

Bamboo: A New Paper Mill Feedstock?

Industry practitioners well steeped in pulp manufacturing technology often display a (some would say “healthy”) skepticism of extravagant claims for new processes or raw materials. In regard to the latter it can be said that, at least in western countries, wood has been in a dominant position since it displaced rags as the raw material of choice many years ago. More recently, however, the use of alternative (“non-wood”) raw materials such as straw and annual plants has begun to catch on. Witness, for example, the October 22, 2015 groundbreaking by Shandong Tranlin Paper Company for its new \$2 billion mill in Chesterfield County, Virginia and the earlier announcement by the Columbia Pulp Co. that it will build a straw pulp mill in Columbia County, Washington. The feedstock for the Virginia mill will be agricultural byproducts such as wheat straw and cornstalks.

Another non-wood material, bamboo, has recently been receiving increased attention in North America. At a conference hosted by the Technical Association of the Pulp and Paper Industry in Atlanta last month, Richard B. Phillips lent credibility to the idea that making paper out of bamboo may become a commercial reality in the US.

Phillips, a former VP of Technology at International Paper and currently a professor at North Carolina State University, presented the results of thorough analyses of the economics of establishing a bamboo plantation in the US [R.B. Phillips, H.-M. Chang, and H. Jameel, “Technical / Economic Analysis of Bamboo Fiber in Pulp and Paper Manufacture Part I. Economics of growing bamboo in a plantation for biomass production”] and of the scenario under which a kraft pulp mill switches from hardwood to bamboo [R. B. Phillips, V. Naithani, H.-M. Chang, H. and Jameel, “Technical / Economic Analysis of Bamboo Fiber in

Pulp and Paper Manufacture Part II. Potential Performance of Bamboo Kraft pulp in Uncoated Freesheet Manufacture.”]

Phillips noted that more than 4 million metric tonnes of bamboo are currently consumed elsewhere, mostly in countries such as China and India, where wood fiber is scarce. (One large market pulp mill in China, for example, consumes more than 600,000 tonnes per year to produce 288,000 tonnes per year of market pulp.) That bamboo is receiving attention in North America is becoming increasingly apparent. Kimberly Clark, for example, has shown interest in sourcing fiber from non-forest sources, possibly motivated by their contention that non-wood fibers are more sustainable than wood fibers.

The authors’ analysis of plantation viability included the effects of seedling cost, chip price, land price and growth rate on internal rate of return. They concluded that chip price should be at least \$75 per ton and that a growth rate of 20 tons would be necessary.

In the second part of their study, the authors assessed the potential for bamboo to replace mixed hardwoods in a southern hardwood kraft paper mill. As input to their economic model they performed laboratory evaluations of bamboo pulping, bleaching and paper properties. The results predict that bamboo use would result in lower delivered wood costs, lower bleaching costs, lower cooking chemical requirements and lower evaporator loads, but questions remain concerning effects of high fines contents.

In summary, it appears that planting and pulping bamboo are practices that deserve a careful second look by the US paper industry.

Trend Indicators from Industry Intelligence Inc.

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Below is a sampling of recent Industry Intelligence headlines, chosen to mirror significant trends and other interesting developments in and around the paper and forest products industries.

Fortress Paper's Q3 adjusted net loss widens to C\$8.4M from year-ago net loss of C\$5.7M, while sales increase 6.0% to C\$85.2M; improvement in sales led by dissolving pulp, with ongoing efforts to diversify segment's end-market exposure gaining traction

Dissolving Pulp operating EBITDA was \$5.4 million for the third quarter of 2015, representing an improvement of \$3.3 million over the second quarter of 2015.

Verso's net loss widens to US\$111M from year-ago US\$36M net loss, with special items totaling US\$66M in Q3 2015 versus US\$2M a year earlier; Q3 net sales up 123.4% year-over-year to US\$782M, mostly due to additional sales from NewPage acquisition

When compared to 2014 sales as adjusted to include the impact of the NewPage acquisition and the sale of the Bucksport mill, sales have declined.

Verso CEO sends letter to employees notifying them that the company is considering range of restructuring alternatives, noting 'perfect storm of external factors that negatively affect our liquidity and cash flows,' and detailing Verso's ongoing struggles

Verso in January acquired its former competitor NewPage Holdings; the challenges did not subside after the merger. The market for the company's coated paper is being squeezed on two sides: from falling demand and increasing foreign imports, said Bill Cohen, Verso's spokesman.

Oji Holdings plans to install manufacturing demonstration facility in Japan for cellulose nanofibers production that applies phosphate esterification chemical treatment method, which Oji developed and believes to be the most feasible of its type currently

Oji will assess the energy reducing effects of the production process and will broaden the array of samples to be provided to users, expediting progress towards commercialization.

Auction of assets of bankrupt Lincoln Paper and Tissue in Lincoln, Maine, not including land, draws

top bid of US\$5.9M from Boston-based liquidator Gordon Brothers, says mill's attorney, noting assets could be resold to a papermaker or scrapped

The mill's revenue in 2014 dropped to \$70 million from \$145.3 million the previous year, primarily as a result of a boiler explosion

US Sen. Brown applauds US International Trade Commission's ruling on SC paper imports from Canada, calling it a "win" for Verso, UPM Madison Paper, and entire US paper industry; Brown-sponsored law enhances US antidumping and countervailing duty statutes

"Our workers can outperform anyone in the world but we have to ensure that we take action against countries that would break trade rules to gain an unfair advantage," said Brown.

Pennsylvania utility commission approves final rulemaking order prohibiting public utilities from charging customers to receive paper utility bills, after concluding cost of providing paper bills is traditionally included in utilities' operating expenses

The rulemaking follows a March 20, 2014, Order resolving a Commission investigation into the practice of paper invoice charges in the telecommunications industry.

Global demand for superabsorbent polymers expected to reach 2.4 million tonnes by 2016, boosted by surging sales of disposable diapers, especially in developing countries, report finds; market expected to reach US\$9B in value by 2020

Demand for disposable diapers is expected to reach 1,790 thousand tonnes by 2016, up from 1,593 thousand tonnes in 2014.

AF&PA Statistics

Since our last reporting of American Forest and Paper Association statistics releases, the Association has issued its October Containerboard and Kraft Reports.

Containerboard

Production was 1 percent lower than in October of last year. Compared to September 2015, average daily production was 1.4 percent lower. The operating rate for October decreased to 94.5 percent, whereas year-to-date operating rate remains flat compared to 2014 at 96.3 percent.

Kraft

Total kraft paper shipments were 149.2 thousand short tons, 7.2 percent higher than in October 2014. Bleached kraft paper shipments increased from 8.6

thousand short tons in September to 9.4, while unbleached kraft paper shipments increased from 128.0 to 139.8 thousand short tons. Overall, year-to-date shipments up to October 2015 were 2 percent higher compared to the same period in 2014. Total month-end inventories increased to 76.8 thousand short tons.

Purchase the full reports by contacting Caroline Nealon, Statistics_Publications@afandpa.org or 202-463-2448.

Paper Quotes

“We still believe we can make money from paper for a while, but eventually we need to look to other opportunities to use this solid wood and pulp base for other products.” – *Resolute CFO JoAnn Longworth*,

announcing Resolute’s acquisition of tissue maker Atlas Paper.

“I know this news is unsettling, but be assured that Verso will continue to operate our business as usual as we explore a potential restructuring and potential asset sales.” – *Sean David Paterson, Verso, on the company’s restructuring prospects.*

Statistics Corner: Forest Productivity by Country

The figure below shows country-to-country variation in forest productivity for two tree species, pine and eucalyptus. It illustrates Brazil’s advantage over other countries in this regard. Growth rates in Brazil are more than twice as great as in the US.■

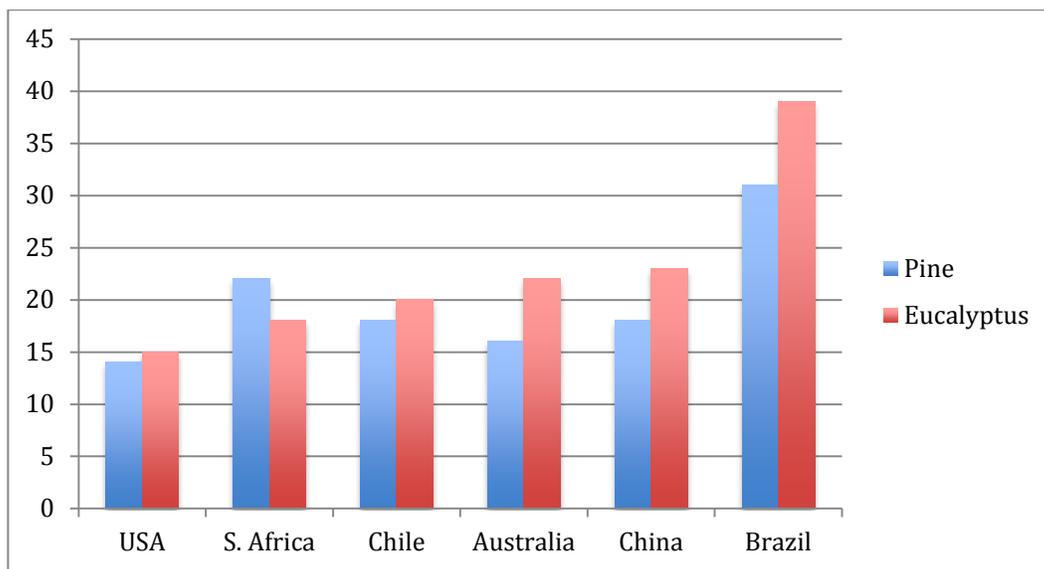


Figure 1. Forest Productivity, m³/ha/yr

(Source: BRACELPA)