

KEY STATISTICS.



**AT EGO, WE
HAVE SEEN THE
FUTURE, AND IT IS
CLEANER, QUIETER,
AND SAFER.**

We believe that it makes no sense for tools and equipment that are designed to improve our environment to be at the same time producing noxious emissions and noise pollution that damage the very environment they are trying to enhance.



**THE TIME HAS COME TO TAKE
UP THE CHALLENGE AND INSIST
ON CHANGE.**

Why should you, your children, your family, your friends, your co-workers and those in your community needlessly breathe in emissions, or guard their ears from petrol-powered outdoor power equipment when there are battery powered alternatives that minimise unnecessary pollution and noise as well as avoidable dangers?

There's a baffling irony in the fact that the majority of the tools created to beautify our gardens and public spaces are actually contributing to the destruction of our environment. Air pollution, noise pollution and sustainability are all clearly huge issues in today's society.

EGO was founded with the simple vision of using advanced technology to develop an innovative battery tool system.

Eliminating the harmful direct emissions, noise pollution and health issues associated with petrol powered equipment whilst maintaining the performance users expect and need. In recent years, we've seen the automotive industry evolve, introduce battery powered vehicles to the mass market and make preparations to move away from petrol. In turn, consumer attitudes have changed and the uptake of electric vehicles is quickly on the rise.

Our mission is to kickstart this revolution in the world of garden tools. While battery use is on the rise in this area, there is much more work to be done.

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CHALLENGE 2025

CHALLENGE 2025 IS OUR CALL TO ARMS TO EDUCATE AND EMPOWER BOTH DOMESTIC AND PROFESSIONAL OUTDOOR POWER EQUIPMENT USERS TO SEE THE ONLY LOGICAL CHOICE WHEN PURCHASING NEW GARDENING EQUIPMENT, AND THAT IS BATTERY POWER – LEAVING PETROL, WHERE IT BELONGS, IN THE PAST.

Our vision is that by the end of 2025, battery technology becomes the principal power source for cordless outdoor power equipment, for domestic and professional users alike, leading to significant reductions in emissions and noise, while increasing safety and user comfort. The battery technology already exists today, so there is no excuse.

This report looks at the people involved in the garden power tool category, across domestic consumers, trade users and the local authorities and reflects on anecdotal and quantitative data to understand the current state of the sector and the resistance to a battery-powered future. And a world that is going to be a much, much better place to live.

We want to empower people to make the right decision when it comes to their outdoor power equipment, retiring their petrol tools for zero-emission alternatives. We're committed to a programme of new product development so there will always be a battery-powered alternative available to choose.

Because we know that only by empowering change across all groups of users will we be able to cement it in.

We'll achieve this by empowering outdoor equipment users to move away from petrol solutions to more sustainable alternatives like those manufactured by EGO.



OVERVIEW.

Supporting the Challenge 2025 campaign, The Report pulls together insights, anecdotal, qualitative and quantitative, to show a microcosm of the wider domestic gardening and professional landscaping sector across Europe.

The expert teams at EGO, with the help of leading UK market research company Vision One have come together to shine a spotlight on the views of garden tool users and industry professionals alike.

Topics covered in this research include:

- Domestic and trade attitudes. [p.10-13](#)
- Climate responsibility. [p.14-15](#)
- Garden tool usage in numbers. [p.16-19](#)
- Local Authority tool usage. [p.20-21](#)
- Professional tool emissions. [p.22-25](#)

Each section has a focus on current trends and comments on what needs to change in terms of both attitude and behaviour over the coming years.

WE'RE ON A MISSION TO MAKE OUR TOWNS, CITIES AND COMMUNITIES CLEANER, QUIETER AND SAFER BY REDUCING THE EMISSIONS GENERATED BY OUTDOOR POWER EQUIPMENT.

THAT'S WHY WE'VE UNDERTAKEN OUR BIGGEST RESEARCH PROJECT TO DATE, SURVEYING 1,255 PEOPLE, GATHERING INSIGHT FROM INDUSTRY EXPERTS AND EVEN PUTTING THE MOST POPULAR PETROL-POWERED TOOLS TO THE TEST.



EXECUTIVE SUMMARY.



AT THIS POINT, WE CAN CONSIDER THE FUTURE – A FUTURE POWERED BY BATTERY TECHNOLOGY – A CLEANER, QUIETER, SAFER FUTURE FOR US ALL.



Through the process, we've made some startling discoveries and The Report brings these findings together to demonstrate the true impact of petrol-powered gardening equipment on our health, our communities and our environment.

From our survey, which included a mixture of home gardeners and professional users, we've been able to determine the usage of petrol-powered tools compared to more environmentally friendly options, begin to understand the impact on our planet and gauge attitudes towards climate change.

But we've not left it there. We recognise that local authorities make up a significant proportion of outdoor power tools in their quest to maintain public spaces, parks and even school playing fields. So, we submitted hundreds of Freedom of Information requests to find out how many tools are being used and what type of tools they are. We explore the responses throughout The Report, but it's clear that lots of work is still to be done when it comes to reducing environmental impact.

To demonstrate the impact of this level of usage, we have taken the most widely used professional petrol-powered tools and submitted them to the same rigorous tests as roadgoing vehicles. By doing this, we can understand the true environmental impact of using environmentally harmful equipment to maintain our outside spaces.

It's at this point, with the full knowledge of how petrol-powered tools can damage our environment, that we can consider the future – a future powered by battery technology – a cleaner, quieter, safer future for us all.

IF THERE'S ONE TREND WHICH HAS CUT ACROSS ALL OTHERS IN RECENT DECADES, IT'S SUSTAINABILITY.



73%

OF PEOPLE ARE REDUCING THEIR ENVIRONMENTAL IMPACT

Never before has our personal environmental impact been so prevalent – not just in our beliefs, but in our actions and daily routines. From recycling and eating less meat through to reducing our reliance on petrol and diesel powered cars and making our homes more energy efficient, there are several ways people are making a difference.

In fact, our research indicates that pollution is an area of concern for most people, with 73% of those we surveyed often taking steps to reduce their impact on the environment. We believe that the drivers behind these attitudes towards a greener and more sustainable future are three-fold. Firstly, we are concerned for the health and wellbeing of ourselves, those around us, and of future generations. Secondly, new technologies are paving the way forward, making a change of habit easier. And thirdly, we are all – to some degree – influenced by those around us, something which encourages us to think beyond our own impact.

Health

The impact of climate change on our environment is broadly understood. More extreme weather conditions, fluctuating agricultural yields, declining water supplies; the list goes on and on. But what about the impact on ourselves?

Our personal health is directly impacted by our environment, with the air around us being one of the most influential factors. The World Health Organisation suggests that air pollution is responsible for millions of premature deaths each year, alongside a host of respiratory conditions, infections and diseases. Caused primarily by human activity, there are a number of areas we can target to make our own positive contribution to the reduction of air pollution.

Of these human activities, power generation and combustion engines are the greatest contributors towards air pollution. While cars – the biggest emissions creators – are evolving to become electric, there are other sources having an impact on our health. Garden tools are one such area. Petrol engines power everything from lawnmowers and hedge trimmers through to leaf blowers and chainsaws.

The danger to our health here is perhaps more prevalent. As these are hand-held tools, toxic emissions are generated are in our immediate environment. In addition, the vibration and noise of petrol power can have other health effects. Hearing and breathing problems, tingling sensations and even loss of grip were all recognised by many survey respondents, with 66% of professionals having experienced injuries or health issues associated with the use of petrol-powered tools. So, as well as polluting the outside spaces they're designed to maintain, petrol tools can cause further health problems. And it's not just gardens where these tools are found – it's schools, parks and public spaces, posing a risk to the health of youngsters, too.

New technologies

The dangers of petrol-powered engines are nothing new, but their far-reaching impacts might be. While the automotive industry has been subject to emissions standards for several decades, encouraging innovations in petrol engines, other areas – including gardening – haven't been in receipt of the same level of scrutiny. As a result, only minor changes have been made to improve the environmental performance of small petrol engines used in tools such as lawnmowers. So, while the emissions standards of the automotive industry have led to better performance and, more recently, a dramatic rise in the production of electric vehicles, the same now needs to happen in other areas – including garden tools. This will equip people with greater choice to make environmentally conscious decisions and reduce their impact on the environment.

The challenge here is perception. Our research shows that people understand that battery power is quiet, safe, low maintenance and environmentally friendly, with more than 80% of people agreeing. However, fewer than 40% perceive battery tools to offer power, good performance and durability when compared to petrol.

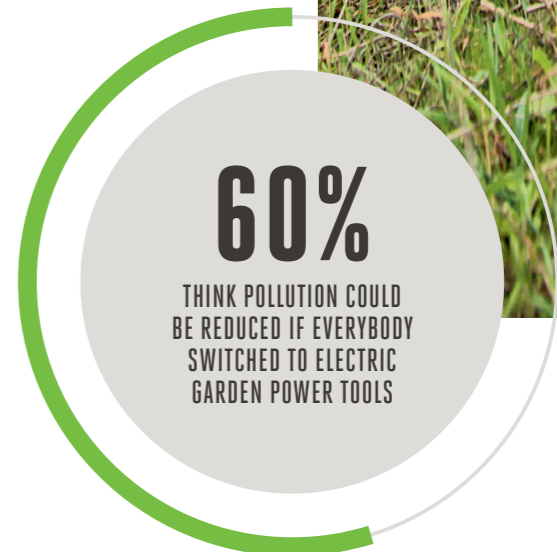
In recent years, though, technology has rapidly caught up to offer viable alternatives to petrol power. Now, a range of tools is available which matches the performance of their petrol counterparts. In practice, that means the same results can be achieved, but more cleanly, quietly and safely.

As we move through The Report, we'll digest how other users – including those in the trade sector – are changing the tools they use to maintain outdoor spaces of all sizes

Influence

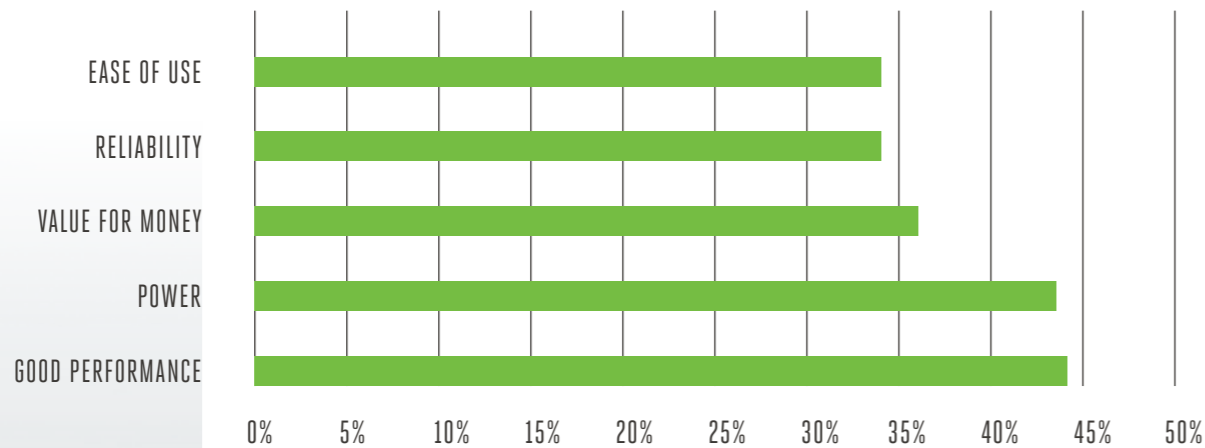
But, on the grand scale of things, do these changes genuinely make a difference? More than a quarter of respondents to our survey believe that their personal behaviour has very little, if any, impact on air quality. But when we consider a scenario in which everybody is using petrol-powered gardening tools, the perception is that this cumulative use does have a small impact on the environment, with more than 60% agreeing that pollution could be reduced if everybody switched to electric garden power tools.

We believe that igniting that collective effort starts with our own individual actions. By making small changes in our own routines, we're creating a small difference – and we might just influence those around us to take a similar approach in order to protect our health and our environment so that, together, we can have an even greater impact.



WE AIMED TO EXPLORE THE TOP ATTRIBUTES PROFESSIONAL USERS LOOKED FOR WHEN SELECTING GARDEN TOOLS, AND **FOUND SOME SURPRISING RESULTS.**

In order of the most important, professional users largely look for:



These attributes come as no surprise considering the need for the tools to perform over prolonged periods and tackle large jobs head on. It was the lack of some of the other characteristics that were surprising however, with only a third looking for traits such as low emissions, environmental friendliness, and ease of transportation. That said, trade users were still over twice as likely to seek tools with a positive impact on the environment than their home user counterparts.

Balancing protection and power

While only a quarter of trade respondents were actively looking for cordless tools, almost three quarters of trade users find battery powered tools appealing. That said, the positive news is that most professional users recognise that battery power leads the way in terms of green credentials, associating battery with lower direct emissions, safety and ease of use but when married up with attributes this group looks for in new equipment, it seems being environmentally friendly isn't high up on the agenda. While they understand that petrol falls far short of what's required to keep the planet, themselves and their workspaces safe, there are still concerns that battery powered tools are less durable, less powerful and less able to perform well.

In years gone by, this may have been the case. Even though the harmful effects of petrol power are understood, the need to get jobs done quickly and efficiently have, in the past, always outweighed the negatives. Attitudes need to change. The increase in the quality of battery cells paired with a greater understanding of heat management and power management and control systems now mean batteries can deliver the same level of performance as petrol.

62%
OF TRADE USERS WOULD STOP USING PETROL TOOLS IF A SUITABLE ALTERNATIVE WAS AVAILABLE AT THE SAME PRICE

Health

We know that petrol power has negative health effects. But what health problems are experienced by petrol users? And to what extent do the trade community suffer petrol-related injuries or illnesses? Just 37% of the sample reported no known conditions after use of a petrol-powered machine – a staggering percentage. If almost two thirds of trade users are suffering or have suffered from petrol-related ailments, then it comes as no surprise that 82% said that they would consider a battery powered tool for their next purchase.

Vibration related injuries were the most common with almost a quarter (23%) reporting loss of grip strength and 22% having suffered from tingling or loss of sensation in the fingers. A lesser, yet hugely significant number of respondents reported attacks of whitening of one of more fingers or pain and cold sensations between periodic white finger attacks.

Hearing problems were also very common with over one fifth of respondents reporting that the noise from the petrol engine has caused issues with their hearing. In EGO's whitepaper back in 2018, it was discovered that petrol chainsaws operate, on average, at 20 decibels higher than battery powered models, and petrol mowers around 12 decibels higher than battery, (Because decibels work on a logarithmic scale, for every 10 decibel increase, the sound is 10 times louder). Other injuries and illnesses identified in that research included breathing problems and bone cysts in fingers and wrists.

Environmental impact

We wanted to assess the trade's perceptions of their impact on the environment when using petrol tools. We asked trade users to consider the combined impact that emissions from petrol tools has on air quality in the UK, rating the impact using a scale of 1 to 10, where 1 is no impact at all and 10 is a significant impact. The mean score among trade was 6.7, with most trade users recognising that emissions have a reasonable impact on the environment. Surprisingly, 16% rated the impact under 5, showing that there is a clear misunderstanding among some professionals about the impact of petrol tools on the environment.

However, professional users are concerned about air pollution where they live and worry that their health is being impacted by poor air quality. This suggests that while air pollution is a recognised issue in general, there is some disparity in recognising the role petrol powered garden tools play in contributing to the poor air quality that concerns professional users.



JUST **16%**
OF TRADE USERS ASSOCIATE PETROL POWER WITH SAFETY

WHEN IT COMES TO REDUCING CLIMATE CHANGE AND ITS IMPACT ON OUR ENVIRONMENT AND OUR HEALTH, WHERE DOES THE RESPONSIBILITY LIE?

48%

OF RESPONDENTS ARE CONCERNED ABOUT AIR POLLUTION WHERE THEY LIVE

We know that, of those we surveyed, 48% of people are concerned about air pollution in the areas where they live. That probably comes as no surprise – after all, we are all aware of the health impacts brought about by poor air quality. The good news is that there's now more momentum driving change in this area than ever before, so we can all enjoy a cleaner and healthier environment.

The role of government

With air pollution amongst the most prevalent threats to public health, alongside conditions like obesity, heart disease and cancer, policy makers have moved this issue to the top of the agenda in recent years. Comprehensive policies to reduce emissions; initiatives which aim to cut emissions in local areas; and sector-specific strategies to create a more sustainable future. When combined, these efforts have the potential to create positive change.

Clean air – or low emission – zones have become a popular approach to tackling climate change across Europe, with major cities in Germany, France, Italy and the United Kingdom, amongst many others, having introduced them. Similarly, no-idling zones have also been introduced, further slashing emissions generated by vehicles. With this strategy, schools have been part of the focus, with drivers encouraged to turn off their engines when waiting at the school gates or in nearby roads. In the UK, the government has accelerated its 2040 zero emission target for cars by five years, banning the sale of new petrol, diesel and hybrid cars by 2035. All of this is in-line with the EU's objective to achieve levels of air quality that do not result in unacceptable impacts to human health and the environment.

Across Europe, we have also seen the widespread take-up of Green Public Procurement. Also known as green purchasing, this is a voluntary approach by public authorities who, as major consumers, have a vital role to play in creating greener and more efficient economies. By including environmental criteria in the procurement requirements of goods and services used by the public sector, manufacturers and suppliers throughout the supply chain are encouraged to make more environmentally conscious decisions. In turn, this moves individual authorities closer to a circular economy, whereby there is less waste and a greater focus on maximising the potential of resources through reduced consumption. So, governments are playing their part, and encouraging some of the biggest contributors to poor air quality to change their ways. But, ultimately, we as individuals have a part to play, too.

Playing our part, individually

Look away from the overarching initiatives from policy makers and it's clear to see we can each play our own part in creating healthier environments. When we asked our survey respondents if everyone should help to reduce pollution, an overwhelming majority of 84% agreed, and 73% said they were already taking steps to reduce their personal impact. This could be something as simple as recycling or having a meat-free day each week, to bigger commitments like taking public transport to work or buying an electric vehicle.

Moving away from petrol power is amongst the most effective ways to reduce the volume of toxic emissions our daily activities produce. While cars are undoubtedly the greatest contributor here, there's another aspect of our lives where petrol power has been relied on for decades – gardening. Despite their petrol-powered motors, gardening equipment is often overlooked when it comes to taking steps to reducing emissions and, while cars have been targeted with clean air and no-idling zones, petrol powered gardening equipment has been largely overlooked in these same areas. For example, the Deutsche Umwelthilfe e.V. (Environmental Action Germany) undertook extensive testing of 21 hand held engines (including motor saws and brush cutters) from European suppliers (6). Their research reveals that nine failed to comply with EU limit values for HC+NOx (hydrocarbons and carbon monoxide), while three also exceeded the limit value for CO(X).

Petrol powered tools are also still very much at home in garden sheds, with 38% of respondents owning petrol powered tools and 37% believing their personal usage makes little difference to emissions. When asked about the collective use of such tools, however, 37% also agreed the usage of petrol-powered tools had a significant impact on the environment.

Better results, together

The evidence, however, is clear. Our individual efforts, no matter how big or small our usage, do make a genuine difference, contributing to reduced air pollution and healthier environments for ourselves and those around us. By acting together, collectively, we can make an even greater impact – but it all begins with us.

Government policies and initiatives are moulding the approach of organisations, particularly in the automotive industry. In turn, these changes are making it possible for individuals to make environmentally minded decisions and inspiring everybody to consider the impacts of their actions. So, when we put out the recycling box, take the tram to work or choose battery over petrol, our individual actions are contributing to something much greater – because we're all taking steps to creating a brighter future.

> 33%

MORE THAN A THIRD THINK PETROL POWERED TOOLS HAVE A SIGNIFICANT IMPACT ON THE ENVIRONMENT

84%

AGREE THAT EVERYBODY SHOULD HELP TO REDUCE POLLUTION



TO UNDERSTAND THE POTENTIAL IMPACT OF GARDEN TOOLS ON THE ENVIRONMENT, WE FIRST NEEDED TO CREATE A CLEAR PICTURE OF THE EXISTING LANDSCAPE. WE PUT OUR QUESTIONS TO MORE THAN 1,000 HOME GARDENERS – THE MAJORITY (67%) AGED BETWEEN 35 AND 64 – TO DETERMINE WHICH TOOLS THEY OWNED AND RELIED ON TO MAINTAIN THEIR GARDENS AND OUTSIDE SPACES.

THE STAPLE TOOL IN THE SHEDS OF HOME GARDENERS IS THE LAWNMOWER, WITH 88% OF THOSE SURVEYED OWNING ONE.

Helping to keep gardens looking well maintained, hedge trimmers and line trimmers are owned by more than half of survey respondents (62% and 58% respectively). Unsurprisingly, lawnmowers are the most broadly owned garden power tools, with 88% of those surveyed owning one.

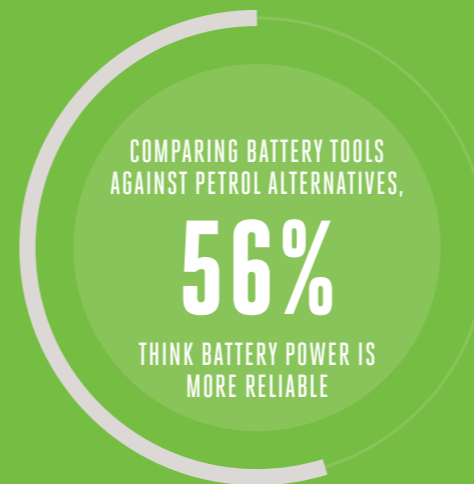
While these tools are commonplace in garden sheds, we begin to see some stark differences when we consider how these tools are powered. Hand-held tools, like hedge trimmers, are – for the majority of users – powered by battery or corded electricity, with 50% of hedge trimmers being battery powered. As 85% of people believe battery powered tools are safer to use, this positive trend shows little signs of slowing, and the results speak for themselves.

WHEN CONSIDERING GARDEN TOOLS, WE KNOW THAT HOME GARDENERS GENERALLY CHOOSE BETWEEN THREE OPTIONS: CORDED ELECTRIC, BATTERY AND PETROL.

When asked to compare battery tools against petrol alternatives, 82% believe they are easier to use than petrol powered and 85% think they are safer. Alongside this, 93% of home gardeners see battery power as an environmentally friendly option.

However, when we look to perceptions around performance, we uncover a somewhat different story. Here, just 37% of people believe battery power delivers good performance.

For other tasks such as mowing the lawn, which generally require more time and differing levels of performance, this perception has significantly slowed the uptake of battery power – even when battery power is seen to be safer, easier to use and better for the environment. This could be in part because users don't seem to be able to get past their perception of power.



WHEN PURCHASING A NEW GARDEN POWER TOOL, DOMESTIC USERS ARE LOOKING FOR FIVE KEY THINGS: RELIABILITY (66%); EASE OF USE (62%); GOOD PERFORMANCE (56%); VALUE FOR MONEY (56%); AND SAFETY (47%). WITH THESE FACTORS IN MIND, 75% OF RESPONDENTS SAID BATTERY POWERED TOOLS WERE, TO SOME EXTENT, APPEALING.

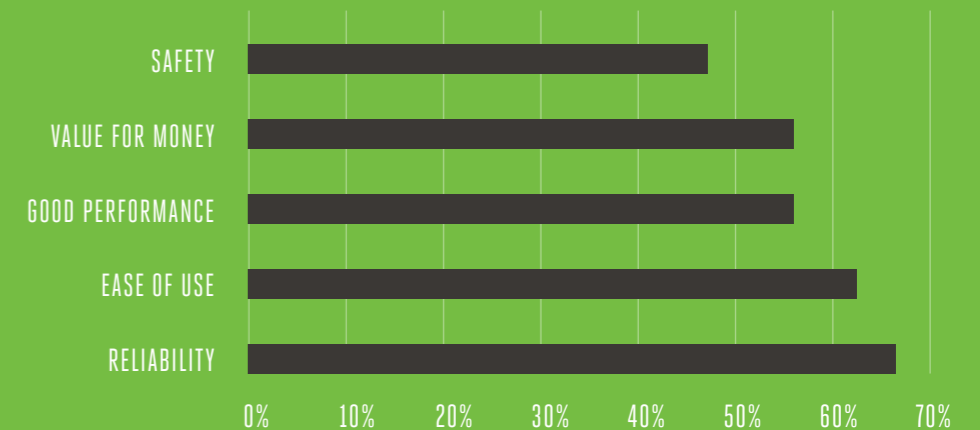
Perception over planet

In terms of tool ownership, lawnmowers are the clear front runner, with 88% of people owning one. While this makes them the most common piece of gardening equipment, deeper analysis of the results reveals they're also the most harmful to our environment. Of the lawnmowers sitting in garden sheds, an overwhelming 79% are powered by petrol.

Much of this high level of ownership of petrol-powered lawnmowers is a result of perception. While the majority of hand-held tools are now battery powered or corded to better suit practical and safety needs, 58% of users still perceive petrol power to deliver greater levels of performance.

When we consider that each domestic user on average uses 9 litres of fuel each year (enough for a car to drive around 100 miles), the collective impact of this ownership has a significant environmental impact. As well as contributing to climate change on a global level, the use of petrol-powered lawnmowers is playing an active role in the deterioration of the very environments gardeners are trying to maintain.

By adopting battery power, this needn't be the case. At EGO, we work tirelessly to develop cutting-edge battery technology which provides petrol-matching power, without the environmental impact. That means lawns can be kept in optimum condition without the toxic emissions, while noise and vibration are also kept to a minimum.



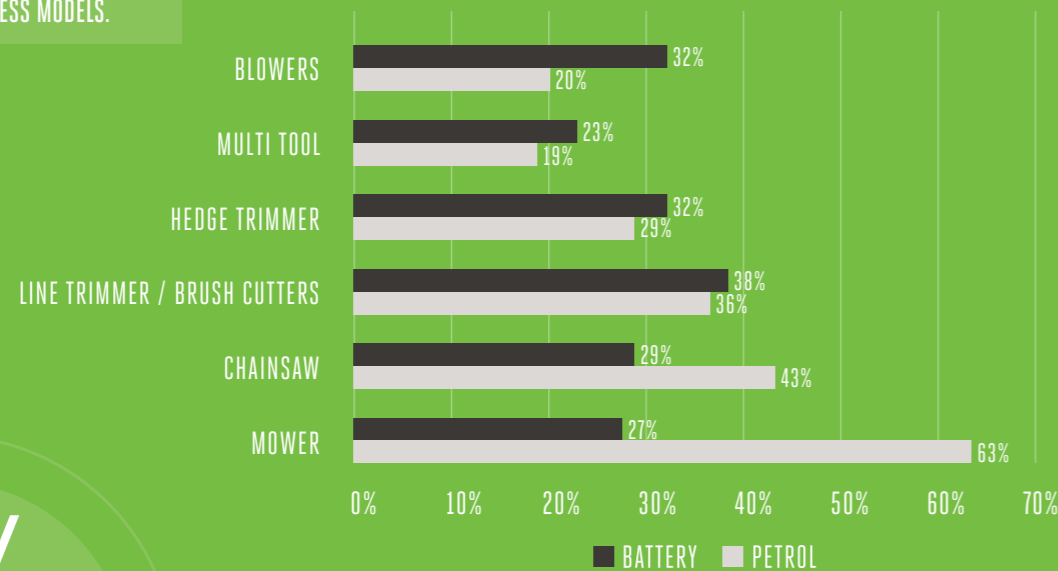
TO GAUGE ATTITUDES TOWARDS TYPES OF GARDEN TOOL, IT WAS IMPORTANT FOR US TO INVESTIGATE THE CURRENT LANDSCAPE OF TOOL USAGE AMONG TRADE PROFESSIONALS. ALMOST 70% OF TRADE RESPONDENTS HAD OVER 5 YEARS' EXPERIENCE WITHIN THE GARDENING AND LANDSCAPING INDUSTRIES.

WITH REGARDS TO TOOL OWNERSHIP, WE LOOKED TO FIND OUT WHICH TOOLS WERE OWNED BY OUR 250-STRONG SAMPLE OF PROFESSIONAL TRADE USERS.

Lawnmowers are, unsurprisingly, the most widely owned tools across the sample with 56% of the trade owning one however this figure is somewhat surprising considering 80% of our demographic consisted of gardeners and landscape gardeners. The second-most popular tools were chainsaws, which were owned by half of all trade respondents and making them twice as likely to own a chainsaw than their home user counterparts. Line trimmers or brush cutters were next, with 47% of users claiming to own one, followed by hedge trimmers (45%), blowers (41%) and lastly a multi-tool at 31% of professionals owning one.

NEXT, WE AIMED TO EXPLORE THE OWNERSHIP OF PETROL TOOLS VS BATTERY-POWERED CORDLESS MODELS.

Of the trade respondents who owned a particular tool it is interesting to note battery use vs petrol:



Overall, trade users are much more likely to own battery-powered tools than home users, with just under half (49%) owning petrol powered tools compared to 69% of home users. This may be explained by the relationship between a significant increase in hourly usage and awareness among the trade of the environmental, cost, health and safety disadvantages associated with petrol tool usage. The health risks associated to prolonged exposure to fumes created by petrol tools are well documented – with regular exposure leading to 'a range of acute and long-term adverse health effects and diseases, including cancer and aplastic anaemia.



THE AMOUNT OF FUEL USED BY EACH TRADE USER ANNUALLY WOULD ENABLE SOMEONE TO DO TWO ROUND TRIPS FROM LONDON TO EDINBURGH, WITH ENOUGH FUEL LEFT OVER TO CROSS THE CHANNEL AND DRIVE INTO CENTRAL PARIS.

Prolonged use has been shown to increase the risk of hand-arm vibration. By law, an employer must assess and identify measures to eliminate or reduce risks from exposure to hand-arm vibration so that employees can be protected from risks to their health.

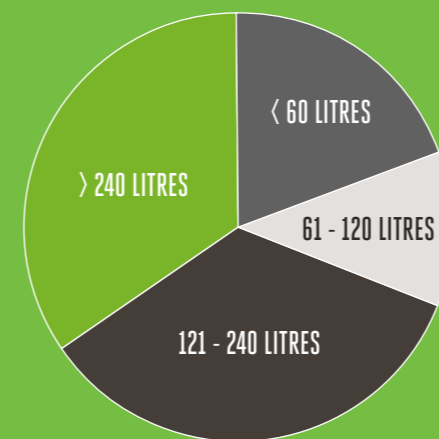
Powerful directives are in place to minimise the risks of HAV, not least The European Physical Agents (Vibration) Directive (2002/44/EC) which sets a daily action limit of 2.5m/s² A(8) and an exposure limit value of 5.0m/s² A(8). Although figures vary by manufacturer, in general, battery-powered outdoor power equipment vibrates at significantly lower levels than petrol-powered equivalents.

It may, therefore, be plausible to suggest that the understanding of the health and safety downfalls of petrol over a prolonged period could explain why trade users are 20% more likely to own battery-powered equipment than home users.

The results were surprising. Over one-third of respondents (38%) confess to using over 240 litres of petrol every year while 28% use between 121 and 240 litres per year. 1 in 8 respondents (13%) use 61 and 120 litres annually while less than a quarter (23%) claim to use less than 60 litres per year or less.

The average annual consumption of petrol for trade is 177 litres. Put into perspective, the RAC Foundation claims the UK's average new petrol car fuel consumption in 2016 was 50.5 miles-per-gallon, with a gallon equalling 4.55 litres. With these statistics in mind, if we filled up a car with the same amount of petrol used by a typical trade user in a year, it would be possible to drive just under 2,000 miles in a car. This amount of fuel would enable someone to do two round trips from London to Edinburgh, with enough fuel left over to cross the channel and drive into central Paris.

IN TERMS OF THE AMOUNT OF FUEL USED BY COMMERCIAL USERS, WE ASKED RESPONDENTS TO CALCULATE THEIR ANNUAL CONSUMPTION ACROSS ALL OF THE PETROL-POWERED TOOLS THEY OWN.



63%

OF TRADE USERS STILL OWN A PETROL MOWER. INTERESTINGLY, EXACTLY 63% OF THE SAME SAMPLE REPORTED HAVING EXPERIENCED HEALTH ISSUES RELATING TO PETROL TOOLS.

THINKING BEYOND THE USE OF OUTDOOR POWER EQUIPMENT FOR THE MAINTENANCE AND UPKEEP OF PERSONAL GARDENS AND AREAS MAINTAINED BY PROFESSIONAL GROUNDS PEOPLE, THERE'S AN OBVIOUS AREA WHICH HAS THE POTENTIAL TO MAKE A BIG DIFFERENCE – PUBLIC SPACES.

PARKS, COMMONS, RECREATION GROUNDS, PLAYING FIELDS, VILLAGE GREENS, MARKET SQUARES. ALL OF THESE OUTDOOR SPACES PLAY THEIR PART IN DEFINING COMMUNITIES BY PROVIDING PEOPLE WITH PLACES TO MEET, PLAY AND SOCIALISE.

For those who don't have their own private spaces, these areas are of even greater significance and can provide a natural escape – even in the hearts of towns and cities. Beyond the benefits to people, these outdoor spaces have a greater, often hidden, layer – they're a haven for wildlife.

The importance of these green spaces is undeniable. That's why we decided to find out how these areas are maintained. To get the numbers, we submitted Freedom of Information requests with all 408 principal councils across the UK, which includes 26 county councils, 192 district councils and 190 unitary councils. Providing fascinating insight into how our green spaces are maintained, we received responses from 262 of these authorities.

FROM THE 262 COUNCILS WHICH RESPONDED TO OUR REQUESTS, WE DISCOVERED THAT 22,479 POWER TOOLS ARE USED TO MAINTAIN THE AREAS FOR WHICH THEY ARE RESPONSIBLE.

Of these tools, an overwhelming 20,060 are powered by 2-stroke petrol engines and just 1,722 by battery. That's 89% of known council tools which, collectively, use almost 600,000 litres of fuel every year – that's enough fuel to drive around the circumference of the world (if there were roads) 80 times.

In short, these numbers suggest that the majority of the UK's natural havens are maintained by tools which are designed to preserve them, but which actually contribute to greater volumes of pollution.

TO FIND OUT WHAT IS DRIVING THIS ENORMOUS RELIANCE ON PETROL POWERED EQUIPMENT, WE ALSO LOOKED AT THE TYPE OF TOOLS BEING USED.

WE KNOW FROM OUR SURVEY – TO WHICH PROFESSIONALS AND HOME GARDENERS RESPONDED – THAT THERE IS A PERCEPTION THAT PETROL POWERED TOOLS DELIVER GREATER LEVELS OF PERFORMANCE, WITH 73% OF PEOPLE AGREEING WITH THIS PREMISE.

TO UNDERSTAND WHY COUNCILS ARE FALLING BEHIND THE TIMES – PARTICULARLY WHEN COMPARED TO HOME AND TRADE USERS – WE ASKED RESPONDENTS WHY THEY DON'T PURCHASE BATTERY POWERED EQUIPMENT. THE MOST COMMON REASONS WERE COST, LONGEVITY AND POWER.

With almost 6,500 owned by the responding councils, leaf blowers are the most common tools for maintaining outside spaces, followed by brush cutters (more than 6,000 in use) and hedge trimmers (just under 6,000 in use). When we look at battery powered tools specifically, we see the same three tools leading the way, but hedge trimmers are the most popular, with 542 in operation.

But, when we need to be more conscious of our environmental impact, should this be a consideration for local authorities? Better still, with technological developments, is this line of thought even accurate today?

The development of battery technology in recent years means that the leading battery powered tools available today are actually able to rival the performance of petrol alternatives and, in some cases, outperform them. In practice, that means users can achieve the same results with each power type. But there's far more to it than that. Battery powered tools are quieter and safer to use, as well as being far better for the environments they're maintaining with zero emissions produced at the point of use.

Despite some common perceptions, the pace of battery innovation means these barriers to battery tool ownership are quickly decreasing, with batteries lasting longer, providing reliable petrol matching power and reducing in price as levels of ownership increase.

By switching to battery powered tools now, councils can not only continue to maintain public spaces to the highest standards for the benefit of communities but do so while reducing the emissions they produce. By following the strategy of Green Public Procurement to reduce emissions in the maintenance of green spaces, council could, in turn, accelerate the uptake of environmentally friendly technologies. In addition to contributing towards better air quality in these green havens, workers will also benefit from safer working conditions, experiencing less noise, vibration and toxic emissions as they carry out their vital work.

89% OF COUNCIL TOOLS ARE PETROL POWERED, USING 600,000 LITRES OF FUEL EACH YEAR.



WHEN WE BURN PETROL, WE PRODUCE EMISSIONS AND CONTRIBUTE TOWARDS THE CLIMATE CRISIS – AND WE’RE ALREADY SEEING THE IMPACTS WITH MORE SEVERE WEATHER PATTERNS, MELTING ICE CAPS AND DIRTY AIR IN OUR TOWNS AND CITIES.

As vehicles are major contributors to this, the automotive industry must adhere to stringent regulations when producing new vehicles, ensuring engines don't exceed pre-determined limits. As a result, users are more aware of vehicle emissions and more likely to choose low- or zero-emission alternatives, which are now being produced by mainstream manufacturers. Once made and in operation, petrol vehicles are tested annually to make sure they continue to operate within the limits.

EMISSIONS EXCEED MAXIMUM PERMITTED FOR ROADGOING VEHICLES

Our approach

From the 262 Freedom of Information responses we received, we extrapolated the three most popular tools to test: a leaf blower, a hedge trimmer and a brush cutter and purchased the latest version of the most widely identified models, (from the most popular manufacturer), and put them to the test.

Carried out by one of the UK's leading emissions testing specialists, Millbrook, each tool was run at maximum speed until stable exhaust temperature and emissions were achieved. The emissions were then measured over a period of 100 seconds – either at maximum load or maximum speed, depending on the tool.

PARTICULATE NUMBERS EXCEED THE USUAL RANGE OF TESTING EQUIPMENT

The results - fuel efficiency

Before even considering the results of the tests themselves, the condition of test equipment post-test painted its own picture in terms of fuel efficiency of each power tool, with critical components soaked in unburned fuel which had been expelled via the exhaust.

Drawing attention to the nature of the 2-stroke engines in question, the test results further elaborate on this worrying start.

Over the test period, the leaf blower consumed the greatest volume of fuel, using 0.0006 litres of petrol every second. By comparison, the average consumer vehicle uses just 0.001 litres of fuel.

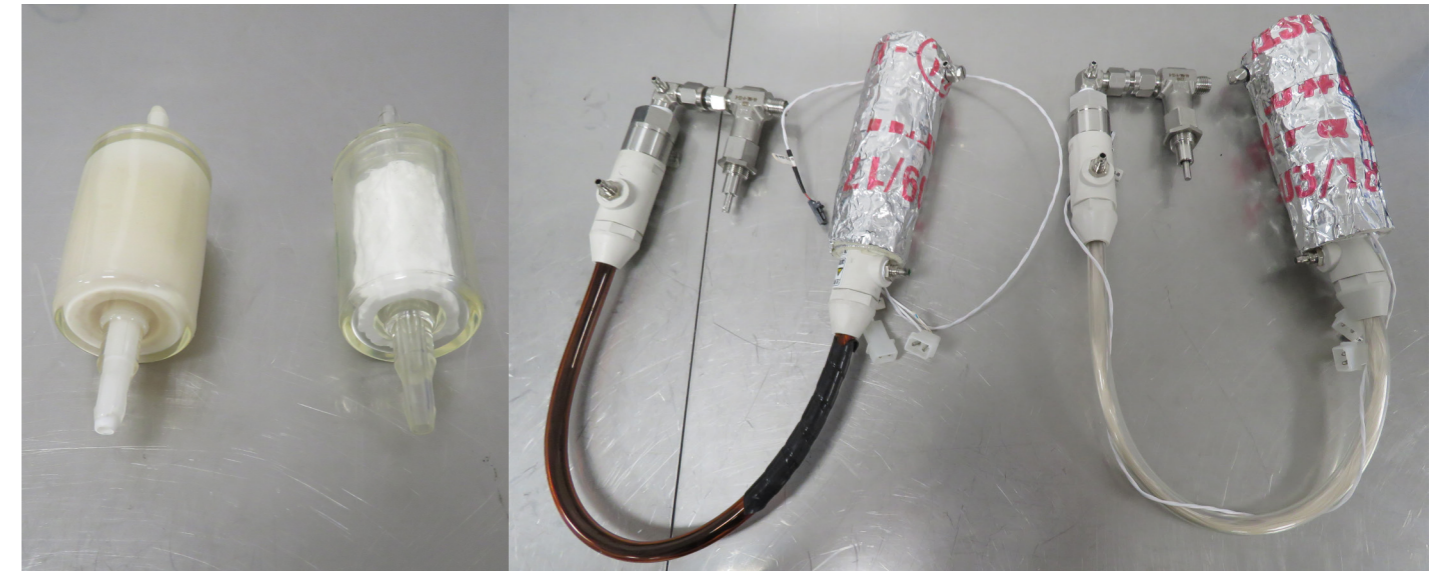


Photo: Filters and internal PEMS components. Taken after one test, shown with new parts to the right.

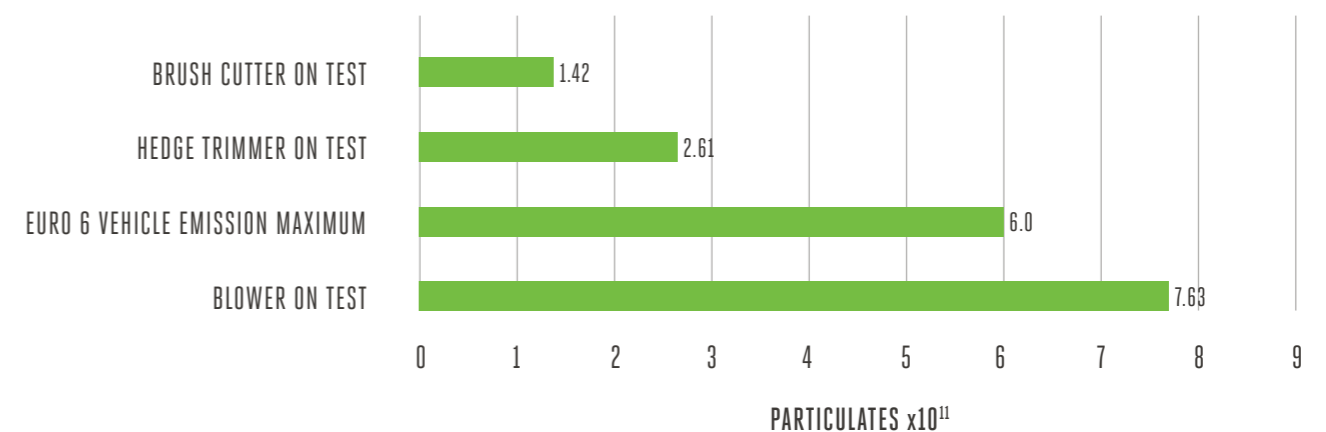
THE MOST WIDELY USED PETROL-POWERED TOOL EMITS PROPORTIONALLY MORE PARTICULATES THAN THE MAXIMUM ALLOWED FOR MODERN VEHICLES, DESPITE USING HALF THE FUEL.

While per second, these levels of fuel consumption might not seem so significant, but when a tool designed to move leaves needs more than half the fuel required of a vehicle constructed to transport 4 people, it is a concern – particularly when we consider these tools are hand held and emissions are released directly into their users' immediate environment.

Particulate numbers

Digging deeper into the test results, the particulate number gives us a greater understanding of this level of fuel consumption, and how it translates into particulates which are released into the atmosphere.

Taking the same tool, the number of particulates actually exceeded the number which standard vehicle testing equipment is calibrated to record, reaching an astounding 7.63×10^{11} – or 763,000,000,000 particles per second. For context, that's a greater volume per second than a vehicle is permitted to produce when travelling 1km. Although not as significant, the most popular model of hedge trimmer achieved 2.61×10^{11} and the brush cutter 1.42×10^{11} . To put these figures into context, the volume of particulates a vehicle is permitted to produce under Euro 6 standards is $6.0 \times 10^{11}/\text{km}$. So in practice, the most widely used petrol-powered tool emits proportionally more particulates than the maximum allowed for modern vehicles.



EMISSIONS TESTING.

PETROL POWERED TOOL PRODUCE MORE TOXIC EMISSIONS THAN THE AVERAGE CAR

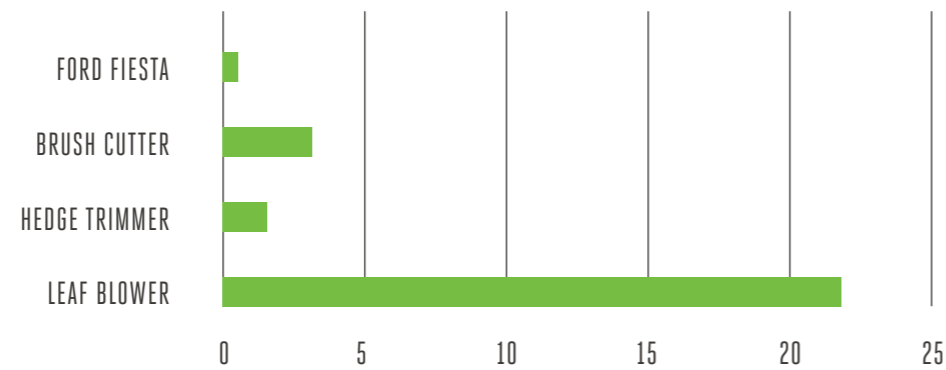


Carbon monoxide and oxides of nitrogen

Produced in the incomplete combustion of petrol and other carbon fuels, carbon monoxide directly contributes to global warming and is primarily produced by vehicles. Prompting vehicle manufacturers to take action, one of the most popular vehicles on the roads today produces less than 0.5g/km – an amount considered by current regulations to be low. Each of the tools tested exceeds this, with the poorest performing tool being the leaf blower which generates the equivalent of 21.73g/km*. Even the best performing tool – the petrol-powered hedge trimmer – produces 1.56g/km, more than three times that of the average car.

	CO MASS MG/S	CONVERTED TO G/KM
LEAF BLOWER	301.8	21.73
BRUSH CUTTER	42.6	3.07
HEDGE TRIMMER	21.6	1.56
2018 FORD FIESTA		<0.5

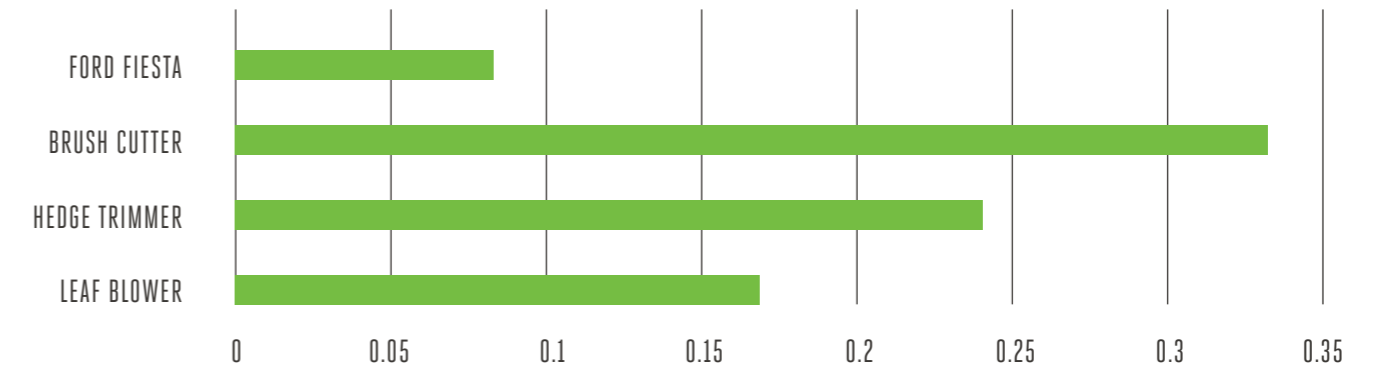
CO MASS CONVERTED TO G/KM



When we consider nitrogen oxide, the results are equally alarming. Compared to the same vehicle, which produces 0.08g NOx/km, it is the brush cutting which performs worst of all, emitting the equivalent of 0.33g/km.

	NOx MASS MG/S	CONVERTED TO G/KM
LEAF BLOWER	2.3	0.17
BRUSH CUTTER	4.6	0.33
HEDGE TRIMMER	3.3	0.24
2018 FORD FIESTA		<0.08

NOx MASS CONVERTED TO G/KM



The impact of petrol-powered tools

These results paint a clear picture – petrol-powered tools are inefficient, bad for the environment and bad for our health. But there is a solution. New technology is making battery-powered tools a viable alternative, by comparison the three equivalent EGO Pro-X tools deliver comparable power, enhanced user experience and zero emissions.

Now is the time to make a change, adopt battery power and reduce the impact of power tools on the planet.

*see conversion charts for original figures.

	CYCLE TIME	CO2 MASS	CO MASS	NO MASS	NO2 MASS	NOx MASS	MAX THC MASS	PARTICULATE NUMBER	MAX PARTICULATE NUMBER	FUEL CONS.
	S	MG/S	MG/S	MG/S	MG/S	MG/S	MG/S	#/S	#/S	ML/S
LEAF BLOWER	100	596.8	301.8	2.2	0.0	2.3	105.5	7.63x10 ¹¹	3.13x10 ⁵	0.608
HEDGE TRIMMER	100	155.4	21.6	3.1	0.2	3.3	42.0	2.61x10 ¹¹	1.13x10 ⁵	0.139
BRUSH CUTTER	100	137.6	42.6	4.5	0.1	4.6	26.9	1.42x10 ¹¹	7.92x10 ⁴	0.125

Conversion

Vehicles are measured at g/km. To convert mg/s to g/km, we used a cruising speed of 50kmph (31.07 mph), at which speed it takes 72 seconds to travel 1km.

The car statistics refer to a Ford Fiesta Active (2018 to present), petrol 1-litre (140hp), Euro 6d-Temp, as reported by [Which.](#)

AS A LEADER IN CORDLESS OUTDOOR POWER EQUIPMENT, EGO'S STRENGTH IN **DEPTH AND DESIRE TO BREAK NEW GROUND** HAS HELPED US ACHIEVE EXCEPTIONAL GROWTH WHILE BEING ENVIRONMENTALLY CONSCIOUS.

Having read The Report we hope that you better understand the extent of the negative impact that petrol has in our gardens and green spaces.

With that understanding, and the knowledge that there are cleaner, quieter and safer fuels we can

use in our environment, we want you to get behind Challenge 2025.

EGO was founded to deliver exclusively cordless outdoor power equipment.



CALL FOR CHANGE.

Our strength and depth in cordless technology – allied to our ambition to break new ground – has helped us to balance customers' desire for superior performance with the ability to deliver more environmentally conscious products.

We take the need to create a greener future seriously, even in the ways we operate and the places we work.

From our 2-megawatt photo-voltaic power station to the latest in ground-source heating, air-conditioning and water storage technologies, we have saved the equivalent of over 1,000 tonnes of coal per year, cutting carbon dioxide emissions by over 2,500 tonnes each year.

With Challenge 2025, we want everyone to help us in this quest.

Whether that means switching to cleaner alternatives in outdoor power equipment for personal or professional use, or challenging local authorities on their current tool portfolio, there is much we can all do. As the data in The Report demonstrates, if we all play our part, we can make a sizable improvement.

Switching to battery power can be perceived as expensive but EGO have created a useful table to show how you can save money by making the switch. Find out more by reading about how EGO is [kinder to your hands, ears, wallet and the environment](#).

Not sure how to get involved?
On the [Challenge 2025 website](#), you can find further details of how you can help, and the latest action we're taking to enable the shift to a cleaner, quieter and safer future.

RESEARCH METHODOLOGY.

Emissions and Fuel Economy Test Results

Each tool was run at maximum speed until stable exhaust temperature and emissions were achieved. The emissions were then measured over a period of 100s. This was done at maximum load on Tool 1 and maximum speed on Tools 2 and 3, as it was not possible to simulate loading on the latter. It was not possible to measure the tools at idle speed as the exhaust flow was too low.

The PEMS particulate analyser is not suitable for this testing due to such high results. The actual measured value has been reported, but this is not reliable due to exceeding the maximum range of the analyser. A second figure has been reported as the maximum possible particulate value that could have been measured accurately at the exhaust flow rate of each tool. The PEMS hydrocarbon analyser is also not suitable for this testing due to such high results. Here the maximum possible value that could have been measured accurately at the given exhaust flow rate has been reported. This figure has also been used to calculate the fuel consumption using the carbon balance method.

Quantitative survey of garden power tool users

A quantitative approach was considered to be the most effective research method for this project. A survey was developed in collaboration with Vision One and responses were collected using independent online panel providers.

Two sample groups were targeted as part of this research, Home users and Trade professionals.

- All respondents were screened on a number of criteria to ensure their suitability:
- All must own at least one type of garden power tool listed
- Trade respondents were screened based on their occupation to ensure the sample was relevant

A total of 1255 survey responses were collected, 250 Trade respondents and 1005 Home users. The data presented from this survey has not been weighted.

Freedom of Information

Requests were made under the open government request for information under the Freedom of Information Act 2000 to all 408 principal councils across the UK, which includes 26 county councils, 192 district councils and 190 unitary councils. We received responses from 262 of these authorities. In some cases, it was not possible for an authority to provide the information requested.

About Vision One

Vision One is a full-service research agency providing a wide array of marketing insight and consultancy services from start to finish. Its expertise and research services fall into three key areas, Brand Development & Tracking, Innovation and New Product Development, Communications Development and Testing and International Research.

In 2018, Vision One became one of a small number of research agencies who are ISO 20252:2012 (The specialist Market Research accreditation standard). This survey was carried out in compliance with this standard.

About Millbrook

Millbrook provides vehicle test and validation services and systems to customers in the automotive, transport, tyre, petrochemical and defence industries. It is independent and impartial in everything it does.

It has a range of test facilities for full vehicles, tyres and components located in the UK, the USA and Northern Finland.



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