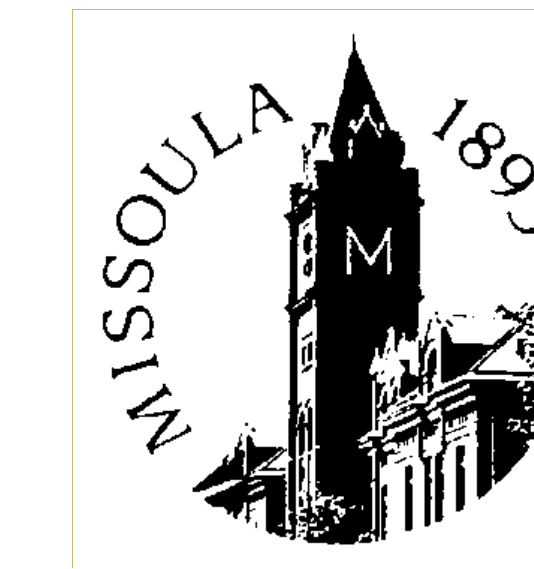




Mill Residue Production and Use in Montana, 2009

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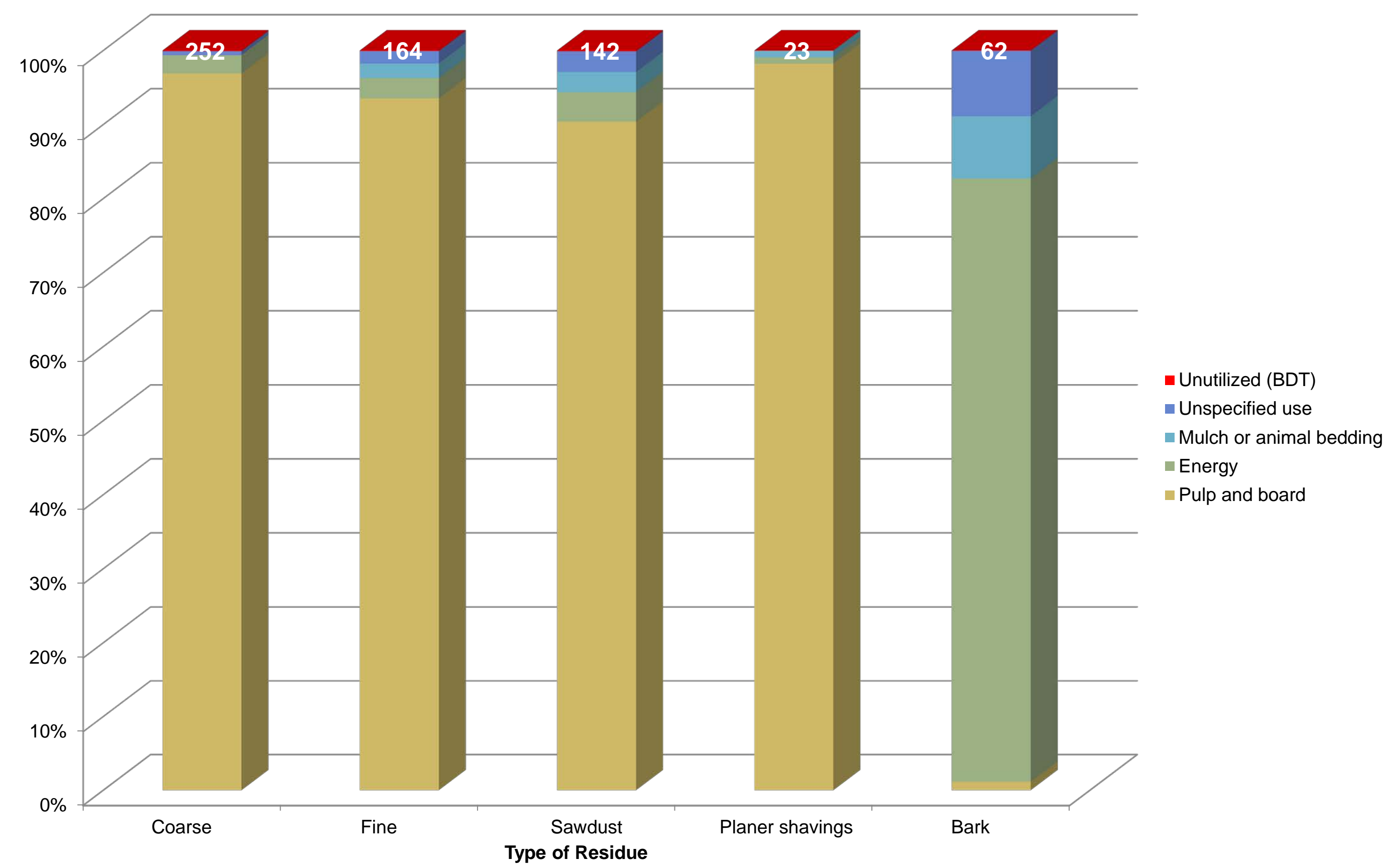
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Introduction

Mill residue is material such as sawdust, planer shavings, sander dust, bark, and chipped slabs, edges, and trim generated as a by-product of manufacturing wood products like lumber and plywood. In Montana, like the other states (ID, OR, and WA) in the NARA region, mill residue could be a potential feedstock for wood-based biofuels. However, mill residue is typically highly utilized, with more than 99% of mill residue volume currently used for other products including energy (Fig. 1).

Figure 1.—Utilization of Residues from Montana Sawmills and Plywood Plants, 2009



The same attributes that make mill residue more attractive than logging residues as feedstock for the biofuels industry—relatively consistent material characteristics and large quantities aggregated at relatively few locations across the landscape—also make mill residue attractive to existing residue-utilizing facilities like medium density fiberboard, particleboard, and wood pellet producers, as well as pulp mills.

Methods

The Bureau of Business and Economic Research (BBER) collects, compiles, and makes available state and county-level data on timber harvest, finished wood products, mill residue, and other aspects of the forest products industries in the western United States. This information is developed through periodic state-wide censuses of timber-processing facilities. The most recent Montana census was conducted for calendar year 2009 operations. Using a written questionnaire, phone interview, or in-person interview, the following information is gathered from each timber-processing facility:

- facility type, location, contact information, and opening date
- installed equipment and employment
- shift and annual production capacity in units of output
- preferred and accepted log sizes
- volume of raw material received by timber product, county, and ownership
- species and live/dead proportions of timber received
- finished product types, volumes, sales value, and market locations
- **production, utilization, and sales of manufacturing residue**

Individual mill residue factors, which express the volume of mill residue per unit of mill input or output are calculated for each timber-processing facility, and statewide residue factors are then developed and published for each mill census year (Fig. 2). Annual residue production estimates can be made for intervening years using annual production figures such as lumber output published by organizations such as the Western Wood Products Association.

Figure 2.—Sawmill Residue Factors, Selected Years

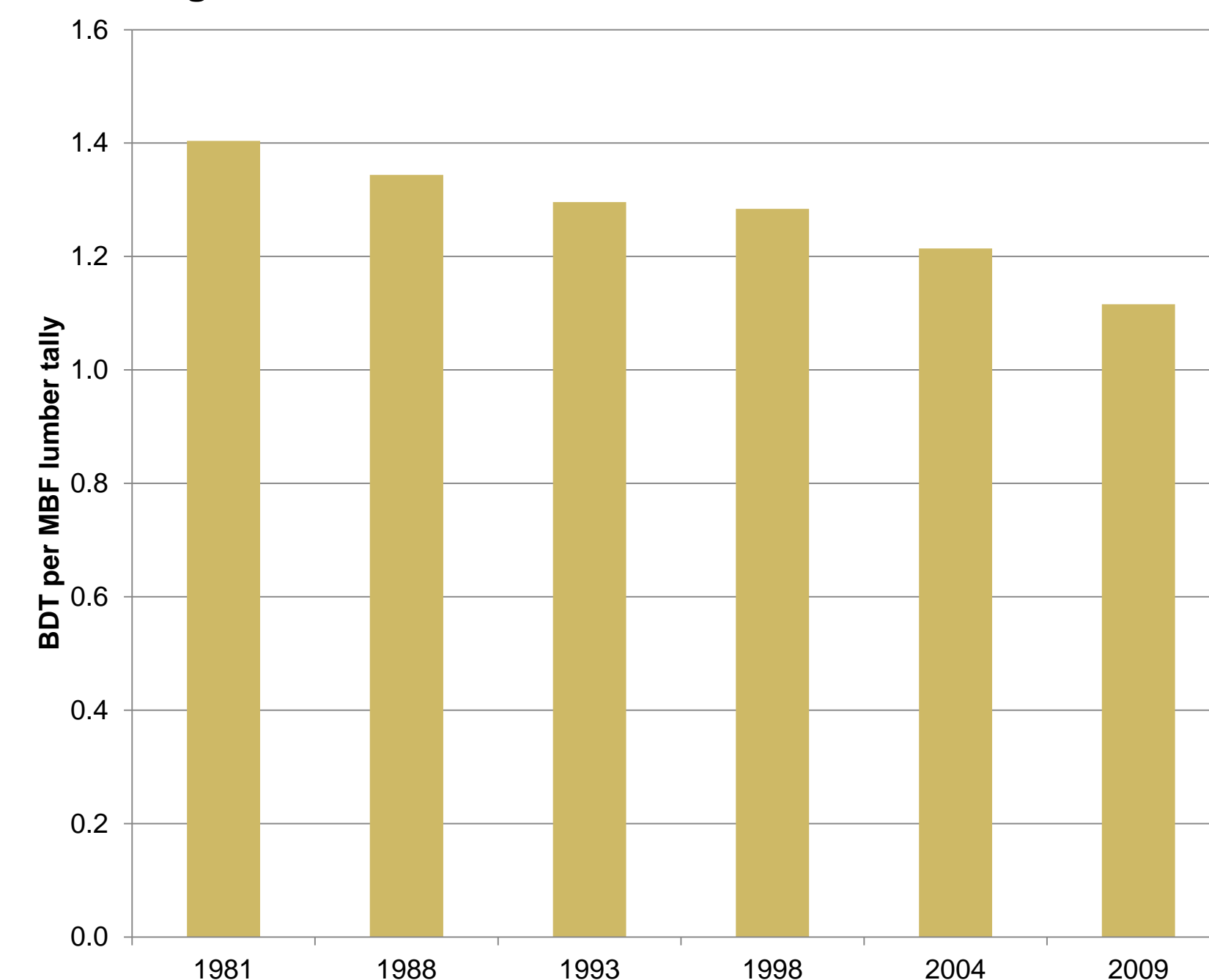
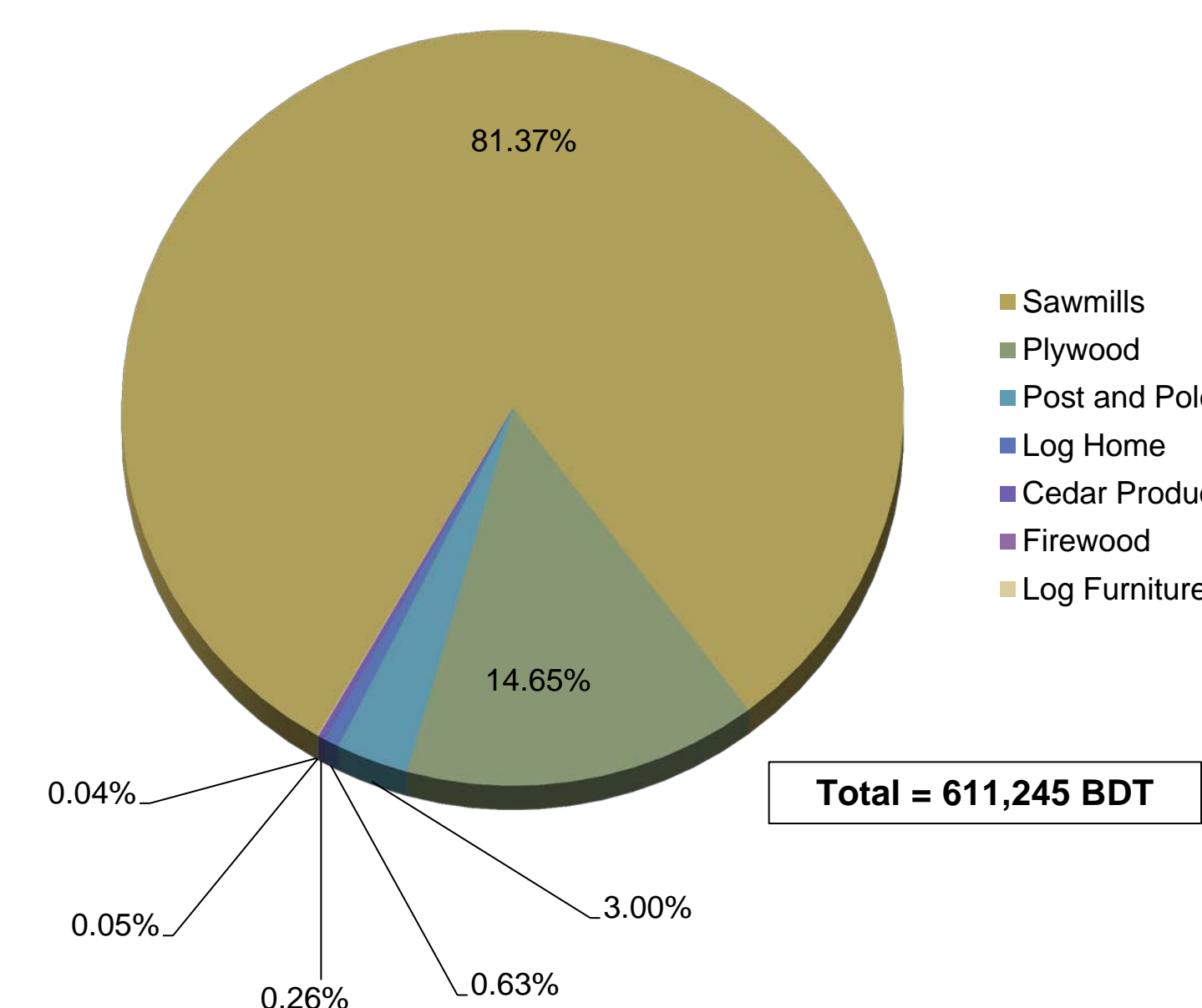


Figure 3.—Residue Production by Mill Type, 2009

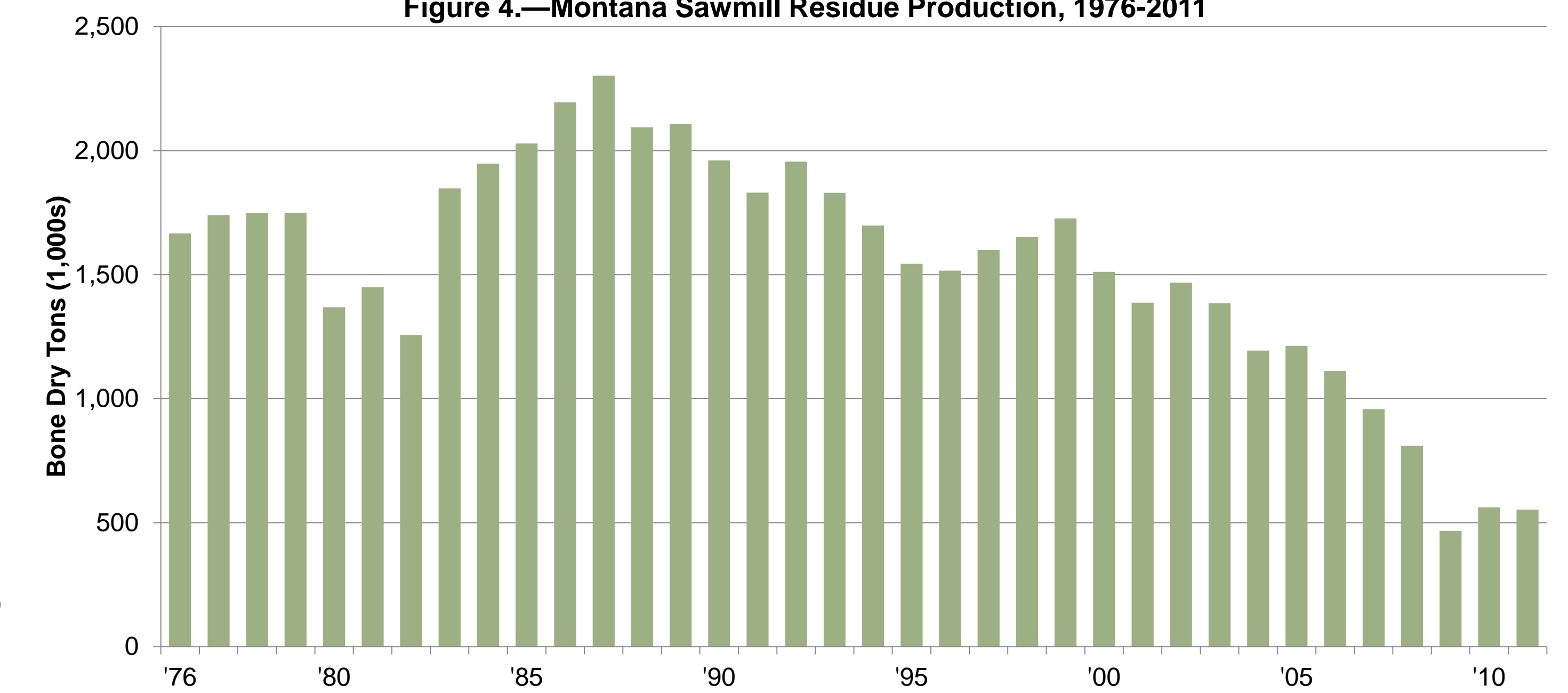


Results & Discussion

Montana mills generate substantial quantities of mill residue, however, the volume of residue per unit of mill output has been decreasing through time, and the portion of residue going unused has likewise been decreasing.

Sawmills generated 81% of the residue produced by wood products facilities in Montana during 2009 (Fig. 3). As sawmills have become more efficient over time, less residue is generated. Perhaps more importantly, the large reduction in lumber production as a result of the recent recession and housing collapse has led to a corresponding reduction in the total volume of residue produced by Montana sawmills (Fig. 4).

Figure 4.—Montana Sawmill Residue Production, 1976-2011



During 2009, Montana's residue-utilizing sector consisted of one pulp and paper mill, one particleboard plant, one medium-density fiberboard (MDF) plant, three wood pellet plants, three producers of bark and landscape products, and ten facilities that utilize mill and other residues to produce heat for public schools. Since 2009, Montana's only pulp and paper mill has closed, as has a pellet mill, while a new biomass heating facility and pellet mill have opened. These facilities play an important role in Montana's forest products industry, not only for the employment and products that they provide, but also as an outlet for wood residue from sawmills and plywood plants. The sales value of mill residue and residue-related products from Montana facilities totaled \$382 million during 2009.

Recent changes in Montana's wood products infrastructure are changing the landscape of mill residue production and use. If the woody biofuels community intends to utilize mill residue as a feedstock, it will need to be aware of factors that influence the supply and availability of mill residue, cognizant of existing residue users, and capable of offering competitive prices for the material.

