

# Harsh weather effects

**Drought.** Plants wilt during prolonged spells of hot, dry weather. When this occurs photosynthesis is reduced and sugar production slows down dramatically. Also, wilting leaves may touch the ground and be scorched. When wet weather returns wilted leaves soon become upright again, but badly-scorched areas on leaves will never recover. *In most years in the UK drought causes greater yield loss than any other single problem.*



Leaves scorched by hot ground

Hot dry weather hardens the soil, making it difficult for root systems to penetrate, and slowing plant growth. If the soil has already been consolidated by heavy rains, or compressed by farm machinery the **compaction** problem is even worse. Misshapen tap roots are often an indication of soil compaction.



Roots misshapen due to soil compaction

**Waterlogging.** The anaerobic conditions in the soil due to prolonged waterlogging can kill plants. The risk of developing wet rot (a fungal disease) is another potentially lethal hazard. The tap roots of plants that survive are likely to become badly misshapen, with major branches growing horizontally, or even up towards the surface.



Roots misshapen due to waterlogging

**Lightning.** When a lightning bolt strikes the earth it boils the water in the soil and a large electrical current spreads across the soil surface. Plants at the centre of the strike are killed. Surrounding plants that are damaged may survive if new lateral roots are produced by the undamaged parts of the tap root, usually the crown, (see picture) and the soil remains moist. Typically, lightning damage is seen as a patch, a few metres across, of dead and unhealthy plants.



**Frost** damages sugar beet plants at each end of the growing season. It can kill young seedlings in the spring, either by scorching the foliage or, when it forms a layer of ice on the soil surface, the stem (see picture). In the autumn / winter frosts at or below -3 deg C can penetrate and destroy the tissue of roots still in the soil or in clamps.



**Hail** shreds leaves and, in severe cases, can remove most of the leaf tissue with just the midrib surviving. However, damage by most hailstorms is only minor, and plants usually recover quickly, though very occasionally it can allow normally benign herbicides to enter the leaf tissue and cause further damage.