This means the index is not a true measure of only price change.

The weights for the FPPI are an average of five-year cash receipts at base year prices. The weighting pattern of the FPPI reflects the pattern of marketings of the five different years but the price structure only of the base year. Weights for aggregating the NASS indexes are a five-year average of cash receipts using the equivalent price for each year. The weighting pattern of the NASS index reflects the pattern of marketing as well as the price structure of the five different years.

Annual FPPI indexes are calculated as weighted averages of monthly FPPIs, consistent with the monthly basket concept of the index. NASS annual indexes are calculated as simple means of the monthly indexes. Federal regulations relating to the calculation of parity prices require NASS to calculate its annual indexes as a simple average of the monthly indexes. This approach, however, is inconsistent with the monthly basket approach to calculating the monthly index series and may not adequately represent each month's index in the annual average.

The FPPI includes commodities for which there are farm cash receipts but no marketings in the index basket and allows respective

influence to the relative importance of the category grouping. The NASS index only includes those commodities with monthly cash receipts in the index group.

The Australian and European Union price programs also share many commonalities with the NASS price program. Some differences exist in index groupings, items in market basket, level of index computation published, and methodology of index computation. These indexes are based on aggregation of price relatives rather than aggregation of change in average prices received or paid. Australia publishes commodity level indexes.

The Australian Bureau of Agricultural and Resource Economics (ABARE) revised the method for calculating agricultural price indexes in October 1999. The indexes for commodity groups are now calculated on a chained weight basis using Fishers' ideal index with a reference year of 1997-1998 = 100. The indexes for most commodities are based on annual gross unit value of production. Chain weighted indexes account for product shifting as consumer needs change.

The European Union (EU) agricultural policy was designed to meet two objectives. The first was to guarantee the lowest possible food prices to the consumer in the European Union. The second was to secure farmers' incomes with guaranteed prices, which required harmonized statistics on agricultural prices. Eurostat therefore collects data on agricultural prices, which began in the 1960s, to analyze price developments and their effect on agricultural income.

EU agricultural price indexes are ob-

tained by a base-weighted Laspeyres calculation (2000=100), and are expressed both in nominal terms, and deflated using an implicit harmonized index of consumer prices (HICP) deflator. Methodology for the price program is based on the Handbook for EU agricultural price statistics.

The NASS price program, unlike these other countries, must compute and publish parity prices for most major agricultural program commodities as governed by permanent legislation. Parity prices, as prescribed in legislation, are calculated utilizing commodity prices and both the prices received and paid indexes. The construction of the indexes to meet this legislative requirement is a responsibility of NASS. The NASS price program utilizes price data to meet the needs of not only producing indexes to compute required commodity parity prices but to provide a means of deriving total value of commodities produced. These values are important to measuring agriculture's contribution to the Gross Domestic Product for the U.S. and other countries.

The statistical programs for other countries publish only one index series referenced to one base period. The EU indexes are expressed both in nominal and deflated terms. NASS, on the other hand, publishes two series. One based on the 1910-1914 base reference period, as prescribed by legislation, and a more recent reference period of (1990-1992 = 100.)

Additional information of these country's price programs follows.

Australia

Market prices and marketing costs are collected through two separate annual Australian Bureau of Statistics (ABS) surveys. Market prices are used in combination with the quantities collected from the agriculture census / survey to calculate gross value where gross value represents the value placed on commodities at the point of sale (i.e. in the market place). These prices are inclusive of any product taxes paid and any product subsidies received which is a different valuation basis compared with farm gate prices. The ABS also collects economic and financial data on agriculture and services to agriculture through its annual economic activity survey. For more information about the Australian Bureau of Statistics, go to <http://abs.gov.au/>.

In addition to these annual collections, the ABS runs a quarterly livestock products survey which collects current price and quantity information on livestock slaughter, meat production, exports of live sheep and live cattle, exports of fresh, chilled, frozen and processed meat, and whole milk intake by factories, market milk sales by factories, and orders of wool by wool brokers and dealers.

Australia presents its annual estimates on a fiscal year (July-June) basis and not on a calendar year basis. A large amount of agriculture data on annual farm production, annual farm costs, and annual farm prices is published by the Australian Bureau of Agricultural and Resource Economics (ABARE). The ABARE data include forecasts for the latest year and, in some cases, forecasts are available five years out from the latest year.

ABARE revised the method for calculating agricultural price indexes in October 1999. The indexes for commodity groups are now calculated on a chained weight basis using Fishers' ideal index with a reference year of 1997-1998 = 100. The index for most individual commodities is based on annual gross unit value of production.

Canada

The Farm Product Price Index (FPPI) is a monthly series that measures the changes in prices that farmers receive for the agriculture commodities they produce and sell. The price index has separate crop and livestock indexes, a variety of commodity group indexes such as cereals, oilseeds, specialty crops, cattle and hogs, and an overall index. All are available monthly and annually for the provinces and for Canada.

The FPPI is an important indicator of the economic activity in the agricultural sector. The series is used by agricultural economists and analysts interested in the health of the agricultural sector, deflating agricultural commodity prices, and policy development. The information provided by FPPI is useful to producers, producer groups, commodity analysts from the private sector such as grain companies and meat processors, international exporters, the banking sector, and government agencies responsible for agriculture policies. The index expresses current farm prices from the Farm Product Prices Survey as a percentage of prices prevailing in the base period, 1997=100.

The universe includes all Canadian agriculture operations as defined by the Census of Agriculture, as well as all marketing boards, agencies, commissions and federal and provincial government departments that collect data on producer prices or data from which prices can be calculated. A sample survey with a longitudinal design is employed to represent the universe.

Prices are based on either administrative data sources or monthly surveys of agricultural producers or commodity purchasers. Administrative price data come from a wide variety of sources. Some administrative sources are from marketing boards such as the Ontario Wheat Producers Marketing Board and the Nova Scotia Grain Marketing Board. Market associations such as CANFAX also provide price data.

Commodities are priced at point of first transaction, where the fees deducted before a producer is paid are excluded (e.g., storage, transportation, and administrative costs), but bonuses and premiums that can be attributed to specific commodities are included. Commodity-specific program payments are not included in the price.

The FPPI is based on a five-year basket that is updated every year. This captures the continual shift in agricultural commodities produced and sold. The annual weight base is derived from the farm cash receipts series. There is a two-year lag in the years used to construct the basket because of the availability of farm cash receipts data and to reduce the number of revisions made to the index.

The seasonal weighting pattern was derived using the monthly marketings from 1994 to 1998. This weighting pattern remains constant and will only be updated periodically, for instance during intercensal revisions or when the time base is revised.

The FPPI is not adjusted for seasonality, but the seasonal basket is used since the marketing of virtually all farm products is seasonal. The index reflects the mix of agriculture commodities sold in a given month. The FPPI allows the comparison, in percentage terms, of prices in any given time period to prices in the base period, which at present is 1997=100. For more information about the FPPI from Statistics Canada, go to <http://www.statcan.gc.ca/>.

The Farm Input Price Index (FIPI) measures the annual price movement of specified farm inputs at the farm gate. As such, the FIPI can be used to monitor price changes, which are considered in the operations of marketing boards and in price stabilization programs. The index is also useful in transforming current dollar farm expenditures into constant dollar estimates through deflation.

The accuracy of the quality evaluation depends on price and weight data. The methodology of the index and the price series which construct the index have been designed to control error and to reduce the potential effects of these. However, both administrative and survey data are subject to various kinds of error. Survey data are mainly subject to response and data capture errors. In reporting prices each month, farm survey respondents are asked to report the average prices prevailing in their neighborhood, taking into account the various grades of each

commodity marketed. Thus, average prices reported by these respondents may differ from month-to-month due to changes in price, quality, or both.

The universe for the FIPI consists of the distributors of all inputs (goods and services) going into the farming sector. This includes distributors of farm machinery, petroleum products, crop inputs (e.g. seeds and fertilizers), veterinary services, etc.

Prices are collected at different points in the year, depending on when a given input is likely to see its prices change. Price information is collected by several means including direct mail survey, telephone interview, other sources within Statistics Canada, and from other agencies related to agriculture (e.g. Agriculture and Agri-Food Canada, Canadian Turkey Marketing Board). The questionnaires are customized with regards to what respondents sell.

The main source for the FIPI weights is the 1992 estimates of farm operating expenses and depreciation charges provided by Agriculture Division of Statistics Canada. These estimates correspond generally to the group level. To obtain detail below this level, other sources are used that are associated with the estimates of production or distribution.

The FIPI measures the change through time in the prices of goods and services purchased by Canadian farmers for use in agricultural production. These prices include the effect of applicable taxes, subsidies, and any bonuses and premiums that can be attributed to specific commodities, but they exclude any storage,

transportation, processing, and handling charges. Those prices are collected directly and are actual transaction prices.

The quality of this index is maintained through the expertise of the few trained analysts assigned to it. They develop a thorough knowledge of the domain, which is supplemented by outside personal contacts for particular goods or services. Much time and effort is devoted to detecting and following up unusual fluctuations over time in the pricing patterns of goods and services. Prior to dissemination, the price indexes are analyzed and historical trends reviewed.

European Union

The European Union (EU) is a supranational organization of 27 countries across the European continent. The countries are: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, and United Kingdom.

The common EU agricultural policy was designed to meet two objectives. The first was to guarantee the lowest possible food prices to the consumer in the European Union. The second was to secure farmers' incomes with guaranteed prices, which required harmonized statistics on agricultural prices. Eurostat therefore collects data on agricultural prices, which began in the 1960s, to analyze price developments and their effect on agricultural income. For information about Eurostat, go to <http://epp.eurostat.ec.eu>

ropa.eu/portal/page/portal/eurostat/home .

The agricultural price indices (API) cover a wide range of products going into and coming out of the farm. The output products range from cereals, vegetables, and meat to milk and eggs. The input products range from animal feed, fertilizers, and seeds to energy and pesticides.

The output price indexes reflect the variations in the level of prices received by farmers from products sold. As most agricultural products are processed before they are consumed and almost always change hands more than once before they arrive at the consumer's table, they are different from the consumer price indices which measure the change of price directly paid by consumers. The input price indexes reflect what the farmer pays for feed and fertilizer.

Agricultural prices are collected through so called "gentlemen's agreements," which means that the data collection is not based on EU legislation. Despite this, methods are harmonized and based on the Handbook for EU agricultural price statistics. There are no major problems with delays or coverage as the data are needed. Go to http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-BH-02-003/EN/KS-BH-02-003-EN.PDF for the handbook.

The quarterly agricultural price indexes are used by the European Commission's Directorate-General (DG) for Agriculture to form and evaluate agricultural policy. Farming organizations such as the European Committee of Professional Agricultural Organizations (COPA) are also users. Following the European Commis-

sion's drive to simplify and reduce the administrative burden for respondents, agricultural input and output prices are collected quarterly and absolute prices annually since 2006.

Since 2006, the frequency and details in some agricultural price data collections have been reduced. API now produces quarterly price statistics instead of monthly, and collection of monthly absolute prices is now an annual collection. The list of variables for the collection of annual absolute prices has been reduced to half, from 414 products to 201. This follows the European Commission's approach to simplifying and reducing the administrative burden for respondents.

Although no legislation is planned for the near future, it is quite likely that agricultural price statistics will be regulated. The trend at Eurostat is to base data collection on legislation which many Member States also support. In times of scarce resources, it is easier to collect data that are mandatory rather than voluntary. Methodology for the price program is based on the Handbook for EU agricultural price statistics.

EU agricultural price indices are obtained by a base-weighted Laspeyres calculation (2000=100), and are expressed both in nominal terms, and deflated using an implicit harmonized index of consumer prices (HICP) deflator.