

White backed planthopper (WBPH) transmitted Southern Rice Black-streaked Dwarf Virus (SRBSDV) Disease: Update, identification and management

Rice cultivation in Northern India is facing a threat from the Southern rice black-streaked dwarf virus (SRBSDV). This virus was first detected in Indian rice fields during the *Kharif* season of 2022 in Punjab, Haryana, and Uttarakhand. As of early *Kharif* 2025, symptoms of the virus are being reported again from various regions in Punjab and Haryana.

Disease symptoms in rice plants

- The virus attack rice crop at all growth stages, but the severity depends on the stage of the crop at which the infestation starts.
- The major symptoms are severe stunting with stiff leaves, followed by yellowing, drying and withering.
- Severe stunting causes the affected plants to reach up to a quarter of the height of a normal plant.
- Undeveloped root system is another characteristic symptom.
- Infestation at early stage causes excessive tillering and fail in panicle formation.
- Infection at the later stages does not cause stunting, but lead to small spikes with barren grains.
- Appearance of branches from nodes on and poorly developed root systems is another symptom.



Infested field



Undeveloped root system



Excessive tillering, stiff leaves, yellowing,



Stunting in plants (plants collected from same field)

Virus Spread

- The virus is transmitted by the insect, white-backed planthopper (WBPH-*Sogatella furcifera*.)
- The weather factors prevailing in the area causes the early infestation of WBPH in field even in nursery stage.
- The migration of WBPH from one plant to another plant and one place to another causes the spread of the disease.

WBPH identification

WBPH nymphs and adults cause spread of the disease. The insects inhabits at the base of the plant, above the water level.



Adult WBPH

Adults: Light brown or greyish colour with slender and wedge-shaped body, size is 3–4 mm long, transparent wings with a distinct white stripe on the back.

Nymphs: Pale yellowish/greyish-white in colour, dorsal surface of the thorax and abdomen marked with grey and white markings.



WBPH and BPH population in field

Monitoring in field

- The insect is prone to attack during humid and cloudy conditions.
- Gently shake the rice plants to see the nymphs or adults falling on the water surface or flying.
- Check base of plants for clusters of nymphs.
- Look for patches of yellowing or drying plants.

Integrated Management of the Vector, WBPH

- Management of disease mainly relies on the WBPH control in field
- Growing resistant/tolerant cultivars in the threatened areas
- Installation of light traps for monitoring WBPH adult activity
- Keep the nursery area, field and premises weed free
- Removal of the affected plant from the field is beneficial for further spread of the disease
- It is advised not to use seeds from infected crop in next season
- Monitoring in the nursery: A prophylactic insecticide spray in the nursery at 15-20 days old seedlings with insecticides can kill the insect in nursery stage.
- Insecticides can be recommended for spraying to kill the WBPH which spread the virus disease.

Insecticide recommended for management of White backed planthopper

Sl no	Chemical compound	Dosage
	Insecticides	
1.	Benzpyrimoxan 10% SC	1.5 ml/litre
2.	Dinotefuran 70 % WG	0.2 gm/l
3.	Ethofenprox 10 % EC	1 ml/l
4.	Fipronil 05 % SC	2 ml/l
5.	Fipronil 00.30 % GR	16- 25 kg/ha
6.	Flonicamid 50 % WG	0.3 gm/l
7.	Imidacloprid 70 % WG	0.1 gm/l
8.	Imidacloprid 17.80 % SL	0.2 ml/l
9.	Sulfoxaflor 21.8 % SC	0.75 ml/l
10.	Thiamethoxam 25 % WG	0.2 gm/l
11.	Triflumezopyrim 10% SC	0.47 ml/l
12.	Triflumezopyrim 20% WG	0.25 gm/l
13.	Benzpyrimoxan 10% + Pymetrozine 20% WG	1 gm/l

14.	Benzpyrimoxan 10% + Thiamethoxam 3.3% SC	1.5 ml/l
15.	Dinotefuran 11% + Pymetrozine 36% WG	0.7 gm/l
16.	Dinotefuran 15 % + Pymetrozine 45% WG	0.67 gm/l
17.	Fipronil 04 % + Thiamethoxam 04 % w/w SC	2.2 ml/l
18.	Pymetrozine 11.3% w/w + Triflumezopyrim 1.9% w/w SC	2 ml/l
19.	Thiocyclam Hydrogen Oxalate 3.0% + Clothianidin 1.2% GR	10-12.5 kg per ha
20.	Triflumezopyrim 4.79% + Spinetoram 8.62% w/w SC	1 ml/l

(Source: CIBRC recommendation dated 31.03.2025)



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