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Seasonal incidence of major pests and diseases in the *Attakkari* rice cultivar in northern Sri Lanka

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Abstract:

Attakkari, a traditional bold-grained rice cultivar favored by consumers in northern Sri Lanka, continues to be cultivated despite not being a recommended cultivar because of its cooking quality and tolerance to the flooding. Farmers frequently report yield losses due to pests and diseases; however, systematic regional assessments are limited. This study, evaluated the major pests and diseases affecting *Attakkari* over two growing seasons, *Yala* 2025 and *Maha* 2025/2026, across 53 farmer fields. A random sampling method was employed using 1 m × 1 m quadrats in the paddy fields. The incidence and severity of each pest and disease were assessed using the standard evaluation system for rice developed by IRRI, along with environmental parameters, including temperature, rainfall, and relative humidity (RH). During *Yala*, bacterial blight was severe in Mannar, with 80% incidence and a severity score of 9.0, following high temperatures (>32 °C) and rainfall of 42.5–56.7 mm recorded 2 weeks earlier. Leaf folder incidence reached a severity score of 9.0 in Mannar. Yellow stem borer showed moderate incidence with low severity, while brown spot was widespread at early growth stages. In *Maha*, fungal diseases were predominated. Brown spot affected all surveyed fields in Jaffna and Mullaitivu, with peak severity (9.0) at Oddusuddan following extreme rainfall and sustained RH. Leaf and panicle blast occurred only in Jaffna, with incidence up to 50% and severity up to 7.0 under cooler temperatures (<28 °C). Brown planthopper appeared exclusively in *Maha*, reaching 100% incidence at Vellankulam, Mannar. Correlation analysis revealed a positive association between bacterial blight and temperatures > 32 °C ($r = 0.68$, $\alpha = 0.05$), a negative association between blast and temperature ($r = -0.54$), and a strong correlation between brown spot and 30-day cumulative rainfall ($r = 0.82$). Sites with ≥ 10 consecutive days of RH > 85% exhibited 3.2-fold greater brown spot severity. These findings indicate the importance of continued multi-season evaluation and integrated pest and disease management strategies for sustainable cultivation of *Attakkari* rice.

Keywords: Attakkari; Bacterial blight; Brown spot; Climate correlation; Rice pests; Rice diseases

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