

## Climate change: A forecast for forestry



The long-standing drought, which broke only recently in some parts of South Africa, has heightened awareness about climate change. What, we wondered, is the forecast for our industry in coming decades?

To find out, we spoke to Forestry SA's Environmental Consultant Dr John Scotcher and the organisation's Operations Director, Roger Godsmark. The upshot is that the implications are serious for the timber industry - a huge one, employing 170 000 people in the entire value chain, and 66 000 in forestry alone - but not as devastating as for other agricultural rain-fed crops. This is because trees are more resilient to drought than, for example, maize.

And some mitigation measures are already under way, providing the timber industry with a level of reassurance.

Decreasing rainfall is the main cause for concern regarding climate change, and the location of a plantation will determine the extent of the impact, says John, referring to research conducted for Forestry SA by Dr Michele Warburton and Prof Roland Schulze, of the School of Bio-resources Engineering and Environmental Hydrology at the University of KwaZulu-Natal. Although produced in 2006, this research is still valid, John says.

*Dr John Scotcher, Forestry SA's Environmental Consultant*

Importantly, pines were shown to be relatively more robust than eucalyptus and wattle, and the hybrids of both eucalyptus and pines were more robust than commonly grown species to potentially higher temperatures and, to a certain degree, to less rainfall.

In parts of the country that are currently best-suited for forestry - those receiving at least 750mm of rain - the effect of climate change will be least severe. These areas include the parts of Mpumalanga where most of South Africa's timber is grown. However, any decrease in rainfall here is likely to negatively affect the growth of trees, and particularly where the soils are shallow, 10% to 15% of trees may be lost.

Nevertheless, despite the slower growth rate, by and large timber production here will continue to be viable.

In areas that are sub-optimal for forestry, receiving about 650mm to 750mm of rainfall, the impact of climate change will be marked, and plantation forestry may no longer be sustainable. The optimal areas for plantation forestry within KwaZulu-Natal are likely to decrease with climate change, while areas within the Eastern Cape and Mpumalanga may offer opportunities for expansion, as increasing temperatures making conditions there favourable.

In some parts of the country, such as KwaZulu-Natal, rain will increase but will fall more heavily than is now the case, during shorter, more intense storms. This will result in considerable soil run-off, unless mitigation measures are implemented. While some of this moisture will not soak into the soil, it will be available to trees through rising groundwater.

Another impact is that there will be less frost, making it possible to grow certain tree hybrids in some new locations, such as parts of the Eastern Cape. However, this will be very hard to achieve, given the difficulties in obtaining water licences for new plantations.

In yet another impact, different and new pests and diseases will arise as the climate changes and trees become more stressed. In one recent example, the insect leptocyte has recently taken hold in some KwaZulu-Natal plantations as conditions become drier. Another serious threat to all plantations is fire, which is likely to burn hotter and cause more damage under hotter, drier conditions.

As time passes, the climate change models will be refined and more accurate predictions will be made. The KwaZulu-Natal University researchers have pointed out that their research was preliminary, and that follow-up investigations were needed to take account of additional factors, using more complex models.

To help mitigate some of the effects of climate change, researchers have long been developing hybrids that can survive drier periods and other climatic changes. In another important mitigation measure, "site-species matching" is increasingly taking place, with considerable success, to match the conditions of a site with the tree species that is most likely to thrive there.

These mitigation measures will continue and increase, as the effects of climate change intensify.

**Contact: [Dolphin Bay Chemicals](#)**