# 4) Witness – Rachael Goodhue

My name is Rachael Goodhue R-A-C-H-A-E-L G-O-O-D-H-U-E. I am a professor and department chair in the Department of Agricultural and Resource Economics at the University of California, Davis. I have worked there since 1998, after earning my Ph.D. in agricultural and resource economics at the University of California, Berkeley.

Advertising and promotion activities are predicted by economic theory to increase demand for the advertised product. This prediction is supported by empirical analyses of advertising and promotion activities for individual agricultural commodities (see for example, the studies of California commodities in Kaiser et al. (2005).[[1]](#footnote-1) The increase in demand is an outward “shift” that increases the price for any quantity sold and increases the quantity sold at any given price. Handler-led marketing investment is expected to increase total industry expenditures on advertising and promotion. Consequently, net returns and gross revenues to producers and handlers are expected to increase.[[2]](#footnote-2)

Consumer surplus is the benefit that consumers obtain from purchasing walnuts less the cost of purchase. An outward demand shift indicates that consumers would benefit. Because the aggregate quantity demanded at each price increases, consumers reveal that they increase their consumer surplus by purchasing more walnuts given the price of walnuts and other goods available to them and their incomes. If consumers did not benefit, they simply wouldn’t demand more at specific price as a result of the handler-led advertising investments and demand would not shift out. Consumers, in other words, would benefit or be unaffected by the program.[[3]](#footnote-3)

Figure 1, entered as an exhibit, illustrates the effects of a demand shift on producers and handlers and consumers. The quantity produced and sold is on the horizontal axis, and the price is on the vertical axis. The solid red line represents the initial (inverse) demand curve. For any quantity, the demand curve plots the price at which consumers will purchase that amount. The blue line represents the (inverse) supply curve. It plots the price for which industry will supply any given quantity. The initial market equilibrium is where the demand and supply curves cross: at that point consumers are willing to buy the same quantity as industry is willing to supply at that price. Consumer surplus, the benefit consumers obtain above what they pay, is the area below the demand curve and above the price line, represented by the dotted line. Producer surplus (returns over fixed costs) is the area above the supply curve and below the price line.

The dashed red line represents an outward shift in the demand curve, or an increase in demand. Notice that consumers are willing to pay a higher price for any given quantity. The quantity sold and the price increase relative to the initial equilibrium, as shown by the intersection of the new demand curve and the supply curve and the red arrows on the horizontal and vertical axes. Thus, an increase in demand due to increased advertising and promotion in a credit-back program would increase both industry and consumer welfare.

Figure 1 holds the supply curve constant. However, the 2017 California Walnut Acreage Report (the most recent available), reported 65,000 non-bearing acres and 365,000 bearing acres.[[4]](#footnote-4) Total walnut acreage has been steadily increasing since 2011, implying that bearing acres are not being removed as quickly as acres are being planted. Non-bearing acreage has also increased, suggesting that there will be a substantial increase in supply within the next few years. Figure 2, entered as an exhibit, illustrates the case where supply increases, *holding demand constant*. Comparing the market quantity and price for the original (solid blue) and increased (dashed blue) supply curves, the quantity sold increases and price declines. That is, in the absence of a demand shift the increase in bearing acreage would reduce price, all else equal. Consumer surplus would increase because consumers would purchase more at a lower price. Producer surplus may increase or decrease depending on demand, supply, and the nature of the increase in supply; in the figure it increases.

Figure 3, entered as an exhibit, illustrates what could be the net effect of an increase in demand and an increase in supply. As in the previous two figures, the initial market equilibrium is where the two solid lines intersect. The new market equilibrium is at the intersection of the increased demand curve and the increased supply curve, denoted by the two dashed lines. In this case, the quantity exchanged increases substantially, and price increases as well. Consumer and producer surplus both increase in the figure. Depending on the nature of the shifts in supply and demand, the observed price may actually decline, as may producer surplus. *However, the observed price will always be higher than the price would have been if demand did not increase*. An increase in demand due to handler-led marketing investments in advertising and promotion would increase the market price.

**Effect on returns to producers and handlers**

Over time, the CWB would expect the credit-back program to increase returns through shifting out market demand. Credit-back is a tool that would enable the CWB to leverage assessment funds into greater total advertising and promotion activity by encouraging handler investment in advertising and promotion. Handler-led advertising and promotional activities are anticipated to shift out demand as discussed above. Regardless of whether or not a producer sells to a handler that utilizes the credit-back program he will benefit from the demand shift.

Handler-led investments would provide for additional consumer awareness of walnuts, increasing demand and, all else equal, enhancing prices. The proposed credit-back program would require handlers to label the product on its primary, face label as California walnuts, the handler’s name or with a brand. This requirement could aid in differentiating California walnuts from walnuts produced elsewhere, potentially leading to higher prices for California producers for any given levels of California and worldwide production all else equal.

There are multiple ways in which handler-led investments in advertising and promotion could increase demand. First, current walnut consumers could purchase more walnuts. Second, more consumers could choose to purchase walnuts. CWB market research has estimated that California walnuts are consumed by 40% of U.S. households, so there is substantial untapped potential demand. Finally, handler-led investments could result in additional sales channels due to the development and sale of value-added products, potentially increasing net returns above those obtained by commodity sales. New value-added products and greater visibility of existing ones could induce current walnut users to buy more and attract new users.

A quantitative estimate of these benefits is obtained based on the analysis in Kaiser (2018), which follows the standard economic approach for estimating the economic impact of commodity advertising and promotion expenditures. Using data from 1980 to 2016, he estimated the demand for California walnuts as a function of the price of California walnuts, US GDP, and CWB advertising and promotion expenditures.  He then estimated the own- price supply elasticity of California walnuts.  The estimated supply and demand equations were used to construct a simulation model that ensures the quantity supplied equals the quantity demanded. Based on this analysis, he estimated the average total revenue and net return generated by a $1 investment in advertising and promotion. Kaiser (2018) is included as an exhibit.

Kaiser (2018) estimated that each dollar invested in advertising and promotion of California walnuts generated $19.75 in total revenue and $15.67 in net returns on average. Assuming a $0.04 assessment rate per hundredweight and total production of 625 million cwt, the CWB’s total annual budget is approximately $25 million. If the program budget would be assigned 10% of assessments, then it would have $2.5 million to allocate each year. Assuming all handlers requested their maximum amount of credit-back, then they would invest a total of $3.25 million in advertising and promotion: 70% of these expenditures would be credited back, totaling the $2.5 million in the program budget. The remaining 30% would be a $1.07 million increase in total advertising and promotion expenditures, paid by handlers. Multiplying Kaiser’s estimated returns per dollar by the additional expenditures by handlers, the program would generate roughly $21.2 million in additional total revenues and roughly $16.8 million in additional net returns for California walnut producers and handlers.[[5]](#footnote-5) Table 1, entered as an exhibit, summarizes these calculations.

**Effect on costs**

There are no expected cost increases in the short run, although over time administrative costs may increase for the CWB depending on the evolution of the size and complexity of the program. Costs will decrease for participating handlers.[[6]](#footnote-6)

*Producers.*Producers’ costs would be unaffected; the program only involves actions by handlers and the CWB.

*Handlers.*Handers participating in the credit back program will have a decrease in net assessment costs because a portion of their marketing expenses will be credited back.

Costs will be unchanged for handlers who do not participate. All handlers choose whether or not to participate; they will only do so if there is a positive net benefit. Handlers do not compete for credit-back funds; the amount of funds available to a handler is dependent on its share of total acquisitions in the previous year.

*California Walnut Board.* Initially, oversight expenses for the CWB are expected to remain unchanged because it is anticipated the program will be funded from the current operational budget. However, depending upon the scope and complexity of the program once implemented, additional staff resources may be needed.

*USDA.*There are no expected increases in costs for USDA.

**Effects on small businesses**

USDA data indicates the majority of walnut growers and walnut handlers qualify as small business entities according to the SBA definitions. Given that the majority of industry businesses qualify as small entities, the benefits and costs explained above are the anticipated effects on small businesses.[[7]](#footnote-7) Benefits to small businesses are proportional; all industry members will benefit proportionately from an increase in demand due to the credit-back program.

*Growers meeting the small business definition*. Costs are zero for growers, including small growers. Benefits to small business growers are proportional; all industry members will benefit proportionately from an increase in demand due to the credit-back program.

*Handlers meeting the small business definition*. Small businesses, as for all handlers, will participate only if they benefit from doing so. Handlers meeting the definition of a small business will benefit proportionately from the reduction in costs obtained by participating in the credit-back program. Because a handler’s credit-back is pro rata based on his percent of acquisitions from the prior year, no handler can benefit disproportionately from the program. Benefits to small business handlers are proportional; all industry members will benefit proportionately from an increase in demand due to the credit-back program.

Figure 1. Effect of an increase in demand



Figure 2. Effect of an increase in supply

Figure 3. Effect of Increases in Supply and Demand



Table 1. Calculating the impacts on total revenues and net returns of the credit-back program

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| --- | --- | --- |
|  | **Calculation** | **Value** |
| Total production (cwt.) | (A) | 625,000,000 |
| Assessment rate ($/cwt.) | (B) | 0.04 |
| Total CWB budget ($) | (C=A\*B) | 25,000,000 |
| Share of budget allocated to credit-back program (%) | (D) | 10 |
| Credit-back program budget ($) | (E=C\*D) | 2,500,000 |
| Credit-back rate (%) | (F) | 70 |
| Total advertising and promotion expenditures with credit-back program ($) | G=E/F | 3,571,429 |
| Increase in advertising and promotion expenditures ($) | H=G-E | 1,071,429 |
| Increase in total revenues per dollar of advertising/promotion ($) | (I) | 19.75 |
| Increase in net returns per dollar of advertising/promotion ($) | (J) | 15.67 |
| Increase in total revenues ($) | (K=H\*I) | 21,160,714 |
| Increase in net returns ($) | (K=H\*J) | 16,789,286 |

**Exhibit #X – Kaiser Economic Analysis**

1. Harry M. Kaiser, Julian M. Alston, John M. Crespi, and Richard J. Sexton, editors. *The Economics of* *Commodity Promotion Programs: Lessons from California.* New York: Peter Lang Publishing Incorporated, 2005. [↑](#footnote-ref-1)
2. Justification 4: producers and handlers [↑](#footnote-ref-2)
3. Justification 4: consumers [↑](#footnote-ref-3)
4. National Agricultural Statistics Service, United States Department of Agriculture. 2018. “2017 California Walnut Acreage Report.” May 23. Available at <https://walnuts.org/report/acreage-report-2017/>. [↑](#footnote-ref-4)
5. 5. Quantify improvement in returns to industry. [↑](#footnote-ref-5)
6. 7. Costs [↑](#footnote-ref-6)
7. 6. Effects on small business. [↑](#footnote-ref-7)