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## About the Author



For eight years prior to his retirement, Mr. Larry Will, BSME, PE was Vice President of Engineering at ECHO Inc., Lake Zurich, IL, a leading manufacturer of gasoline powered lawn care products. In this capacity, he managed the development of the first “Quiet” leaf blower that reduced leaf blower sound by 75%. As a member of the Hand Held Products /Committee for the Outdoor Power Equipment Institute (OPEI), Arlington, VA, he was instrumental in creating an informational pamphlet and electronic media that was published by OPEI entitled “Leaf Blowers, A Guide to Safe and Courteous Use”. He also wrote the ECHO leaf blower training manual. Mr. Will was called upon to make a presentation before the National Academy of Engineering in Washington DC, because he is the only nationally know expert totally familiar with the leaf blower issues of sound and environmental impact.

Following his retirement from ECHO, Mr. Will has addressed leaf blower concerns throughout the United States and Canada as an unsolicited consultant to more than 160 cities and state legislative bodies. He shares his experience wherever a city is addressing leaf blower issues. Will provides reliable information about products presently being manufactured so an informed decision can be made when legislation is being contemplated. He knows all the pitfalls and problems a city will face in dealing with the leaf blower noise issue and can suggest workable alternatives to a leaf blower ban.

As a leaf blower expert in design, manufacture, application and use, Will is in a unique position to supply up-to-date and accurate data and facts. He has been interviewed for many articles written by several leading news organizations including The Atlantic, New Yorker, Guardian, Miami Herald and on camera for CBS News Sunday Morning. This has given him a firm grasp on the mindset of the media.

Mr. Will is always available at no charge to answer questions by phone or email. He can also be hired to conduct seminars, including product comparison demonstrations for transportation and lodging costs.

Contact information can be found at his website: <http://leafblownoise.com>

# Who are the people involved and what are the issues regarding leaf blowers?

## The Anti-Leaf Blower Advocate's viewpoint.

First of all, who are these anti-leaf blower activists? For the most part, they are not blue collar working class people. They are movie stars or spouses of movie stars, retired lawyers, assertive housewives or over exuberant environmentalists. Some are just people with neighbors that run their leaf blowers for the better part of the day and almost every day as well.

I mention this because I am fairly certain that these people have never used leaf blowers and are not aware of how important they are to those that do. Blowers are just plain too noisy. To these advocates, leaf blowers are simply an irritating nuisance. "Why not simply ban them?" they think. My comments about these people are not intended to be demeaning, but in advocating for a total leaf blower ban, they don't seem to understand or maybe care that a total ban will not sit well with any homeowner that uses a leaf blower. In the case of the landscaper, it is a much more serious problem than that for it impacts their livelihood.

There are basically three truths about the leaf blower issue:

- One, they have a unique sound, easily identifiable, which differentiates them from other lawn care products. Some of them scream.
- Two, traditional leaf blowers are no louder than any other engine driven lawn care product.
- Three, they are often used without concern for the aggravation they cause to the bystander. In other words, operators can be inconsiderate.

Anti-leaf blower activists are typically unaware of what blowers are used for, thinking they should only be used to remove leaves in the fall of the year. They wonder why blowers are needed during the summer months. Well in the summer, they are used to do final cleanup; blowing grass clippings from driveways and sidewalks as well as gathering debris from hedges, bushes and trees. Trees are messy all year round, dropping leaves, twigs and branches whenever the wind picks up. After a rain or wind storm, blower use is essential. There are jobs where only the leaf blower will work, like removing pine needles or gathering debris from irregular surfaces and hard to reach places such as on brick pavement, landscaping stones, mulch and bark chips, or from behind hedges and under vehicles.

Some advocates are trying to pull the leaf blower into the global warming and air pollution controversy, which of course has nothing to do with blower sound. These people think since leaf blowers have internal combustion engines, this makes them carbon dioxide contributors. Unfortunately they know very little about the leaf blower and speak without knowledge of or regard for facts concerning exhaust emission from these small engines. These are the emission related facts they should be taking into account:

- Gasoline, diesel fuel and wood are all hydrocarbons and when burned will cause hydrocarbon emission. Hydrocarbon exhaust emission from leaf blowers is fuel that passes straight through the engine unburned. At one time, two stroke engines had a serious problem in this area with some of them passing roughly 30% of the fuel entering the engine straight through to the atmosphere. But this type of emission in small off road engines has been

reduced by as much as 90% depending on engine size. The new Standard became effective in January 2005 per EPA and CARB mandates.

- Automobiles emit 230 times more carbon dioxide (CO<sub>2</sub>) or greenhouse gases than do leaf blowers. During complete combustion, the burning of hydrocarbon fuel is a process of oxidation, meaning the hydrogen in a hydrocarbon fuel is oxidized to become water vapor (H<sub>2</sub>O) and the carbon content becomes CO<sub>2</sub>.
- Why does the automobile emit more CO<sub>2</sub> than that of a leaf blower? It's because on average, cars burn 230 times more fuel in a week's time per household. Think 18 gallons vs. 10 ounces. In general. All but a very small percentage of the fuel burned turns into these two gasses.
- Some people think a catalyst, a device located in the muffler, is used to reduce greenhouse gas. It does not. It converts unburned hydrocarbons and carbon monoxide (CO) into CO<sub>2</sub> and water. Carbon monoxide is another byproduct of combustion and is the result of incomplete burning of the fuel. Although it constitutes a small percentage of the total exhaust gas, it is also produced proportional to the amount of fuel burned, which means automobiles generate a great deal more CO than do leaf blowers.
- Some think that only automobiles have catalysts in the exhaust system. Not true. All two stroke engines have catalytic converters. They are proportional in size to the size of the engine.
- A few think that small gasoline engines generate nitrogen oxides (NO<sub>x</sub>). They don't. This is developed primarily by an engine with excess oxygen in the combustion chamber, such as that of compression ignited diesel engines. Where does the nitrogen come from? The air we breathe is 78% nitrogen.
- Anti-leaf blower activists sometimes argue that leaf blowers generate dust. Some go so far as to say they cause asthma in children. Even some doctors are saying that, but these same doctors have no data to substantiate their claim. It's just a good sales pitch or sound bite. Asthma is caused by the environment, pollen and molds mostly, not the leaf blower or any other mechanical device, including the lawnmower. A leaf blower will only impact the environment within a 25 foot radius of the blower nozzle. Where leaf blowers are normally used (sidewalks, driveways, and landscaped surfaces), there is no appreciable dust generated, including PM 10 and PM 2.5. These nearly invisible particles are bonded to larger, heavier particles outdoors and quickly settle back to the ground after being disturbed by a blower.

Why then do these people make these arguments? It's because the argument against noise alone is weak and they need a more compelling justification for requesting a city council to ban blowers. Most cities will not ban them because of noise alone. As one might expect, council members have concern over the impact a ban will have on elderly homeowners that use blowers and their voting constituency in general. Then, after studying the issue more closely, they come to understand the added burden a ban will cause to the landscaper, the added cost maintaining city properties and the difficulty the city will have enforcing such a regulation. These arguments outlined above plus the realities of a ban put lawmakers in a tight spot. What initially seemed like a benign issue and possibly a good idea often turns into a controversial headache. Often a decision cannot be reached for years for fear of the outcome.

The determination of anti-leaf blower activists to ban leaf blowers is not to be underestimated. In Sonoma, CA, they flooded local news organizations with anti-leaf blower letters to the editor and also managed to convince columnists to argue in favor of a blower ban. They even wrote a voter referendum supporting a ban, spiking it with unsubstantiated claims that maligned the blower. What was the result?

They won the referendum to ban blowers by the tiny margin of 19 votes, burdening the city with the difficult and costly task of enforcing the ordinance.

Blower haters in Palm Springs, CA cleverly advocated for a complete ban, that is, no corded electric blowers, no cordless blowers, no quiet gasoline powered leaf blowers, no leaf blowers of any kind, which caused a near uprising among those that need and want to keep their leaf blowers. In the end, as a compromise, the city banned only the gasoline powered blowers, which calmed the professional somewhat, making it easier for anti-leaf blower advocates to accomplish their original goal.

Palm Beach, FL took a different approach in that they banned the use of leaf blowers on properties less than one acre, which is seen as favoritism for the rich by some people. In other cities, landscapers are attempting legal action, but the final outcome is still undetermined. It is very difficult for the lawn care professional to fight something like this in court due to the disparity in financial backing.

Twenty years ago, anti-leaf blower advocates complained that manufacturers were insensitive to leaf blower noise and asked why the industry has done nothing about it. Well today there are lots of quiet gasoline powered leaf blowers on the market and still they complain. Now they want silence. What's next, the lawnmower? Are lawn care providers expected to return to the technology of the 1940's?

## **What about the media?**

It turns out that in nearly all cases, newspapers and Internet sources will back the anti-leaf blower activist. Many articles are usually written in support when the issue is being addressed by a local city council. Rarely is there ever more than one or two sentences mentioning the impact a ban will have on the landscaper or the home owner, but they will devote 800 words supporting the opinions of the blower ban advocate. There is no mention of the added cost to the landscape contractor or the impact it will have on his customer. Nothing is said about how older people taking care of their own property may have to let the appearance of their yards deteriorate. No one talks about the fact that homeowners will have to scrap their existing equipment. Rarely will they share the fact that the city will find it very difficult and expensive to enforce such a ban. In their articles, the opinion of the blower user is ignored for the most part.

## **The Landscape Contractor's Position**

Landscape contractors and the people they hire are down to earth people. They work very hard at their profession. Money is tight. Time is precious. The profession is extremely competitive. Their customers measure the value of their service on cost and quality of work. Brooms and rakes will not meet either of these requirements. When it comes to leaf blowers, a larger and more often noisier blower is a vital necessity. These people can service as many as 20 homes in a given day, sometimes requiring a 12 hour workday. All their equipment is large so they can cover a greater area over a given period of time. A lawnmower with a 60 inch cutting width, even a 72 inch wide deck, is not uncommon. All their equipment makes noise, which leads them to wonder why leaf blowers are such an issue. This complaint makes no sense to them from a practical point of view and when the subject of blower noise comes up, they only smile and look inquisitively at you as if to say, "What are you talking about?"

There are some contractors, usually those in a community that have already moved toward banning noisy leaf blowers, that believe quiet leaf blowers are not as powerful as are their noisy counterparts. "Big and

powerful machines are always noisy", they say. Big diesel semi trucks, garbage trucks, city busses, race cars, farm tractors, and large motorcycles are just a few examples. To be noisy, in their minds, means to be powerful. So buying a quiet blower means a step down in performance to them. This is not true; never the less, "Quiet" can be a tough sell, unless required by an ordinance.

## **What Part Does the Operator Play?**

The operator's mindset is an important issue, for at least half of the leaf blower problem rests with the operator, running at inconvenient hours, blowing debris on other people's property and running them continuously for hours on end. Most of the time, when a blower is being used for several hours on a given property, it is the owner of the property that is the offender. Why? It's because this person most likely has a small, inexpensive and underpowered unit that takes several hours to do the job.

## **ECHO's Response**

Twenty years ago, shortly after I was hired to lead the engineering department at ECHO Inc., I was told of the sound issue surrounding the leaf blower in many cities throughout the country. It seems there were people totally adverse to their use, because of the noise they generated. After studying the issue, I decided to see what if anything could be done to reduce the sound level. My goal was to achieve a 50% reduction in sound. After applying all the techniques I knew of to lower the sound level on an existing design, I was able to reduce it by 75%.

So with considerable excitement I demonstrated the design to our marketing and sales department in anticipation of this design replacing the present product of that size. I wanted to begin a program to reduce the sound level of all our leaf blowers. We could be the leader in the industry, known as the most forward thinking producer of environmentally friendly products. "But wait," I was told. "It's a great idea, but although this unit will be put into production as soon as possible, we need to see if it will be well received by our customers before investing any more money in this expensive endeavor". It was a sound and reasonable business decision, if you know what I mean.

As it turned out, our customers were for the most part indifferent to the improvement. There was little incentive at the time for them to buy into the concept of quiet blowers. What they had was working well and they saw no need to spend the additional money in order to have this feature. Now the cost increase was only \$30, but that was considered by most as being too much to pay for no performance improvement, which was how a cost increase was often justified.

Our sales and marketing people then went out to speak with our customers through our distributors and dealers, to point out that there are areas of the country that want to ban leaf blowers because of sound. "One day that could happen in your area if you don't do something to reduce noise now." Most of them just said that this was not likely to happen at their location. So although we as a company wanted to be good neighbors when it came to sound, the typical landscape contractor saw no need to make that change.

We at ECHO were still dedicated to the development of quiet leaf blowers, but our sound reduction program took on a more cost effective approach, only reducing the sound level of our remaining product line in conjunction with other design changes and upgrades over a period of years. Today, after the

investment of millions of development dollars unique to the reduction of sound, ECHO has five quiet leaf blowers or "Low Noise" blowers in the product line, which have a 75% reduction in sound level. They measure 65 dB(A) at 50 feet per the industry Standard for measuring leaf blower sound. In addition, ECHO has four more units that are at 70 dB(A) which is more than a 50% reduction in sound.

## How are most cities resolving the leaf blower issue?

**To reduce sound** generated by gasoline powered leaf blowers, they create an ordinance limiting blower sound levels to 65 dB(A). A sound label placed on the blower by the manufacturer will indicate its volume level measured at 50 feet per the industry Standard. No field testing is necessary to determine compliance.

**To reduce dust** generated by blowers, cities prohibit the use of leaf blowers on unstable or untreated surfaces. If the enforcement officer sees dust, the operator is in violation.

**To reduce exhaust emission**, some communities disallow the use of leaf blowers manufactured prior to January 1, 2005, the day the lowest allowable exhaust emission level took effect. Emission labels on the unit will tell you when the unit was manufactured.

<http://leafblownoise.com/Mounted%20emission%20Label.jpg>

**To address inconsiderate use**, enforcement officers hand out educational fliers or pamphlets to operators that have unacceptable leaf blower etiquette. This information can be placed on the cities website, made available at local retail outlets, sent to landscaper organizations and mailed to lawn care providers. Anyone may copy and distribute the fliers available at my website or you may copy any part of these fliers in your own unique documentation that includes the rules as stated in your ordinance.

If you are contemplating a leaf blower ban or are an advocate for a ban, please take the time to understand the facts surrounding the issues. This matter may be the most controversial and contentious issue you will ever encounter. Creating an ordinance allowing only quiet gasoline powered leaf blowers will solve the sound issue and will be voluntarily adhered to by both homeowners and yard care providers. A total ban will only serve to anger these people. In the long run, this alternative conscientiously addresses the leaf blower noise issue and will be much better overall for your community.

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