6.4 Colusa County

The following summarizes the local setting, current and future land and water use, and primary recommendations in the Colusa County area. Colusa County officials were interviewed and consulted as a part of the development of this IRWMP and identified the following key and/or highest priority water- and land use related issues (Hackney, 2006):

- Agriculture-urban interface conflicts
- Urban water quality
- Loss of agricultural quality of life
- Flood management
- Water transfers

6.4.1 Local Setting

Colusa County is located in the western portion of the Sacramento Valley approximately 60 miles northwest of Sacramento. The county's 1,156 square miles encompass a variety of topography ranging from the Coastal Mountain Range and foothills to the west and relatively flat agricultural land in the east. Elevation ranges from 40 to 7,040 feet above sea level. Although sparsely populated, the county contains two incorporated cities: Colusa (5,000) and Williams (3,000). The population of Colusa County was 21,000 in 2005 (California Department of Finance) with approximately 7,000 homes (California Department of Finance, 2004). Fifty-five percent of the population lives in small urban communities, and forty-five percent lives in rural homes. The population of Colusa County is projected to be 29,300 by the year 2030 (U.S. Census Bureau, 2000).

The climate in Colusa County is typical of the Sacramento Valley with hot, dry summers and cool, wet winters, with most of the annual precipitation falling between November and March. The City of Colusa has an annual rainfall of approximately 16 inches per year and an average summer (July) daytime high temperature of 96 degrees Fahrenheit.

Agriculture is the major industry in the county. Within the boundaries of Colusa County are some of the richest rice-producing lands in the country and quality waterfowl habitat associated with the Pacific Flyway. Colusa was identified as having the highest percentage increase in agricultural growth, nearly 115 percent, in California during the period 1985 to 1995 (University of California Cooperative Extension, 1999). The total onfarm agricultural value in the county in 1997 was $333 million. The major crops produced include rice, processed tomatoes, almonds, wheat, vegetable seeds, walnuts, and prunes. Rice remains the number one crop, with acreage remaining fairly stable. There is currently a transition from row crops to perennial crops (almonds, grapes, and walnuts) and from low-value agronomic crops to higher value vegetables or other row crops. Environmental issues (air quality, water quality, and soil degradation), commodity marketing, and economic sustainability are the major challenges facing local producers.

Colusa County is home to many large canals and infrastructure necessary to meet the agricultural demand for the 358,000 acres of cropland in the county. Most of the irrigation water used in the county originates from the GCID Canal, which takes its principal supply from the Sacramento River at Hamilton City and a limited supply from Stony Creek in Glenn County. Some runoff from the foothills and water from the Sacramento River is channeled into the GCID Canal, Tehama-Colusa Canal, and the Colusa Drainage Trough. These canals serve as irrigation sources and flood control channels.

Water agencies and private parties have been effective over the years in obtaining and developing water supplies to meet the needs of Colusa County. In the past, most efforts were conducted by individual agencies. There are over 25 agencies with land and water management responsibilities. These include the following agricultural water purveyors, urban water purveyors, agencies with flood management responsibilities, and agencies with land use management responsibilities:

- **Agricultural Water Purveyors**
  - Glenn-Colusa Irrigation District
  - Willow Creek Mutual Water Company
  - Sartain Mutual Water Company
  - Colusa Irrigation Company
  - Maxwell Irrigation District
  - Colusa Drain Users Association
  - Cortina Water District
  - Glenn Valley Water District
  - Reclamation District 2047
  - Westside Water District
  - Reclamation District 479
  - Myers Marsh Mutual Water Company
  - 4-M Water District
  - Roberts Ditch Irrigation Co. Inc.
  - Reclamation District 108
  - Reclamation District 1004
  - Davis Water District
  - Holthouse Water District
  - Provident Irrigation District
  - Colusa County Water District
  - LaGrande Water District

- **Urban Water Purveyors**
  - City of Williams
  - City of Colusa
  - Arbuckle Public Utility District
- **Flood Management Agencies**
  - Colusa Basin Drainage District
  - County of Colusa
- **Land Use and Resource Agencies**
  - County of Colusa
  - Colusa County Resource Conservation District

6.4.2 Land Use Patterns

Land use in Colusa County is dominated by agriculture (see Figure 6.4-1). Uses consist primarily of irrigated and nonirrigated farmland; small, urban community developments; and significant wildlife refuge and recreational areas. County land use has been recently mapped for as a part of the Four-County Document and by the FMMP (California Department of Conservation, 2002a).

Table 6.4-1 shows the trends in agricultural land use changes for the period of 1986 to 1998. The only significant changes include a 33 percent increase in nonirrigated farmland and an 11 percent increase in urban development.

TABLE 6.4-1
Colusa County Land Use Changes

Land Use Category	Acreage by Category							Percentage Change
	1986	1988	1990	1992	1994	1996	1998	
Irrigated Farmland	334,354	335,587	330,383	330,046	327,879	329,348	329,049	-2
Nonirrigated Farmland	8,608	9,266	10,917	10,579	10,924	10,754	11,496	33
Grazing Land	237,818	238,350	238,255	237,129	238,981	237,759	234,874	-1
Agricultural Lands Total	**582,766**	**585,191**	**581,545**	**579,746**	**579,778**	**579,857**	**577,417**	**<1**
Urban	3,851	3,864	3,914	4,158	4,159	4,176	4,293	11
Other	82,055	79,615	83,213	84,771	84,740	84,630	87,002	6
Water Areas	1,931	1,935	1,935	1,935	1,935	1,951	1,904	<1
Total Inventoried	**668,617**							

Source: FMMP (California Department of Conservation, 2000)

Like most areas in California, Colusa County is experiencing an increase in housing development. From January 2000 to December 2003, Colusa County issued 97 building permits for residences. In 2004, a subdivision of 74 residences was permitted. Colusa County planners expect additional subdivision growth of more than 4,000 residences in the future (Hackney, 2006).

About 45 percent of the county consists of forested rangeland. The Colusa and Delevan NWRs cover about 10,300 acres of low-lying Colusa Basin and provide a haven for waterfowl in the Sacramento Valley Flyway. The Colusa County portion of the Mendocino National Forest covers over 70,000 acres, or about 10 percent of the county's total land area (Sedway Cook & Associates, 1989). Table 6.4-2 lists the existing land use categories and areas as inventoried for the Colusa County General Plan.

TABLE 6.4-2
Existing Colusa County Land Use

Land Use Category	Total Acres
Communities	2,500
Rural Subdivisions	1,200
Orchards and Vineyards	38,200
Cropland	358,000
Undeveloped Bottomland	9,300
Undeveloped Rangeland	244,800
National Wildlife Refuge	12,000
National Forest	72,000
Total Area	**738,000**

Source: Colusa County General Plan

6.4.3 Water Use and Water Supply Patterns

Surface water is the primary source of supply for agricultural uses in the county. The county uses a total of 968,000 ac-ft of water per year for irrigation purposes, of which 815,000 ac-ft are provided by irrigation canals (Sedway Cook & Associates, 1989). The majority of supply is provided by GCID, Colusa County Water District, RD 108, and TCCA and associated water districts, each of which holds a long-term contract with Reclamation. Groundwater is a source of supply for agricultural water users outside these districts. Reuse of water both within districts and use of drainwater from upstream water districts is also an important source of supply for many areas in the county.

Local governments play a vital role in water and resource management through their land use authority. Groundwater is the primary source for drinking water in Colusa County

(U.S. Environmental Protection Agency, 2005). Drinking water purveyors that deliver water to over 500 connections include the City of Williams and Arbuckle Public Utility District. An additional 61 small water systems deliver water to smaller groups of users in Colusa County. The Colusa County Department of Planning and Building, the Colusa County Resource Conservation District, and the Colusa County Department of Environmental Health are the primary agencies that have responsibilities for drinking water quality or are involved in activities related to drinking water quality (Glenn County Department of Agriculture, 2005).

M&I water use totaled just 3,400 ac-ft in 1980. The Conservation Section of the Colusa County General Plan (1989) contains M&I water use projections to the year 2010. However, the 2010 population estimate for those projections was 17,000. The county plans to update the general plan and complete a comprehensive water inventory in the near future.

The majority of existing wells in the county pump groundwater from the Tehama or Upper Tuscan Formation, with the potential for using the Lower Tuscan Formation currently under study. Colusa County is currently initiating a groundwater management and water resources planning investigation.

6.4.4 Existing and Ongoing Planning

Because of staff and fiscal limitations, limited planning has occurred to date with respect to current water resources and future water needs in Colusa County. As discussed above, the county recently began working on a groundwater management plan that will include a detailed water supply inventory and analysis. Table 6.4-3 summarizes the primary investigations and/or processes conducted to date.

TABLE 6.4-3
Existing and Relevant Colusa County Water Resource Planning Documents

Planning Document	Description	Date Published
Northern Sacramento Valley (Four County) Drinking Water Quality Strategy Document	A Butte, Tehama, Glenn, and Colusa County document that provides an integrated approach to water quality management in the four-county region.	June 2005
Sacramento River Basinwide Water Management Plan	Contains current and future water supply and use projections for many Colusa County water districts	2004
Colusa County General Plan	General Plan providing basis for decisions regarding growth and land development.	Approved January 1989 Housing Element updated 2004

County water resource managers in Butte, Colusa, Glenn, and Tehama Counties (Four-County Document) are currently facilitating activities in areas such as water resource studies,

groundwater management, data and information management, county regulation and ordinance oversight, public education, and stakeholder interaction. The Four-County Team is continuing to evaluate drinking water resources and management through continued coordination.

6.4.5 Plan Areas

Planning subareas have not yet been identified by the county. It is anticipated that the upcoming groundwater management plan will likely identify such areas. Existing land use was mapped for the IRWMP using Department and FMMP land use data. Interviews with local planning officials were conducted to determine areas within the county where future development is likely. Lack of sufficient GIS data and water supply inventories for Colusa County made projections for the year 2030 water demand impossible at this time given the scope and size of the Sacramento Valley IRWMP Region. Current land use and likely areas of future development according to interviews with county staff are shown on Figure 6.4-2.

6.4.6 Local Water Management Issues and Strategies

The following summarizes key water management issues in Colusa County in terms of the Department's water resource management strategies as applicable.

Conjunctive Management and Groundwater Storage

Groundwater management is a high-priority issue for the county, as evidenced by the initiation of a groundwater management plan and comprehensive water supply inventory. The county's current groundwater ordinance was passed in 1998. Some water districts and companies in the county have proposed conjunctive management projects identified in Appendix B to this IRWMP to decrease Sacramento River diversions as part of the SVWMA. These projects include a monitoring component that should be coordinated with ongoing monitoring efforts throughout the county.

Agricultural Water Use Efficiency

Efficient use of water remains a priority for water districts and companies throughout the county. Several districts have and continue to identify projects to improve system operations and facility improvements. Currently proposed projects are identified in Appendix B to this IRWMP. Two of the larger districts in the county (GCID and RD 108) are completing a Regional Water Management Plan in cooperation with Reclamation to assist in improved water management.

Water Quality/Drinking Water

Colusa County has partnered with Glenn, Tehama, and Butte Counties for the Four-County Document. The Colusa County Planning Department is committed to protecting water quality

throughout the county. Although water quality is generally considered good, local officials expressed concern over the number of natural gas wells that are being drilled in the county and their possible impacts on groundwater quality. With respect to agricultural discharge and associated water quality effects, many of the growers in the county are participating in the Coalition. Additional information on the Coalition and the current monitoring program is found in Section 8, Performance and Monitoring, of this IRWMP.

Local planning officials indicate that the communities of Arbuckle and Maxwell are in need of system upgrades and waste facility expansion. The City of Williams is also undergoing relatively significant housing development and is anticipated to require upgrades in the near future to accommodate continued urban growth.

Surface Storage

Investigation of the proposed Sites off-stream storage project continues. Located approximately 10 miles west of Maxwell in the Antelope Valley, the proposed reservoir would have a capacity of approximately 1.9 million ac-ft and would greatly increase water supply management throughout the region and state. A number of local districts and federal and state agencies signed an MOU in 2000 to mutually explore the potential for the project and work toward its timely implementation.

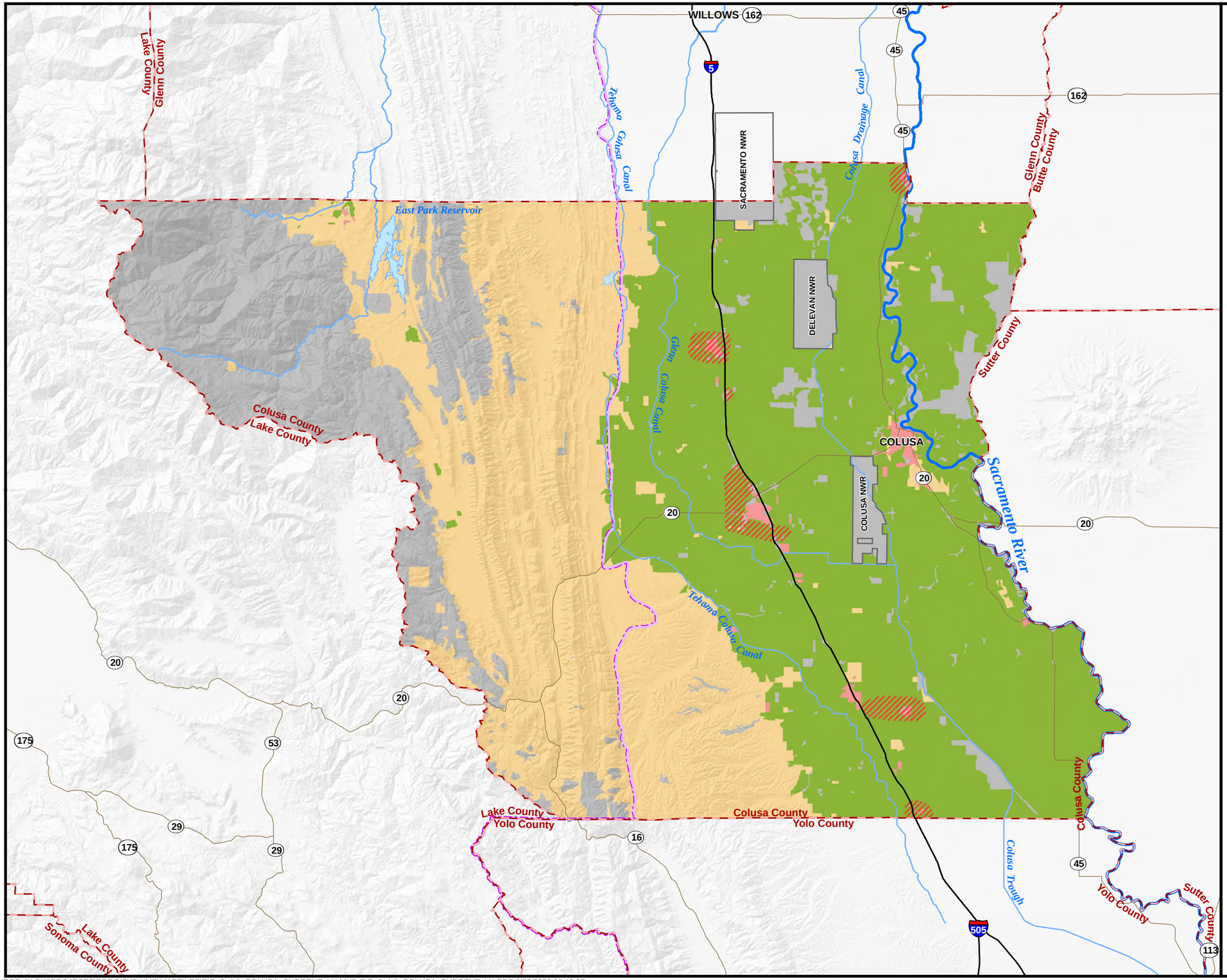
Floodplain Management

State Legislature formed the CBDD in 1987, to address flooding, drainage, and subsidence problems in the Colusa Basin. The Colusa Basin extends into Colusa, Glenn, and Yolo Counties and is primarily used for agricultural production. CBDD developed a programmatic EIR/EIS to evaluate the broad impacts of alternatives that reduce potential flood damages and improve the environment within the Colusa Basin. CBDD has since commissioned several site- and project-specific studies, in various phases of completion, to further address flooding and environmental issues. CBDD efforts to restore the environment primarily relate to soil erosion, sedimentation, habitat, and water supply. Increased sediment production rates associated with the basin's annual flooding can affect regional water quality. Sediment is deposited into the Sacramento River, which degrades the water quality for downstream water users. CBDD commissioned the *Integrated Watershed Management Plan* to reduce flood damage in the City of Willows and surrounding agricultural lands and improve the environment in Willow and Wilson Creek Subbasins in Glenn County. CBDD identified several water quality-related methods to enhance the environment including (1) improve water quality through improved erosion control measures and practices, and (2) improve water quality through filtering and trapping nutrients/sediments in spreading basins (CH2M HILL, 2004).

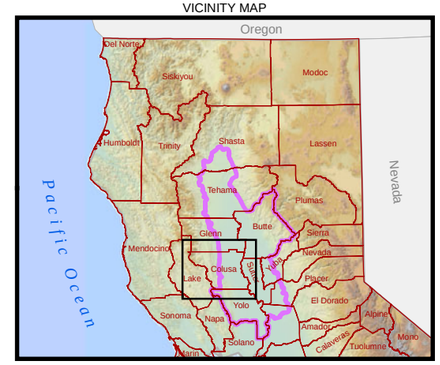
6.4.7 Next Steps/Recommendations

Next steps/recommendations are as follows:

1. Complete the groundwater management plan
   - Develop planning subareas or regions according to water sources, land use, hydrology, and political and physical boundaries to be used as the basis for water resource planning
   - Establish BMOs or similar approach to assist in evaluating groundwater levels and avoiding potential impacts
   - Establish a monitoring network and process with stakeholders to initiate groundwater protection actions as determined necessary
2. Require large-scale developers to install monitoring equipment to collect both baseline groundwater level data before construction begins and real-time groundwater level data after construction is completed to allow for evaluation of drawdown impacts due to groundwater production
3. Implement the Lewis Ranch and RD108 water management projects
4. Continue the cooperative effort with Glenn, Tehama, and Butte Counties to ensure reliable, high-quality drinking water, and work with the Coalition to promote management of agricultural runoff and discharge
5. Continue to support the investigation and eventual implementation of the Sites off-stream water storage project
6. Continue to encourage agricultural uses and development through land use planning and policies
7. Encourage managed urban growth adjacent to existing urban centers
8. Support existing efforts to evaluate and manage flood potential and pursue funding to protect both urban and agricultural areas



VICINITY MAP



Legend

- Interstate Highway
- State / US Highway
- River
- Stream
- Likely Future Development
- National Wildlife Refuge
- County Boundary
- Core IRWMP Region

Current Land Use

- Grazing Land
- Irrigated Farmland
- Other Land
- Urban
- Water

Source:
1. Land Use provided by Farmland Mapping and Monitoring Program - 2002, (Glenn County 2002).

0 5 Miles

N

FIGURE 6.4-1
COLUSA COUNTY LAND USE AND LIKELY FUTURE DEVELOPMENT
SACRAMENTO VALLEY IRWMP

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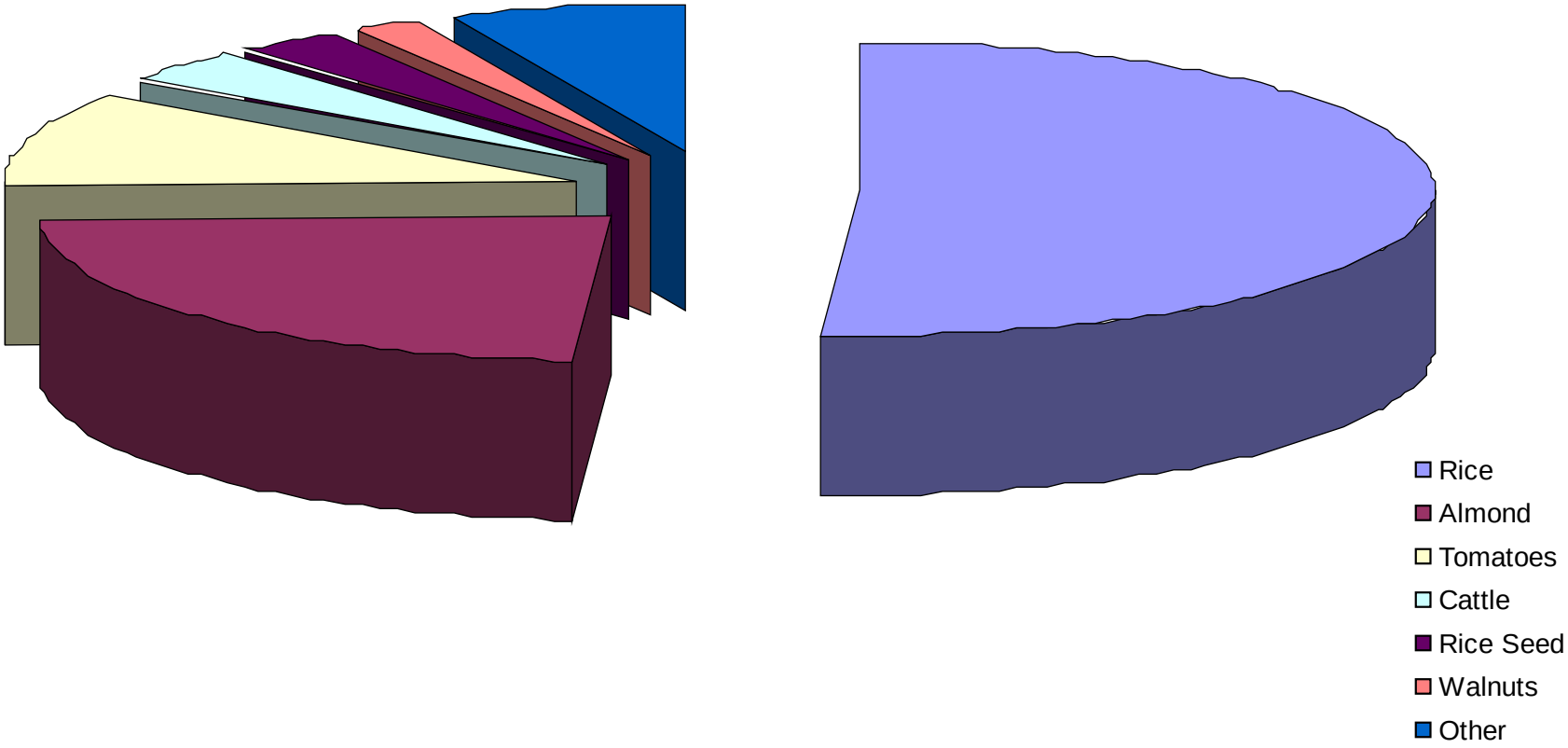

Source: California Agricultural Statistics Service (2002-03). Chart indicates leading commodities in gross value

FIGURE 6.4-2
COLUSA COUNTY
AGRICULTURAL PRODUCTION
SACRAMENTO VALLEY IRWMP