

# 20/20 Tech Bulletin

## What is a Complete Disease Diagnostic™ for Pulses?

**The Complete Disease Diagnostic™** identifies seed-borne pathogens present on beans, peas, lentils, and chickpeas and was developed by and is exclusive to 20/20 Seed Labs Inc.

This is one of the most valuable diagnostic tools available to growers.

### Why do a Complete Disease Diagnostic™?

**Seed-borne pathogens** cause a host of issues with germination, vigour, and seedling health which impacts seed stand establishment and, ultimately, yield potential.

If pathogens are identified prior to seeding, growers can take action to minimize the risk by selecting a seed treatment that controls the identified pathogens which can be a contributing factor to poor performance.

**Disease symptoms** can be caused by a single pathogen or a combination of pathogens known as a disease complex. A disease complex can have a variety of symptoms that affect different plant parts and stages of plant development. A good example is the *ascochyta complex*, where as many as 3 different fungi occur simultaneously to produce *mycosphaerella/ascochyta* leaf and stem blight as well as root and foot rot.

Most pulse pathogens can be characterized as follows:

- **Seed rots and seedling blights.** These can cause the death of seeds or of seedlings before or shortly after emergence, and can significantly reduce density and yield.
- **Foot and root rots.** Seedlings infected with rots and that survive the seedling stage might die later or ripen prematurely, producing fewer heads, resulting in reduced seed set and/or shriveled seed.
- **Pod and stem rots.** Affected plants with stem rot will show poor lodging from softened stems, foliage above the lesions wilt and may consequently ripen seed prematurely.
- **Leaf blight and pod spot.** Produce symptoms of spotting on leaves and pods. Leaf blight symptoms can be severe enough to cause defoliation and plant death.



## How is a Complete Disease Diagnostic™ Done?

- 200 seeds are surface sterilized, placed on a growth medium, and allowed to incubate for 7 days.
- A qualified analyst examines the colonies produced and identifies the pathogens as follows:

### Pathogenic Fungi - Disease

*Ascochyta spp.* - Leaf blight, and root rot complex

*Botrytis cinerea* - Seedling blight

*Colletotrichum spp.* - Anthracnose

*Fusarium spp.* - Root rot

*Sclerotinia spp.* - Stem and pod rot

*Stemphylium botryosum* - Leaf blight

## How do I Use the Complete Disease Diagnostic™ Results?

The Complete Disease Diagnostic™ gives you a clear picture of what diseases are present on your seed.

Seed treatments mitigate damage from seed-borne and soil-borne pathogens. Most also have systemic properties that work to protect the seed, roots, and young seedlings from disease.

**More information:** Contact our labs at [support@2020seedlabs.ca](mailto:support@2020seedlabs.ca) to inquire about testing, and disease threats to beans, peas, lentils, and chickpeas in western Canada.



Nisku, AB | Winnipeg, MB

Toll Free: 1-877-420-2099 Fax: 1-888-900-1810

[www.2020seedlabs.ca](http://www.2020seedlabs.ca)