

2019



A SUSTAINABLE YEAR

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COMMITTED TO A BETTER FUTURE

For CNH Industrial, sustainability is a business enabler that will provide real competitive advantage going forward. This is further underlined by the Company’s purpose “Powering Sustainable Transformation”, the ‘North Star’ that drives its operations in the short and long term, and makes a positive impact by empowering its customers and the world to play an active role in global transformation.

At CNH Industrial, sustainability underlies all business segment strategies, as demonstrated by its commitment to reduce emissions using a wide range of alternative propulsion technologies. As a responsible corporate citizen, CNH Industrial works constantly to adapt its business practices to the changing environment we live in, conducts its business in a way that minimizes negative environmental impact, and considers the needs of all the stakeholders involved, promoting engagement and dialogue. To make its commitment more tangible, the Company set four sustainability priorities, namely:

- **Carbon Footprint**, to reduce the emissions generated by plants, logistics, and products
- **Occupational Safety**, to minimize the risk of injury in the workplace through effective preventive and protective measures
- **Life-Cycle Thinking**, to use resources fully and for as long as possible through a circular product life-cycle approach
- **People Engagement**, to actively involve employees, suppliers, and local communities alike.

CNH Industrial’s sustainability priorities are further driven by its aspirational goals, which are seen as objectives to strive for over the long term. To reach them, the Company set 10 strategic sustainability targets consistent with the UN Sustainable Development Goals (SDGs) as they provide a universal and visionary framework to address the challenges of global co-operation and action.

“At CNH Industrial, sustainability underlies all business segment strategies”

ABOUT CNH INDUSTRIAL

“The Company aims to be a global leader in all its business segments”

Overview

CNH Industrial has a wealth of globally respected brands dating back to 1842, which have shaped the industries of agricultural and construction machinery, commercial and specialty vehicles, and the powertrain sector. Today, it is one of the leading capital-goods companies in the world.

The Company provides farmers with industry-leading technologies to help them feed a growing world population, it assists in building and rebuilding cities and infrastructure, and it delivers sustainable transport solutions for goods and communities, all with future-proof powertrains.

Its customers can also count on a comprehensive suite of financing solutions and a dedicated range of aftermarket services.

With a presence in 180 countries, CNH Industrial is uniquely diversified across segments and geographies.

The Company aims to be a global leader in all its business segments. It is a pioneer in efficient machinery that enables other sectors of the global economy to operate at maximum potential, and it achieves this by harnessing new technologies and through its vast market reach and solid enterprise culture.

Key figures

Brands	Revenues
12	\$28.1bn
Plants	Employees
67	63,499
R&D Centers	R&D Spending
56	\$1.03bn
National Markets	
180	

Note: All figures provided herein are on a US GAAP \$ basis unless otherwise indicated, updated at the end of 2019.

COMPANY STRUCTURE

Segments

We operate across five global segments: Agriculture, Construction, Commercial & Specialty Vehicles, Powertrain and Financial Services. They are supported by global functions addressing key synergies and development areas: an increased customer focus and further expansion in evolving key market trends such as alternative fuels, digitalization, automation and servitization.

AGRICULTURE

Second largest manufacturer of agricultural equipment



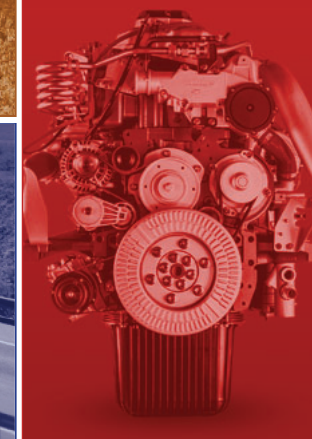
CONSTRUCTION

A global player in construction equipment



POWERTRAIN

Global leader in regulated markets



COMMERCIAL & SPECIALTY VEHICLES

Market leader in alternative fuels



FINANCIAL SERVICES

Global financial-services player supporting customers and dealers



CNH Industrial shares are listed on the New York and Milan stock exchanges.



2024 SUSTAINABILITY TARGETS

CNH Industrial's ambition is to become carbon neutral, to ensure zero serious injuries, to deliver fully recoverable life-cycle thinking, and to be fully engaged with its people. To substantiate this ambition and illustrate its strong commitment to sustainability, the Company has included 10 challenging targets for 2024 in its five-year 2020-2024 Business Plan.



CARBON FOOTPRINT

The Company is actively engaged in reducing CO₂ emissions associated with manufacturing processes, logistics, and the usage of its vehicles. A decarbonization strategy is being developed to shift towards more environmentally friendly solutions. As a result, the Company's targets include:

- 1 A 46 percent reduction in CO₂ emissions per production unit compared to 2014 at Company plants worldwide
- 2 80 percent of total electricity consumption from renewable sources at Company plants worldwide
- 3 A 20 percent reduction in kilos of CO₂ emissions per tonne of goods transported (including spare parts) compared to 2014
- 4 25 percent of the product portfolio available with natural-gas powertrains



OCCUPATIONAL SAFETY

CNH Industrial takes a preventative and proactive approach to occupational safety, to minimize the risk of injury in the workplace. To this end, the Business Plan target set for 2024 is:

- 5 A 50 percent reduction in the frequency rate of employee accidents compared to 2014



LIFE-CYCLE THINKING

The Company recognizes the importance of minimizing its impact on the environment, through a life-cycle approach. The aspirational goal pursued is that of its waste becoming fully recoverable. The Business Plan includes the following targets for 2024:

- 6 100 percent of new products to include sustainability/recyclability design criteria
- 7 94 percent of waste recovered at Company plants worldwide

“Active engagement with stakeholders worldwide is crucial for creating shared value over the long term”



PEOPLE ENGAGEMENT

People engagement is one of the Company's sustainability priorities, with the goal of achieving the full engagement of all its people. For 2024, the Business Plan includes the following targets:

- 8 100 percent of employees involved in engagement surveys
- 9 100 percent of Tier 1 suppliers involved in sustainability self-evaluations
- 10 A 100 percent increase in the number of people benefiting from CNH Industrial's local community initiatives compared to 2017

Active engagement with stakeholders worldwide is crucial for creating shared value over the long term.

CNH Industrial's strategy is aligned with the 17 Sustainable Development Goals set by the UN for 2030. We have chosen to concentrate on six of these as the most relevant to our businesses.

This is how the Company intends to continue to work for a better, sustainable future.

RECOGNITION AS A SOCIALLY RESPONSIBLE COMPANY

Inclusion in sustainability indexes, and the ratings received from specialized sector-specific agencies, further reflect the robustness of CNH Industrial's commitment to sustainability. In 2019, the Company was reconfirmed as Industry Leader in the Dow Jones Sustainability Indices (DJSI) World and Europe for the ninth consecutive year. It received a score of 88/100.

In 2019, CNH Industrial scored A- in the CDP Climate Change program, in recognition of its actions to optimize energy consumption, reduce CO₂ emissions, and mitigate the business risks of climate change. It also ranked among the 72 A-listers in the CDP Water Security program, won the SAM Gold Class

Sustainability Award 2020, and was awarded ISS-oekom Prime Status.

As of December 31, 2019, CNH Industrial was included in the following indices: FTSE4Good Index Series¹; Euronext Vigeo Europe 120; Euronext Vigeo Eurozone 120; STOXX Global ESG Leaders Index; STOXX Global ESG Environmental Leaders Index; STOXX Global ESG Social Leaders Index; STOXX Global ESG Governance Leaders Index; STOXX Global ESG Impact Index; STOXX Global Low Carbon Footprint Index; STOXX Global Reported Low Carbon Index²; and Integrated Governance Index (IGI). Furthermore, as of 2019, CNH industrial received an MSCI ESG³ Rating of AAA.



Note:

¹ FTSE Russell (the trading name of FTSE International Limited and Frank Russell Company) confirms that CNH Industrial has been independently assessed according to the FTSE4Good Index Series. Created by the global index provider FTSE Russell, the FTSE4Good Index Series is designed to measure the performance of companies demonstrating strong Environmental, Social, and Governance (ESG) practices. The FTSE4Good indices are used by a wide variety of market participants to create and assess responsible investment funds and other products.

² Those listed are the main global STOXX indexes in which CNH Industrial is included.

³ The use by CNH Industrial of any MSCI ESG research LLC or its affiliates ("MSCI") data, and the use of MSCI logos, trademarks, service marks or index names herein, do not constitute a sponsorship, endorsement, recommendation, or promotion of CNH Industrial by MSCI. MSCI services and data are the property of MSCI or its information providers, and are provided 'as-is' and without warranty. MSCI names and logos are trademarks or service marks of MSCI.

SNAPSHOTS2019

Fighting malnutrition in Mozambique

Mozambique, where an estimated 30 percent of the population is malnourished, will be the first country to receive a super-protein bar made in the east of Brazil. The São Miguel Arcanjo Society's Food of World project aims to produce the protein bars using nutrient-rich spirulina as its main ingredient. New Holland Construction has provided a dozer D150B to help level the construction site for the Food of World facility. The goal is to feed 30,000 children a day in Mozambique.



Turin's new green lung

In June 2019, FPT Industrial launched its support for the Urban Forestry project, which planted 1,000 trees in the Basse di Stura area north of Turin, Italy. The trees span 32 native species, including oak, poplar, willow, ash, linden, and maple. Planting trees helps absorb carbon dioxide, improves air quality, fixes the topsoil, and provides a recreational space for residents. Urban Forestry is a team effort between the FPT Industrial brand, the Turin axles and transmissions plant, the Torino Motori plant, FPT Industrial Testing, the Municipality of Turin, the Region of Piedmont, and IPLA (Istituto per le Piante da Legno e l'Ambiente). It is estimated this project will help reduce carbon dioxide by 10 tonnes a year.



Support for infrastructure projects

In 2016, CASE Construction Equipment launched its Dire States Equipment Grant, which awards \$25,000 of free equipment rental to communities wishing to build or repair a critical piece of local infrastructure. In 2019, the grant was awarded to Chapin, in South Carolina, for its East Chapin Sewer Force Main Project. The works will upgrade the existing sewer main and pumping stations, significantly reducing the likelihood of future overflows, and thereby protecting the health of the town's 130,000 drinking-water customers.



Zero-emissions tractors

During the 2019 Agritechnica agricultural equipment show, STEYR unveiled a concept study on what the tractor of the future could look like. The STEYR Konzept – engineered in collaboration with FPT Industrial and CNH Industrial's Design Center – combines innovative technologies to create an efficient and sustainable solution. Its core is a modular hybrid electric driveline, comprising a combustion engine, a generator, and several electric motors, which can be controlled individually, and which then supply energy where it is needed. The STEYR Konzept looks at the technical possibilities of combining comfort, efficiency and sustainability, features to leverage on for the future of the brand.



Record-breaking electric city bus

In October 2019, the electric IVECO BUS E-WAY by HEULIEZ demonstrated exceptional efficiency and autonomy at a test track in Ulm, Germany. The 12-meter model was driven for 527km (327 miles) over a 12-hour period on a single charge, almost twice the distance and time achieved by even the best autonomous buses in the industry. This ground-breaking vehicle offers customers all the benefits of zero-emissions public transport together with high quality standards, outstanding reliability and excellent performance. In May that year, the Parisian transport authority announced that it would replace the city's entire fleet of diesel buses and the brand was awarded a record order of its electric buses worth €133 million (\$150 million).

Intelligent crop management

The new CropXplorer Basic by AGXTEND – CNH Industrial's incubator for tech start-ups – is an intelligent plug-and-play plant sensor system designed for smart farming. It has two sensor units that can be attached to a tractor's wing mirrors and measure the sunlight reflected by plants, and a reference sensor mounted on the cab roof that measures the spectrum of ambient light. The sensors ensure that fertilizer and pesticides are precisely applied to plants where they are actually required, resulting in an even nitrogen balance, higher yields, higher-quality products, and lower fuel and water consumption.



Up to 95 percent less CO₂ emissions

Young design talent in China

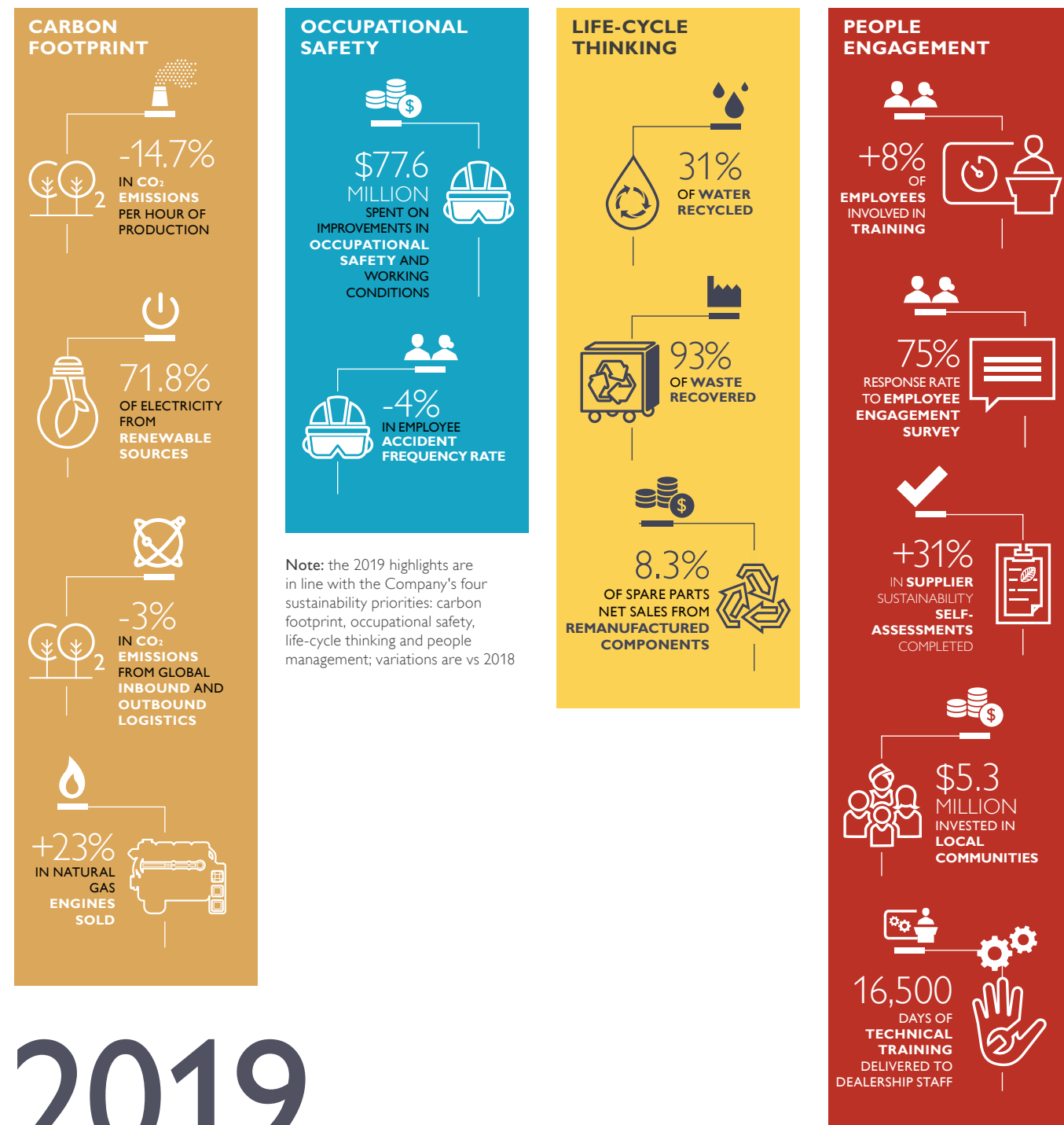
For the first time in 2019, China's Car Design News Awards included a category for agricultural equipment. CNH Industrial's Design Center challenged 30 Chinese automotive and industrial design students to imagine how agricultural equipment will look and work in the future. The Company's Design Director, David Wilkie, was chosen as one of 19 expert judges. Minghao Luo of Tongji University won the Judges' Highly Commended Award for his concept for a highly automated machine, capable of performing various farming operations.



The natural power choice

In July 2019, IVECO's natural gas-powered vehicles took a giant leap forward with the launch of the ground-breaking IVECO S-WAY range. It includes the IVECO S-WAY Natural Power, currently the only LNG (liquefied natural gas) truck capable of long-haul operations, covering a range of up to 1,600km (994 miles) with 460hp. Operators benefit from all the advantages of natural gas, the only low-emission alternative to diesel in the heavy-duty segment – producing 95 percent less particulate matter, 90 percent less NO₂ and, when operated using biomethane, up to 95 percent less CO₂ emissions. The IVECO S-WAY Natural Power has been well received by the market; six months on from its launch, demand for IVECO's heavy trucks has been strong compared to sales in 2018.





2019 SUSTAINABILITY HIGHLIGHTS

CARBON FOOTPRINT



CNH Industrial supports the Sustainable Development Goals



CNH Industrial is actively engaged in reducing CO₂ emissions associated with its manufacturing processes, logistics, and the use phase of its vehicles. This approach is fundamental to the continuous improvement of the Company's performance and the protection of the environment in which it operates. CNH Industrial's plants use systems and processes for reducing energy consumption and limiting the use of fossil fuels, favoring electricity from renewable sources. Initiatives to promote ever-more sustainable logistics processes focus on technologies, procedures, and activities aimed at increasing low-emission transport, adopting intermodal solutions, and optimizing transport capacity. Furthermore, the Company is developing its own decarbonization strategy to shift towards a more environmentally friendly product portfolio, increasing the use of biofuels and electrification and continuing research into hydrogen fuel and clean diesel.

NEW HYDROGEN ELECTRIC TRUCK POWERS AHEAD

A joint venture with US electric vehicle start-up Nikola Corporation will deploy zero-emissions heavy trucks on the road



"I wanted to build a truck that would not only work, but would outperform any truck in every category"

Trevor Milton, Founder and CEO of Nikola Motor Corporation



CNH Industrial's FPT Industrial and IVECO brands set up a joint venture with US electric truck start-up Nikola Corporation in September 2019; three months later, the partners were unveiling their first prototype, the Nikola TRE.

"I wanted to build a truck that would not only work, but would outperform any truck in every category – and that's exactly what we've done," said Trevor Milton, the founder and CEO of Nikola Motor Corporation, at the launch of the Nikola TRE in Turin in December.

The Nikola TRE is based on the recently launched IVECO S-WAY platform; it integrates Nikola's truck technology, controls and infotainment,

and will be sold and serviced through IVECO's European dealer network. The truck will be offered with a choice of two zero-emissions Nikola drivelines: a battery-electric truck with a range of up to 500km (310 miles); and a hydrogen fuel-cell version capable of traveling up to 1,200km (745 miles) on a single fill.

Milton has had a dream to build an electric truck since he was six years old, and the investment from CNH Industrial, which has taken a \$250 million stake in Nikola, has made his ambition a reality. The joint venture has sped up the zero-emissions truck programs of the parties by five years. The partners have also adopted a modular approach that

Above and right: the Nikola TRE truck will be offered with an electric battery or hydrogen fuel-cell. It has been the dream of Trevor Milton (above right), Founder of Nikola Motor Corporation, since he was six years old



allows the battery-electric vehicle to be later converted to fuel-cell technology – the battery-electric vehicle will be delivered to customers in 2021, and the hydrogen fuel-cell electric truck by 2023.

A perfect fit

Milton, 37, a serial entrepreneur with five previous start-ups under his belt before Nikola, was approached by major truck manufacturers about Nikola's battery and hydrogen-powered technology, but chose IVECO because it had a different approach.

"IVECO came in with the willingness to learn," says Milton. "They looked at our entire portfolio and said 'We are interested in this. What can we do to

help?’ That is where our discussion began, specifically talking about the challenges that existed with manufacturing and parts supply. Nikola has an aggressive long-term vision and it was critical to our vision that our partner be equally motivated to make a global difference with us. IVECO checked all the boxes.”

These sentiments are echoed by Gerrit Marx, president of Commercial and Specialty Vehicles at CNH Industrial, who believes hydrogen fuel-cell trucks are the long-term solution to zero-emissions trucking.

“Our industry is changing fast, driven by tightening emissions regulations and younger generations demanding the creation of a circular economy to preserve the environment for their future. Hydrogen and battery – depending on the mission – are the only viable solutions for green energy and have the advantage of enabling nations to become more independent from fossil fuels. We are embracing this technology early, and thoughtfully, as an opportunity to benefit from this approaching moment of technological discontinuity and start the proactive transformation of the transport sector,” he commented.

Developing zero-emissions heavy trucks will be vital to comply with European Union legislation coming into effect in 2025, which mandates that manufacturers move towards a 15 percent reduction in CO₂ emissions for new trucks.

Marx is confident that cleaner natural gas-powered trucks, which IVECO already makes, offer an interim solution while hydrogen fuel-cell technology is being developed and networks of hydrogen charging stations are put in place around the world (see box).

Beating rivals to market with a hydrogen fuel-cell electric truck will give Nikola, FPT Industrial and IVECO immediate market leadership in Europe, and Milton is confident that such a leading position will be maintained in the future. He anticipates ultimately producing 35,000 Nikola TRE trucks annually, and acknowledges that demand is likely to outpace supply for the first 10 years.

Milton is also very positive about the Arizona-based company’s first venture in Europe: “Nikola is coming into Europe like a freight train,” he says. “It’s a powerful, unstoppable force. Make no mistake that a child’s dream can change the world.”



BATTERY REVOLUTION

Nikola recently announced a major breakthrough in battery technology that will make them more efficient and cost-effective to produce, and means they will be manufactured without the need to use cobalt, magnesium or nickel.



Top: the Nikola TRE prototype unveiled just three months after the announcement of the partnership.

Above: Gerrit Marx in Turin, Italy, during the European press and industry stakeholders conference

MAKING HYDROGEN REFUELING A REALITY

Hydrogen is produced by running electricity through water – separating it from the oxygen in H₂O. Hydrogen is then stored in tanks and compressed, before being dispensed into trucks at 700 bar. In the truck, hydrogen passes through a fuel-cell and is then converted into electricity to power the truck’s electric motors.

Nikola intends to build its own hydrogen charging stations in the USA and Europe. These sites will produce hydrogen using only renewable, clean electricity from sources such as solar and wind.

COMBINES ON THE RIVER DANUBE

In response to customer demand, CNH Industrial found a new shipping route to deliver combines in Eastern Europe during peak harvesting season



Every year, the harvesting season creates a spike in demand for new combine harvesters. Farmers from all over Europe need this machinery to bring in their crops. However, delivering the vehicles across Europe is a uniquely difficult logistical task due to the weight and dimensions of the machines. Moving them on the highways means booking space on special trucks, arranging the right loading equipment and organizing the permits required to transport such large vehicles in all the different countries along the route.

“This is a very seasonal product. It needs to be delivered just in time to farmers, otherwise they will lose their crops,” says Alberto Mela, Head of EMEA Finished Good Distribution and Compounds for CNH Industrial.

Moreover, combines are expensive hi-tech vehicles requiring a big financial commitment on the part of buyers, and in some cases customers in Eastern Europe are able to secure subsidies to support the purchase only at the crunch time of year when every manufacturer is shipping their product.

As a result, CNH Industrial found another route to deliver the vehicles to its customers. At that time, all combines were delivered by road from the Company’s hub in Zeebrugge, Belgium, to destinations across Europe as far as Romania and Bulgaria. It was up to the Transport Logistics team to find a solution – and they found it on the River Danube.

An efficient alternative

CNH Industrial made an agreement with a transport company to carry vehicles by river from Passau in Germany to Ruse in Bulgaria for a total of more than 2,300km (1,430 miles). Many combine harvesters can be shipped on the catamaran at once, and there are no ‘exceptional load’ permits to pay for as highways are avoided. River transport also means lower carbon-dioxide emissions. In 2019, 42 agricultural machines were shipped by river as a pilot project, including combine harvesters and high horsepower tractors, thus avoiding the emission of 37 tonnes of CO₂.

Without doubt, transporting the combines by road is much shorter in terms of journey time – around four to five days from Zeebrugge to Bulgaria, traveling at the slower speeds required for trucks carrying exceptionally large loads, compared to 10 to 15 days by river. However, organizing the logistics and permits in the different countries along the route means the overall time works out about the same or even better when road haulage becomes unavailable.

Crucially, the customer in Bulgaria was satisfied with the delivery. “Initially they were a little skeptical because it’s such expensive machinery, and they were concerned that the combines might be damaged as they were loaded on to or taken off the boat,” says Enkeleida Berdufi, Head of Agriculture Europe Sales Administration at CNH Industrial. “We oversaw the disembarkation with

our own staff and the customer was able to see that it was safe.”

“Sustainability is one of the key pillars in CNH Industrial Transport Logistics,” says Dror Noach, Head of Transport Logistics for CNH Industrial. “For this reason we are continuously looking for new intermodal transport solutions.”

Planning for the future

The pilot project’s success means the Company is examining all ways to increase the volume of vehicles shipped by river. It plans to add tractors as well as combines, including New Holland Agriculture and Case IH vehicles, and to have more loading points along the river, says Silvia Menegon, Head of EMEA Logistics Contracting at CNH Industrial.

Currently, there is only one boat that the combines can drive on and off, and this results in there being only one departure every three weeks because it takes 10 to 15 days each way. A method to increase the service would be to use barges on the river, but the combines would have to be loaded by crane rather than be driven on. To achieve this, the Transport Logistics team is looking to add lifting brackets close to the wheels when the combines are manufactured at the Case IH factory in Grand Island, Nebraska, USA, before shipping them to Europe. “This is an exciting option for 2020 that would allow us to increase the service shipping more vehicles by river, which proved to be an efficient and environmentally friendly solution,” Mela says.

TACKLING THE SUSTAINABLE CONSTRUCTION CHALLENGE

A wheel loader producing 80 percent less emissions has been developed by CASE Construction Equipment, drawing on CNH Industrial's considerable experience with alternative fuels

Construction machines must be strong and robust, but can they also be clean, quiet and sustainable? This was the challenge for CNH Industrial's engineers and designers when they set out to build a CASE machine powered by biofuels.

Industrial designers in Turin and Modena in Italy and Chicago, USA, and construction equipment engineers at the Company's factories in Fargo, North Dakota, and Lecce, Italy, worked together to develop the successful concept – a methane-powered CASE wheel loader with the same performance as a diesel-powered equivalent.

As CNH Industrial seeks to reduce carbon emissions, the Company has also developed a methane-powered tractor through its New Holland Agriculture brand. Models can run on biomethane produced from organic waste such as slurry or domestic food waste, a circular and fully sustainable process that does not deplete the planet's resources.

"Alternative fuel sources are an important subject for our customers, and we would foresee early adoption of a methane-powered wheel loader from waste-management companies and bio-energy producers that already have access to biomethane," says Sandro Vitale, Head of Wheel Loaders, Compact Wheel Loaders and Telehandlers Product Line for CNH Industrial Construction Brands. "This is a working concept, but we have already seen tenders from municipal authorities in Europe, for



example, which provide higher scores to alternative fuel-powered machines."

Emissions transformed, power delivered

Biomethane can be produced from a mixture of domestic organic waste; food waste from industrial food producers and restaurants; biomass products such as wood chippings; and animal and plant waste.

Above: in late 2019, CASE received the prestigious Good Design® Award for its methane-powered wheel loader concept from the Chicago Athenaeum. The previous year, the same award went to New Holland with its methane power concept



Above: CASE's methane-powered wheel loader concept is robust, quiet, and cheaper to run. The interior has also been designed to be more comfortable for operators

To produce the gas, all these elements are fed into a biodigester. Here, in airtight conditions, the contents are heated and begin to break down biologically as they are digested by bacteria, much like a compost heap. As this happens, biogases including biomethane are produced. The gases are eventually refined to produce fuel-grade biomethane, which can be used to power vehicles.

When using biomethane, the wheel loader by CASE produces up to 95 percent less carbon dioxide than an equivalent diesel-powered engine, up to 98 percent less nitrogen dioxide, and 99 percent less particulate matter weight, resulting in an 80 percent reduction in overall emissions versus a diesel version.

At a waste handling site, the machines can work as part of a closed loop – the circular economy in action. Biomethane-powered trucks deliver waste from the city to the sites, where the organic material is converted into biomethane, which is then also used by the wheel loaders that move the waste around the facility.

Other significant benefits are that biomethane vehicles are 10 to 30 percent cheaper in running costs than diesel versions, and are not exposed to fluctuations in the price of oil. They are also 50 percent quieter than CASE conventional wheel loaders, while still delivering the same maximum output of 230 horsepower.

Wider scope

The wheel loader can also be used at sites where biomethane is not readily available, such as quarries or building sites in urban locations, powered by natural gas supplied from the conventional grid.

"Our customers are looking to work on construction sites in specific parts of cities where noise and emissions restrictions apply, and this concept addresses those issues," says Vitale.

Proof of concept

Today there are already 28,000 natural gas-powered trucks and buses made by IVECO and IVECO BUS on the road, which leverage FPT Industrial's 20-plus years of experience in natural gas technology.

In designing the concept, CASE had in mind the needs of operators. The industrial design team took the opportunity to test features that would make the wheel loader easier to use and more comfortable for the operators who spend all day inside it. These include windows all the way around and a high-visibility roof panel to give an uninterrupted view of the bucket throughout the whole loading process.

"We were able to leverage all the opportunities of being part of a large corporation and build on the work the Company is already doing on alternative power," says Vitale.



NEW HOLLAND UNVEILS THE WORLD'S FIRST PRODUCTION METHANE POWER TRACTOR

In November 2019, New Holland Agriculture presented the world's first production T6 Methane Power tractor at Agritechnica, the world's largest agricultural trade show in Hanover, Germany, where the methane-powered concept vehicle won the first ever "Sustainable Tractor of the Year".

This is the culmination of New Holland's pioneering work on the use of alternative fuels, and is a significant step forward on the path to decarbonizing agriculture.

Sean Lennon, Vice President for New Holland Commercial Operations Europe, stated: "The T6 Methane Power tractor is our first production model, and our customers will have this tractor operating on their farms through the second half of 2020. With the economic and practical advantages it brings, further enhanced when using biomethane, we have received a lot of interest from biogas plant operators and suppliers, and also farmers with access to the gas network. Municipalities are also showing a lot of interest in adding this tractor to their fleets of natural gas vehicles to reduce their emissions footprint further."





Above: energy specialists during the workshop at the Suzzara site in Italy

“There is no one-size-fits-all solution”

Giorgina Negro, Head of CNH Industrial's energy department

AIMING FOR A CARBON NEUTRAL FUTURE

From fossil fuels to renewable energy, CNH Industrial is transforming how power is used in its plants with the goal of becoming a carbon-neutral manufacturer

CNH Industrial has ambitious targets for reducing its carbon footprint: by 2024, the Company aims to cut CO₂ emissions by 46 percent per hour of production compared to 2014, and to source 80 percent of its electricity from renewables. The aspirational goal is to become a carbon-neutral organization. In pursuit of this, CNH Industrial has a number of energy-reduction projects under way at its 67 plants worldwide.

One of the most successful projects to date was the installation of two natural-gas water heaters at the IVECO BUS plant in Vysoke Myto, Czech Republic, which reduced the plant's energy consumption by 22 percent and cut its carbon emissions by 8,000 tonnes, 60 percent of the previous year.

Painting is one of the most energy-intensive processes, so the Company set up a system at the IVECO plant in Valladolid, Spain, to recover heat from the wastewater created during the painting process. The recovered heat was used to warm up another area of the factory,

replacing a planned new heating system.

Another project implemented in Suzzara, Italy – and extended to other sites – involved the replacement of lighting fixtures with smart LED technology integrated with management systems and combined control strategies. This gave 30 percent more savings compared to replacement with LEDs alone.

The Company is looking at how similar energy-saving measures could be applied at other sites.

In 2020, it will launch a new pilot project focused on the decarbonization of its production processes. The first phase will involve plants in Zedelgem, Belgium, and Suzzara, Italy, before a second phase sees it rolled out to a further 16. The project will assess the measures required to achieve carbon-neutrality in each plant, along with the necessary investments.

Future focus

Becoming a carbon-neutral company will mean finding replacements for the energy produced by fossil fuels and implementing energy-efficiency projects.

“There is no one-size-fits-all solution,” says Giorgina Negro, Head of CNH Industrial's energy department.

The Company is evaluating all the possible alternatives, including producing

its own electricity from solar panels.

Working collaboratively

At the end of 2019, to ensure continuous improvements, the energy department held a four-day workshop for its energy specialists from around the world, together with external professionals and university representatives, at the plant in Suzzara.

Participants had the chance to share information about energy efficiency projects and to benchmark best practices from other organizations.

Of particular interest was the project with the Politecnico di Milano that involved more than 20 European plants and aimed to analyze the measurement systems and related energy indicators applied to painting processes and manufacturing facilities.

On this occasion, the energy specialists planted trees at the Suzzara site – testimony to the fight against climate change. “Trees are the roots of our tomorrow” was the slogan of the team-building initiative.

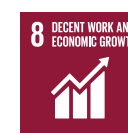
Bringing the group together “demonstrated that our Company is fully committed to finding innovative and efficient solutions to mitigate the impact we have on our planet,” says Negro.

OCCUPATIONAL SAFETY



CNH Industrial's approach to occupational health and safety is based on effective preventive and protective measures, implemented both collectively and individually, that aims to minimize the risk of injury in the workplace.

CNH Industrial endeavors to ensure optimal working conditions, applying principles of industrial hygiene and ergonomics to managing processes at organizational and operational level. Its safety management system engages employees to create a culture of accident prevention and risk awareness and involves them directly in identifying and reporting work-related hazards and potentially hazardous situations. This proactive approach is intended to promote common, ethical occupational health and safety principles, and enables the achievement of improvement targets using various tools, such as training and awareness campaigns.



CNH Industrial supports the Sustainable Development Goals



“The cobots and AGVs reduce the potential for accidents, while also decreasing physical hardship for workers day-to-day”

ROBOTS THAT MITIGATE RISK

Robots and intelligent vehicles are assisting workers with much of the heavy lifting in factories and warehouses, reducing the risk of injuries and improving the wellbeing of employees

Ommeslag, “A man with a trolley could go at the same speed as the vehicles. The difference is that the machine can’t be hurt and won’t get tired.” The focus is on assisting workers with tasks that are physically demanding.

Cobots – safe and intuitive

In Brescia, in northern Italy, cobots are assisting workers in warehouses. Thanks to their long flexible arm, they can grab the required items and transfer them all to the worker’s desk. That individual can then assemble what is needed while comfortably seated, without constantly having to move between their desk and the warehouse rack to pick the required parts.

“Like the AGVs, the cobots are brilliant at reducing the physical strain on workers,” says Herrero. “The warehouses are big, and the workers potentially have to walk a long way over the course of the day. It can be tiring. Using cobots minimizes the difficulties substantially. They can also be used by workers with disabilities and those using wheelchairs, which is great.”

Herrero also points out that with retirement ages set to increase, the cobots will allow people to work longer safely. “They are a very intuitive technology, so people don’t need extra training.”

As the technology continues to evolve, Ommeslag notes that cobots have huge potential for learning new skills in the future.

“The cobots already have an intelligent ‘skin’, which allows them to learn new tasks,” he says. “The human worker can show the cobot the required movement and the cobot will remember it. The pace of change is remarkable.”

Crucially, the cobots are much safer to use than ordinary robots. “Until now, we have had to keep robots in cages, to ensure the safety of workers,” says Herrero. “But these cobots are far more sophisticated. They come to an immediate halt if they sense the presence of a human.”

At present, the cobots are already in operation in Brescia, Madrid and other locations, but there are clearly opportunities in all CNH Industrial’s factories around the world.

“We could potentially have 25 or 50 in each plant,” says Herrero. “This will reduce the need for forklift trucks and trolleys. Cobots will revolutionize manufacturing.”

For centuries, working in a warehouse has been a physically demanding job.

“Think about all the movements you make when you’re gathering together a list of items from the shelves in a warehouse,” says Peter Ommeslag, Head of Industry 4.0 at CNH Industrial. “You reach, you bend, you stretch. If something is just out of reach, you stretch a little bit further. It all puts a lot of demands on a worker’s body.”

Thanks to the introduction of intelligent robots and vehicles, however, factory work is about to become both safer and less strenuous. In Brescia, Italy, for example, workers are now operating alongside custom-built “cobots” (from the words “collaborative” and “robot”). Meanwhile, in Valladolid, Spain, automated guided vehicles (AGVs) have recently started carrying out tasks.

Industry 4.0

Both the cobots and AGVs are part of CNH Industrial’s move to embrace the digitalization of manufacturing, known worldwide as Industry 4.0. Industrialization began with mechanization

through water and steam power; it evolved with the use of electricity in mass production and advanced in the second half of the 20th century with the adoption of computers and the internet. Now digital technologies, including machine learning and artificial intelligence, promise to revolutionize the nature of industrial work.

Ommeslag says these new technologies have been introduced for many reasons but wants to highlight two specific ones: “We want to minimize the risk to workers and also improve their physical wellbeing,” he explains. “Both the cobots and the AGVs reduce the potential for accidents, while also decreasing physical hardship for workers day-to-day. It’s a really exciting technology.”

He says that his department and projects are dedicated to enabling savings and more effective processes. “Efficiency is the main focus of our activity, but we also consider other aspects to make jobs even easier and to change the way we go about manufacturing, introducing new technologies, a new culture, and new skills into our production lines.”



Above: the cobot collects the items and transfers them to the worker’s desk while he is comfortably seated. **Left:** the same job without the help of the cobot. **Below left:** at the Valladolid facility, automated guided vehicles move goods on the production line by the quickest route

Automated guided vehicles

At IVECO’s commercial vehicles manufacturing facility in Valladolid, Spain, AGVs have been equipped with cameras, sensors and artificial intelligence-enabled software.

“The role of AGVs is to move goods from A to B by the quickest route. They know exactly where to pick up the required piece of material, and where to take it on the production line,” says Rafael Herrero, who sits on the Operational Committee of Industry 4.0. “Within the factory, they don’t have to travel more than a few hundred meters at any given time, but they can go as far as you want.”

Thanks to their advanced software, the AGVs are able to identify risks, stopping immediately if they sense danger of any kind. The cameras and sensors also ensure that the vehicles don’t collide with humans or other pieces of equipment.

The AGVs are able to transport items weighing between 10kg (22lb) and 20kg (44lb) and move at around 5km (3 miles) per hour.

“The focus isn’t really on speed,” says

IMPROVING SAFETY WITHIN WCM

CNH Industrial's approach to occupational health and safety has enhanced the Company's performance and helped it minimize risk in its factories through training and technical solutions that are both hi-tech and low-cost

If you walked into CNH Industrial's factory in Valladolid, Spain, during a health & safety training session, you might be surprised by what you find. Rather than rows of workers listening to long, dry lectures, you could bump into a group of people wearing virtual-reality headsets.

This creative approach to safety training is just one of a series of innovations and initiatives brought about by CNH Industrial's commitment to World Class Manufacturing (WCM).

Assessing and eliminating risk

WCM is an integrated model for enhancing efficiency in every aspect of the Company's organization. Through careful and constant assessment, WCM seeks to eliminate all types of waste and loss. The aim is for companies to move towards zero injuries, zero defects, zero breakdowns and zero waste, while also enabling continuous improvement business-wide.

As well as encouraging a focus on customers' requirements and ensuring that WCM methods are applied with consistency and rigor, the program also promotes a new way of working across whole organizations, both laterally between different departments and up to senior management level.

The WCM approach encourages staff to assess potential dangers holistically.

"WCM procedures enable us to carry out a deeper level of risk analysis of the entire workplace area," says Franco

Modaffari, Head of Environment, Health & Safety Commercial & Specialty Vehicles and Agriculture Europe at CNH Industrial. "The aim is to assess and eliminate or minimize risk."

Over the past decade, since CNH Industrial has embraced WCM, its factories have been receiving high ratings from auditors. At present, 26 CNH Industrial plants have bronze medals, 17 have silver awards and two – in Madrid and Valladolid – have been awarded the coveted gold medal as part of the WCM program.

Focus on safety

The WCM program is structured around 10 pillars. Each pillar involves a seven-step approach and auditing process, and the improvements are certified through periodic third-party assessments. "Among the 10 pillars, safety is a critical element, with a strong focus on developing a culture of proactive prevention, as opposed to a merely reactive approach. It requires continuous improvements to workplace ergonomics and to the skills necessary to eliminate any potential hazardous event," explains Angelo Carlucci, Head of WCM, Europe at CNH Industrial.

"Every pillar is scored from zero to five," he continues. "The average score for safety was 2.3 at the end of 2013, and we only had one plant scoring four points at that time. At the end of last year, after five years of activity, the average score for the pillar is 3.0, so an increase of 25

"Virtual reality has really changed how we approach training in health and safety"

Angelo Carlucci,
Head of WCM, Europe

Right: VR headsets are used during health & safety training



percent. We moved up from one plant scoring four points to seven."

"Safety is the first pillar and the foundation of WCM," says Modaffari. "What is central to safety is to achieve the full involvement of everyone at the plant, individually as well as collectively."

During 2019, 14,683 WCM projects were implemented (of which 10.5 percent were related to Safety and Environment pillars), generating \$96.2 million in savings.

At Valladolid, the innovative approach to health and safety is showing results. The team responsible says it has noticed that staff respond enthusiastically to the more varied training schemes.

Virtual-reality training – low-cost and effective

"Virtual reality has helped us change how people think about health and safety," explains Carlucci. The program is a crucial part of training because it allows the health & safety team to show the potential risks of workers' day-to-day operations. "It makes it possible for us to illustrate what can happen when things go wrong, so they see the potential gravity of the situation."

The virtual-reality system also has a high operational efficiency. "You can show people a whole range of situations very quickly," says Modaffari. "It is easier and also more cost-effective to do the training virtually rather than in a real environment."

He adds that without regular training in scenarios including welding and the assembly line, factory workers can forget the inherent risks. "It is easy for people to get over-confident and forget the rules. The virtual-reality systems remind them of the dangers and also reiterate the importance of personal protective equipment."

The WCM approach encourages the promotion of high standards of performance, but emphasizes that no job is to be regarded as so urgent that it cannot be completed in a safe manner.

"Safety is an ongoing commitment and represents a point of strength for the Company," concludes Carlucci.





"The seminar made us think again about lots of things we used to take for granted"

Left: Franco Modaffari (center) interacts with workers on the shop floor to help them identify unsafe acts and conditions

A NEW APPROACH TO SAFETY

Following a recent analysis of processes in CNH Industrial's factories, the Company's health & safety team has launched a two-day safety training program designed to reduce risk and accidents

The recently rolled out training focuses on teaching participants to detect unsafe acts and conditions in plants by observing their fellow workers. Careful study of the workplace by every individual in the organization is intended to correct errors and prevent accidents whenever and wherever issues arise.

Workshops involve people from across the site: the plant manager, business unit managers, supervisors, safety department members and team leaders.

The program has been carefully designed to identify any weaknesses in the current set-up, then develop solutions. On the first day of the program, Franco Modaffari, Head of Environment, Health & Safety Commercial & Specialty Vehicles and Agriculture, Europe for CNH Industrial, and his team start by

asking participants about the strengths and weaknesses of their plant on safety issues. They progress to thinking about how unsafe situations can be identified.

Trainers then give participants 90 minutes to go and find 150 unsafe acts and conditions on the shop floor. "They normally smile or laugh," says Modaffari. "They knew we were coming, so made sure everything was running perfectly. But after our presentation, they look at their workstations with new eyes, amazed by the issues they are able to identify."

Staff have responded positively to the program. "The seminar made us think again about lots of things we used to take for granted," said one participant.

The program was designed after a comprehensive, data-driven analysis of work processes. For Massimiliano

Salvatori, Health & Safety Manager at CNH Industrial, there was one key fact that drove development: most accidents in the workplace were being caused by unsafe practices rather than working conditions. "The statistics meant we had to focus on behavior and change the whole culture," he says.

Better communication and worker involvement are key

On the second day it is the participants' turn to take the lead. The group move to the shop floor and start interacting with people there. "We encourage them to use open questions," explains Salvatori, "and make workers understand their unsafe acts and their consequences."

Workers said they found the training broadened their understanding of health and safety, helping them to take a holistic view. "Before, I only looked at my workstation, now I look at the entire work environment," said another participant.

It is crucial that workers are empowered to suggest solutions. "Workers create what the Company needs and generate the income," says Salvatori. "They know the issues better than anyone."

Finally, Modaffari invites the plant manager to attend the closing meeting, when workers join senior management to draw up an action plan.

Roll-out across Europe

More than 700 employees have undergone the training in groups of between 25 to 30. After rolling out the program in Europe, CNH Industrial has seen a major reduction in injuries in the past years.

LIFE-CYCLE THINKING



CNH Industrial recognizes the real importance of promoting a circular product life-cycle in which resources are used fully and for as long as possible, and products and materials are recovered and regenerated at the end of their service lives. For this reason, the Company offers a range of products that can run on fuels derived from renewable sources, and is committed to adopting sustainability criteria from the design stage in order to develop more environmentally friendly products. To maximize product life, CNH Industrial also offers its customers a range of remanufactured spare parts, in line with its circular economy approach. In manufacturing processes, particular emphasis is given to improvements that increase waste recovery and reuse.



CNH Industrial supports the Sustainable Development Goals



LOOP MASTER TIES UP A KNOTTY PROBLEM

New technology ends the uncontrolled dispersal of plastic twine off-cuts when tying bales and produces stronger knots, making the bales more robust

The innovation departments at CNH Industrial have always helped its brands win many awards and address issues around sustainability, but few technologies have solved such a complex problem as the new knotter system.

Last autumn saw the launch of the patent-protected Loop Master™ Knotter, along with the new BigBaler High Density for New Holland Agriculture. These machines allow farmers to make 22 percent denser bales, while the innovative twine knotter system will tie a new type of secure double knot and

prevent off-cut twine from being discarded in the field or in the bale itself. Together with Loop Master™ technology, these new balers help farmers make more robust bales, save money, protect the environment and improve their feed.

A knotter secures the twine around the bale. If the knot is weak, the bale is more likely to fall apart when it leaves the baler or when moved around the farm or transported indoors. If the twine snaps and the bale breaks, there will be more work for the farmer and a waste of time, twine and crop. That's how

Opposite: the average baler disperses 6km (3.7 miles) of twine waste per season, which may be eaten by animals or pollute the soil or rivers

essential a robust knot is in terms of productivity benefit.

"We have always been pioneers in knot technology," says Felix Ramuenke, Global Product Manager for Large Square Balers at New Holland Agriculture. "We introduced the first double knot in 1987 and in 2004 we introduced six knots to our balers machines. We knew we wanted to take the next step in terms of efficiency, which meant making bales denser, but that we would need a more robust knot with a higher tensile

These new balers make more robust bales, save money and protect the environment

strength. Current knot technology seemed to have reached its limit until Loop Master was born. It's a big evolution in the baler industry.

"Loop Master took about five years to develop from concept to manufacture. We used a 3D printer to make the prototype and tested it first in the plant and then in the field over two seasons on all crops – straw, corn stover, alfalfa and more," says Ramuenke.

Today, Loop Master has proved to be so much more effective and better for the environment that New Holland brought forward its launch and has incorporated it in all its new balers.

"Every knotter of a traditional baler leaves two 5cm (2in) long off-cuts behind. Most bales have six double knots, so 12 off-cuts – that's 60cm (24in) per bale. The average baler makes 10,000 bales a season, meaning 6km (3.7 miles) of twine in off-cuts is dispersed uncontrollably. That can end up in the bale, which may be eaten by animals, or left in the soil or enter rivers. The loop-knotting process of the Loop Master leaves nothing behind," he says. "We have eliminated waste."

"We know farmers are looking for density, but that they also want to protect the environment. With this technology they get both," adds Ramuenke. Because the new system makes denser bales, a field generates fewer bales, needing fewer

journeys to transport them and consequently less fuel.

"With Loop Master, once the first standard knot is tied, a second knot – the loop one – is created for additional bale security," he explains. "Not only does this loop knot provide increased strength of up to 26 percent, resulting in greater baling efficiency and productivity, but it enables well-tied bales of standard density to be made using thinner twine, or higher densities to be achieved with standard twine."

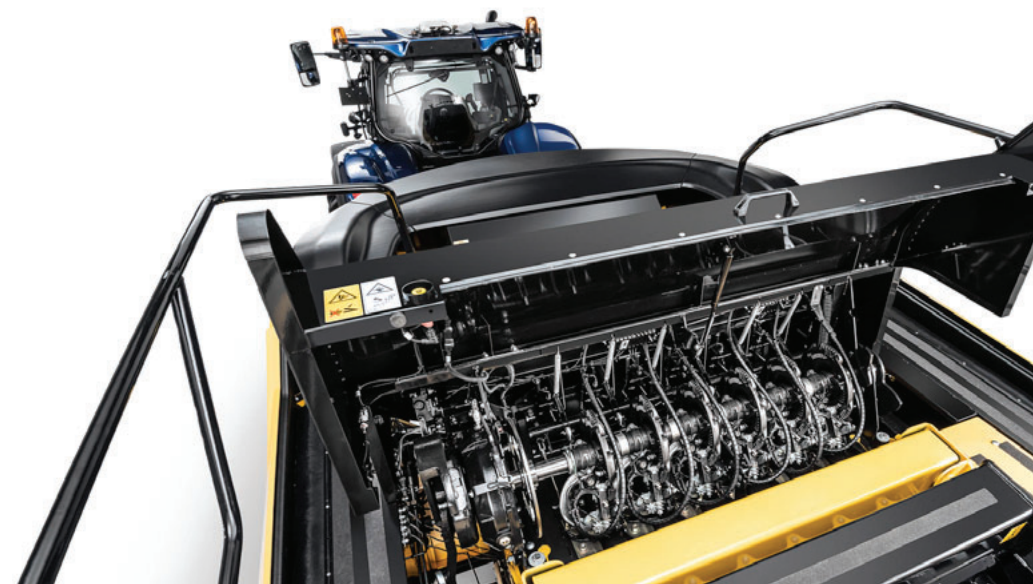
Ramuenke estimates farmers can save €1,100 (\$1,240) a year in twine alone. "Over a 10-year lifetime of the baler that's €11,000 (\$12,400). And when you look at the bigger picture, on a yearly production basis this innovative technology has the potential to reduce plastic twine use by about 500 tonnes in total thanks to the higher tensile strength that allows the farmer to use thinner twine," he adds.

Already, Loop Master has been recognized as an important step forward in sustainable farming, winning four awards with the BigBaler High Density. At the recent Agritechnica exhibition in Germany, it won "Machine of the Year 2020", as well as a silver medal for the unique driveline concept of the baler. It recently won a medal at the international trade show Agribex, Belgium, and another at FIMA in Spain.

Such awards underline New Holland's focus on solutions for technology-oriented professional producers. "We are honored by these awards, but at the end of the day it's the farmers' opinion that matters," says Ramuenke. "And they are already putting in a lot of orders. Farmers are bringing forward their buying and we're selling to farms that customarily use other brands. Demand has exceeded expectations." That's another win for New Holland Agriculture's team.



Above: the off-cuts left behind in the field by a traditional baler



A zero-waste policy in South America transforms organic waste into compost, which is then used to grow vegetables and teach local children about healthy eating

FROM MUCK TO MARKET



Once a month, in the foyer of CNH Industrial's Sete Lagoas plant in Brazil, market stalls are set up to sell organic vegetables from local community gardens. The vegetables are grown in compost made from the plant's own organic waste. CNH Industrial staff are enthusiastic customers.

"Instead of creating waste and sending it to landfill, we get fresh vegetables," says Fabio Belasco, CNH Industrial's Regional Environmental Health & Safety

Manager. "It's a great example of a circular economy and is part of our zero-waste policy."

The policy was Belasco's idea, based on World Class Manufacturing principles, and was introduced in 2017 across CNH Industrial's South American plants – with tremendous success. The Piracicaba plant in Brazil, whose primary focus is making sugarcane and coffee harvesters, was the first to become 100 percent waste free, inspiring five more plants across

Brazil to take up the initiative. Twelve months ahead of the 2020 target, six of the Company's seven plants in Brazil send no waste to landfill, while across CNH Industrial's operations in South America, 99.3 percent of waste is recycled.

Organic matter from restaurants is turned into compost on site, which is distributed to staff and local communities, while waste wood is sold to be made into boxes and pallets or to become biomass. Waste metal goes to local foundries, while paper, some plastic and sanitary waste is burnt and turned into energy.

"It's about changing people's approach to waste and getting them to care about the environment"

Fabio Belasco, CNH Industrial's Regional Environmental Health & Safety Manager

"Some plastic is also sent to a company that makes waste sacks. They are returned to us and we use them for the waste that goes to the incinerators for energy," says Belasco. "We are really close to 100 percent zero waste across our region, which is a remarkable achievement for CNH Industrial."

It is particularly encouraging that this is happening in Brazil because the country ranks fourth in the world when it comes to waste generation, with much of it going to landfill. "It's about changing people's approach to waste and getting them to care about the environment," says Belasco. "We have clear goals and a roadmap. We are changing their mindset, which increases engagement."

To this end, CNH Industrial has run conferences and workshops to help share best practices and has provided research materials. As a result, each plant has been able to develop and follow its own policy according to its needs – the key to its success, according to Belasco.

"Composting is not difficult," he says. "For the hot composting we put leftovers from the restaurants into containers and add dried grass with sawdust, and after a while it all starts to ferment and becomes compost. It's a simple process and we just have to wait. Then we remove it and distribute it. It is a continuous process."

The plant in Contagem, which manufactures construction equipment, also has worm farms, where the worms feed on the waste and their castings are harvested and used as fertilizer. At Sete Lagoas, where defense and civil-protection vehicles are made, along with powertrains and commercial vehicles, employees' children have been involved in the initiatives, planting vegetables as part of an educational program on healthy eating.

Each plant has set aside a special area for the composting cylinders and the whole process is carefully overseen. "It's not been expensive. In fact, financially the policy has created a small surplus," says Belasco, explaining that instead of paying by the tonne to send the waste to landfill, the plants receive income from selling the non-compostable waste. But for him, the important benefits are environmental.

"The Sorocaba plant, for example, which makes combines and other agricultural equipment, was sending 15 tonnes of waste a month to landfill. Of that, four tonnes was organic, and the rest was



Opposite page: at the plant in Sete Lagoas in Brazil, employees' children enjoy getting their hands dirty for a good cause. **Left:** an employee in Sete Lagoas at work in the vegetable garden



Above: leftovers from restaurants are mixed with dried grass and sawdust and added to hot composters

sanitary and sweeping waste. All of it had to be collected daily by diesel-powered trucks. Now it doesn't. In addition to producing the organic compost, and by recycling and reusing, we cut CO₂ emissions by 80 tonnes in 2019. That's what 510 Atlantic Forest trees sequester over 20 years," he explains.

Achieving the 100 percent zero-waste target is so close, but not without challenges. Regional regulations mean sanitary waste from CNH Industrial's plant in Curitiba, Brazil, cannot be burnt, for example. Having said that, Belasco is also running a successful waste-reduction program in parallel with the zero waste to landfill initiative. Consequently, the South American plants are creating less waste overall – 15 percent less in the past two years.

"As part of the 5R concept, which we practice on a daily basis – that's refuse, reduce, reuse, recycle, recover – we are generating less waste, which has got to be a good thing," he says.

While these policies have proved a success, he doesn't think his work is done. "The next phase of good environmental management must be thinking creatively about how to reuse materials instead of throwing them away. We are so used to take, make and throw away. But that's linear and is not sustainable. We've got to think circular. We've got to ensure all our materials can be used again," he concludes.

MADE TO MEASURE: THE 3D PRINTING REVOLUTION COMING TO CNH INDUSTRIAL

In just two years, CNH Industrial has printed more than 200 individual spare parts, prolonging the life of vehicles, bringing down the cost of prototypes and reducing waste

The prompt availability of spare parts is essential for manufacturers committed to offering cost-effective and fast repair of their customers' vehicles. Stocks run out, making small batches is expensive – and when new models are introduced, the production of old parts may become difficult. In addition, the lack of parts results in vehicle downtime, which costs the customer money. 3D printing is opening up new perspectives.

3D printing involves using a digital file to build layers of material to make something. It is precise, fast and cost-effective for small quantities – even one-offs. Furthermore, it creates a lot less waste than traditional casting.

When used to make spare parts, 3D printing can lengthen the life of a machine, and allows a company to make parts as they are needed, freeing up space in warehouses and reducing the risk of having to scrap them for lack of demand.

"In just over two years, we've made 200 individual parts," says Thibaud Feneuil, Aftermarket Solutions Global Engineering Services Manager at CNH Industrial. "The demand is potentially high, particularly for spare parts for near-end-of-life vehicles, when it could be difficult to find them from stock and the right production tooling may be unavailable."

The Company has proven 3D printing to be very cost-effective for parts such as ignition switches and battery covers. For one-offs, in particular, the cost is far lower than one mass produced. "As well



as the reduction of waste material, you don't have to find capacity on a production line and invest in new tooling," Feneuil explains. "In the year to June – with our partners – we printed 10 parts in Europe that resulted in a total saving of €250,000 (\$283,000) – a 60 percent reduction on traditional production."

For prototypes the savings are similar. The cost of making some fuel tank prototypes, for example, fell from \$300,000 (€265,000) to \$140,000 (€124,000) with the benefit of reducing the development time from three months to less than three

weeks. "3D printing makes it easier to alter the design without having to change the production tools," he says.

The Company has its own 3D printers at several locations – such as in Suzzara, Italy, and Valladolid, Spain. Tools and fixtures for the manufacturing process can be printed quickly, keeping plant downtime to a minimum.

Today, Aftermarket Solutions is producing plastic parts, sometimes reinforced with glass-fiber and carbon.

Feneuil and his teams are also looking at making parts from metal. He is optimistic about the future and says, "This is one of the most interesting challenges of my career today," he says. "It's a really cutting-edge way to be more sustainable."



PEOPLE ENGAGEMENT



Keeping people engaged in Company projects is the best way to reach set targets together. CNH Industrial considers its people an essential resource. When operating in dynamic and highly competitive industries, success is achieved first and foremost through the talent and passion of skilled individuals. Indeed, the Company strongly believes that business growth is made possible through personal growth, which is why it invests its business gains in the development of its people, creating a virtuous circle.

CNH Industrial adopts a responsible approach to the management of its entire supply chain, from small local companies to large multinational organizations, establishing relationships that go beyond commercial transactions, and fostering long-lasting and mutually satisfying collaborations with eminently qualified partners that share the Company's principles.

Living and working in synergy with the surrounding area, and collaborating on projects that benefit the community, contribute to enhancing the satisfaction of employees (who often live close to plants) and their sense of loyalty to the Company, while bringing economic advantages to both the Company and the community.



CNH Industrial supports the Sustainable Development Goals



FISHING PLASTIC FROM THE SEA

The Mediterranean Sea has some of the highest levels of plastic pollution in the world, damaging its fishing industry and littering beaches. According to the World Wide Fund for Nature, the economic cost of marine litter to the EU fishing fleet is about €61.7 million (\$70 million) a year; about 95 percent of the waste in the sea and on its beaches is plastic, and 60 species of fish are victims of plastic ingestion. Polluted beaches also deter tourism and cause job losses in the sector.

A plastic catch

In Italy, a sea-saving law called, literally, "Legge Salvamare" is being introduced that will govern the disposal of marine plastic brought onshore. Until the eagerly awaited bill is enforced, plastic caught in the nets of fishing boats has to be tipped back over the side, remaining as a pollutant in the sea.

Fishermen from the village of San Benedetto del Tronto, on Italy's Adriatic coast, have experienced plastic pollution first-hand. Every time they go fishing, they haul in plastic waste with their catch, as well as fish that have ingested plastic.

Last spring, FPT Industrial worked with the fishermen to bring in a catch of tonnes of plastic. This unusual fishing expedition was carried out in collaboration with MedSharks, an NGO linked to the global Shark Alliance, the port and municipality of San Benedetto del Tronto, the local garbage service PicenAmbiente SpA, Clean Sea Life, and the Central Adriatic Ports Authority. It was among the first initiatives to test what the new sea-saving law might mean for cleaning

up the Mediterranean. The initiative also drove home the damage plastic causes to one of the world's most beautiful seas.

A tonne of waste a week

In May, about 40 vessels, most of them powered by FPT Industrial marine engines, brought in some three tonnes of plastic that the fishermen would have previously thrown back. The new law will dictate that bringing plastic in from the sea is no longer a crime of the illegal transport of waste. Fishermen will be able to bring it ashore where it will be correctly disposed of as urban waste. The fishermen were so impressed with their success during the first month that they decided to keep going through to the end of the fishing season in mid-August.

"It was an ideal match between showing our products at work and doing something good for the environment," says Carlo Moroni, Head of Brand Marketing & Communications at FPT Industrial. "When the fishermen told us they wanted to carry on, we were very positively surprised. The more we all got

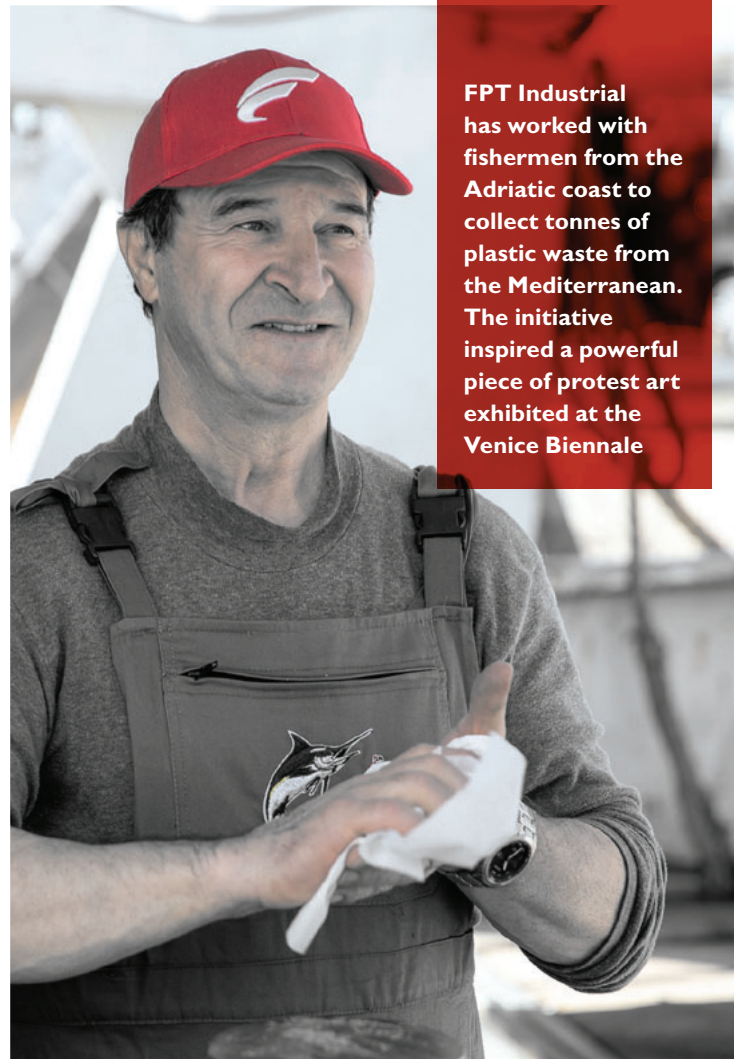
involved, the more we became committed to the clean-up project."

The fishermen pulled in six tonnes of plastic in 14 weeks. Among the items dragged from the deep were a gas mask and a mannequin's head, which scared the fishermen until they realized it wasn't human. Much of the debris consisted of beach toys for children and the deflated remains of balloons. These can travel long distances. The rest of the waste was made up of textiles, metals, rubber and glass.

"We gave a voice to the fishermen. The project became a concrete example of the coming law," says Daniela Ropolo, Head of Sustainable Development Initiatives for Europe, Asia, Middle East and Africa at CNH Industrial.

Plastic waste inspires art

The plastic hauled from the sea was not only used for data gathering and learning more about pollution issues. It also provided the inspiration for an art installation at last year's Venice Biennale – the first ever to be sited on the waters of the Grand Canal itself.



FPT Industrial has worked with fishermen from the Adriatic coast to collect tonnes of plastic waste from the Mediterranean. The initiative inspired a powerful piece of protest art exhibited at the Venice Biennale



"We gave a voice to the fishermen. The project became a concrete example of the coming law"

Daniela Ropolo, Head of Sustainability Initiatives for Europe, Asia, Middle East and Africa at CNH Industrial



Above: FPT Industrial worked with fishermen on the Adriatic coast to collect six tonnes of plastic waste to test a new sea-saving law.
Left: the haul of plastic waste inspired an art installation at the Venice Biennale

Artist Christian Holstad created his *Consider yourself as a guest (Cornucopia)* installation from recycled plastic, including a supermarket trolley and shampoo bottles, to bring attention to pollution in the Mediterranean and the work of the fishermen of San Benedetto del Tronto.

Holstad himself went fishing with the community and got to know the local people and their problems. "He practically became an honorary citizen of San Benedetto," says Moroni. "Christian wasn't just making an art installation, he wanted to be shocking, to accuse," he adds. The artwork takes the form of a giant horn made of bright yellow, blue and red plastic spewing out from a floating platform over the Grand Canal, showing how consumer abundance has degenerated into excessive pollution.

Consider yourself as a guest (Cornucopia) has now been transferred to Turin, Italy, and FPT Industrial, which supported the work, has had requests from several institutions to put it on display.

After the initiative's success in Italy, in 2020 FPT Industrial extended the project to Brazil and Argentina. Almost 500kg (1,102lb) of garbage was collected in a few hours in both locations, an unprecedented action in these countries that promotes environmental awareness.

“It’s a lot of fun to have all that energy in the office”

Deborah Maio, Finance Administration Representative at CNH Industrial

KIDS AT WORK – AND PLAY!

Children were invited to CNH Industrial sites across North America to find out what their parents – and grandparents – really get up to at work. It was also an occasion to learn new skills, including budgeting, interview techniques and driving a tractor

Bring Your Child to Work Day is a hugely popular event for CNH Industrial employees. The 2019 edition brought together 477 children at seven locations in Canada and the United States, ranging from just one 9th grade child in Burlington, Ontario, to 247 participants in Burr Ridge, Illinois.

“It’s my personal favorite day of the work year,” says Deborah Maio, Finance Administration Representative at CNH Industrial, who coordinated the event at Racine West and Racine Downtown with DeDe Obuch, IT Auditor at CNH Industrial. “It’s a lot of fun to have all that energy in the office.”

Across the sites at Racine, activities included a payroll game in which children budgeted for cars, houses and bills, and another game on supply chains that challenged the youngsters to coordinate deliveries across the United States using a floor map. Walkie-talkies were provided so that “suppliers” could negotiate with “managers” in a separate room.

By far the most popular event at Racine was the chance for children over 14 to drive a tractor. It was the first time they were allowed to move the vehicles, rather than just look them over. “It’s completely

different for them to get in and actually move it, to be able to swivel it around and do all the fun stuff,” says Maio.

Racine catered for a total of 141 children on the day, a pretty equal mix of boys and girls, ranging from about eight to 18 years.

At the plant in Saskatoon, Saskatchewan, Canada, which produces equipment such as corn planters, 21 children arrived – and one girl came with her grandfather. “That was a first for us,” says Allan Thiessen, senior Human Resources Representative at CNH Industrial and coordinator of the event at the plant. The children tried out welding and found out about 3D modeling and product design.

Employees also enjoy the day and as many as 220 volunteered to help across the seven sites in Burr Ridge, Fargo, New Holland, Racine, Burlington, and Saskatoon.

“They are proud to be able to show their children, the friends of their children, and their grandchildren, what they do and what we build,” says Thiessen. “I’ve had many parents come back and thank me over and over for allowing them to see what we do first-hand.”



Seven sites in Canada and the US celebrated Bring Your Child to Work Day in 2019. **Above:** Deborah Maio and DeDe Obuch from the CNH Industrial sites in Racine organized games and tractor drives for 141 children



CNH Industrial India has transformed four polluted ponds in Greater Noida near Delhi into sources of fresh water

WATER WORKS IN INDIA

CNH Industrial is transforming dark, sludgy ponds into sources of clean water for four villages around its New Holland Agriculture tractor plant in the Greater Noida area near Delhi



Rural life in northwest India used to revolve around the monsoon rains and the beautiful pools that the seasonal downpours replenished. But years of neglect, pollution and population growth have turned many of these ponds into marshes where nothing grows but weeds.

“The old people remember how beautiful it looked 30 to 40 years ago, when they used to go for evening walks along the banks,” says Kavita Sah, Corporate Social Responsibility Manager for India at CNH Industrial. “Now, the ponds are filled with filth, and the water is mostly sludge.”

In 2019, CNH Industrial India funded the transformation of four degraded ponds into sources of fresh water.

Fresh water supplies in India are under stress from population growth and monsoon rains that are becoming increasingly erratic because of climate change. About 19 percent of India’s

population does not have access to clean water, according to WaterAid, a global non-governmental group that focuses on water and sanitation.

CNH Industrial India is financially supporting the activities to restore and clean up the four ponds at Kheda Chauganpur, Devla, Sorkha and Surajpur. Around 10,000 villagers residing near the ponds stand to benefit from access to clean water for washing and irrigation, while many others will benefit from the groundwater recharge and the resulting water availability that the ponds will provide in time.

Each pond covers around a hectare – about the size of a baseball ground. First, the ponds were drained and all the weeds removed under expert guidance to ensure any beneficial plants were not damaged. The ponds were then deepened, and their sides reinforced with

trees planted to prevent soil erosion. Equipment was brought in to channel the monsoon rainfall and control water flows into the ponds. Finally, each pond was ringed with solar security lights.

One of the biggest challenges for the project was bringing the villagers on board. They were accustomed to tipping garbage into the ponds and some new houses even piped sewage directly into them. So, in addition to maintaining the sites for three years, CNH Industrial is training the local communities to take care of their fresh water supplies, and preparing them to take responsibility for the refreshed ponds in the future.

The next monsoon season should start in June. Once the rains come, the newly renovated ponds will fill with fresh water. “The old people will once again have that vision of the ponds filled with clear water,” Sah says.



GOLD STANDARD ON INCLUSION

Alvaro Arroyo, HR Country Manager for Spain and Portugal at CNH Industrial, has personally witnessed how diversity makes the Company remarkable and each individual creates invaluable wealth. It has inspired him to introduce changes and initiatives at the plants in Madrid and Valladolid to promote a unique culture of inclusion. “We believe that the creation of an inclusive environment, in which diversity is valued and everyone is able to express their full potential, contributes to a better organization and to business growth,” he says.

The first step was to bring everyone on board, and organize activities with managers, workers and people with disabilities. The second was to manage the integration of people with cognitive impairments, then create a Corporate Social Responsibility Committee in charge of developing the strategy and initiatives in line with the Company’s sustainability targets.

Changing mindsets and work spaces

In 2017, CNH Industrial Spain collaborated with local NGO Fundación Roncalli, which helped introduce people with moderate cognitive impairments on to the production line at the plant in Madrid. Changing mindsets among some of the managers and employees proved a huge challenge because the new recruits were seen as different and potentially problematic.

“We helped them understand that everything is possible,” Arroyo says. In order to create a supportive atmosphere for the new recruits, for example, they brought in experts including Paralympic champion Raquel Dominguez and the actor ‘El Languí’ to talk to staff at the factories and explain how the initiative would work.

Today, the new recruits work autonomously at adapted workstations. They have proved themselves to be reliable on the time-sensitive production line and are now about to join the full-time payroll.

Bringing them on board has involved everyone from top management to shop-floor workers and that has led to a greater sense of personal fulfillment for everyone.

The result has been not just a more collaborative environment, but also a more organized, cohesive and interconnected workplace which in turn produces gains in efficiency and productivity. These initiatives have contributed in terms of inclusion and diversity to the recognition of the Gold status in manufacturing excellence for both plants within the World Class Manufacturing program.

Social benefits, financial rewards

By law in Spain, companies are required to employ at least a 2 percent quota of people with disabilities, and for every

shortfall in this requirement they must pay a penalty to the government.

Under this program, CNH Industrial was the first industrial company in the country to have integrated people with cognitive impairments into a production line. The change in corporate culture also encouraged staff already working at the plant and who have disabilities to come forward for the first time and announce their eligibility under the government scheme. As a result, IVECO fulfilled the requirement and invested back into programs focused on social inclusion.

One example is Integracamp, a summer camp that IVECO set up for the children of employees, in which they play and learn with children with disabilities and adults. Integracamp gives all the children the chance to collaborate on projects that range from creating radio content to cooking, and environmental activities such as reforestation and gardening. It also gives their parents – IVECO employees – a better work-life

“We believe that the creation of an inclusive environment, in which diversity is valued and everyone is able to express their full potential, contributes to a better organization and to business growth”

Alvaro Arroyo, HR Country Manager for Spain and Portugal at CNH Industrial



Clockwise from top left: IVECO set up a summer camp for children of employees to play and learn with children and adults with disabilities; new recruits with cognitive impairments work autonomously at adapted workstations; at the Madrid plant, employees and their families made cookies and Christmas decorations with people with disabilities

balance as their children are looked after, while learning and expanding their horizons.

In addition, in 2019 IVECO was the main sponsor of the 42nd edition of “Marcha Asprona”, a walking race held in Valladolid. Every year the money collected from the event is used to support the integration of people with intellectual disabilities. Last year, the race attracted more than 5,600 participants.

These initiatives have been so successful that employees are now coming forward with their own ideas for social inclusion activities, including fundraising for charities and setting up food banks for underprivileged families.

The latest event, just before Christmas, brought employees and their families together with people with disabilities to make cookies and decorations for a Christmas tree that stood in the entrance to the plant in Madrid.

“It was a very lovely occasion. Every time we saw the tree, we remembered

that beautiful day, and people would often comment on the cookies and decorations we made,” says Hildibel Duarte, a member of the Human Resources team at CNH Industrial Spain.

Inclusion remains key

Managers of other CNH Industrial plants are now contacting the management of CNH Industrial Spain, as they would like to organize similar initiatives after seeing the improvements to working conditions and productivity.

Speaking with employees in Madrid or Valladolid, it is clear that the most important measure of success is not financial or economic, but the change in the community and the atmosphere at work.

“If you have direct contact with someone with disabilities and see the way they love life, and how hard they work to grow every day, you form an emotional connection with them. You become really supportive because you believe in them,” concludes Arroyo.

“There is always a child within us,” goes the Brazilian saying. To prove that, employees at Case IH’s plant in Sorocaba, which makes some of the world’s biggest combine harvesters, celebrated Children’s Day on October 12, during the Children’s Month in Brazil, with young cancer patients at a children’s hospital and young people from deprived neighborhoods in the local area.

“We chose these institutions because they offer quality care for children that is recognized throughout our community,” explains Tayana Anieri, Case IH’s Brand Marketing Communications Officer for South America.

At the GPACi children’s cancer hospital, 10 volunteers from the plant handed out toy tractors to approximately 100 children. Even the hospital’s giant teddy-bear mascot received a toy tractor of his own.

The employees spent time playing with patients and chatting with parents. Some of the children were cheered by the occasion; one little girl clutched her tractor as tightly as she clamped her pacifier, while one tiny tot was more keen to hug one of the volunteers than to hold the tractor.

Later that week another 25 volunteers from the plant spent a Saturday at Bola da Vez, a center that provides education and sports facilities for local children. To start the day properly, the Case IH team provided around 400 children with a special breakfast that included sandwiches and fruit. Most popular, however, were hot dogs, cotton candy, ice cream and popcorn.

As well as toy tractors, the team brought a trampoline, a giant inflatable slide and pogo sticks. They played games and organized a soccer tournament – “futebol”, as soccer is known in Brazil, is the national sport.

Case IH’s involvement with GPACi and Bola da Vez are not one-offs. The Sorocaba plant has partnered with GPACi since 2014 to raise funds and resources, and is also a long-term partner of Bola da Vez.

“Our brand wanted to spend special time with the local community. These children are facing their battles and they’re already winners just for that. We believe that sharing moments of joy and love with them is our responsibility as citizens, in the first place,” Anieri explains.



SOCCER, TRACTORS & TRAMPOLINES

Volunteers at Case IH’s Sorocaba plant in the state of São Paulo in Brazil set up a day of games and treats for local children and took toy tractors to young cancer patients at a local hospital



This page: volunteers from the Case IH plant in Sorocaba, Brazil, played games with around 400 children at the Bola da Vez sports center and handed out toy tractors to 100 patients at the GPACi children’s cancer hospital

REWARDING INSPIRING INITIATIVES

CNH Industrial honors suppliers that protect the environment and promote social responsibility

In 2018, CNH Industrial created the Suppliers Excellence Awards in South America to pay tribute to its most outstanding suppliers. Today, categories include one dedicated to sustainability that aims to distinguish and honor projects that have made a positive impact on communities and the environment.

In 2019, 19 projects were submitted in the Environmental subcategory, and the winners were:

- Tenneco Automotive, a supplier of replacement parts located in the municipality of Mogi Mirim, São Paulo, which cut water consumption in its plants by 76.6 percent between 2012 and 2017 through measures that included using rainwater and recycling water used in specialty treatments.
- Fenix Environmental Solutions of Piracicaba, which cut waste destined for landfill to zero through composting leftovers from restaurants and using non-organic waste in industrial boilers and ovens at its plants.

In the Social Responsibility subcategory, 11 projects were put forward and the winners were:

- Tire producer Bridgestone, which set up recreation areas in schools in Camaçari, Mafra, Campinas, Santo André, and São Pedro, using unused tires. These provided a talking point for teaching students and staff about ways to reduce damage to the environment.
- Brasif Máquinas, a heavy-equipment dealer, which in 1993 created a Center for Technical Training (CTT) offering a free internship program. It has since trained 600 teenagers from underprivileged communities in Belo Horizonte, Minas Gerais. Through the Center, it provides training, healthcare and other assistance, and 70 percent of students get jobs at the end of the program.

Aligning expectations

“These partners are considered the best. We clearly want to work with them because they have a better understanding of sustainability and a better alignment to our practices and values,” says Claudio Henrique Bretz Brizon, CNH Industrial’s Purchasing Director for South America. These awards have proved so popular that for 2020 – in the Environmental subcategory alone – 28 projects have already been submitted compared to 19 for the previous edition.

Through this initiative, CNH Industrial shares its practices with suppliers for a more collaborative and productive relationship, and learns from their projects and studies, which can be implemented at its own plants. “For example, we took inspiration from Fenix Environmental’s technologies to help reduce the production of landfill waste at our plants,” says Fabio Belasco, Regional Environmental Health & Safety Manager at CNH Industrial. In 2019, a total of 181 such environmental projects were implemented, securing savings of \$700,000 for CNH Industrial in South America.

“At the end of the day, it’s a win-win process because the suppliers share their best practices with us, and we do the same, nurturing a healthy relationship for mutual benefit,” concludes Brizon.





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