

American Lawn Care Insanity

AIR + NOISE POLLUTION: COSTS WITHOUT BENEFITS



Thesis

- ▶ Gas-powered lawn maintenance activities have very negative environmental and health impact.
- ▶ How come this practice is still in place?
- ▶ Why are American priorities in favor of a visually flawless lawn rather than health and well-being?



History

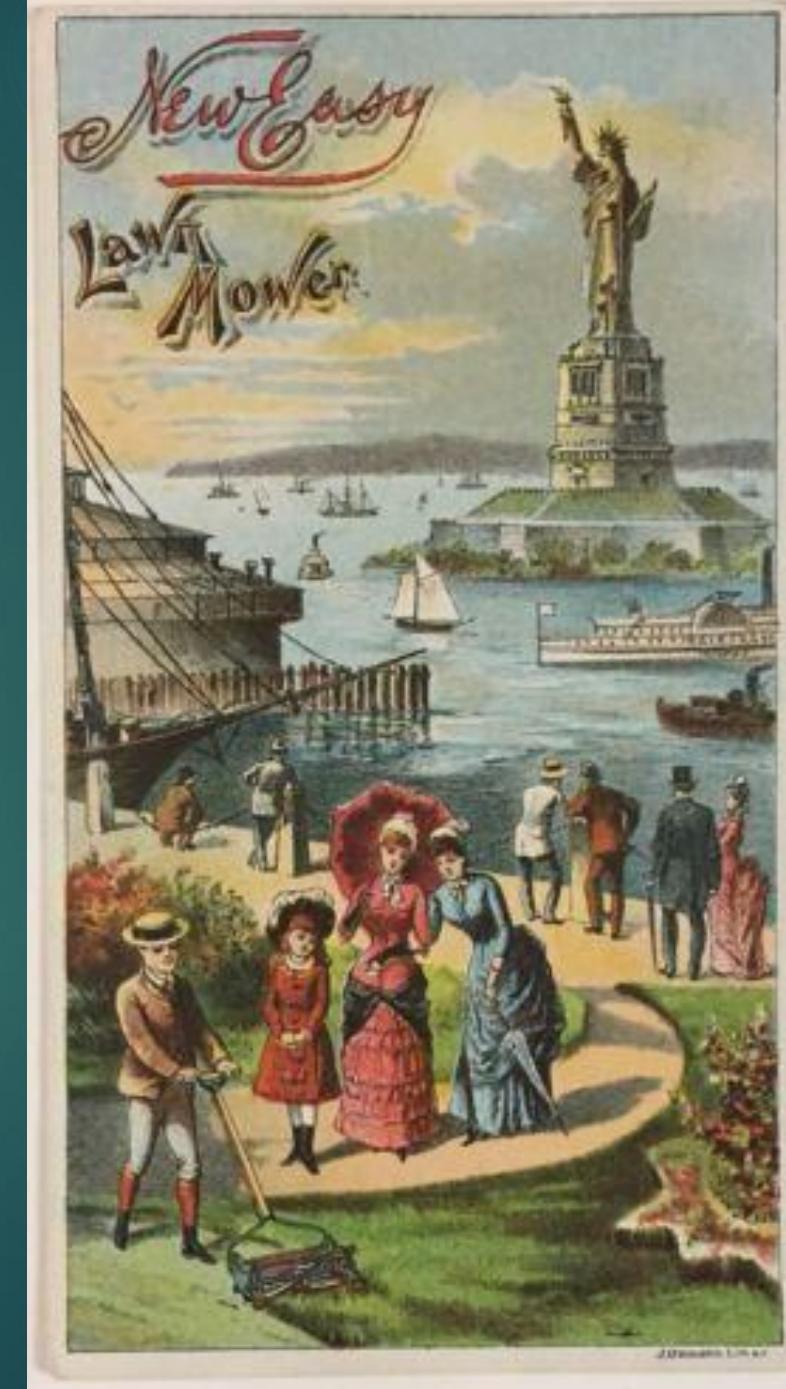
- ▶ 18th century, England: mixed-grass meadows cropped by cattle, sheep, or deer. In smaller areas, grass was cut by scythes.



- ▶ Wealthy Americans imported, planted, and cut grass to show-off their status.

History (cont.)

- ▶ 1800s: Edwin Budding created a first reel-type mower.
- ▶ 1900s: Garden Clubs of America stipulated that a proper lawn is:
"a plot with a single type of grass with no intruding weeds, kept mown at a height of an inch and a half, uniformly green, and neatly edged."



History: 1950s-1960s

- ▶ After the WWII, men used the gas-powered lawn-mowers in their yards.
- ▶ 1950s: mowers were marketed as "little cars"
- ▶ 1961, C.B. Mills, an agronomist, about mowers:

"Today, if all of them in a single neighborhood were started at once, the racket would be heard round the world."



History: Dust Blowers



- ▶ Once upon a time, there was a crop duster, designed to spray pesticides in plant nurseries.
 - ▶ by Japanese-based Kyoritsu Noki
 - ▶ In United States – renamed to Echo Inc.
 - ▶ Then, users removed pesticides from the tank and used the sprayer to move leaves and debris.
- ▶ Exploded in popularity in 1970s-1980s.
BUT negative environmental impact,
SO they got banned in 1975 in Carmel, CA.
In the mid-1990s, Echo Inc. redesigned their engines to reduce noise emissions by 75%.

but still...



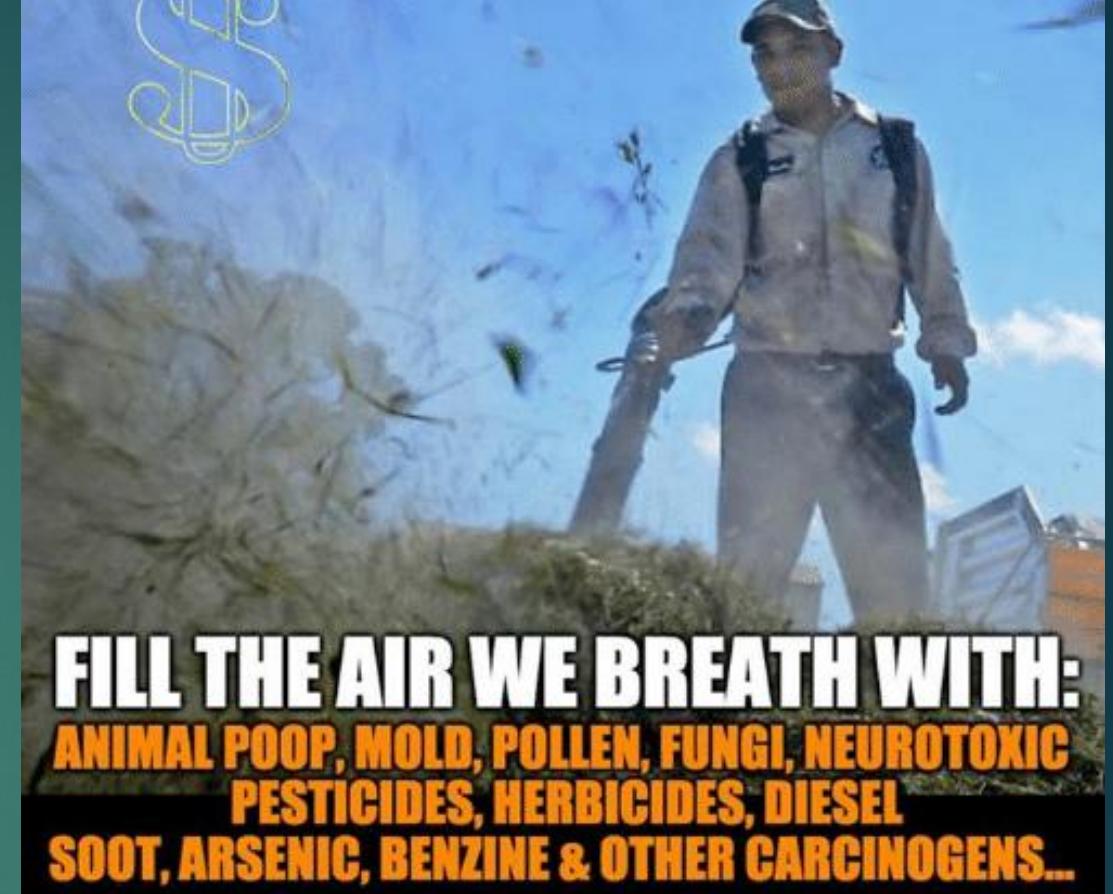
History: Today

- ▶ American obsession with lawns is a big business:
 - ▶ Lawns cover 40 million acres, 4x more than of irrigated corn. (Diep)
 - ▶ Yearly, Americans spend more than \$40 billion on lawn care
(Steinberg 5) →
more expensive than growing corn, rice, or sugarcane.
- ▶ Lawn equipment is a big contributor to the pollution problem.



Costs: Health

- ▶ asthma
- ▶ respiratory disease
- ▶ chronic obstructive pulmonary disease
- ▶ lung cancer
- ▶ cardiovascular disease
- ▶ hypertension (due to noise)
- ▶ neurologic disorders
- ▶ effects on prenatal development
(lower IQ, nervous system disorders)
- ▶ premature births
- ▶ hearing loss



Costs: Health (cont.)



Chemicals

- ▶ Carbon monoxide (CO)
- ▶ Benzene, 1,3-butadiene, formaldehyde
- ▶ Volatile organic compounds VOC + NOx → ground-level ozone
- ▶ Peroxyacetyl nitrate (PAN)
- ▶ Dust: mold, spores, pollen, pesticides, toxic metals



Effects

- ▶ Heart problems.
- ▶ Cancers: lymphomas, leukemias, etc.
- ▶ Heart and lung diseases
- ▶ Eye irritation
- ▶ Allergies, organ failure, lower IQ in children



Costs: Legal

Riverside
Municipal Code

- ▶ Title 7
- 55 dBA**
for residential areas,
from 7AM – 10 PM

Reality ?

75 dB
from 50 feet away

100 dB
at operator's ear.



**Gas Powered
Leaf Blowers.
They do more
than blow leaves.**

**They damage
your hearing
and your health.**

**They violate our
noise ordinance.**

All that noise doesn't just hurt
your ears. At 95–115 decibels,
it actually damages them.

Don't like the sound of that?

*Get the facts. Go to
QuietCommunities.org/Hamptons*

quiet communities

© Quiet Communities, Inc. A tax-exempt 501(c)(3) charity

Campaign in Hamptons, Long Island, Suffolk County, NY

Costs: Legal (cont.)

Perceived Sound Level	Sound Level	Examples	Leaf Blower Reference	
PAINFULLY LOUD	dB μPa	160 2×10^9 150 140 2×10^8 130 120 2×10^7 110 100 2×10^6 90 80 2×10^5 70 60 2×10^4 50 40 2×10^3 30 20 2×10^2 10 0 2×10^1	fireworks at 3 feet jet at takeoff threshold of pain power drill thunder auto horn at 1 meter snowmobile diesel truck, food blender garbage disposal vacuum cleaner ordinary conversation average home library quiet conversation soft whisper rustling leaves threshold of hearing	OSHA limit for impulse noise 90-105 dB leaf blower at operators ear 90 dB OSHA permissible exposure limit 62-75 dB Leaf blower at 50 feet
UNCOMFORTABLY LOUD				
VERY LOUD				
MODERATELY LOUD				
QUIET				
VERY QUIET				
BARELY AUDIBLE			<small>dB= decibels $\mu\text{Pa}= \text{micro Pascals}$</small>	

Provided by California Air Resources Board, 2000

Costs: Legal (cont.)

More than 20 CA cities banned leaf blowers:

- ▶ Santa Monica, since 1991
 - ▶ Berkeley, since 1990
 - ▶ Beverly Hills, since 1986
 - ▶ Santa Barbara, since 1997
 - ▶ Claremont, since 1991
 - ▶ Laguna Beach, since 1993
 - ▶ Newport, since 2011
 - ▶ Palm Springs, 2019 (only gas-powered ones)
- etc.

Cite \$250 - \$1,000



Sign showing that leaf blowers are banned in an area.

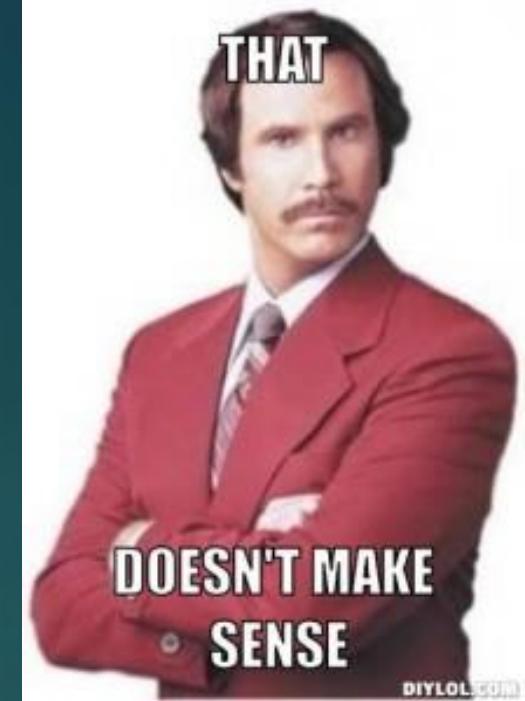
Video: [Are leaf blowers really necessary?](#) (1:40)

Campaigns: **ATLANTA C.A.L.M.**
Citizens Against Leaf Blower Mania

Costs: Financial

\$\$\$

- ▶ 800 million gallons of gasoline yearly,
17 million gallons is spilled.
 - ▶ 30% of fuel is unburned – inefficient power plant.
 - ▶ Replacing and maintaining gears
 - ▶ Hot dry wind 185+ mph → soil damage
→ additional \$\$ for “treatment”
 - ▶ Headaches, reduced productivity:
 - ▶ Lower paycheck
 - ▶ Medical bills
 - ▶ Hiring lawn “service” (blower guys)
 - ▶ blowing all the leaves into the road (or to your neighbor’s yard) for the wind (or neighbor) to bring them back within a week.



Costs: Ecological

- ▶ Fuel spillage → oil in waterways and soils
- ▶ Soil drying and hardening
 - ▶ killing vital soil-dwelling organisms
 - ▶ limited infiltration → flooding
 - ▶ reduced soil productivity



- ▶ Plants:
 - ▶ desiccating roots,
 - ▶ fungal diseases spread
- ▶ Decreased biodiversity
- ▶ Global warming



Photos by Dani Tinker

Costs: Ecological (cont.)



Bandini street, Riverside, CA. Photo by me



Costs: Ecological (cont)

- ▶ American Lung Association

Country	Ozone pollution	Particle pollution
Riverside	F	F
Sonoma	A	A
Monterrey	A	B

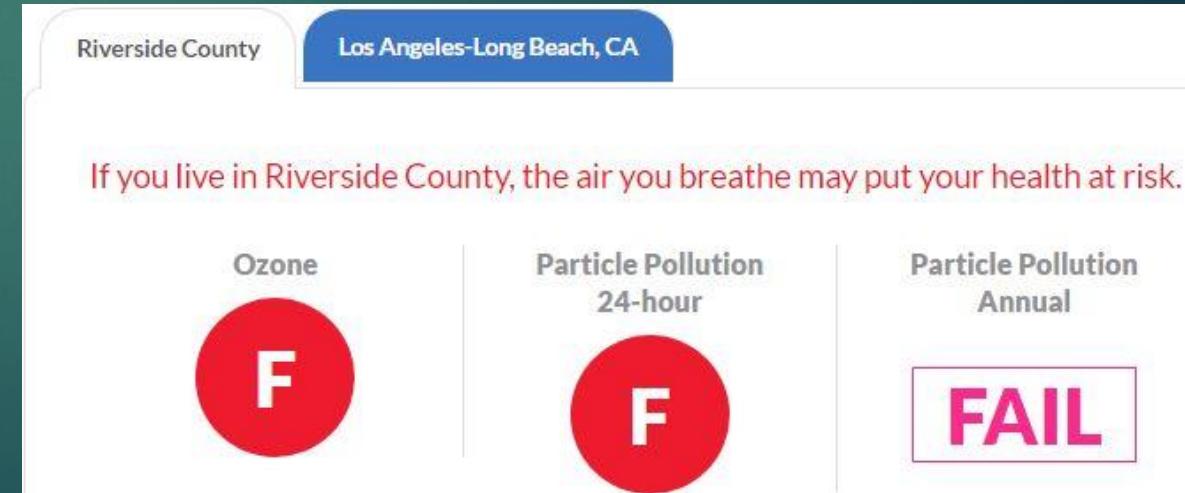


Riverside County

Los Angeles-Long Beach, CA

If you live in Riverside County, the air you breathe may put your health at risk.

- ▶ For the record,
Sonoma and Monterrey counties
banned leaf blowers.



Causes: Technical 2-stroke engines



Autorickshaws in Delhi, India



United States

Benefits: cheap, lightweight, allow operators to stay lazy, fat, inefficient, and brain-dead zombies

Causes: Technical 2-stroke engines (cont.)

- ▶ 1/3 of the fuel is unburned
→ we breathe it
- ▶ Emissions:
 - 300 times the hydrocarbons of the pickup truck
 - 93 times the hydrocarbons of the sedan

Source:

Emissions Test: Car vs. Truck vs. Leaf Blower

- ▶ California Air Resources Board,
Environmental Protection Agency:



(on 2016 Toyota Camry)



Causes: Human-Based

- ▶ Laziness



VS.

- **240** calories an hour – raking leaves
- **298** calories per hour – manual lawn mowing
- Upper-body and core strength.



Causes: Human-Based (cont.)

- ▶ Ignorance

Not-in-my-backyard "gardening":
throwing your problems off your turf
for someone else to deal with...



- ▶ A Leaf-Cleanup Confession
by Todd Burger:

"But if the rains and flooding
do come, **at least my yard will
be leaf-free.**"

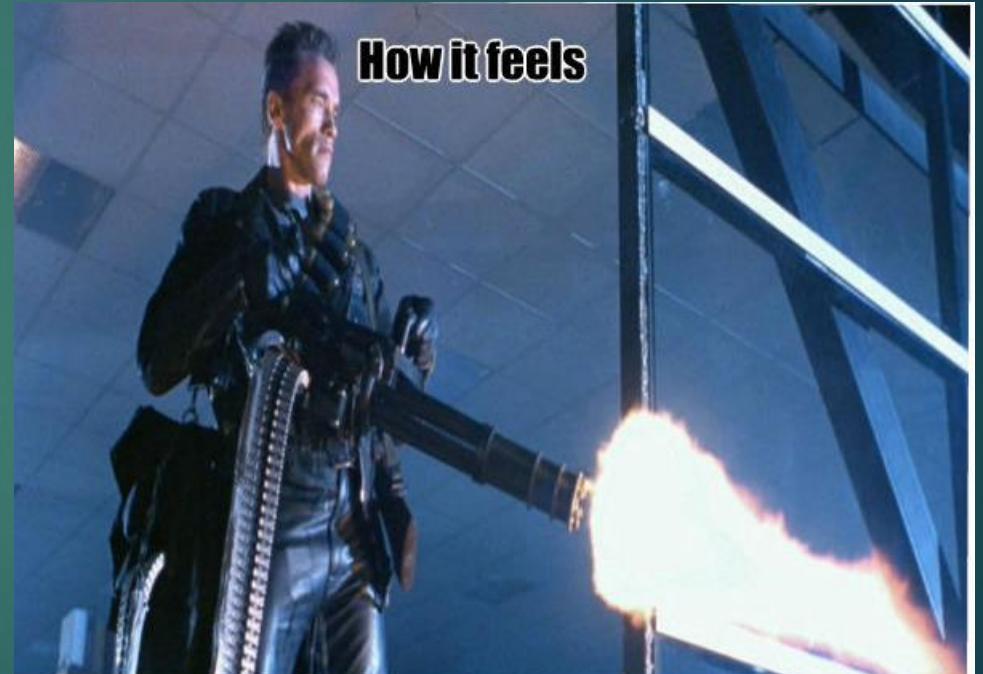
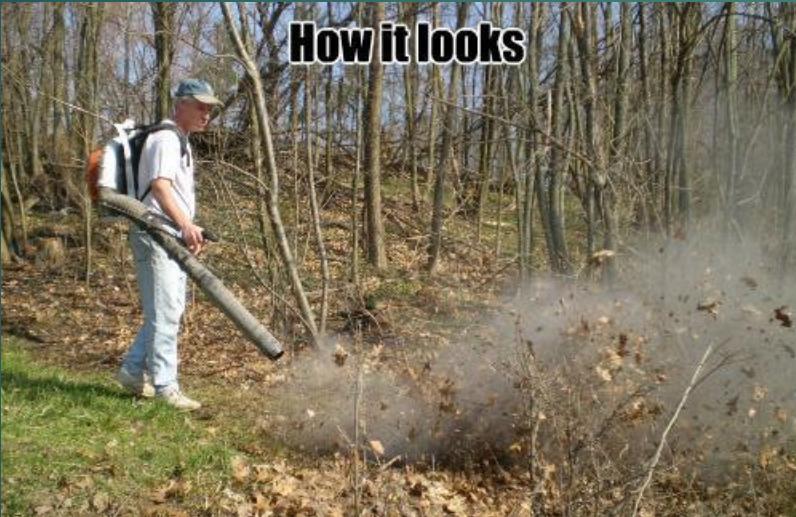


Have you
blown your
mind?



Causes: Human-Based (cont.)

- ▶ Superiority complex
 - Desperate wish to be noticed
 - Feeling of a “gun”



Video: [Are leaf blowers really necessary?](#)

On the Other Side: Anything Good?

California Landscapers Contractors Association:

- ▶ "...an outright ban of this valuable equipment would be the severest of all possible remedies and one that would eliminate its many benefits."
- ▶ [gas-powered leaf blower] ... extremely efficient and safe tool.

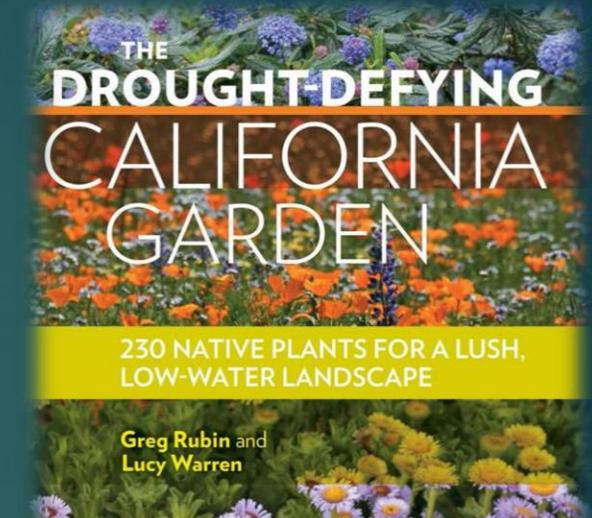
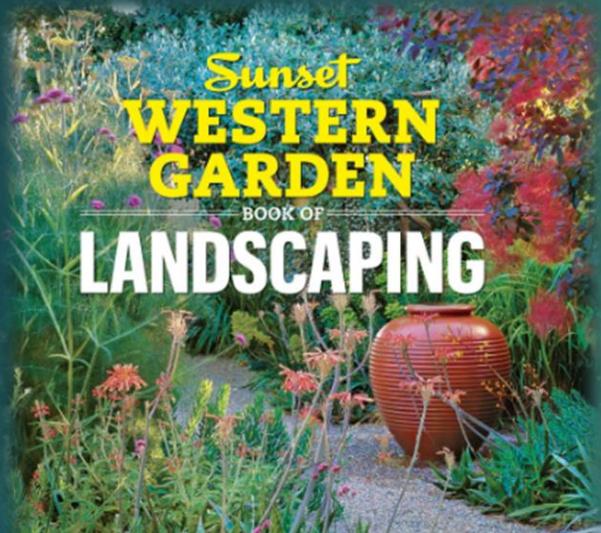
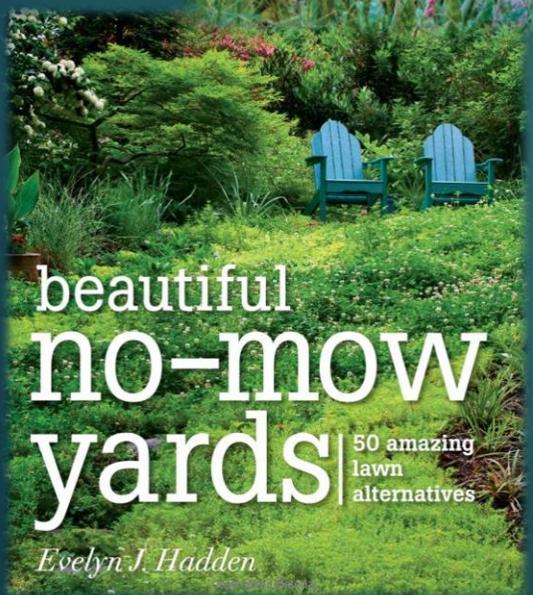


- ▶ Leaf blowers perform functions that no other tool can handle [...] with minimal disturbance.

... WHAT?



Solutions: Reconsider the Landscape



Solutions: Switch the Tools



- ▶ Electric lawn-mowers
 - ▶ Solar-powered



Renogy 50W 12V Solar Panel Polycrystalline Controller

\$94.17 from 4 stores

★★★★★ 49 product reviews

Renogy 50-Watt Starter Kit is designed specifically for cus

Other size options: 100 (\$187) 400 (\$580)

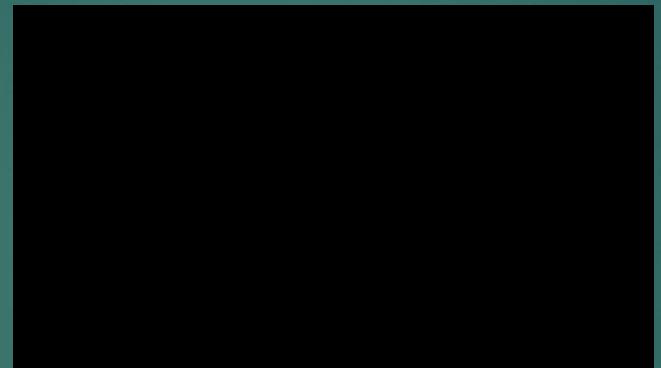


Greenworks 16-Inch 40V Cordless Lawn Mower

4.0 AH Battery Included

\$229.00

★★★★★ (38)



Solar-powered Lawn Mower
with Remote Control

- ▶ “Rake and Broom”

- ▶ Greatest control over placements of leaves
- ▶ Great exercise on a fresh air



- ▶ Push Handle Mower



Greenworks 25052 16" Push Reel Mower

\$66.49 from 50+ stores

★★★★★ 258 product reviews

The all electric operation of the Greenworks line of too
also ...

Greenworks · Walk-behind · Rear Wheel · 16" deck · Re

Other size options: 18 Inch (\$70) 20 Inch (\$80)

Solutions: Switch the Tools (cont.)

1. Bike Mower. Do you have a manual push mower? Fasten it to the front end of bike and you now have a pedal-powered riding mower. Cut the grass while you cut the weight!



Solutions: Live and Let Live

Find another purpose in life.



Solutions: Live and Let Live (cont.)

Sarah Baker.

"My township calls my lawn
'a nuisance.'
But I still refuse to mow it."

Source: Washington Post

Sarah Baker and her partner in their yard.
Alexandria, Ohio.

Town officials have declared it "a nuisance."

(by Amanda Taylor)



Voting: Which lawn is better?

Mowed

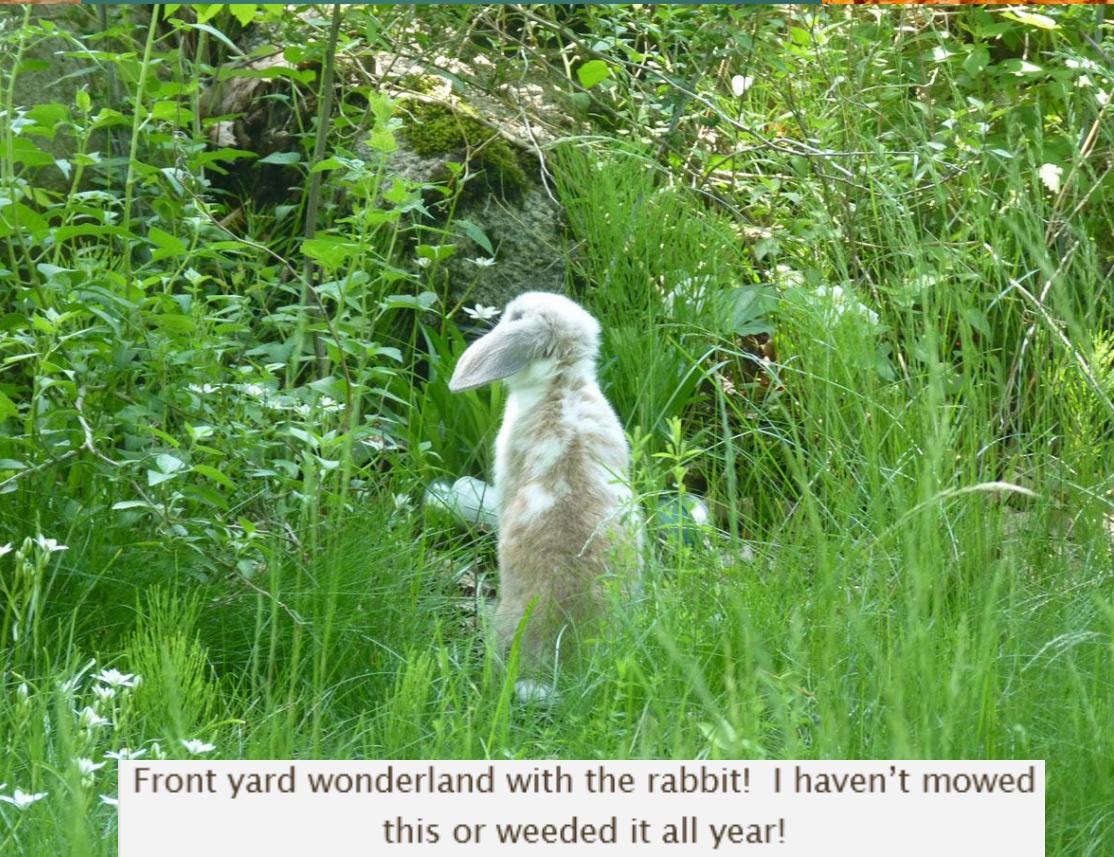


Un-mowed

What would a rabbit choose?
(see the next slide)



Questions?



Front yard wonderland with the rabbit! I haven't mowed this or weeded it all year!



Source: Druid Garden