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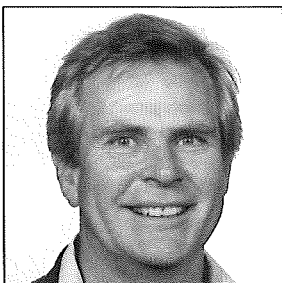
Salinity and Western Australian agriculture

CLIMA recently ran a well attended forum on sustainability of farming systems held at CSIRO in Perth, focussing on waterlogging and soil salinity.

There were several key points:

- Scientists forecast that up to 30% of cleared land in this state (five million hectares) would eventually be affected by rising water tables and salinisation.
- An estimated 75% of cleared land needs to be planted to perennials to prevent drainage water contributing to rising water tables.

Doubling current crop yields would only reduce water draining to depth by an estimated 5%.



Director of CLIMA, Professor John Hamblin, made the following points.

1. If we are to get sufficient perennials grown to have a significant effect on the salt issue,

we must have plants that will fit into the farming system and return a profit.

2. We need to establish what proportion of the drainage water is retained in perched water tables rather than going down to the saline layers at depth. If it is substantial we may be able to harvest and use it.

3. Australia is predominantly an exporting country with a small population. It is unlikely that the community will pick up much of the cost of the salt issue through subsidies. Not only do we have to be competitive on world markets, we have to have farming systems in place that make it worthwhile investing in sustainable systems that will also allow us to meet falling terms of trade and make sufficient profits for financial viability in the long term.

Swathing lupins

With a proliferation of machines available to swathe the canola crop this year, why not try swathing some lupins. Research in the late 1980's showed that harvest losses could be minimised by swathing lupins. See AGWA farmnote 22/86 for further information on this.

Fragile pulses?

Pulses or other legumes are an essential inclusion for the long term viability of any dry land farming systems.

Farmers on our sandplain soils are well aware of this and have enthusiastically adopted lupins into the farming system. The hopes of heavy land farmers have been raised by the admirable efforts of Dr Kambot Siddique, Agriculture WA and others, in promoting chickpeas, peas and lentils for some of these heavy soils.

At a recent disease breeding seminar organised by the Australian Institute of Science and Technology (AIAST), Dr Mark Sweetingham (plant pathologist with AgWA) pointed out that as yet, no varieties of pulses have been developed that are resistant to the major diseases.

Therefore, growers are faced with the prospect of planting a crop that has a high likelihood of failing completely. Mark stressed that until disease resistance has been established in these 'new' pulses, they will play no part in sustainable agricultural systems! Therefore, it is imperative that the research effort into the development of pulses in Australia is pooled and focussed to address this very important issue.

Pulse Points

- Floods in northern NSW have ruined 10,000 -12,000ha of chickpeas. Further losses are possible as crops, which have now been waterlogged for some time, succumb to disease. It is too early to ascertain the effect of this damage on market prices, however prices may spike for early deliveries.
- Large Canadian and European field pea crops, coupled with abundant old crop supplies and a generally subdued world protein market does not augur well for the new season field pea outlook.
- Limited demand from Indonesia, Egypt and Saudi Arabia has subdued faba bean prices this season. Eastern states values have reached new lows at \$212 delivered port NSW and \$220 delivered port SA but WA prices have remained steady.
- Slow export demand from Europe which is a major lupin market, is likely to create a small carryover of old season stock in WA. However, the anticipated new season crop of 820,000mt is slightly down on last year.

Anthracnose and narrowleafed lupins

Several confirmed instances of minor infections of anthracnose in narrow-leafed lupins have now been reported from the Badgingarra, Arrino and Three Springs areas.

On close inspection, farmers have noted some of the flowers appear wilted and twisted like a shepherd's crook in those plants coming into first flower. On the

Crop-topping lupins

Tallerack lupins are a new restricted branching type, released by AgWA as an experimental variety. Tallerack has less leaves on the branches and fewer orders of branches on the primary stem. Pods set earlier than conventional varieties and are more compact in the canopy. These characteristics indicate less yield loss compared to conventional varieties, when crop-topped to prevent seed set in wimmera ryegrass.

Tim Officer and Peter Norris, SBS agronomists at Geraldton, carried out experimental work which supports this contention.

They compared Tallerack and Gungurru sown on the May 30, 1997. The lupins were crop-topped as shown in the table. The first sprays (T1) were applied on September 20 and the second (T2) on October 4. There were no grasses in the trials but surrounding areas contained brome grass at the soft dough stage at T1 and by T2 was mature. Ryegrass at T1 had just flowered and by T2 was at the milky dough stage.

Crop Stage:

Tallerack T1 - Primary pods watery, seed green but not full size, secondary pods similar but slightly less developed.

Tallerack T2 - Primary and secondary pods full, tertiary pods watery, 25% leaf drop.

Gungurru T1 - Primary pods watery, seed green but not full size, secondary and tertiary branches flowering with a few small pods.

Gungurru T2 - Primary and secondary pods full, tertiary pods watery, finished flowering but no leaf drop. Yield results are as shown.

At the early application time there was no significant yield loss in Tallerack with either product but there was in Gungurru. The late application timing was safer on Gungurru and no yield loss resulted, as was the case with Tallerack.

When crop-topping ryegrass at the correct time, less profit will be lost if spraying Tallerack lupins. Note the effect of Glyphosate. At the early timing in both varieties it caused substantial yield loss. At the late timing there was actually a slight yield increase over the untreated. It seems to have had some 'toughening' effect on the pods, making them less prone to shattering during harvest.

Glyphosate is not registered for use in lupins so this practice cannot be recommended.

Treatment (Rate/Ha)	Variety & Timing	Yield kg/ha	Yield % Untreated
Tallerack			
Untreated		1,523	100
Gramoxone® 400 ml	T1	1,336	88
Gramoxone® 800 ml	T1	1,217	80
Glyphosate 500 ml + 0.2% WA	T1	1,186	78
Gramoxone® 400 ml	T2	1,504	99
Gramoxone® 800 ml	T2	1,416	93
Glyphosate 500 ml + 0.2% WA	T2	1,561	102
	LSD at 5%	386	C of V
	LSD at 1%	542	16
Gungurru			
Untreated		1,450	100
Gramoxone® 400 ml	T1	1,190	82
Gramoxone® 800 ml	T1	1,041	72
Glyphosate 500 ml + 0.2% WA	T1	716	49
Gramoxone® 400 ml	T2	1,297	89
Gramoxone® 800 ml	T2	1,175	81
Glyphosate 500 ml + 0.2% WA	T2	1,462	100
	LSD at 5%	369	C of V
	LSD at 1%	518	17

underside of this crook the stem appears to have split and the anthracnose lesion is visible.

It is unlikely that these infections will reduce yield to any significant degree but it highlights the fact some growers will have con-

taminated seed for the 1999 crop. All growers should make time to have a close look at their lupins to see if the disease is present. As a precaution I believe that we should treat all seed destined to establish the 1999 lupin crop with Thiram to control anthracnose.