



Figure 2. (a): Short-wing RD female; (b): Ovipositors on short-winged females, indicated by arrows; (c): Ovipositors on long-winged females; (d): Delphacid species are separated from other “hoppers” by having a prominent spur on the apex of the hind leg tibia. (Photos courtesy of Lina Bernaola)

Life Cycle

The life cycle of a RD (Fig. 3) from egg to adult lasts 4 to 6 weeks, depending on the temperature. A RD lays eggs by inserting its ovipositor into the leaf sheath or midrib of rice leaves (Figs. 1c and 3). Eggs are typically laid in clusters and hatch after 5 to 11 days (about 160 per female lifespan). The nymphs undergo five instars over 15 to 25 days, feeding and growing until they reach adulthood. First instars are about 0.5 to 0.7 mm long, and are white with red eyes. As the nymph develops through instars, the body becomes light yellowish and develops a pair of dark brown longitudinal stripes. Adult delphacids continue to feed on plants, mate, and lay eggs for 15 to 36 days.

Injury/Damage

The feeding behavior of the RD causes both direct and indirect damage to rice plants, severely impacting crop health and yield.

Direct Damage

Both nymphs and adults extract sap from plant phloem, depriving plants of essential nutrients. Nymphs and adults inhabit distinct areas of the rice plant, with nymphs feeding on the lower stems and adults feeding higher up on the plant. This feeding activity results in symptoms such as leaf senescence, necrosis, and a condition known as “hopperburn” (Fig. 4). Hopperburn typically begins with yellowing at the leaf tips, which progresses to browning and drying as infestations intensify. In severe cases, this can lead to extensive plant dieback, stunted growth, and substantial yield losses.

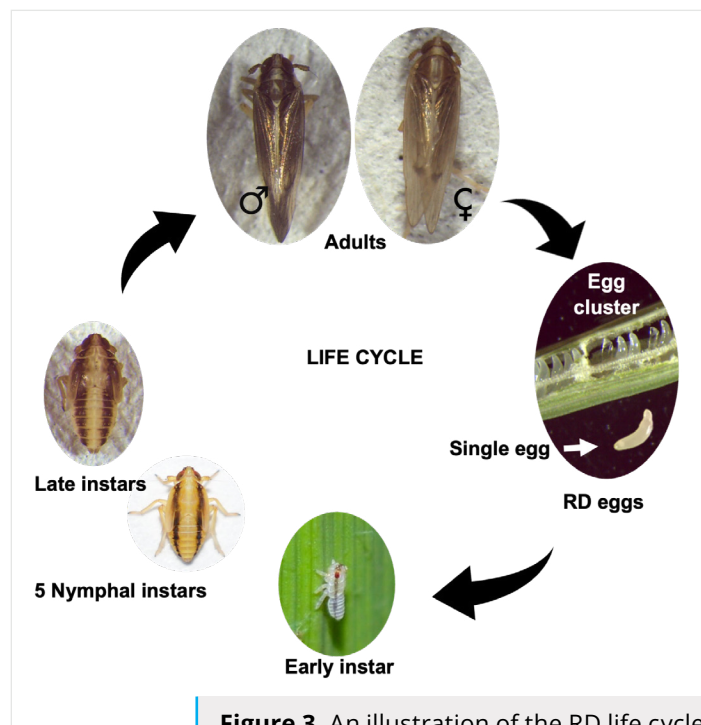


Figure 3. An illustration of the RD life cycle. (Photo courtesy of Lina Bernaola)

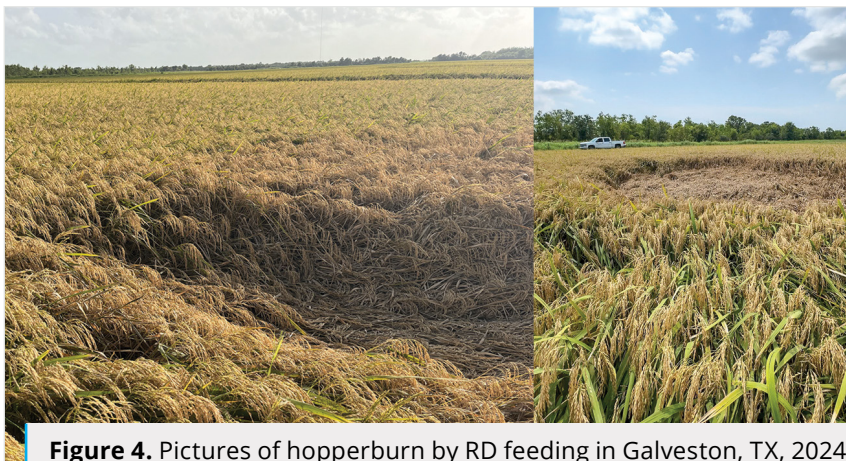


Figure 4. Pictures of hopperburn by RD feeding in Galveston, TX, 2024. (Photos courtesy of Nupur Sarkar and Lina Bernaola)