

# GRASSCYCLING A CUT ABOVE



 **Robomow<sup>®</sup>**  
*friendly home*



stronger



faster



edging



friendly

  [robomow.com](http://robomow.com)

# Introduction

There is no question that lawns play a central and emotional role in the world landscape. It provides a welcome, green space for children, backyard barbecues, and other outdoor activities, in addition to their aesthetic value. After all billions of dollars pampering the patches of turf around our homes, in addition to a disproportionate share of our personal time and energy.

Lawns also contribute significant environmental benefits: preventing erosion, nutrient runoff, filtering air, and providing natural “air conditioning” during the summer.

If your back is already aching and your wallet feels lighter – you might want to consider joining the Grasscycling revolution with Friendly Robotics Robomow!

Grasscycling is a proven system for maintaining lawns, which actually allows them to maintain themselves, saving you a lot of effort. It has saved people dozens hours of labor, hundreds of dollars in lawn care expenses and tax payments every year, while also protecting our shared environment.

Grasscycling is the easy way to a healthy lawn and a great way to recycle valuable nutrients for free. It combines a mowing plan that calls for cutting turf areas with greater frequency **without removing the clippings**, and low-input watering and feeding.

**LAWN CARE HAS NEVER BEEN SO EASY**



# 1. What is grasscycling

- Grasscycling is a proven, simple and natural approach to lawn care.
- Grasscycling (grass-recycling) is the natural recycling of grass by leaving clippings on the lawn when mowing; the grass clippings are left on the lawn to decompose quickly, they contain 80-85% water and releasing valuable nutrients that returned back into the soil.
- Grass clippings add beneficial organic matter to the soil, which provides free fertilizer and produces healthy, green lawns.
- Grasscycling saves time, money, and protects the environment since the bagging and disposal of clippings is eliminated.
- Grasscycling leads to a deeper, healthier root system that increases your lawn's resistance to disease, drought and insects.



**Spring is  
coming!**



## 2. Grasscycling benefits with Robomow

### SAVE TIME

The average person spends 2 to 2.5 hours a week on lawn care during the growing season. With Friendly Robotics Robomow you can set a weekly program and forget about mowing for the entire season!

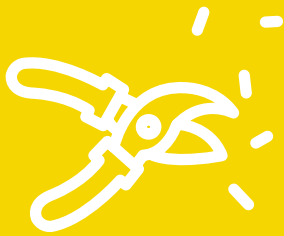
You save the time and hassle of pushing the mower, raking, sweeping, bagging, and throwing out grass clippings.

- No need to rake and bag your grass anymore
- No more spending your weekends mowing the lawn

Robomow will automatically depart at the day and time scheduled and automatically return to the Charging Station to recharge and get ready for the next scheduled operation. The weekly program can be re-set at any time, if and when required.

**WITH ROBOMOW YOU CAN SPEND YOUR FREE TIME WITH THE FAMILY AND DO THE THINGS YOU REALLY LIKE TO DO.**





## SAVE MONEY

- **Fertilization:** Reduces the amount of lawn fertilizer needed because the clippings provide about 1/4 of a lawn's annual needs. Free-falling clippings are free food for your lawn. Grass clippings act as a natural fertilizer. When clippings decompose, they release their nutrients back to the lawn. They contain nitrogen (can provide, as much as one-third of a lawn's total nitrogen needs), potassium and phosphorus, as well as lesser amounts of other essential plant nutrients. Since nutrients are returned to the soil, you don't need to purchase fertilizer as often.
- **Water:** Reduces the amount of water needed by lawns since the clippings are about 80 - 85% water. Grasscycling slows evaporation losses from the soil surface, and conserves water. Most lawns need less water when Grasscycling.
- **Taxes:** Grasscycling means there's no need to spend money taxes on land filling grass. The cost of trucking grass clippings to landfill sites comes out of residents' taxes. This is a wasteful practice – all those nutrient-rich clippings could be fertilizing people's lawns, thereby saving money on fertilizers and water bills. And taxes could be spent on services and programs rather than on the labor, trucks, fuel and precious landfill space used in grass disposal.

## HELP THE ENVIRONMENT

Grasscycling with Friendly Robotics Robomow is a simple, easy opportunity for every homeowner to do something good for the environment.

- **Save landfill space:** Grasscycling is a responsible environmental practice and an opportunity for all homeowners to reduce their waste and to save landfill space. Grass clippings add 20% to 50% to the volume of residential waste between the months of March and September.
- **Save energy resources -** Using Friendly Robotics Robomow you help save energy resources by eliminating the need to haul grass clippings to distant disposal sites. Grasscycling enhances lawn tolerance to drought, slows evaporation losses from the soil surface, and conserves water. Reducing fertilizer and water usage means less runoff from your lawn that can lead to surface and groundwater pollution.
- **Save air:** Most of us don't think of garden equipment as causing much air pollution, but the small engines found in lawn mowers are actually a significant source of smog. Garden equipment engines emit high levels of carbon monoxide, volatile organic compounds and nitrogen oxides, producing up to 5% of the nation's air pollution. A conventional lawn mower pollutes as much in an hour as 40 late model cars. So what's the solution? Friendly Robotics Robomow is battery-driven that can run for three hours between charges. It easy to start and require no gas, oil, tune ups or spark plugs, making them a bargain to maintain and there is no emission.
- **Reduce noise level:** Friendly Robotics Robomow noise level is significantly lower than a conventional lawn mower, thing that enables to operate it in any hour you want without disturbi the neighbors.



## ENJOY HEALTHIER LAWN

By Grasscycling you enrich the soil. The valuable nutrients released through grass cycling will make lawns greener and encourage a healthier stand of grass. Grass clipping decomposition can enhance soil microbial activity and add beneficial organic matter to the soil. Healthier lawns prevent erosion and may increase property values.

## IMPROVED LAWN QUALITY

Friendly Robotics Robomow is fully automatic mower that has an optimal combination of cutting parameters:

- Blades speed of 5,800 RPM
- Drive speed of up to 0.5 meter/sec
- Systematic area coverage algorithm; sets of triangles in different directions so every point in the lawn is mowed few times from different directions.

All above result in high quality of mowing and homogeneous beautiful looking lawn.

When grass clippings are allowed to decay naturally on the lawn, they release valuable nutrients, add water-saving mulch and encourage natural soil aeration by earthworms.





# 3. Tips for successful grasscycling

Many people treat their lawns like a "crop:" they (over) water and (over) fertilize their lawns to encourage excessive growth. The "harvested crop" (grass clippings) is then bagged and disposed. Proper mowing, watering, and fertilizing practices result in more moderate turf growth, yet still produce a healthy, green lawn.

Grasscycling can be practiced on any healthy lawn as long as the following turf management guidelines are followed:

## MOWING

- **Lawnmower:** Use Mower with mulching system. Friendly Robotics Robomow was designed specifically for mulching, it has a well-designed mulching deck and blades that designed to lift up the grass and keep it suspended for repeated cutting (up to 10 times) before allowing it to fall back down to the ground as a natural fertilizer. It cuts grass into smaller clippings — for faster decomposition into the soil — and then moves them down as rapidly as possible.
- **Mowing frequency:** One of the most important keys to Grasscycling is to mow more and cut less. Most lawn jockeys favor mowing once every week, usually on an otherwise quite Saturday. With grasscycling, lawns are mowed when the grass needs cutting, rather than sticking to an artificially imposed schedule. With Friendly Robotics Robomow it's easy as Robomow does all the work itself, schedule your Robomow to automatically depart from the Charging Station whenever you like and as often as you like. During the active growing season the mowing frequency should be increased to once every 5 days, before the grass is too long. If the grass is long, cut off short amounts in several mowing rather than all at once. More frequent and proper cutting will also yield smaller grass clippings, which can readily filter down to the soil surface and decompose within days.
- **Cutting Height:** Follow the "1/3 rule:" mow the lawn often enough so that no more than 1/3 of the length of the grass blade is removed in any one mowing. Proper mowing will produce short clippings that will not cover up the grass surface. You may have to cut the lawn more frequently, or double cut, when the lawn is growing fast, such as in the spring.

ONLY CUT ONE-THIRD OF THE HEIGHT OF THE LAWN AT A TIME



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1/3

2/3

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Any time the lawn is mowed, the plant's ability to photosynthesize and to produce carbohydrates essential for root growth is decreased. To maximize photosynthesis and reduce turf stress, remove no more than one-third of the leaf at one time. If more than one-third of the leaf area is removed, root growth is temporarily slowed by the plant's inability to produce sufficient carbohydrates. If the lawn has been severely cut, the plant uses stored carbohydrates to produce new leaf growth. If the lawn is repeatedly cut too short, carbohydrate reserves will be depleted, weakening roots and predisposing the grass to weeds, diseases, insects, and drought injury.

**Two common mowing mistakes are:**

1. Many people mow their lawns too short. It's a bad habit, one that promotes all kinds of problems, from excessive weed growth to pest and disease problems to rapid browning during periods of drought. Taller grasses produce healthier root systems and require less water because the longer-leaf blades serve as shade from the sun. A grass's root system grows about as deep as the leaf blades are tall.
  2. Letting the grass grow too tall before it is mowed. Don't wait until the grass is too high before mowing because the very act of mowing creates considerable stress on the grass, and it may take days for the grass to recover from the shock. If the grass gets too high, raise the cutting height, mow, then gradually lower it over several mowings. This will also reduce shock to the plants from cutting too much at once. When cutting more than third of the grass height, let Robomow to run for more time than normally used to mow over the clippings a few times. This will further shred the clippings.
- **When to mow?:** Mow your lawn when the grass is dry. You have probably already noticed that wet grass cuts poorly. Damp clippings will cling to the blade causing ragged cuts; the mower deck (the blade housing) will become clogged, interfering with overall mowing; grass clippings will form unsightly clumps; and clippings won't be able to filter down to the soil surface. Mow your lawn late in the day rather than during the heat of the day. It's far less stressful on the grass. This will prevent the newly cut grass from burning as well as give the clippings a chance to settle overnight.
  - **Mowing direction?:** Vary the mowing direction. Grass tends to grow in the direction it is mowed. To prevent your lawn from appearing to lean one way or the other, vary your mowing direction each time you mow. This will keep your grass looking straighter. Friendly Robotics Robomow doing sets of triangles in different directions so every point in the lawn is mowed few times from different directions.
  - **Blades:** Keep your mower blades sharp. Sharp blades provide a clean, safe and efficient cut. Dull mower blades will tear and shred the tips of the grass, which can provide an entry point for disease organisms and weaken the grass plant. If your lawn looks dull after mowing, or perhaps turns straw-brown a day or two later, your mower blade is likely dull and causing damage.



## WATERING

Irrigation is the most important component of lawn maintenance. In order for a lawn to thrive, it must have a strong, vigorous root system. Roots need moist and aerated soil to grow properly. If, like so many others, you're determined to keep your lawn green throughout the growing season, here's what you need to do:

- **Water deep and infrequently:** Deep and infrequent watering allow water to penetrate the top 6 to 8 inches of soil will promote healthy root growth. Typical lawns should receive at least one inch of water per week. It also maximizes water-use efficiency and turf-grass quality. Deep, infrequent watering produces a deeper, extensive root system, which enables turf to resist disease and stress. Light sprinkling is only beneficial for newly planted turf when the roots are developing in the very top portion of the soil. As turf is established, roots extend deeper into the soil. Light sprinkling will encourage root development only near the soil surface and stunt deeper root growth. Shallow root systems require frequent watering to keep the surface wet, creating an ideal environment for weeds and diseases.
- **Water uniformly:** Lawns need uniform coverage to maintain their vigor and a healthy appearance. Brown spots in a lawn are often due to uneven coverage. It is a good idea to regularly check irrigation systems for even coverage. To determine the rate at which your sprinkler system applies water to your lawn, place several small containers (about two inches deep) in the area being watered. Run the system for 15 minutes, see if the containers fill evenly, then measure the depth of water in all of the containers and average them. Multiply the average by four to determine how much water is applied to the lawn per hour. Adjust sprinkler heads to avoid dry or soggy spots.
- **Do not over water:** Too much water is not only wasteful but can also increase turf growth, which requires more frequent mowing. Saturated soil can cause poor soil aeration and, as a result, weaken turf making it vulnerable to diseases and invasions of weeds. Not enough water can cause turf to dry out. Let the soil partially dry out between watering. Water when the top two inches of soil have dried out. Use an object such as a screwdriver to probe your soil and measure the depth of the moisture.



- **Irrigate only when your lawn needs water:** In general, your lawn needs water when the top two inches of soil have dried out. If footprints remain visible after walking on the lawn or if the grass has changed color or has started to wilt, you have withheld too much water.
- **Irrigate early in the morning:** The best times to water are between 4 a.m. and 8 a.m. in the morning. At these times, water use is most efficient, water loss from evaporation is minimal, and distribution is usually good because of good water pressure and limited wind. During the afternoon, water is wasted due to high evaporation rates. Do not water during the evening or pre-midnight hours because thatch and blades are susceptible to diseases, especially fungal diseases, if they are wet during cool nights.
- **Irrigation scheduling:** Because there is so much variation among lawns, there is no one single answer for how much water to apply. Turf species, climate, and sprinkler output must be taken into account. Get in the habit of watering every seven to 10 days during the growing season, maybe every three to five days in the middle of summer. Depending on your local water pressure and the type of sprinkler you're using, you may have to water for an hour to really soak the soil.
- **Avoiding runoff:** If you're trying to water a problem site, such as a slope or in soils that are heavily compacted, watch for runoff. To avoid wasting water, water the area a little bit until runoff begins, then stop, wait awhile, water again and repeat that process until the soil is thoroughly soaked.
- **Irrigation system:** Check your irrigation systems regularly to avoid water runoff or over-spraying, especially if the lawn is on a slope. Look for broken, tilted, or clogged sprinkler heads, and adjust sprinkler heads to ensure even coverage.

## FERTILIZING

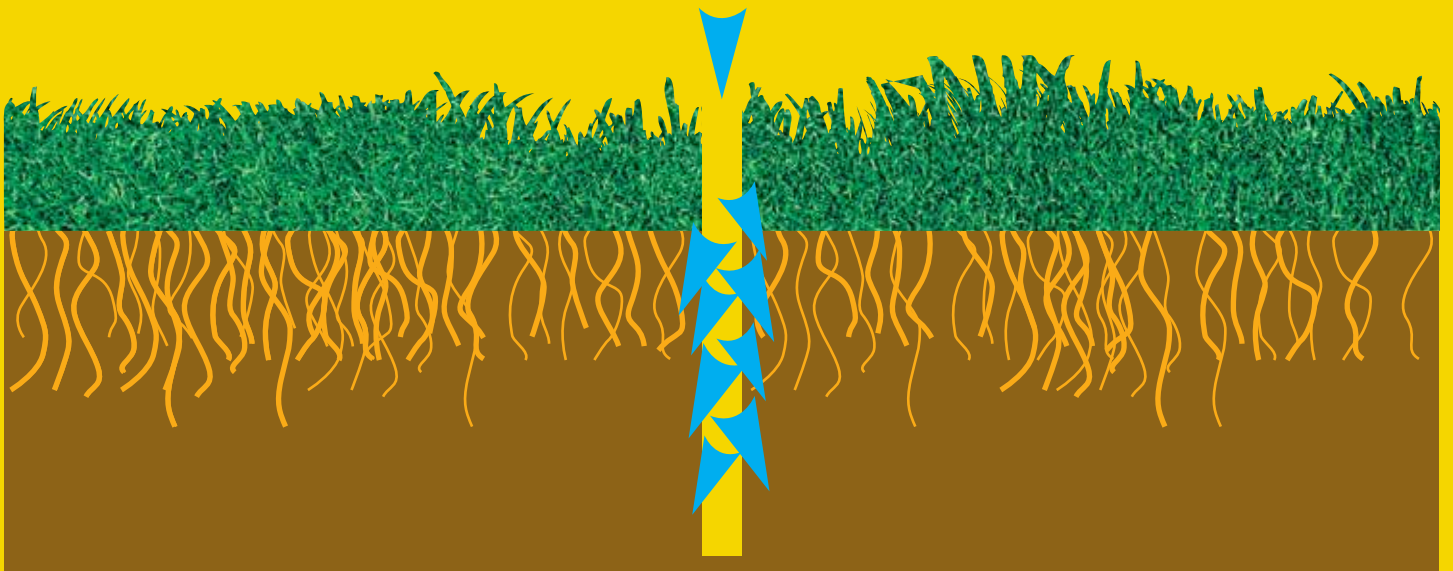
Proper fertilization is essential in maintaining a healthy lawn. However, over-fertilization can weaken a lawn by causing excessive and succulent top growth.

- Lawn fertilizers are available in three basic types: synthetic quick-release; natural or organic slow-release; and a slow-release hybrid form that combines both synthetic and natural ingredients.
- For moderate, even growth, use a combination of fast acting fertilizers (ammonium nitrate, ammonium sulfate, or urea) and slow release nitrogen sources such as sulfur-coated urea, urea formaldehyde, IBDU or organic fertilizers. Avoid using large quantities of fast acting fertilizers. These fertilizers produce very fast growth for short periods.
- Whichever fertilizer you choose, get in the habit of fertilizing routinely. Ideally, lawns should be fed once in the spring just as the grass begins to grow vigorously, and again in the late summer or early fall. At the fall feeding, you won't get the instant green that spring feedings provide, but you'll be keeping your grass healthy because turf grasses have the ability to store food supplies during the winter months and draw from them once they begin to grow in the spring.



## AERATION

- Aeration is one of the most overlooked lawn-care practices, yet it improves the health of any lawn, especially those that have been neglected or compacted over the years. This opens up the soil and permits greater movement of water, fertilizer, and air by increasing the speed of decomposition of the grass clippings and enhancing deep root growth. Aeration machines are available for rent or hire from lawn-care services. A lawn might not look like much once it has been aerated, but by watering regularly, fertilizing and re-seeding, it will bounce back in no time.





# 4. Do grass clippings contribute to thatch?

The most common issue people concern in grasscycling is letting the grass clipping lay on the lawn and not to bag them. Their concern is won't that contribute to thatch and make the lawn look bad? The answer to this question in a word is - NO!

But first we'll define what is Thatch?

Thatch is an intermingled organic layer of dead and living shoots, stems and roots that develops between the green vegetation and the soil surface. Thatch has high lignin content and resists microbial breakdown.

## **Thatch may cause the following problems:**

- Thatch tends to shed water, preventing its infiltration and creating localized dry spots.
- Thatch can minimize the movement of air and fertilizers into the soil layer weakening the turf and making it more susceptible to insect and disease problems.
- Diseases are enhanced by thatch.
- Thatch can provide an ideal environment for turf damaging insects. Thatch is an ideal layer for disease-causing organisms to produce spores and other infectious bodies and build up. Thatch is also reported to attract chinch bugs.

## **Are there any benefits from thatch?**

A moderate level of one-quarter to one-half inch thickness has the following advantages:

- The grass is more tolerant of wear
- The soil is less susceptible to compaction due to the cushioning effect
- The layer of thatch acts as a mulch preventing accelerated drying of the soil surface

## **Causes of Thatch**

Thatch accumulates because the growth of the roots, crowns and lateral stems exceeds their decomposition. Heavy nitrogen fertilizer applications or over watering frequently contribute to thatch, because they cause the lawn to grow excessively fast but prevents the development of those soil microbes responsible for the decomposition of thatch. Other factors that influence thatch and mat buildup include:

- Soils with a pH above 7.2 or below 6
- Heavy and salty soils.
- The use of fungicides and other pesticides that kill or impede the growth of soil microbes and earthworms



## Do grass clippings contribute to thatch?

In a word - NO!

Clippings and thatch are simply not connected; research has shown that grass roots are the primary cause of thatch, not grass clippings. Thatch is composed mainly of roots, stems and crowns; it results from the abnormally fast growth of roots and other plant tissues and is caused by improper fertilizing and watering. These plant materials contain large amounts of lignin and decompose slowly.

Grass clippings are very high in water content, approximately 85 percent water, with only small amounts of lignin, and decompose quickly leaving nitrogen and other beneficial nutrients for the turf.

## Grass clipping should be left on the lawn because:

- Nitrogen and other nutrients in clippings are recycled into the lawn. An additional 1 to 2 pounds of nitrogen per 1000 square feet (.5 to 1 kg per 100 square meters), as well as supplemental potassium, will usually need to be added each season where the clippings are removed.
- The decomposition of clippings encourages beneficial earthworms and microbes responsible for the breakdown of thatch.
- Bagging of clipping will be reduced or eliminated - clippings may be collected on occasion to add to your compost pile
- The volume of yard waste that typically ends up at the local landfill is reduced by 25% by leaving grass clippings on the lawn. This helps preserve vital landfill space



# 5. Few facts

- **Grasscycling does NOT contribute to thatch buildup.** Thatch is caused by excessive growth from over-fertilizing, by allowing grass to get too high before mowing, or by incorrect watering. Too much thatch leads to uneven mowing, scalping, and drought stress. Research has shown that grass roots are the primary cause of thatch build up, not grass clippings.
- Leaving grass clippings on your lawn can generate up to 25% of the lawn's yearly fertilizer needs and reduce the amount of time and money you spend fertilizing and bagging. Grass clippings supplement the nutrients in your lawn as they decompose, adding nitrogen, phosphorus and potassium. Lawns stay greener and healthier when clippings are left on them.
- Did you know that yard clippings are the single largest contributor to California's municipal waste? (15% of the waste stream).
- It has been estimated that during the spring, summer, and fall, 75 tons of yard wastes go to the Larimer County (Pennsylvania) Landfill each day.
- Did you know that a 40 by 100 foot lawn produces about 1,200 pounds - nearly 50 bags - of grass clippings each year? Think of the time, money, and effort it takes to bag all those clippings. Why go through all that hassle with it's not necessary? Furthermore, you throw away \$75.00 of your tax money with those 50 bags because of unnecessary collection and disposal costs. You can have a health green lawn and lower your City's expenses by leaving grass clippings where they fall.
- Did you know that grasscycling, reducing the need for fertilizer? It is an excellent source of nutrients; when you mow turf on a regular basis, clippings, which are mostly water, break down easily, returning nitrogen and other nutrients to the soil. If you leave the clippings on the lawn, you can reduce fertilizer needs by as much as one-third, plus save time by not having to make as many fertilizer applications.
- The average home generates 60 garbage bags of grass over the summer.
- Grass clippings decompose quickly - usually within 2-3 days because they are made up of 85% water.
- Grass clippings protect your lawn's root system from heat and water loss.
- Grasscycling saves water - grass clippings left on your lawn reduce water loss through evaporation.
- Dried grass clippings can be used as a protective cover for gardens and shrubs, to reduce water loss and control weed growth.



# 6. Frequently asked questions

## **What is Grasscycling?**

Grasscycling is the natural recycling of grass by leaving clippings on the lawn when mowing. When you grass cycle with your Friendly Robotics Robomow, the clippings stay in the mowing chamber longer, being cut and re-cut several times into very small clippings before falling back to the soil. Once on the ground, they decompose quickly and release valuable nutrients into the soil. This results in a healthier and better-looking lawn, and eliminates the need to collect and remove the clippings.

## **Why using Grasscycling?**

Grasscycling saves time, money, and protects the environment. Mowing time is reduced since the bagging and disposal of clippings is eliminated. Grass clippings add beneficial organic matter to the soil, which provides free fertilizer and produces healthy, green lawns. Grasscycling reduces turf grass fertilizer and water requirements, which can minimize toxic runoff entering storm drains and polluting lakes, creeks, and rivers. Grasscycling also reduces the amount of yard waste disposed in landfills.

## **Does Grasscycling require special equipment?**

You may be able to use your existing mower to grass-cycle, but you will have to mow very frequently comparing to mowers that are specially designed to grass-cycle.

The Friendly Robotics Robomow is a dedicated mulching mower that mulches better than a traditional mower thanks to its Triple-Chamber-Mulching system and the 5800-RPM blade speed, double that of a typical gas mower. It was designed specifically for mulching, it has a special blades and a deep cutting deck that allows your grass clippings to be cut several times (up to 8 times) before the grass clippings are returned to the lawn as a natural fertilizer.

## **Will Grasscycling make my lawn look bad?**

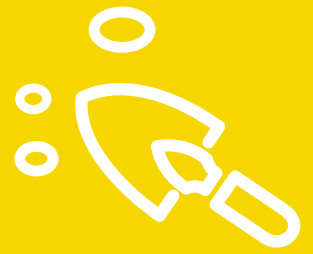
No! If a lawn is properly mowed, watered, and fertilized, grasscycling can actually produce a healthier-looking lawn. It is important to cut the lawn frequently to produce small clippings that will fall between the standing blades and decompose quickly. Many golf courses and parks have practiced grasscycling for years.

The key to maintaining a neat appearance is to cut the lawn often enough to produce short, small clippings. Short clippings decompose quickly and will not cover the grass surface. Mow when the grass is dry. This prevents the clippings from clumping and leaving piles on the lawn.

Many homeowners mistakenly cut their lawns once a week, when they have the time during the weekends. Grass should be cut when it needs cutting, rather than mowing on an artificially imposed schedule.

With the Friendly Robotics Robomow you can set a weekly program to control the mowing schedule and forget about mowing for the entire season!

The Robomow will automatically depart at the day and times scheduled and automatically return to the Charging Station to recharge and get ready for the next scheduled operation.



### **Does grasscycling cause thatch build-up?**

No! Clippings and thatch are simply not connected; research has shown that grass roots are the primary cause of thatch, not grass clippings. Thatch is composed mainly of roots, stems and crowns; it results from the abnormally fast growth of roots and other plant tissues and is caused by improper fertilizing and watering. These plant materials contain large amounts of lignin and decompose slowly. Grass clippings are approximately 80-85 percent water with only small amounts of lignin, and decompose rapidly.

When we stop and think about it, golf courses, sports fields, and parks have been mowing grass for years and recycling with no grass catchers. This done by using "reel" mowers that have seven to nine blades, which are positioned so close together that they result in smaller clipping pieces that can be efficiently returned to the lawn for rapid decomposition.

Thatch, that layer of dead grass roots and runners hovering just above or slightly below the soil surface, is caused by a number of things including poor watering habits, especially shallow watering; improper mowing techniques, especially cutting the grass too short or scalping the lawn; and the frequent use of high nitrogen fertilizers. It is not caused by a build-up of grass clippings.

A small amount of thatch (approximately 1/2 inch) is actually beneficial to a lawn, providing insulation to roots and serving as a mulch to prevent excessive water evaporation and soil compaction.

If a lawn has a thick layer of thatch, a vigorous raking or the use of a mechanical dethatcher will get rid of it. Mild cases of thatch can be controlled by routine aeration. Prevent its return by mowing the lawn to proper height, probably a little higher than usual, by deep soaking the soil each time you water and by switching to slow-release fertilizers.

### **What benefits do grass clippings provide if returned to the lawn?**

Grass clippings returned to the lawn provide up to 25 percent of your lawn's total fertilizer needs. Clippings contain about 4 percent nitrogen, 2 percent potassium and 1 percent phosphorus. While decomposing, they also serve indirectly as a food source for the bacteria in the soil, which are doing many beneficial things (such as decomposing thatch) for a healthy turf environment.

### **Are mulching mowers any more effective than regular lawn mowers?**

Mulching mowers are rotary mowers that cut clippings into smaller pieces and disperse them uniformly back into the lawn for decomposition. Removing only a third of the vertical green growth is very important when using a mulching type of mower. Well-designed mulching mowers distribute clippings more evenly across the lawn surface than regular lawn mowers.

### **Are sharp lawnmower blades important?**

Mowing with a dull blade is like giving your lawn a bad haircut. Rather than cleanly cutting a dull mower blade actually rips or tears grass blades. This not only increases the intensity of the plant injury, but also the ragged edges serve as ideal entry points for various diseases. Dull mowing is especially visible in hot weather when the tip of each grass blade dries out and turns brown. Multiply this by several billion and your lawn may end up looking more like a field of straw rather than a lush green carpet.

When mowing grass that is not wet at the proper height, a sharp blade ensures a clean cut that can seal quickly; which minimizes the potential for disease problems brought on by dull mowing.

With Friendly Robotics Robomow use only sharp blades. Replace blades at least once per season, more often if they have been severely dulled. It is recommended to replace all three blades for best performance. Machine sharpening is not recommended, as a good balance cannot be achieved after machine sharpening.

### **How often should I mow my lawn?**

Many homeowners mistakenly cut their lawns once a week, usually during weekends. Grass should be cut when it needs cutting, rather than mowing on an artificially imposed schedule. Decades of field research and experience have demonstrated that mowing frequency should generally be stepped up to once every five to six days. Cutting more often means that the grass particles are shorter, and filter down to the soil surface, where they quickly break down and release a surprising amount of nutrients - up to 40 pounds (18 kg) of nitrogen per half-acre (2,000 m<sup>2</sup>) lot, in addition to providing micronutrients and organic matter which serves as a mulch to conserve soil moisture and modify temperature extremes. Mowing height should be increased during the hot, dry summer. In most areas the grass will grow more quickly in the spring and fall and require more frequent mowing. The lawn should be mowed frequently so you remove no more than one-third (1/3) of the total plant height. Mowing regularly and at the proper height improves your lawn. If you allow the grass to grow too long between cuttings, the thick patches of mowed clippings will suffocate your lawn in those areas. This problem can be minimized by gradually reducing your lawn to its proper height over a period of two or three mowings, rather than scalping it back to that height in one mowing. Using Friendly Robotics Robomow is the best solution to adjust the mowing frequency to the growing of the grass. You can easily set the proper mowing schedule in a weekly program and Robomow will automatically mow your lawn.

### **Does grasscycling spread lawn disease?**

No! Improper watering and fertilizing are the primary cause of disease spread. If an accommodating environment for turf-grass disease is present, infestation will occur whether clippings are collected or not. Watering properly, only when needed (one inch of water every five to six days, in early morning) and keeping your mower blade very sharp for clean cutting will help your lawn resist disease.

### **When and how often should I water my lawn?**

**Water your lawn early in the morning so water has time to soak into the soil before the heat of the sun causes evaporation. Your lawn needs 1 to 1-1/2" (3-4cm) of water weekly. Sprinklers should be left on long enough to allow water to soak into the ground but not so long to cause runoff. Deep watering allows grass to develop a deep root system, enabling the lawn to resist disease and drought. Over-watering is wasteful and causes your lawn to grow too fast, resulting in more frequent mowing.**

### **Do I have to rake the fallen leaves from my lawn?**

Regrettably, too many people waste their precious weekends raking leaves into piles or shattering the quite peace of sunny afternoons with leaf blowers. There is a better solution. Rather than trying to rid your lawn of fallen leaves, you should actually leave them where they are. It is nature's way to recycle, after all. Certainly no one is raking up and bagging the leaves, which fall in wooded parks and forests. Given a bit of time, all of the leaves are transformed by worms, bacteria, and other organisms into rich humus, which will continue to feed trees, shrubs, and other plants. Your yard is simply an extension of the same natural process. Trees around your property draw nutrients and minerals from the soil, converting those elements into new leaves and branches. By raking up those leaves, you essentially short-circuit the natural cycle by which nutrients are returned to the soil. After a number of years, the soil will lose its fertility. Friendly Robotics Robomow has a well-designed mulching deck and blades that rotate in 5800 rounds per minutes enabling to shred whole leaves into very small pieces. The leaves will disappear into a thin layer of tiny particles easily digested by worms and bacteria. The leaves contain all of the nutrients and micronutrients your lawn needs.