Boil smut of maize  
(*Ustilago maydis*)

**What is it?**

Boil smut, also called common smut, is caused by the fungus *Ustilago maydis*. It attacks all types of *Zea mays*, including sweet corn, field maize and popcorn, as well as the related grass, teosinte (*Zea mexicana*).

The disease was first recorded in Australia at Bathurst, New South Wales in 1911 and recurred sporadically until 1940 when quarantine restrictions prevented maize being grown on affected properties. No further outbreaks were recorded until 1982, when boil smut was found to be widespread in north-eastern New South Wales and south-eastern Queensland.

NB: All of Queensland has been considered an infected area since the repeal of Queensland boil smut legislation in April 1987.

Although the pathogen has continued to spread, it is not present in South Australia or the maize-growing areas of Western Australia.

Entry of viable seed of *Zea spp.* produced in States where Boil Smut of maize has been detected must not enter South Australia unless Condition 15 of the Plant Quarantine Standard has been met.

**What should I look for?**

Like other smut diseases, common smut of corn derives its name from the sooty masses of teliospores found on infected host plants. The most obvious symptoms are tumor-like galls that vary in size from less than 1 cm to more than 30 cm in diameter. All meristematic tissues are susceptible to infection. Galls are found most frequently on ears, tassels, stalks, nodal shoots, and mid-ribs of leaves. Even though galls may form on many above-ground parts of the plant, infection is local (i.e., the host is not colonised systemically). Occasionally, galls develop beneath the soil surface when the apical meristem of a young plant is infected.
How does it spread?
The disease is extremely difficult to contain and can be spread great distances by:

- wind – spores can travel several hundred kilometres
- water – especially by river and flood
- seed-borne spores
- contaminated machinery, clothes, shoes or motor vehicles
- movement of livestock and manures
- wildlife
- movement of infected plant materials, for example products that may be used for stock fodder.

The fungus causing the disease is one of the most prolific spore producing smuts. A single smut gall of average size may contain more than 200 billion teliospores. These teliospores are the primary source of infection and can live in the soil for up to 16 years.

What can I do?
No corn varieties or hybrids are completely resistant to boil smut. However, there is good field resistance to the disease in maize varieties. This resistance depends on the morphology and physiology of the variety. In general, sweet corn varieties are more susceptible to boil smut. There are no fungicidal control measures for preventing field infections or eradicating widespread outbreaks. Seed treatment can be used to reduce spread through contaminated seed.

In New South Wales and Queensland, boil smut has not caused serious economic loss in infected areas, although significant losses have occurred in individual fields. Rather, industry has learnt to live with the disease and to use appropriate hygiene to reduce the effects of the disease.

Report unusual symptoms in plants

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