

# Cost and Return Studies for California Commodities: Past and Present

by Pete Livingston

At first glance, farm costs of production seem easy to evaluate. Farmers use inputs and services for growing their crop, and their expenses are determined and added together to arrive at a total cost to grow the commodity. At many land grant universities and state agricultural colleges agricultural economics students learn to conduct a cost study during their course work as part of the basic understanding of farm management.

Cost studies have been calculated and distributed by UC Cooperative Extension for years. In fact, the earliest cost studies in the archives go back to 1931 for walnuts grown in Stanislaus County. Walnuts cost a whopping \$25.80 per ton to produce in 1931. Sixty seven years later it cost \$1,476 to produce a ton of walnuts, and an acre of walnuts today produces four times the tonnage it did in 1931.

Many crops that were studied in previous years, such as peanuts, flax and hops, are no longer grown in commercial quantities in California. Rabbits, which are still raised commercially in San Diego and Sutter counties, were the subject of several cost-of-production studies from the thirties through the 1950s, but there have been no new studies done since 1977.

Not only has the mix of crops grown in California changed, but so have the production methods. In early studies the cost of horse work was calculated along with trucks and tractors. For example, in 1938 it cost growers 7.5 to 15 cents per hour to use a two-horse team in the field.

Tractors and implements used in the 1930s and 40s were small in comparison to today's behemoths. Tractors used for primary tillage back then were of the 10-35 horsepower range. Fuel cost growers \$0.17 per gallon for gasoline and diesel was \$0.05 per gallon. Cultivation of field crops was left mainly to manual labor or horse drawn cultivators.

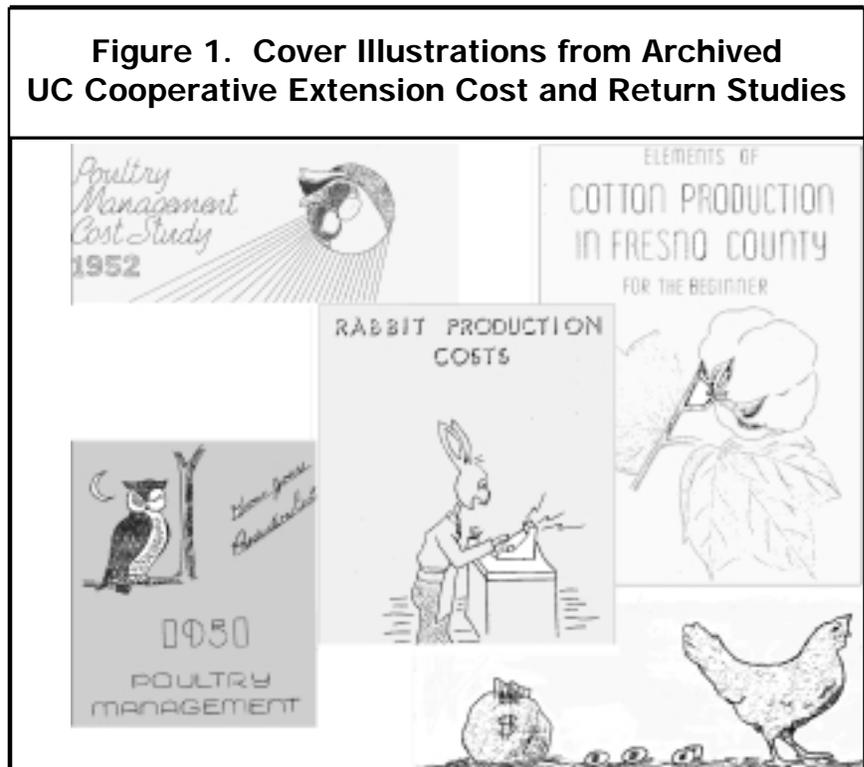
In 1938 wage rates were generally \$0.30 per hour. Today a basic field laborer making the minimum wage costs the grower about \$7.71 per hour with taxes and benefits included. Experienced tractor drivers and irrigators may receive \$9.50 to \$12.00 per hour.

Up until the 1980s, cost studies were computed with calculators (slide rules before that) typewritten into their final form, and mimeographed for distribution. Now computers are used for calculations.

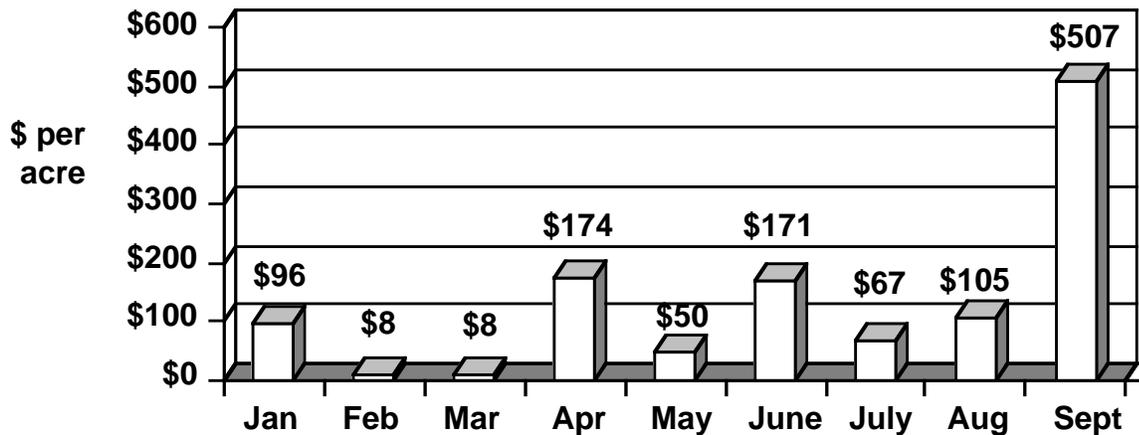
A production cost study begins with a meeting among UC farm advisors, farmers and a research staff person from the Department of Agricultural and Resource Economics (DARE). Farmers and advisors provide the DARE staff person with production details, such as what operations are performed and what month they occur, materials used for cultural practices, such as seeds, pesticides, and fertilizers, and what, if any, custom services are hired, such as spraying and harvesting.

This information is then entered into a computer program called *Budget Planner*, developed by Dr. Karen Klonsky, that calculates costs and returns based on

**Figure 1. Cover Illustrations from Archived UC Cooperative Extension Cost and Return Studies**



**Figure 2. Monthly Production Costs for Walnuts  
Southern San Joaquin Valley**



Source: Klonsky, K., et al., "Sample Costs to Establish and Produce Walnuts," Department of Agricultural and Resource Economics, UC Davis

standardized economic and engineering formulas. The narrative section of the study is compiled from the information gathered at the initial data collection meeting and is written in collaboration with the participating farm advisors. The draft of the study is sent out to contributing advisors and selected growers for review and is rewritten based on comments they make. The finished study is sent to all of the covered counties and the DARE files for release to the public.

Demand for the studies is high. During the past nine years an average of over 10,000 cost studies per year have been distributed by the DARE and the County Cooperative Extension offices. Copies of the studies are also available at the DARE library and Shields Library at UC Davis and the Giannini library at UC Berkeley. More than 100 current budgets are available.

Modern technology has made the cost studies more readily accessible than ever. Many of the newer cost studies are available on the internet as downloadable files. The cost study index and downloadable files are available online at:

[www.agecon.ucdavis.edu/outreach/crop/cost.htm](http://www.agecon.ucdavis.edu/outreach/crop/cost.htm)

Over 3,400 cost studies have been maintained and acquired and are archived at the DARE library and the Biological and Agricultural library in Shields

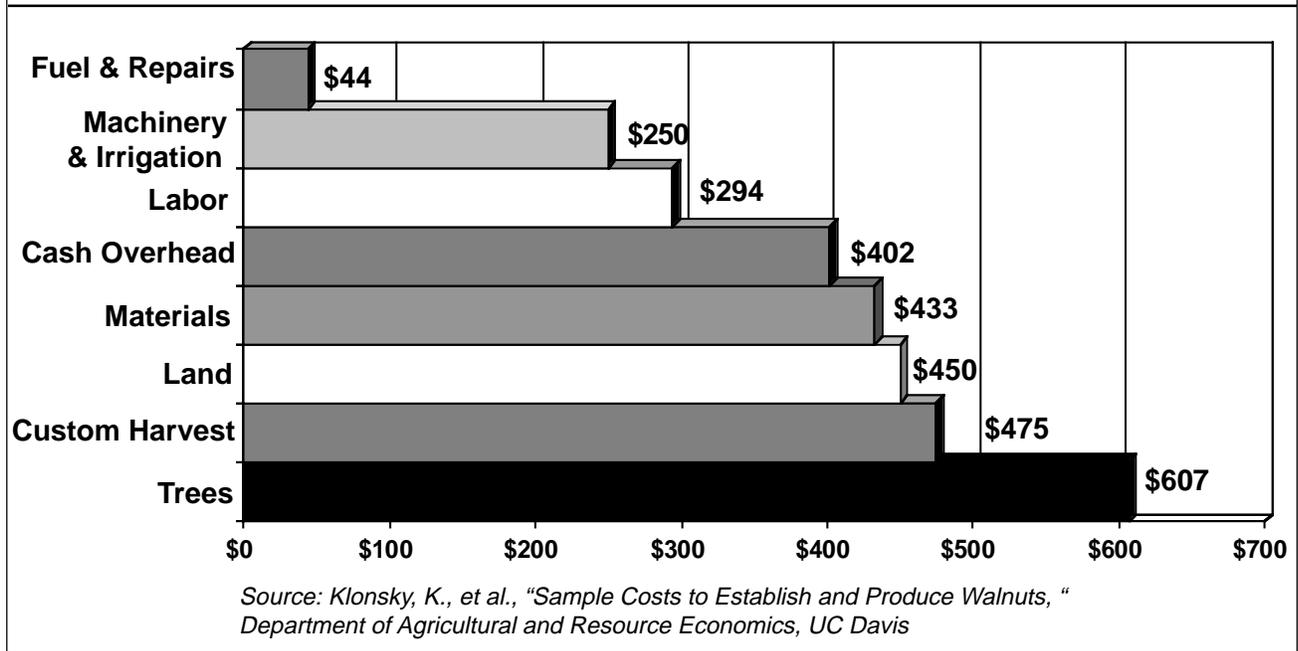
Library at UC Davis. One acquisition of several hundred old budgets came from a retired bank loan officer who had kept them in his farm's old water tower. All of the archived studies are available by request.

Clients for the studies have traditionally been, and still are, farmers and lending institutions. Many growers examining new enterprises look over cost studies to see if they might fit their operation and available resources. Bankers and other lenders consider the studies to be an accurate estimation of production costs and returns, provided by a neutral third party, and gauge a loan request using them.

Users come from all over. When the 1998 pecan study was finished, it was reported in the *Pecan South* magazine and requests for the study came from Georgia, Alabama and Mississippi. Growers from Mexico, Chile, Brazil, Australia, New Zealand, Namibia, Guatemala, Zimbabwe, France, England, Egypt and South Africa have requested copies of California studies. The pistachio study seems to be the most popular at present.

While the traditional clientele still actively use the reports, many others have found added uses for them. Federal and state agencies have used the studies as informational resources to develop policies for pesticide regulations, water use, particulate matter

**Figure 3. Annual Costs per acre to Produce Walnuts - 1998  
Southern San Joaquin Valley**



pollution, immigration labor requirements, federal water projects and natural resource protection. Agricultural industry groups have also used the data in crop budgets in their efforts to support maintenance and special use of certain pesticides and to lobby for various legislative changes. Some studies have been used by both producer groups and processors in negotiations over contract prices of commodities. The studies are also used by insurance companies, lawyers, advocacy groups, land use planners, assessors, consultants, and auditors.

Finally, the studies are useful as an input into further research. Researchers from universities in many other states request studies for research on crops grown in their state. For example, in 1992 when Hurricane Andrew devastated Florida, avocado groves were completely wiped out. Florida's Cooperative Extension service had not done an avocado cost study in many years and the industry could not determine whether it was reasonable to replant the orchards in the current market. California's 1992 avocado study was used to help assess whether to replant or not.

Even though California remains the most productive and diversified agricultural state in the U.S., not all crops are grown here, nor do we have cost studies for all of the crops that we produce. A sample of those available can be viewed on page 6 and the

complete list of current studies is posted on the Web site listed below. However, if you are looking to find out what it costs to grow coffee, bananas, soybeans, breadfruit, macadamia nuts, pineapples or cranberries, you will have to look beyond California.

**[www.agecon.ucdavis.edu/  
outreach/crop/cost.htm](http://www.agecon.ucdavis.edu/outreach/crop/cost.htm)**

*Pete Livingston is a Staff Research Associate in the Department of Agricultural and Resource Economics at UC Davis. His areas of interest include cost of production, sustainable agriculture and crop energy analysis. Mr. Livingston can be reached by telephone at (530) 752-3589 or via e-mail at: [pete@primal.ucdavis.edu](mailto:pete@primal.ucdavis.edu)*