

CHICKPEAS IRRIGATION AGRONOMY

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The title of this article "Chickpeas Irrigation Agronomy" implies that good sound management advice is available to pending chickpea growers. Unfortunately, this is not the case. What is attempted by this article is to draw together pieces of information from research workers and irrigation farmers and to highlight some known facts. The reader is directed to the Agfact No. P.4.2.2. entitled "Chickpea Growing" which covers general background and agronomy of chickpeas.

Chickpea suitability for Irrigation

Chickpeas are considered by some growers as a fickle crop. In 1985, average yields of Tyson under irrigation in the Murray Valley and the M.I.A. were about 1.1 t/ha. Yield estimates over 2.5 t/ha have been achieved in trial situations.

The main problem is chickpeas' intolerance of waterlogging. Crops on steep slopes with water on and off in 12 hours, have received substantial damage from one spring irrigation. Other crops have benefited from one irrigation, but been damaged by a second.

On raised beds, some trials have received as many as four irrigations and given high yields, others have almost died following one irrigation. Caution is therefore encouraged until irrigation management is further investigated.

Varieties

Two main types of chickpeas are grown, these are the large seeded garbanzo's of which Opal is the main Australian variety. A severe shortage of seed will mean very little Opal chickpeas will be grown this season.

The small seeded desi types, such as the variety Tyson, are the predominant type to be sown under irrigation in southern N.S.W.

Tyson is the only readily available chickpeas variety. Two new varieties will probably be released this year, they are the N.S.W. variety 7724-31 and the Victorian variety K653.

The variety 7724-31 is superior to Tyson in two important areas. It has superior waterlogging resistance and is taller. If released, an estimated 500 tonnes will be available for 1987.

Sowing Time

Optimum sowing time has yet to be determined. At present late April to mid June is recommended. Earlier sowings risk seedling death due to disease. Later sowings will allow for less stem elongation and plant height may become a serious problem. Watering up is slower than sowing into moisture so sow earlier (2 weeks).

Weed Control

Weed control is a major problem. No post emergent selective herbicides for broadleaf weeds are available.

Trifluralin is registered, but slow crop growth through winter means that an open crop canopy exists when the trifluralin activity ceases. Late germination of wireweed (hogweed) is a problem.

Bladex R will be registered in Victoria this year. This will be tank mixed with Trifluralin to give pre-emergent broad spectrum weed control. Bladex however is not registered in N.S.W.

Seedling Rate

Victorian data shows conclusively that for dryland sowings in the Wimmera, 100 kg/ha or higher seeding rates are required for Tyson. In southern N.S.W., the recommendation is for 75 kg/ha of Tyson. Seed weight varies from year to year, and so it is encouraged that

growers sow sufficient seed to achieve a minimum of 40 plants per square metre. Later sowing requires higher seeding rates.

Plant Vigor

Seedlings can emerge reasonably quickly, and from great depths. However, seedling vigor is poor. Plant growth almost ceases during winter. In spring, growth never appears vigorous, and final crop height is usually around 0.5 metres. Slow growth allows for poor weed suppression by the crop.

Fertilizers

Chickpeas must be inoculated with chickpea inoculum. No other group of inoculum will suffice.

The main fertilizer required is phosphorus. However, in cropped out paddocks early plant growth will be aided by using a starter fertilizer, as the plants usually undergo a temporary nitrogen deficiency until nodulation occurs.

Use phosphorus as for wheat.

Irrigation Management

Until this is researched in greater detail, the following cautious approach is recommended.

1. Only sow on raised beds. Experience on the flat shows that even steep country could be damaged by poor drainage from rain following an irrigation or from wet winters/springs.

Beds should have furrows deeper than 20 cm. Irrigation must never top the beds.

2. Preirrigation recommended as the main irrigation.
3. Spring irrigate as soon as possible (i.e. early September) but only if soil moisture is depleted by a dry winter.
4. Do not irrigate in warm temperatures (i.e. above 20°C) or after flowering. Both these may prove incorrect, but sufficient experience exists to avoid the probable risk of high temperatures and late waterings. Crops have been satisfactorily watered into October but results are not consistent.

Pests

The two main pests to date have been mice at sowing time and *Heliothis* post flowering.

Disease & Rotations

Watch for carryover diseases with similar plant species especially broadleaf crops and lucerne in crop rotations.



Chickpeas growing on 76 inch beds