

Careers in agriculture

Ethical and sustainable production of sandalwood

Technologies

- ACTDEK040
- ACTDEK044

Agriculture is everywhere



Ethical and sustainable production of sandalwood

Lesson overview

Students will investigate the global sandalwood industry and learn how demand for ethically and sustainably grown sandalwood has grown in recent times and provided opportunities for Australian producers.

Australian Curriculum:

Design and Technologies Year 9 and 10

Critically analyse factors, including social, ethical and sustainability considerations, that impact on [designed solutions](#) for global [preferred futures](#) and the complex design and [production processes](#) involved ([ACTDEK040](#))

Investigate and make judgments on the ethical and [sustainable](#) production and marketing of food and fibre ([ACTDEK044](#))

Resources

- DAFWA's Career Cards
- The TFS (Tropical Forestry Services) website.
tfsltd.com.au/gallery/ (Accessed 25 June 2015)
- Please see an abbreviated version of an article 'Sandalwood company TFS hopes to become top global supplier' by Sue Neales, published in the Australian newspaper 6 June 2015.
- Curtin University has been undertaking work in Sri Lanka to protect native populations of Sandalwood. View article at:
healthsciences.curtin.edu.au/news_sandalwood.cfm
news.curtin.edu.au/media-releases/scientists-sniff-out-way-to-protect-sandalwood/ (Accessed 25 June 2015)
- International Union for the Conservation of Nature Red List for Threatened Species, Indian sandalwood is listed here:
iucnredlist.org/details/31852/0 (Accessed 31 August 2015)

Tuning In

View 'From Soil to Oil' video clip, by Tropical Forestry Services,
2015.tfsltd.com.au/about/our-story/#

Whole class introduction



Many famous perfume houses in Europe, such as Chanel, Christian Dior and Calvin Klein use Indian sandalwood as a base fragrance.¹ In the past decade perfume companies have been looking for more ethical sources of sandalwood that are not taken from wild environments. Plantation-harvested sandalwood can be easily traced back to where it is grown, and does not involve depletion of native sandalwood habitats.

One of the biggest sources of plantation-grown Indian sandalwood in the world is at Kununurra, in the remote north of Western Australia. A Western Australian lawyer and businessman called Frank Wilson has developed the sandalwood plantation. He now travels the world, meeting with perfume and pharmaceutical companies, to promote his Australian-grown ethical Indian sandalwood.

¹ Australian Tropical Forestry Initiative, Media Release 12 January 2011.
WA Business News, 'Sandalwood industry gets a welcome boost,' 5 June 2001.

Student activities



Exercise 1 - Watch the video clip and then create a diagram to illustrate the “Soil to Oil” journey of Australian grown sandalwood.

Exercise 2 - Read the article on the growth of Frank Wilson’s company, Tropical Forestry Services, from the Australian newspaper.

- What are some of the uses of Australian-grown Indian sandalwood?
- Frank Wilson took a risk when he invested in sandalwood. What are some of the challenges of producing and harvesting sandalwood in the remote region of Kununurra?

Exercise 3 - Explain why there is a growing market for ethically and sustainable produced Sandalwood.

Student extension exercise - career pathway

There are many creative careers that are focused on building trading relationships between Western Australian producers and their customers in other parts of the world. These careers fall into the category of marketing, public relations and communications.

Career scenario: communications and public relations

You are a communications and public relations manager at a Western Australian Indian sandalwood plantation company. You have a group of 20 French people visiting Western Australia from a luxury European perfume company. You would like to sell more sandalwood to them, but you need to convince them that Western Australia is a sustainable and ethical source of this product, with a clean and pristine environment.

Exercise 4- Design a schedule for this group for their visit to Western Australia. You might like to include:

- Sights that show WA’s clean environment
- A day in Perth
- A visit to Kununurra
- A gift
- An experience of Western Australian food.

Case Study

Sandalwood Company TFS hopes to become top global supplier



Sue Neales | The Australian | 6 June 2015

TFS boss Frank Wilson with his sandalwood harvest ready for processing at Kununurra. Picture: Colin Murty Source: News Corp Australia

There's always been a sense of disappointment voiced by politicians with a vision for northern Australia as a rich agricultural food bowl, when discussing why one-third of the fertile Ord Irrigation cropping district in Western Australia's far north is now planted with sandalwood trees.

You won't hear any such disappointment from Frank Wilson, chief executive and founder of Australia's fifth-biggest listed agribusiness, TFS Corporation, which part-owns and manages 5500ha of sandalwood plantations in the East Kimberley.

He knows politicians, and most Australians, simply don't understand that sandalwood is special, as valuable, precious and unique as the beautiful Argyle diamonds mined just over the red rock hills of Kununurra and the Ord valley from his prized trees.

"I can't think of anything I would rather be doing, or anywhere I would rather be; this is a unique business model and a unique business opportunity for Australia," says



Wilson, standing amid some of the flourishing mature sandalwood plantations he first planted back in 2000 in the rich soils watered by the Ord's famous irrigation scheme.

"No one else is cultivating sandalwood in the world like us; plenty have tried but it is one of the hardest crops to grow; we know because we have learnt the hard way and made plenty of mistakes — but it also means in 10 years' time we will have the dominant share of global supply and it will all be Australian-grown."

Wilson is imbued with excitement about his sandalwood charge; an integrated timber and oil company he has fostered and part-owned from difficult beginnings 15 years ago.

In 2004, when it first floated on the stock exchange, TFS was a small Perth-based \$20 million company known as Tropical Forestry Services, managing a few hundred hectares of struggling immature Ord River plantations of sandalwood it didn't own.

A decade later, TFS has turned into a \$620 million corporation — one of the Top 300 companies in Australia — owning significant land, tree, irrigation and processing assets, unique intellectual property and commercial contracts to its name.

It has expanded its irrigated Indian sandalwood plantations to 10 500ha, growing four million trees across three states, bought the world's largest commercial sandalwood oil distillery at - Albany, WA, and is harvesting its second commercial timber crop worth more than \$10 million.

As a large-scale producer of a timber that is becoming increasingly scarce as a wild tree in its - native India, the company has started to attract the attention of investors.

Wilson still controls the biggest stake — 13.6%— of the company he helped found and shape as a young Perth lawyer back in 1996.

Commercially, TFS is also finding form. It has just entered into a large natural oil supply agreement with Galderma, a leading skincare company specialising in acne treatments owned by global giant Nestle.

And last month a new research paper published in a reputable US journal pointed to natural proteins found only in sandalwood oil as having potential as a cancer-destroying agent.



Testing Sandalwood oil with a chromatograph.

It's why Wilson is hopeful his sandalwood business is now starting to attract the attention it deserves after so many years of planning, developing markets, conducting research and waiting for his sandalwood trees to mature.

"So many people think it is just another tree crop, like blue gums or almonds, that you can bung into the ground and get a harvest from in a few years, and then sell as a mass commodity to export markets," explains Wilson.

"Sandalwood is nothing like that; nor is our business model.

"For a start, the tree won't grow unless it has another 'host' tree species alongside that it attaches to, which presents all sorts of difficulties when you try and farm it; it does everything it can to die on you at every turn, takes 15 years to mature, and even then you don't know how much (valuable) heartwood you have in the tree until you cut it down."

The beauty of sandalwood is that so many people and markets are desperate to buy it.

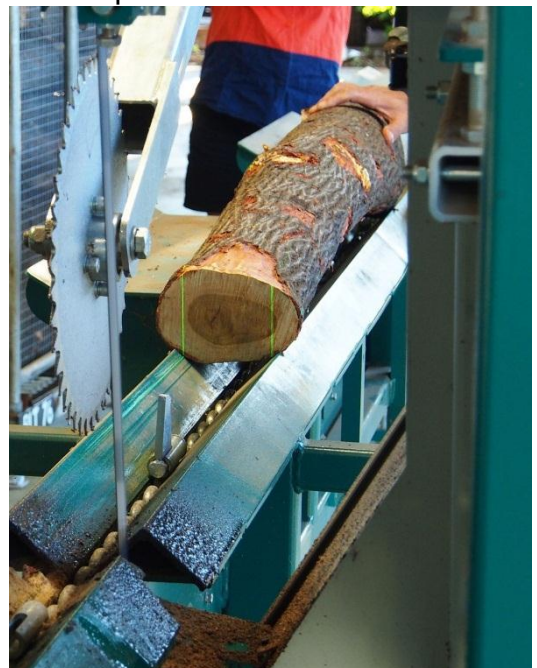
Traditionally prized as timber for furniture making and wood carving in India and China, for use in religious ceremonies as incense and, more recently, as an ingredient of perfumes, the only previous source of the rare species has been from wild forests in India and, intriguingly, from amid mulga bush scrub in southern WA and the gulf country in northern Queensland.

Sandalwood in the wild is disappearing — it is now a criminal offence to steal the valuable tree (a slightly different species to Indian sandalwood) from the Australian bush without a harvesting license — leaving Wilson and TFS in the box seat to dominate global supply.

A mature 15-year-old tree might contain just 20kg of the inner growth of valuable heartwood in its thick trunk, base and primary branches, surrounded by unusable sapwood.

That heartwood can either be sold as timber for as much as \$200/kg to Chinese furniture timber makers who prize the wood above all others, or for \$6000/kg of oil — you distil about 700ml of sandalwood oil from 20kg of heartwood — for sale to fragrance, cosmetic and pharmaceutical manufacturers.

A mature sandalwood tree yielding 20kg of heartwood is worth about \$4000.



Sandalwood in cross section showing heartwood



At Kununurra, where the first mature stands of TFS timber are now being harvested, the company has developed a large covered nursery to breed its new genetic stock of improved higher-yielding sandalwood seedlings — and a specialist processing plant to reap the sandalwood oil core.

Staff chop, shape and shave the sandalwood tree trunks and branches to ensure the maximum heartwood.



Sandalwood seedlings nursery in Kununurra.

Not surprisingly given its value, both the nursery and sandalwood processing plant are ringed by high security fences.

Key cards and security guards ensure no sandalwood can illegally leave the processing facility or any of the 750000 seedlings grown annually by TFS slip out unnoticed.

Wilson says he will need every one of those seedlings — which have been bred to be bigger, less variable and higher yielding — as the company continues to expand.

TFS may have harvested just 200t of sandalwood timber this year, but next year Wilson says it will be 10 times more. And another tenfold increase in 2017 as more and better plantations mature.

The ultimate aim is for TFS to have 25 000ha of cultivated sandalwood under ultra-efficient drip irrigation by 2025, with nearly a million trees available to be harvested annually for sandalwood oil and wood production.

Much of the new 15 000ha of planting are likely to be in irrigated cane, horticultural or former cattle land around Katherine in the Northern Territory and Ayr in north Queensland, where the climate is slightly milder than the Kimberley.

A new 7000ha aquifer irrigated property, Stylo, was bought two weeks ago near Mataranka in the Territory for \$4 million.

A second \$15 million oil distillation plant is planned for northern Australia, most likely around Katherine or Kununurra.



The final jigsaw piece will be to develop a retail brand for the company's planned line of skincare and oil products aimed at the Indian and Chinese markets.

To help with brand development, former Heat cosmetic company founder Gillian Franklin recently joined the TFS board.

"It's exciting, we are on the cusp of making Australia the hub of a very large global industry — and northern Australia will be where it is based," says Wilson.

"And because it is such a high-value product we can afford to grow it, process it and manufacture it in Australia because the high labour and transport costs normally associated with Australian agriculture become almost inconsequential," Wilson explains.

"In fact, it has a higher value because it has been grown in Australia so there is no incentive to take any part of the process offshore, which make me very proud."

(This is an abbreviated version of an article by Sue Neales in the Australian Newspaper, 6 June 2015)



Photographs provided courtesy of TFS 2015.