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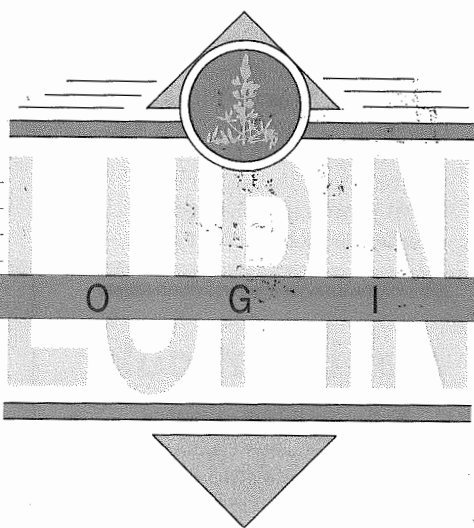
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Lupins in Chile

Erik von Baer

Chile is a long and narrow band of land ranging from deserts in the north through temperate regions and tundras to polar regions in the south.

Wheat is the most important of the cultivated crops with about 350,000 ha planted annually. Other crops, such as canola, are limited to no more than 20,000 ha.

During the 1994/95 season, lupins were sown over 25,000 ha of which half was albus and half angustifolius. Thus the lupin crop is the most important legume crop in Chile.

Chile has been at the forefront of lupin production for use as animal and human consumption.

1995-96 season

For the first time the sowings of angustifolius exceeded those of albus lupins. The varieties of angustifolius were Uniharvest and Gungurru. The reasons for the increased cultivation of angustifolius are its earliness, easy harvest and resistance so far to the disease anthracnose when compared to albus.

The 1995-96 season resulted in a spring and summer drought. This seriously affected the growth and yield of angustifolius lupins which are normally sown later than albus.

In addition, a strong attack of anthracnose affected the angustifolius, which until now has shown resistance to this disease. In the case of albus, yields were slightly down.

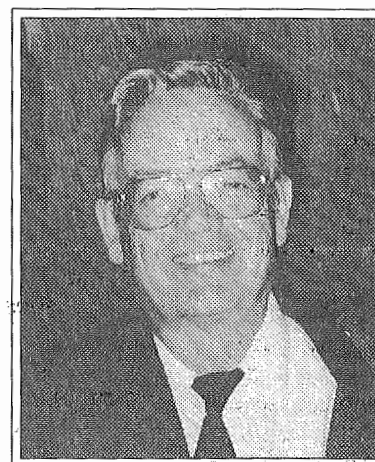
The price of angustifolius and albus grain is dependent on the price of soybean, which is imported from neighbouring countries under favourable trade agreements. Therefore even though lupin yields and production were lower there was no price increase.

These factors have contributed to a diminishing interest in sowing lupins in general and in particular 'Australian lupins' as angustifolius is called in Chile.

Outlook for 1996/97

As albus is planted in April we have already observed an increase in the sowing of this species for this season. The new variety Rumbo, which is tolerant to the dreadful anthracnose, has so far been sown on 700 ha under contract, but next year we expect a big increase in the planting of this variety.

Angustifolius sowings are just beginning. Evidence suggests that the area sown will be lower than last year and that it will be grown further north in drier climates where it has better competitive advantages.



Erik von Baer

The future

Both albus and angustifolius lupins have shown potential in Chile to compete with the imported soybean.

The lupin species, *L. mutabilis*, which has a high oil and protein content, will also be developed. Already we have sweet lines of this species, which are being used for green forage production. Future development of this species into a crop type will depend on lines being developed that are earlier and more resistant to low temperatures.

The future of lupins in Chile depends on having varieties that are resistant to existing diseases, especially anthracnose, and being price competitive with other feed products.

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CMV resistance in yellow lupins

Farmers and scientists are excited about the prospects for the yellow lupin, *Lupinus luteus*, being released as a crop plant for Western Australia. It is hoped that a new cultivar, based on a 'sweet' re-selection out of Polish cultivar Teo, will be released in 1998.

As with narrow-leafed lupins, cucumber mosaic virus (CMV) reduces yields in varieties of yellow lupins. Fortunately collaborative work between CLIMA and Agriculture Western Australia (by Roger Jones and Lindrea Latham, in association with Wallace Cowling) has found a single dominant anti-virus gene. This gene is effective against all CMV isolates obtained so far from lupin and is present in some yellow lupin cultivars, including Teo, Motiv and Popiel. The resistance is also found in some wild Portuguese lines of yellow lupins from which it is thought to have come originally. Polish and Byelorussian *luteus* breeders inadvertently bred it into some of their new varieties without realising it and the resistance gene has come to WA in these.

When the 'sweet' Teo selection is released, the first yellow lupin in WA will already carry this resistance. Also, the gene is now being selected for at the F₂ stage in Bevan Buirchell's *luteus* breeding program, so that all yellow lupin varieties bred in WA will carry it.

To safeguard against possible breakdown of the resistance gene in the future by virulent strains of the virus, genetic engineering is underway to introduce CMV resistance into yellow lupins. Synthetic virus genes are used for this. The work is being done by Mike Jones' research group at the State Agricultural Biotechnology Centre at Murdoch University, in collaboration with CLIMA. The Murdoch University group is the first in the world to genetically engineer yellow lupins. They have already produced genetically engineered yellow lupin plants with resistance both to the herbicide Basta® and

to Bean Yellow Mosaic Virus. Cucumber Mosaic Virus resistance is next on their list, with the possibility in the future of obtaining yellow lupin plants engineered for resistance to both viruses.

Aphid outlook

Following last month's article by Debbie Thackray on forecasting aphid outbreaks I have asked her to predict what will happen this year. Debbie stresses that the "model is still in embryonic form" but she has been game enough to put pen to paper.

"Our tentative predictions based on March-April rainfall figures suggest that aphid arrival in lupins will be late in most regions this year. The earliest arrivals will be in northernmost areas where some significant rain fell in March and April (e.g. in the Mingenew, Three Springs and Mullewa districts), but even here aphids probably won't be seen in any appreciable numbers until late August. Localities which received little or no rain in March and April (e.g. the Wongan Hills and Badgingarra districts) are unlikely to see aphids in appreciable numbers until mid-September. With late aphid arrivals and generally low aphid numbers, virus spread is likely to be reduced and will have little impact on yield, especially with early sown crops. Late planted crops will be more susceptible to both feeding and virus damage. Insecticides are unlikely to be required this year, except possibly to control feeding damage in late-sown crops in high rainfall zones in the Geraldton area. The recent high winds and strong rains will also have had adverse effects on any aphid populations starting to build up on weeds in those areas affected, further decreasing the likelihood of any early spread to crops."

Of course you should still check crops for aphids and early flowering albus crops for native budworm.

Lupin market

Lupin prices continue to improve on the back of tight world grain and protein stocks.

US soybean stocks are projected to remain at historically tight levels with the ending stocks expected to remain low.

South American soybean stocks have recently been revised downward by 2.3 million tonnes and there is an expanding Asian requirement for both meal and oil, thus making it difficult to stifle demand.

Potential exists for lupin prices to continue to firm into the 1996/97 season.

The Grain Pool's indicator price for deliveries to the 1996/97 pool has remained steady at \$205 a tonne.

Pulse conference

An Australian Pulse Industry pre-conference workshop will be held in August as part of the 1996 Agribusiness Conference.

The workshop, 'The Australian Pulse Industry meeting the market challenge of the Indian Ocean region', will address the market, processing and production opportunities available in the Indian Ocean region.

Market demand for pulses may exceed supply in the medium term, and in a bid to accommodate for this demand Australia is attempting to expand pulse production from 2 million tonnes to 4 million tonnes over the next decade.

The workshop will provide interested parties with the opportunity to learn more about the rapidly growing pulse industry. It will be held on 19 and 20 August at the Fremantle Esplanade Hotel at a cost of \$90.

Further information can be obtained from PROMACO Conventions by calling (09) 364 8311.