

## Clinical Image

# The Harm of Three Important Diseases in Rice Panicle Stage Deserved Great Concern

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Great changes have happened of rice diseases in recent years due to the climate changes, cultivation system trans form and variety renovation. Some minor and sporadic occurrence diseases have risen to the major diseases, and some new diseases arisen. Among them, the rice panicle diseases of False Smut (FS), Rice Spikelet Rot Disease (RSRD) and Bacterial Panicle Blight of Rice (BPBR) occurred very seriously and caused great yield loss of rice. The three diseases occurred about 0.7-3.0 million hectares and caused 0.5-1.1 million tons yield loss of rice each year. Simultaneously, the diseases also affect the appearance and quality of rice grains, show health

hazard to the consumers, like human beings, beasts and birds because of their pathogens with color and produce toxins. The FS pathogen *Ustilagoidea virens* produces “conidia rain” in the fields and polluted the environment. The basic research of these diseases, such as the regularity of occurrence, epidemiology and harmfulness deserved pay high attention to, and the prevention and control technologies need to be enhanced. The pathogen of FS *Ustilagoideavirens* produces large amounts of mycotoxins “Ustiloxins” A, B, C, D, F and E, which inhibit cell division in animals and plants and thus frequently cause animal poisoning. The main pathogen of RSRD was *Fusarium proliferatum*, it produces various toxins including fumonisin, T-2 mycotoxin, deoxynivalenol, zearalenone and moniliformin. The fumonisin affects the animals, like horse’s neuro. The pathogen of BPBR *Burkholderia glumae* was the common pathogen of multiple crops and animals including human beings. *B. glumae* produces three toxins, toxoflavin, ferenulin and reumycin. It was reported that *B. glumae* can be isolated from hospital and caused the chronic granulation tumor of infant.



**Figure 1:** Symptoms of RF in the field and produces conidia grain.



**Figure 2:** Symptoms of RSRD in the field and the infected grain of rice with discolor.



**Figure 3:** Symptoms of BPBR and the infected grains of rice with discolor and malformation.