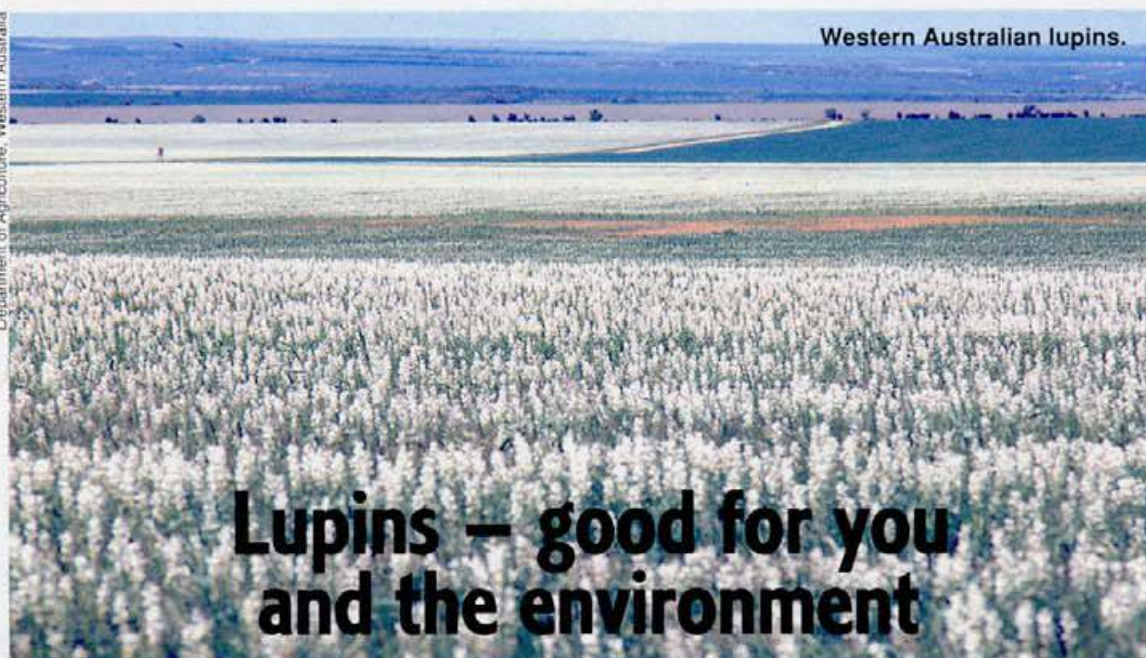


Department of Agriculture, Western Australia



Western Australian lupins.

Lupins – good for you and the environment

'Eating further down the food chain' — not the latest in diet fads, but a new slogan emphasising the link between human food consumption and the environment. In his book, 'Beyond Beef', the American ecological activist Jeremy Rifkin calls for Western diets to shift away from the eating of meat, especially grain-fed beef, towards more plant protein. Descending the 'protein ladder', he argues, would help save the biosphere from over-exploitation, abate global warming, improve the standard of living among poor nations and dramatically cut the incidence of heart disease and cancer.

Rifkin claims we waste vast amounts of plant protein as animal feed. In the United States, 157 million tonnes of cereal, legumes and vegetable protein suitable for human consumption are fed each year to cattle and other livestock to produce just 28 million tonnes of animal protein.

Australia is the world's biggest beef exporter, but feedlots comprise only a thin slice (about 2%) of the local industry. However, local crops almost entirely devoted to feedlots include grain sorghum and lupin. Australia grows a million tonnes of sorghum and about one-third that amount of lupins each year, almost solely for animal feed.

While these crops generate valuable domestic and export dollars, feeding cattle and sheep the plants we can readily eat ourselves makes little environmental sense. Lupins in particular are a wasted resource. The highly nutritious seeds of this attractive Mediterranean legume plant (which is sometimes found decorating home gardens) contain more protein than wheat and rice, less fat than soybean and little of the anti-nutritional compounds (found in many legumes) that interfere with digestion. They can be eaten as sprouts or in traditional Asian fermented foods such as tempeh and miso. Now it appears they may reduce blood cholesterol.

A research team at the CSIRO Division of Food Processing in Sydney conducted a study, using rats, which established that a variety of lupin under commercial cultivation in Western Australia can significantly cut cholesterol levels. Analyses by the Division's Dr Tony Evans have shown that lupins can comprise up to 30% dietary fibre, and that this has quite a different chemical

structure from oat or wheat bran. It's more like a vegetable fibre than a cereal fibre, says Dr Evans, and is more readily fermented in the gut, lowering the pH of the large intestine — which scientists believe is beneficial.

Some fibre-enriched bread already contains a small amount of lupin hulls (the outer coat of the seed) but, as Dr Evans sees it, the lupin kernel has the most commercial potential. The Division has developed a technique for extracting fibre from the kernel in either soluble or insoluble forms for use in bread and other baked products, drinks and confectionery. As the extract is much whiter in colour than other dietary fibres, the researchers are currently experimenting with ways to incorporate lupin into white bread — still the most popular bread consumed. Later this year they will investigate the production of a yoghurt-type food from lupins.

What makes this research especially good food for thought is that lupins have environmental advantages over other crops. Farmers in Western Australia's south-west, who grow most of our lupins, have found that by rotating lupins with a cereal crop they can more easily control pests and disease (and hence need less chemicals). Moreover, the lupins leave residual nitrogen in the soil, reducing the need for nitrogen fertilisers. Their deep tap-roots also act as a 'biological plough', penetrating compacted soil and recycling potassium from the deep soil layers.

Lupins are in little danger of becoming the health food craze of the 1990s — most people think of them in terms of sheep pellets and pig tucker — but, for ecology's sake, some perceptions may be worth changing.

Brett Wright

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