



Useful Facts

What is Boron?

Boron (B) is an element essential for plant growth.

While plant requirements for B are critical, only small amounts are needed to provide adequate growth.

It is therefore referred to as a micronutrient.

This makes it different from nitrogen, a macronutrient, which is required in relatively large amounts.

Why is Boron Important

Plants require very small quantities of B for normal growth; excess B can be toxic.

Plants need a steady supply of B, particularly during rapid growth.

Canola and alfalfa have heavy B requirements compared to cereals.

Boron deficiency in alfalfa



Left: Boron deficiency – reddish brown leaves, low vigour, poor growth, delayed flowering
Right: Sufficient boron – normal growth

Where Boron is Found

Organic matter is the main source of B in soils.

Boron is mobile in soil so it can be lost to leaching, especially in sandy soils.

Boron is highly immobile in plants – it cannot move from older tissue to support newer growth.

Acknowledgements

Thanks to D. Leach and K. Strukoff for technical help.



Additional Information

For additional information about **boron** refer to the article '**Feasibility of B Fertilization on Canola and Alfalfa in Canadian Prairies**' on the NARF website (www.neag.ca)

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How Plants Respond to Boron Deficiency

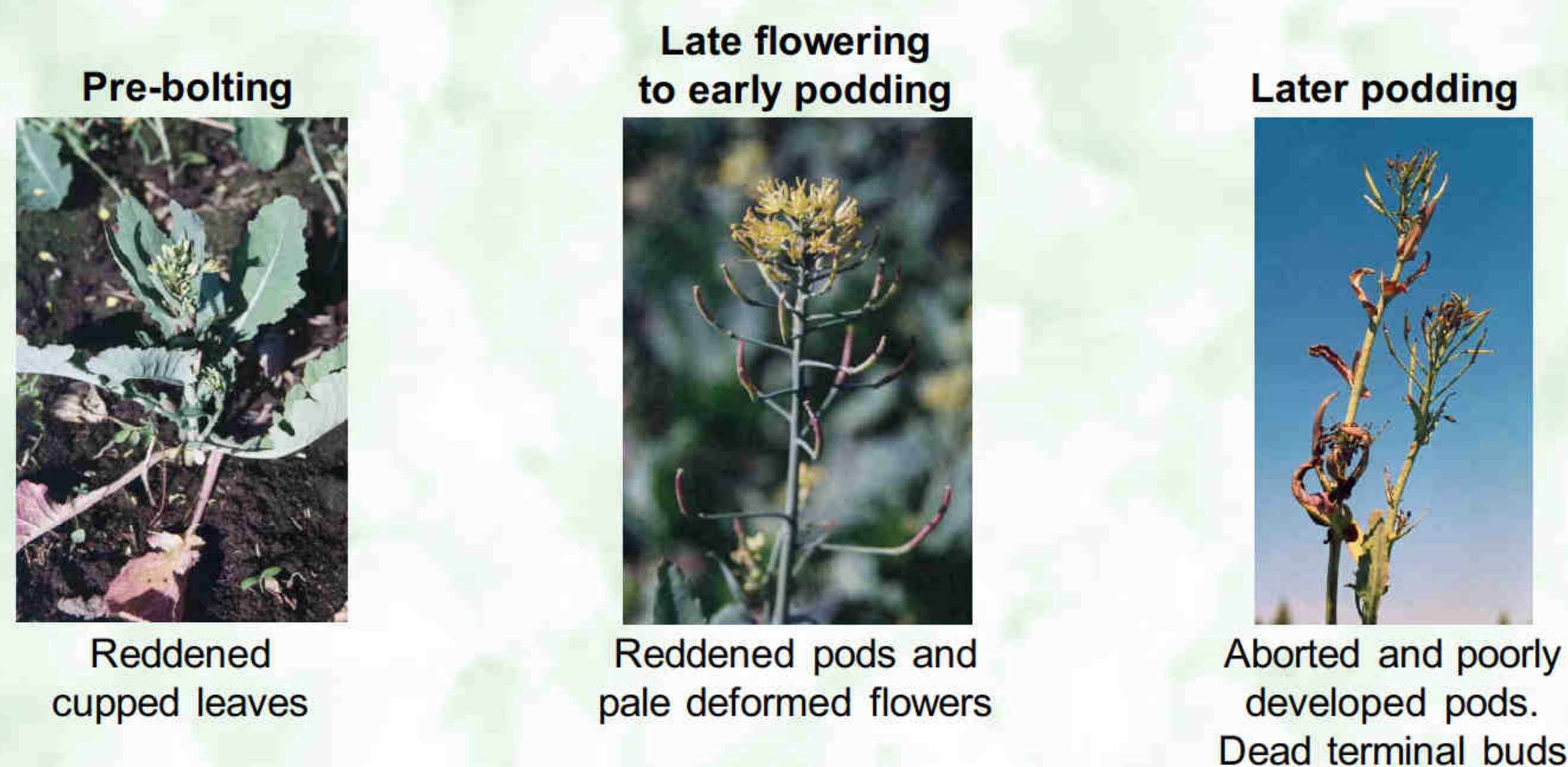
Deficiency symptoms include:

- Newer leaves that are cupped and/or yellowish or reddish
- Paler than normal flowers
- Pod abortion or poor pod development

Low Boron vs. Low Sulfur:

Boron deficiency symptoms are similar to sulfur (S) deficiency symptoms. As a result, S deficiency is sometimes misdiagnosed as a boron deficiency. One key difference is that terminal buds die under severe and persistent B deficiency and not under S deficiency.

Boron deficient canola at three growth stages:



What can be Done to Correct Boron Deficiency

Despite low B levels in soil tests, canola response to B fertilizers rarely occurs in the Canadian Prairie region.

Similarly, alfalfa response to B fertilizer occurs very rarely if at all in the Canadian Prairie region.

As a result, it is very difficult to predict when an economic response to B fertilizer will occur.

Where B deficiency is suspected, growers should ensure that visual symptoms are consistent with B deficiency.

Apply B fertilizer in test strips on suspected B deficient fields to help determine when blanket applications could be cost effective.

Because B can also be toxic, resulting in yield loss, follow application guidelines very carefully.