

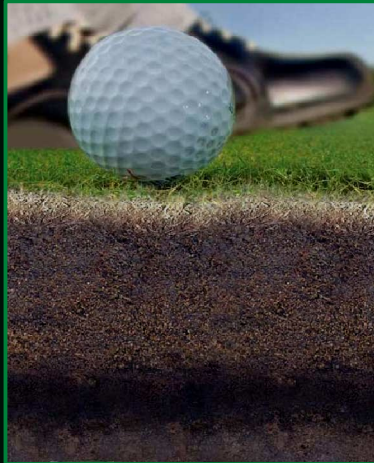


*Force
Nature*

A Look At ...

Turfgrass Summer Disease

Black Layer



BLACK LAYER CAN WEAKEN OR KILL ALL GRASSES
LOCATED ON GOLF COURSE PUTTING GREENS

Other Name

« *Couche noire* » (French)

Likely Locations

Golf course PUTTING GREENS — often in LOW-LYING, POORLY-DRAINED, or WATER-LOGGED areas that tend to ACCUMULATE EXCESSIVE AMOUNTS OF WATER.

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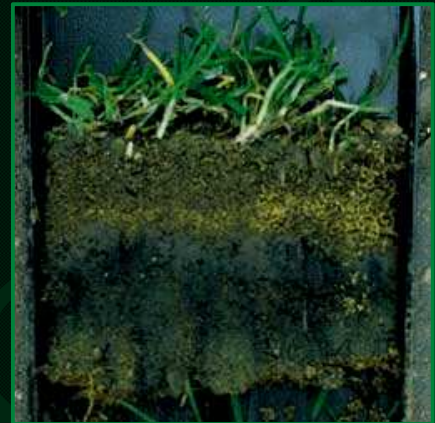
Identification of Black Layer

Turf is weakened, and often dies, particularly in LOW-LYING or WATER-LOGGED AREAS.

The presence of Black Layer can be easily confirmed by examining the root-zone profile with a knife or core sampling tool.

A DARK AND VISCOUS LAYER can be observed in the first few centimetres of soil.

The layer releases a STRONG AND REPUGNANT ODOUR when the soil profile is being inspected.



Origin of Black Layer

The deposition of ALGAE, and ALGAL SCUM, is a chronic problem on THIN AND WEAK TURF located on PUTTING GREENS, during the months of June, July, and August.

Once the ALGAE organisms begin to move downward into the root-zone, they will form a « *black layer* » beneath the surface.

The formation of Black Layer will result in POOR SOIL STRUCTURAL CONDITIONS. Consequently, turfgrass becomes UNABLE TO TAKE UP NUTRIENTS from the soil. A source of nutrients applied in the form of a liquid foliar application may help alleviate the effects of Black Layer.



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Conditions Favouring the Development of Black Layer

- The EXCESSIVE supply of water by irrigation containing ALGAE.
- Soil that is STRATIFIED with different layers located on top of one another.
- Soil that is POORLY-DRAINED or WATER-LOGGED, often located in LOW-LYING areas that tend to ACCUMULATE EXCESSIVE AMOUNTS OF WATER.
- The presence of a layer of THATCH that is EXCESSIVELY THICK AND BURIED IN THE SOIL because of a TOPDRESSING PROGRAM that is far TOO AGGRESSIVE.

Chemical Control of Algae (United States Only)

Daconil is the only product that provides PREVENTIVE SUPPRESSION against the invasion of algae on putting greens.

Daconil is NOT labelled for the control of algae in Canada, but many researchers strongly recommend that this product be included in EVERY fungicide application wherever algae is a problem.

- Daconil[®] Weather Stik — 90 to 180 millilitres (3 to 6 Imperial fluid ounces) per 1000 square feet, on a 7 to 14-day schedule
- Daconil[®] Ultrex — 140 grams (5 ounces avdp) per 1000 square feet, on a 7 to 14-day schedule

Chemical Control of Black Layer (United Kingdom Only)

Blockade-G1300 is a granular formulation for the treatment of Black Layer in the United Kingdom. It contains activated carbon, rooting bio-stimulant, soil penetrant, enzymatic system, and Profile, a ceramic soil amendment.

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Preventive Practices

- **Construction** — During CONSTRUCTION, select a high-quality root-zone soil mixture.
- **Core Aeration** — In spring and fall, increase the practice of CORE AERATION. Perform the aeration to a depth LOWER than the Black Layer. Leave aeration holes OPEN — DO NOT fill the holes with topdressed soil. Avoid a root-zone that may become COMPACTED or HARD-PANNED.
- **Irrigation** — Reduce the frequency of irrigation. Black Layer will only occur in soils with EXCESS WATER.
- **Potassium Nitrate** — Using of POTASSIUM NITRATE fertilizer will NOT reduce the development of Black Layer. The continued and repeated use of POTASSIUM NITRATE may cause SOIL DE-FLOCCULATION, which may potentially increase the risk of Black Layer. DE-FLOCCULATION occurs when soil aggregates containing clay separate into individual particles.
- **Solid Tine Aeration & Spiking** — During the summer months, increase SOLID TINE AERATION and SPIKING practices. Perform the aeration and spiking to a depth LOWER than the Black Layer. Avoid a root-zone that may become COMPACTED or HARD-PANNED.
- **Sulphur & Iron** — Reportedly, the use of materials that contain SULPHUR and IRON may contribute to the development of Black Layer. However, both SULPHUR and IRON are essential plant nutrients, and must not be neglected.
- **Thatch** — Minimize the development of THATCH, and avoid burying the thatch with a TOPDRESSING PROGRAM that is TOO AGGRESSIVE. AVOID using soils, composts, and other types of materials that are composed of HIGH AMOUNTS ORGANIC MATTER.
- **Topdressing** — Implement a TOPDRESSING PROGRAM that is NOT aggressive, but rather LIGHT AND FREQUENT. Select a soil mixture that is COMPATIBLE with the existing root-zone.
- **Wetting Agent** — Use a PENETRANT WETTING AGENT to improve water infiltration through the root-zone. This may also help alleviate the effects of Black Layer.

Force Of Nature presents THE WHOLE TRUTH FROM AN INDEPENDENT PERSPECTIVE from National Organization Responding Against Huje that seek to harm or misinform the Green Space Industry (NORAHG). It is a series of Reports destined for the Green Space Industry, the Environmental Terror Movement, Governments, and the Media, nationwide across Canada, the United States, and overseas. This Report has been developed for the education and entertainment of the reader by providing TECHNICAL INFORMATION WITH COMMENTARY. The neutrality of the Report might be disputed.

The information presented in this Report is for preliminary planning only. Before making a final decision, the turf manager is expected to obtain trusted expert advice from extension specialists, local distributors and/or agronomists. All decisions must take into account the prevailing growing conditions, the time of year, and the established management practices



All products mentioned in this Report should be used in accordance with the manufacturer's directions, and according to provincial, state, or federal law. For the official advantages, benefits, features, precautions, and restrictions concerning any product, the turf manager must rely only on the information furnished by the manufacturer. The mention of trade names does not constitute a guarantee or a warranty.

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Force Of Nature is the brainchild of William H Gathercole and his entourage. Mr Gathercole is a principal founder of the Modern Professional Lawn Care Industry in both Ontario and Quebec. He holds a degree in Horticulture from the University of Guelph, and another pure and applied science degree from McGill University. He has worked in virtually all aspects of the Green Space Industry, including golf, professional lawn care, and distribution. Mr Gathercole has supervised, consulted, programmed, and/or overseen the successful execution of hundreds of thousands of management operations in the urban landscape. He has trained, instructed, and advised thousands of turf managers and technicians. Mr Gathercole has also been an agricultural agronomist. Mr Gathercole is personally credited for crafting the Exception Status that has allowed the Golf Industry to avoid being subjected to the prohibition of pest control products. He is also the creator of the signs that are now used for posting after application. Mr Gathercole is now retired from Force Of Nature, although his name continues to appear as the founder.

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The Whole Truth from an Independent Perspective