

## BUNT OF WHEAT/STINKING SMUT/COVERED SMUT/COMMON BUNT

**Geographic distribution:** The first two named bunts are of worldwide occurrence in regions with temperate climate and at about 6000 ft. elevations or above, whereas the third or the partial bunt occurs in the plains and has not been observed outside Indo Pakistan subcontinent.

**Causal organisms:** There are three principle types of bunts, which attack wheat plants:

1. *Tilletia laevis* (formerly known as *Tilletia foetida*), the smooth spored bunt.
2. *Tilletia tritici* (formerly known as *Tilletia caries*) the rough spored bunt.
3. *Neovossia indica*, the Partial bunt, or new bunt.

**Order:** *Ustilaginales*

**Family:** *Tillitiaceae*

**Symptoms:** These bunts attack only the grain. The first two named bunts generally occur together and produce the same types of symptoms. Plant affected by them ripen a little earlier, the ears assume a dark green color and are more open than those of the healthy plants. Bunted ears are longer than the healthy ones, and as they mature the glumes become pushed apart. As a rule, all the ears in a bunted plant are attacked and all the grains in an ear are turned into bunt balls, though between two fingers it is crushed to a black greasy powder, smelling strongly of rotten fish.

The symptoms produced by the partial bunt (*Neovossia indica*) are entirely different. Whereas in bunt ball. In the partial bunt only two or three grains in an ear are partially attacked, the remaining seeds being healthy. The spores emit the same odour as those of the other bunts. The spores of the **partial bunt are much bigger almost double the size** of those of the other two bunts, i.e. 22-50 microns.



### Disease Cycle

Bunt balls that break during harvest contaminate seed and soil. When infested seeds are sown bunt spores germinate and the fungus infects the growing point of the wheat seedling. Following infection of the young seedling the fungus grows within the plant, generally without producing symptoms until the head develops. When new seed begins to develop in the head, the fungus replaces the tissues of the developing seed with its own spores.

### Epidemiology

Bunt can survive in soil for at least a year and for many years on seed. Bunt spores prefer moist and cool conditions (5-15°C) for germination. Therefore, early sowing into warmer soils can help reduce the level of crop infection.

**Management**

Seed treatments are extremely effective in controlling bunt. However, seed treatments need to be applied every year and a thorough treatment coverage of grain is essential to prevent infection.

Following a bunt infection clean seed should be obtained. All machinery that handled infected grain should be thoroughly cleaned and wheat should not be sown back into an infected paddock for several years.

Resistant varieties.

**DIFFERENCE IN OLD BUNT AND NEW BUNT**

<b>OLD BUNT</b>	<b>NEW BUNT</b>
All tillers of plant are attacked.	Only a few tillers are attacked.
Each ear is fully attacked.	Only 2-3 grains are attacked.
Grains are attacked as a whole.	Grains are partially affected.
Seed borne and infection is systemic.	Infection is aerial.
Found in hills.	Found in plains
Distribution worldwide.	Only in Pakistan and India
Spores of smaller size.	Large sized spores (double in size)
Sporidia pair in H-shaped structures.	No pairing.