
U.S. Wood Pallet Material Use Trends

Philip A. Araman¹, Robert J. Bush², E. Bradley Hager²

¹*USDA Forest Service, Southern Research Station, 1710 Ramble Rd., Blacksburg, Virginia, USA*

²*Department of Wood Science and Forest Products, Va. Tech, 230G Cheatham Hall, Blacksburg, Virginia, USA*

 paraman@vt.edu

1 INTRODUCTION

A series of five studies conducted by the Virginia Tech Department of Wood Science and Forest Products, in collaboration with the USDA – Forest Service (Blacksburg, Virginia), have tracked activity in the U.S. wood pallet and container industry between 1992 and 2006. The studies determined trends in wood use and pallet production within the industry, both new and recovered. Each of the five studies attempted to include all U.S. companies that were primarily or secondarily involved in the production of pallets and/or containers. For a variety of reasons, not all firms provided data. Therefore, we estimated industry totals using the data collected and an independent measure of industry size.

2 NEW PALLET TRENDS

Most recently over 450 firms, representing over 590 production facilities, provided information about business activity in 2006. Approximately 57 percent of the firms reported that new pallet production was their primary source of revenue in 2006. Recovered, repaired, and/or remanufactured pallets were the primary source of revenue for 25 percent of the firms. Regardless of the primary source of revenue, over three-quarter of responding firms (78.3%) reported that they produced some new pallets and more than one-half (55.5%) were involved in pallet recovery, repair and/or remanufacturing.

On average, production of new pallets was 304,160 per firm in 2006. Approximately 21 percent of the pallets produced in 2006 were heat treated by the manufacturer and less than one percent were fumigated due to export restriction. However, heat treatment or fumigation may occur after the manufacturer sells the pallet.

Over 70 percent of firms utilized hardwood lumber and/or cants in their operations and approximately 62 percent utilized some softwood lumber and cants. Overall, the industry used 63.6 percent (by volume) hardwood and 36.4 percent softwood material in 2006 (Figure 1). This compares to an estimated 68.8 percent hardwood in 1992 and a high of 71.7 percent in 1995. Within the hard-

wood category, 61.2 percent (by volume) of the lumber, cants, and parts used was of mixed species (i.e., no species separation) in 2006. The most commonly utilized single species was oak (26.9% of total hardwood use by volume). Maple accounted for 7.2 percent and other hardwood species accounted for 4.7 percent. The southern pine species group accounted for 53.5 percent of softwood lumber, cant and part use in 2006. The spruce/pine/fir species group accounted for another 35.5 percent of use by volume.

We estimate that the industry produced 441 million new pallets in 2006. This level represents a modest 2.8 percent increase over estimated production of 429 million in 1999 and a 7.3 percent increase from production in 1995 (estimated to be 411 million units). The majority of the estimated 441 million pallets produced in 2006 were of the stringer type. Block pallets were approximately 6 percent of production.

While increases in new wood use are associated with increased pallet production, looking only at the use of new wood material can be misleading as it does not illustrate an important trend in the industry that occurred during the period of the studies – increased wood recovery and reuse. This activity will be described next.

3 PALLET RECOVERY, REPAIR, AND REMANUFACTURING

Recovered, repaired, and/or remanufactured pallets were the primary source of revenue for 25 percent of the firms surveyed. Regardless of the primary source of revenue, over one-half (55.5%) of responding firms were involved in pallet recovery, repair, and/or remanufacturing. Clearly, pallet recovery is no longer the peripheral activity it may once have been. Rather, the processing of used pallets has become a large part of many firms in the industry. Industry-wide, the production of used (i.e., recovered, repaired and/or remanufactured) pallets averaged 208,375 units per firm in 2006. We estimate over 357 million pallets sold in 2006.

Firms were asked to indicate how the pallets they received in 2006 were utilized. The majority (67%) were repaired. Almost 16 percent were un-nailed and 10 percent were reused without repair. We found that less than one-quarter of one percent of the pallets received were landfilled. Of pallets that are un-nailed, the largest portion (83%) of the parts was reused in repairing or remanufacturing pallets. Ground or chipped pallets or parts had many uses. Colored landscape mulch is the most common use of ground material at the equivalent of 39 percent of ground/chipped pallets. Almost half (47%) of the firms that grind or chip pallets, used the material for colored mulch. The equivalent of 29 percent of the ground/chipped pallets was used for fuel and 23 percent were used for other (uncolored) landscape mulch. The smaller but potentially profitable animal bedding market accounted for the equivalent of 4.4 percent of the ground/chipped pallets.

4 IN TOTAL

By combining information regarding the use of new wood and the use of recovered pallets, we get a picture of how the U.S. wood container and pallet industry is utilizing a mix of these sources of material to serve its customers. Figure 2 provides our estimates of the use of new and recovered (used) wood by the industry from 1992 to 2006. Two trends are evident. First the total amount of wood material (both new and used) utilized by the industry increased steadily between 1992 and 2006. The second trend evident in the data is the increasing importance of recovered material to the industry. In 1992, recovered material accounted for 13 percent of the wood material utilized by the industry. This grew to 41 percent in 2006.

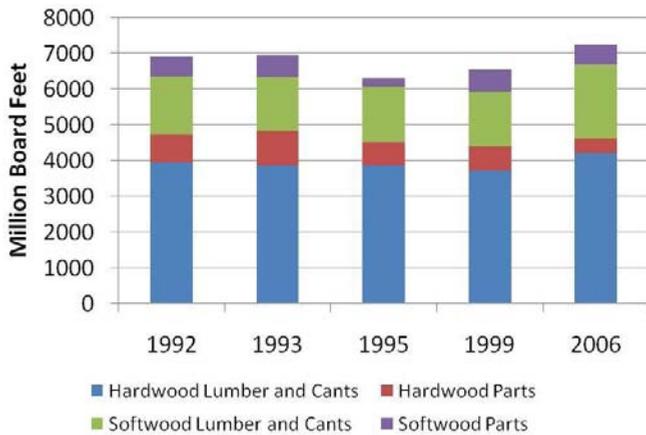


Figure 1. Estimates of New Wood Volumes Used by the United States Wood Pallet and Container Manufacturing Industry: 1992 to 2006

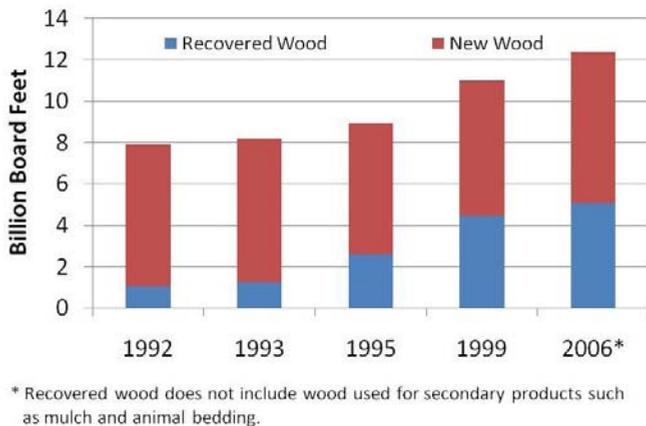


Figure 2. Estimates of New and Recovered Wood Use by the United States Wood Container and Pallet Manufacturing Industry: 1992 – 2006