

AIR & SOIL TEMPERATURES

Cool-season grasses

AIR TEMPERATURE

Heat kill likely	131°
Shoot growth ceases	90°
Optimum temperature for shoot growth*	60-75°
Shoot growth ceases	40°

SOIL TEMPERATURE

90°	Shoot growth ceases
77°	Root growth ceases
70°	Maximum temperature for root growth of any consequence
70°	Time to plant grasses in late summer
60-75°	Optimum temperature for shoot growth
50-65°	Optimum temperature for root growth
40°	Shoot growth ceases
33°	Root growth ceases
20°	Low temperature kill possible if temperature subsequently drops rapidly below 20° F

*Optimum turf performance may not coincide with optimum root and/or shoot performance

Warm-season grasses

AIR TEMPERATURE

Heat kill likely	140°
Shoot growth ceases	120°
Optimum temperature for shoot growth	80-95°
Chilling injury resulting in discoloration is possible	50°
Initiation of dormancy occurs resulting in discoloration	50°

SOIL TEMPERATURE

120°	Shoot growth ceases
110°	root growth ceases
80-95°	Optimum temperature for shoot growth
75-85°	Optimum root growth
74°	Optimum time to overseed bermudagrass with ryegrass in the fall. Time to plant grasses in the spring.
64°	Expected sprin root decline is triggered and roots turn brown and die within 1 or 2 days.
50°	Root growth begins to slow below this temperature.
50°	Chilling injury resulting in discoloration is possible.
50°	Initiation of dormancy occurs resulting in discoloration.
25°	Low temperature kill possible.



Symptoms of soil problems

If your turfgrass behaves in the following ways, it's a sign that there's trouble down below, and time to investigate for compaction or nutrient deficiencies:

- ▶ shallow but extensive root system
- ▶ little or no roots below four inches.
- ▶ little or no top growth
- ▶ off-color, very chlorotic tissue
- ▶ easily wilted
- ▶ low density with weeds
- ▶ poor response to fertilization and soil applied pesticides

- ▶ prolonged wet soil that limits recreational uses
- ▶ water easily runs off the turf surface.

Some sites may have all of the above symptoms, while others may have just a few. Some symptoms may take a long time to show (root growth), while others are quickly visible (top growth).

Many other factors can cause the symptoms described above, making a definitive diagnosis nearly impossible. Thus, soil management is often considered an art more than a science.