

PAN ALL PULSE BULLETIN #23 – AUGUST 18, 2005

What's in the PAN -

- • Frost Injury on Pulse Crops
-

Frost Injury on Pulse Crops

Ray McVicar – Provincial Specialist, Special Crops - SAF

Living in western Canada means that unfortunately we are at risk of early frost in August. As pulses often mature from the bottom of the plant toward the top, frost injury may be much greater on plant tops. Seeds near the ground may have little frost damage and care should be taken to focus harvest efforts on these seeds.

Figure 1. is a photo taken 10 days after frost and shows pea seeds from the same plant. The lower pod in the photo contains intact seed near the ground level, while the upper pod contains shrunken seed from near the top of the plant.



Figure 1. Frosted pea seeds Source: J Knudson

Peas and small lentils tend to mature more rapidly than other pulses. For this reason, frost damage may be less severe on these crops especially if they were seeded before mid-May. Large green lentils and chickpeas have a less determinate growth habit and if cool wet conditions prevail during the summer, they tend to be less mature when an early frost hits. A significant portion of the large green lentils and chickpeas are grown outside the areas more prone to early frost so are often spared injury. Dry bean has poor tolerance to frost and quickly shows damaged with blackened leaves after frost. If a slight frost has occurred, bean crops may show blackened leaves at the top of the plants, with much less injury to pods below.

During early pod fill a frost can cause discoloration and deformation of seeds. Frost damaged pods and seeds will be water soaked and no longer firm as they start to 'leak'. Heavily damaged pods will have a rubbery wilted appearance. Pea pods with medium frost injury will show a white patch-work effect a few days following the frost. Figure 2 shows pea pods four days after frost injury.



Figure 2. Frosted pea pods Source: J Knudson

Pulse crops should be monitored after a frost to determine the level of injury to the pods and seeds. If the majority of the seeds are not damaged, harvest should continue as planned. If the large majority of pods and seeds are damaged, consider harvesting the crop for feed keeping in mind the risk of nitrates. If a medium level of frost has occurred, monitor the crop for possible pod breakage and consider swathing if pods appear to be splitting open.