

Sustaining Businesses & Jobs through Pal I et Repair & reuse



Brenda Platt
Jennifer Hyde

Institute for Local Self-Reliance
Washington, DC

Institute for Local Self-Reliance

The Institute for Local Self-Reliance (ILSR) is a nonprofit research and educational organization that provides technical assistance and information to city and state government, citizen organizations, and industry.

Since 1974, ILSR has researched the technical feasibility and commercial viability of environmentally sound, state-of-the-art technologies with a view to strengthening local economies. ILSR works to involve citizens, government, and private enterprise in the development of a comprehensive materials policy oriented towards efficiency, recycling, and maximum utilization of renewable energy sources.

© 1997 by the Institute for Local Self-Reliance.
All rights reserved.

Text printed on 100% recycled paper with 50% postconsumer content (processed chlorine-free). Cover printed on non-deinked recycled paper with 100% postconsumer content. Inks are 100% soy bean oil based and free of environmentally toxic metals.

Except for the U.S. E.P.A., no part of this document may be reproduced in any form or by any electronic or mechanical means, including information storage and retrieval systems, without written permission from the Institute for Local Self-Reliance, Washington, DC.

2425 18th Street, NW
Washington, DC 20009-2096
Phone: 202-232-4108
Fax: 202-332-0463
E-Mail: ilsr@igc.apc.org



1313 5th Street SE
Minneapolis, MN 55414-1546
Phone: 612-379-3815
Fax: 612-379-3920

Library of Congress Cataloging-in-Publication Data

Platt, Brenda.

Sustaining businesses & jobs through pallet repair & reuse / Brenda Platt,
Jennifer Hyde.

p. cm.

ISBN 0-917582-94-2 (pbk.)

1. Used pallet industry--United States. I. Hyde, Jennifer, 1961- .

II. Title.

HD9769.P273U616 1997

338.4'767482--dc21

97-1335

CIP

Table of Contents

- Introduction**1
- Profiles of Model Electronics Reuse Operations**
 - Allegheny Recycled Products7
 - Big City Forest™9
 - Continental Pallet Co.11
 - Pallet Repair13
 - Pallet Resources of NC15
- Appendix A**
 - Survey Data17
- Appendix B**
 - List of Pallet Reuse/Recycling Operations21
- Appendix C**
 - Resources on Pallet Reuse25
- Glossary**27

Introduction

There is barely a piece of merchandise in America that was not transported on a pallet at some point in its life from manufacturing to use. Pallets are ubiquitous. They are the platforms (usually wooden) upon which goods sit, are sorted, stored, and moved. They are designed to accommodate the prongs of a forklift underneath for easy movement.

Most industries and businesses that handle commodities utilize pallets, and lots of them. Approximately 405 million pallets are produced in the United States each year.¹ In fact, about 50% of the hardwood timber harvested in the United States each year goes into the manufacturing of new pallets.² The only sector using more wood than the pallet industry is the home construction industry.³

Fully functional pallets can be rebuilt from broken or reclaimed ones. In the past, new pallets were favored for a variety of reasons. Lumber prices were low. Pallets were built cheaply, often with low-grade lumber or leftovers from furniture and construction materials production. So using reclaimed wood did not offer big cost savings. Not only are most pallets made from new wood, but they also are usually built to be used only a few times. Many pallets are designed to be discarded after a single use.

Another factor that has encouraged discard of pallets is the low cost of disposal in this country. Tipping fees at disposal sites typically have been very low. So low, in fact, that in 1990 pallets users sent 4.6 million tons of pallets to landfills.

In the past, the motivation to reuse and refurbish pallets was not as powerful as it is today. Lumber prices are rising, caused in part by restrictions on harvesting. The cost of disposal continues to climb. And, most importantly, using repaired pallets saves money.

The industry has also begun to standardize pallet sizes. Previously, many different sizes of pallets were produced by each industry to accommodate different sized loads. Approximately 2,000 different designs of pallets exist.⁴ This made it difficult to devise a reuse system for refurbished pallets where a new user could be easily found. Today, the Grocery Manufacturer's Association has instituted a standard 48" by 40" pallet, called the GMA pallet. Now GMA pallets represent almost 70% of the total, paving the way for increased pallet recovery.⁵

As conditions have become more favorable for pallet reuse, businesses have sprung up across the country that refurbish broken wood pallets. Each year, the pallet industry now receives an estimated 170 million wood pallets for repair.⁶

This booklet profiles five model pallet reuse operations. See Table 1. It also presents information on 31 pallet reuse businesses, who responded to our survey soliciting information on their operations and their interest in expanding and replicating. (See Appendix A.)

These businesses accept pallets, sort them for reuse and repairability, repair them, and then sell the refurbished pallets back to the user or

This report is one in a series of four booklets, funded by the U.S. EPA, on product reuse as an important economic development and waste reduction strategy.

The other three are:

- *Plug into Electronics Reuse*
- *Creating Wealth from Everyday Items*
- *Weaving Textile Reuse into Waste Reduction*

Additional ILSR booklets on reuse include *Reuse Operations: Community Development Through Redistribution of Used Goods* (1995) and *Community Development Corporations and Reuse Operations: Four Case Studies of Working Relationships* (1996).

For more information on these booklets, contact the Institute for Local Self-Reliance, Washington, D.C., 202-232-4108.

1. Virginia Tech Department of Wood Science and Forest Products, "Recycling Solutions for Pallet Disposal," produced for the National Wooden Pallet and Container Association, 1997.
2. Gruder, Sherrie, *Pallets: Management and Markets*, University of Wisconsin Solid and Hazardous Waste Education Center, Madison, WI, December 1994.
3. Guttentag, R.M., "Making Recovery Pallet-able," *Resource Recycling*, November 1994.
4. Guttentag, R.M.
5. Gruder, Sherrie.
6. Virginia Tech Department of Wood Science and Forest Products.

Organization	Location	Percent Reused	Start-Up Date
Allegheny Recycled Products	Pittsburgh PA	85%	1994
Big City Forest™ Inc.	Bronx NY	Majority	1994
Continental Pallet Co.	Lubbock TX	95%	1984
Pallet Repair, Inc.	Baltimore MD	100%	1989
Pallet Resource of NC, Inc.	Lexington NC	85%	1985

Source: Institute for Local Self-Reliance, 1996

Table 1: Model Pallet Reuse Operations

Uses for Salvaged Pallet Wood

- Reused and repaired pallets
- Furniture, flooring, dimensional lumber (remilled from pallets)
- Pulp
- Aggregate blocks
- Plywood and particleboard
- Wood concrete
- Compost bins
- Firewood
- Bird houses
- Playground cover material
- Animal bedding
- Landscaping mulch
- Charcoal
- Fuel
- Sludge compost

Source: Gruder, Sherrie, *Pallets: Management and Markets*, University of Wisconsin Solid and Hazardous Waste Education Center, Madison, Wisconsin, December 1994.

another buyer. Workers dismantle those pallets that cannot be repaired and cut to size salvageable parts for reuse. In many plants, remaining wooden pieces are ground into wood fiber or mulch.

These operations have various degrees of automation. Some pallet rebuilders utilize disassembly and pallet stacking equipment. Assembly lines are used to sort, cut off nails, and replace broken boards. Not surprisingly, the larger the operation, the more likely they are to be automated.

The repair process may require as little as replacing a single component, or as much as completely disassembling the whole pallet, salvaging sound components, and using the recycled lumber to remanufacture pallets.

A survey conducted by the Center for Forest Products Marketing in 1993 found that 90% of all pallets that arrived at pallet reuse operations are either reused, rebuilt, or reclaimed for repair. Chipping and burning are the favored utilization methods for handling the remaining 10%.

Chipped pallets have a variety of end uses such as mulch for landscaping, animal bedding, and fuel. Hamermills, which chip wood, are expensive pieces of equipment. Therefore, most small-sized pallet repair businesses send their scrap wood out for processing. Some businesses, not finding a market for their wood waste, burn it or send it to the landfill. Big City Forest™ Inc. burns all of its scrap wood to heat its building.

One business owner reported that he burns his excess pallet waste, although he prefers to chip it. The markets simply are not there. His business is located in horse country where chipped wood is used as bedding material.

Horse owners have been unwilling to use pallet bedding for fear of potential hazardous contamination from prior uses or leftover nails.

The five pallet reuse operations in this booklet range from low-overhead and low-capital enterprises to facilities with complex automated systems. We selected these operations based on the portion of pallets reused/repared, the utilization of innovative methods and structures, and/or for their ease and desire for replicability. Numerous other pallet reuse enterprises operate throughout the country. (Appendix B lists a portion of these.)

Most pallet recycling companies repair and reuse pallets. Big City Forest™ Inc. is unique. It has pioneered a system to produce high-value-added products from wood products—flooring, butcherblock tables, bookshelves, and other furniture. It utilizes a proprietary system for sorting, grading, reclaiming, drying, and remanufacturing a diverse range of products. Its products are made from oak, maple, pine, cherry, mahogany, and other types of wood pallets. Existing pallet reuse and repair operations might consider licensing the Big City Forest™ Inc. process as a way to increase their product sales and move into different wood products markets.

Table 2 shows the number of jobs sustained by 30 pallet reuse operations (most of those who responded to our survey February 1996). (Also see Appendix A.) These 30 businesses employ a total of 882 people in handling more than 331,000 tons of pallets each year. On average, this translates to 28 jobs for every 10,000 tons of pallets handled—3 times the number of jobs sustained by conventional recycling processing facilities and 14 times more jobs than the number of jobs sustained by landfills and incinerators.⁷

Innovative Uses for Unwanted Pallets

Montgomery County, Maryland, has experimented with two creative methods of utilizing used, unrepairable pallets. Since many businesses give away unusable pallets, the County teaches its residents how to use these pallets to construct sturdy, inexpensive compost bins. The bin's sides and bottom are constructed from five pallets. The bottom pallet provides aeration, the four others form the walls of the bin. One of these pallets can be used as a swinging door to provide easy access to the compost material. In addition, at the Montgomery County compost site, ground pallets are incorporated into the traditional mix of yard waste materials to assess their quality as a compost ingredient. (For more information contact the Montgomery County Department of Environmental Protection at 301-217-2770.)

Donald and Peggy Crissey's book, *Fun Projects Using Wooden Pallets*, offers plans on how to build furniture, cabinets, fences, trays, and more with discarded pallets. Contact: Applecart Press (409) 385-1217.