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## Legume Logic Number 98

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# LEGUME LOGIC

**Global Vision, Local Focus**

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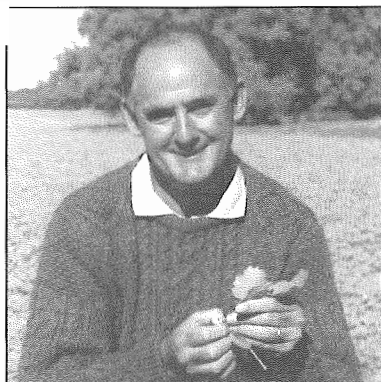
**Editor:** Peter Nelson  
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## Atrazine resistance

The huge increase in canola in WA is a very welcome addition to our cropping systems and it is changing the appearance of the cropping landscape!

Weed control in canola is one reason for its popularity. Nearly all WA growers opt for the triazine tolerant (TT) canola, enabling them to use atrazine to control a wide range of weeds.

Generally growers have been happy with the level of weed control, although many have ryegrass that survives applications. One person who has been out and about sampling weeds in TT canola is Professor



Steve Powles of the UWA - based Western Weeds Initiative.

Steve is concerned that the availability of TT canola places excessive reliance on triazine herbicides.

Atrazine is virtually identical to simazine and many TT canola paddocks have a long history of simazine use in lupins.

With the swing to canola and high rates of atrazine application, Steve is concerned that atrazine resistant weeds, particularly ryegrass, will develop. He and Greg Cawthray have been testing ryegrass populations from TT canola paddocks.

The BAD news is they have found a number of ryegrass populations surviving in TT canola paddocks ARE RESISTANT to atrazine.

This is not surprising as Steve has already observed triazine herbicide resistance in many ryegrass populations across

Southern Australia. It appears that they also have one atrazine resistant wild radish population as well!

Canola growers should be aware that weeds, especially ryegrass, have and will develop resistance to triazine herbicides atrazine and simazine.

The use of high rates of atrazine in TT canola is a strong selection pressure for triazine resistance. The increased selection pressure resulting from high atrazine use in canola may endanger the efficacy of simazine in lupins.

Growers should be aware that atrazine resistance can and will occur in ryegrass and probably other species.

Growers should ask themselves whether they wish to preserve the efficacy of simazine in lupins. Steve uses his well-worn statement - if you are getting good weed control with triazines, then when you are on to a good thing, do NOT stick to it.

## Budworm control

All pulse crops should now be closely monitored for native budworm infestation. This is best done by sweeping the crop

with a net. Spraying is recommended for chickpeas, peas, faba beans and lentils when one larva is found in 10 sweeps of the net. Remember that these crops are normally for human

consumption and any insect damaged grain is undesirable. The economic threshold for spraying lupin crops is 4-6 larva per 10 sweeps.

## Non podding lupins

From north of the Murchison to the southern agricultural regions, farmers have reported that lupin crops have podded poorly, if at all, on the primary stems.

With most varieties of narrow-leaved lupins this seems to occur in years when growing conditions are good, with ample soil moisture and frequent cloud cover, or when frost occurs during flowering.

It has also been a common observation that when the crop is stressed for moisture, at first flowering, or has been stressed by chemical damage, primary pod set appears to improve.

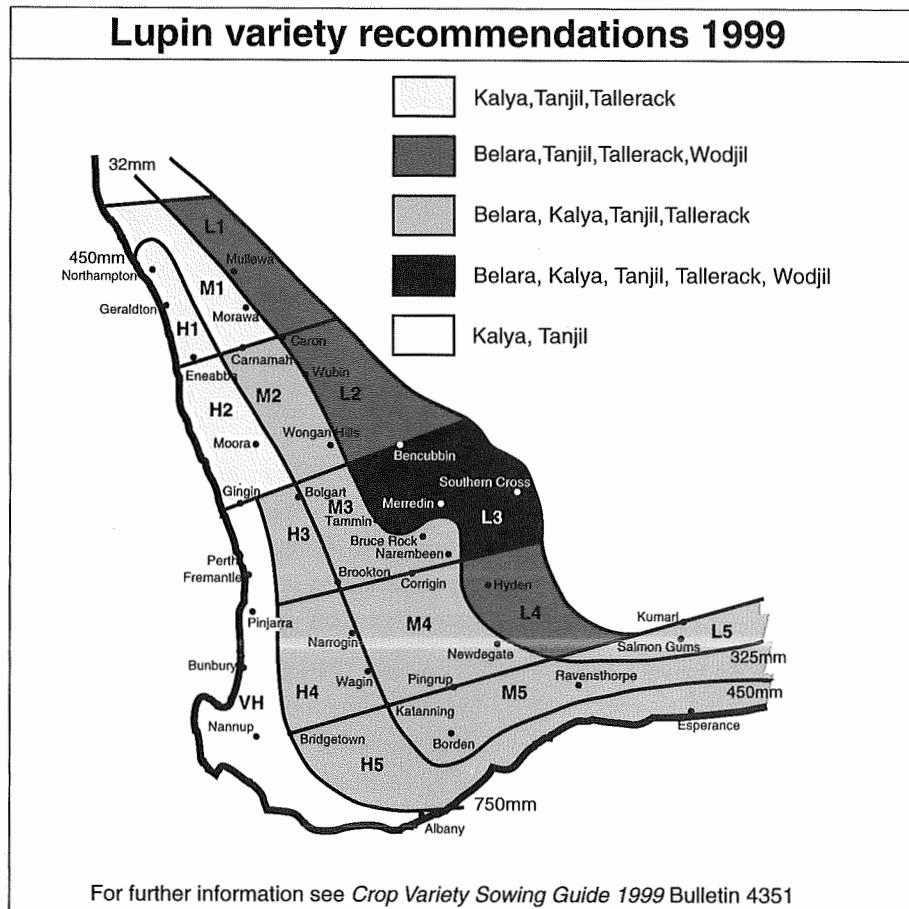
Researchers have been unsuccessful in finding an artificial means to induce the lupin plant to hold on to its primary pods.

Whilst this loss of primary pods is frustrating, the plant can still yield well by podding on the first, second and subsequent branches and at the time of writing (26 September) this is now happening to all crops that failed to pod on the primary branches.

The answer to the problem of non primary podding is to make the lupin plant less responsive to environmental conditions and thus produce a truly domesticated lupin plant.

The release of the restricted branching lupin Tallerack is probably the first of many lupin varieties that will be tailored to suit varying conditions.

### Lupin variety recommendations 1999



## Caution with gypsum

I was called out to inspect a lupin crop that failed to nodulate. The paddock had received 2.5t/ha of gypsum in 1997 and was sown to wheat. In 1998 the paddock was sown to lupins.

The lupin crop emerged successfully but within 6 weeks large sections of the crop took on a yellow appearance. An inspection of these plants showed that they had failed to nodulate. Later these plants began to nodulate at depth but were very backward.

Dr Bob French, pulse researcher at the Dryland Research Institute, Merredin offered the following comments:

"I first saw the effect of gypsum on lupins in 1984 at Bencubbin. The crop was stunted, yellow and had not nodulated. I have seen it several times since, but fortunately lupins are not generally grown on gypsum responsive soils so the two don't overlap very often. We don't know why gypsum affects lupins in this way.

One suggestion is that the sulphate in gypsum interferes with molybdenum metabolism, however we were unable to demonstrate this in a glasshouse experiment in 1985. A second is that it is a salt effect. A saturated solution of gypsum could be concentrated enough to restrict the growth of lupins (which are sen-

sitive to salinity) but not that of most crops. Some gypsum samples contain significant quantities of common salt, which would make the problem worse. This observation raises the question does gypsum affect the growth of other grain legumes? Yellowing of field peas was observed in a gypsum trial at Merredin in 1986, but the peas recovered and yielded quite well.

Usually field peas show no adverse symptoms when grown on paddocks where gypsum has been spread, and the same applies to other pulses such as chickpeas and faba beans."

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