NOTES BY ANUPAM SIR



D.B.S. P.G. College, Kanpur	
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BY	**DR ANUPAM DUBEY**

Leptocorisa varicornis (Rice Bug):

Classification -

Phylum : Arthropoda

Class : Insecta

Order : Hemiptera

Genus : *Leptocorisa*

Species : *varicornis*



Distribution:

The Rice Bugs are distributed throughout the rice growing areas. In the forests as well as in wild grasses, this pest breed heavily and so large number of Rice bug both adult and nymph attack the surrounding paddy field during the milk stage of the paddy grains.

It is generally distributed throughout India but is more prevalent in Bengal, Bihar, Uttar Pradesh and southern states. Commonly it is called as **"Gundhi Kira" or Gandhi Bug** it causes severe damage to paddy plants.

Nature of Damage:

Both nymphs and adults suck the sap from individual grains at milky stage. Affected grains become chaffy with black spots at the site of feeding puncture. Yield loss may be 10- 40%. Obnoxious odour emanates on disturbing the bugs in the field. They infest paddy crops in large number when it comes to flower. With their sucking mouth parts they suck out the milk from the newly formed grains which soon shrivel. The stalk remains quite sound but without grains. The loss caused to paddy by this pest varies from 5 to 25 %.

THE INFORMATION ABOUT THE RICE BUG (GUNDHI BUG) – LEPTOCORISA VARICORNIS PRESENTED IN TABLE FORM:

Aspect	Details
Distribution	- Tropical and subtropical regions - India, Sri Lanka, Bangladesh, Myanmar, China, Thailand, Indonesia, Southeast Asia
Habitat	- Paddy fields - Alternate grass hosts and surrounding weeds
Feeding Behavior	- Both nymphs and adults pierce and suck sap from developing grains - Feeding during flowering and milk stage, leading to shriveled, discolored grains ("pecky rice")
Symptoms of Damage	- Shriveling of grains - Discoloration and poor grain quality - Reduction in grain weight - Yield loss up to 30% or more
Cultural Control	- Field sanitation: removal of weeds and alternate host plants - Timely planting - Proper irrigation - Crop rotation
Mechanical Control	- Light traps to attract and capture adults - Handpicking in small fields - Use of nets/screens to prevent entry during vulnerable crop stages
Biological Control	- Natural predators: spiders, ladybugs, ants - Egg parasitoids: *Telenomus* spp., *Trissolcus* spp.
Chemical Control	- Insecticides: Chlorpyrifos, Bifenthrin, Malathion - Neem-based insecticides for eco-friendly pest control
Integrated Pest Management (IPM)	- Monitoring for early detection - Use insecticides only when populations exceed economic thresholds (1-2 bugs per hill) - Combine cultural, mechanical, biological, and chemical methods
Monitoring & Trapping	- Regular scouting for adult bugs, nymphs, and eggs - Light and bait traps for nighttime trapping
Host Plant Resistance	- Use of resistant or tolerant rice varieties where available
Economic Impact	- Reduced yield and grain quality - Market value of affected grains decreases

Life History:

After copulation female lay eggs symmetrically, into two or three rows.

Bionomics:

Brownish green adults are slender with long legs and antennae, lay 200-300 flat, dark, reddish brown eggs in rows of 10-15 on the leaves or panicles. The egg period 5-8 days, green to brown nymphs undergo five instars in 17-27 days. Adults fairly long lived (30-50 days).

Eggs :

The female rice bugs lays eggs on the upper surface of the leaves in 10-12 rows. Eggs are dark coloured, oval in outline and flattened at the top. Eggs hatch in about a week. After 6-8 days, the eggs hatch into nymphs.

Nymph stage :

Nymphs are very small but look-like minuscule adult. Wings are absent in the nymph. The young nymphs have slender green body and longer legs. These nymphs generally take about twenty days to attain full maturity. All nymphbstages of developing bug clusters round the riping ears and suck out the juice. This pest is more common during July to November. During winter their breeding rate is lowered much and the







adults manage to tide over the cold on several species of grasses. On paddy it has five broods during the season. This stage continues for 17-23 days; after that nymph develops into an adult stage.

Adults stage :

This stage of the insect is narrow and stretched out. It is about 15 mm in length. The body is light green in color with two pairs of wings. One pair of fine antenna is present on the anterior end of the body. Adult is very active during the morning and in the evening. The adult Rice Bugs may remain alive for five months. The life-cycle of this insect is completed by 4 to 5 weeks.

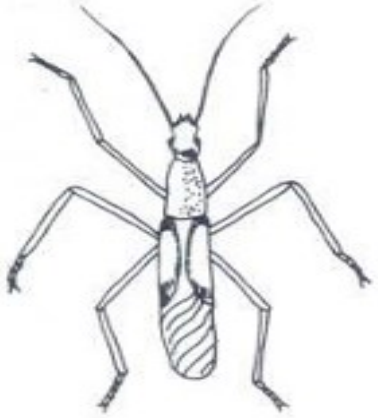


Fig. 44. *Leptocorisa varicornis* (Adult)

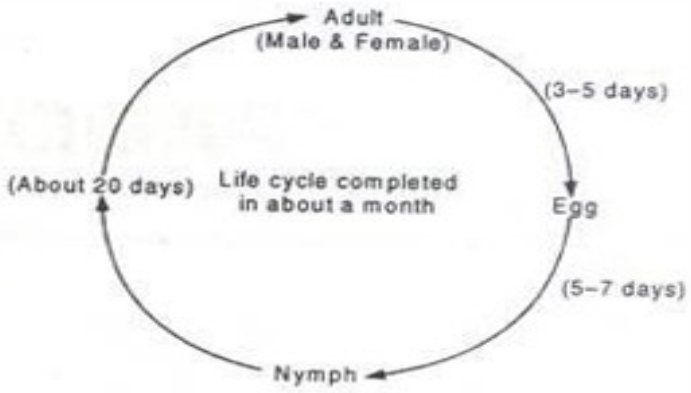
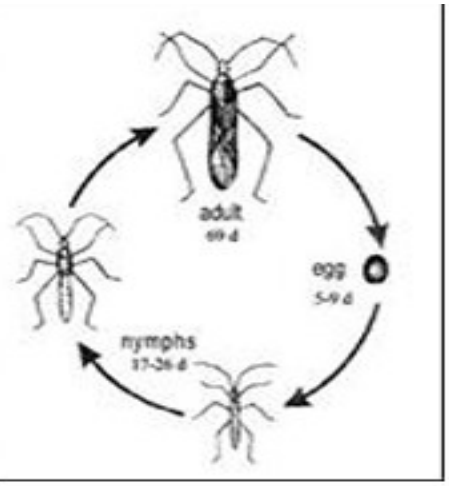


Fig. 44 (a) Life cycle of *Leptocorisa varicornis*.





Damaging stage and damaging nature of Rice Bugs :

It has been practically observed that both the nymphal as well as adult stage of Rice bugs are causing damage to the paddy plant. In the early young stage of the paddy plant, there is a formation of white milky fluid in each grain of the ear head. During this period, both the nymph and adult suck this milk from the grains by their sucking mouth. As a result, there will be no formation of rice grain or partial formation of rice grain. In this way, they damage the paddy plant in the field. By their bad smell presence of Rice Bugs in the paddy field can be identified. The attacking grains remain erect instead of dropping. Attacking plants in the paddy field can be absolutely detected by these two symptoms.

Controlling measure of Rice Bugs :

The control measure of the insects Rice Bugs are as follows:

Mechanical control :

- Collection of the bugs with a hand net and their destruction is a useful mechanical method.
- Adult and nymph of the Rice bug can be collected from the paddy field by small hand net and they are then destroyed.
- Light trap can be set up surrounding the paddy field and the insect pest is attracted and died subsequently.

Chemical control :

Insecticides like 10% BHC are applied by duster in the affected paddy field and its surrounding area. Generally per acre 12 kg of 10% BHC dusting is applied which gives a good result.

- Dusting with 5% BHC @ 15 kg/ha soon after the pest is noted in the field. Malathion and Methylparathion dust is also effective.
- Spraying of 0.25% DDT or BHC or 0.04% Endrin atleast two weeks before harvesting.

Biological control of Rice Bugs :

The insect like the Tiger beetle uses Rice bug as their food material.

Hence if tiger beetle is released in this attacking paddy field then the Rice bugs can be controlled to some level.

Cicendalasixpunctata pentatumid prey upon the nymph and adults of *Leptocorisa*.

Cultural Method:

As the bugs feed and breed on various types of grasses, especially during the offseason, removal of grasses from field and field bundhs help in reducing the pest population.

- Draining out the water from infested field for three to four days is also helpful.
- Crop rotation is advisable.

Management :

- If possible, remove all weeds and grasses in and out of paddy fields to prevent population build-up of rice bugs in the following crop.
- Trap adult bugs using a light trap, sweep net and dirty trap of cattle urine/dung and then destroy the traps by suitable means. Keep on hanging the cattle urine soaked gunny bag or cow dung wrapped cloth in the field, just at the height of the crop to attract the bugs.
- Synchronize rice planting to maintain simultaneous crop maturity in all fields in an area for equal distribution of bugs in all fields.

- Avoid the use of chemical pesticides so that the field is a suitable environment for natural predators of rice bugs, such as tiger beetles
- If the population increases during milking stage and chemicals are required, use malathion 50% EC @ 2 ml/l of water or cypermethrin 25% EC @ 0.5 ml/l water.
- Remove alternate host, *Echinocloa* from bunds and field.
- Use neem seed kernel extract 5% or notchi leaf powder extract 5% or *Ipomoea* leaf powder extract 5% or *Prosopis* leaf powder extract 5%.
- Dust quinalphos 1.5 D or carbaryl 10 D or malathion 5 D @ 25 kg/ha or spraymalathion 50 EC 500 ml or monocrotophos 36 WSC 500 ml/ha.

THE LIFE CYCLE DATA OF THE RICE BUG (GUNDHI BUG) – LEPTOCORISA VARICORNIS PRESENTED IN TABLE FORM:

Life Cycle Stage	Details
Egg Stage	- Female lays 100-150 eggs in clusters on leaves, stems, or grains. - Eggs are round, small, and hatch in 4-7 days.
Nymph Stage	- Nymphs go through 5 instar stages. - Nymphs resemble adults but lack fully developed wings. - Duration: 15-30 days. - Nymphs are highly destructive.
Adult Stage	- Slender, greenish-brown adults about 15 mm long. - Live for 1-2 months. - Feed on sap from developing rice grains. - Most active in warm, humid climates.