Fertiliser toxicity

Description: The roots and shoots of germinating seedlings are burnt. Seeds fail to germinate.

- Toxic chemical effect from ammonium vapour, most likely from urea and ammonium phosphates such as MAP and DAP.
- Osmotic or salt effect due to high concentrations of salts produced from soluble fertiliser dissolving in water (both N and P).
- Seeds desiccated from direct moisture absorption by fertiliser in very dry soil.

Impact: Poor or patchy emergence.

Contributing factors: Wider row spacings will concentrate the fertiliser with the seed (low Seed Bed Utilisation). Light textured, alkaline and saline soils increase the effect. Sowing with fertiliser into dry soil.

Image: R Rainbow, SARDI

Germinating canola plants not emerging or emerging slowly due to fertiliser toxicity.
**Management:** Band or spread all nitrogen fertiliser as canola seed is very sensitive to ammonium nitrogen.

When applying higher rates of phosphorus than is safe (see table), either pre-drill some of the phosphorus with the nitrogen fertiliser or completely separate the seed and fertiliser when sowing in one pass.

Sow into damp soil.

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**Seed Bed Utilisation %**

= Seed spread mm / Row spacing mm x 100

= 25 mm / 180 mm x 100 = 14%  

*In dry soils only use half these rates.*

**Data:** R Rainbow, SARDI