

Fungicide Decision Support Checklist for Control of Ascochyta Blight and Anthracnose in Lentil

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Disease in lentil is a major concern as anthracnose and ascochyta blight can reduce both yield and seed quality. To help producers determine the need for fungicide control, a disease decision support checklist was developed by Lone Buchwaldt, Godfrey Chongo, and Bruce Gossen, with Agriculture and Agri-Food Canada.

A. Plant Stand 1. Thin (high weed pressure, low yield expectations) 2. Moderate (some weeds, possibly low yield) 3. Normal (about 12 lentil plants/ft ² or 136/m ²) 4. Dense (more plants than normal, lush growth)	Risk Factor 0 5 10 15
B. Number of days with rain in the last 14 days 1. 0 days 2. 1-2 days 3. 3-4 days 4. 5-6 days 5. 7 or more days	Risk Factor 0 5 10 15 20
C. The five day weather forecast 1. Dry 2. Unpredictable 3. Light showers 4. Rain	Risk Factor 0 10 15 20
D. Symptoms of anthracnose and ascochyta blight on lentil plants 1. No visible symptoms 2. Few lesions on the lower half of the foliage (up to 10 per cent infected) 3. Lesions on lower half of the foliage (up to 25 per cent infected) 4. Lesions on lower (up to 25 per cent) as well as upper foliage (up to 10 per cent) 5. Lesions on lower foliage and premature leaf drop characteristics of anthracnose 6. Flowers and/or peduncles infected, characteristics of ascochyta blight 7. Lesions at the stem base	Risk Factor 0 5 15 25 25 25 30
TOTAL SCORE OF RISK FACTORS	

Inspect the lentil crop between the 10 node stage and early flowering in at least 10 sites of the field to determine the presence of leaf lesions and premature leaf drop. A risk value is then calculated as A+B+C+D.

- If the risk value is less than 50, a fungicide application is not recommended, but a new assessment should be made at three-to-five day intervals until the crop is no longer flowering.
- When the risk value is 50 or above, a fungicide application is recommended if the crop is still flowering.

Ascochyta blight: Seed-borne or residue-borne, resulting in infection of leaves, stems, pods, and seed. Lesions appear as tan or grey spots, and often have tiny black fruiting bodies (pycnidia), often arranged in circles, in the centre. Cool, rainy weather is conducive for infection and spread of the disease. It is most damaging to maturing pods and seeds if prolonged wet weather occurs during July and August. Severely infected seed lots may not be marketable or will be downgraded severely due to discoloration. Most lentil varieties now have some level of resistance to ascochyta blight. Control of ascochyta blight can be achieved from early-to-late flowering when symptoms appear. An application at early pod set may prevent reduction of seed grade.



Figure 1. *Ascochyta blight* lesions on leaf with close-up showing pycnidia/lesions on pods. (Photo courtesy of Saskatchewan Ministry of Agriculture)



Figure 2. *Anthracnose* lesions on stems with close-up of tiny irregular black resting bodies. (Photo courtesy of Saskatchewan Ministry of Agriculture)

Anthracnose: Foliar and stem disease caused by *Colletotrichum lentis*. Research has identified two races of anthracnose. A few lentil varieties are available with resistance to Race 1, but no varieties are resistant to Race 0. Infection results in cream coloured lesions on leaves and sunken lesions on stems that are often tan coloured with a dark margin (Figure 2). Lower leaflets wilt and drop to the soil surface. The lower stem turns brown and the plants eventually die prematurely resulting in patches of dead plants in the field. Lesions may contain tiny black resting bodies (microsclerotia) somewhat similar in appearance to ascochyta blight fruiting bodies, but smaller and darker in colour, more numerous, and irregular in shape. Patches of dying plants appear within an otherwise green field and can spread rapidly. The disease is favored by warm, moist weather and commonly kills the infected lentil plant before seed is produced.

The optimal time for control of anthracnose is from the 10 to 12 node stage to early flowering when premature leaf drop first occurs. An application may be warranted at low levels of stem infection to protect those plants that are still healthy. It is too late to control anthracnose when severe lesions can be found at the stem base, and when the crop is no longer flowering.