



NORTHEAST AGRICULTURE RESEARCH FOUNDATION

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Some Useful Information About Boron (B) and Boron Fertilizers

- Plants require B in very small quantities for normal growth, but excess B can be toxic.
- B is mobile in soil so it can be lost to leaching.
- B is highly immobile in plants so it cannot move from older to newer growth.
- Plants need a steady supply of B, particularly during rapid growth.
- Canola and alfalfa are heavy users of B compared with cereal crops.
- Organic matter is the main source of B in soils.
- Deficiency symptoms include newer leaves that are cupped and /or yellowish or reddish, flowers that are paler than normal, pod abortion or poor pod development (Figures 1&2).
- B deficiency symptoms are similar to S deficiency symptoms and S deficiency is sometimes misdiagnosed as B deficiency.
- Under severe and persistent B deficiency, terminal buds will die: this does not happen with S deficiency.
- Canola responses to B fertilizers occur rarely on soils testing low in available B in the Canadian prairie provinces.
- Responses to B fertilizers by alfalfa occur very rarely if at all in the Canadian prairie region.
- It is very difficult to predict when economic responses to B fertilizer will occur.
- Where B deficiency is suspected, growers should ensure that visual symptoms are consistent with B deficiency.
- Applying test strips on suspected B deficient fields can help to identify whether blanket applications would be cost effective.
- Because B can also be toxic, resulting in yield loss, growers should follow application guidelines very carefully.

For additional information on B refer to the article 'Feasibility of B Fertilization on Canola and Alfalfa in Canadian Prairies' or contact S. S. Malhi at smalhica@yahoo.ca, Rigas Karamanos at rigas.karamanos@viterra.com or Stewart Brandt at brandts@xplornet.ca



Figure 1. Boron deficient alfalfa (left) showing reddish brown leaves, stunted growth and delayed flowering compare with Boron sufficient alfalfa (right) at Choiceland, SK (Photo courtesy Lyle Cowell).



Figure 2. Boron deficient canola at pre-bolting (left) showing reddened cupped leaves, at late flowering to early podding (center), showing reddened pods, and at later podding (right) showing aborted and poorly developed pods and dead terminal buds (Photos courtesy Lyle Cowell).