

Bamboo brings new opportunities to SA



Farm manager Hombisa Saliwa and Siphamandla Madikizela on the Kowie bamboo farm.

The SA Forestry magazine team visited the Kowie bamboo farm between Bathurst and Grahamstown in the Eastern Cape recently to find out more about this fast-growing plant that produces fibre with many uses ...

OK it's not a tree, it is a grass – but it is still a plant that produces fibre that can be utilised in many different ways. It is planted and managed by people with a forestry background and is similar in many respects to a commercial tree plantation, with a few key differences. It grows very fast, only requires rainfall of around 600mm/year, and once established does not require re-planting.

Once it is matured you can harvest select culms from each and every clump every year, so productivity is high. Apparently it can be used as raw material for many of the traditional timber products – pulp and paper, particle boards, charcoal, furniture – plus biofuel products, activated carbon used for water purification and many more.

The Kowie bamboo farm is a project of EcoPlanet Bamboo, the largest owner, operator, and developer of commercial bamboo plantations outside of China, with over 10 000 acres of bamboo plantations in Central America and Southern Africa.

Kowie estate manager Hombisa Saliwa, a NMMU Saasveld forestry graduate, showed the SA Forestry magazine team around the farm, accompanied by her assistant, Siphamandla Madikizela, a qualified soil scientist from the University of KwaZulu-Natal.

Kowie has 350ha planted with giant bamboo (*Bambusa balcooa*) at a 5 x 5 metre espacement. The pitting and planting operation, which began in 2012, is similar to forestry, with a little fertiliser and hydrogel applied to help the young plants survive. Planting and maintenance is a labour intensive operation providing jobs for around

50 people, sourced from local communities. Harvesting will also be labour intensive, felling with chainsaws and extracting the culms with a tractor and trailer.

Bambusa balcooa is a sterile plant that does not set seed, so the bamboo is planted as seedlings developed from a tissue culture. Kowie Farm was the first globally to ever successfully transition bamboo tissue culture from a lab to a plantation setting. Hombisa said that the land they have planted was a degraded, former pineapple farm. They apply water and NPK fertiliser for the first three months in order to get strong and vigorous growth.

Siphamandla explained that they are busy running many trials in an effort to find the best way to grow bamboo on the farm. "We are doing so many trials to find the best way," he said. "There is very little research available that we can learn from."

A manufacturing facility, EcoPlanet Core Carbon, is situated on the farm and will utilise the harvested culms to manufacture activated carbon, which is used for water and air purification

Bamboo: A fast-growing grass

Bamboo is a group of perennial evergreens in the Poaceae grass family. Globally, there are more than 1,200 species, of which approximately 50 are routinely cultivated. In its South African operations, EcoPlanet Bamboo is planting and harvesting *Bambusa balcooa*, a tropical clumping species of Asian origin that has been naturalised in South Africa since its first introduction in 1660 for paper pulp. The species is well suited to South Africa as it grows well up to an altitude of 700 meters, can tolerate degraded soils, and has low water requirements. Individual clumps are routinely found growing naturally in areas of around 600mm annual rainfall.

Bambusa balcooa is a giant 'clumping' bamboo, meaning that individual plants or 'clumps' grow within a contained root system, which does not spread excessively and is not invasive. As a grass, *balcooa*'s stems emerge from the