



Wood Products Panel

Wood Based Energy in Appalachia

The Governor's Energy Summit, Stonewall Resort

Processing Residuals

- **Green (wet)** Chips
- Bark
- **Green** Sawdust



Secondary Manufacturing Residuals

- **Dry** Sawdust
- **Dry** Planer Shavings
- **Dry** Sander Dust

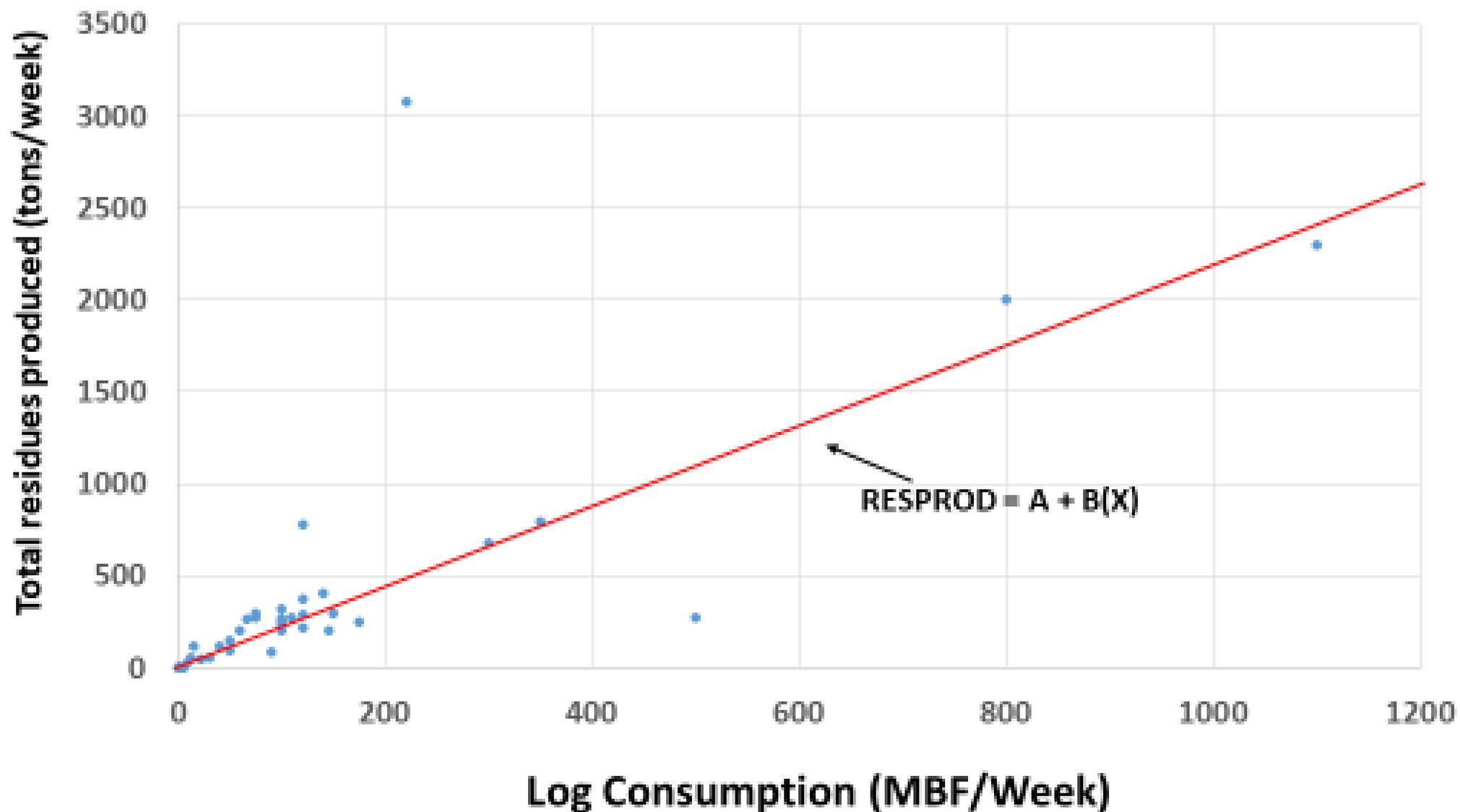




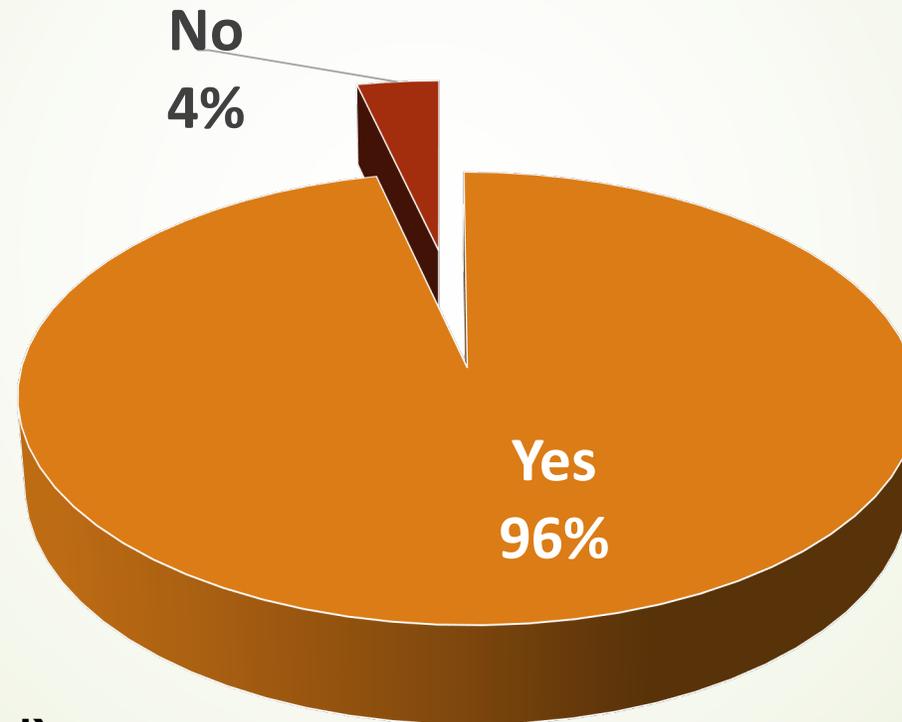
Byproducts Survey - 2017

- ▶ Mostly Chips, Bark, and Sawdust produced. Mills also indicated how much raw material (logs and/or lumber) they consumed on a weekly basis.
- ▶ Material like planer shavings, slabs, sander dust, and other byproducts were produced in minimal quantities. The big products were green chips and bark with sawdust a distant third...
- ▶ Strong correlation between raw material volumes going into the mill vs. weight of byproducts generated. We have some ROUGH information on that, but it could prove useful to acquire more detail...

Total Residues Produced Relative To Average Consumption Of Logs For 45 log using mills Surveyed.



Are You Purchasing Byproducts From Outside Suppliers To Supplement Your Own Production In Order To Generate Heat, Steam, And Electricity?



(56 mills responded)

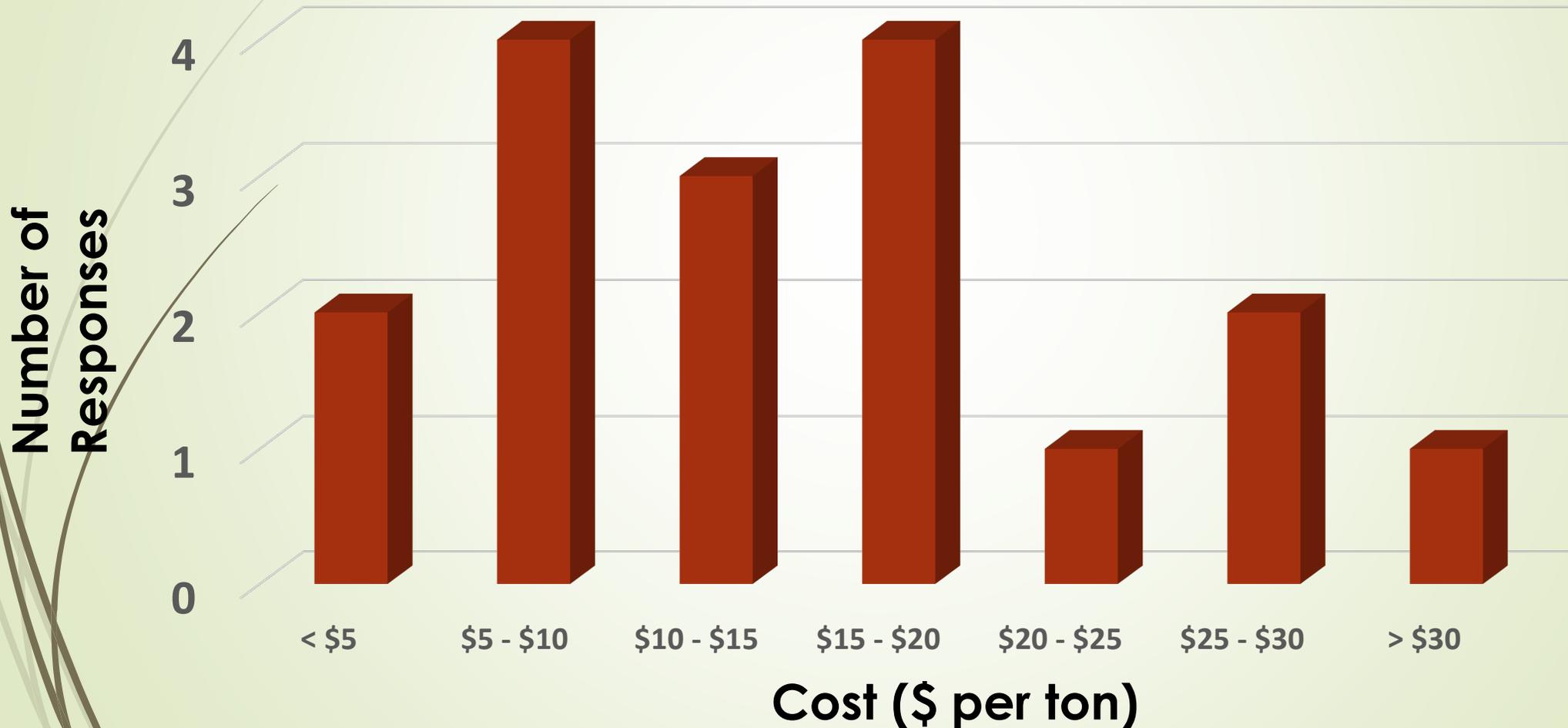


Purchasing Byproducts From Outside Suppliers To Generate Heat, Steam, And Electricity

- ▶ About 96 percent of the 56 survey respondents indicated that they were buying “waste” from outside sources to augment their own supply, possibly to supply heat/steam to kilns or to feed on-site boilers or co-gen systems, a topic only addressed in passing with this survey.
- ▶ How much of a company’s byproduct material is actually brought to market and how much is used to generate heat, steam, and electricity? Not addressed!
- ▶ And how cost effective is on-site heat, steam, and electric generation? What are the opportunity costs associated with that use, given market opportunities? Part of a future and much larger study...

If you cannot effectively market or use all your byproduct material, what is the expected cost of disposal?

(17 mills responded)

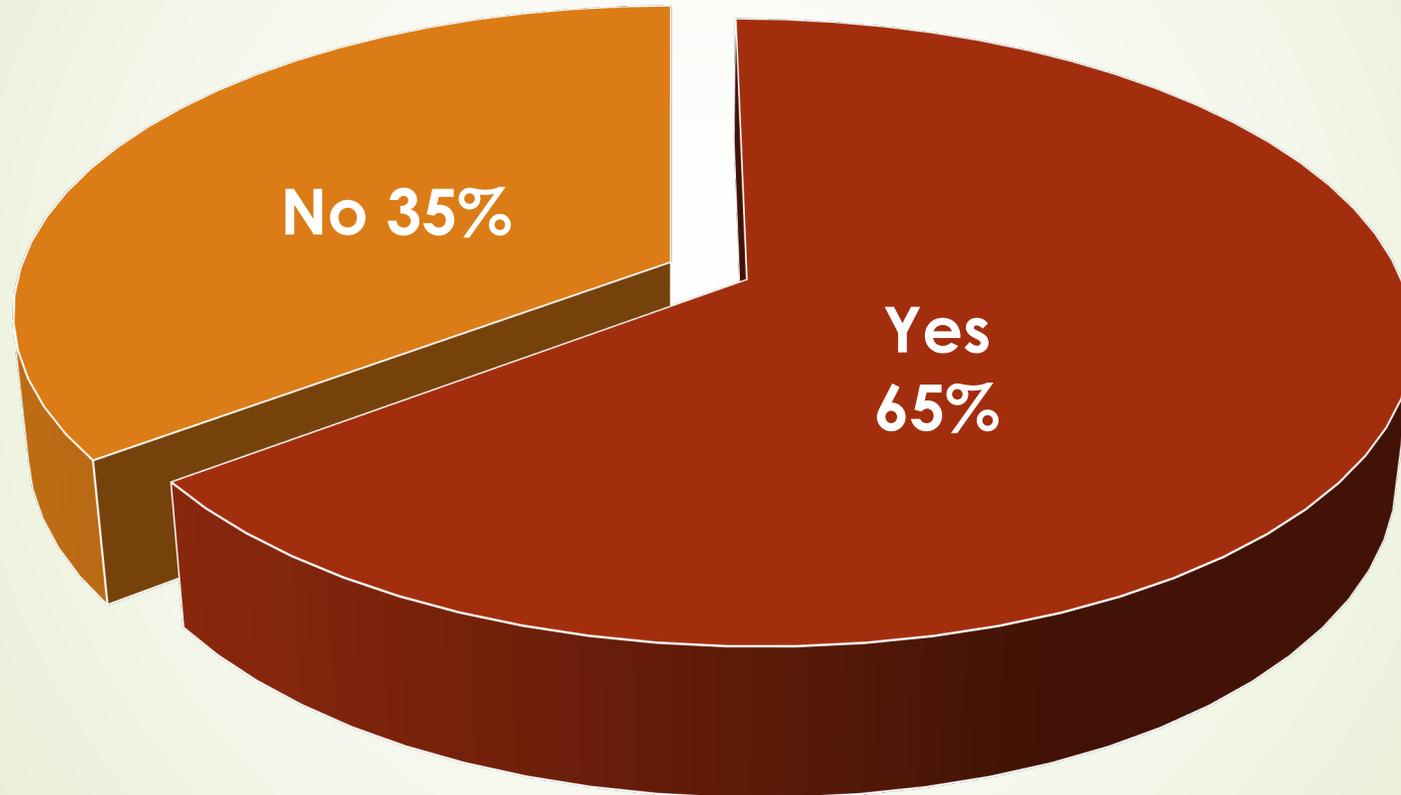




Disposal...

- ▶ If a company couldn't store or immediately use their byproducts, they were faced with the cost of disposal. We were interested in the cost per ton for this disposal...
- ▶ Costs were most commonly between **\$5 and \$20 per ton**. Four companies reported costs ranging between **\$20 and \$30 per ton** for disposal, which would obviously have a significant drain on company profitability.
- ▶ At any of the reported costs, byproduct disposal would significantly reduce cash flow for the company and affect production and profitability.

Have Recent Changes In The Byproduct Markets Significantly Affected Demand For Various Hardwood Byproducts?



(54 Mills Responded)



What are the recent changes in the byproduct markets that significantly affected demand?

Our respondents defined them...

Lower fossil fuel prices **13**

Warmer winters **12**

Pellet fuel production down **6**

Paper production down **6**

Over-supply of byproducts **6**

User markets/business closed **3**

And, of course,...

Wall Street criminals **1**

Obama **1**



A Quick Summary...

- Mill based byproduct markets currently provide more energy related products (heat, steam, electricity, pellets, etc) than raw wood from the forest. A very large portion of the mills we surveyed were actively using their byproduct material to create energy and produce energy savings.
- The byproducts market is a fragile thing. Removing one large demand center can throw the entire sector into a tailspin – causing secondary effects like reduced lumber production, collapsing byproduct prices, and byproduct disposal concerns.
- The byproducts market is, in most cases, a break-even proposition for many - But the alternatives to a stable byproducts market are high disposal costs and environmental issues that reduce profitability and productivity for a broad sector of the wood products industry...