2.0 AGRICULTURE IN YOLO COUNTY

This Chapter presents an overview of agricultural history, soils and water resources, crop patterns, agricultural infrastructure, agricultural economics, and future trends in agriculture in Yolo County. For additional information, please refer to the Agricultural Element Background Report.

2.1 History

The *Yolo County Habitat Management Plan Draft Agriculture Technical Background Report* (American Farmland Trust, 1994) provides the following description of historical agricultural production in Yolo County:

> Yolo County's agricultural history mirrors many of its surrounding counties in the Sacramento Valley region. With early European settlements occurring in the 1840s, Yolo County became known for its extensive dryland grain production. In 1856, Yolo County was the most intensively farmed county in the region with 28,000 acres under cultivation. Although exact figures are difficult to obtain, the best available information shows that wheat and barley production dominated the early agricultural history of Yolo County.
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> Cultivated land was restricted to an area a mile or two wide on both sides of the county's rivers and creeks (mainly the Sacramento River and both Cache and Putah Creeks) prior to 1867. After that time, it was discovered that adobe soils of the basins were just as fertile if farmed properly. Much of the rest of the county was grazed, predominately by sheep, but reclamation and irrigation projects gradually made more land available for cultivation.
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> As canning technology and transportation improved, new markets were available for fruit production, mainly apples, peaches, and plums. Yolo County (along with Solano County) developed the most acreage in orchards, gradually increasing fruit production into the twentieth century.

With the availability of additional water supplies and increased reclamation efforts, the amount of land available for cultivation continued to increase throughout the first half of this century. In the earliest available crop report from the Yolo County Agricultural Commissioner's office, over 378,000 acres were farmed in Yolo County in 1942 on 1,386 farms. Over half of this acreage was dedicated to field crop production, mainly small grains, alfalfa, sugar beets, and corn. Extensive truck farming and tree crop production took place on nearly 50,000 acres; asparagus, processing tomatoes, almonds, and apricots were the important crops, in rank order of total acres produced. In addition, commercial seed production was an important crop covering several thousand acres. Extensive grazing and livestock operations also existed throughout the county.

2.2 Soils and Water

According to the *Soil Survey of Yolo County, California* (U.S. Department of Agriculture Soil Conservation Service, June 1972), there are twelve soil associations in Yolo County. Seven of the associations are on alluvial fans or in basins, making up 63 percent of the county. The other five associations, making up about 37 percent of the county, are located on uplands and high terraces.

Land Capability

The type of agricultural activity that occurs in Yolo County is dependent upon the capability of the soil. The Natural Resources Conservation Service (NRCS, formerly the Soil Conservation Service) classifies soils by eight categories ranging from Class I to Class VIII. The breakdown by class in the county is as follows (*Agricultural and Tourism Targeted Industry Analysis*, 1996):

- Classes I, II and selected Class III - 309,735 acres (63 percent of total County farmland)
- Other Class III and Class IV - 53,406 acres (11 percent of total)
- Classes V, VI and VII- 127,717 acres (26 percent of total)

The Class I, II and III soils in Yolo County have yield potentials which rank them with the best irrigated soils in California. Beyond the Class I, II, and III soils, there are many specific crops which can be produced. Important to Yolo County is the fact that rice and wine grapes can be produced on Class III and IV soils. Figure 2-1 of the Agricultural Element Background Report (included in the Appendix to this document) illustrates the location of soils by capability class in Yolo County. In the mountains and hills of the western portion of the county some of the soils are shallow and/or rocky and stony. The provision of irrigation and drainage ditches and other facilities, together with land leveling throughout most of the rest of the county, have created vast areas of ideal agricultural lands. The county's agricultural future depends on how well this rich soil is protected and conserved.

The following is a brief description of the eight categories as defined by the NRCS:

Class I soils have few limitations that restrict their use. These soils are typically used for vegetables, seed crops, orchards, and other irrigated specialty crops and irrigated field crops.

Class II soils have minor to moderate limitations that reduce the choice of plants or that require moderate conservation practices. Uses are very similar to those found on Class I soils.

Class III and IV soils have severe to very severe limitations that reduce the choice of plants, require special conservation practices, or require very careful management. In some cases, the Class III soils may be used for some of the crop types that are typically found on Class I and Class II soils, but are more typically used for specialty crops, forage lands, mixed croplands, and dryland field crops. Irrigated Class IV soils are commonly used for vineyards.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use. These soils are not found in Yolo County.

Class VI soils have severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture or range, woodland, or wildlife.

Class VII soils have very severe limitations that make them unsuited to cultivation and that restrict their use largely to pasture or range, woodland, or wildlife.

Class VIII soils and landforms have limitations that preclude their use for commercial plants and restrict their use to recreation, wildlife, or water supply, or to aesthetic purposes.

Important Farmlands

The California Department of Conservation has classified Important Farmland in Yolo County by the following categories, as illustrated in Figure 2-2 of the Appendix:

- Prime Farmland - Farmland with the best combination of physical and chemical features able to sustain long term production of agricultural crops.

- Farmland of Statewide Importance - Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or with less ability to hold and store moisture.

- Unique Farmland - Farmland of lesser quality soils used for the production of the state's leading agricultural crops.

- Farmland of Local Importance - Land of importance to the local agricultural economy, as determined by each county's board of supervisors and a local advisory committee.

- Grazing Land - Land on which the existing vegetation is suited to the grazing of livestock.

- Urban and Built-up Land - Land occupied by structures with a building density of at least one unit to one and one-half acres, or approximately six structures to a ten-acre parcel.

The NRCS uses different definitions for these categories of farmland, resulting in different acreages for what is considered “prime” agricultural land.

Table 2-1 of the Appendix indicates the acreage of Yolo County farmland that falls into each category. The table shows a loss in total net acreage from 1996 to 1998 of 6,982 acres. During that same period Urban and Built-Up land showed a total net increase of 1,114 acres.

Table 2-2 of the Appendix presents Important Farmland conversion figures compiled by the Department of Conservation for 1996-1998. The relatively high conversion figure for 1996-1998 is primarily attributed to the establishment of the Yolo Bypass Wildlife Area, which is classified by the Department of Conservation as almost 4,000 acres of “Other Land.” The “Other” category includes wetlands not used for grazing, grazing lands less than 40 acres in area,

lands used for surface mining, regional parks, rural residential areas, steep slopes and other miscellaneous uses.

Prime Agricultural Lands

The Department of Conservation defines Prime Farmland as farmland with the best combination of physical and chemical features able to sustain long term production of agricultural crops. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields.

Yolo County has approximately 270,403 acres of prime agricultural land (Class I, II and selected Class III), which account for 48 percent of the agricultural land in the county (Farmland Conversion Report) (these figures differ from the figures provided under "Land Capability/Important Farmlands" above, because they include differing amounts of Class III lands). Yolo County has the lowest absolute loss in prime farmland compared to other counties in the state for the period covered by the Agricultural and Tourism Study, and was second lowest to Kings County for percentage loss of prime farmland. A number of factors allow Yolo County to withstand the pressures of urbanization which can threaten agriculture, including restrictive land use policies, the high amount of land enrolled in the Williamson Act, and the natural barrier of the Yolo Causeway.

Water Resources

According to the *Soil Survey of Yolo County, California*, the four main sources of water in Yolo County are Cache Creek, groundwater, the Sacramento River, and the Colusa Basin Drainage Canal. Clear Lake is the source of water for Cache Creek, which in turn supplies water to the Rumsey Water Users Association and the Yolo County Flood Control and Water Conservation District. Other agricultural water is supplied from wells, the Colusa Basin Drainage Canal, and the Sacramento River. Groundwater is recharged by Cache Creek in the south-central portion of the county, and by the watershed to the west in the north-central part of the county. The Sacramento River contributes to the groundwater supply in areas adjacent to the river.

Putah Creek flow is directly controlled by Lake Berryessa, a U.S. Bureau of Reclamation project. The Yolo County Flood Control and Water Conservation District *Water Management Plan* indicates that a minor volume of distribution discharge may become surface flow through Cache Creek and the Willow Slough Bypass, and as subsurface flow under Putah Creek and into Solano County.

The principal watersheds in the county, their subbasins and the acreage for each are shown on Figure 2-3 of the Appendix.

According to the *Interim Report Cache Creek Investigation* (Department of Water Resources Bulletin No. 20, April 1958), the major portion of the water supply from the main stem of Cache Creek originates as rainfall in the Upper Clear Lake-Cache Creek Basin:

> Since runoff is largely from rainfall, it is closely allied with the duration and intensity of storms during the winter period. The seasonal runoff pattern is varied, with large flows occurring in the winter and early spring, meager flows occurring in the summer and fall, and both supplemented by limited flow from perennial springs. In addition to variations within the season, runoff fluctuates widely from season to season…Under the present method of operation, runoff from the Clear Lake Basin is partially regulated by Clear Lake Impounding Dam, located on Cache Creek about 5 miles below the natural outlet of Clear Lake. The Grigsby Riffle, a natural restriction in the channel about 2 miles below the natural lake outlet, limits, under certain conditions, the regulating effect of the dam.

According to the *Cache Creek Area Plan*, Cache Creek is located in a groundwater basin that is generally defined by the Coast Range to the west, the Sacramento River to the east, the Colusa Basin watershed to the north, and the Putah Creek watershed to the south (see Figures 2-3 and 2-4 of the Appendix).

According to the *Agricultural and Tourism Targeted Industry Analyses*, 1996), on an annual basis Yolo County uses 1 million acre feet of water, 96 percent of which is for agricultural irrigation. In 1993, approximately 268,000 acres of agricultural land in Yolo County was irrigated. Water supply is approximately 55 percent surface water and 45 percent groundwater. However, during drought periods, the amount of surface water used is reduced, and groundwater supplements the supply.

There are a number of agricultural water districts in Yolo County: Colusa Basin Drainage District, Dunnigan Water District, Knights Landing Ridge Drainage District, Reclamation Districts 108, 150, 307, 537, 730, 765, 785, 787, 811, 827, 900, 999, 1600, 2035, 2068 and 2093, Yolo Zamora Water District, and Yolo County Flood Control and Water Conservation District.

Surface Water Irrigation

As noted above, in most years surface water is the primary source of irrigation water in Yolo County. The Sacramento River provides sufficient quantities of low cost, very high quality irrigation water for the eastern portion of the county.

The Indian Valley Reservoir, completed in the early 1970s, is located just north of the Yolo County line at the source of Cache Creek. Although its primary function is to serve as a water storage facility for irrigation, it also collects much of the runoff water from the northern end of the valley that would normally run into Cache Creek, thus limiting flooding in the region. The Tehama-Colusa Canal starts in Red Bluff in Tehama County and carries water from the Shasta Dam area through Colusa County and into the Birds Eye Creek drainage in Yolo County. The water is used by the Dunnigan Water District for irrigation in the northern part of the county. The potential to extend the Tehama-Colusa Canal has been explored and was determined to have a negative cost-benefit relationship.

According to the *Agricultural and Tourism Targeted Industry Analysis*, the Dunnigan Water District services 10,000 acres with an annual allotment of 19,000 acre feet. This supply is insufficient for the total acreage of the District even in a full water supply year. At the time that report was published, the District did not supply water to all areas within district boundaries, and was concerned about the potential loss of its water rights. It was reported that reclamation law changes instituted in the late 1980s could have a significant long-term effect on the availability of Central Valley Project water for some irrigation districts. The federal contracts which govern these waters are now subject to stricter review and shorter contract renewal periods. Reductions in federally contracted water could significantly reduce the production of high water use crops such as alfalfa.

The report concludes that any increase of agricultural acreage in the county would necessitate increasing the water supply. The potential development of viticultural land in the Dunnigan Hills could eventually require an additional supply of water.

Groundwater Irrigation

Groundwater wells provide approximately 45 percent of irrigation water, as noted above. The cities and most unincorporated communities in the county have public water supplies. No domestic water currently comes from surface supplies.

According to the *Clear Lake-Cache Creek Basin Investigation* (Department of Water Resources Bulletin No. 90, March 1961):

> The valley floor lands in the Clear Lake-Cache Creek Basin are underlain by water-bearing materials of considerable storage capacity, particularly in the Cache Creek Service Area. Water pumped from underground storage serves nearly all the lands irrigated within the Clear Lake Basin, and meets a substantial portion of the water requirements for irrigation and domestic uses within the Cache Creek Basin…Percolation of precipitation and stream flow are the most important sources of ground water replenishment, while percolation of the unconsumed portion of applied irrigation water and of losses from canals and laterals constitutes a secondary, although significant, source of replenishment…Ground water in the Cache Creek Service Area is, for the most part, free or unconfined, but many deep wells show "semiconfined" effects…The Cache Creek Basin is underlain by folded and faulted consolidated sedimentary rocks of Cretaceous and Tertiary age which contain little useable ground water. These older rocks are overlain by the following water-bearing formations: Tehama formation and related continental sediments of Plio-Pleistocene age; older alluvium and terraces of Pleistocene age; and stream channel, terrace, flood plain, and other alluvial deposits of Recent age.

The depletion of groundwater resources has been a major concern in the County. According to the *Agricultural and Tourism Targeted Industry Analysis*, in the past, the overdraft of groundwater has been a severe problem in the Upper Cache Creek watershed and the Dunnigan Hills region. According to the EIR for the Yolo County General Plan (1983), recharge to

groundwater in Yolo County is by deep percolation of rainfall, irrigation, return waters, and leakage from irrigation canals. The EIR states that this overdraft results from increased pumping for agriculture, combined with restricted opportunities for recharge. The importing of surface waters by canals such as the Colusa Basin Drainage Canal and the Tehama-Colusa Canal has helped to relieve the problem, as has construction of Indian Valley Reservoir. Furthermore, the above-cited sources report that groundwater in the entire county is adequately recharged during the wet years to offset drought period overdrafts. However, as a multi-jurisdictional effort, countywide subsidence monitoring surveys were conducted in 1999 and will be repeated in 2003.

In order to preserve the groundwater underlying Yolo County for agricultural and municipal uses, the Yolo County Code regulates the extraction and exportation of groundwater from Yolo County. Excluding exceptions described in the Code, the Code requires that a permit be obtained for extraction of groundwater underlying the County for use outside of the County.

2.3 Crop Patterns

According to Yolo County Crop Reports from 1963 to the present, small grains such as barley and wheat and other field crops have been the county's primary crop types. However, as indicated in Table 2-3 of the Appendix, tomato processing almost doubled in that same period. More recently, tomato processing has experienced a sharp decline due to the closure of two large canneries. In 1963, the selected crops shown on Table 2-3 were produced on 306,250 acres of the total 397,550 acres in the county used for crop production. In 1997, the same crops were produced on 244,400 acres of the total 409,194 acres in the county used for crop production. In 1999, the selected crops were produced on 313,682 acres of the total 440,783 acres in the county used for crop production.

2.4 Infrastructure

Farm to Market Roads

Yolo County contains a total of 843 miles of County roads that branch out from federal and State highways located throughout the county. Federal highways in the county include I-505, I-5, and I-80, and State highways include State Route (SR) 16, SR 45, and SR 113. All of these roads provide a network by which local farmers can have their produce transported to local food processing plants. Local trucking is mainly dedicated to providing this service. Poor road conditions on county roads, due to lack of sufficient transportation funding, are of concern to the farming community. Figure 4-5 of the Appendix shows local farm to market roads.

Airports

Yolo County airports include the University Airport, Yolo County Airport and the Woodland-Watts Airport. The University Airport is publicly owned by U.C. Davis and is located two miles west of the City of Davis. The Yolo County Airport is also a publicly owned airport and is located approximately five miles southwest of Woodland. Crop dusters use the Yolo County Airport. The Woodland-Watts Airport is privately-owned and is located approximately six miles north of the Yolo County Airport.

Port of Sacramento

The Port of Sacramento, located at the eastern boundary of Yolo County along the Sacramento River, provides direct ocean freight service via San Francisco Bay to all major ports in the United States and internationally. It offers containerized and bulk shipment of products and agricultural raw materials to other locations in the United States and the Pacific Rim countries. Bulk seed and rice is exported through the Port of Sacramento. Expansion of the rice storage facility at the Port in the 1990s to accommodate increased exports to Asia supports rice exports from Yolo County and the Sacramento Valley. The California Free Trade Zone located next to the Port and the West Sacramento Enterprise Zone can both provide assistance to selected agribusiness companies with trade between Yolo County and the Pacific Rim.

According to an article in the Sacramento Bee, the Port handled 833,421 tons during the 1999-2000 fiscal year, down from 871,826 tons the previous year, which was the lowest volume since the early 1960s when the facility was just starting operations. The two major commodities exported from the Port are rice and wood chips. A total of 68 cargo ships used the Port last year, up from 60 the previous year. According to the article, cargo volume peaked in the early 1980s and has been gradually trending down ever since. Revenue has been stagnant at approximately $10 million for the last 20 years ("Port's cargo traffic falls again," August 25, 2000.) Port management has indicated that stated volumes are down for its core business due to market conditions, but that the Port is in the process of securing new business that should result in increased volumes in the coming year (Ron Popham, Director of Trade, pers. comm., October 2000). New sources of business include shipments of lumber from New Zealand and urea (a compound used in fertilizer) from Saudi Arabia (Sacramento Bee, November 3, 2000).

2.5 Economics

Crop Values

In 1999, total agricultural revenues in Yolo County equaled $339.9 million, up from $297.8 million in 1994 and $276.6 million in 1998. The leading crop was processing tomatoes, at $132.7 million, with approximately 67,000 acres in production. Other leading crops in 1999 were wine grapes, seed crops, rice, and alfalfa. Processing tomatoes remains the leading crop in both revenue and acreage, up from $87.9 million in 1998 and $118.1 million in 1994. Wine grapes have increased in revenue from $6.2 million in 1994 to $35.4 million in 1999. The 23 percent increase in overall revenues is attributed by the Agricultural Commissioner to higher crop yields due to favorable growing conditions and increased acreage. The most significant increases were reported in vegetable crops (up 52 percent), field crops (up 17 percent), seed crops (up 28 percent), and nursery products (up 79 percent).

One notable trend is that organic farming has led in revenue growth rate for the past 5 years. According to Yolo County Agricultural Crop Reports, organic crop acreage and income have increased by 94 percent and 67 percent, respectively, from 1996 to 2000 (see table below). The high growth rate of organic acreage and income in Yolo County is a reflection of the growing organic industry throughout California and the United States. With the start-up of new organic

farms, the conversion of conventional agricultural farms to organic, and the growth of existing organic farms, Yolo county farmers are keeping pace with the high demand for organic produce.

Yolo County Organic Crop Acreage and Income 1996-2000

(Totals include both Fruit/Nut and Field/Vegetable categories)

Year	Acreage	Income
2000	3,335	6,674,000
1999	2,830	5,422,000
1998	2,425	6,392,692
1997	1,556	3,641,000
1996	1,719	3,998,000

Source: 1996, 1998 and 2000 Yolo County Agricultural Crop Reports.

Other crop trends include wine grapes, which have ranked second overall in revenue growth rate for the 5, 10 and 25 year periods previous to 1994. Miscellaneous fruits and nuts ranked first overall for the 25-year period, with safflower in the lead for the past 10 years. While processing tomatoes remain in the lead for total crop value, they rank eighth overall in terms of revenue growth.

Employment

According to the State Employment Development Department (EDD), total civilian employment in Yolo County was estimated to be 95,800 in June 2000. The unemployment rate was 4.4 percent for 1999, compared to the statewide unemployment rate of 5.2 percent. Employment in the agricultural sector has increased from 4,800 in 1995 to 6,900 in 2000, although it was forecast in the *Agricultural and Tourism Targeted Industry Analysis* to decrease due to the increasing mechanization of farm operations. Employment in the food products sector has decreased slightly from approximately 2,000 in 1995 to 1,700 in 2000. Agriculture accounts directly for approximately 6 percent of county employment. The Agricultural and Tourism report notes that EDD statistics show the proportion of persons employed in the production of agricultural commodities has been dropping relative to the number of persons employed in providing services to agriculture. According to the EDD "County Snapshot", Yolo County's labor market conditions have been steadily improving over the last 5 years, with job growth and declining unemployment rates.

One of the characteristics associated with the agricultural employment base is its seasonal nature. Industries such as food processing, tomato processing, winegrapes, nurseries and dairies provide many year-round jobs, and at generally higher wages than field labor. As stated in the above-referenced report:

> The industrial nature of these jobs opens up the possibility of supervisory and technical services positions for individuals from the targeted income group who are properly trained. Production jobs can lead to supervisory or technical job upgrades. Supervisors are preferentially promoted rather than hired. As public health concerns are translated into more rigorous safety monitoring and higher quality control in an increasingly technological industry, the proportion of

> technical and clerical workers (especially data collectors) will inevitably rise. Many of these jobs can be filled from the pool of production workers.

That report notes that food industries create a large proportion of production jobs (from 60 to 75 percent), which require minimal education, skill levels, and work experience. Wage levels for these types of employment are higher than for field laborers.

Multiplier Effect

According to the Yolo County Agricultural Commissioner *1999 Annual Crop Report*, agricultural production figures only partially reflect the overall measure of the impact agriculture has on the local economy. Field labor, processing, transporting, marketing and other farm-related services significantly multiply the value agriculture has to Yolo County.

Income from agriculture at the community level may be classified as primary or secondary income. Examples of primary income are farm operators' and proprietors' net cash farm income, and wages paid to hired labor. The secondary income contribution arises from primary farm income spent as household income. Also, most gross farm income is used to purchase farm business inputs and equipment. Expenditure of these dollars supports local businesses which pay wages and provide income to local proprietors. The impact of both farm household and farm business spending contributes to the secondary income as measured by the income multiplier.

When measuring the multiplier effect, an income multiplier is used to help determine the total effect of each additional dollar earned by a local household. The multiplier ranges in value from 1 to some value greater than 1. Each multiplier has two components: the initial direct income, or primary effect; and the secondary effect, which is caused by two separate forces.

The first force is the ripple effect that occurs when the farmers buy local inputs to use in their production process. The operating budget of the farms is spent either inside or outside the county. Dollars spent locally will generate an indirect effect, resulting in more personal income available to local households. Dollars spent outside the county are lost dollars, and they generate no additional impact.

The second force is the ripple effect that occurs when farm income is paid out to its employees and owners. These dollars go to people in the form of wages, interest, rents, dividends, and profits. If the recipients live locally and spend their household income locally, the dollars will have an induced effect, resulting in more personal income available to local households. If the dollars go to people who do not live or spend in the county, the dollars are lost and generate no additional income (*Estimating the Role of Production Agriculture in a County's Economy, Community Development Series*, Kansas State University, 1990).

The national earnings multiplier for agriculture is 2.18, meaning that for every primary dollar spent, $2.18 is generated in secondary income. In addition, for every farm job created, 1.97 secondary jobs are created. This is lower than the multiplier effects of manufacturing (including food processing) and many other industries. This multiplier is confirmed in general by a 1999 economic analysis of Yolo County (Economic and Planning Systems, *Yolo County Economic*

and Revenue Analysis, May 1999), which concluded that the income multiplier effect for the local seed industry and for wineries is 1.8; for food processing, 2.0; for a bioscience firm, 2.1; and for a hotel, 2.2. The seed and hotel industries tend to be more labor intensive, and have higher job multiplier effects, but those jobs also tend to be lower paying. The fact that agricultural multipliers are lower than manufacturing also has an impact on County revenues, as described below.

Impact on County Revenues

While agricultural property and business activity provides a significant portion of the tax base in Yolo County, the tax revenues generated by the agricultural industry are lower in many cases than would be created by other types of economic activity and land uses. A recent report prepared for the Yolo County Board of Supervisors states "Yolo has not had the revenue base available to provide a desirable level of services in the County" (*Yolo County Economic and Revenue Analysis*, May 1999). The report cites a number of reasons for this, including the low percentage of property tax received by County government in Yolo County, but part of the explanation is the value of the tax base created by the agriculture industry. Low tax revenues result from agriculture because the value of farmland for uses other than food and fiber production is not factored into the tax base formula. Farmland also has value for flood control, groundwater recharge, wildlife habitat and open space, which goes unrecognized when tax base and tax revenue alone are considered. Table 3-5 of the Appendix provides comparisons among a variety of business types, assuming a consistent one-acre development of each. Agricultural support businesses typically generate approximately $6,550 per acre for the County budget if they are located in the unincorporated area, but this is lower than certain types of industrial and visitor-serving businesses. Similarly, food processing provides less revenue than other kinds of low sales tax industry. Therefore, while agriculture provides jobs, economic activity and more intangible benefits in the form of flood protection, groundwater recharge, open space and habitat preservation, some diversification of the economic base would benefit the County budget.

By the same token, the public service needs of agriculture are very different from service needs for more urban types of development, including residential, commercial and industrial uses. Calls for police and fire protection service are normally very low, and farms typically provide their own domestic water and waste disposal with wells and septic systems. Solid waste is typically hauled to a landfill, and agricultural waste may be hauled or burned (when permitted). Schools are needed, but the low densities of human population do not place the demands on the school system that are experienced in urban areas. However, school bussing is a need in rural areas where long distances between home and school are the norm. Services most needed and utilized by agriculture include irrigation systems and the road network. Trucks used for delivery and hauling eventually take a major toll on maintenance of County roads, and County revenues are typically not adequate to maintain the entire roadway system. Irrigation water is provided by special districts through a network of canals serving the areas devoted to agricultural production, and by individual agricultural wells.

Industrial Base

The major food processing companies in wheat, rice, and vegetable oils are located in Woodland or West Sacramento with access to rail and/or water transport. Grain handling facilities are also located in Yolo, Zamora and Dunnigan along I-5 and the California Northern rail line. The major fruit and nut processor is located in Winters. Smaller fruit and nut operations are located in Winters, Dunnigan and along the Sacramento River in Elkhorn.

Not surprisingly, Yolo County also has a highly developed agricultural supplier industry to serve the growers and food processors. The supplier industries for other non-agricultural local industries are less developed, and those suppliers tend to locate in Sacramento and the Bay Area.

2.6 Trends

The acreage devoted to specific crop production will always be affected by market trends and changes in government programs. For instance, the price that canneries offer for processing tomato production will impact the amount of acreage used for growing tomatoes. This in turn affects the acreage used for other field crops. The federal government crop price support programs (including the Agricultural Market Transition Program [AMTA] and Production Flexibility Contracts [PFC]) will also have an impact on the amount of acreage used for crops such as rice and wheat.

The Del Monte tomato processing plant in Woodland recently closed, and it was announced that the company plans to consolidate its tomato processing at a more modern facility in Hanford to improve operating efficiency. According to the Sacramento Bee (November 14, 2000), this plan continues a geographical shift of the tomato processing industry further south in the Central Valley because of lower costs and better crop yields. The article concludes that this will force farmers to plant less acreage of a crop that historically has been among their most profitable. The former Del Monte processing plant was recently acquired by Pacific Coast Producers who have announced that they plan to continue to process tomatoes.

It is likely that sugar beet production will decrease or cease given the fact that crop prices have lowered, local processing capacity is no longer available, and increasing problems with soil-borne disease. Market trends may also affect other specific crop types such as tomatoes or rice. On the positive side, there have been modest acreage increases in both grape and prune production, and there is growing interest in bringing back cotton production to the county. Wine grape production may increase dramatically if prices paid by wineries for Yolo County varietal wine grapes remain high.

Overall it appears that the future of field crops will be stable. However, due to greater uncertainty of future water supplies in the neighboring San Joaquin Valley, crop changes may occur in the San Joaquin Valley that push greater production of high-water consuming crops into Yolo County. Crops with high water consumption include corn and tomatoes. This conclusion conflicts with the forces described above tending to push tomato production toward the San Joaquin Valley. Yolo County has such high potential for crop diversity that it is less affected by these types of changes than areas tied to a single crop.