Re-Inventing Lawns: Investigating Perceived Values of Front Lawns in Hyde Park, Chicago and Possible Barriers to Sustainable Alternatives

By Fabienne Bick

Submitted in partial fulfilment of the requirements for the degree of:
BACHELOR OF ARTS
IN ENVIRONMENTAL AND URBAN STUDIES
at THE UNIVERSITY OF CHICAGO

Faculty Advisor: Alison Anastasio
Environmental and Urban Studies Preceptor: Kristi Del Vecchio
Sabina Shaikh

May 13, 2022

Abstract

The maintenance residential lawns require has several negative impacts on the environment such as soil and groundwater contamination. Despite this, they remain popular as they, among other things, create an ideal space for activities and are considered aesthetically pleasing. My study investigates what values attributed to front lawns are the most important to homeowners in Hyde Park, Chicago, and what possible barriers are preventing people from converting their lawns to more sustainable alternatives. I also examine how large of a barrier unawareness is in Hyde Park, Chicago, a neighborhood with a significantly higher level of education than the average American one (CMAP 2021). I do so by evaluating a survey I created for homeowners with front yards in Hyde Park. Based on my results, I argue that unawareness about sustainable lawn alternatives offering the same values as lawns is a possible barrier preventing people in Hyde Park from converting their lawns to more sustainable alternatives. My research is significant because it could help inform policy decisions or incentives to spread awareness in the neighborhood.

Introduction

Lawns are the number one irrigated crop in the United States, more than corn, wheat, or fruit orchards combined (Milesi et al. 2005). They are not just found in the majority of parks, but 81% of homeowners in America also own a lawn themselves (NALP 2017). Part of why residential lawns are so popular is because they have many practical benefits such as providing a space for human recreation activities. Unfortunately, the large amount of chemicals and other resources needed to keep them green take a toll on the surrounding environment. For example, chemicals coming from fertilisers often cause harm to wildlife by entering the ground water (Robbins et al. 2001) and the pollution from lawnmowers and leaf blowers contributes to climate change (Banks 2018).

There are a large amount of more sustainable alternatives to lawns such as native plants or low-input ground covers like clover or moss. Many of these lawn alternatives offer the same practical values as lawns do. Why is it then that lawns continue to be the norm for residential yards? One possible reason for this is unawareness, both about the environmental issues of lawns and possible lawn alternatives. However, another underlying reason could be that lawns are accompanied by certain aesthetic and social values that lawn alternatives are not. For example, lawns have been a status symbol throughout history (Bormann et al. 2001).

In my study, I investigate what values attributed to front lawns are the most important to homeowners in Hyde Park, Chicago and what possible reasons are for homeowners with lawns choosing not to convert their lawns to a more sustainable ground cover. There are already a number of studies investigating the different factors preventing homeowners in the United States from converting their lawns to a more sustainable ground cover. Among other things, they find that unawareness about environmental issues of lawn maintenance and sustainable lawn alternatives is a very common factor. However, the population

samples these studies use for their research are all either at the average education level of the United States or just slightly above.

As a result of this gap, I chose to focus on Hyde Park, Chicago for my research, a neighborhood that has an education level significantly above the national average. This way my research shows how big of a role unawareness plays in a highly educated area and what other factors might come to light when unawareness likely plays less of a role.

The main method of research for my study was evaluating the results of a survey I created for homeowners of Hyde Park. This survey asked the responders to rank the importance of certain values attributed to lawns and what possible barriers to converting their lawns could be from their personal perspective.

My results show that the values of lawns the survey responders ranked as the most important, which are that lawns offer a space for activities and that they require few energy inputs, are also values that lawn alternatives can offer at similar if not higher levels. It is important to note at this point that, as I will show later in my paper, lawns actually require a lot of energy inputs compared to other more sustainable lawn alternatives, this is just how many people perceive lawns. For instance, “most people in the Western world view lawns as a ‘natural’ and even compulsory element of the urban landscape” (Ignatieva et al. 2015), which contributes to the belief that they do not require a lot of maintenance.

Moreover, the majority of the responders were aware that lawns have negative effects on the environment and said they would be willing to convert their lawns to an alternative ground cover if it was better for the environment. Based on these results, one would think that a possible barrier to converting lawns is that there is a lack of awareness about lawn alternatives and how to install and maintain them.

However, about 92% of responders said they had some amount of alternative landscaping and, out of these, 43% said that they had some amount of native plants,

which I later show to be a sustainable lawn alternative. This indicates that people in Hyde Park are aware at least to some extent of sustainable lawn alternatives. However, none of the survey responders indicated that they had any lawn alternatives that can offer a space for activities like lawns do (e.g. clover, fescue grass, or moss). As a result of this, I argue that the lawn-owners of Hyde Park are aware of the environmental issues of lawns and a number of sustainable lawn alternatives. However, they likely have little awareness of lawn alternatives that would allow for activities and require few energy inputs, and, as this was one of the highest ranked values of lawns among the lawn-owners, this is a possible reason why they have not converted their lawns yet. Additionally, as the aesthetic and social values of lawns were ranked as very low by homeowners, I conclude that these cannot be seen as a barrier preventing the conversion of lawns to a more sustainable alternative.

My research is significant because in order to move towards adopting better green space alternatives in front yards one has to find out what possible barriers preventing this there could be and why lawns are still of so much value to homeowners. My findings could, for example, help inform policy decisions or incentives to spread awareness in the neighborhood.

In this paper, I first give some background and context on the history of lawns, the environmental issues of lawns, sustainable lawn alternatives, and rules and regulations about front yards. Then I give an overview of the existing literature on my research topic and explain my research gap. After this, I explain my methods and present my results and analysis before I reach a conclusion.

In this thesis, I use the terms lawns and turf grass interchangeably, and define them as any type of short green perennial grass, such as the type of grass you find on a golf course. In addition, I also use the terms alternative landscaping and lawn alternative interchangeably and define them as any type of green space used in a yard that is not turf

grass. Moreover, based on the supporting principles of environmental sustainability, I define a sustainable lawn alternative as a type of green space that requires little to no non-renewable and environmentally harming resources to be maintained and promotes biodiversity by creating habitats for wildlife (Morelli 2011).

Background and Context

Why do Americans Love their Lawns so much?

The answer to the question why Americans love their lawns so much is extremely complex. Simply put, our love for lawns involves mostly a combination of “aesthetics, economics, psychology, and especially history” (Bormann et al. 2001). Additionally, researchers have even found that “a chemical released by freshly mowed grass can help people relax and make them cheerful” (Sreeraman 2009). However, on a more practical level, lawns have many advantages such as preventing wildfires from spreading or trapping pollutants (Milesi et al. 2005)**.** They also have great recreational value and are a good surface to walk, run or jump on without the worry of possible injuries.

More than this, some studies have found that our preference for lawns might arise from an evolutionary standpoint. For example, John Falk found that humans generally prefer short grass landscapes and scattered trees, which might have to do with them evolving in the grassy, tree-sprinkled Savannah of Africa (Falk et al. 2010). Moreover, some psychologists argue that our love for lawns springs from an inherent preference for open spaces. They claim that “open spaces provide ‘legibility’, an environment that is clear and easily understood, one where people are more likely to acquire information and less likely to get lost” (Bormann et al. 2001). Additionally, some researchers argue that there is “a long tradition of ideals of control of wild nature that have translated into chemically managed landscapes” (Dorsey et al. 2014). In other words, humans are incapable of taming nature, partly because it is so unpredictable, so lawns are a way to create a safer

and more manageable form of nature they can control with the help of machines and chemicals. Finally, economics also plays a big role in our affinity for lawns. A home is in the U.S. usually “the cornerstone of people’s net worth” (Bormann et al. 2001). It is often a symbol of the American dream, a type of physical evidence of success, and the lawns that are attached to many houses play a large role in this. In fact, landscaping, which largely consists of lawns, can add up to 15 percent of a home’s worth, which means that lawns contribute to resale value (Niemiera 2009). However, it is crucial to examine the history of lawns to better understand why certain values are often attributed to them.

The History of Lawns

The history of lawns provides insight into how some of the social values commonly attributed to lawns came to be. Lawns first became popular in eighteenth century Europe. It is believed that the first gardens that included lawn space were the gardens of Versailles (Bormann et al. 2001). French gardener André Le Nôtre designed these with designated areas of grass called “tapis vert” (see fig. 1 below).

Figure 1. Gardens of Versailles (Photo by Jose Fuste Raga, https://media.architecturaldigest.com/photos/5e97454a163f42000805db34/2:1/w_3000,h_1500,c_limit/GettyImages-521175674.jpg)

However, in England, there was more of a trend towards open landscapes as opposed to formal gardens (Bormann et al. 2001). English country estates contained mostly large spaces covered with closely mown grass (see fig. 2 below).

Figure 2. Example of English Country Estate (https://media.architecturaldigest.com/photos/568c51efb313ecbd18115fe5/master/w_720,h_447,c_limit/english-manor-7.JPG)

In the United States, Thomas Jefferson was inspired by these landscapes and attempted to recreate them at Monticello. George Washington then hired English landscapers to create these green spaces at Mount Vernon as well (see fig. 3 below).

Figure 3. Gardens of Mount Vernon (https://upload.wikimedia.org/wikipedia/commons/thumb/5/50/WestFrontMansionMountVernon.jpg/1200px-WestFrontMansionMountVernon.jpg)

Because Mount Vernon and Washington were so popular at the time, a lot of wealthy Americans became inspired to create similar open lawn spaces in their yard and saw these landscapes as something to aspire to (Bormann et al. 2001).

During the 18. century, lawns required an immense amount of resources and energy in order to be maintained because the large industry that exists around lawn maintenance today was non-existent. For example, lawns often needed cattle, sheep or deer to graze them or an army of servants that used shears or scythes to cut the lawn (Bormann et al. 2001). This meant that only people who could afford to maintain lawns could own one, which was what initially caused them to become a status symbol (Bormann et al. 2001). Because of this, even they aspired to it, the middle class did not start owning lawns until long after the Civil War.

Up until the 1850s, middle-class houses in the U.S. were commonly situated close to the street and only had a small enclosed garden in the back. This was because they were designed with an emphasis on privacy (Bormann et al. 2001). As opposed to these gardens, lawns are much more open, connective, and communal. Over time, there was a transition from private gardens to more open and public lawns attached to middle class housing in the U.S.. There were a few main developments that led to this.

First, there was the Public Park Movement started by Frederick Law Olmsted. This movement started in the 1830s and sprang mostly from the desire to improve health in the overcrowded industrial towns. In fact, before there were public parks, people were forced to go to cemeteries to get some fresh air and be active (Francis 2008). Olmsted himself was a big advocator of large open lawns spaces. The public park movement had a big impact on the design of the first suburban communities in the U.S, which were on the East coast. These suburbs were often modelled after Olmsted's parks and sometimes even included the word park in their names such as in the case of Tuxedo Park in New York and Llewellyn Park in New Jersey. Below is an image of Riverside (fig. 4), a suburb in

Illinois that Olmsted himself designed. You can see how the aerial view resembles a park with all of its open green spaces.

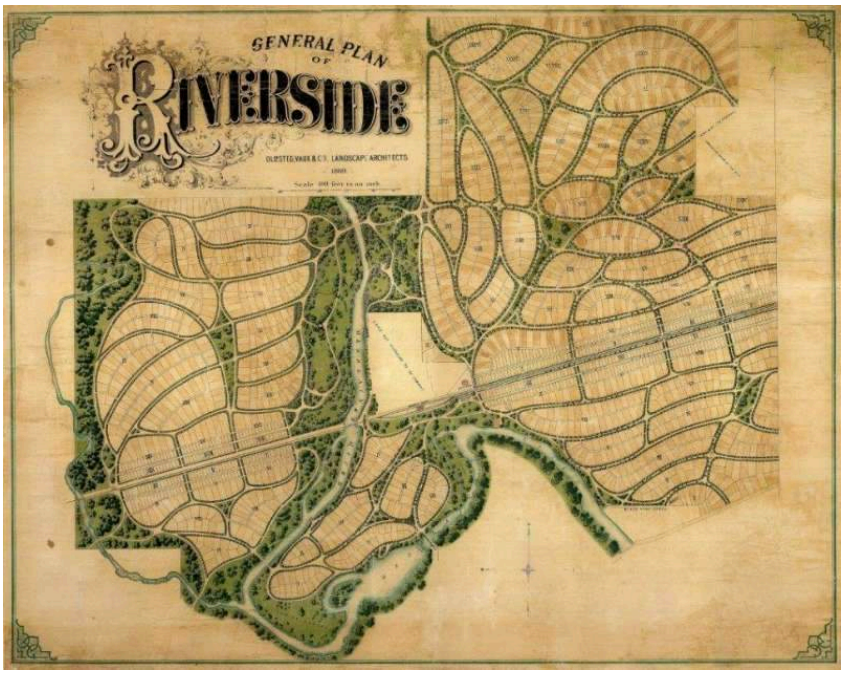


Figure 4. Map of Riverside (https://www.enjoyillinois.com/assets/Uploads/_resampled/ResizedImageWzgwMCw2MzRd/Riverside-Original-Plan.jpg)

The rise of cars and long-distance travel by train also had an impact on the transition to middle-class housing with open lawn spaces. This is because homeowners wanted to make their front yards more visually pleasing for people who drive by and would see them (Bormann et al. 2001). More than this, new houses were built to face the rail line so the travellers could see some nice scenery on their way to their destination (Bormann et al. 2001). Additionally, the federal government financed low-cost mortgages after WW2, which made builders create blue-collar tract housing that usually included lawns to "mimic upper middle-class suburban development and attract residents" (D'Costa 2017).

At the same time, towards the end of the 19th century, the northern states entered a period of growth. This made railroad tycoons and factory businesses grow, so their owners "looked to accumulate material symbols to signify their prosperity" (D'Costa 2017). Lawns were ideal for this. They became a symbol of the American dream, something to show that you have made it. In the 20th century, there was also a large

increase in printed gardening advice such as in newspapers and advertisements, which increased the popularity of lawns exponentially (Bormann et al. 2001). However, even then owning a lawn was still somewhat an exercise in wealth because pesticides, herbicides, and chemical fertilisers were still undiscovered.

Environmental Issues of Lawns

Every year in the United States lawns consume about 3.2 trillion gallons of fresh water (EPA 2022), 800 million gallons of gas (for mowing), 2.4 million metric tons of fertilizer, and 70 million pounds of pesticides (NRDC 2016). In addition, a 2015 study shows that, in 2011, “approximately 26.7 million tons of pollutants were emitted by gasoline-powered lawn and garden equipment” (Banks 2018). This means that lawns do not only contribute to air pollution and consequently global warming, but the chemicals used on them (such as the ones found in pesticides and fertilisers) are extremely harmful because they often enter water systems and can poison animals or even harm humans who swim or eat seafood that may be contaminated (Robbins et al. 2001). On top of this, lawns fail to provide a habitat for pollinators and other animals and plants that create a healthy local ecosystem, and subsequently also contribute towards biodiversity loss (Robbins et al. 2003). More than this, “37% of the 436 species listed in the Endangered Species System Database (are) at risk from the use of pesticides” (Robbins et al. 2001). This shows that “chemical applications clearly contribute to environmental problems, as do fertilizers, which detrimentally effect the biological oxygen demand in streams” (Robbins et al. 2001). Finally, lawns need a large amount of water to stay green, which is problematic because water is a scarce resource and water treatment consumes a significant amount of energy (Racoviceanu et al. 2007). More specifically, treating municipal water to the standards for drinking water uses up a lot of money and energy, yet it is not even used as

drinking water in the case of lawn care. Below is a pie chart that shows the residential average water use in the United States (fig. 5).

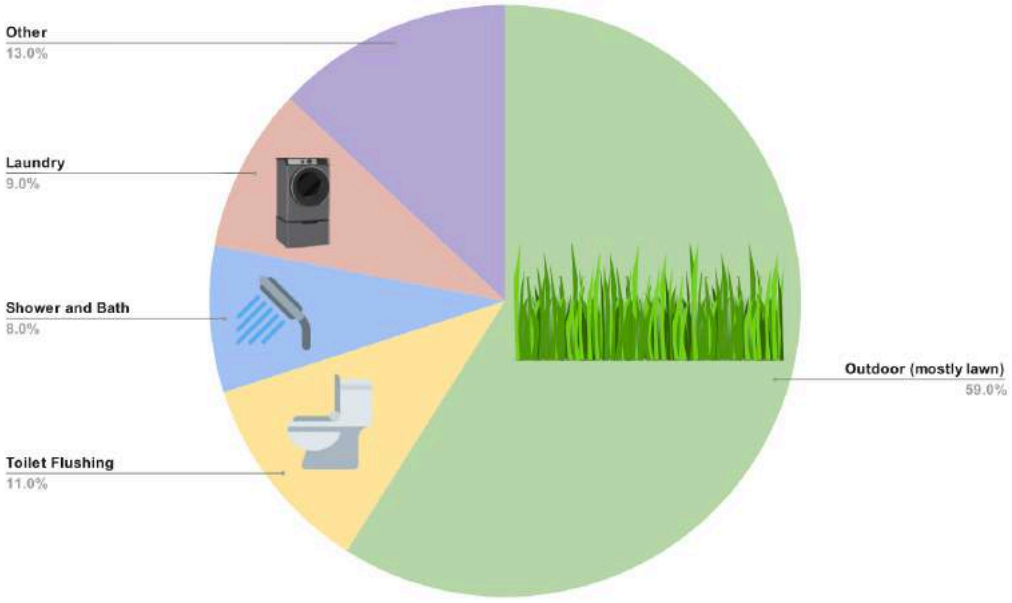


Figure 5. Residential Average Water Use in the United States (Source: American Water Works Association Research Foundation)

As you can see, outdoor spaces use up the largest portion of water, which mostly consists of lawn maintenance.

In addition, because there is a general lack of knowledge about sustainable lawn care practices among American lawn-owners (Martini et al. 2015), lawns are using up significantly more resources than they would need to stay green. For example, a study conducted in Minneapolis found that only 29.1% of their survey responders knew the appropriate amount and frequency to use fertiliser on lawns (Martini et al. 2015). Overuse of fertiliser has many negative effects on the environment because it can run off into streams and lakes and cause toxic algal blooms, which harm the surrounding aquatic environment and even humans (Ayoub 1999).

Nevertheless, it is important to note that lawns are still more environmentally friendly the a yard with only hard surfaces such as concrete, asphalt, or wood in your yard. This is because lawns are able to clean the air to some extent by trapping dust and other particles from the atmosphere, absorb CO2, reduce erosion from stormwater runoff,

improve soil quality, reduce temperatures, and reduce noise pollution (University of Minnesota 2018, Milesi et al. 2005). However, there are alternatives to lawns are capable of all of this and more.

Sustainable Lawn Alternatives

As awareness about the negative effects of lawn spreads, there are a number of homeowners that are converting their lawns into lower-input landscapes. These landscapes fall into four main categories: 1) naturalised or unmoved turf grass that is left to grow wild, 2) low-growing types of vegetation that require little maintenance, 3) native plants such as prairie wildflowers, and 4) vegetable or fruit gardens. Native plant gardens specifically are becoming more popular because they are aesthetically pleasing and also provide habitats for a large variety of wildlife such as bees, birds, and butterflies (Tilman 1997). Below is an image of what a native plant yard could look like in the Midwest (fig. 6).

Figure 6. Example of Midwest Native Plant Garden (https://tedsgardens.com/wp-content/uploads/2019/04/backyard-pool-area-and-prairie-planting-des-moines-8.jpg)

Some native plants can be used as a sustainable lawn alternative and are particularly popular in Hyde Park, which the results of my study will show later on.

Native plants in the Midwest can be defined as grasses, wildflowers, trees, shrubs, or vines that have inhabited the Midwest for over thousands of years. Because they are "well-adapted to climate and soil conditions in areas with infrequent and erratic rainfall, their performance in terms of drought resistance, resilience to disturbance, and efficient resource use, will exceed that of a non-native species" (Simmons et al. 2011). In other words, because native plants are so well adapted to their surrounding environment, they require very little maintenance and no chemical applications of any kind, which makes them more environmentally friendly and sustainable than non-native plants.

For example, studies have found that native plants are significantly more resistant to weed invasion and pathogens than non-native plants, which means they require less pesticide and herbicide application than lawns (Smith et al., 2004, Elton 1958). Furthermore, "stochastic climatic events such as drought are less likely to have a chronic effect on the (native) plant community" (Simmons et al. 2011), as they, compared to turf grass, have very deep roots. Because they can get large amounts of water through the ground, they require little to no supplemental water and also prevent runoff and flooding by absorbing water accumulating from excessive rainfall (Dahlman et al. 1965). They even improve the water quality because they absorb many nutrients, among these nitrogen and phosphorus, which are the main nutrients found in fertilisers that cause algal blooms in bodies of water (Jobaggy et al. 2004). Finally, studies have also found that native plants increase below-ground carbon sequestration (Tilman et al. 2006) and the absorption of atmospheric pollution (Spehn et al. 2000).

However, one must also consider the fact that the native plants I am describing are native to the Midwest, but they are not necessarily native to the modern urban environments we live in. Because the conditions in an urban environment are so different than they were before any civilisation was there (as a result of the urban heat island effect etc.), there is a possibility that native plants will require more maintenance in an urban

environment, because this is not the exact environment they are so adapted to. However, there is evidence that suggests that even in urban environments native plants can be very beneficial to the surrounding environment. For example, Martison (2020) states that, as a response to residents being concerned about the health of their local ecosystems, “governments are (creating) recommendations intended to reduce resource use, improve wildlife habitat, and provide a local aesthetic. Although the appropriateness of native plants in urban settings is often questioned, the use of regionally specific native vegetation is identified as one method to meet those recommendations” (Martison 2020). On top of this, “native plants as primary landscape elements have the added benefit of increasing biodiversity and creating environments capable of providing ecosystem goods and services within urban environments” (Martison 2020). Moreover, another study finds that “planting (native) plants in urban settings may help curtail air and soil pollution and the “heat island” effect, boost average annual rainfall, reduce soil erosion and compaction, reduce the need for routine application of pesticides, and encourage the occupation of green spaces by indigenous fauna” (Cousins et al. 2015).

Additionally, it is important to note that, even though native plants require no mowing, it is important to remove weeds once in a while because otherwise there is a risk of these outgrowing the native plants. In addition, it most likely takes more effort to initially establish a native plant yard than to put in a lawn, as, among other things, you have to select and establish a large selection of different plant species in your yard instead of just one. However, they pay off in the long run because the amount of maintenance needed decreases significantly after being established (Dorner 2002).

Different types of low-growing lawn alternatives also provide viable sustainable lawn alternatives. Below is a table summarising the low-growing lawn alternatives that are best used in the Midwest (fig. 7) and the benefits and drawbacks of each.

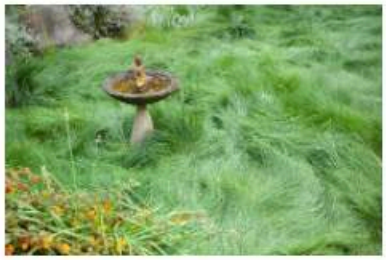
Type	Image	Benefits	Drawbacks
Sedum Ground Cover	 *Fig. 7 Sedum Ground Cover* (https://quiet-corner.com/wp-content/uploads/2016/08/Ground-Covers-Carpet-Sunny-Locations-with-Sedum.jpg)	- requires less water and nutrients than lawns - resilient to diseases and insect pests - no mowing required	- can't withstand heavy foot traffic (leaves and stems are fragile) - can become diseased and start to rot (in this case you might need chemicals to treat it) (Foo et al. 2010, Staats et al. 1995)
Micro Clover	 *Fig. 8 Micro Clover* (https://www.gardeningknowhow.com/wp-content/uploads/2021/05/dutch-clover.jpg)	- more drought resistant than turf grass - requires no pesticides or fertilizers - no mowing required - chokes out weeds - flowers attract bees - stays green year-round - able to withstand foot traffic to the same extent that turf grass does	- might need to be re-planted every couple years (Noll et al. 2013, Smith et al. 2013, Macke 2016)
Moss	 *Fig. 9 Moss* (https://www.thespruce.com/thmb/aTi5lOOpRbbH90Wx-D9khkGGCK8=/909x682/smart/filters:no_upscale()/Moss-floor_GettyImages-1024x682-56a594395f9b58b7d0dd75a9.jpg)	- tolerant to shade and humidity - no mowing required - no fertilizer required - has many different varieties - prevents erosion - insect and weed free (no pesticides needed) - stays green in winter	- needs frequent watering in the beginning - prefers acidic soil - not very tolerant to the sun - withstands some amounts of foot traffic (a little less than turf grass) (Schenk 1997)
Creeping Thyme	 *Fig. 10 Creeping Thyme* (https://i0.wp.com/laidbackgardener.blog/wpcontent/uploads/2021/08/20210821b-amazon.com_.jpg?ssl=1)vx)	- drought resistant - requires less water than turf grass - rapidly spreads and fills up a space - flowers are aesthetically pleasing	- tolerant to light foot traffic only - prefers full sun exposure (Smith et al. 2013)
Fescue Grass	 *Fig. 11 Fescue Grass* (https://www.thespruce.com/thmb/wLR8ozhieeZHKPbS8LpCRg4A6GU=/1139x854/smart/filters:no_upscale()/fescue-resized-56a593f53df78cf77288e277.jpg)	- heat, drought and cold tolerant - Does not require frequent mowing - Requires little watering - Can grow in poor soil	- Withstands heavy foot traffic - may be susceptible to invasion from pests and diseases in wet conditions (pesticides might be required) (Watkins et al. 2010)

Fig 7. Low-Growing Grass Alternatives Benefits and Drawbacks

Similarly to native plants, these all have in common that they are resistant to different types of weather, are low-maintenance, and require little to no chemical application. On top of this, some even offer many of the same practical values lawns do as they are able to withstand different amounts of foot traffic, which allows for activities, something people usually value in their lawns.

Rules and Regulations on Front Yards

One possible reason why many front yards in the United States are still mostly composed of turf grass is that there are laws about what types of landscaping homeowners are allowed to have in their front yards. These laws arise from the city being concerned about fire safety, rodent control, and noxious weeds. In Chicago, there are also ordinances on health and safety that control the plants homeowners are allowed to grow in their yards.

The gardening laws in Chicago state that “any person who owns or controls property within the city must cut or otherwise control all weeds on such property so that the average height of such weeds does not exceed ten inches. Any person who violates this subsection shall be subject to a fine of not less than $600 nor more than $1,200. Each day that such violation continues shall be considered a separate offense to which a separate fine shall apply” (Chicago 2021). This law has been proven to be a “big business” (Woodard 2014) for Chicago. For example, between 2009 and 2014, the city made $19.5 million dollars in fines from property owners (Woodard 2014).

In addition, the definition of weeds the city provides is very vague. Specifically, weeds are defined as “vegetation that is not managed or maintained” (Chicago 2021). Unfortunately, some Chicagoans who own a native plant garden have been fined because ticket writers mistook their plants for weeds (Woodard 2014). Many people in this situation took their case to court, most of whom lost (Woodard 2014).

In 2019, however, one native plant gardener managed to win his case. The violation notice said that he “failed to maintain the parkway, causing rodent problems, and had weeds taller than 10 inches” (Block Club Chicago 2020). In court, the gardener then argued that his plants were purchased and have monetary value and value as a habitat. He could also provide proof that he maintained them, which implies that they are not weeds. Finally, there was also no rodent activity noted on the entire property. Because of this, he won the case and escaped the 600 dollar fine. But it is an understatement to say that he was lucky, given he was the first to ever win a case like this. Even Kathy Cummings, who had earned her first place in the native category of the Mayor’s Landscape Awards Program, sponsored by the now-defunct Chicago Department of Environment, received a fine for having “weeds” in her yard in 2012 and the “weeds” in question were many of the same plants that led to her victory” (Wetli 2021).

However, in September of 2021, the Chicago City Council unanimously passed an ordinance creating the Native and Pollinator Garden Registry. This means that gardeners who have managed native and pollinator gardens can apply to be in this registry to gain protection against ticket writers who might mistake their plants for weeds. The most important condition to join is that gardeners must have proof that their gardens are intentional, meaning that “seeds have to be deliberately sown and plants have to be placed purposefully” (Wetli 2021). In addition, gardeners must be able to identify all of the plants in their garden. On top of this, the maximum fine for gardens that do not comply with the registry’s guidelines is only $100, which is significantly less than the previous $600-$1200.

Moreover, there are areas in the United States that have incentives for homeowners to change their yard from turfgrass to a more sustainable landscape. For example, the Peconic Estuary Partnership provides financial rewards of up to 500 dollars for homeowners who live in the Peconic Estuary to “remove turf and pavement, and add

green alternatives to their properties that benefit the environment ” (Peconic Estuary Partnership 2021). Examples of the alternative landscapes they propose are rain barrels, rain gardens, and native plant gardens. The reason these incentives exist in the Peconic Estuary is that the area provides a feeding habitat as well as spawning and nursery grounds to a wide variety of aquatic and terrestrial species, but has recently been greatly affected by nutrient loading. Nutrient loading is a process where too many nutrients are added to a body of water as a result of human activity, which causes an excessive growth of algae, therefore greatly disturbing the local ecosystem. This is very harmful to a variety of aquatic species and is partly caused by nitrogen entering the water, a large portion of which comes from people fertilising their lawns. This means the goal of these incentives is to reduce the amount of nitrogen entering the waters surrounding residential yards.

Additionally, there are also many more areas in the United States where residents are paid to get rid of their lawn. For example, in California, the board of the region’s largest water agency is investing $43 million a year for its “cash for grass” program (Guerin 2018). This program rewards residents who replace their lawn with a sustainable alternative such as native plants or drought-tolerant plants. However, residents will not be rewarded if they replace their lawns with bare dirt or gravel yards, as these contribute to the heat island effect and, therefore, have environmental issues of their own (Guerin 2018).

On a more local level, there used to be the so-called “Sustainable Backyards Program” in Chicago where people received 50% off when purchasing any native plants for their backyard in an effort to support the local ecosystem (City of Chicago 2010). However, this program was discontinued in 2012. Nevertheless, this proves that such a program has been possible in the past and consequently will also be possible to establish again in the future.

Literature Review

My study aims to investigate which values attributed to front lawns are the most important to homeowners in Hyde Park and what barriers are potentially preventing them from converting their lawns to more sustainable alternatives. The literature related to my research can be divided into three main groups: 1) literature on the history of lawns in America, 2) studies examining public perceptions of lawns in contrast to other green spaces, and 3) studies that examine possible barriers to having a sustainable residential lawn. These studies shed a light on some of the possible barriers to converting lawns to more sustainable spaces, but they come with their limitations. My study will fill the research gap by focusing on front yards, taking into account a variety of different types of lawn alternatives when looking at barriers to the conversion of lawns to a more sustainable alternative, and using Hyde Park as a case study.

Most of the literature on the history of lawns in America finds that examining the history of lawns is crucial in understanding the values that they carry today. Both Bormann et al. (2001) and Jenkins (1994) argue that that lawns were once merely a sign of wealth but over time became symbols of status, good citizenship, and what is morally correct. Jenkins highlights that that lawns have been marketed to people in the past by "appealing to a sense of status" (Jenkins 1994, 184), which is part of why this ideal is still so ingrained in the minds of many Americans. Furthermore, Bormann et al. emphasises that the historical values associated with lawns are also what is partly holding back the popularisation of more sustainable landscapes in residential yards.

The two books described above provide a helpful overview of the history of lawns in America, which is crucial to examine when analysing the modern values of lawns. The main issue is that the authors only discuss the negative impacts of lawns, and not all of the positive values that come with them. In my study, I want to include both the negative and positive effects of lawns so my readers can get a more complete picture.

There are several studies examining public perceptions of lawns compared to other green spaces that are relevant to my research. For example, Southon et al. (2017) finds that in Southern England the public prefers meadows over turf grass in parks and most people believe meadows improve site quality and appreciation. In contrast to this, Feagan et al. (1999) comes to the conclusion that lawns are still unquestionably seen as the appropriate form of private green space in the Niagara Region and other forms of green space are deemed out of place. Finally, the Poškus et al. paper (2015) finds that in Lithuania, residential properties with plain grass or sophisticated greenery are seen as having a higher value than more natural and chaotic-looking lawns. These findings are significant because they show that there is a possibility people might prefer more sustainable green spaces such as meadows to lawns from an aesthetic standpoint, but not when it comes to private lawns. This indicates that there could be cultural values surrounding private lawns and not public lawns that influence the way people value different types of private green spaces.

However, the issue with these studies is that they sample from very specific areas outside of the U.S., so their findings cannot be applied directly to the U.S.. This is especially so because cultural values likely play a big role in how the public perceives different types of green spaces. Because there are no recent studies examining the public perceptions of lawns compared to other green spaces in the U.S., the findings of my study will provide an insight into how different green spaces are aesthetically valued in the U.S.

There are also several studies that examine possible barriers to having a sustainable residential lawn. For one, Martini et al. (2012) find that homeowners in the U.S. in general lack crucial knowledge regarding the environmental issues of lawns and sustainable lawn management practices, which is a possible reason why many residential yards still remain environmentally unsustainable. Furthermore, Turley et al. (2020) investigate the barriers to

converting turf grass lawns to pollinator-friendly native wildflowers and find that the two main barriers were the maintenance time these alternative yards need and that they “did not know what to do” (Turley et al. 2020).

These findings are particularly interesting because they suggest that there is unawareness about both the negative impacts of lawns and sustainable alternatives to lawns. This could be a possible factor for why homeowners in Hyde Park are not converting their lawns to more sustainable green spaces. However, there are several gaps within the methods and results of these studies. First of all, both of these studies only utilise the results of people living in levels with average education levels. In contrast to this, I am choosing to study Hyde, Park, Chicago, an area that has a significantly higher than average level education as it is located right next to a university (CMAP 2021). If the population I am sampling from is highly educated, unawareness is likely to play less of a role in people’s front yard landscaping choices.

In addition, these two studies do not differentiate between front and back yards. This is important because these offer different uses and the results of these studies might have differed if the distinction was made. For my study, I will only focus on front yards because these are visible to other people passing by and are therefore commonly used as a display, so social values are more likely to be ranked of importance by homeowners.

Furthermore, the Turley et al. study chose to target its survey “towards an audience that is already interested in plants and pollinators and likely concerned about pollinator declines” (Turley et al. 2020). In my study I do not want to exclude any homeowners based on their interest in plants, because this way my results can be applied to all homeowners in Hyde Park and not just a very specific group of people.

Finally, the Turley et al. paper only looks at the barriers preventing people from getting native plant gardens. In my study I want to investigate the barriers preventing people from getting any kind of sustainable lawn alternative. Specifically, I also want to take into

account lawn alternatives that can offer the same practical values of lawns such as providing a space for activities, which native plant gardens cannot offer.

In conclusion, these studies show that there are certain social and aesthetic values of lawns and there is generally a significant amount of unawareness about the environmental issues of lawns and sustainable lawn alternatives, which could be a possible barrier to the conversion of lawns to a more sustainable alternative. However, these studies all have limitations and provide a gap in research I intend to fill. Among other things, my research will only focus on front yards, take into account a variety of different types of lawn alternatives when looking at barriers to the conversion of lawns to a more sustainable alternative, and use Hyde Park as a case study as it is unique in that it is significantly more educated than the average neighborhood.

Data and Methods

Introduction

The questions I will attempt to answer in my thesis are: what values attributed to front lawns are the most important to homeowners in Hyde Park? What are possible barriers homeowners face in converting their conventional turf lawns to a more sustainable alternative? In order to answer these I have created a survey intended for people that live in single-family houses with a front yard in Hyde Park. I have chosen to use Hyde Park as a case study because it is an area with a significantly higher education level than previous studies on this topic have chosen to study. According to Chicago Census Data, “more than 47 percent of Hyde Park residents age 25 and older have a graduate degree, by far the highest of any community area” (CMAP 2021). This is significant because if the neighborhood has a higher education level than others then this indicates there might also be a higher level of awareness about the environmental issues of lawns, which has previously been found to be a barrier to converting lawns to more sustainable alternatives

(Turley et al. 2020). I have chosen to conduct a case study in general because they are known in general to be useful for "exploring how actors see themselves and others, what values and interests they have, how they came to have them, and how they understand the choices they confront" (Lipson 2018). Seeing as I want to explore what values and interests people have when it comes to their front lawns, it seems fitting to conduct a focused study that can reveal these details.

Survey

For my methods I am partly drawing from an already existing survey from a study by Brenner et al. (2015), which looks at what values of lawns are ranked as most important among homeowners in the areas it examines (see in appendix). Just like in this study, I have created and distributed an opinion survey to a subset of the residents of single-family homes in Hyde Park. Mainly, the survey tests the importance of different values attributed to front lawns in Hyde Park, Chicago, based on the opinions of homeowners. More than this, it aims to see what possible barriers could be preventing people from converting their lawns to more sustainable alternatives.

Section 1 of my survey includes questions about what kinds of green spaces homeowners have in their yards and what kinds of lawn alternatives they have, if any. This will give me a good overview of how popular lawns are in Hyde Park and how wide-spread different types of lawn alternatives are. Below are the specific questions included:

Please mark with an X where your front lawn falls on the continuum.

All turfgrass Mostly turfgrass Half Turfgrass Almost no turfgrass No Turfgrass

If you have some type of alternative landscaping, what kind (Circle all that apply)

Bushes (non-native) Flowers (non-native) Stones Vegetables Native Plants Other __

Section 2 of the survey includes statements about different values attributed to front lawns which I ask the responders to rank by importance. All of the values I have chosen are based off of the values that the Brenner et al. study also examined in their survey. I have chosen to do this because the researchers in the Brenner et al.study likely conducted a significant amount of research on what the most common values attributed to lawns are before they published their study, as it is published online and accessible to the public. This means by using the same ones I guarantee that I include the most common values attributed to lawns without missing any important ones. Specifically, the values of lawns I include in my survey are: aesthetic values, social values (lawns as a status symbol, lawns as a sign of a good citizen, lawns to fit in with and uphold the image of a neighborhood), ease of maintenance of lawns, lawns as a means of connecting to nature, lawns as a space for activity. Similarly to in the Brenner et al. study, I included both statements where I ask people to rate to how important a statement is to them (importance questions) and also to what extent they agree with a statement (agreement questions). Below are the specific statements I include in my survey. I have color-coded the above list of values with the statements in the survey that mention these (this is not how the survey was presented to the responders, see appendix).

Please rate the following statements based upon your personal feelings using the following scale:

1- Very important 2- Fairly important 3- Important 4- Slightly important 5 - Not at all Important

How important is it that my lawn…

1. *Is well-maintained? 1 2 3 4 5*
2. *Is aesthetically pleasing? 1 2 3 4 5*
3. *Makes my neighborhood more attractive? 1 2 3 4 5*
4. *Helps my house fit in with the block or neighborhood? 1 2 3 4 5*
5. *Can be used for outdoor activities such as children or pets playing? 1 2 3 4 5*
6. *Earns the respect, or even the admiration, of my neighbors? 1 2 3 4 5*

7. *Makes me feel like a responsible member of my community? 1 2 3 4 5*
8. *Makes me feel more connected to the natural world? 1 2 3 4 5*
9. *Requires few energy inputs, such as fuel for running a lawnmower or making fertilizer? 1 2 3 4 5*

10. What other purposes or values might you ascribe to your lawn?

_____

11. My front lawn serves as a display of my wealth

Agree Somewhat Agree Neither Agree nor Disagree Somewhat Disagree Disagree

12. The state of my lawn is reflective of my success and achievements

Agree Somewhat Agree Neither Agree nor Disagree Somewhat Disagree Disagree

13. Having a well-maintained lawn makes me a good citizen

Agree Somewhat Agree Neither Agree nor Disagree Somewhat Disagree Disagree

In addition, I include some statements in my survey that can help me understand how much awareness there is in Hyde Park about the environmental issues of lawns and what some possible barriers to lawn-conversion could be (as seen below).

14. Turf grass and the maintenance it requires does not have any bad impacts on the environment

Agree Somewhat Agree Neither Agree nor Disagree Somewhat Disagree Disagree

15. I would consider an alternative lawn if it was better for the environment

Agree Somewhat Agree Neither Agree nor Disagree Somewhat Disagree Disagree

16. I would consider an alternative lawn if my neighbors all converted their lawns first

Agree Somewhat Agree Neither Agree nor Disagree Somewhat Disagree Disagree

17. I would consider an alternative lawn if it required no time and effort

Agree Somewhat Agree Neither Agree nor Disagree Somewhat Disagree Disagree

More specifically, the results of statement number 16 will give me an idea of how much awareness there is among my responders about the negative effects of lawns. If more people agree than disagree with this false statement, then the level of awareness is most likely not very high.

In the last part of my survey I ask the responders to rate several images by how aesthetically pleasing they find them (on a scale from 1-5). I include an image of a thyme garden, a traditional turf grass lawn, a native plant lawn, a fescue grass lawn, and a clover lawn. By doing this I will be able to gain an idea of which types of lawns homeowners find the most aesthetically pleasing and if they might find lawn alternatives more aesthetically pleasing than a traditional turf grass front yard.

Data Visualization

In the Brenner et al. study, which informs my own method, the results of each statement in the opinion survey are evaluated individually. Similarly, I will do this by creating summary graphs to show the percentage of people who chose which option for every statement. More specifically, for importance statements I will create bar graphs to show the distribution of responses and for the agreement questions I will use pie charts to show the percentages for each category, as I deemed these as the most effective ways to summarise the two types of questions. In addition, I will determine what percentage of people ranked each of the importance statements as very important and as not at all important, which will give me an idea of which values are the most and least important to homeowners. On top of this, I will evaluate for which of the importance questions the

largest amount of people were of the most extreme opinions. In other words, I will calculate for which statement the largest amount of people chose “very important” and “not at all important”.

Furthermore, I will determine the percentage of people who agreed and disagreed (to some extent) to the agreement questions so I can draw a conclusion about which statements the majority of homeowners agreed or disagreed the most with. I will also calculate which statements had the highest percentage of people choosing the neutral option in order to find out which statements the responders have the most and least strong opinions about.

Response Collection

I collected survey responses by posting in the “Hyde Park Classics” Facebook group and the “Good Neighbors” email group. I chose these groups because they are the largest online groups of people living in Hyde Park and they includes a wide variety of different homeowners ranging from students to people who have lived in Hyde Park for over 30 years. Below is the exact text that I used to inform people about this survey in these groups:

Hi everyone! I’m a senior at the University of Chicago and I’m currently writing my thesis on the different values of lawns in Hyde Park and what barriers might be preventing people from converting their lawns to more sustainable alternatives. Specifically, I am focusing on the front yards of Hyde Park. If you live in a single family house in Hyde Park with a front yard, I would appreciate it so much if could take a couple minutes to respond to my survey.

Thank you so much!! By responding to this survey, you consent to your responses being recorded by me. However, no personal information will be collected and the individual responses will not be made public. Also, if you want to know more about my research, feel free to email me at fbick@uchicago.edu.

However, there are some limitations to my data collection and analysis methods. For one, my results might be biased because I am limiting the type of people who respond to

my survey by only posting in online neighborhood groups. There might be people who do not own electronics, do not have an internet connection, or simply are not a part of the groups that I sent my survey to. Additionally, the response collection was small, with n=51, so the results are unlikely to be representative of the true population. Furthermore, my results about the different values of homeowner's laws might be influenced by a variety of factors that I cannot account for. For example, the size and location of the house and the front yard make a big difference in how people view their lawn, but for privacy and security reasons I did not ask the survey responders to list their address so I could not account for these things.

Finally, in the last part of the survey where the level of aesthetic appeal in different images is evaluated, it is hard to draw a conclusion about if homeowners prefer lawn alternatives to turf grass aesthetically because I do not include all of the lawn alternatives and the quality or angle of the image and the elements surrounding the front yard might also make a difference.

Results and Analysis

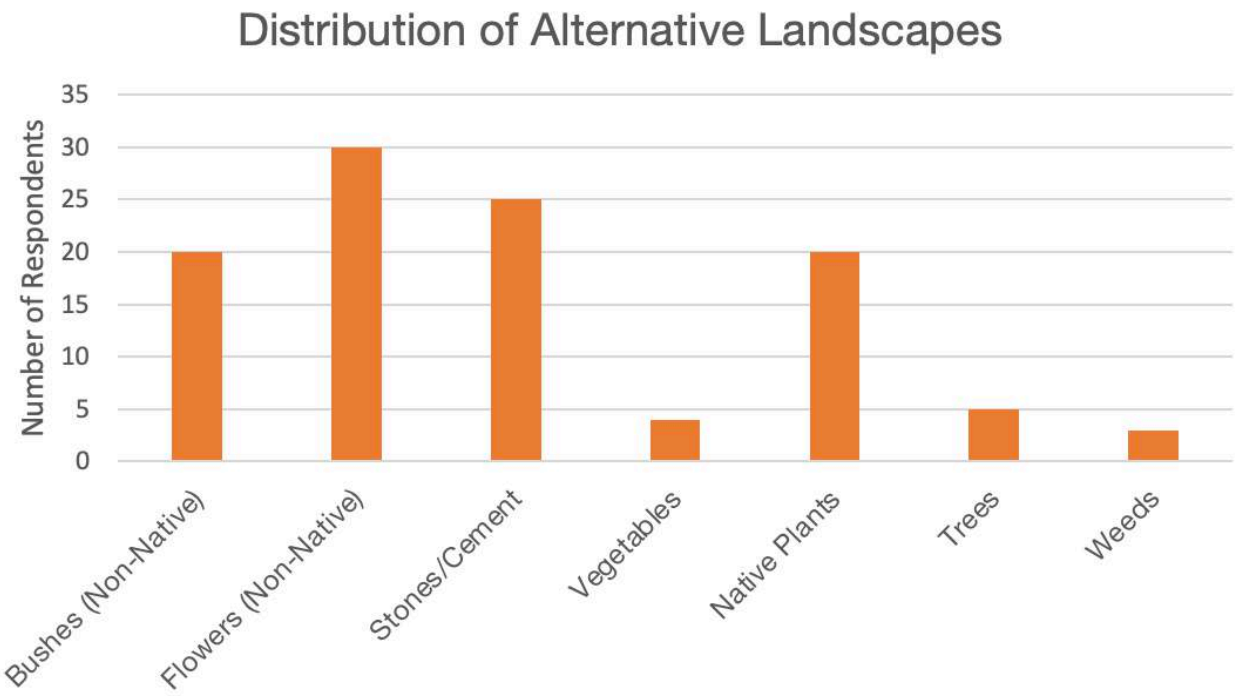
My results show that the values of lawns the survey responders ranked as the most important, are that lawns offer a space for activities and that they require few energy inputs. These values are also offered by many lawn alternatives. Furthermore, there was a high level of awareness about the environmental issues of lawns, and the majority of responders even had some portion of a sustainable lawn alternative in their front yard, which indicates there is awareness about these as well. However, though respondents ranked "space for activity" and "require few energy inputs" as highly valuable, there were not the traits of lawn alternatives they already had. As a result of this, I argue that people in Hyde Park lack awareness about sustainable lawn alternatives that can offer the same

values as lawns and this is a possible reason why many have not converted their lawns yet.

In this section, I will summarise the results of my survey in two parts, the first being the results of the questions about front yard maintenance choices, and the second part being the results of the questions about certain values of lawns. I will then discuss and analyse the significance of these results and attempt to draw conclusions from them.

Section A: Current Green Spaces of Respondents

51 people responded to my survey in total, and about 70% of responders had some amount of turf grass in their front yards. Moreover, 92% of responders said they had some amount of alternative landscaping. As section 2 and 3 of the survey were only meant for people who own some amount of lawn in their back yard, these sections only have 36 responses. Below is a distribution of how many people had what kind of lawn alternative.



As one can see, a large amount of responders had various types of lawn alternatives in their front yard. One of the most widely distributed lawn alternative was native plants,

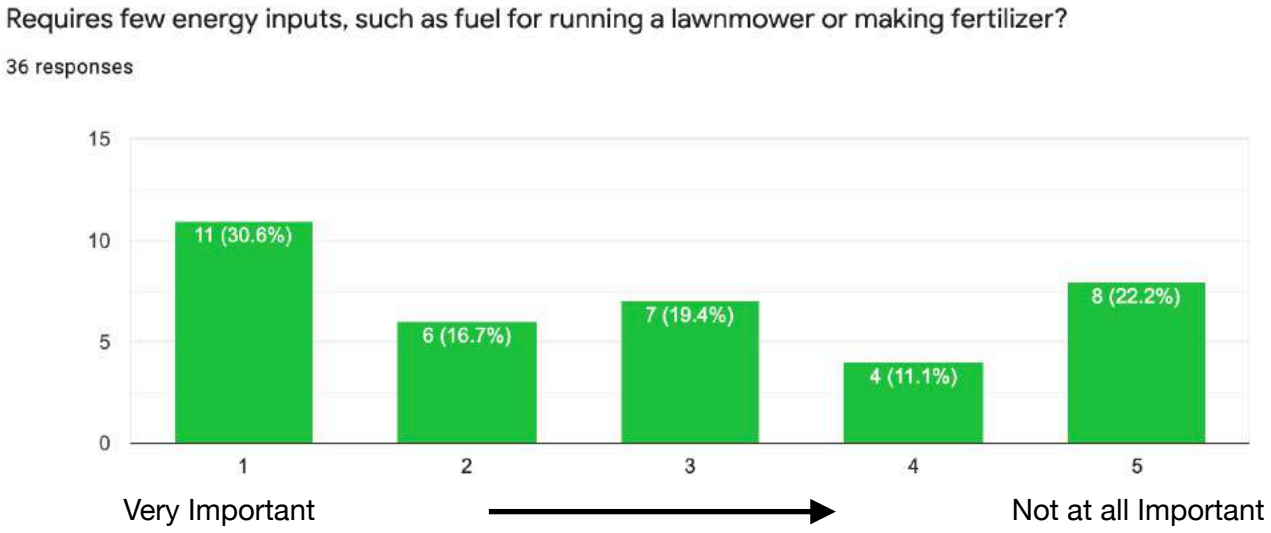
which I explained to be a sustainable lawn alternative in my background section of this paper. This indicates that there is likely already a certain level of awareness about certain sustainable lawn alternatives in the neighborhood.

Section B: Importance Questions

In section two of my survey, I asked people how important certain values attributed to lawns were to them, based on the following scale:

1- Very important 2- Fairly important 3- Important 4- Slightly important 5 - Not at all Important

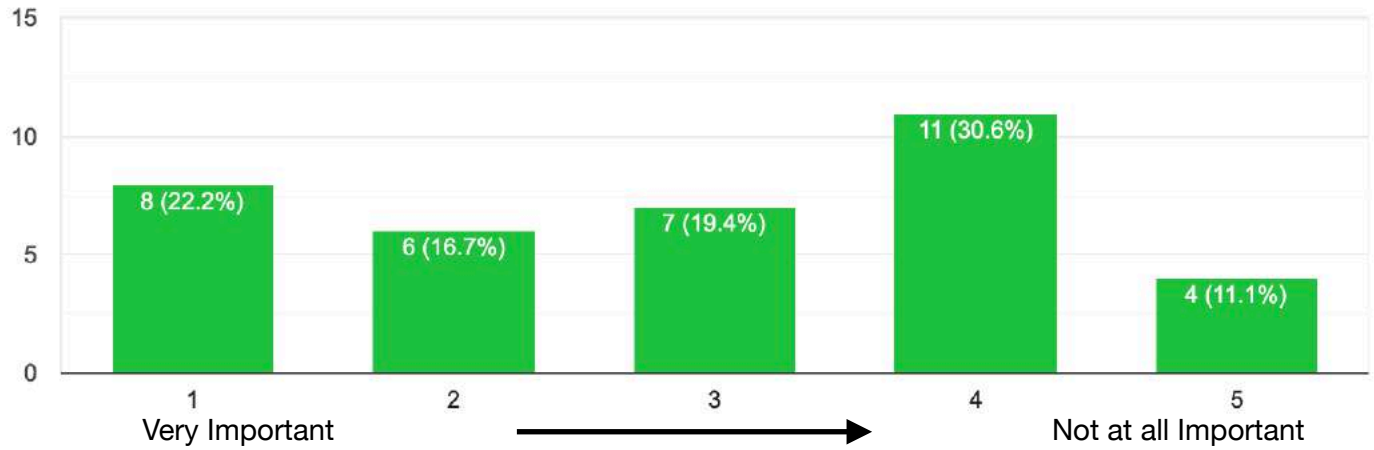
Below is a summary of my results from that section. Underneath the summary graph for each statement I have included the percentage of people who ranked each of the importance statements as “very important” and as “not at all important”, which will give me an idea of which values are the most and least important to homeowners. In addition, I include the total percentage of people who chose either the “very important” or the “not at all important” question, so I can later determine which statements the survey responders responded to the most strongly. This will help me get a more complete picture of which values homeowners see as the most or least important.



Percentage of people who said very important: 30.6
Percentage of people who said not at all important: 22.2
Percentages of both combined: 52.8

Makes my neighbourhood more attractive?

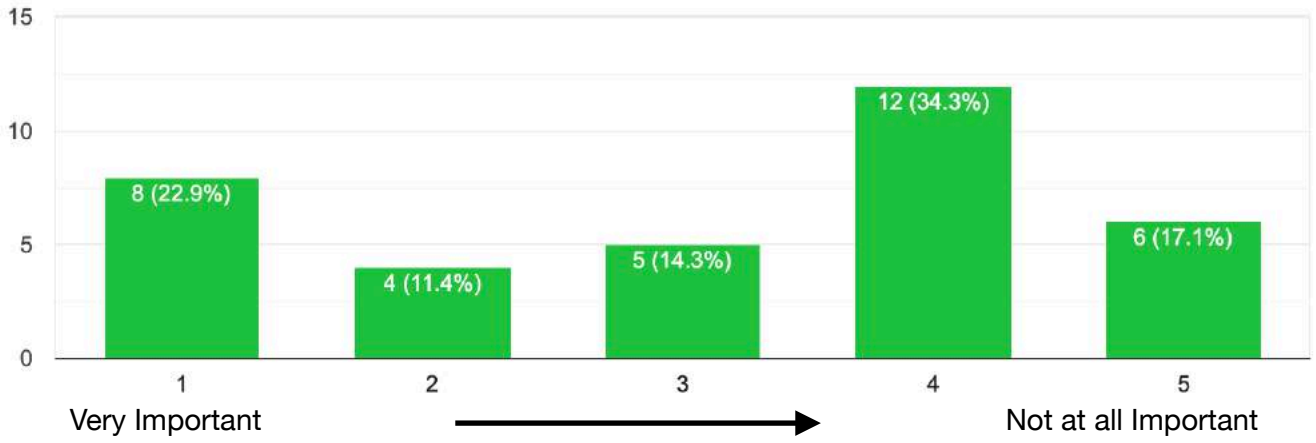
36 responses



Percentage of people who said very important: 22.2
Percentage of people who said not at all important: 11.1
Percentages combined: 33.3

Is aesthetically pleasing?

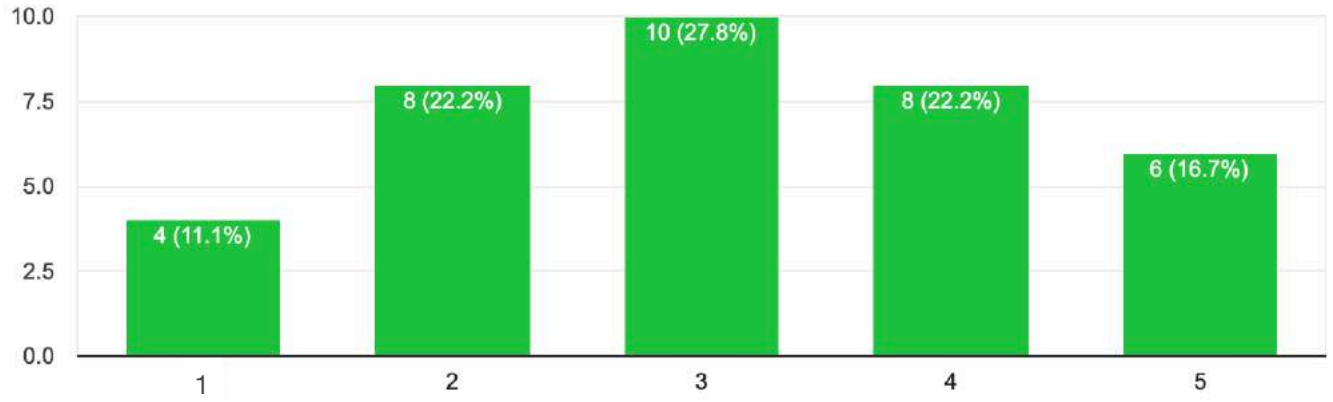
35 responses



Percentage of people who said very important: 22.9
Percentage of people who said not at all important: 17.1
Percentages combined: 40

Helps my house fit in with the block or neighborhood?

36 responses

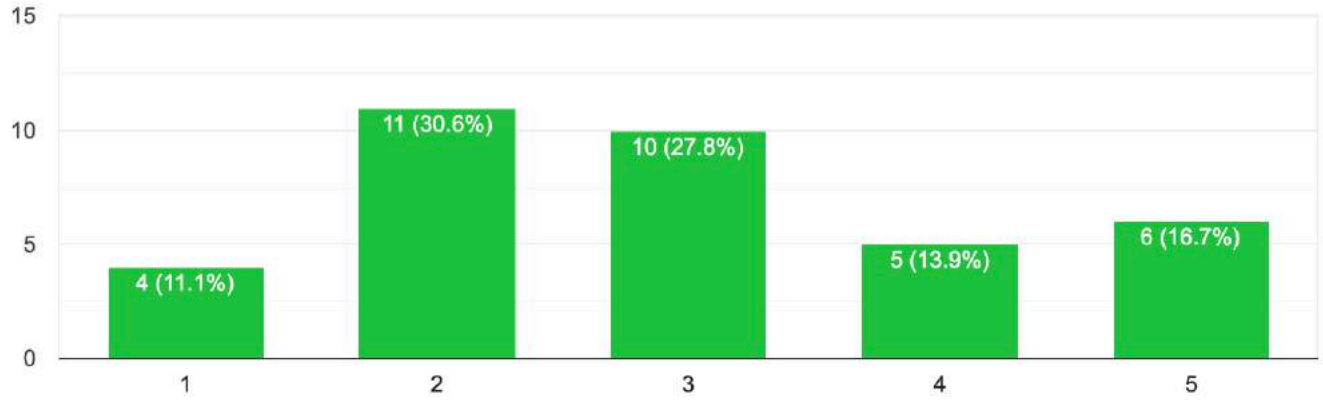


Very Important → Not at all Important

Percentage of people who said very important: 11.1
Percentage of people who said not at all important: 16.7
Percentages combined: 27.8

Earns the respect, or even the admiration, of my neighbors?

36 responses

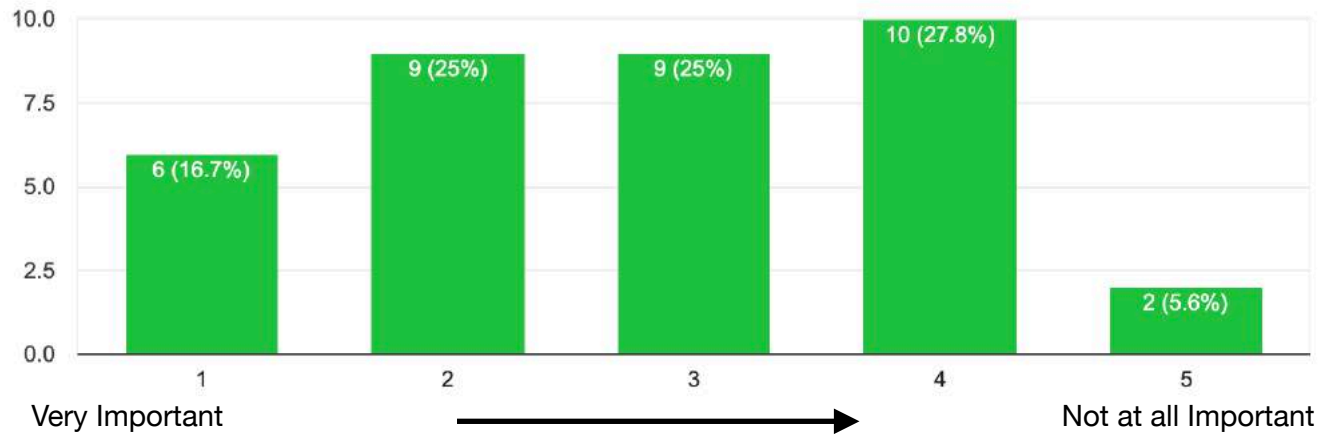


Very Important → Not at all Important

Percentage of people who said very important: 11.1
Percentage of people who said not at all important: 16.7
Percentages combined: 27.8

Makes me feel like a responsible member of my community?

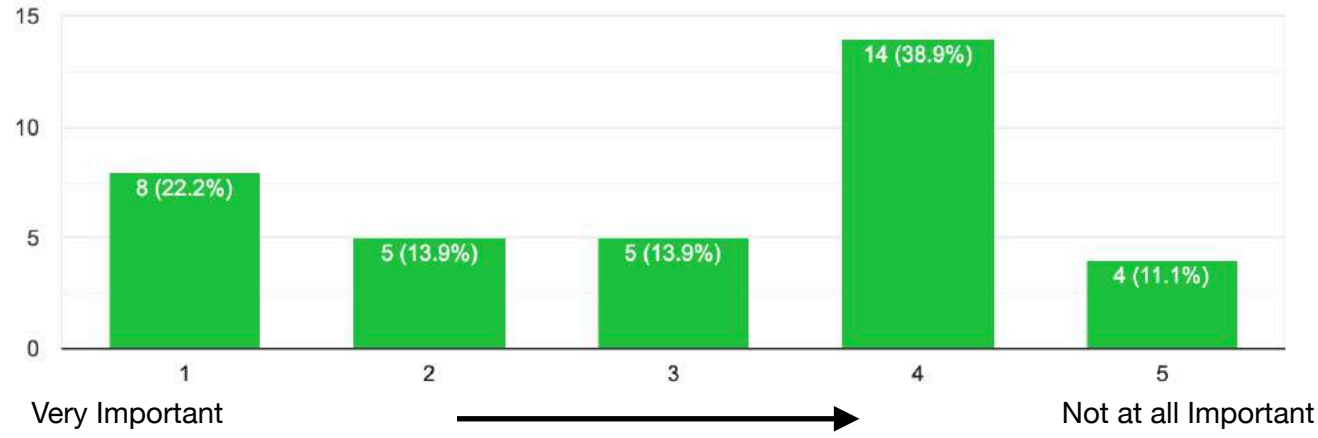
36 responses



Percentage of people who said very important: 16.7
Percentage of people who said not at all important: 5.6
Percentages combined: 22.3

Is well-maintained?

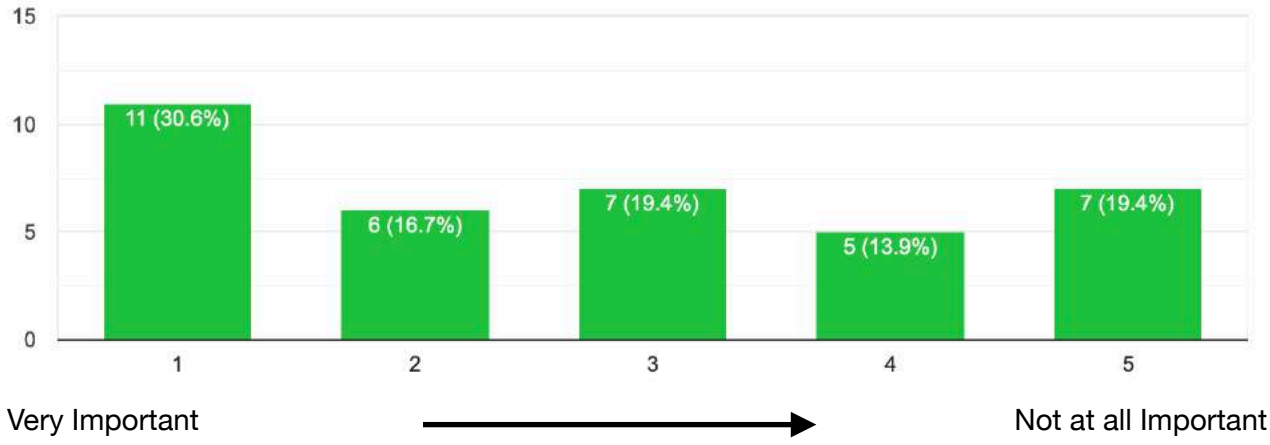
36 responses



Percentage of people who said very important: 22.2
Percentage of people who said not at all important: 11.1
Percentages combined: 33.3

Can be used for outdoor activities such as children or pets playing?

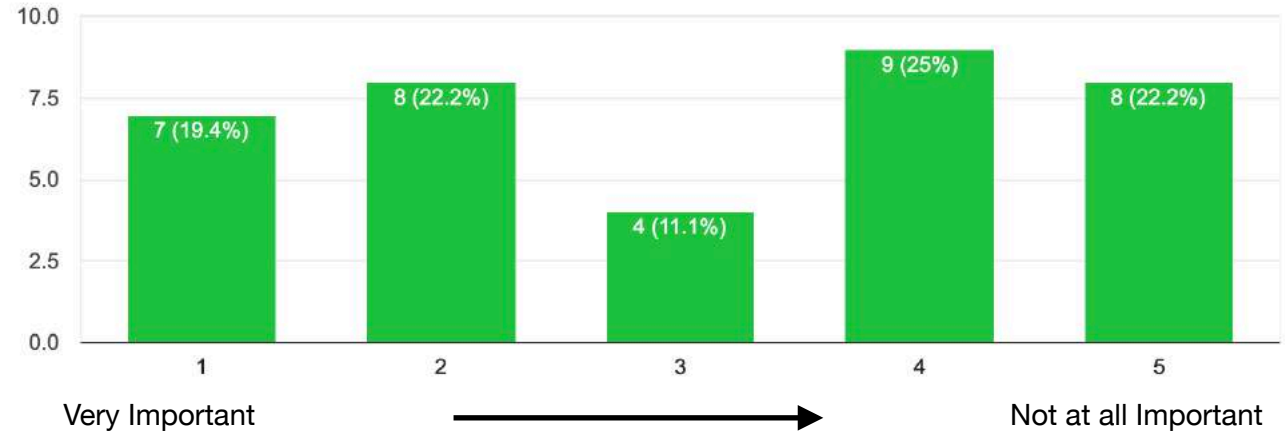
36 responses



Percentage of people who said very important: 30.6
Percentage of people who said not at all important: 19.4
Percentages combined: 50

Makes me feel more connected to the natural world?

36 responses



Percentage of people who said very important: 19.4
Percentage of people who said not at all important: 22.2
Percentages combined: 41.6

In summary, the statements where the most amount of people said “very important” were that *lawns can be used for outdoor activities* and that *lawns require few energy inputs*. This is a crucial finding as it demonstrates clearly what the survey responders value in lawns. In addition, the statements where the largest amount of people said not at all important were that *lawns make you feel connected to the natural world* and that *lawns require few energy inputs*. Finally, the statements where people had the strongest opinions were that *lawns require few energy inputs* and that *lawns can be used for outdoor activities*. It is also important to note that in these two statements more people said “very important” than “not at all important”, so one could stay the strong opinions for these statements leaned more to the positive than the negative side. From these results I conclude that the values that homeowners in Hyde Park value the most in front lawns, out of the ones I include in my survey, are that they provide a space for activities and require few energy inputs. Some other values of lawns that responders listed in the free answer section that I did not include in my survey are:

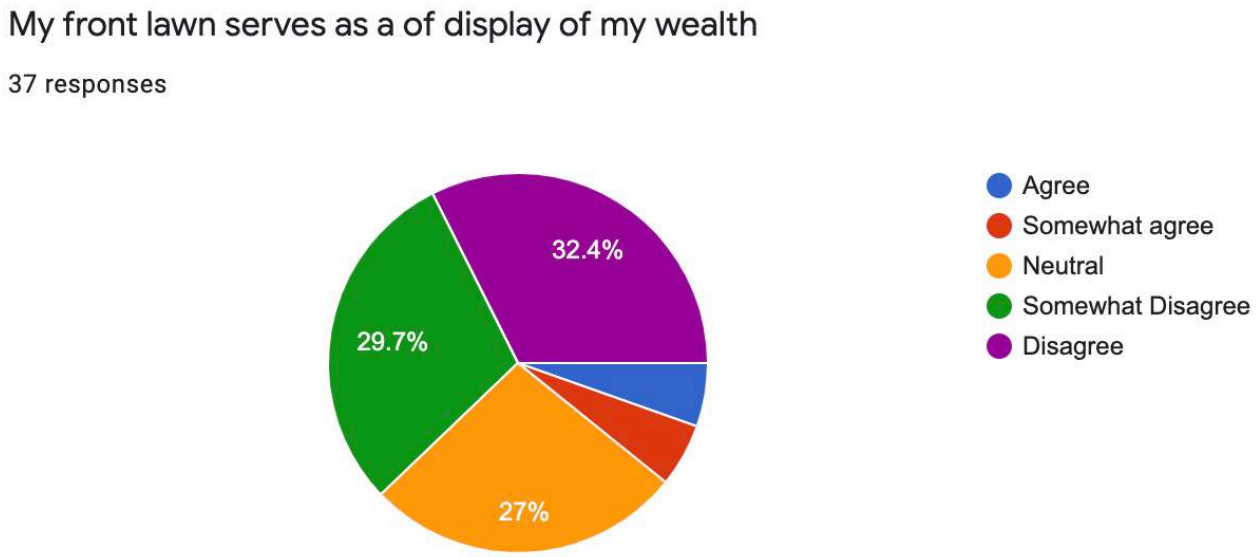
- *they provide a habitat for animals*
- *they are relaxing, help with stress relief and act as a sort of mental therapy*
- *they can help with exercise*
- *they can provide food*
- *they smell nice*
- *they keeps the house cooler*
- *they are something nice for passers by to look at*
- *they are historically relevant*

Most of these front lawn values were represented only once (each by a different individual) except that lawns are relaxing and help with stress, which was mentioned by three separate people. This shows that front lawns as a source of relaxation and stress relief is likely to also be something homeowners in Hyde Park value, although it is hard to tell how important it is to homeowners exactly because I did not include it in any of the statements in my survey. In addition, there is a possibility that the question I asked in the

survey about what other values people attribute to lawns was misunderstood by some people. There is, for example, little evidence that lawns provide habitat for animals and provide food, so some people might have thought the question was about yards in general and not lawns.

Section C: Agreement Questions

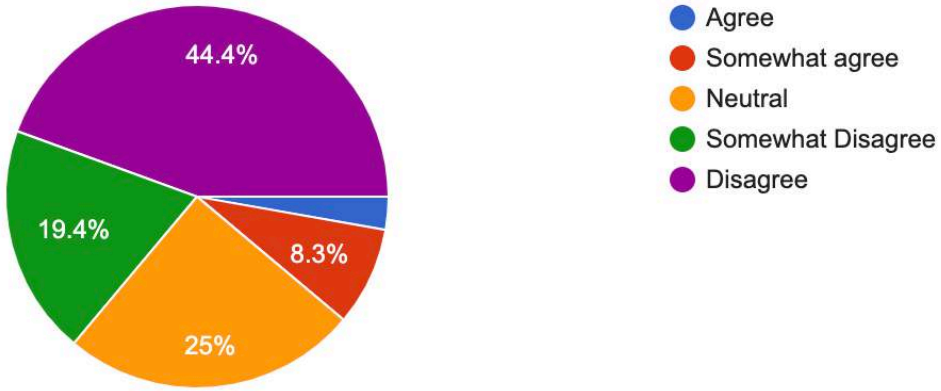
In this next set of questions the responders were asked to rank how much they agree with each statement. They could choose between “agree”, “somewhat agree”, “neutral”, “somewhat disagree", and “disagree”. Below is a summary of the rankings of these statements in the form of pie charts. Underneath each of the pie charts I have also included the amount of people who said they agree and disagree (to some extent), and how many people said neutral for each statement. This will help me figure out for which statements people in general agreed or disagreed, and also which statements people had the strongest and weakest opinions on.



Percentage of people who agree (to some extent): 10.8
Percentage of who disagree (to some extent): 62.1
Percentage of people who said neutral: 27

The state of my lawn is reflective of my success and achievements

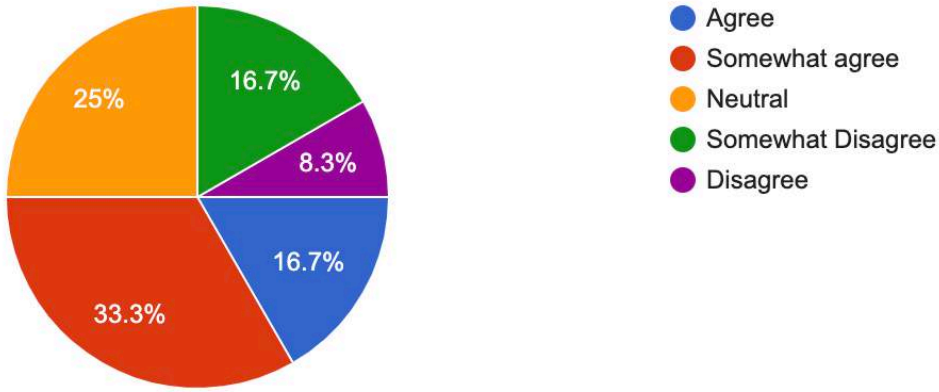
36 responses



Percentage of people who agree (to some extent): 2.8
Percentage of who disagree (to some extent): 63.8
Percentage of people who said neutral: 25

Having a well-maintained lawn makes me a good citizen

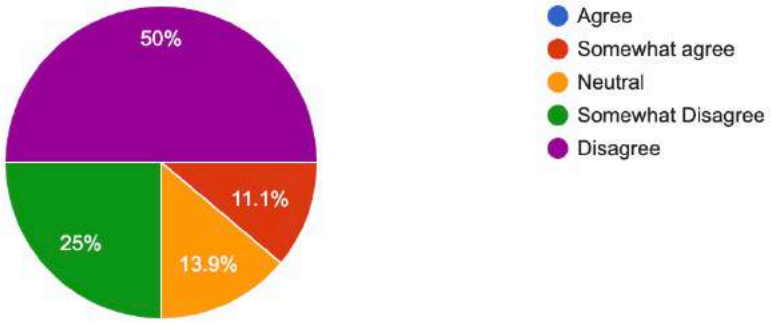
36 responses



Percentage of people who agree (to some extent): 50
Percentage of who disagree (to some extent): 25
Percentage of people who said neutral: 25

Turf grass and the maintenance it requires do not have any bad impacts on the environment

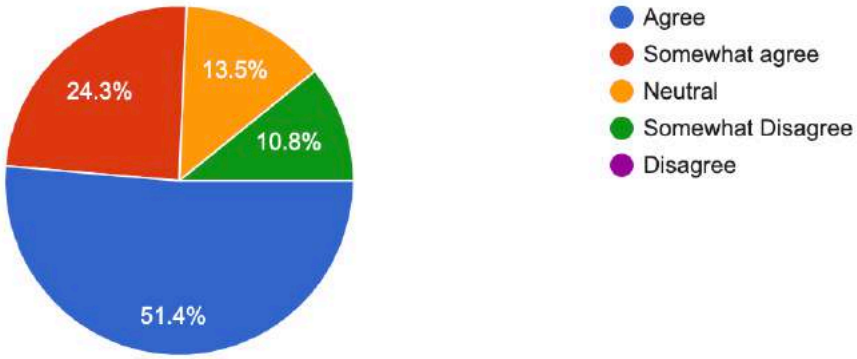
36 responses



Percentage of people who agree (to some extent): 11.1
Percentage of who disagree (to some extent): 75
Percentage of people who said neutral: 13.9

I would consider an alternative lawn if it was better for the environment

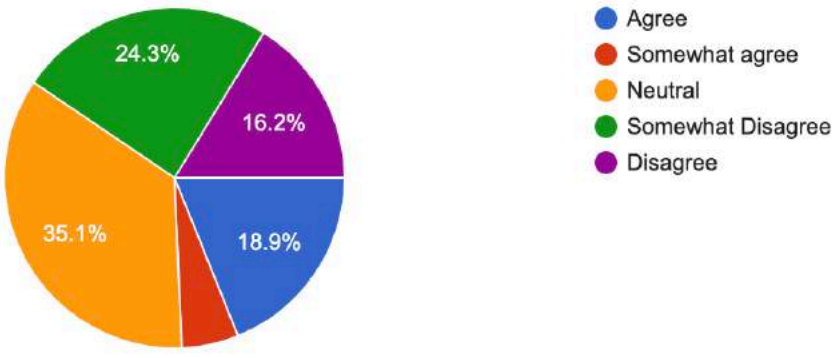
37 responses



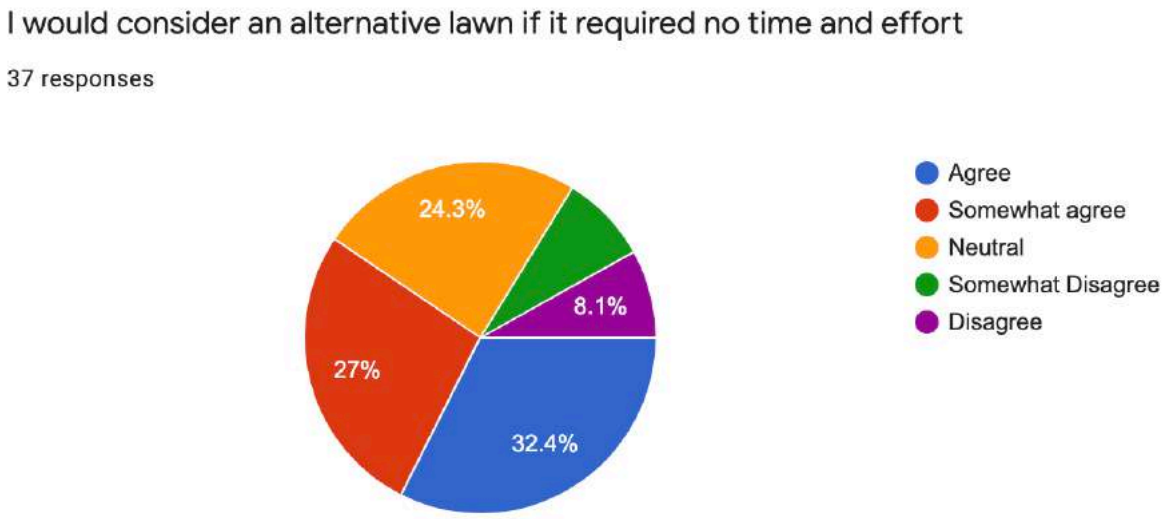
Percentage of people who agree (to some extent): 75.7
Percentage of who disagree (to some extent): 10.8
Percentage of people who said neutral: 13.5

I would consider an alternative lawn if my neighbors all converted their lawns first

37 responses



Percentage of people who agree (to some extent): 24.3
Percentage of who disagree (to some extent): 40.5
Percentage of people who said neutral: 35.1



Percentage of people who agree (to some extent): 59.4
Percentage of who disagree (to some extent): 16.2
Percentage of people who said neutral: 24.3

In summary, the statement the most people agreed with to some extent was *I would consider an alternative lawn if it was better for the environment*, and the statement most people disagreed with was that *lawns have no negative impacts on the environment*. In addition, the statement people had the strongest opinion on was these same two statements. This indicates that homeowners in Hyde Park are very willing to install a sustainable alternative lawn space and there is a lot of awareness about the negative impacts of lawns in the neighborhood.

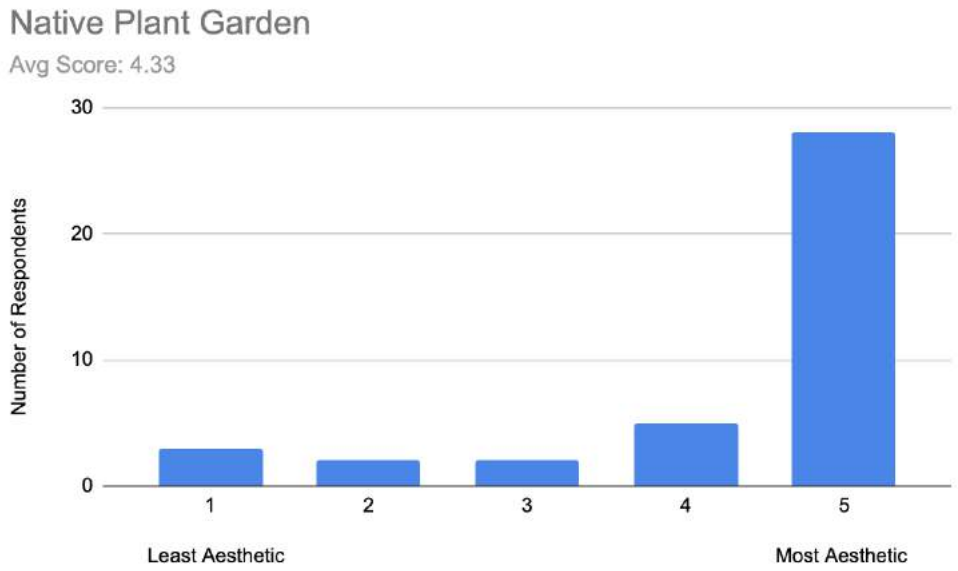
On top of this, it is important to note that the survey responders heavily disagreed with most of the statements about certain social values of lawns. However, one statement that the majority of responders agreed with (50% compared to 25% who disagreed) was that *having a well-maintained lawn makes you a good citizen*. However, it is hard to say if the survey responders would had a similar response if the question were about a well-maintained yard (instead of a lawn) makes you a good citizen. That is, they might just believe that having a yard that looks well taken care of makes you a good citizen, not

necessarily owning a lawn specifically. Generally, these results show that, in this sample, social values of lawns are not likely to be a barrier to converting lawns to more sustainable green spaces.

Finally, the fact that the majority of people agreed with the statement that *they would consider an alternative lawn if it required no work and effort* indicates that a possible barrier to people converting their lawns could be the effort it takes. Getting rid of an existing lawn and establishing an entirely new one can take a substantial amount of time, and many people might not have the time or motivation to do so. However, the fact that so many people in Hyde Park have already put in this effort and established a type of sustainable lawn alternative in their yards, and many of them have even established a native plant lawn which is one of the most time consuming alternatives to establish, shows that this is not likely to be that significant of a barrier.

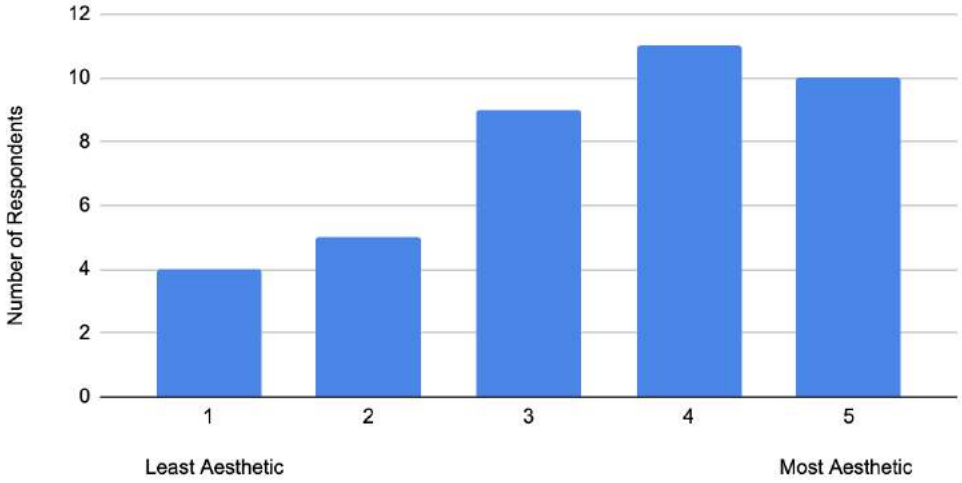
Section D: Aesthetics

In the final few questions of the survey, I asked people to rank images of front yards on how aesthetically pleasing they found them from 1-5, where 5 is the most aesthetically pleasing. No text was included, only the images (see in appendix). Below are graphs summarising the results for each front yard shown in the survey (ordered from highest to lowest average score).



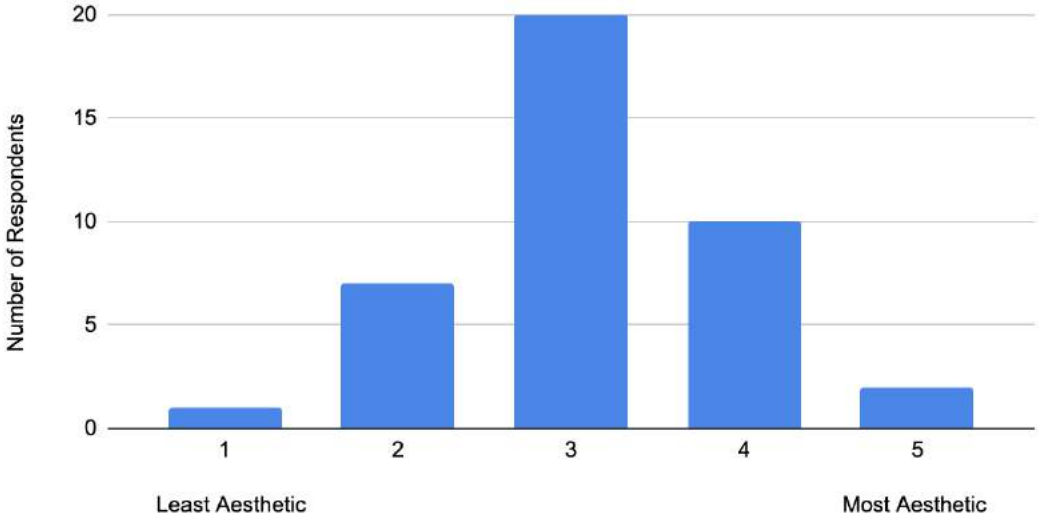
Thyme Garden

Avg Score: 3.46



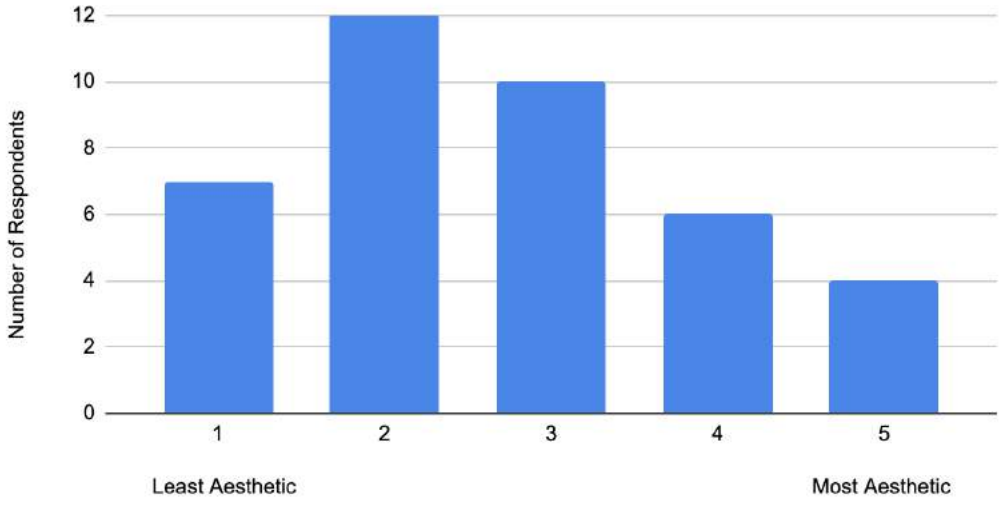
Clover Lawn

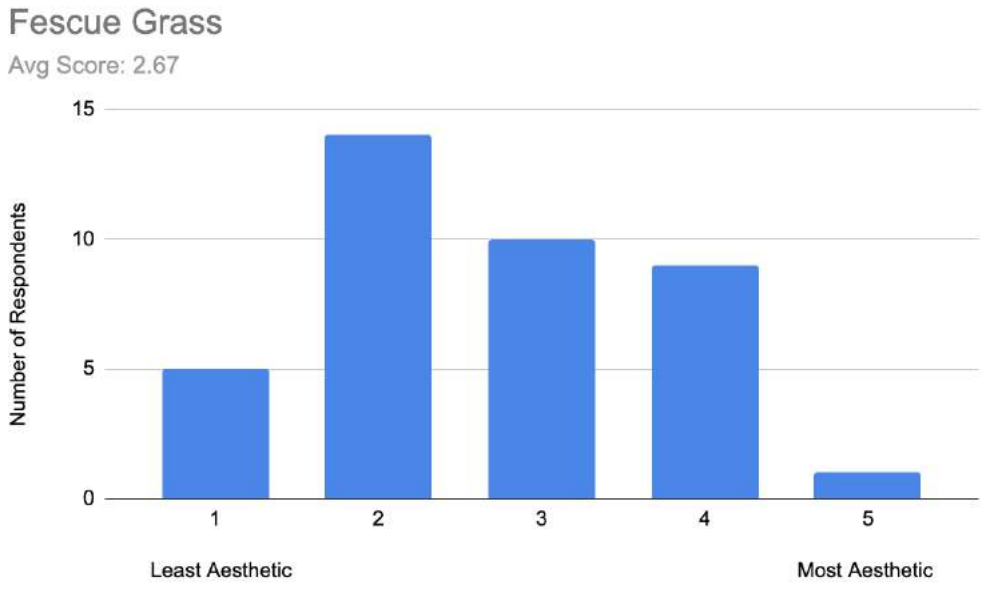
Avg Score: 3.13



Turf Grass

Avg Score: 2.69





In summary, the native plant garden was ranked as most aesthetically pleasing, while fescue grass was ranked least aesthetically pleasing, based on their average score. Moreover, the results show that most of the sustainable lawn alternatives I presented to the responders were ranked as more aesthetically pleasing than traditional turf grass. It is interesting that native plants were ranked as the highest as this is also the lawn alternative that is the most wide-spread in Hyde Park according to my results.

However, it is important to note that for the turf grass image, 29 out of 41 people ranked it a 5, which is a much higher number than for the other images. In contrast to this, the second highest number of 5's was given to the native plant garden, but it was only 11 people. Nevertheless, from these results one can say that aesthetic values of lawns are not likely a large barrier to converting lawns to more sustainable alternatives. However, one could say that aesthetics are a barrier when it comes to replacing a lawn with fescue grass, as this lawn alternative requires little maintenance and can be used for activities just like lawns can, but was ranked as visually the lowest.

Summary of Results

My results show that the values homeowners ranked as the most important were that lawns provide a space for activity and that they require few energy inputs. In contrast, to this, the social values that are often attributed to lawns as a result of their history were ranked as very unimportant by Hyde Park homeowners. Lawns were ranked as less aesthetically pleasing than most sustainable lawn alternatives I included in the survey. In addition, there is significant awareness on the environmental issues of lawns and also some sustainable lawn alternatives already implemented.

However, the fact that none of the homeowners indicated that they had a type of sustainable lawn alternative that provides a space for activity and requires as little or even less energy inputs than laws indicates that there is still a large amount of unawareness about these specific alternatives. As I show earlier in my background section, there are a variety of sustainable lawn alternative such as micro clover, fescue grass, and moss that allow for a large amount of foot traffic just like turf grass does, which means they allow for activities. They also require a much smaller amount of energy inputs. As a result of this, I argue that, while the social and aesthetic values of lawns that only apply to lawns are less likely to be a barrier to converting lawns to more sustainable alternatives, unawareness about certain types of sustainable lawn alternatives, especially the ones that offer the same values Hyde Parkers value the most in their lawns, could be holding people back from converting their lawns to more sustainable alternatives. If more awareness was spread about the lesser known types of sustainable lawn alternatives, for example in the Facebook or Email group I posted in, more people in Hyde Park would likely convert their lawns.

Limitations

My research has many limitations. First of all, it is hard to draw concrete conclusions from my data about the people of Hyde Park because my survey responders are such a small sample size of Hyde Park and only people who are part of the Hyde Park Classics Facebook group and the Good Neighbours email group were able to even access my survey. Furthermore, there are many factors that I could have accounted for in my survey to make the results more accurate (for example age of responders, education level, size of lawn and property), but this was all information I could not get access to. In addition, there are also likely other values of lawns that are important to homeowners in Hyde Park and other barriers to lawn-conversion that I did not mention in my survey, so while barriers and values noted here were most commonly surveyed, they are not the only important ones. For example, in further research I would ask about other possible barriers to converting lawns such as the perception of undesirable wildlife that sustainable lawn alternatives may attract (e.g. bees), and also about some less obvious values of lawns such as the mental health benefits.

Additionally, it is hard to make a substantial claim about which green spaces people in Hyde Park prefer by just asking them to rank images of them, because the quality of the image and the surroundings of the yard are likely to play a role in the ranking of aesthetics.

Conclusion

The results of my study show that unawareness is likely still a barrier to converting turfgrass lawns to more sustainable alternatives even in a highly educated neighborhood. Even though a large percentage of my survey responders said they had some form of a lawn alternative in their front yard, none of these were the types of alternatives that offer the values that the lawn-owners valued the most. What the lawn-owners valued the most

in their lawns was that they offer a space for activities and require low energy inputs. However, lawn alternatives like clover and fescue grass also provide a space for activities and even require a significantly lower amount of energy inputs. The majority of lawn-owners were willing to convert their yard if this would be better for the environment, which indicates that if there was more awareness about sustainable lawn alternatives in Hyde Park, specifically the ones that offer the same values that lawns do, more homeowners might possibly convert their lawns.

Nonetheless, it is important to note that there was not a complete consensus about which values people preferred the most in lawns, so different types of lawn alternatives will be the most beneficial for different people. For example, some people placed more importance on their yard making them feel more connected to nature than it providing a space for activities, so native plants might be a better fit for them than something like fescue grass, as native plants invite more nature into a yard.

My results are in line with the results of similar studies in the sense that a common barrier preventing yards from being sustainable and environmentally friendly seems to be unawareness. For example, Turley et al. finds that one of the largest barriers preventing homeowners from establishing a native plant garden in their yard is that they “do not know what to do” (Turley et al. 2020). My study shows that it is likely that this factor is not just a barrier when it comes to establishing a native plant garden in place of a lawn, but also a variety of other sustainable lawn alternatives.

Moreover, my study shows that many people still own lawns because they offer a space for activity and not all lawn alternatives can provide this, so it is important to specify that awareness in general is not enough to motivate people to convert their yards but awareness specifically about sustainable lawn alternatives that provide the same benefits as lawns is crucial.

However, my study also has many limits. Because I received such a small amount of survey responses and only posted my survey on online platforms that not everyone has access to, my results cannot be applied to all homeowners of Hyde Park, let alone other neighborhoods in the United States. In addition, even though my results answer my research question of what homeowners value the most in their lawns well, they only highlight one possible reason for why lawn-owners are not converting their lawns. My survey was not extensive enough to get a full picture of what barriers there might be. The issue is that the barriers most likely also vary from person to person and are dependent on someone's background and morals. This is why we cannot say for sure that homeowners in Hyde Park would convert their lawns if they were more aware of lawn alternatives, but nonetheless spreading awareness would still likely help us move towards more sustainable lawns.

Despite my studies limitations, the results can be used to inform policy decisions about front yards and sustainability and guide initiatives to spread awareness about sustainable lawn alternatives. For example, my results point towards the fact that reforming policies restricting the establishment of sustainable landscaping in front yards could potentially have a positive impact on local environments. In addition, as I received a lot of engagement on my facebook post and email chain about my survey, I suspect that posting information about lawn alternatives on these platforms would be a great start to encouraging more people in Hyde Park to convert their lawns. On top of this, it would be helpful if stores that sell plants for front yards or lawn service providers would sell the lawn alternatives that the homeowners of Hyde Park were not as aware of. Or, if they already do, then they could start marketing these specifically as more sustainable lawn alternatives with the same benefits as lawns.

Further research is needed to understand all of the different reasons why lawn-owners choose not to convert their lawns to a more sustainable ground cover, especially when it

comes to the underlying social values of lawns and how these play into everything. In addition, there has been little to no research about public lawns and why they remain so popular even though lawn alternatives are also available. It would, for example, be interesting to see to what extent unawareness plays a role here as well or if the barriers differ significantly.

My study and other similar studies serve as an important step to re-inventing residential lawns; now it is time to figure out ways to spread awareness and start making sustainable lawn alternatives the norm.

Bibliography

Ayoub, Ali T. “Fertilizers and the Environment.” *Nutrient Cycling in Agroecosystems* 55, no. 2 (October 1, 1999): 117–21. https://doi.org/10.1023/A:1009808118692.#

Banks, Jamie L., McConnell, Robert. “National Emissions from Lawn and Garden Equipment.” (September 2018). https://www.epa.gov/sites/default/files/2015-09/documents/banks.pdf

Block Club Chicago. “The City Slapped A Native Plant Gardener With A $600 Fine, But He Fought Back — And Won,” March 9, 2020. https://blockclubchicago.org/2020/03/09/the-city-slapped-a-native-plant-gardener-with-a-600-fine-but-he-fought-back-and-won/.

Bormann, Herbert, Balmori, Diana, Geballe, Godron T. *Redesigning the American Lawn: A Search for Environmental Harmony.* Yale University Press, 2001.

Bremer, Dale J., Steven J. Keeley, and Abigail Jager. “Effects of Home Value, Home Age, and Lot Size on Lawn-Watering Perceptions and Behaviors of Residential Homeowners.”

Brenner, Lara, Claire McFadden, and Hannah Joy Wirshing. “Examining Our Cultural Commitment to an Energy-Intensive Institution,” n.d., 62. https://d31kydh6n6r5j5.cloudfront.net/uploads/sites/75/2019/05/BrennerMcFaddenWirshing.pdf

Chicago. “Weeds – Penalty for Violation – Abatement – Lien.” Accessed December 5, 2021. https://chicagocode.org/7-28-120/.

City of Chicago. “Sustainable Backyards Program: NATIVE PLANTS.” 2010. https://www.chicago.gov/dam/city/depts/cdot/SustainableBackyards/NativePlantsRebate_English811.pdf

Cousins, S. R., and E. T. F. Witkowski. “Indigenous Plants: Key Role Players in Community Horticulture Initiatives.” *Human Ecology Review* 21, no. 1 (2015): 59–86. http://www.jstor.org/stable/24875120.

CMAP. “Hyde Park Community Data Snapshot.” Accessed May 9, 2022. https://www.cmap.illinois.gov/documents/10180/126764/Hyde+Park.pdf

Dahlman, Roger C., and Clair L. Kucera. “Root Productivity and Turnover in Native Prairie.” Ecology 46, no. 1–2 (1965): 84–89. https://doi.org/10.2307/1935260.

D’Costa, Krystal. “The American Obsession with Lawns.” *Scientific American Blog Network*. May 3, 2017. https://blogs.scientificamerican.com/anthropology-in-practice/the-american-obsession-with-lawns/.

Dorner, Jeanette. “An introduction to using native plants in restoration projects.” *Plant Conservation Alliance,* 2002. https://www.fs.fed.us/wildflowers/Native_Plant_Materials/documents/intronatplant.pdf

Dorsey, Joseph W. “Lawns as Symbols of American Values: Is It Time for a Change?” *Interdisciplinary Environmental Review*, August 4, 2014. https://www.inderscienceonline.com/doi/abs/10.1504/IER.2009.053967.

EPA. “Reduce Your Outdoor Water Use.” Accessed May 9, 2022. https://www.epa.gov/sites/default/files/2017-03/documents/ws-factsheet-outdoor-water-use-in-the-us.pdf

Falk, John H., and John D. Balling. “Evolutionary Influence on Human Landscape Preference.” *Environment and Behavior* 42, no. 4 (July 1, 2010): 479–93. https://doi.org/10.1177/0013916509341244.

Feagan, Robert B., and Michael Ripmeester. “CONTESTING NATURAL(IZED) LAWNS: A GEOGRAPHY OF PRIVATE GREEN SPACE IN THE NIAGARA REGION.” *Urban Geography* 20, no. 7 (October 1, 1999): 617–34. https://doi.org/10.2747/0272-3638.20.7.617.

Foo, Chin Lui, Kerry C Harrington, and Marion B MacKay. “Herbicide Tolerance of Three Ornamental Ground Cover Species: Polygonum Capitatum, Sedum Mexicanum and Soleirolia Soleirolii,” n.d., 4. http://caws.org.nz/old-site/awc/2010/awc201013031.pdf

Francis, Doris. “Cemeteries as Cultural Landscapes.” *Mortality* 8, no. 2 (May 1, 2003): 222–27. https://doi.org/10.1080/1357627031000087442.

Peconic Estuary Partnership. “Homeowner Rewards Program – Peconic Estuary Partnership.” Accessed December 5, 2021. https://www.peconicestuary.org/what-you-can-do/homeowner-rewards-program/.

Ignatieva, Maria, Karin Ahrné, Jörgen Wissman, Tuula Eriksson, Pernilla Tidåker, Marcus Hedblom, Thomas Kätterer, et al. “Lawn as a Cultural and Ecological Phenomenon: A Conceptual Framework for Transdisciplinary Research.” Urban Forestry & Urban Greening 14, no. 2 (January 1, 2015): 383–87. https://doi.org/10.1016/j.ufug.2015.04.003.

Jenkins, Virginia Scott. *The Lawn: A History of an American Obsession*. Smithsonian Institution Press. 1994.

Jobbagy, Esteban G., and Robert B. Jackson. “The Uplift of Soil Nutrients by Plants: Biogeochemical Consequences Across Scales.” *Ecology* 85, no. 9 (2004): 2380–89. https://doi.org/10.1890/03-0245.

Lipson, Charles. *How to Write a BA Thesis, Second Edition: A Practical Guide from Your First Ideas to Your Finished Paper*. Chicago Guides to Writing, Editing, and Publishing. Chicago, IL: University of Chicago Press, 2018. https://press.uchicago.edu/ucp/books/book/chicago/H/bo28551583.html.

Macke, Gabriel A. “Evaluation of a Cool-Season Grass-White Clover Mixture for Low-Nitrogen Input Lawns” (2016). https://www.proquest.com/docview/1881551361/abstract/27178DE3886440DFPQ/1.

Martini, Nicholas F., and Kristen C. Nelson. “The Role of Knowledge in Residential Lawn Management.” *Urban Ecosystems* 18, no. 3 (September 1, 2015): 1031–47. https://doi.org/10.1007/s11252-014-0415-7.

Martinson, Richard. “Native Plants in Urban Landscapes: A Biological Imperative.” *Native Plants Journal* 21, no. 3 (September 21, 2020): 275–80. https://doi.org/10.3368/npj.21.3.275.

McKinney, Michael L. “Urbanization, Biodiversity, and Conservation: The Impacts of Urbanization on Native Species Are Poorly Studied, but Educating a Highly Urbanized Human Population about These Impacts Can Greatly Improve Species Conservation in All Ecosystems.” *BioScience* 52, no. 10 (October 1, 2002): 883–90. https://doi.org/10.1641/0006-3568(2002)052[0883:UBAC]2.0.CO;2.

Milesi, Cristina, Steven W. Running, Christopher D. Elvidge, John B. Dietz, Benjamin T. Tuttle, and Ramakrishna R. Nemani. “Mapping and Modeling the Biogeochemical Cycling of Turf Grasses in the United States.” *Environmental Management* 36, no. 3 (September 1, 2005): 426–38. https://doi.org/10.1007/s00267-004-0316-2.

Morelli, John. “Environmental Sustainability: A Definition for Environmental Professionals.” *Journal of Environmental Sustainability* 1, no. 1 (November 1, 2011): 1–10. https://doi.org/10.14448/jes.01.0002.

NALP. “NATIONAL SURVEY FINDS 40% OF AMERICANS WITH A YARD HIRED PROFESSIONALS FOR LAWN OR LANDSCAPE WORK IN THE LAST YEAR.” November 28, 2017. https://www.landscapeprofessionals.org/lp/media/2017-press-releases/harris-survey.aspx

Niemiera, Alex X. “The Effect of Landscape Plants on Perceived Home Value,” *Virginia State University*, 2009. https://vtechworks.lib.vt.edu/bitstream/handle/10919/49769/426-087.pdf?sequence=1&isAllowed=y

Noll, Kasey, Daniels, Steven. “Alternative Lawns: Using clover as an eco-sustainable alternative to grass” (2013). https://rei.rutgers.edu/downloads/pdf-documents/164-alternative-lawns-rei-contest/file

Poškus, Mykolas, and Diana Poškienė. “The Grass Is Greener: How Greenery Impacts the Perceptions of Urban Residential Property.” *Social Inquiry into Well-Being* 1 (August 14, 2015): 22–31. https://doi.org/10.13165/SIIW-15-1-1-03.

Racoviceanu, Alina I., Bryan W. Karney, Christopher A. Kennedy, and Andrew F. Colombo. “Life-Cycle Energy Use and Greenhouse Gas Emissions Inventory for Water

Treatment Systems." *Journal of Infrastructure Systems* 13, no. 4 (December 1, 2007): 261–70. https://doi.org/10.1061/(ASCE)1076-0342(2007)13:4(261).

Richardson, David, and Petr Pyšek. "Elton, C.S. 1958: The Ecology of Invasions by Animals and Plants. London: Methuen." *Progress in Physical Geography - PROG PHYS GEOG* 31 (December 1, 2007): 659–66. https://doi.org/10.1177/0309133307087089.

Robbins, Paul, Annemarie Polderman, and Trevor Birkenholtz. "Lawns and Toxins: An Ecology of the City." Cities 18, no. 6 (December 1, 2001): 369–80. https://doi.org/10.1016/S0264-2751(01)00029-4.

Robbins, Paul, and Trevor Birkenholtz. "Turfgrass Revolution: Measuring the Expansion of the American Lawn." Land Use Policy 20, no. 2 (April 1, 2003): 181–94. https://doi.org/10.1016/S0264-8377(03)00006-1.

Schenk, George. *Moss Gardening: Including Lichens, Liverworts and Other Miniatures*. Timber Press, 1997.

Simmons, Mark, Michelle Bertelsen, Steve Windhager, and Holly Zafian. "The Performance of Native and Non-Native Turfgrass Monocultures and Native Turfgrass Polycultures: An Ecological Approach to Sustainable Lawns." Ecological Engineering 37 (August 1, 2011): 1095–1103. https://doi.org/10.1016/j.ecoleng.2011.03.004.

Southon, Georgina E., Anna Jorgensen, Nigel Dunnett, Helen Hoyle, and Karl L. Evans. "Biodiverse Perennial Meadows Have Aesthetic Value and Increase Residents' Perceptions of Site Quality in Urban Green-Space." *Landscape and Urban Planning* 158 (February 1, 2017): 105–18. https://doi.org/10.1016/j.landurbplan.2016.08.003.

Smith, Lionel S., and Mark D. E. Fellowes. "Towards a Lawn without Grass: The Journey of the Imperfect Lawn and Its Analogues." Studies in the History of Gardens & Designed Landscapes 33, no. 3 (July 1, 2013): 157–69. https://doi.org/10.1080/14601176.2013.799314.

Smith, Melinda D., Julia C. Wilcox, Theresa Kelly, and Alan K. Knapp. "Dominance Not Richness Determines Invasibility of Tallgrass Prairie." Oikos 106, no. 2 (2004): 253–62. http://www.jstor.org/stable/3548110.

Spehn, E. M., J. Joshi, B. Schmid, M. Diemer, and C. Korner. "Above-Ground Resource Use Increases with Plant Species Richness in Experimental Grassland Ecosystems." Functional Ecology 14, no. 3 (2000): 326–37. http://www.jstor.org/stable/2656409.

Sreeraman, VR. "Smell of Freshly Cut Grass Could Help Relieve Stress: Study." *Medindia*, August 28, 2009. https://www.medindia.net/news/smell-of-freshly-cut-grass-could-help-relieve-stress-study-57113-1.htm.

Staats, David, and James E. Klett. "Water Conservation Potential and Quality of Non-Turf Groundcovers versus Kentucky Bluegrass under Increasing Levels of Drought

Stress." Journal of Environmental Horticulture 13, no. 4 (December 1, 1995): 181–85. https://doi.org/10.24266/0738-2898-13.4.181.

Steinberg, Ted. *American Green: The Obsessive Quest for the Perfect Law*n. New York: Norton & Company, 2007.

Talbot, Mary. "More Sustainable (and Beautiful) Alternatives to a Grass Lawn." *NRDC*, September 30, 2016. https://www.nrdc.org/stories/more-sustainable-and-beautiful-alternatives-grass-lawn.

Tilman, David. "Community Invasibility, Recruitment Limitation, and Grassland Biodiversity." *Ecology* 78, no. 1 (1997): 81–92. https://doi.org/10.1890/0012-9658(1997)078[0081:CIRLAG]2.0.CO;2.

Tilman, David, Hill, Jason, Lehman, Clarence. "Carbon-Negative Biofuels from Low-Input High-Diversity Grassland Biomass" (2006) https://www.science.org/doi/10.1126/science.1133306.

Turley, Nash E., Joshua Hogan, Gloria J. Diehl, Aaron C. Stack, and Barbara J. Sharanowski. "Nationwide Survey on the Barriers to Converting Turfgrass Lawns to Pollinator-Friendly Native Wildflowers." bioRxiv, June 2, 2020. https://doi.org/10.1101/2020.06.02.129452.

University of Minnesota Extension. "Environmental Benefits of Healthy Lawns." Accessed December 5, 2021. https://extension.umn.edu/lawncare/environmental-benefits-healthy-lawns.

Watkins, Eric, Andrew B. Hollman, and Brian P. Horgan. "Evaluation of Alternative Turfgrass Species for Low-Input Golf Course Fairways." HortScience 45, no. 1 (January 1, 2010): 113–18. https://doi.org/10.21273/HORTSCI.45.1.113.

Wetli, Patty. "Native Garden Registry Gets Green Thumbs Up From City Council." *WTTW News*. Accessed December 5, 2021. https://news.wttw.com/2021/09/14/native-garden-registry-gets-green-thumbs-city-council.

Woodward, Benjamin. "Weeds or Wildflowers? City Collects Millions in Fines for 'Uncut Weeds.'" *DNAinfo*. Accessed December 5, 2021. https://www.dnainfo.com/chicago/20140806/rogers-park/weeds-or-wildflowers-city-collects-millions-fines-for-uncut-weeds

Appendix

1. My Complete Survey

Please mark with an X where your front lawn falls on the continuum.

All turfgrass Mostly turfgrass Half Turfgrass Almost no turfgrass No Turfgrass

If you have some type of alternative landscaping, what kind (Circle all that apply)

Bushes (non-native) Flowers (non-native) Stones Vegetables Native Plants Other __

Please rate the following statements based upon your personal feelings using the following scale:

1- Very important 2- Fairly important 3- Important 4- Slightly important 5 - Not at all Important

How important is it that my lawn…

1. *Is well-maintained? 1 2 3 4 5*
2. *Is aesthetically pleasing? 1 2 3 4 5*
3. *Makes my neighborhood more attractive? 1 2 3 4 5*
4. *Helps my house fit in with the block or neighborhood? 1 2 3 4 5*
5. *Can be used for outdoor activities such as children or pets playing? 1 2 3 4 5*
6. *Earns the respect, or even the admiration, of my neighbors? 1 2 3 4 5*
7. *Makes me feel like a responsible member of my community? 1 2 3 4 5*
8. *Makes me feel more connected to the natural world? 1 2 3 4 5*
9. *Requires few energy inputs, such as fuel for running a lawnmower or making fertilizer? 1 2 3 4 5*

10. What other purposes or values might you ascribe to your lawn?

_____

11. My front lawn serves as a display of my wealth

Agree Somewhat Agree Neither Agree nor Disagree Somewhat Disagree Disagree

12. The state of my lawn is reflective of my success and achievements

Agree Somewhat Agree Neither Agree nor Disagree Somewhat Disagree Disagree

13. Having a well-maintained lawn makes me a good citizen

Agree Somewhat Agree Neither Agree nor Disagree Somewhat Disagree Disagree

14. Turf grass and the maintenance it requires does not have any bad impacts on the environment

Agree Somewhat Agree Neither Agree nor Disagree Somewhat Disagree Disagree

15. I would consider an alternative lawn if it was better for the environment

Agree Somewhat Agree Neither Agree nor Disagree Somewhat Disagree Disagree

16. I would consider an alternative lawn if my neighbors all converted their lawns first

Agree Somewhat Agree Neither Agree nor Disagree Somewhat Disagree Disagree

17. I would consider an alternative lawn if it required no time and effort

Agree Somewhat Agree Neither Agree nor Disagree Somewhat Disagree Disagree

Rate these front yards by how aesthetically pleasing you find them (5 is the most aesthetically pleasing, 1 the least)

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

2. Survey from the Brenner et al. Study (which I based mine on)

Survey

For the purposes of this survey, we use the terms lawn and turfgrass interchangeably, and we use both to mean any type of short green perennial grass types. Any other type of land cover-- such as bushes, flowers, stones, or vegetables -- are referred to as alternative landscaping.

Please mark with an X where your lawn falls on the continuum.

+----------+----------+----------+----------+----------+

All turfgrass Mostly turfgrass Half Turfgrass Almost no turfgrass Mostly landscaping No Turfgrass Alternative landscaping

Please circle ALL that apply. **I feel _____ towards my lawn.**

Pride	Resentment	Happiness
Contentment	Frustration	Anger
Satisfaction	Annoyance	Other_____

Please rate the following statements based upon your **personal feelings** using the following scale.

1- Very important 2- Fairly important 3- Important 4- Slightly important 5 - Not at all important

How important is it that my lawn...

1. Is well-manicured (mowed, trimmed, and edged)?	1	2	3	4	5
2. Has little to no brown or yellowing grass?	1	2	3	4	5
3. Makes my residence more attractive?	1	2	3	4	5
4. Resembles the uniform green surface of a golf course?	1	2	3	4	5
5. Can be used for barbeques and other outdoor gatherings?	1	2	3	4	5
6. Provides a space that is safe and comfortable for children to play?	1	2	3	4	5
7. Earns the respect, or even the admiration, of my neighbors?	1	2	3	4	5
8. Helps my house fit in with the block or neighborhood?	1	2	3	4	5
9. Makes me feel like a responsible member of my community?	1	2	3	4	5
10. Makes me feel more connected to the natural world?	1	2	3	4	5
11. Requires few energy inputs, such as fuel for running a lawn mower or making fertilizer?	1	2	3	4	5

12. I associate responsible lawn care with being a good citizen.

Agree Somewhat Agree Neither Agree nor Disagree Somewhat Disagree Disagree

13. The satisfaction I get from my lawn is worth the amount of work I put into it.

Agree Somewhat Agree Neither Agree nor Disagree Somewhat Disagree Disagree

14. Caring for my lawn is good for the American economy

Agree Somewhat Agree Neither Agree nor Disagree Somewhat Disagree Disagree

15. Having a velvety green lawn is part of my American dream.

Agree Somewhat Agree Neither Agree nor Disagree Somewhat Disagree Disagree

Please think of a house in your neighborhood that has an alternative lawn. Keeping that house in mind, please indicate your agreement with the following statements:

16. The lawn clashes with the neighboring landscape.

Agree Somewhat Agree Neither Agree nor Disagree Somewhat Disagree Disagree

17. I would consider a similar alternative lawn if it required less frequent watering and fertilizer application.

Agree Somewhat Agree Neither Agree nor Disagree Somewhat Disagree Disagree

18. I would consider a similar alternative if my neighbors all converted their lawns first.

Agree Somewhat Agree Neither Agree nor Disagree Somewhat Disagree Disagree

Please circle your response

Sex: Male Female

Age category:
20-30 31-40 41-50 51-60 61-70 71-80 81-90 91+

Education: No Degree High School Graduate Bachelors Degree Graduate degree

How many years have you lived in your current residence? ____

Do you have any future plans/visions for your lawn? Yes No

If so, please describe: