



Major Seed Born Diseases of Pulse Crops and Management

(*Dharmendra Yadav¹, Digvijay Singh², Varun Tyagi³, Ankush Kumar⁴ and Ankit Kumar Singh⁴)

¹ICAR-Indian Institute of Wheat and Barley Research, Karnal

²Dr. Rajendra Prasad Central Agricultural University, Pusa, Samastipur

³Department of Seed Science & Tech., Ch. Charan Singh University, Meerut

⁴Department of Plant Pathology, CCS Haryana Agricultural University, Hisar

*Corresponding Author's email: dharmendra.yadav1998101@gmail.com

Pulse crops are an important source of protein for the Indian population. However, they are vulnerable to a range of diseases that can significantly reduce their yield and quality. In this article, we will discuss some of the major seed-borne diseases of pulse crops. Seed-borne diseases refer to plant diseases that are transmitted through infected seeds. This means that the pathogen, such as a fungus, bacteria, virus or nematode, is present within the seed, and when the seed is planted, the pathogen can infect the emerging seedling and cause disease.

There are several ways that seed-borne diseases can be transmitted to pulse crops. One of the most common ways is through contaminated seed. When the seeds are infected with the pathogen, they can serve as a source of inoculum for the next crop. In some cases, the pathogen can be transmitted from the parent plant to the seed, which can then infect the offspring. Seed-borne diseases can also be spread by insects and other pests that feed on the plants or by soil-borne pathogens that infect the roots of the plants. Poor sanitation practices, such as using contaminated equipment or not properly disposing of crop residues, can also contribute to the spread of seed-borne diseases.

Major Seed Born Diseases and Causal organism

Crop	Diseases	Causal organism
Chickpea	Ascochyta Blight	<i>Ascochyta rabiei</i>
	Botrytis Gray Mold	<i>Botrytis cinerea</i>
	Fusarium Wilt	<i>Fusarium oxysporum f. sp. ciceri</i>
Lentil	Ascochyta Blight	<i>Ascochyta lentis</i>
	Fusarium Wilt	<i>Fusarium oxysporum f. sp. lentis</i>
	Anthraxnose	<i>Colletotrichum truncatum</i>
Pea	Aphanomyces Root Rot	<i>Aphanomyces euteiches</i>
	Fusarium Wilt	<i>Fusarium oxysporum f. sp. pisi</i>
	Ascochyta Blight	<i>Ascochyta pisi</i>
Bean	Anthraxnose	<i>Colletotrichum lindemuthianum</i>
	Common Bacterial Blight	<i>Xanthomonas axonopodis pv. phaseoli</i>
	Halo Blight	<i>Pseudomonas syringae pv. phaseolicola</i>

However, they are vulnerable to a range of diseases that can significantly reduce their yield and quality. Eg. Pigeon pea alternaria blight, mung bean cercospora leaf spot, chickpea

ascochyta blight, pea stem rot and lentil botrytis gray mold. In this article, we will discuss some of the major seed.

Ascochyta Blight: This disease affects chickpea and is caused by the fungus *Ascochyta rabiei*. The symptoms of the disease include dark brown spots on the leaves, stem, and pods. The disease can reduce the yield of chickpea by up to 70%. To manage *Ascochyta* blight, farmers should use disease-free seed, rotate crops, and use fungicides.

Fusarium Wilt: This disease affects pigeon pea and is caused by the fungus *Fusarium udum*. The symptoms of the disease include wilting and yellowing of the leaves, stunted growth, and premature shedding of the pods. The disease can reduce the yield of pigeon pea by up to 100%. To manage *Fusarium* wilt, farmers should use disease-free seed, rotate crops, and use resistant varieties.

Anthracnose: This disease affects black gram and is caused by the fungus *Colletotrichum truncatum*. The symptoms of the disease include circular, sunken lesions on the leaves, stem, and pods. The disease can reduce the yield of black gram by up to 50%. To manage anthracnose, farmers should use disease-free seed, rotate crops, and use fungicides.

Charcoal Rot: This disease affects all pulse crops and is caused by the fungus *Macrophomina phaseolina*. The symptoms of the disease include wilting and yellowing of the leaves, stunted growth, and the presence of black fungal structures on the roots. The disease can reduce the yield of pulse crops by up to 80%. To manage charcoal rot, farmers should use disease-free seed, rotate crops, and use resistant varieties.

Pea Seed-Borne Mosaic Virus: Pea Seed-Borne Mosaic Virus: It affects peas and is brought on by the Pea Seed-Borne Mosaic Virus (PSBMV). Stunting, indications of a mosaic, and decreased seed quality are possible effects. Use of virus-free seed, crop rotation, and pest control are examples of management techniques.

Bean Common Mosaic Virus: It affects beans and is brought on by the virus known as Bean Common Mosaic Virus (BCMV). It may result in stunting, poor seed quality, and leaf yellowing and mottling. Use of virus-free seed, crop rotation, and pest control are examples of management techniques.

Seed Rot and Seedling Blight: These diseases affect all pulse crops and are caused by various fungi. The symptoms of the diseases include rotting and discoloration of the seed, poor germination, and stunted growth of the seedlings. To manage seed rot and seedling blight, farmers should use disease-free seed, treat the seed with fungicides before planting, and avoid planting in waterlogged or poorly drained soils.

In conclusion, pulse crops are vulnerable to a range of seed-borne diseases that can significantly reduce their yield and quality. Farmers can manage these diseases by using disease-free seed, rotating crops, using resistant varieties, and applying fungicides when necessary. By adopting these management strategies, farmers can ensure a healthy and productive pulse crop harvest.