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What



Monitoring the weather brings useful advance planning, says Gordon Jaaback. And what better way of keeping the records you need, than the have your own, personal weather station

We are taught of the need to characterise soils, though some have debated the need for soil tests – so why should we measure rainfall, temperature or anything else for that matter? Yet the turfgrass environment is an unnatural one. For example:

- we mow closely and frequently
- we fertilise
- there is an unnaturally high plant density
- the human and mechanical traffic is intense.

Therefore the culture of high quality turfgrass is a challenge, demanding a great deal of flexibility and involvement with manipulation of the plant environment. It is imperative that the turfgrass manager has a thorough understanding of the atmospheric, soil and biotic (living organism) factors effecting the turfgrass environment.

Tabulating certain measurements daily can be fun and makes the challenge easier. However, quite apart from recording daily conditions for our own pleasure, these measurements will provide us with an insight as to what is likely to happen in the next 24-48 hours. For example, did you know that:

• Temperatures just below the soil have to be rising through 8°C before there is active movement in grass growth. Light frosts have little effect on temperatures below ground level and subsequent root growth.

• Humidity, coupled with mild temperatures in the spring and

autumn, provides ideal conditions for fungal diseases. Also evaporation rates are lower when high humidity is coupled with cooler temperatures. Monitoring temperature and humidity can assist in predicting dew, the removal of which is important in disease control.

• High pressure persisting after a warm day will indicate continued dry conditions, with every possibility of calm, wind-free conditions for spraying in the early morning. However, if high pressures continue with increasing temperature there is every likelihood of a build up of moisture in the atmosphere, giving a good possibility of thunderstorms.

• Low barometric pressures generally indicate wind and/or rain together with a temperature drop and lower rates of evapotranspiration (evaporation plus the transpiration losses from the plant).

•Wind tending to increase on a clear day can, when coupled with a drop in pressure, often produce drenching rain – but there can be little precipitation in squalls. A dry wind within 48 hours can bring rapid deterioration to grass cover.

• Clouds with intermittent rain, however little, mean negligible evapotranspiration. The type of clouds and their height can indicate what the wind is doing and whether rain is imminent or not. High cirrostratus clouds denote wind movement and a possible change in the next two-three days. Cumulus clouds only bring rain if they develop height. Lower

about the weather?



A somewhat sophisticated weather station, the Intelligent Automatic Station by Casella

cumulus clouds soon disappear.

• Rain intensity in the South East is generally light. As an example, in the wet years of 1985 and 1986 at two locations almost 80% of the rain days recorded measured less than 5mm in 24 hours. In both years there were 17/20 days when rainfall exceeded 10 mm in 24 hours. On wet heavy loam soils as little as 3mm rain may be subject to run-off to lower lying ground.

• Frost can develop when the recorded temperature is 3°C. An understanding of the temperature variation below ground, at grass level and in the Stevenson screen, coupled with humidity, is vital.

Not only is the keeping of records an interesting talking point, but monitoring the weather and soil conditions and tabulating the pattern over a growing season can be most informative in planning seeding operations, preparing for pest control treatments and for fertilisation and irrigation.

A basic weather station would include a rain gauge, a grass minimum temperature thermometer, a maximum/minimum thermometer and a hygrometer for measuring humidity. A kit-made Stevenson screen (white louvered box) can house both the last two items at a convenient and carefully chosen location five feet above the ground.

A more comprehensive station will further include a barometer, an anemometer for measuring the amount of wind in the day, thermometers at grass level and at the depth of root growth – and a simple evaporation tank. Sophisticated automatic recording equipment measures data that can be coupled to computer programmes.

With an emphasis on recording temperatures and rainfall, further information regarding the purchasing, siting and use of these and other meteorological instruments will be given to any reader of Greenkeeper International who cares to contact the author.

The author, consulting agronomist and conservationist Gordon Jaaback, has developed a new and comprehensive golf course wall chart designed specifically for the simple recording of work carried out relevant to forward planning. A free copy of this laminated multi-coloured chart may be obtained by telephoning him on 0732 455244 or writing to 25 Cheviot Close, **Tonbridge**, Kent **TN9 1NH**