

Growing Casuarina at the Kenyan coast keeps being popular

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Tree investors in the Coastal Region are training their eyes on the commercial production of *Casuarina equisetifolia* simply referred to as Casuarina, Australian pine and whistling pine or locally as Mvinje (Swahili). Casuarina thrives in a wide range of soils and climatic conditions, and has a short rotation age when grown for its highly valued and in-demand poles. Trials established by Kenya Forestry Research Institute (KEFRI) have shown that Casuarina woodlots with spacing of 2 m by 2 m and densities up to 1,000 trees per acre (2,500/ha), have trees with an average height of 9.6 metres and a diameter of 2.9 inches at ground level by the age of three (3) years.

The adoption of Casuarina production in the region is high as farmers dash to establish it on their fields. This is encouraging to forestry experts. Several initiatives in the region are involved in its promotion as an alternative livelihood for smallholders. The Kenya Coast Development Project (KCDP) is one such initiative. It targets commercial tree production among its many activities to address its several objectives and provide synergy to multilateral environmental agreements on biodiversity conservation and climate change. In a period of three years, over 700 of its target farmers have established Casuarina woodlots.

Some of the likely impacts of increased Casuarina production in the Coast include; increased local poles supplies with concomitant new income streams for investors thereby contributing to improved living conditions. Evidently, a number of Casuarina investors in Kilifi and Kwale counties have reaped some benefits from sales of poles.

One investor from Magarini, Kilifi County made Ksh. 900,000 from sale of 1 acre woodlot poles after three years of establishment. However, increases in local pole supplies would depress prices thus compromising income returns to Casuarina investors. Indeed, fears are emerging



Inside a well-managed Casuarina plantation: though young at maximum 4 years, this represents already considerable market value. Photo BGF

that increased Casuarina production would result in gluts in pole supplies thus depressing prices and returns to investors. Notably, some parts of the Coast have started experiencing increased supplies of the poles although empirical evidence confirming this is lacking.

KEFRI has initiated market studies to help fill in voids in the statistics and appropriate information on markets and marketing of Casuarina poles. The studies which are on-going aim to evaluate commercial production and trade of Casuarina and other key tree species and help develop appropriate marketing models. Interim results show that local merchants selling wood products in yards located in trading

centres, towns and along highways provide the main markets for the poles. The pricing for the Casuarina poles is based on their sizes measured as diameter in inches at ground level (dgl). Observations made show that prices for poles are higher in Kilifi where they sell at an average price of Ksh. 150 per inch in Kilifi County while in Kwale County, similar size was selling at an average price of Ksh. 100 by December, 2015.

The size of the pole sold depends on its usage. However, minimum marketable size of the pole is three to four inches at the ground level. The surveys done show more poles on sale in Kwale County (an average of 160 poles/dealer/month) than in Kilifi County (an average

of 50 poles/dealer/month). This could explain why the prices were observed to be lower in Kwale County. Equally, dealers in Kwale County experienced fewer challenges unlike those in Kilifi County who indicated operating against a background of high levies and heavy checks on the roads increasing cost of business which in turn reflected in higher prices for the poles.

Casuarina investors noted a dwindling market demand level for poles due to changing dynamics of the tourism industry in the region. Most tourism hotels at the Coast are constructed using Casuarina poles thus creating a good market base. However, with reduced tourism activity, there was a negative impact on the demand for the poles. Insurance companies revised upward insurance premiums for the 'Makuti' roofed structures thus dampening demand for the Casuarina poles that are used as part of the construction materials.

Various suggestions were offered as possible ways out over dwindling demand for Casuarina poles in the region. Some of the suggestions included diversifying use of Casuarina, value adding by treating the poles and seeking new markets. Studies have shown that Casuarina wood is hard, strong and its heartwood is heavy with an air-density of 900-1000 kg/cubic m and resistant to dry-wood termites making it amenable to many uses including posts, rafters, electric poles, tool handlers, oars and fuelwood.

The Casuarina wood ignites easily even when green and retains heat for long periods making it good either as firewood or charcoal. Studies have quantified calorific value of its wood at 5,000 kcal/kg and that of its charcoal in the excess of 7,000 kcal/kg. KEFRI has



In these times of climate change, some coastal areas get less rainfall than before. This can reflect in young Casuarina trees becoming stressed and susceptible to a fungus that shows in drying and falling needles, and black patches on the stem. Ultimately the trees can die. Photo BGF.

tested various kilning technologies including casamance or improved earth kiln for optimal carbonization. This could be applied to produce quality charcoal from as early as three years of establishment. It is therefore possible for investors to team up as associations to produce quality charcoal that could be sold in niche markets. Studies are on-going to quantify the amount of charcoal from a unit area under the Casuarina. Such production system would allow integration of Casuarina into the crop rotation system on smallholdings to help restore soils because of its nitrogen fixing ability. The soil scientists from KEFRI pointed out this potential of Casuarina.

Nonetheless, export markets especially in

Middle East for the Casuarina poles could be explored. Currently, the Middle East market has a strong preference for treated pines from Asia. Thus, there is need to develop appropriate market strategies to penetrate such markets. Casuarina investors could also form strong producer associations that would have capacities to bargain and explore into newer markets for the members.

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Casuarina seedlings are easy to raise in a nursery, provided care is taken to inoculate the soil with a bacteria that helps it in fixing Nitrogen. This is normally done by including some soil in the polybags from an existing plantation. Photo BGF.



One of the numerous small stands of Casuarina alongside the coastal strip. Photo BGF