

essential to the continued economic well-being of the California pistachio industry. Moreover, witnesses discussed the importance of implementing a marketing order program that would provide a regulatory structure to monitor and ensure that minimum quality standards are not compromised as production of California pistachios increases. One of the most important quality characteristics cited by witnesses is the regulation of aflatoxins as these carcinogenic molds can be found in improperly handled pistachios.

The proposed order would set quality standards for pistachios produced and handled in California by establishing a maximum aflatoxin tolerance level, maximum limits for defects, a minimum size requirement, and mandatory inspection and certification. Witnesses of the proposed marketing order argued that this regulatory program would bolster consumer demand for pistachios.

The relationship among product quality, consumer demand, and producer returns in the pistachio industry was demonstrated at the hearing. Pistachio production is not only costly in terms of initial investment and cultural costs, but it is highly unpredictable in terms of returns. Between the initial processes of cleaning, hulling, sorting and drying, a significant portion of the initial volume harvested is reduced. This volume is further reduced as the handling process reaches its final stages of further sorting for quality and final preparation for market. As such, witnesses explained that ultimate pistachio sales are based on approximately 30 percent of the volume initially harvested from the field. Because of this, witnesses stated that the process of extracting the highest quality portion of the harvest, and ensuring consumer satisfaction with that product, is crucial to determining the value of the crop.

Pistachio production is similar to other nut crops in that yield and total production are impacted by the alternate bearing nature of pistachio trees (meaning cyclical high and low production years). In addition, producer returns and total crop value are dependent on the overall quality of the crop. One example is the percentage of harvest that is either "open shell" or "closed shell." Each harvest yields a certain percentage of nuts that have not naturally opened prior to harvest. These nuts are classified as "closed shell," "shelling stock" or "non-splits," and have a lower market value than those nuts that are naturally split, or "open shell." As the percentage of open-shells varies, the total value of production can

change significantly from one year to the next.

Total value and value per acre are generally higher in high yielding years. An economic analysis of the California pistachio industry presented at the hearing by Dr. Dan Sumner of the University of California, Davis, indicates that trends for total crop value and value per bearing acre have been increasing over the past 20 years. In 1980, the total value of the pistachio crop in California was \$55.8 million. By 2000, total crop value had increased more than four-fold, reaching \$236.72 million. These gains are attributed to increases in both total pistachio producing acreage and yield per acre. Average value per bearing acre increased from \$1,642 per acre in 1980–1984 to \$2,658 per acre in 1996–2000.

Conversely, grower return per pound is generally higher in low yielding years. According to CPC historical price data, price per pound has gradually decreased over the past 20 years, ranging from a high of \$2.05 per pound in 1980 to a low of \$0.98 per pound in 2000. Thus, in terms of current producer ability to reconcile production costs with receipts, yield per acre must be sufficiently high to compensate for low returns in price per pound. According to the record, the proposed order would assist in stabilizing, if not increasing, producer returns for pistachios. The quality requirements proposed herein would not only assist in fortifying consumer demand by ensuring consumer satisfaction with product quality, but mandatory quality standards would also boost domestic prices by culling poor product, which tends to have price-depressing effects, from the market.

The record evidence is that total costs of production can be divided into three categories: the costs of orchard establishment, cultural costs and administrative costs. Establishment costs, or the overall cost to develop an acre of pistachios until revenues exceed growing expenses, are estimated at between \$10,000 and \$15,000, with an average tree maturation period of 7 years. In order to recover these investment costs, the hearing record indicates that producers generally target an 11 per cent return on investment, estimated at between \$1,100 and \$1,650 per acre. Annual per acre cultural costs average between \$1,100 and \$1,600, once the trees are productive. Administrative costs include the cost of farm management and crop financing, and range from \$150 to \$200 per acre.

Given the cost estimates above, a producer would need to harvest an average of 2,000 pounds per acre to

cover total production costs. This calculation assumes an average field price of \$1.25 per pound, which is based on 24 years of CPC crop value statistics. For example, minimum estimated cultural costs plus administrative costs and an 11 percent return on investment results in a minimum total production cost of \$2,350 per acre per year. Total production costs less the targeted 11 percent return on investment equals \$1,250 per acre, or an average harvest of 1,000 pounds per acre to cover production costs without a return on investment.

While the CPC 2002 Annual Report indicates a State average of \$2,619 per acre in gross receipts over the last four years, 1998–2001 CPC yield per acre information reveals that only 6 out of 26 California counties with pistachio production yield on average more than 2,000 pounds per acre. These counties include Colusa, Sutter, Madera, Fresno, Kings and Kern, and together represent over 88 percent of total California pistachio production between the years 1998 to 2001. Glenn, Butte, Placer, Yolo, Contra Costa, San Joaquin, Calaveras, Stanislaus, Merced, Tulare and Santa Barbara counties yield on average between 1,000 to 2,000 pounds per acre and represent roughly 12 percent of total State production. Shasta, Tehama, Yuba, Solano, Sacramento, San Luis Obispo, Los Angeles, San Bernardino and Riverside counties yield on average less than 1,000 pounds per acre and represent less than one percent of California pistachio production.

Given the assumptions made above, approximately 88 percent of the industry is covering total costs of production. Conversely, roughly 12 percent of the industry is currently covering cultural costs but not generating a return on their investment. In 1996, high levels of aflatoxin were detected in foreign pistachios imported into the European Union (EU). Publicity about the presence of aflatoxin at high levels first led to a total ban on imports and has since reduced the number of pistachios imported from all sources into the EU by 45 percent. In Germany the drop was 60 percent, and by 2000 imports were still only 53 percent of 1997 levels.

Witnesses testifying at the hearing used this case of pistachios contaminated with aflatoxin, and the subsequent damage to consumer confidence and demand for pistachios in the EU, to demonstrate the industry's need to safeguard against similar findings in California pistachios. According to those who testified, mandatory inspection and certification