USGA
Green Section Record
REGIONAL UPDATE
September 6, 2019

Courses in the Mountain West scrambled to recover turf damaged by extended ice cover because of an unusually short growing season this year.

RECOVERY TIPS AFTER WINTER DAMAGE AND A SHORT GROWING SEASON

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Golf courses in the mountain and high-elevation areas of the West endured a long winter with higher-than-average precipitation and prolonged ice exposure. These conditions led to extensive turf damage for many courses. The worst damage was observed on Poa annua surfaces, but perennial ryegrass and Kentucky bluegrass turf in tees and fairways were also damaged. Turf loss was primarily concentrated on north-facing slopes and areas with limited sunlight exposure.

Courses in these areas generally see turf recovery and seed germination by the end of May, but prolonged cold temperatures resulted in delayed growth this year. Many courses did not see turf growth and recovery until the middle of June. As such, the turf has only experienced growth for 70-80 days at this

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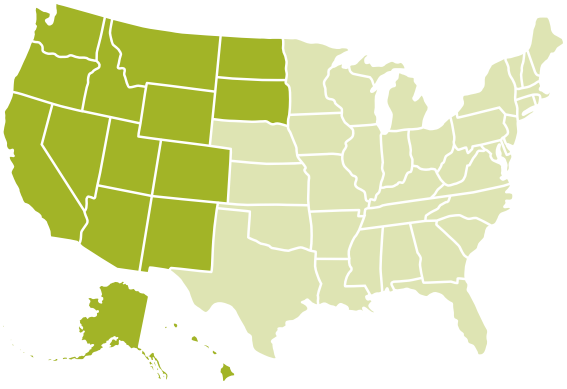
point. Under ideal conditions, turf grown from seed will require 90-110 days to mature and produce a dense surface. Recent course visits revealed that small areas remain where turf has yet to fully recover. The following strategies were the most successful to expedite seed germination and turf recovery from winter damage:

- Countless labor hours clearing snow with snow blowers and hand shovels were necessary to improve sun exposure and thaw the frozen ground.
- Shallow, solid-tine aeration on a tight spacing with three or four passes over damaged areas in fairways was most successful to encourage perennial ryegrass and Kentucky bluegrass seed germination and maturity. Courses also used "job-saver" tines spaced at 1.25 inch on center. Slit seeding was less successful.
- Permeable seed germination blankets, tarps or even large rolls of Visqueen plastic sheets taped together and secured to the ground were very effective at warming the soil and expediting seed germination and maturity.
- Dark-colored fertilizer, such as organic sources, and kiln-dried sand painted dark green aided in warming soil temperatures.
- Perennial ryegrass seeded at 500 pounds per acre was more successful than Kentucky bluegrass for improving recovery.
- Applying sand over seed was more successful than mulch. Multiple sand applications speeded germination and recovery.
- Daytime irrigation cycles were essential to encourage germination. Delaying course opening this season was instrumental to enable this practice.
- Light and frequent vertical mowing helped to encourage recovery and improve turf density as warmer temperatures arrived in mid- to late June.
- Some courses plan to seed Kentucky bluegrass in the fall as a dormant seeding option.
- Fertilizer applications generally did not prove beneficial until mid-June when soil temperatures finally increased. Frequent applications of soluble nitrogen sources were most successful.
- Many courses sodded 10,000 square feet to more than 40,000 square feet with Kentucky bluegrass in high-profile areas.
- Some courses were able to remove trees south of primary playing surfaces to improve sunlight exposure. This will pay dividends beyond the improved recovery this summer.

Due to the turf damage, prolonged cold temperatures and soil temperatures below 50 degrees, some courses had to delay course opening and restrict carts to paths several weeks longer than in previous years. While this was inconvenient and may have decreased revenue, these measures were necessary to improve turf recovery and preserve course reputations. Courses are now preparing for the upcoming winter by removing trees south of primary playing areas and improving surface and internal drainage where appropriate. Finally, it is important to communicate to staff, golfers and decision-makers the importance of patience regarding spring recovery and the potential for turf damage each winter despite the best efforts of the agronomic team.

Best wishes for the remainder of the 2019 growing season and please do not hesitate to contact your regional USGA agronomist for more information on recovering from winter damage or any other agronomic practices.



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