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Good Crop and Effective Management for Rice Diseases

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Abstract

Adult-light brown with shiny, brownish yellow wings adorned with three black bands on the forewings. Larvae are transparent yellowish/green and spin the edges of the leaves together with silken thread folding the leaf to conceal them and feed inside the fold. Feeding damage of the rice leaf folder includes folded leaves and removal of leaf tissue, leaving longitudinal and transparent streaks.

Keywords: Leaf surface; Host plant; Lesions; Gramineous crops; Potato growing areas; Sorghum

Introduction

The streaks are whitish. Heavily infested fields show many folded leaves and a scorched appearance of leaf blades. The eggs are oval, shiny, and reddish brown in colour. Laid in batches of 10-20 in one to three rows along the midrib on the upper surface of the leaf. The early nymphs are greenish but they become brownish as they grow. The adult bugs are 15-20 mm long, slender with long legs and antennae [1]. Adult bugs can feed on rice stems and grasses. Nymphs and adults feed on the developing rice grains in the milky stage. As a result of the feeding panicles bear partially or entirely empty grains. Brown spots occur where the insects have fed. The bugs can also give an unpleasant smell to the rice and so lower the market value. The Caseworm is a pest of irrigated rice and rain-fed rice with standing water during the vegetative stage [2]. Adult moth is bright white with light brown and black spots. It is about 5 mm long with a wing expanse of 15 mm. The larva cuts off tips of leaves to make the cases in which it lives. These cylindrical case is either attached to the plant or seen floating on the water surface [3]. Each larva constructs many cases before it pupates. The semi-aquatic larvae feed on the lower side of floating leaves and on submerged leaves. The larva pupates in the final case and the adult is a small, delicate, white moth with pale brown spots on the wings. Larva has transparent green body and a light brown head. Armyworms are a sporadic pest and occasionally cause losses when an outbreak occurs. The young caterpillars feed on the leaves leaving only the midrib. The mature larva can cut off the panicles from the base or peduncles. The host plant may be totally devoured when populations are very high [4]. Eggs are white in colour and lay in groups in-between the leaf sheaths or on the leaf blade. The mother moth uses a sticky secretion to hold the group in place. Adult moths are pale and brick-red to pale brown with a very hairy body covered with dark specks and patches. Moths are nocturnal.

Methodology

The lesions are usually observed on the leaf sheaths although leaf blades may also be affected. The initial lesions are small, ellipsoid or ovoid, and greenish-grey and usually develop near the water line in lowland fields [5]. Under favorable conditions, they enlarge and may coalesce forming bigger lesions with irregular outline and grey-white centre with dark brown borders. The presence of several large spots on a leaf sheath usually causes the death of the whole leaf. The most conspicuous symptoms of the disease are on the leaves and glumes. Symptoms may also appear on the coleoptile, leaf sheaths, panicle branches, and more rarely on the roots of young seedlings, and stems [6]. Typical spots on the leaves are oval, about the size and shape of sesame seeds. They are relatively uniform and fairly evenly distributed over the leaf surface as shown in (Figure 1). The spots are brown with grey or whitish centres when fully developed [7]. Young or underdeveloped spots are small and circular, and may appear as dark brown or purple brown dots. On susceptible cultivars, the spots are much larger and may reach 1 cm or more in length [8]. Sometimes numerous spots occur and as result the leaf withers. Concentric lines or zones on the spot have been observed occasionally. Black or dark brown spots appear on the glumes and in severe cases the greater portion or the entire surface of some glumes may be covered.

Discussion

Under favorable climatic conditions, dark brown conidiophores and conidia develop on the spots to give a velvety appearance [9]. The Corn earworm is a poly-phagous pest that attacks crops like tomato, various vegetables, sorghum, soybean and maize. On maize the caterpillars are

Figure 1: Typical Leaf spots.

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as leaf the cob feeders. They bore holes through the covering leaves of the cob and feed in their characteristic half in/half out way. The larvae are usually greenish, but can be rather variable in colour and measure up to 5 cm when fully matured. Alternating light and dark stripes run the length of the body. Double dark stripes can usually be seen down the centre of the back and the underside of the larva is light coloured. Distinct tubercles are present with two or three large hairs protruding from each [10]. The adult is a brownish moth with light fawn forewings and a grey to grey-brown hind wing which has a broad dark band on the outer third of the wing. They also have a distinct kidney-shaped spot in the middle of the forewing and a pale patch in the dark marking on the hind-wing. Pupation takes place in a cell in the soil at a depth of 5 to 10 cm and reddish-brown in colour. The Maize Aphid is a more or less cosmopolitan pest and attacks besides maize many other gramineous crops [11]. The aphids feed on leaves, leaf sheath and inflorescence as shown in (Figure 2).

It is more a problem on young plants. Feeding causes mottling and leaf distortion. The young aphids are light green in colour while the adults are dark green or bluish green with a slight whitish covering [12]. The adult's measure up to 2 mm in length. In Bhutan this aphid does not seem to present a big problem and chemical control should not normally be necessary. This is the most common maize disease in Bhutan and prevalent in areas of high humidity and low temperature. Maize and Sorghum is primary host while millet and some other grass species are secondary hosts for this disease. Early lesions of GLS appear as pin-point sized, olive green spots which later grow into elongated, roughly-parallel sided lesions with a yellow halo. Similar to TLB, the lesions of GLS too start from the lower leaves and progress upwards [13]. Older lesions are pale brown to reddish brown in colour and blocky to rectangular in shape. They may range in size from 0.5 to 2 or more inches in length. During periods of wet weather or high humidity, the pathogen may sporulate across the lesion, giving the lesion a grey cast. Lesions may merge, resulting in large areas of dead leaf tissue. Important vector that transmit potato virus diseases. Adult aphids appear in the summer, and are 1.8 to 2.1 mm long; the head and thorax are black, and the abdomen yellow-green with a dark patch on the back. Winged aphids have a black head and thorax, and a yellowish green abdomen with a large dark patch dorsally [14]. The cutworm refers to the larval stages of several species of the Noctuid family which are known for their notorious habit of cutting and felling seedlings to the ground. Although several crops are affected, the problems are more severe on vegetable crops, asparagus, maize and potato. There are also species of climbing cutworms that move up plants and feed upon foliage, buds and shoots. Late blight is one of the most serious fungal diseases of potato in all major potato growing areas in Bhutan. The epidemic occurs during heavy monsoons, when the weather remains cloudy and misty with continuous drizzle for several days. The disease usually appears around the time when potatoes start blossoming; but it can also occur at any time during the growth of the plant so long as the weather conditions are favourable. The blighted areas first appear as faded green patches which soon become brownish black lesions. Lesions begin frequently at leaf tips and margins. Under conditions of high humidity and cool temperatures, lesions expand rapidly and the entire leaf may be killed in 1 to 4 days. If dry weather follows the appearance of lesions, the infection advances slowly and the affected areas curl and shrivel, while under moist conditions they remain limp and even decay, giving offensive smell. The lesions spread from the leaflets to the petioles and then to the stem. Infected stems are weakened and may cause entire plants to collapse. When the spots on individual leaflets are examined, especially when the leaves are still moist, a white mycelium may be visible at the lower surface of the leaves surrounding the lesions.

Figure 2: Aphids feed on leaves.

Conclusion

Potato tubers are infected while in the field and still attached to the plant or they get the infection during the harvest and sometimes in storage. It can be either a dry rot or a wet rot depending upon the prevailing weather conditions. The first sign of tuber infection is a brown to purple discoloration of the skin followed by a brownish dry rot which extends to about half an inch below the surface.

Acknowledgement

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Conflict of Interest

None

References

1. Kearney M, Porter W (2009) Mechanistic niche modelling: combining physiological and spatial data to predict species' ranges. Ecol Lett UK 12:334–350.
2. Frenken K (2005) Irrigation in Africa in figures – AQUASTAT Survey – 2005:Water Reports. FAO EU 1-649.
3. Beyene AM, Gashu AT, Tegegne MA, Mihertie AA (2022) Is the longstanding local rice cultivar "X-Jigna" being replaced by the improved variety "Shaga" in Fogera plain, Northwest Ethiopia? CEF UK 10:1-21.
4. Biggs SA (1990) Multiple sources of innovation model of agricultural research and technology promotion. WD EU 18:1481–1499.
5. Emmanuel D, Enoch OS, Victor O, Henry J (2016) Impact of row-planting adoption on productivity of rice farming in Northern Ghana. RAAE EU 19 :19-28
6. Easter KW, Abel ME, Norton G (1977) Regional Differences in Agricultural Productivity in Selected Areas of India. Am J Agric Econ 59:257-265.
7. Wassmann R, Jagadish SVK, Heuer S, Ismail A, Redona E, et al. (2009) Climate Change Affecting Rice Production: The Physiological and Agronomic Basis for Possible Adaptation Strategies.Adv Agron US 101:59-122.
8. Farooq MD, Usman MD, Nadeem F, Rehman HU, Wahid A, et al. (2019) Seed priming in field crops: Potential benefits, adoption and challenges. Crop Pasture Sci AU 70:731-771.
9. Guerra LC (1998) Producing more rice with less water from irrigated systems. IRRI EU 1-25.
10. Senthilkumar K, Bindraban PS, Thiyagarajan TM, Ridder ND, Giller KE (2008)

Modified rice cultivation in Tamil Nadu, India: yield gains and farmers'(lack of) acceptance .Agric Syst UK 98:82-94.

11. Kumar V, Ladha JK (2011) Direct Seeding of Rice: Recent Developments and Future Research Needs. Adv Agron US 111:297-413.

12. Kotera A, Sakamoto T, Nguyen DK, Yokozawa M (2008) Regional consequences of seawater intrusion on rice productivity and land use in coastal area of the Mekong River Delta. Agric Environ 42:267-274.

13. Pingali PL, Xuan VT (1992) Vietnam: Decollectivization and rice productivity growth. EDCC US 40:697-718.

14. Rugumamu CP (2014) Empowering smallholder rice farmers in Tanzania to increase productivity for promoting food security in Eastern and Southern Africa. Agric Food Secur NY1-8.