



Curvularia leaf spot : An emerging threat of maize

Poonam Kumari¹, Ved Prakash Yadav², Parvesh Kumar¹ and Jitender Kumar³

¹Department of Plant Pathology, C.C.S. Haryana Agricultural University, Hisar (Haryana) India

²Department of Genetics and Plant Breeding, RARI (SKNAU), Durgapura, Jaipur (Rajasthan) India

³Department of Agronomy, C.C.S. Haryana Agricultural University, Regional Research Station, Bawal (Haryana) India

(Email : vp_yadav@yahoo.com)

Maize (*Zea mays* L.) one of the tremendous demanding cereal crop holds rank third after wheat and rice originated from Mexico and Central America. Globally, maize is known as ‘Queen of the Cereals’ or ‘Miracle C4 crop’ because of its genetic makeup conserve highest yield potentiality among the other cereals. It occupies an area of about 9.28 million hectares having production of 26.74 million tonnes with average productivity of 2.88 t/ha in India during 2019-20. The major maize growing states that contribute to maize production are Madhya Pradesh, Karnataka, Maharashtra, Rajasthan, Uttar Pradesh, Bihar, Gujarat, Tamil Nadu, Jammu Kashmir and others. In Haryana, *Kharif* maize is cultivated over an area of 5.78 thousand hectares with average production of 17.12 thousand tones achieving productivity of 2.96 t/ha. The major diseases prevalent in different agro-climatic zones of India are leaf spot, seed rot and seedling blight, banded leaf and sheath blight, downy mildew, stalk rot, smut and

rusts. In recent years major diseases occurs in Haryana are maydis leaf blight (*Bipolaris maydis*), banded leaf and sheath blight (*Rhizoctonia solani* f.sp. *sasakii*), bacterial stalk rot (*Dickeya zeae*), common rust (*Puccinia sorghi*), Curvularia leaf spot (*Curvularia lunata*) and pythium stalk rot (*Pythium aphanidermatum*) are of great concern for impact on yield potentiality of maize. Out of these one of well known emerging disease, curvularia leaf spot cause serious impact on agricultural economy of maize.

Symptoms : First symptoms of curvularia leaf spots appear as minute, chlorotic, pinhead sized translucent green spots on the leaf surface. Later on, the spots become enlarged in size and necrosis start from the centre. The mature spots appear as minute, necrotic, straw brown colored mostly circular or oval lesions measuring about 0.5-2.0 mm long with dark brown peripheral rings surrounded by pale yellow halo zone.



Fig. 1: Symptoms of Curvularia leaf spot (CLS) of maize

Causal agent: *Curvularia lunata* : *Curvularia* leaf spot is caused by the fungus soil and seed borne fungus *Curvularia lunata*. The fungal pathogen survived through the asexual spores; conidia overwinter in crop residue and dispersed to new corn plants by water, soil and seeds. The fungus well grows in warm and humid conditions that favour the disease development. This fungal pathogen has a wide host range including several grasses. The fungal pathogen comprised of dark brown mycelium and hyphae septate producing conidiophores. The teleomorphic stage of *Curvularia lunata* is *Cochliobous lunatas*. The conidia of fungus produces as smooth oval type of brown, clavate and curved at subterminal cells with 3 septa, while the conidiophores with erect septate, unbranched bearing conidia.

Epidemiology : The occurrence of disease incidence is moderate to severe form in Karnataka, Uttarakhand and Rajasthan. The fungal pathogen requires temperature for growth and sporulation is 28-32pC and 30-32pC, respectively with high relative humidity. The hot, humid and heavy rainfall favoured the disease development and

progression. Disease can cause ear rot due to prevalent environmental conditions. The disease severity of *curvularia* leaf spot is reported above 60 per cent with high yield losses. Now, *curvularia* leaf spot is emerging disease in the state of Haryana due to prevalent conditions during *Kharif* season.

Management :

- Deep ploughing, sanitation and removal of previous crop debris from soil.
- Use crop rotation, avoiding water stress at flowering time to reduce disease incidence.
- Use resistance varieties/hybrids.
- Seed treatment with 20g *Trichoderma* chalk formulation + Mancozeb 63% or Thiram 40 F.S. @ 6g/kg seed.
- Foliar Spray: It should be done at 35 and 55 DAS using Carbendazim 12%+ Mancozeb 62% or Zineb 75% @ 2g/lit of solution.

Received : 27.06.2022

Revised : 25.07.2022

Accepted : 29.08.2022

RNI : UPENG/2006/16373 ISSN : 0973-1547

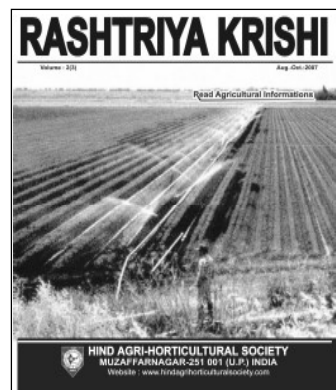
Accredited By NAAS : NAAS Rating : 4.15

INTERNATIONAL JOURNAL OF PLANT SCIENCES

An International Research Journal

Visit : www.hindagrihorticulturalsociety.co.in

THE ONLY HIGH TECH MAGAZINE FOR THE INTERNATIONAL AGRICULTURE INDUSTRY



Article are invited from the scientist, subject Specialists, Teachers, Students, Farmers and Professionals in the field of Agriculture and Horticulture, Aromatic and Medicinal Plants and other Allied subjects of Agriculture and Science
(All the author must be the member of the magazine)

**Annual Subscription fee Rs. 500/-
Abroad U\$ 50.00
Life Subscription fee Rs. 5000/-
Abroad U\$ 750.00**

All payment should be made to
RASHTRIYA KRISHI / राष्ट्रीय कृषि

