

BLBC Greens Maintenance

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Summary of activities

Daily;

Weed; Spot top dress; Ants; Clear dew (whip or brush);

Three times a week;

Mow (diagonally).

Weekly;

Roller (diagonally); Backlap mower blades.

Every 10 to 14 days:

Fertilize, (see below for appropriate formula).

Every two weeks;

Scarify (Verticut), followed by mowing.

Spiking, (this must be done when soil is moist, eg during or after rain.), followed by Overseed and Topdress.

Monthly;.

Month specifics;	<u>Fertilizer;</u>	<u>Fungicide;</u>	<u>Cut Height</u>
April	Remove Tarps		
May	21-6-12	Velista	1/4 inch
June	5-0-41	Mirage	3/16 inch
July	5-0-41	Velista	1/8 inch
August	5-0-41	Mirage	1/8 inch
September	21-6-12	Velista	3/16 inch
October		Dedicate	3/16 inch
November	Cover Green with Tarps		

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Green Speed

The speed or 'pace' for a bowling green is a measurement, stated in seconds for the time it takes a bowl to roll from its delivery until it comes to rest at a point 27 meters (approximately 90 feet) up the green. The common manner to determine pace is to use a stopwatch and to average the results of 3 to 5 bowls. Nine seconds is slow, 12 seconds is acceptable and 14 seconds is considered good. The width of the draw (the amount that the bowl curves during its travel) is related to pace. As the pace increases, draws become wider - up to 10 feet in the case of a 14 second green. Acceptable tournament speeds in North America are 11-12 seconds for bentgrasses..

Reel Mower.

This is a precision machine and it is important that the cutting action between bedknife to reel is maintained. The front face of the bedknife should be 5mm (3/16") and may be maintained with a file. To set the bedknife to reel see the mower manual, but basically the bedknife should have a gap of less than 3 thou between it and the entire length of the reel. To maintain the reel sharpness it should be back lapped weekly with a cutting compound but BLBC has not yet undertaken this.

The cutting action can be checked easily by carefully inserting a piece of writing paper between the cylinder and bedknife, then turning the cylinder very carefully by hand. The paper should cut cleanly along the length of the blade, if not it certainly wont cut the green properly.

Cutting height.

With the bedknife properly set for cutting, the height of cut is the next step in adjusting the mower.

To check the height of cut a straight edge is set between the front and back rollers, the bench setting of the cutting height being the space between the straight edge and the edge of the bedknife nearest to the reel.

The true cutting height depends on how firm the green surface is. On a soft, thatched surface the bench setting will be higher to compensate for the mower sinking slightly into the surface. This can only be assessed by trial and error.

Mowing

Mowing is important in conjunction with light rolling as the length of grass is the main factor that affects green pace. Greens should be mowed at least three times per week and double cut on tournament days. Increased mowing frequency improves the turf surface -- the trade off being that mowers do cause some foliar damage. Cutting heights for bentgrass in North America range from 3-6 mm (1/8" - 1/4"). A height of 3 mm (1/8") during July and August is common while, the rest of the season, the green is usually kept at 5mm (3/16") above the soil. The mowing pattern should consist of mowing corner to corner (45 degree angle), changing the direction of the pattern each time you mow (eg, south/east to north/west, followed by north/east to south/west). Twice a month, mow in a north/south and east west direction, but not before a major tournament or special event as mowing in this direction will alter the draw of the green when bowled. No matter the direction, allow for an overlap on each pass. Finally the greens boundary should be mowed in order to overlap the end turns of the mower.

Clean the mower thoroughly after use. Flush the debris off with a hose and allow to dry before storing. Spray bare surfaces with WP40 to protect from rust. Adjust the reel to bedknife clearance and backlap if necessary.

Over the first two weeks of mowing the cutting height should be lowered by a half mm each week, with frequency upped to three times per week. Whether it goes lower than 5 mm (3/16 inch) later in the season depends factors, such as that fine grasses such as fescue bowl well at 5 mm, whereas annual meadow grass has to be cut shorter to get a fast true surface.

At the end of the playing season the mowing height should be increased to a maximum of 1/4 inch) and the green given a trim whenever the weather permits throughout the Autumn. This helps to keep the surface dry and reduces the possibility of disease outbreaks.

Fungii

One of the most common diseases on bowling greens is Fusarium, which in the main attacks annual meadow grass (AMG). The initial signs of disease infection are small water soaked orange - brown patches between 10 - 20mm in diameter. In favourable conditions the infected patches rapidly increase in size, commonly reaching up to 300mm in diameter.

Removing early morning dew to help promote a dry surface will help reduce the risk of a disease outbreak. Aerifying and thatch removal programs will help alleviate Fusarium and other fungus diseases. .

Fungiicides

There are 13 categories of fungicides differentiated by how they attack the fungii. In order to not allow fungii a chance to build up resistance to a particular fungicide two categories are alternated.

These may only be applied by a licensed technician, we have utilized the services of Beaconsfield Golf Course greensmen, curtsy of the Club Greens Manager.

BLBC used Cadance alternatively on a monthly cycle with Mirage in 2023. In 2024 Velistia will be alternated with Mirage on a three week cycle. This was because Dollar spot emerged in the hot wet Summer of 2023 when done monthly. Dedicate is used at the end of season to pre-empt snow mould.

Weeds

Weeds can be a problem, Most weeds can be lifted out by hand, using a grubber or small fork, but if there is an infestation of ground hugging weeds, like chickweed or crabgrass for instance, spraying with a readily available selective weedkiller using a hand held spraying bottle will do the job. (BLBC purchased A.D.I.O.S organic herbicide and this will be found in the smaller shed). Broad-leafed weeds, if not a serious problem, can be removed with a dandelion digger or knife, roots and all.

Silver moss became a problem in 2023 and Quicksilver will be used in 2024, it can be mixed with the fungicide Velistia for spraying. Beaconsfield Golf Club offered to provide the Quicksilver in exchange for the occasional use of our spraying machine.

Pests.

Earthworms, although having some beneficial efforts, such as breaking down the thatch layer, aeration and some relief to compaction, are otherwise considered a nuisance. The casts can cause an uneven turf surface, which can affect play, daily switching and/or brushing is essential throughout the year.

Ants. The daily presence of ant hills makes their removal a core morning task. Sweeping with a whip or broom will clear them but, with current chemical restrictions, Borax mixed with sugar is used in killing the ants.

Aeration techniques

Thatch

Thatch is a tightly intermingled layer of living and dead stems, leaves and roots of turf grass that develops between the layer of green vegetation and the soil surface. Too much thatch creates a slow green and decreases the overall green quality. It causes shallow rooting, poor penetration of fungicides, insecticides and fertilizers and affects overseeding practices as seed strays in this layer and does not make contact with the soil. hence, poor germination.

Scarification (Verticutting)

Scarification removes thatch and dead moss from the lawn with is series of vertical blades or tines that slash into the base of the turf to remove the debris. This leaves grooves in the surface, which creates a perfect seed bed prior to sowing the seed.

The blades of the Verticutter should be set so they make soil contact but do not penetrate. When the season is finished, they can be reset so they penetrate about 1/4" into the soil. Cut from corner to corner of the green on a 45° angle with very little overlap. Clean with a mower or lawn sweeper. The result is that the bowl will be able to draw equally on both hands on the same day, the green is also now a lot faster. This practice will improve the fineness of the grass and greens can be bowled on within one day. This process can be done weekly during high growth periods and monthly during

slow growth periods. In the Spring the recommended method is to carry out the first operation of verti cutting around two weeks after the application of the early spring fertilizer in early May. This ensures any moss has been killed for easy removal, and the grass is vigorous enough to fill in very quickly. This operation is fine to carry out straight across the green.

A scarifier is not a soil cultivator, it is to clean out the turf.

Spiking

Aeration relieves soil compaction by punching holes into the surface of the green. This helps bring the grass seed into contact with the soil, which improves the chances of germination. It also encourages the newly germinated seedlings to develop a strong root system.

Solid round tines should be used every two weeks or so throughout the season, they will not affect the draw of the woods. All spiking must be carried out when the soil is moist, this is best after or during rain.

It is good practice to apply **good quality grass seed**, particularly on the heads, after aerating and before top dressing.

Hollow tining

The other method of aeration is hollow coring. It is normally used once every three years to relieve soil density. Hollow coring is only recommended if there is a very serious thatch problem and should only be used as part of the Autumn renovation program. Hollow coring is certainly not required on a sand based root zone. A corer with 3/4" or 5/8" hollow tines should be used. Remove all plugs from the greens. You can use a wide mouth (plastic) snow shovel to pick up the cores if you do not have a core harvester.

These holes must not to be filled with other materials such as top dressing but will be pressed together by solid and tines after two weeks of being exposed to the atmosphere. The practice of filling up hollow tine holes comes under soil exchange and not turf management.

Overseeding.

Turf can be overseeded to repair any weak or thin areas on the green. Grass coverage can suffer during times of drought, constant close mowing and following weed control. Whatever the reason, overseeding will help return the green back good in condition. Turf is regularly scarified to remove dead moss or thatch and this often leaves the green looking ragged and thin afterwards. Overseeding enables the sward to recover quickly, as the the new seedlings establish and thicken up the weak areas.

The chances of the seed germinating and establishing are greatly improved when overseeding is undertaken following aeration and scarification and prior to top dressing. All three along with overseeding should be included in a typical autumn renovation program.

Disperse the grass seed evenly over the lawn, ideally when the surface of the lawn is dry. This can be done by hand or with a spreader. If sowing by hand it can be applied in two directions, each at half rate. The second pass should be at 90 degrees from the initial pass.

The seed should be applied at the manufacturers recommended rate, this is usually between 10 - 25 g/m depending on which grass species you are sowing.

The seed then requires working into the sward, aeration holes or scarification grooves. A dragmat, lute, or brush can be used to accomplish this. If top dressing is going to be applied then the seed can be brushed in with the top dressing.

It is also a good idea to raise the cutting height of the mower and ensure the blades are sharp. Blunt mower blades can damage new seedlings.

Top dressing

A top dressing of sand/20% loam should be applied following aeration and overseeding.

This serves two purposes. First it is used to dilute the build up of dead and dying grass material in the top two or three centimeters of the green which prevents the build up of thatch, and spiking then takes some of the top dressing down into the root zone, both of which aid drainage to keep the surface dry and healthy. The second purpose is to keep the surface level by using a straight edge to smooth out any abnormalities.

Over the Winter period two applications of lawn sand, the first around November, the second mid April are recommended to harden the grass and keep moss at bay.

Fall is the main time to use top dressing to finish off the annual renovation. The application can vary from three tons to six tons per green depending on whether the green has been hollow cored or only been spiked.

You must ensure that the crown (growing point) of the grass is not covered with top dressing. You must work the top dressing in until you can hardly see it. Application rates of 6-7 kg per square metre are about the most that should be applied. One green may take up to 5 tons of sand.

One of the keys to top dressing is the levelling and working in with either a lute, a dragmat or a weighted 10 ft. ladder. The lute is harder work (manual) but provides more level results. The dragmat is easier to use as it can be towed behind a ride on mower as can the ladder. Top dressing with sand is best applied through a drop spreader. Shovel spreading with a wheelbarrow is okay as long as you try to spread it as evenly as possible to start with. You should have completed scarification and tining before top dressing although positive benefits are still achieved from top dressing straight onto a green (it improves fertility and will help in the reduction of thatch).

Spring is ideally when the green should be fully dressed again. using around three tons per green, but at the very least the playing heads should be given a dressing at a kilo or so per square meter. A supply of sand should be

kept in stock to allow the heads to be dressed once a month throughout the season to help them withstand the wear and tear of play.

Rolling

In direct opposition to aeration, rolling does cause compaction, irrespective of which kind of roller is used. Rolling does produce a faster, truer surface, but should be used with caution, especially if frequent spiking is not being carried out.

A simple way to assess if rolling is needed is to press down on the turf with your thumb. If it only goes down a little way (5mm) then possibly a light rolling will be sufficient. If your thumb can go down 13mm then it is apparent that more rolling is required with a heavier roller, such as a two ton.

Rolling is still an important factor in greenkeeping work because although we have the green tight, when the turf does get wet it will be partially waterlogged on the surface and swell up. This means the turf will lift slightly and once it has dried out it needs to be firmed back down to where it came from to expel the excess air. If you don't roll at this time then the green will be relatively soft and any action on the green will cause disfigurement. If the bowls are dropped from above the green instead of being delivered on it then divots will result in these soft conditions. On a dry, firm green, divots are not so noticeable or as likely to occur.

Irrigation

Irrigation management is undoubtedly one of the important factors in determining pace and maintenance of a quality lawn bowling green. The timing of irrigation has a large impact on green pace. Each morning it is essential to remove the dew from the green to recycle the moisture that has been produced during the hours of darkness. This can be accomplished by brushing or by using a dew removal roller or by swishing, or a drag mat.

The best time to irrigate the green is either late evening or during the hours of darkness when the soil has more chance to soak up the moisture and there will be less wind and heat to cause evaporation. Pop up sprinklers need to be checked for the spray pattern to ensure correct coverage over the whole green and not its surrounds. At BLBC we have settled on a half

hour per sprinkler between 10pm and 5am Mon./Wed./Fri. pattern which respects Beaconfield City bylaws for Summer watering.

When watering fine turf the object is to keep the grass alive, not necessarily keep it bright green, as to do that would lead to a soft easily damaged surface and very shallow rooting.

The aim should be to soak the root zone thoroughly every three days or so to ensure the grass roots are kept supplied with moisture. This is where spiking and wetting agent are great allies as they allow the water to get into the root zone quickly, thereby reducing water usage and providing a much healthier playing surface.

Some important factors of any irrigation program involve:

Deep and infrequent applications of water (watering to field capacity)

Minimization of light frequent hand watering

Syringing during times of stress (ensuring it's a very fine spray)

Knowing your irrigation system and how much it applies

Avoiding hydrophobic conditions

If the temperature is very high, then a short one minute spray during the day can help to cool the turf canopy, and the soaking could be increased to every second night.

Wetting agents

Wetting agents are/ used to increase the rate at which water disperses and is a very useful tool in helping to avoid flooding, or heavy dews forming. It should be applied during high stress situations and helps the plant to absorb the nutrients quickly so avoiding loss by evaporation. The other time to use wetting agent is immediately after the autumn renovation as it aids seed germination and grass recovery after aeration. Aquaduct Flex is a granular product and can be applied with fungicide spraying.

Fertilizers

Fertilizers are applied to supply nutrients to the grass plants to help them grow healthily and withstand the wear and tear of feet, bowls and machinery. Conditioners are materials such as seaweed that help the plants to take up the nutrients by improving the soil through increasing the microbial and bacterial content in the soil, and also supplying many micro nutrients, thereby giving a much healthier growing medium.

The first application of fertilizer should be applied around early May during the first spell of mild weather with the formula 21% nitrogen, 6% phosphate and 12% potassium. This will read as 21-6-12 on the product description. June to August apply fertilizer 5% nitrogen, 0% phosphate and 41% potassium at 10 to 14 day intervals in dry weather.

The application rate is 2.5 to 3 lb per 1000 sq,ft. The green uses one sixth of a bag. Make sure that the flow of fertilizer is started off the green, so that the first surge does not burn the green. The hopper valve should be set at minimum and spread evenly in one direction and then redone at 90 degrees. Remember that the spread of each pass is about 8 ft.

During the Autumn renovation use feed (21-6-12) and perhaps iron or seaweed to stimulate a slow and strong recovery from the seasons stresses.

Soil Testing At a minimum annual soil testing should be performed to determine nutrient levels. Plant Products have been good enough to provide this service free of charge.