THE IMPACT OF KOA ON THE STATE ECONOMY

Sabry A. Shehata. University of Hawaii at Hilo, College of Agriculture, Hilo, Hawaii 96720-4091

ABSTRACT

Koa trees (Acacia koa Gray) have the greatest economic value of all the native trees in Hawaii. The estimated industry volume in 1988 amounted to 1.133 million board feet, with a value of about 5.1 million dollars. The estimated total income generated (direct and indirect) to the state gross product amounted to 32 million dollars. The industry supported 168 employees with a total income of $4.5 million dollars, not including income generated by self-employed entrepreneurs. The lack of effective reforestation programs has diminished the koa resources. If the industry is to be preserved, an effective conservation program must be designed and implemented or the industry may be phased out.

INTRODUCTION

Koa (Acacia koa Gray) is currently the most important native tree in the Hawaii commercial timber industry. Yet the dramatic decline of koa forest, reported as early as 1912, has failed to stimulate development of a plan for reforestation. According to Petteys (1976), the koa rate of decay exceeds the growth rate. Scowcroft and Stein (1986) indicated that the lack of a reforestation program has resulted in diminishing koa to the point that koa timber operators find few trees of commercial quality. At the present time, timber and conservation groups are united in their desire to reestablish koa on at least some parts of its historic range.

Several reasons for the lack of effective reforestation are mentioned in the literature. According to the State Department of Land and Natural Resources (1976), 73% of the remaining koa is in commercial forests on privately-owned land. The rate of return from reforestation is low compared to other farm enterprises and private owners find it difficult to justify investment in reforestation projects based solely on economic factors. Kono (1976) indicated that shifting land use from agriculture to conservation resulted in loss of income and that farmers have to be compensated for that loss. Another reason private owners cannot afford reforestation is that while they recognize the benefits of reforestation, they cannot afford to invest in it because of the long term debt repayment obligation.

The objective of this study was to assess the economic impact of the koa industry on the economy of Hawaii. This information will be useful for making policy recommendations to enhance the revival of the koa industry.
METHODOLOGY

In order to accomplish the above objective, sawmill operations, koa lumber suppliers, and koa cabinet and furniture makers were surveyed. Data were gathered on volume of business, gross sales, wages, prices paid for koa lumber and veneer, machinery and tools used, trucks and forklifts used and number of employees directly involved in the koa enterprise. Information was then summarized and analyzed.

RESULT AND ANALYSIS

Koa market channels

In the state of Hawaii there are 11 sawmills that produce koa lumber. Nine of these sawmills operate on the Island of Hawaii and two in Maui. Loggers may buy the right to harvest koa trees from ranchers at negotiated prices if they do not own the land themselves. Selected mature trees are felled and the logs are scaled and hauled to the sawmill for lumber. Boards produced at the mill are graded by the sawmill operators.

Four operators handle koa and other hardwood lumber. They sell an average of 75% to the local market, 15% to U.S. mainland and 10% to foreign markets for processing as veneer or redistribution to various lumber suppliers.

The Impact of the Koa Industry on Income

The impact of koa output on the state economy can be estimated by estimating annual production of koa in dollars, income generation, and employment. Out of 11 sawmills on the State of Hawaii that produce koa lumber, five cooperated with the survey. Their total production in 1988, amounted to 510,000 board feet which represented 45% of the state’s total production in the same year. Therefore, the estimated koa lumber produced in 1988 amounted to 1.133 million board feet. The average sawmill price for green boards was $1.96 per board foot with annual sales valued at 2.22 million dollars.

Four wholesalers selling koa lumber were surveyed. The estimated 1988 average wholesale price per board foot in Honolulu and on Maui was $2.95 for a total value of 3.34 million annual dollars.

At the lumber supplier’s level, the price of koa varied by grade and volume of purchase. The estimated average price of treated koa lumber (weighted average method) was $4.50 per board foot. The total value of koa lumber at this level amounted to 5.1 million dollars in 1988.

Of the estimated 1.133 million board feet of koa lumber produced in 1988, 849,750 board feet (75%) were marketed in the State of Hawaii.

Of the 849,750 board feet marketed in Hawaii in 1988, the hotel construction industry was the main user of koa lumber and veneer. In that year 339,900 board feet of koa lumber (40%) were purchased by hotel builders, 212,438 board feet (25%) by cabinet and
furniture makers, and the remaining (35%) by wood craft manufacturers.

In order to estimate the value added from the uses of koa lumber in building construction and in furniture and cabinet making, a survey of the state cabinet makers and furniture manufacturers was conducted. Questions were asked on the amount of koa lumber used, prices paid for koa lumber, gross sales, and percentage of the gross sales attributed to koa products. Out of 17 surveyed, six provided complete information on the amount of koa lumber used, gross sales, and gross sales from koa lumber. The average costs of koa lumber per user were $12,313 annually and contributed to the gross sales of their final koa products of $52,490. The estimated value added per dollar of koa was $4.25. This indicates that each dollar spent on koa lumber at the retail level by this group generated $4.25 in gross sales of their final koa product. Assuming that the same value added is generated from the sales of other koa products and since 75% of koa sold in the State of Hawaii was manufactured by local businesses, the estimated income generated from the sales of koa products amounted to $16.20 million.

In summary, the koa products up to the retail level contributed approximately 16 million dollars in direct income for the State of Hawaii in 1988. This income generated additional indirect income from the purchasing of machinery, forklifts, sawmill equipment, and trucks, as well as entrepreneurial income and wages. Assuming an income multiplier of two, total direct and indirect income was estimated at $32 million to the state economy.

The Impact of the Koa Industry on Employment

Total workers in logging and sawmill operations estimated from the survey amounted to 52, earning an average of $23,304 per person in annual salaries and fringe benefits. In the wholesale and retailing sectors the estimated number of workers was 12 full-time equivalent (the percentage of business attributed to koa was used to convert total hired workers to the full-time equivalent), with an average income of $16,980 in salaries and fringe benefits. In the cabinetmaker and building sectors an estimated 104 were employed, averaging $30,000 in salaries and fringe benefits.

In summary, the koa industry generated an estimated 168 jobs, producing an annual income of $4,535,568.

Economic Forecast of the Koa Industry

The State Department of Land and Natural Resources conducted a comprehensive study of forestry potentials in Hawaii (Petteys, 1976). They estimated a 1970 total koa reserve on privately-owned land of 138 million board feet. According to an unofficial estimate, three million board feet on privately-owned land are lost annually due to decay and one million from sawmill operations. The forecasted koa reserve on private land in 1988 was 57 million board feet. At this present demand and decay rate the koa reserve will last only an estimated 14 years. Because no data are available on the present abundance of koa forest by zoning district and tree
age, no accurate estimate can be made on the number of years it will take to phase out existing koa logging operations, but most likely it is less than 14 years. This forecast depends on the assumptions that the present demand, decay rate and conservation policy all remain the same.

Since some of the private land falls in conservation zones, not all of the existing koa will be available for sawmill operations. Therefore, the industry will most likely exist for less than 14 years (depending on the rate of decay in each zone district and the amount available in each district).

Since koa lumber demand is directly related to Hawaii’s visitors, for koa is used in hotel construction and woodcraft therefore, as the number of visitors increases, the demand for koa increases. Also, knowledge among consumers about the quality and aesthetic value of koa will also cause the demand to increase.

CONCLUSIONS

The demand for koa will continue to increase and the supply of koa the reserve will decline. Changes in the present conservation and logging management practices may improve the present situation and decrease the depletion of koa resources. Because livestock and feral animals, as well as land-clearing for agriculture, destroy young seedlings (Petteys, 1976), the need is urgent for better forestry management practices.

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LITERATURE CITED


