

The STIHL logo is displayed in white, italicized, sans-serif capital letters on an orange rectangular background in the top right corner of the image.

**STIHL**

A photograph of four outdoor workers in a wooded area. One worker in the foreground is wearing a green jacket and a clear safety visor, holding a STIHL trimmer. To his left, another worker in a grey jacket is looking at a smartphone. In the background, a woman in a green jacket is also visible. Various STIHL tools, including a chainsaw, a blower, and fuel containers, are laid out on a table. A silver metal toolbox and a green tarp are also present.

## **NORDIC OUTDOOR INDUSTRY REPORT 2024**

—  
THE POWER SOURCE TRANSFORMATION  
— A REPORT BY STIHL



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# WORKING TOGETHER FOR AN EMPOWERING TOMORROW

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This report aims to take the pulse of the outdoor industry in the Nordic region, to see how far we have come in the power source transformation. We want to learn more about your work and preferences, while hopefully sharing both knowledge and inspiration.

It is gratifying to confirm that you also have high ambitions to change your way of working to make it even more sustainable. It is also gratifying to see that health and safety is a high priority, as it is an area close to our hearts at STIHL. Over the years, we have devoted our work to developing products that are ergonomic and easy to use. All to facilitate your work in and with nature.

You express a clear desire for change, and at the same time have a clear view on the demands you place on new products and how user-friendly they are in your everyday professional life. Your user experiences are of utmost importance to us, as they enable us to do what we strive for – empowering people. And as we see it, it's all about working on several parallel tracks – for example, developing both the battery and gasoline segments simultaneously – to ensure the best possible working conditions both today and tomorrow.

STIHL has been in the business of battery-powered tools since 2009, and over the years we have shifted our focus to battery-operated products free of local emissions. Today, our global product range includes over 80 battery-powered machines, some of which offering virtually the same performance as their gasoline-powered counterparts, such as the MSA 300 – the world's most powerful battery-powered chainsaw.

We are consistently investing at a high level in rechargeable battery technology, and at the same time, we are aiming for dual technology leadership. This means that we are expanding our battery segment, but also continuously working to further develop our gasoline-powered products in a sustainable manner. We are

focusing on biofuels and e-fuels and have already launched a fuel containing 10% renewable materials. Our products are “e-fuel ready”, which means that all gasoline-powered equipment can run on synthetic fuel without any technical adjustments.

But batteries are, appropriately, our fastest growing segment. The global goal is to turn our 20% global market share into at least 35% by 2027, and to have 80% of all STIHL products sold run on battery power by 2035. Regarding the Nordic region, the outlook is positive. The Nordic market is progressive, and we have made significant progress.

No matter where the future takes us, we consistently align our actions to empower our customers to work in and with nature. We invest with the highest priority in the development of innovative and high-performance products. And we are happy to see in your answers that we have the same ambitions: more sustainable machines to benefit the climate, the environment and the people who work with them.

I, along with STIHL in the Nordic region, wish you an enjoyable read!



A handwritten signature in black ink, appearing to read 'Kjell Svensson', written in a cursive style.

KJELL SVENSSON  
General Manager, STIHL in the Nordic region





**STIHL**

# 01. BACKGROUND & INTRODUCTION

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# SURVEY: KEY LEARNINGS

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**Heavy machines** are avoided when purchasing new machines

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**High quality** is most important when purchasing new machines

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**Climate / climate goals** is the primary reason to avoid gasoline power

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**Short operating time** is the primary reason to avoid battery power

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Most believe that **trimmers** should be battery powered

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Most believe that **chainsaws** should be gasoline powered

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**Better machines** should be prioritized to increase the use of battery-power



46%

use both gasoline and battery-powered machines equally

69%

prefer a mix of gasoline and battery-powered machines

67%

believe it's important to choose machines that are less harmful to the environment

43%

feels that the battery-powered machines' operating time covers all their work needs

74%

believe that the majority of machines in their profession will be battery-powered in the future

87%

agree that they avoid inhaling harmful emissions when using battery-powered machines



# KEY INSIGHTS

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Outdoor Industry Report from STIHL Norden is a report on the Nordic industry's choice of machines and how these choices are influenced by factors such as health, safety, climate, environment, and performance. The report is based on a survey carried out by Novus between June 17 and August 11, 2023, on behalf of STIHL in the Nordic markets.

In the survey, Novus interviewed a total of 780 professionals active in forests, landscapes, green spaces, parks, property management and municipal administrations in the Nordics. The respondents are employed in Sweden, Norway, Denmark, and Finland and buy and/or use machines, out of which a large part are battery or gasoline-powered.

## SHORT SUMMARY

The data reveals several noteworthy trends. Firstly, nearly half (46%) of the respondents reported that they use gasoline and battery-powered machines to an equal extent. Secondly, a majority, 87%, expressed a sense of relief at not having to inhale harmful exhaust emissions when using battery-powered equipment.

Furthermore, 96% of the respondents claim to have knowledge of the necessary safety equipment for the various machines, with 95% having ready access to this equipment. Sustainability appears to be a priority in the industry, as 67% stated that it is important to them that their workplace selects machines that are friendly to the environment.







In terms of decision-making, the most common criterion for selecting a machine is avoiding heavy models, with 58% reporting this as a priority. For those avoiding electric machines, limited charging options were the primary deterrent, while concerns about climate change and sustainability were the leading factors for avoiding gasoline-powered machines. Battery duration, on the other hand, was the predominant concern among those who steered clear of battery-powered devices.

Quality was ranked the highest priority at 39%. Additionally, nearly half (43%) of the respondents felt that the battery life of their equipment sufficiently met their work needs. Opinions varied on power sources for specific tools, with 64% favoring battery-powered trimmers and 56% preferring gasoline-powered chainsaws.

Interestingly, almost seven out of ten respondents (69%) reported a preference for a combination of battery and gasoline-powered machines. Furthermore, almost three out of four (74%) believed that battery-powered machines will dominate their profession in the future. Lastly, 57% believed that prioritizing more efficient battery-powered machines would be instrumental in boosting their usage.

# 74%

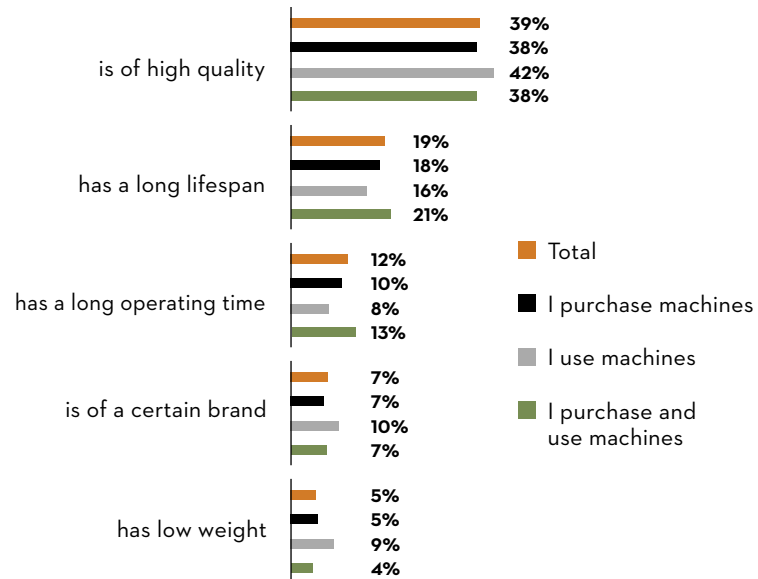
BELIEVED THAT BATTERY-POWERED  
MACHINES WILL DOMINATE THEIR  
PROFESSION IN THE FUTURE





### The highest priority is for the machine to be of high quality

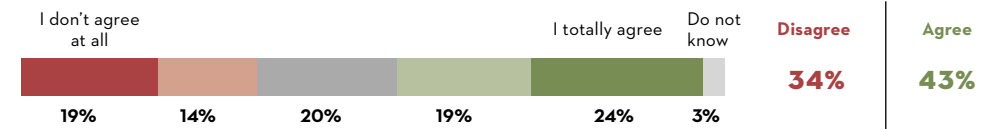
**QUESTION:** Which of the following do you prioritize most when choosing a machine? That the machine...



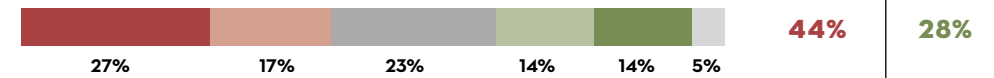
### Just over four out of ten feel that the operating time of a battery machine covers all their needs at work

**QUESTION:** How strongly do you agree with the following statements?

I feel that the operating time of a battery machine covers all my needs at work



The operating time of a battery machine is equivalent to that of a gasoline-powered machine

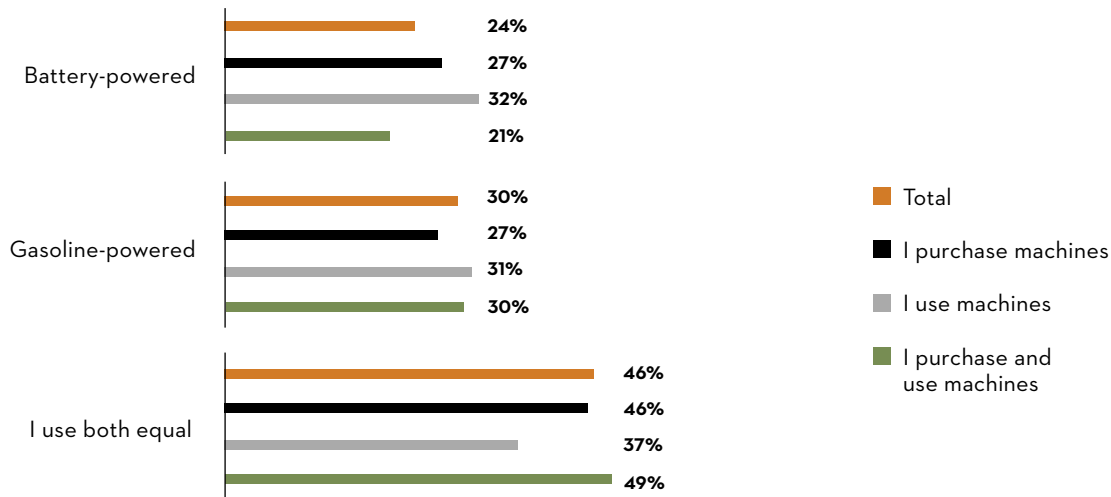






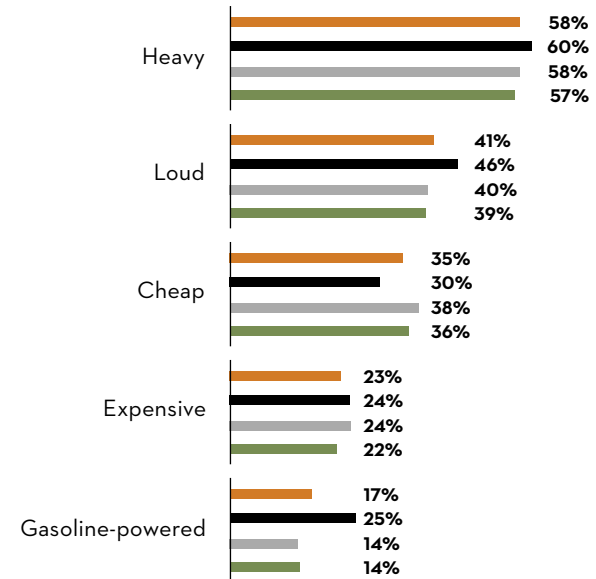
### Almost half use both gasoline-powered and battery-powered machines equally

**QUESTION:** Which of the following best suits you?  
Most of my machines/the machines I use are...



### It is most common to avoid heavy machinery when choosing a machine for the job

**QUESTION:** Which of the following do you avoid when choosing machines for your work? That the machine is...



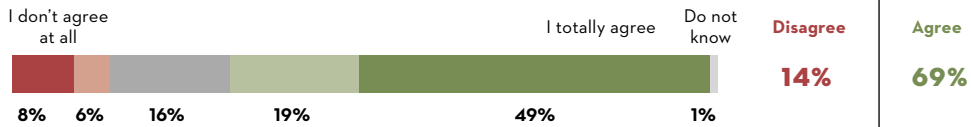




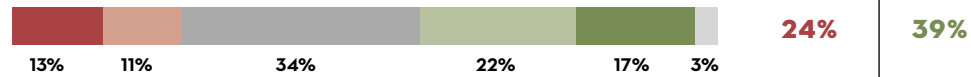
## Nearly seven out of ten prefer a mix of both battery and gasoline-powered machines

**QUESTION:** How strongly do you agree with the following statements?

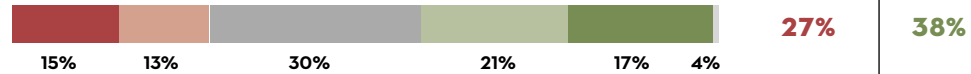
I prefer a mix of machines where some are battery-powered and others are gasoline-powered



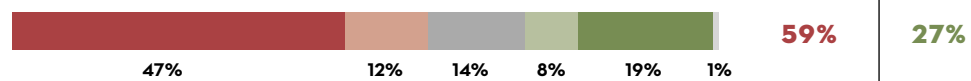
The purchase price is too high for battery machines



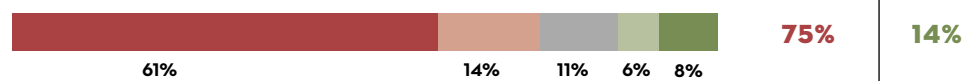
Battery-powered machines are cheaper in the long run because no costs for fuel are added



I like the sound of a powerful engine



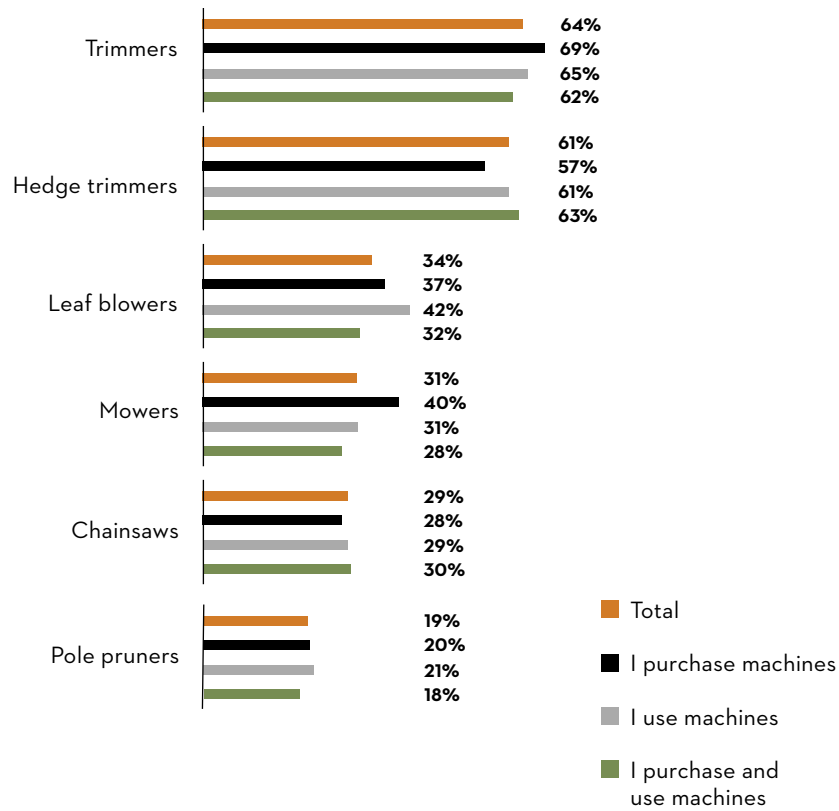
I like the smell of gasoline





## Almost two out of three believe that trimmers should be battery-powered

**QUESTION:** Which of the following product categories should be battery-powered according to you?

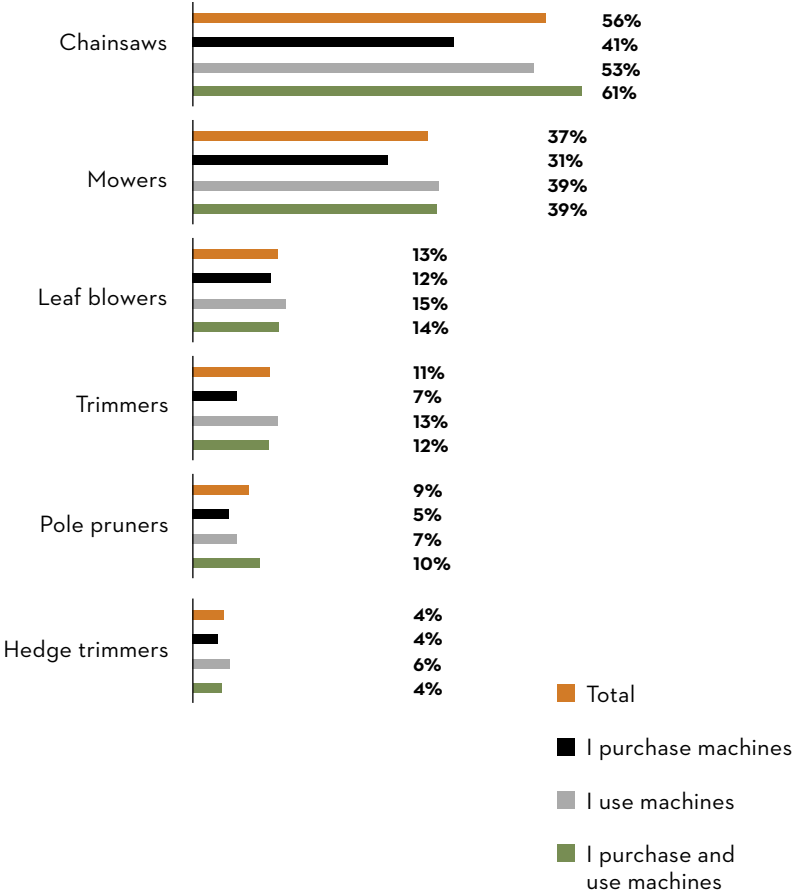






**Almost six out of ten believe that chainsaws should be gasoline-powered**

**QUESTION:** Which of the following product categories should be gasoline-powered according to you?





# HOW BATTERY-POWERED MACHINES ARE USED TODAY

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**STIHL launched its first battery-powered machine back in 2009 and has consistently engineered battery innovations that have shaped the market ever since. Following 2009, STIHL has stepped up its investments in battery development and production while constantly advancing the technology in terms of performance and weight.**

A lot has happened since the first battery trimmers were launched back in 2009. For example, the world's first battery-operated cut-off machine, TSA 230, was launched in 2014, and in the spring of 2022, STIHL launched the MSA 300 – the most powerful battery-powered professional chainsaw on the market.

Thanks to a continuous rise in demand, battery-operated tools are the fastest-growing market segment for STIHL today. In fact, as of today, the STIHL product range includes more than 80 battery-operated tools for both private consumers and professionals, which account for 20% of the STIHL tools sold worldwide. STIHL plans to raise this proportion to a minimum of 35% by 2027, with a long-term target of 80% by 2035.

## **BATTERY PERFORMANCE**

When asked about their relationship to battery products, nearly half (46%) of the respondents in the industry stated that they use gasoline and battery-powered machines equally. At the same time, 74% believe that most machines used in their profession will be battery-powered in the future. In order to use more battery-powered products, more than half of the respondents would like the battery products to become more developed. Meanwhile, those who avoid battery-powered products seems to do so because of a perceived short battery duration. Just over four out of ten (43%) feel that the battery duration of the machines cover all their needs at work.





Luckily, STIHL is continuously moving forward in terms of battery performance to remain a leading manufacturer in the segment. For example, AP 300 S from the STIHL AP-system gives the battery chainsaw STIHL MSA 160 - an operating time of over an hour.

### SUSTAINABILITY PRIORITIZED

There are many reasons to move toward a more battery-powered machine fleet. The respondents who avoid gasoline-powered machines mainly do so because of the environment. At the same time, more than two out of three think it is important that their workplace chooses machines that are less burdensome on the environment and the climate.

– The industry has come a long way when it comes to battery-powered machines, but there’s still work to be done, says Kjell Svensson at STIHL Nordic markets and continues:

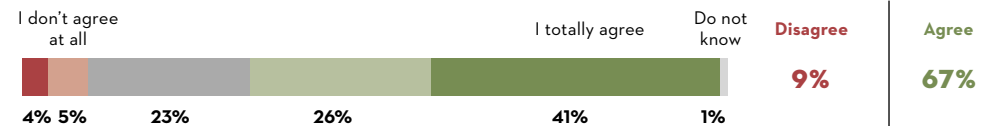
*– Our focus remains on providing the best possible solutions that allow people to work efficiently and sustainably in and with nature.*



### Just over two out of three think it is important that their workplace chooses machines that are less burden on the environment and climate

**QUESTION:** How strongly do you agree or disagree with the following statements?

It is important to me that my workplace takes responsibility for choosing machines which is less burdensome for the environment and climate



I think it is important to switch to battery-powered machines



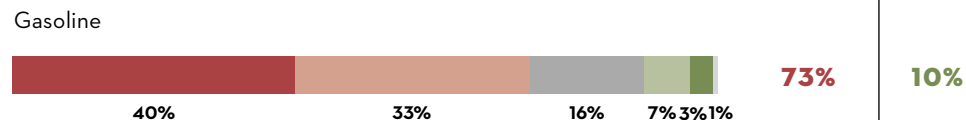
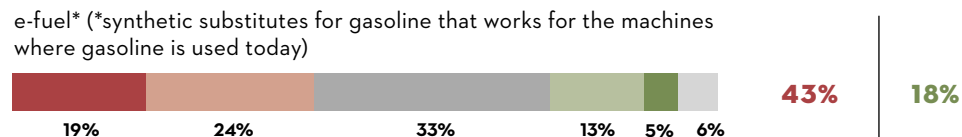
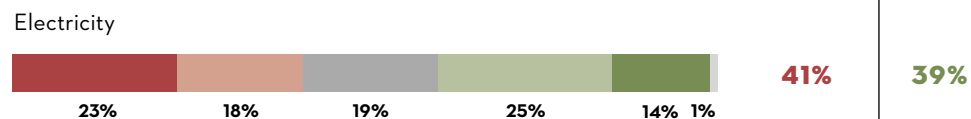
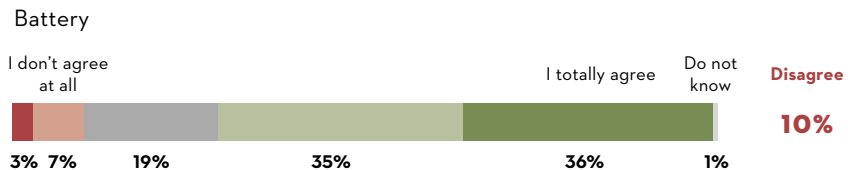
I dislike working with machinery that emits emissions in the surroundings





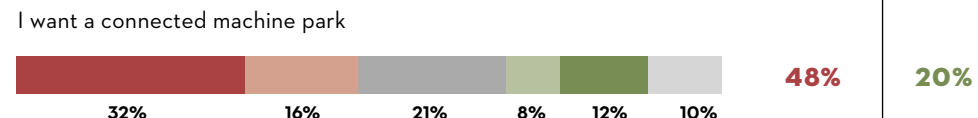
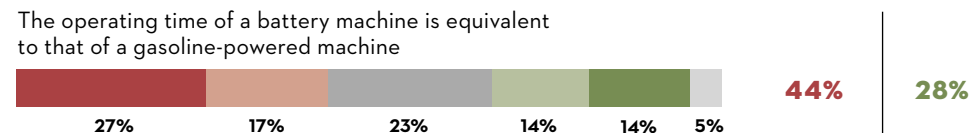
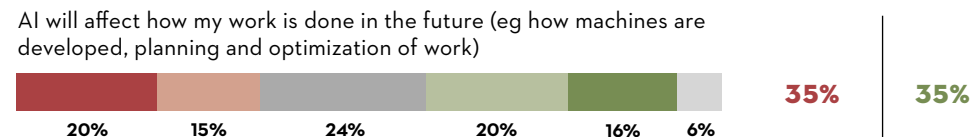
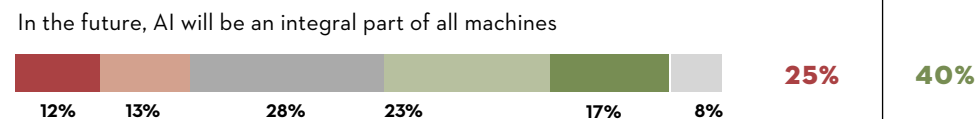
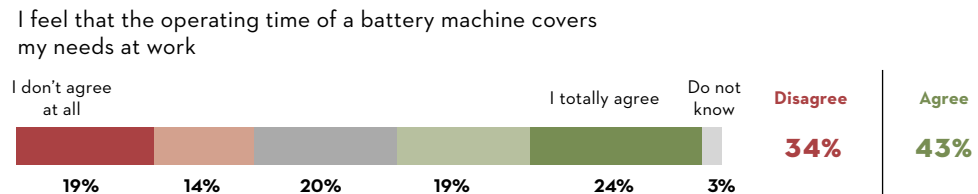
## Just over seven out of ten believe that the majority of machines in their profession will be battery operated in the future

**QUESTION:** How strongly do you agree with the following statements? In the future I think that the majority of machines in my profession will be powered by...



## Just over four out of ten feel that the operating time of a battery machine covers all their needs at work

**QUESTION:** How strongly do you agree with the following statements?





# BATTERY-POWERED GARDENING ON HISTORIC LAND

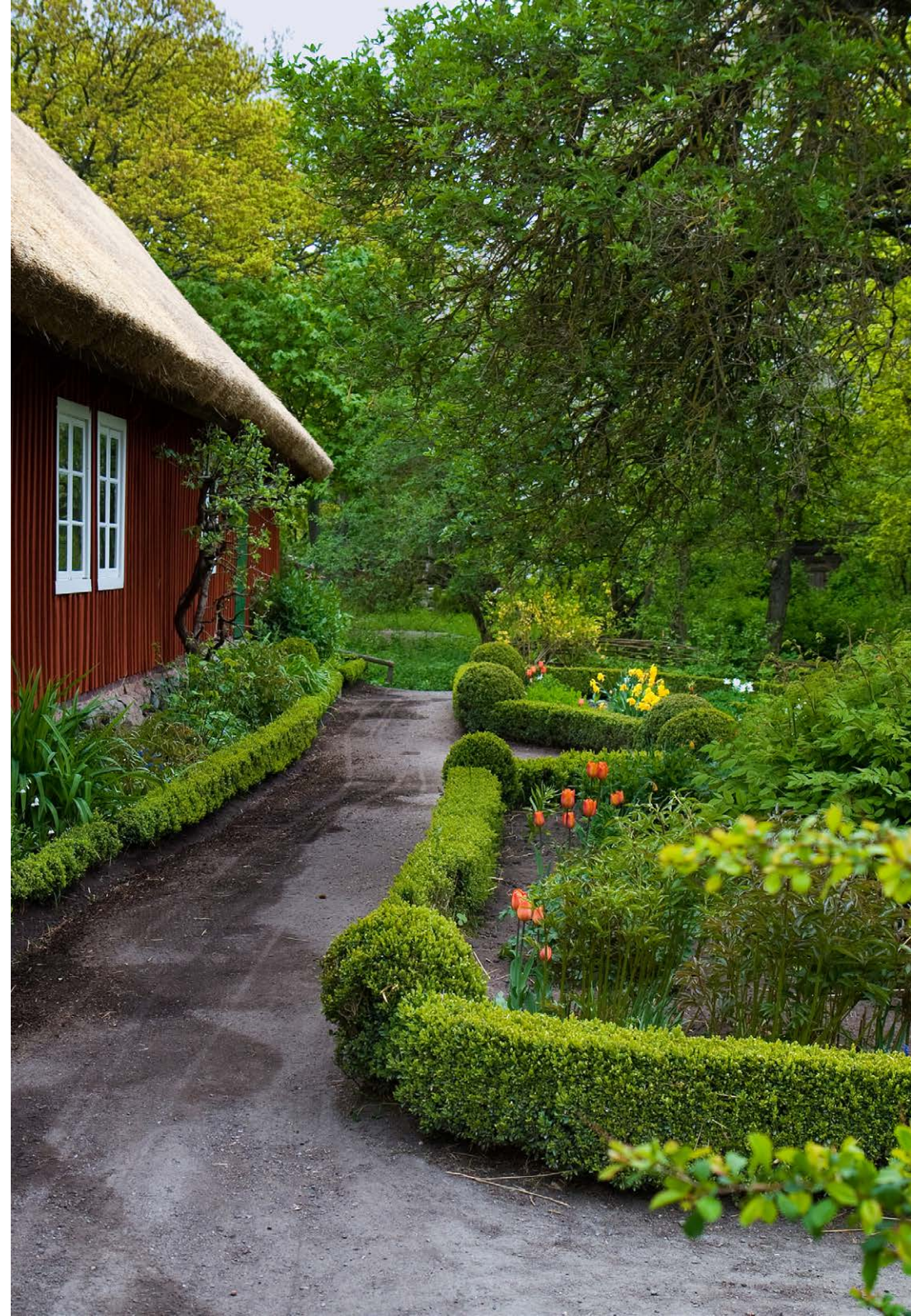
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**One of Sweden's most well-known open-air museums, Skansen, began its journey towards a battery-powered machine park just over three years ago. At Djurgården in Stockholm, the foundation-owned open-air museum attracts millions of visitors every year with its rich nature and culture. For the past few years, Skansen has also been actively working on greener management practices for its approximately 30 hectares of heritage gardens, parkland, woodland, and landscape-like areas.**

Just over three years ago, Skansen decided that it wanted to replace as many gas-powered machines as possible. Shortly afterwards internal work towards Agenda 2030. Thus, Skansen had begun the work of each year systematically replacing gasoline-powered machines with battery-powered ones – and that's where STIHL came into the picture. In the midst of the transition stands Mia Norbäck, Manager of Skansen's gardening unit, overseeing the procurement of new machinery.

– We have to make sure that all machines purchased are suitable for park environments, as they must endure hard work over several seasons. Currently, an estimated 80% of the small machines we use daily are battery-powered, and in the future, we would naturally like to see that figure increase to 100%, says Mia Norbäck.

When Skansen started buying battery-powered products more frequently, the working group – consisting of six gardeners, three landscapers and an arborist – tested a number of different brands. Ultimately, STIHL was the brand preferred by the group. One of the professionals now using STIHL battery-powered products on a daily basis is Sara Wiklander, gardener at Skansen.







– Grass trimmers and leaf blowers are the machines I use the most. Some of the battery-powered machines’ advantages are that you don’t have to inhale petrol fumes, and that the vibrations are lower, which puts less strain on the body. It’s also nice that the noise levels are much lower, says Sara Wiklander.

– Skansen is an open-air museum with natural history environments, and therefore we usually need to work before the guests arrive so as not to disturb their experience. With battery-powered products, some work can actually be carried out during visiting-hours, as the noise levels are so low, adds Mia Norbäck.

### **CLEAN AIR AND UNDISTURBED GUESTS**

The ergonomic advantages of the battery-powered machines are clear in the results of the STIHL survey. For example, nine out of ten respondents, much like Sara Wiklander, report that they avoid inhaling exhaust gases when using battery-powered machines. Likewise, Wiklander’s experiences regarding the weight of the machines are in line with the majority of the respondents, as 67% report that battery-powered machines are easier to carry than the gasoline-powered machines.

The survey also shows that more than half of the respondents think that the development of better battery-powered machines should be prioritized in order to make the industry increase the use of battery-powered machines. Norbäck and Wiklander agree to some extent.

– For our everyday tasks, battery-powered trimmers and hand blowers work at least as well as gasoline-powered ones. However, we still use petrol-powered machines for the more extensive leaf collection, says Mia Norbäck.

– In the future, batteries with longer operating times would be great. If you for instance use a trimmer for a long time, as I often do, you need to change the battery quite often, which means you also need to carry a lot of batteries with you when you are out working, Sara Wiklander fills in.

The STIHL survey shows that a majority of the Nordic industry thinks it is important that their workplace takes responsibility for choosing machines that are less burdensome on the environment and the climate. At Djurgården’s gem, Skansen, the shift is well underway and the working group’s experiences are proof of some of the benefits it can bring.



**STIHL**

## 02. SAFETY & HEALTH

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# HEALTH & SAFETY ADVANTAGES WITH BATTERY-POWERED TOOLS

**For nearly 100 years, STIHL has been a leader in technology. This role comes with a great deal of responsibility but is also highly inspirational. Our goal is to make it easier for people to work in and with nature. To do so, we develop products and technologies that combine innovation, quality, and durability.**

A full 87% of the respondents within the industry are aware of and welcome the benefits of using battery-powered machines, especially when it comes to avoiding harmful emissions in the workplace. It is also interesting to note that 75% of these professionals also dislike the smell of gasoline, which is another advantage of battery-powered alternatives. Also, close to 70% acknowledge that battery-powered machines are more convenient to transport, in contrast to gasoline-powered ones. At the same time, 60% report that they avoid heavy equipment when possible.

## DISTURBING NOISE

High noise levels from gasoline-powered machines have been acknowledged by approximately a quarter of all respondents. Additionally, more than half of the respondents dislike disturbing their surroundings with loud noises during working hours. Also, one out of five respondents using battery-powered machines have noticed an improvement in their sleep quality. Especially in Finland, where more than a fourth of the respondents claim to sleep better.

## SAFETY IS PRIORITIZED WITHIN THE INDUSTRY

Good news! It is encouraging to note that a full 96% of the industry are aware of the need for required safety equipment when handling various machines. This high level of awareness indicates a strong foundation in safety knowledge among professionals. Furthermore, 68% report that they always use the

# 96%

OF THE INDUSTRY ARE AWARE OF THE  
NEED FOR REQUIRED SAFETY EQUIPMENT  
WHEN HANDLING VARIOUS MACHINES

appropriate protective gear in their work. A significant 95% have access to the necessary safety equipment in their workplace. This accessibility suggests that a vast majority of the workforce is well-equipped to prioritize their safety when working in and with nature, but that there is still work to be done to ensure that everyone has access to necessary safety equipment.

At the same time, 22% of professionals in the forestry sector report having suffered injuries related to machine accidents, and in Denmark as many as 27% admit to having suffered machine-related injuries in their profession.

## COMMITMENT TO SAFETY

Ever since STIHL was established in 1926, safety and user-friendliness has been a priority. This ethos continues to shape product development, incorporating features like automatic stop functions and ergonomic designs. Additionally, this commitment extends beyond product development into areas such as knowledge exchange and courses in safe usage of the products.

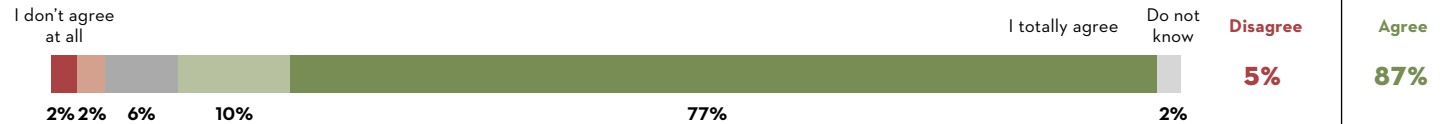




## Almost nine out of ten agree that they avoid inhaling harmful emissions when using battery-powered machines

**QUESTION:** How strongly do you agree with the following statements?

I avoid inhaling harmful emissions during the work shift when I use battery powered machines



Battery-powered machines are easier to carry compared to gasoline-powered machines



I experience negative health effects due to high noise levels from the machines I use in my work



# 70% QUIETER

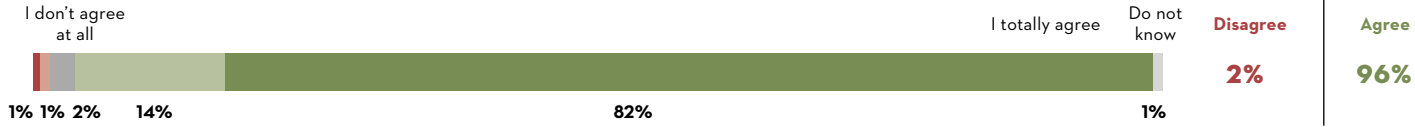
MORE USER-FRIENDLINESS AND LESS NOISE ARE THE HALLMARKS OF THE NEW HSA 100 CORDLESS HEDGE TRIMMER, WHICH IS 70% QUIETER THAN ITS PREDECESSOR AND CAN BE USED FOR LONGER PERIODS IN NOISE-SENSITIVE ENVIRONMENTS.



## Almost everyone knows which safety equipment is required for different machines and have access to that safety equipment

**QUESTION:** How true or false are the following statements about you?

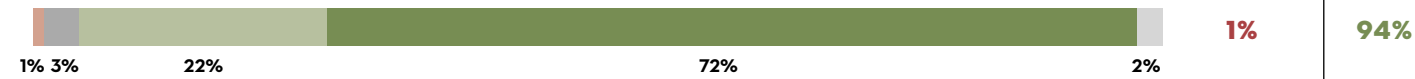
I know what safety equipment is required for different machines



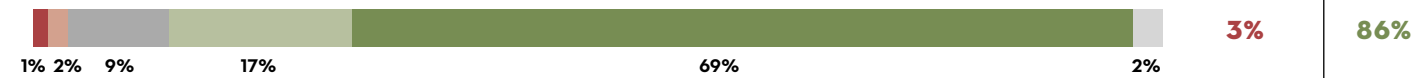
I have access to the required safety equipment



I have the knowledge required to work with the machines I use in my profession



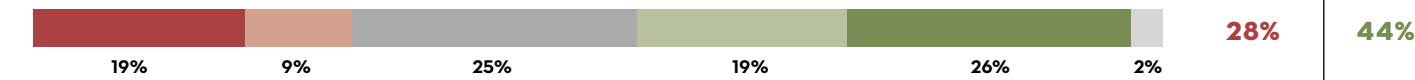
I have the training required to work with the machines I use in my profession



I always use the correct safety equipment



I am self-taught in my profession



I have injured myself on a machine in my profession





# PRIORITIZING SAFETY: STIHL COMMITMENT TO USER PROTECTION

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**An important topic for the report is safety and how users perceive their own safety in the workplace, and how the use of machinery contributes to a secure work environment. A full 96% confirm their knowledge of the essential safety equipment required for various machines, whether they are powered by batteries or gasoline. According to Jens Falk, Technical Support Manager at STIHL Nordic region, battery-powered machines have many advantages when it comes to safety.**

The survey shows that 87% of individuals working in the Nordic forestry industry are not only aware of – but also appreciate – the advantages of using battery-powered machines, particularly in their efforts to reduce workplace emissions. Battery-powered products do not only improve the work environment by reducing emissions, but also by minimizing vibrations and noise. They also provide a more user-friendly and ergonomic experience, promoting safety, especially during longer work shifts or in challenging terrain.

With proper training, understanding, and a well-thought-out charging plan, users can create an improved work environment with reduced vibrations, emissions, and noise levels. Jens Falk, Technical Support Manager at STIHL Nordic region, works daily with technical support for STIHL machines towards authorized dealers. He acknowledges that there is a widespread interest in safety-related matters.

– One of the most obvious advantages of battery-powered products is their significantly lower levels of vibration and noise compared to their gasoline-powered equivalents. Vibrations in the wrists and upper body can cause long-term damage, and the reduced vibration thus reduces the risk of work-related injuries, says Jens Falk.

## KNOWLEDGE EQUALS SAFETY

The increased user-friendliness and ergonomics that come with STIHL battery-powered tools do not diminish the importance of knowledge and safe machine handling. Proper training provides users with the knowledge they need to use the product safely, which contributes to reduce injuries. According to Jens Falk, accidents can occur due to a lack of knowledge, and that's why safety is always the top priority regardless of the context. As part of ensuring safe usage, dealers are regularly trained and supported in the handling of both existing and new products. In that way, they become a significant safety factor for the end user.

– For STIHL as a manufacturer, safety is of the utmost importance when it comes to all our products, whether they are battery-powered or not. It is crucial that the user receives the necessary education to understand how the machine operates and how to use it safely, Jens concludes.



## QUICK GUIDE TO A SAFE WORKING ENVIRONMENT

1. Safety through knowledge – ensure adequate training and familiarity with your machinery.
2. Prioritize proper safety equipment for your application.
3. Seek guidance when in doubt – consult your dealer for clarification.
4. Exercise caution with equipment – begin with a slow and careful approach.





**STIHL**

# **03. SUSTAINABILITY & CLIMATE**

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# SUSTAINABILITY & CLIMATE

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**STIHL is a family-owned business with roots in forestry that stretch back nearly 100 years. Everything we do has always been focused on people, nature, and their power to grow. That's what drives us - and what we want to keep driving forward. And we see ourselves as drivers of sustainable business in every area.**

For many years now, we've additionally been shifting our focus to battery-operated tools that don't produce emissions locally. In recent times, ever-stricter exhaust emission standards for internal combustion engines have been fueling a surge in innovation, especially in the battery segment served by STIHL. Given our devotion to empowering people, the feedback from our users is of utmost importance - and therefore, we want to explore our respondents' view on sustainability and product choices. Whether you are a decision-maker purchasing machinery or if you are out in nature using them, conscious choices and long-term investments are crucial - for us as well as for the climate.

When asked about which type of machine/machines the respondents use most frequently, it turned out to be evenly distributed across the Nordic region. 30% predominantly use gasoline-powered, 24% stated that they mostly use battery-powered, and 46% use both equally.





## Just over two out of three think it is important that their workplace chooses machines which is less burdensome for the environment and climate

**QUESTION:** How strongly do you agree or disagree with the following statements?

It is important to me that my workplace takes responsibility for choosing machines that are less burdensome on the environment and climate



I think it is important to switch to battery-powered machines



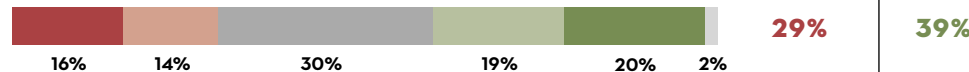
I dislike disturbing the environment with loud noises during my working hours



I want to test e-fuel\* for my machines (\*synthetic substitutes for gasoline that works for the machines where gasoline is used today)



I dislike working with machines that emit emissions in the surroundings



## THE EMPLOYER'S ENVIRONMENTAL AWARENESS IS HIGHLY VALUED

When looking closer at sustainability and climate, there are some positive insights to be found. The majority of the respondents, 2 out of 3, value employers that take responsibility for the environment and climate - a total of 67%. Denmark values this the highest, where 7 out of 10 agree with the following statement, "It is important to me that my workplace takes responsibility for choosing machines that are less burdensome for the environment and climate". When looking at all the Nordic countries, both decision makers and users consider this an important factor.

## BATTERY TRANSITION AND FOCUS ON CLIMATE GOALS

More than half, 56%, of the respondents consider the transition to battery-powered machinery important. Denmark finds it the most crucial among all Nordic countries (almost 7 out of 10 of the Danish respondents agree to this). And purchasers more strongly agree that the transition to battery operation is important - a total of 70%.

Swedes, more often than the total population, express their dislike for working with machines that emit exhaust into their surroundings (45%). Norwegians, on the other hand, do so less frequently than the total population (32%), which aligns with their belief that the transition to battery-powered machines is less important compared to the total population, and they are less willing to test e-fuel (37%). Compared to the total population, Danes place a higher importance on the transition to battery-powered machines (69%).

When asked why gasoline-powered, battery-powered, or electric machines are avoided, a significant proportion stated that gasoline-powered machines are avoided primarily due to climate concerns and various climate-related goals.



# 87%

RESPONDENTS AGREE THAT THEY AVOID  
INHALING HARMFUL EMISSIONS WHEN  
USING BATTERY-POWERED TOOLS

## NOT IDEAL TO WORK AMONG EXHAUST FUMES

Almost nine out of ten (87%) respondents agree that they avoid inhaling harmful emissions when using battery-powered tools – and this is something they seem to appreciate. Almost 40% responded that they dislike working with machines that emit exhaust fumes into their surroundings. When the respondents were asked about their highest priorities when choosing a machine, however, only 1% reported low emissions as their top priority. Other product features were considered more important in the actual decision-making process, such as quality and long lifespan. The responses also indicate that it is more important for those who use the machines that machines do not emit emission than for those who purchase them.

## HOW ABOUT E-FUELS?

And if not batteries, what is the attitude towards e-fuels? In addition to battery technology, STIHL is investing in the advancement of combustion engines, particularly in terms of their sustainability. For STIHL, battery-powered tools are the future. But there are still many applications and regions of the world that require products powered by combustion engines. For these customers, we are developing visionary and environmentally friendly solutions. To do so, STIHL is focusing on biofuels and e-fuels, and plans to achieve the widespread use of e-fuels in its tools starting in 2027. Also, STIHL gasoline-powered products are already e-fuel ready today. With MotoMix Eco, which the company has developed in-house, STIHL has already launched a fuel containing 10% renewable raw materials (such as wood scraps from forestry and non-edible parts of plants) in some markets.







## MOTOMIX ECO

Our new fuel makes operating two-stroke engines more environmentally friendly. MotoMix Eco contains 10% renewable resources, reducing CO<sub>2</sub> emissions by at least 8% compared to the classic MotoMix fuel, while delivering the same level of performance. As a member of the eFuel Alliance, STIHL is helping advance the development and acceptance of synthetic liquid fuels from renewable energy sources across the industry.

## FUTURE PERSPECTIVE ON SUSTAINABILITY

Even though e-fuels are still being explored across several industries, over 40% express an interest in testing e-fuel as an energy source. Approximately one-fifth (19%) believe that e-fuels are what machines in their profession will be powered by in the future. The sustainable outlook for the future is consistent, with a strong belief that future machines will be battery-powered, as more than 7 out of 10 (74%) hold this belief. 42% mention electricity as the future energy source for their tools, while only 11%, slightly more than 1 in 10, cite gasoline.

## KNOWLEDGE EQUALS SAFETY

The increased user-friendliness and ergonomics that come with STIHL battery-powered tools do not diminish the importance of knowledge and safe machine handling. Proper training provides users with the knowledge they need to use the product safely, which contributes to reduce injuries. According to Jens Falk, accidents can occur due to a lack of knowledge, and that's why safety is always the top priority regardless of the context. As part of ensuring safe usage, dealers are regularly trained and supported in the handling of both existing and new products. In that way, they become a significant safety factor for the end user.

*- For STIHL as a manufacturer, safety is of the utmost importance when it comes to all our products, whether they are battery-powered or not. It is crucial that the user receives the necessary education to understand how the machine operates and how to use it safely, Jens concludes.*



# GROWING INTEREST IN CARBON-FREE PROJECTS WITHIN THE FOREST INDUSTRY

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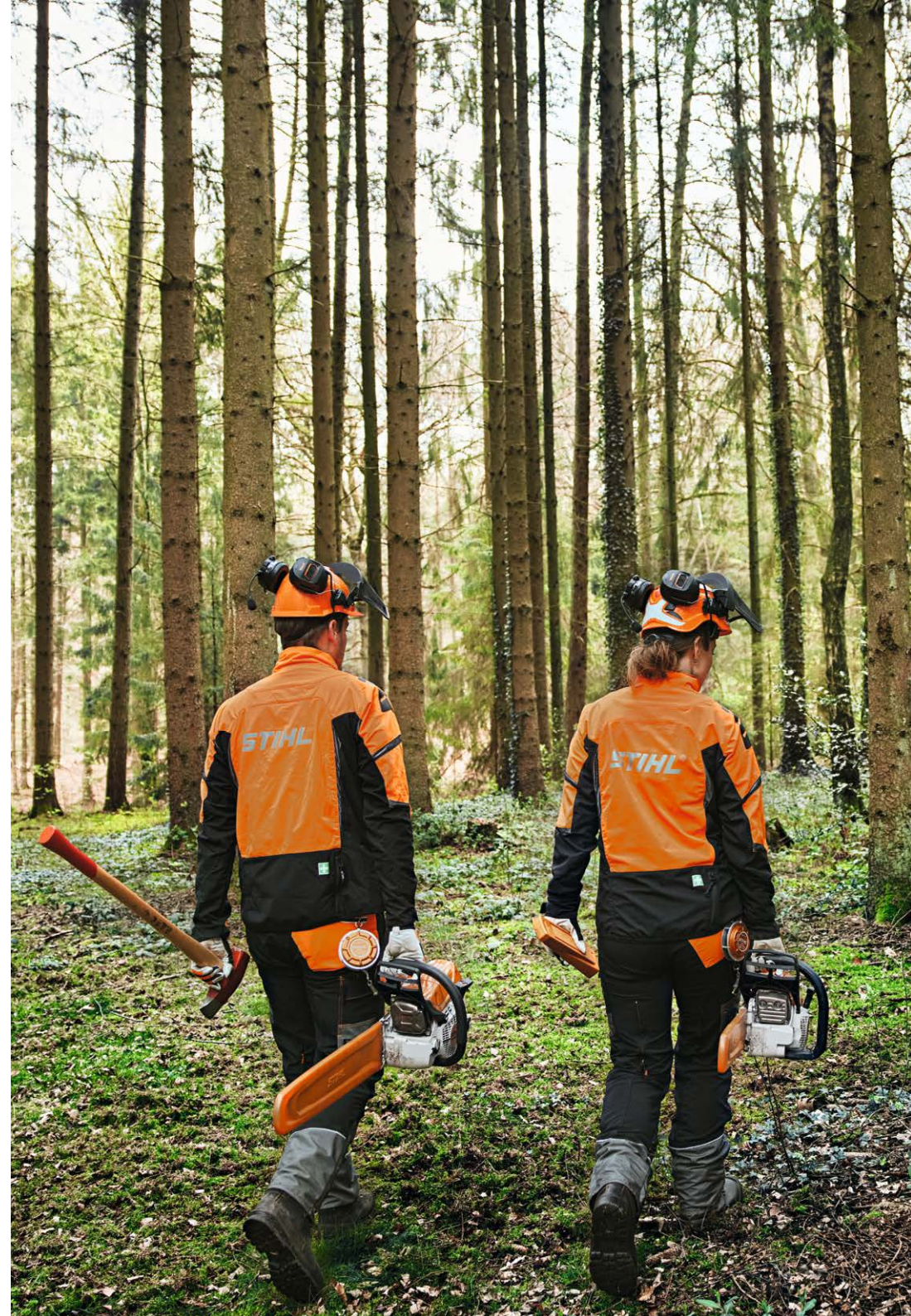
One of the major forest companies in Sweden, Norra Skog, is among those players responding to the demand for sustainable forestry work. Interest in carbon-free projects is on the rise, with battery-powered equipment being the preferred solution. Together with their contractor, EastForest, Norra Skog has initiated a project with a focus on solely battery-powered equipment - a customer demand that is only expected to grow.

Norra Skog was established in 2020 when Norrskog and Norra Skogsägarna merged to form Sweden's largest forest owners' association in terms of land area. Alongside their contractors and partners in logging, forest management, and transportation, they work towards a wide variety of missions. Today, Norra Skog has around 27,000 members. Stefan Holmberg, Forest Management Director at Norra Skog, is experiencing a growing interest in more sustainability-focused forestry projects. In early 2023, Norra Skog received an inquiry from a major forest owner who was looking for carbon-neutral forestry services.

– We decided to use battery-powered brushcutters from STIHL, and I contacted one of our entrepreneurs, EastForest. They were very positive about the project, Stefan explains.

## SUCCESSFUL TRANSITION TO BATTERY-POWERED EQUIPMENT

The total project area covers 14 hectares in Åsele, a Swedish municipality in Northern Sweden. The project began in July and is still ongoing in some parts of the forest. The battery-powered brushcutters from STIHL have mostly been used for cutting young stands within the area. Allan Erik Elp, responsible at EastForest, has received positive feedback from his colleagues.







– When we first started this project, there was some skepticism about replacing the gasoline-powered machines. Now, we have received a lot of positive feedback from the colleagues working with the battery-powered equipment. The highlights are definitely the light weight, the low noise, and the fact that there are no emissions, says Allan Erik.

The machines used in this project are STIHL brushcutters FSA 135 with the AP 500 S battery, a power station (STIHL PS 3000), and a bottTainer, which is a charging solution designed for flatbed trucks and pickups.

– Working with the bottTainer is very practical, especially when you have a large range of battery-powered equipment. You can pack everything in the car, and at the end of the workday, return to your base and simply plug everything in. When you start your day, everything is ready to go, says Allan Erik.

### **THE FUTURE POINTS TO EXPANDED BATTERY FLEETS – AND HIGHER CUSTOMER DEMANDS**

Norra Skog has a wide range of customers, including those within the Swedish municipalities, where Stefan Holmberg is witnessing substantial interest in more sustainable working methods and equipment choices.

– I believe that several of our customers will be quick to seize the opportunity when we can offer more types of battery-powered assignments; municipalities as well as some of the bigger forest and landowners are already very interested in working this way. And it will probably be a clear demand for them in the near future, to work with non-gasoline powered machines, says Stefan Holmberg.

– I believe that everyone in the industry is ready for this. Once we have the appropriate battery capacity in our machines, there is a strong willingness to transition. Currently, we often find ourselves in situations where we have duplicate equipment in the field, which is not ideal. The ideal scenario would be to have a complete range of battery-powered equipment to handle all types of work.

In the coming years, the plan is to extend the use of battery-powered machines and closely monitor the outcome. Both Allan Erik and Stefan state that they are currently in an initial phase with these kind of carbon free projects. They emphasize that the productivity of battery-powered machines needs to reach the same levels as gas-powered machines, especially considering that forestry workers often operate based on the price per hectare.

– As soon as developments permit, we will introduce new battery equipment. We are striving to replace as much as we can, says Allan Erik, and Stefan concurs.

– So do we. If you care about your colleagues and the environment, that is the way to go. Also, when you consider economic sustainability, costs, and investments, electricity is a much more cost-effective option in the long run. It's a mindset, and of course, there are people who believe in the traditional way of working, but in general, our industry is striving for progress and a sustainable future, concludes Stefan Holmberg.



Among those who **avoid gasoline-powered machines:**

Main reason to avoid gasoline-powered machines are for the climate/the climate goals

**QUESTION:** Why do you avoid gasoline-powered machines?

Selection of quotes

"To achieve the climate goals."  
*SWEDEN*

"Environmentally. And the noise level should preferably not be loud when walking with them for a long time."  
*DENMARK*

"It is a requirement we have. It is better for us who work; we don't have to breathe in heavy substances. We also work at playgrounds, where there are children."  
*SWEDEN*

"For the environment, and it's also more troublesome."  
*DENMARK*

"It's tricky with petrol and battery-operated machines are easier to use."  
*FINLAND*

"That there is less noise, control over the fuel itself. So you can charge yourself and don't have to buy fuel."  
*NORWAY*

"Emissions and expensive fuel."  
*FINLAND*

Most common answers in descending order

For the climate/climate goals

The noise and the emissions impact on health

Complicated with gasoline

Expensive

Among those who **avoid battery-powered machines:**

Short operating time on batteries is the main reason to avoid battery-powered machines

**QUESTION:** Why do you avoid battery-powered machines?

Selection of quotes

"The charge doesn't last long."  
*SWEDEN*

"I avoid them as they don't have the same power when it comes to those kinds of machines that I use."  
*SWEDEN*

"Heavy."  
*NORWAY*

"It is because the need is not that great, in addition, they do not hold power that well."  
*DENMARK*

"Battery weight and charging time."  
*FINLAND*

"The battery charge is weak and not suitable for work when it is not possible to recharge at work. Not environmentally friendly."  
*FINLAND*

"Charging takes time, it feels more difficult with batteries, it's not a big market, they're not as powerful."  
*SWEDEN*

Most common answers in descending order

Too short operating time on batteries

The heavy weight of the batteries

Poor performance

Long charging time



**STIHL**

A collection of STIHL chainsaws of various sizes are arranged on a grassy field. In the background, a large log lies horizontally. The scene is illuminated by warm, golden light, suggesting a sunset or sunrise. The chainsaws are primarily white with orange accents and black handles. The text '04. KNOWLEDGE & TRAINING' is overlaid in the bottom left corner, with a horizontal line underneath it.

**04. KNOWLEDGE  
& TRAINING**  
—



# COMPETENCE WITHIN THE INDUSTRY

The results from the survey show that almost all of the respondents have the knowledge required to operate the machines they use in their profession. Interestingly, there seems to be some variation in how the respondents have acquired this knowledge.

94% of the Nordic industry claim to have the knowledge necessary to be operating the machines in their profession. More than eight out of ten claim to have the education necessary to be operating these machines, while 44% claim to be self-taught. When it comes to how the knowledge has been acquired, it seems to be a generational matter. 90% of the respondents under the age of 50 claim to have the required education to operate the machines that they use in their profession, compared to the total of 86%. When it comes to being self-taught, 51% of the respondents over the age of 50 claim to have learned their trade on their own - which is higher than the total result of 44%.

# 51%

RESPONDENTS OVER THE AGE OF 50 CLAIM TO HAVE LEARNED THEIR TRADE ON THEIR OWN

	Disagree	Agree
I KNOW WHAT SAFETY EQUIPMENT IS REQUIRED FOR DIFFERENT MACHINES	2%	96%
I HAVE ACCESS TO THE REQUIRED SAFETY EQUIPMENT	1%	95%
I HAVE THE KNOWLEDGE REQUIRED TO WORK WITH THE MACHINES I USE IN MY PROFESSION	1%	94%
I HAVE THE EDUCATION THAT IS REQUIRED TO WORK WITH THE MACHINES I USE IN MY PROFESSION	3%	86%
I ALWAYS USE THE CORRECT SAFETY EQUIPMENT	9%	68%
I AM SELF-TAUGHT IN MY PROFESSION	28%	44%
I HAVE INJURED MYSELF ON A MACHINE IN MY PROFESSION	70%	22%



## DIFFERENCES BETWEEN MARKETS

Swedes agree to a lower degree than the total that they know what safety equipment is required (94% compared to 96%), that they have the required knowledge (91% compared to 94%), and that they have the training required for the machines they operate (80% compared to 86%).

At the same time, Norwegians agree to a higher degree that they have the required education to operate the machines used in their profession (91% compared to 86%). Also, only 36% of the Norwegians claim to be self-taught in their profession, compared to the total of 44%. The same can be said for the Danes, where 33% claim to be self-taught.

The Finns are the professionals in the Nordics who agree to the highest degree that they know what safety equipment is required for different machines - a full 99% compared to the total of 96%. They also differ in terms of being self-taught in their profession, with a full 62% agreeing to have acquired the knowledge on their own.

**Laws and regulations regarding the use of machinery may vary among the Nordic countries.**





# STIHL ACADEMY

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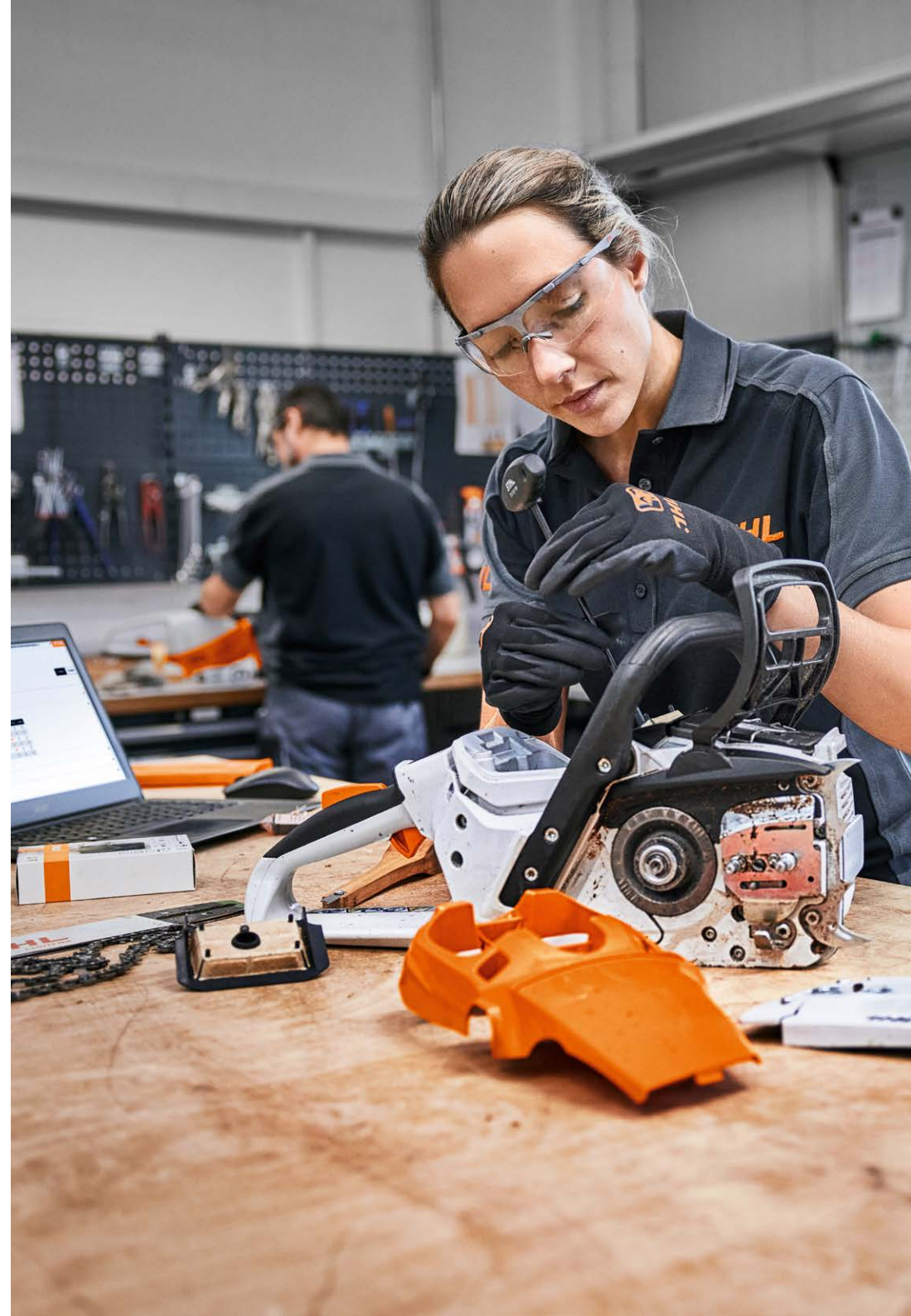
To offer dealers and users in the industry deeper knowledge, STIHL has developed a concept called STIHL Academy. In the Nordics, STIHL has also expanded the concept onto a digital platform for knowledge, where courses are offered. On the STIHL Academy platform, authorized dealers and staff can find everything from product specific courses, to guides on how to increase the level of service to their customers.

The digital platform was launched in 2019, and today it has over 4,500 users in the Nordics, with over 100,000 completed courses.

– Knowledge has always been a high priority for STIHL and as our industry is in a great transformation, going from gasoline to battery as primary power source, we are determined to offer a strong training concept to support the transition together with our partners. STIHL Academy is one way of being helpful and proactive, says Johan Appelqvist, Head of Service & Training at STIHL Nordics.

100,000

COMPLETED COURSES





A man wearing a full protective gear set, including a helmet with a face shield, gloves, and a harness, is using a STIHL brushcutter to clear tall grass in a field. The background shows a dense forest of green trees.

**STIHL**

# 05. OUTLOOK TOWARDS THE FUTURE

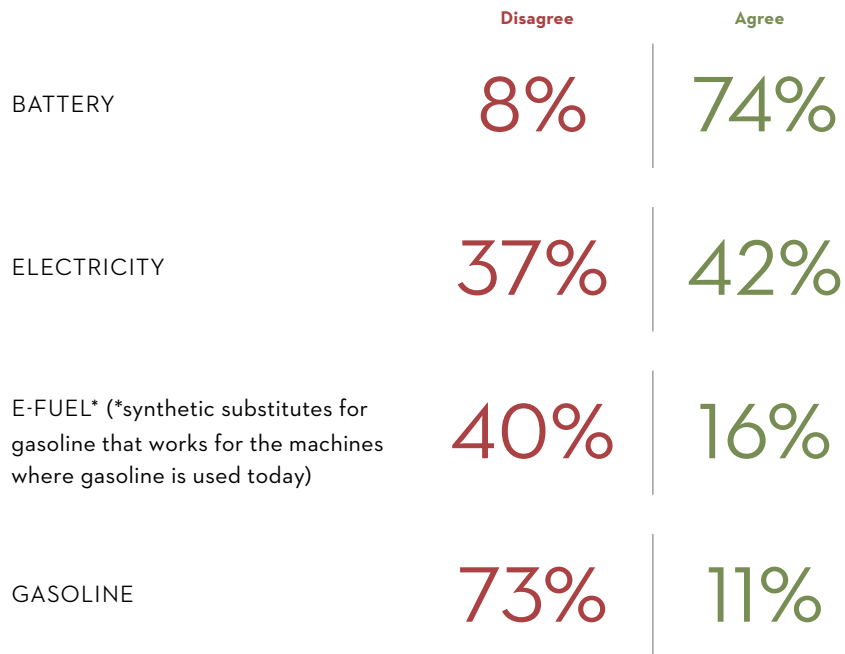
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# A GLIMPSE INTO THE FUTURE

**Just over seven out of ten believe that the majority of machines in their profession will be battery operated in the future**

**QUESTION:** How strongly do you agree with the following statements?  
In the future I think that the majority of machines in my profession will be powered by...



**The interviews conducted with representatives from the entire Nordic industry indicate that the majority of the respondents are positively disposed to a change for the good of the environment. If the industry itself was allowed a gaze at the future, what does it look like?**

The survey behind the report shows that more than two out of three in the Nordic industry think it is important that their workplace chooses machines that have less impact on the environment. When asked about their preferences, almost seven out of ten state that they prefer a mix of battery-powered and gasoline-powered machines.

## BATTERY POWER TODAY AND TOMORROW

56% of the respondents claim that it is important to switch to battery-powered machines. Almost as many claim that more efficient battery-powered machines should be prioritized to increase their use. Four out of ten feel that the operating times of the battery-powered machines cover all their needs at work. At the same time, the respondents are optimistic about the future development, as 74% believe that a majority of tomorrow's products will be battery-powered.

## THE DEVELOPMENT OF E-FUELS

E-fuels are synthetic fuels produced from green hydrogen and carbon dioxide (CO<sub>2</sub>) using wind energy. As STIHL products of today are already e-fuel ready, all STIHL tools with a combustion engine can be powered with e-fuel - even the 20-years old chainsaws. Today, 43% of the respondents claim to be interested in trying out e-fuels.

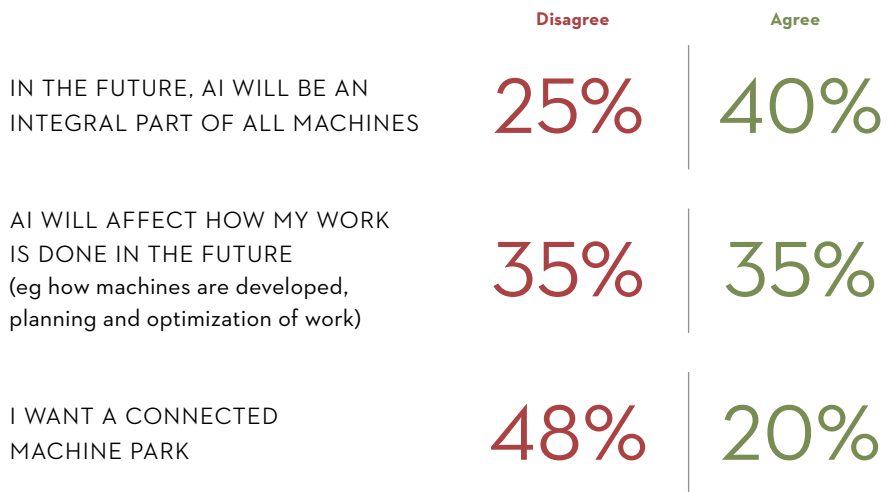
– We are consciously focusing on dual technological leadership. That's because we align our actions systematically with our customers' needs. Battery-powered tools are the future. At the same time, there are still many applications and regions of the world that require products powered by combustion engines. For those customers, we are developing visionary and environmentally friendly solutions, says Michael Traub, Chairman of the Executive Board of STIHL.



## BUYERS BELIEVE IN A CONNECTED AI MACHINE FLEET

When asked if they believe that AI will become an integral part of all machines in the future, 40% of the respondents agree. Those who only buy the machines, on the other hand, agree to a higher degree (48%). 43% of the buyers also believe that AI will affect how the work will be carried out in the future, while only 35% of the total respondents agree with that statement. 20% of the total respondents want a digital machine fleet, while only 26% of the buyers would like that.

STIHL is investing in fields such as robotics, sensors, and artificial intelligence in order to offer its customers complete solutions and strengthen their expertise. When it comes to digital machine fleets, it is already possible to get a digital overview of the entire equipment range with STIHL Connected. A Smart Connector is mounted on each device, and a Connect Box collects information that can be viewed on an app and a website. Other brands than STIHL can connect to the system to gather the entire machine fleet in one place.







57% 53% 57% 59%

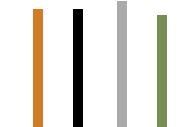


Better battery-powered machines

## Almost six out of ten believe that better battery-powered machines should be prioritized to increase the usage

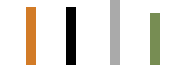
**QUESTION:** Which of the following should be prioritized in your profession in order for the industry to increase the use of battery powered machines?

16% 16% 17% 15%



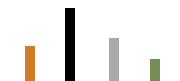
Subsidy for replacing machines

8% 8% 9% 7%



Willingness to invest from the companies

5% 10% 6% 3%



Rules and regulations

4% 3% 5% 4%



Better or more information

3% 2% 3% 4%



Don't know

- Total
- I purchase machines
- I use machines
- I purchase and use machines



# METHOD

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**This report is based on a survey that has been conducted by Novus, one of Sweden's leading analysis and research companies, on behalf of STIHL. The purpose of the survey is primarily to examine how the choice of machinery is influenced by factors such as health, safety, climate, environment, performance, and more, among the target audience.**

The survey was conducted through a total of 780 telephone interviews - 240 in Sweden, 180 in Norway, 180 in Denmark, and 180 in Finland. Of the 780 participants, 182 stated that they purchase machines, 103 that they use machines, and 495 that they both purchase and use machines.

The target audience consisted of users and decision-makers within the industry, who purchase or use machines (or both) - a significant portion of which are battery or petrol-powered. The respondents are active in Sweden, Norway, Denmark, and Finland. They operate in forestry, landscaping, green areas, parks, property management, municipal administrations responsible for parks and communities, gardeners, arborists, cemeteries, agriculture/fruit cultivation, as well as forest and landowners.





