Creating High Value Markets For Kenaf Paper
A Commercial Experience

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by

Thomas A. Rymsza
President and Founder
KP Products Inc. d.b.a. Vision Paper
PO Box 20399, Albuquerque, NM 87154

Introduction

KP Products Inc. was the first, and still is the only U.S. company to commercially produce uncoated offset printing paper made from 100% kenaf fibers and processed totally chlorine free. The company also makes recycled papers, blending post-consumer recycled pulp (PCW) with kenaf paper and pulp.

These productions are accomplished through a series of contracts with existing processing mills. This non-dedicated processing arrangement causes the finished product price to be higher than for conventional, mass produced paper products. It is important to stress that the price of the current kenaf paper products is merely a result of the very infant status of the kenaf industry, and the relatively small scale processing. Based on the experience to date, confidence is high that given a full scale processing capability, kenaf paper can be competitive, even advantaged price-wise when compared to wood based papers.

Discussion

Producing a product that has similar functional attributes but a higher price would seem like a non-viable proposition in any conventional analysis. But producing no product relegates one to discussion without action. By actually going through the process of making kenaf paper it is being proven that it can be done, and many of the obstacles are being defined and overcome. The challenge is to identify unique features, benefits, or attributes that make the marketing of such a product possible.

This discussion will cover some of the challenges and other factors that have been identified to date.

The factors of cost.

It can be argued that kenaf holds long term economic advantages over wood as a raw material for papermaking. Such advantage will be realized when a fully dedicated pulping capability is established.

Table 1 illustrates the current magnitude of price disadvantage inherent in the small-scale initial product development effort, wherein average costs for wood fiber processing are multiplied by a premium factor for current kenaf production.

Changing these values will require further incremental industry evolution, and our goal is to continue producing products in order to prove the assumptions that follow.

The major economic and processing claims regarding kenaf for paper are;

1) It will be an economically competitive or advantaged raw material when compared to wood fiber at some point in time.

2) It can be processed to pulp using less chemicals and energy than wood, providing further economic advantage.

3) It can replace wood fiber in nearly all facets of papermaking.

The following reasonable challenges can be made to each of these claims.

1) Global fiber supply dynamics create ups and downs in prices that allow the challenger to cite specific cases where wood fiber may appear to hold long term cost advantages over current kenaf economic projections. Generally speaking, wood prices continue to rise in many areas, and the trend can be reasonably expected to continue. Also generally speaking, the performance of any new crop can be expected to improve over time. The Texas rice crop is a good example of how breeding developments and improved agricultural practices increase yields over time. In 1947 average Texas rice yields were 2,000 pounds per acre, and currently they are about 6,000 pounds per acre, a 300 percent increase.[1] Yield improvements for kenaf can be expected over time, which will result in lower cost of raw material.

2) The amount of chemical and energy required to pulp kenaf is unproven on any commercial scale. It has been shown in numerous pulping trials that the chemical and energy requirement is lower than wood processing requirements. The economic argument is that, using existing pulping methods, kenaf's bulk, added to a potentially greater water usage indicates that no pulping advantage exists.

It can be further argued that the chemical recovery issues of kenaf pulping may be more difficult or costly per ton of pulp than for wood, especially given the currently available processing methods. Our work indicates that using a wood based pulping configuration for kenaf fiber is a misfit of technology. Kenaf does not require kraft pulping, and in fact it seems to benefit from milder processes, such as soda pulping, which is more economical to deal with regarding chemical recovery and water treatment. Pulping

approaches designed to handle kenaf's bulk and non-homogenous fiber structure are evolving and benefit from recycled fiber processing developments.

3) Because of the two fiber components of kenaf only limited grade of paper can be produced without the added cost of fiber separation. We acknowledge the non-homogenous nature of the kenaf plant and we embrace it. Given the potentials demonstrated by independent processing and subsequent blending of the two fibers we are confident, based upon our experience, that given the appropriate pulping technology, nearly any grade of paper product can be produced from the whole stalk.

But the purpose here is not to make an economic or technical case for the future of kenaf, rather it is to deal with the marketing challenges of the present. The present challenge is to develop an approach that facilitates moving the industry forward in spite of the difficulties.

Perhaps the key component of this effort is educating the markets about the economic and environmental advantages of kenaf.

KP Products has worked since 1989 to educate certain market niches in order to generate sufficient sales to support the continued production of products, which provides outlets for some of the kenaf bast fiber currently being produced.

Because the current product carries a higher cost than conventional and/or competing paper products, it has been necessary to develop a high value marketing approach.

Summary

Kenaf paper has environmental and economic advantages!

In agricultural production, it is a new crop, which will diversify planting options and reduce surpluses of common crops. It can be produced using low or no chemical inputs, and it carries a very low risk of loss, in that once a stand is established, there will be something to harvest, regardless of the stresses experienced during the growing season. A kenaf industry will create sound rural jobs, and will promote sustainable agriculture.

In processing, kenaf's versatile long and short fibers offer all of the required physical characteristics for the paper maker. The raw material is less dense than wood and contains less lignin, which means less energy and less chemicals are required which results in the option to incorporate cleaner manufacturing processes.

Overall kenaf is a sustainable, rapidly renewable raw material which saves trees, allows longer tree farm rotations, reduces the pressure to cut, which prevents wetlands destruction, and provides a more traditional land use option for rural communities.

Table 1.

Category	Wood Fiber	Kenaf Bast Fiber
Raw Material $/ton	$50	$200
Pulp Yield	50%	50%
Raw Mat./ton pulp	$100	$400
Pulping Cost	$100	$600
Paper Making Cost	$250	$600
Package/Ship/Store	$50	$100
Total Cost	$500	$1,700