

# +4%...

A MAJOR CHALLENGE



## **MICHELIN** **AT AGRITECHNICA**

HANOVER, 8-14 NOVEMBER 2015

**A WORLD OF  
INNOVATIONS  
TO MEET THE  
CHALLENGES  
OF AGRICULTURE**

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# FACTS AND FIGURES

## MICHELIN AT AGRITECHNICA 2015

- 2,54** billion tons was the global cereal production in 2014. A record harvest!
- 9** billion will be **the number of people on the planet in 2050** according to the U.N.
- 1** challenge for global agriculture: feeding 9 billion people sustainably. **Michelin commits to better feed the planet by developing tyres using advanced technology**, such as MICHELIN UltraFlex which limits soil compaction and maximises crop yields.
- 4** is the number of awards and distinctions received by Michelin in 2015 for its performance and innovations:  
 the organiser of Agritechnica has just awarded **the silver medal for Innovation** to the farming machinery manufacturer ROPA and Michelin for the R-Soil Protect technology. Michelin was awarded the **«Supplier of the year»** distinction by CNH Industrial. Michelin was awarded the **«Innovation of the year»** and also the «Supplier of the year» distinctions by the manufacturer John Deere.  
 At the Universal Exhibition of Milan, which has just ended, with the theme «Feeding the planet, energy for life», **New Holland had equipped all of its agricultural machinery at the exhibition with MICHELIN Ultraflex technology tyres.**
- 4** is the number of major new products to be introduced by Michelin at Agritechnica:  
 Michelin is unveiling the first connected agricultural tyres in the world. Michelin is introducing the new MICHELIN CerexBib IF 1000/55 R32 CFO harvester tyre, equipped with UltraFlex technology for the latest harvesting machinery. In the MICHELIN AxioBib range the IF 900/65R46 will be offered as OE fitment on Fendt machines, along with other new dimensions in the range.  
 The agricultural Product Line is announcing the deployment of a digital service offer, «MICHELIN Flash services», specifically associated to the new 46-inch MICHELIN AxioBib, dedicated to tractors of more than 350 horse power.



# FACTS AND FIGURES

## MICHELIN AT AGRITECHNICA 2015

**3** is the number of major on-board pressure regulation suppliers throughout the world – PTG, STG and Teleflow – with which Michelin is partnered in order to promote pressure regulation so as to obtain maximum performance. MICHELIN tyres with UltraFlex technology are particularly suitable for use with remote pressure systems: their design enables them to perfectly withstand the constant and significant pressure variations in order to adapt to the different surfaces on which they are used: fields and roads. MICHELIN tyres thus deliver to farmers their best performance. They contribute to improving farmers' agronomic yield, reduce their operating costs and protect their soils at every stage of the crop cycle.

MICHELIN tyres with UltraFlex technology **are able to adapt to very high pressure variations with exceptional endurance**, thanks to their architecture and materials. These tyres transmit strong outputs at the lowest pressures, while preventing rim slips, thanks to an optimal bond between the tyre and the wheel rim.

**1** out of 2 agricultural machines exhibited at the 2015 edition of the largest agricultural show in the world, Agritechnica in Hanover, **will be fitted with MICHELIN tyres**. More specifically, out of near 292 identified exhibited vehicles\*, 144 will be fitted with MICHELIN tyres. This is the occasion to recall that the Group deploys its exclusive MICHELIN Ultraflex technology throughout the crop cycle. The agricultural activity breaks down into five sequences over the year, and for each of these periods, Michelin offers a specific range: soil restructuration (MICHELIN AxioBib), soil preparation and sowing (MICHELIN XeoBib), crop treatment (MICHELIN SprayBib), harvesting (MICHELIN CerexBib) and transport (MICHELIN CargoXBib HF and HD). These tyre families benefit from MICHELIN UltraFlex technology and are recognised by the acronyms IF (Improved Flexion) and VF (Very high Flexion) marked on their sidewalls.

(\*Michelin source: 64 vehicle manufacturers are presenting at least one machine fitted with MICHELIN tyres, from Agrifac to Wienhoff, including but not limited to Case New Holland International, Caterpillar, Fendt, John Deere, JCB, Krone, Massey Ferguson and ROPA. Among these, 12 manufacturers will exhibit 100% of their vehicles fitted with MICHELIN tyres during the fair)




**MICHELIN**

## AND THE MAJOR CHALLENGES OF GLOBAL AGRICULTURE

**2014, a record-breaking year!** According to the Food and Agriculture Organization of the United Nations (FAO), for the first time in one year, 2.54 billion tons of cereals were harvested in 2014. The favourable weather conditions in Europe and an unprecedented maize harvest in the United States explain this impressive figure. This record gives a precious indication on the major issue for global agriculture. While easy to state, it is truly challenging to implement: better feeding the planet!

**The global population represented 3 billion people in 1960, 6 billion in 2000, and the United Nations expects this figure to exceed 9 billion in 2050.** Feeding over 9 billion individuals on a sustainable basis represents multiple challenges: food security, adapting agriculture to climate change, consolidating the production resources of growers, not to mention integrating depleting levels of fossil fuels and food transitions.

Michelin's agricultural activity is fully guided by this strategy: **help better feed the planet.** The innovations designed by Michelin aim to provide farmers throughout the world with efficient, safer and easier solutions, generating positive results while being environmentally friendly. Innovation is both the distinctive mark of Michelin and its main vector for growth. **Michelin invests 640 million euros in Research & Development each year, i.e. almost 3% of its revenue.**

**Which solutions are emerging in order to better feed the planet?** The UN has defined several possibilities and stated that «farmers will need new technologies to produce more from less land and with fewer hands». INRA, the French National Institute for Agricultural Research and the leading institute in agronomic research in Europe, ranking second internationally in agricultural sciences, supports the same position: **we must encourage «agricultural techniques which are both productive and ecological, protecting the environment and soils in particular».** Growing better, in short! This is the commitment made by Michelin when it started developing tyres using advanced technologies, such as **MICHELIN UltraFlex**, which has no current equivalent on the market! Tyres using this technology limit soil compaction and optimise crop yields. These tyres can reduce operating costs thanks to reduced fuel consumption and extended mileage.

**Innovation both in and out of the fields and innovation for support and services; every ounce of effort put by Michelin into its agricultural activities around the world focus on one single logic and purpose: better feeding the planet.**



# INNOVATION AT THE SERVICE SERVICE OF AGRONOMIC YIELD

## 4%... A MAJOR CHALLENGE

A study led by **Harper Adams University** in the UK, made it possible to quantify the gains generated by MICHELIN UltraFlex technology, leading to more productive and environmentally-friendly agriculture, protecting soils in particular. The studies led by the British institute establish that for a wheat harvest, a **4% gain** can be achieved solely due to the use of MICHELIN UltraFlex technology tyres\*.

On a large scale, this 4% gain in agronomic yield is a concrete advancement in order to «**better feed the planet**». Therefore, if Ultraflex technology was fitted onto all agricultural vehicles in the main wheat-growing areas of the world, i.e. the 27 members of the European Union, the United States, South America and China, the agronomic yield gain would be of **23 million tons of wheat**.

23 million tons is the additional wheat production offered to the planet, i.e. **the equivalent of Germany's annual wheat production**.

23 million tons is also the quantity of wheat needed **to feed the whole population of the United States for a year, i.e. 319 million people\*\*\***.



Harper Adams  
University

\* Source: Harper Adams University study, 2013  
 \* Sources: OECD-FAO Agricultural Outlook 2013-2012 – 5 June 2015  
 \*\*\* Source: U.S. Department of Agriculture



# FOR BETTER SOIL PROTECTION

MICHELIN PAVES THE WAY FOR CONNECTED TYRES



During Agritechnica, Michelin will be launching the first connected agricultural tyres in the world. MICHELIN agricultural tyres can be equipped with electronic chips, associated with digital solutions to help farmers in their daily challenges, for optimum performance. More specifically, connected MICHELIN agricultural tyres will make it possible to offer new services (see details below with MICHELIN Flash Services), establish a tyre/user/machine communication, facilitate fleet management, and even render each tyre traceable for better monitoring. In short, this will facilitate farmers' tasks, and thus help improve the performance of their activity.

Michelin is taking a step further by announcing the deployment of a new service offer specially developed for its new **MICHELIN AxioBib IF 900/65R46** and **MICHELIN AxioBib IF 750/75R46** tyres. Starting from spring 2016, farmers equipped with these tyres will be able to subscribe to the new **MICHELIN Flash Services** offer from their smartphone. Farmers will thus benefit from customised support and exclusive benefits, free of charge, such as **a visit by a MICHELIN expert** to their farm, **having their tractor and tools**

**weighed, advice on ballasting and personalised tips.** As they provide simplicity, proximity and efficiency, all of these solutions will enable farmers to optimise their work and thus improve the performance of their farm.

**We are entering a new era**, where the power of the digital world is now invested in mobility. On this basis, the Michelin Group has recently revealed new connected services for road carriers, some of which use **RFID technology** (radio frequency identification using a chip), allowing the driver to «communicate» with the tyre. Michelin also applies this technology to major operations, particularly civil engineering works in mines and quarries.



# FOR BETTER SOIL PROTECTION

## MICHELIN PAVES THE WAY FOR CONNECTED TYRES

Agricultural activities benefit from the innovation force stemming from the **Michelin Technology Centre. Innovation** is global at Michelin, applying both to tyres and services. This is one of the particularities of the Michelin Group! The group has built itself up and developed its activities based **on the concept of mobility services**. Over and beyond tyres, Michelin has always accompanied people throughout their journeys.

As the agricultural world is increasingly connected, **Michelin has redesigned its website for agricultural tyres** to ensure easier access, greater efficiency and enhanced interactivity. Created with a responsive design, its ergonomics automatically adjust to all media. Smartphones, tablets, computers, in all cases, the new Michelin website for agricultural tyres will automatically offer the best of its functionalities, among which the «tyre selector» holds a central place along with the business benefits of each tyre. The ergonomics of the «pressure calculator» function, which enables each farmer to obtain in just a few clicks, the appropriate pressure for their equipment and usage while protecting soils, has been simplified.

**The new Michelin website for agricultural tyres is now available in several languages.**

**In France:** [agricole.michelin.fr](http://agricole.michelin.fr)

**In Russia:** [www.agro.michelin.ru](http://www.agro.michelin.ru)

**In the Ukraine:** [www.agro.michelin.ua](http://www.agro.michelin.ua)

**In Brazil:** [www.agricola.michelin.com.br](http://www.agricola.michelin.com.br)

**In Belgium:** [www.agricole.michelin.be](http://www.agricole.michelin.be) & [www.landbouw.michelin.be](http://www.landbouw.michelin.be)

**In Switzerland:** [www.landwirtschaft.michelin.ch](http://www.landwirtschaft.michelin.ch) & [www.agricultura.michelin.ch](http://www.agricultura.michelin.ch) & [www.agricole.michelin.ch](http://www.agricole.michelin.ch)

**In Austria:** [www.landwirtschaft.michelin.at](http://www.landwirtschaft.michelin.at)

Other sites will be launched in the near future in the United States, Romania, China, Sweden, the Netherlands, Italy, Germany, Spain and the United Kingdom.



[agricole.michelin.fr](http://agricole.michelin.fr)



[agricola.michelin.com.br](http://agricola.michelin.com.br)



# MICHELIN CEREXBIB IF 1000/55 R32 CFO

*A HARVESTING TYRE EQUIPPED WITH MICHELIN ULTRAFLEX TECHNOLOGY FOR THE LATEST GENERATION OF HARVESTING MACHINERY*

With the CerexBib IF 1000/55 R 32 CFO tyre, **Michelin unveils the largest harvesting tyre equipped with MICHELIN UltraFlex technology.** This new tyre dimension completes the existing range.

**Harvest is a crucial period for farmers.** If it enables them to give value to the work of several months, it is also carried out in a strained context due to the narrow «weather window», often not exceeding two weeks, as well as a growing tendency for larger farms and more distance travelled on the roads from one field to another.

Subject to increasingly significant productivity constraints, farmers use increasingly efficient harvesting machinery. In 1965, harvesting machinery output was of 80 hp. These machines processed 1 hectare per hour for a production of 45 quintals per hour. **In 2010, machines develop 600 horse power, process 6 hectares per hour and achieve a yield of 660 quintals per hour.** In less than 5 years, machinery output should reach 800 horse power and harvest around 1,050 quintals per hour.

The new MICHELIN CerexBib IF 1000/55R32 CFO tyre was developed in collaboration with **the main harvesting machinery manufacturers, such as ROPA and Holmer.**

These new generation harvesting machines are often articulated, **can measure 15 metres long and 4 metres high, as well as include a 13 metre-wide harvesting header, weigh up to 32 tons empty and 65 tons in the fields.** These machines must often operate in difficult conditions, on damp soils.

## KEY FACTS

- The new MICHELIN CerexBib IF 1000/55 R32 CFO tyre is aimed at new generation harvesting machinery for beetroot, potatoes and other tubers.
- Designed in collaboration with harvesting machinery manufactures, the new MICHELIN CerexBib IF 1000/55 R32 CFO tyre generates productivity gains while protecting soils.
- Its MICHELIN UltraFlex technology enables it to bear up to 23% additional load compared to the previous generation, with one bar less pressure for an equivalent load.



## MICHELIN AXIOBIB RANGE

### PRODUCTIVITY AND YIELD: EXPLOITING ALL OF THE POWER!

The MICHELIN AxioBib tyre range makes it possible to use 100% of the output of ever larger and more powerful tractors.

Michelin thus offers a range of large MICHELIN Ultraflex technology tyres providing more traction, less soil compaction and a design contributing to a more efficient use of very powerful tractors (i.e. more than 350 hp). In this way, Michelin accompanies the development of machines and thus of farmer expectations, by offering the largest tractor tyre in the world, with a diameter of 2.32 m (RC150 category). Offering such a tyre dimension necessarily implies a perfect mastery of complex industrial processes.

#### This tyre range was designed for four main uses:

Heavy duty «traction» works, which characterise agricultural activities in Europe. These tyres are fitted onto ploughing and de-compacting machines

«Extensive» heavy duty works using very wide tools, such as direct drilling.

Transport for harvesting and manure spraying, usually calling upon tractors with powerful engine torques.

Scraping / levelling agricultural activities, such as rice cultivation, and Public Works / Construction activities requiring very powerful tractors, solicited over short cycles.

Michelin has a dedicated service offer, **in addition to the outstanding performance, for the two 46-inch dimensions in the range**. MICHELIN Flash Services is a mobile application enabling farmers to register their tractor, the tyres and their details. Once farmers have subscribed to the offer on their smartphone, they can access a free personalised service and exclusive advantages: a visit by a MICHELIN expert to their farm, having their tractors and tools weighed, find out the right pressure for each tractor/tool combination, advice on ballasting and personalised tips.



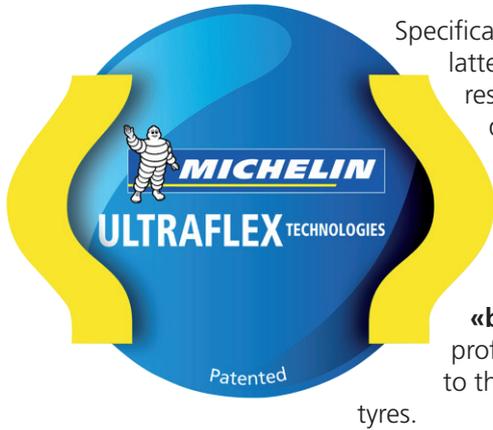
### KEY FACTS

- The MICHELIN AxioBib IF 900/60R42 tyre is now available with a high load capacity index of 186D, i.e. a capacity of 9,500 kg per tyre
- Four new dimensions have been added to the catalogue: two rear 46-inch dimensions and two 38 inch front dimensions.
- The tractor manufacturer FENDT is already fitting the new MICHELIN AxioBib IF 900/65R46 tyre as original equipment.
- Michelin announces the launch of a new digital service offer associated with the MICHELIN AxioBib IF 900/65 R46 and MICHELIN AxioBib IF 750/75R46 tyres. MICHELIN Flash Services is offered free and is accessible from a smartphone.



# BETTER UNDERSTANDING

## EXCLUSIVE TECHNOLOGY



Specifications are becoming increasingly complex for agricultural tyres. The latter must be able to bear loads safely while complying with regulatory restrictions as regards road footprint and, above all, guarantee harvest durability by preserving soils.

**The patented MICHELIN UltraFlex technology complies with these requirements.** MICHELIN agricultural tyres equipped with this technology can operate with unprecedented levels of flexion.

**This reduces soil compaction, therefore enabling the latter to «breathe» much better.** The improvement of farm productivity and profitability is not only due to an optimised protection of soils, but also to the reduction in machinery fuel consumption and the longevity of the

tyres.

Michelin deploys its exclusive MICHELIN UltraFlex technology throughout the crop cycle. The latter comprises five main phases over the year: soil restructuring, soil preparation and sowing, crop treatment and harvest, and transport. **For each of these phases, Michelin offers a special range of tyres equipped with its exclusive MICHELIN UltraFlex technology.** This family of tyres is easily recognised by the acronyms IF (Improved Flexion) and VF (Very high Flexion).

The new dimensions of MICHELIN CerexBib tyres for harvesting machinery complement the range which includes MICHELIN SprayBib for sprayers and MICHELIN AxioBib for heavy duty works (requiring very powerful tractors). As regards MICHELIN XeoBib tyres, these ensure soil preparation and sowing activities (tractors from 80 to 220 hp).



Thanks to MICHELIN UltraFlex Technologies, **the tyre footprint increases by 20% for the same weight and dimension\*.** This means that the soil is less compacted and thus better preserved.

\*Source: tests carried out at the Michelin Technology Centre in Ladoux (France).



# THE MICHELIN GROUP

## IN FACTS AND FIGURES

Creation date:	<b>1889</b>
Industrial sites:	<b>68 PRODUCTION SITES</b> in 17 countries
Number of employees:	<b>112 300</b> worldwide
Technology Centre:	<b>MORE THAN 6,600 PEOPLE</b> people working on R&D, based in Europe, North America, South America and Asia
Annual budget for Research & Development:	<b>OVER €640 MILLION</b>
Annual production:	<b>171 MILLION TYRES PRODUCED,</b> over 13 million maps and guides sold in more than 170 countries, and 1.2 billion routes calculated using ViaMichelin.
Net sales 2014:	<b>€19,553 MILLION</b>

**Michelin's mission**, as leader in the tire industry, is to make a sustainable contribution to the mobility of people and goods. To this end, the Group manufactures, markets and distributes tires for all types of vehicles. Michelin also proposes innovative digital services, such as digital management of vehicle fleets and mobility support tools. It publishes tourist guides, hotel and restaurant guides, maps and road atlases. The Group, with its head office in Clermont-Ferrand (France), is present in 170 countries, employs 112,300 people worldwide and has 68 production sites in 17 countries. It possesses a technology centre for R&D spread around Europe, North America and Asia. ([www.michelin.com](http://www.michelin.com))



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