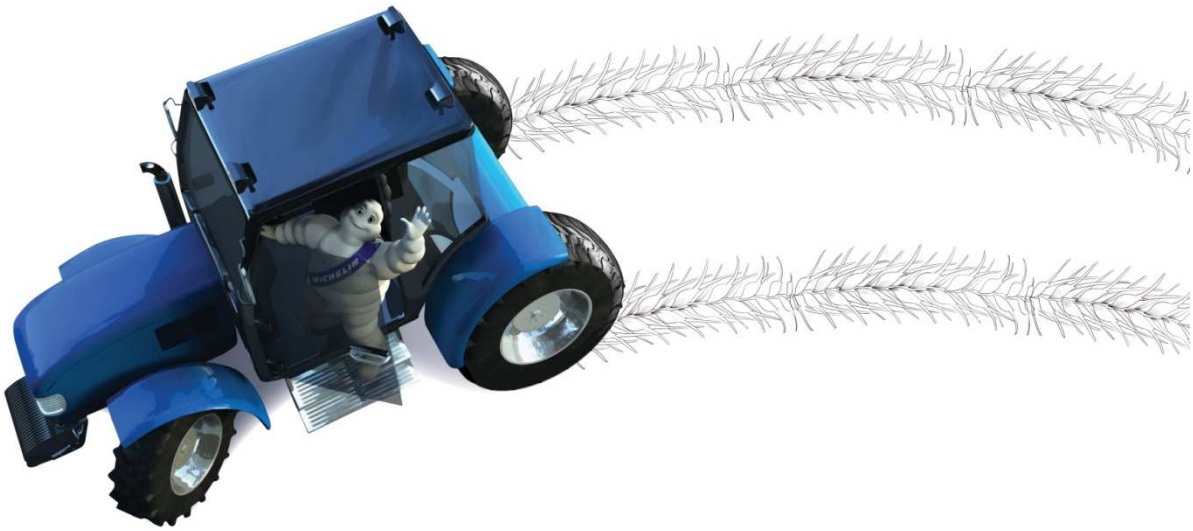
Boulogne-Billancourt, 22 February 2015

Michelin at the SIMA International Agri Business Show

Paris (Villepinte), 22-26 February 2015

A world of innovation to meet all your challenges



Press release

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MICHELIN
A better way forward

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Introdution, by Emmanuel LADENT,
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A world of innovation to meet all of your challenges

At SIMA 2015, Michelin is showcasing its ability to innovate in all areas, ranging from connected services to the invention of new types of tyres.

Farmers are faced with issues that are easy to talk about, but complex to implement: people require food, not only today, but also in the future when there will be more people and less arable land.

In order to **increase productivity** without jeopardising their soil capital, farmers must evolve and use the most advanced solutions. Michelin has always supported farmers by providing them with the most technologically advanced tyres. The turn of the 1980s was marked by the agricultural radial tyre revolution, a Michelin Group innovation, while the MICHELIN Ultraflex technology has recently completed 10 years and has yet to reach its full potential. Today, **tyres with the Michelin Ultraflex technology form a full range**, which covers the entire crop cycle, including trailers, and can meet the challenges of pressure regulation.

We derive real satisfaction from seeing that our **innovations** are **appreciated by the agricultural machinery industry**. Last year Michelin introduced the MICHELIN BibLoad Hard Surface tyre, whose novel design and tread made it particularly suitable for handling applications. JCB announced today that this tyre will be fitted as original equipment on its compact loaders and telescopic handlers, to offer its customers improved safety and performance.

Michelin also considers **digitalisation as an innovation vector**. This manufacturer based in Clermont has always considered service to be the tyre's best friend. Since farmers have to meet the demands of their multiple activities simultaneously, they are increasingly using new technologies and connected tools. In order to help get the best out of their tyres manufactured using the MICHELIN Ultraflex technology, Michelin stays close to the farmers: in their pocket, through a smartphone ... Connected MICHELIN applications offer them the best pressure and usage advice in real-time, based on the use and load of their agricultural machines. The QR code embossed on the side of the MICHELIN AxioBib IF 900/65 R46 tyre, the world's largest tractor tyre, will soon allow the owners of high power tractors to register their tyre and benefit from customised services, in order to make optimum use of this giant.

Michelin makes its technology widely available with **MICHELIN AxioBib Discovery, the augmented reality application** through which it is possible to virtually get inside the tyre and grasp the full complexity of its design. A complexity that is very hard to imagine when looking at the tyre from the outside,

Tyres can also attract attention, like the **new MICHELIN LIFEBIB tyre prototype**, which can be used throughout the crop cycle, from sowing to harvest.

Focus on digital innovation:

Smartphones, tablets, applications, website, QR Code, etc. The Michelin agricultural world is fully digitised!

Highlights	
	Michelin has set-up an entire digital ecosystem to continuously provide the best advice to farmers.
	Mobile applications and QR codes on the tyres are its flagship features.
	The MICHELIN AxioBib Discovery application offers an augmented reality experience inside the largest tractor tyre in the world.

Michelin's claims that it supports farmers at every step are backed with proof: with connected tools, Michelin is always close to farmers, even in their pocket!

Pressure Calculator Application
With a smartphone or tablet, the MICHELIN Pressure Calculator requires only a photo and a few clicks to instantly provide the right agricultural tyre pressure to users.
The MICHELIN Pressure Calculator uses a simple three-step operation:

- Enter the front and rear axle loads of the tractor.
- In the drop-down menu, enter the loads of the implements mounted on the front and rear, as well as the tyres fitted to the tractor axles.
- Take a photo of the tractor with the smartphone. The software integrated in the application accurately measures the distance between the tools and the axles. The load of the implements on the axles is calculated automatically. Due to innovation, the MICHELIN Pressure Calculator is the only one of its kind on the market.

The MICHELIN Pressure Calculator instantly provides the appropriate pressures, based on the load and the desired driving speed. Thus, farmers have the optimal pressure data to ensure road safety, as well as soil protection.

Available in four languages, English, French, German and Spanish, the MICHELIN Pressure Calculator mobile application can be downloaded free of charge from Google Play now and will be available in Apple Store in March 2015.

MICHELIN AxioBib Discovery, an augmented reality application

A new Michelin application offers us an inside view of the MICHELIN AxioBib IF 900/65 R46 tyre, the world's largest tractor tyre. Measuring 2.32 metres high and weighing more than 500 kg, this giant of an agricultural tyre is a hotbed of technology that can absorb the highest forces while keeping the wheel fixed on the rim thanks to its reinforced bead grip. Its Ultraflex technology offers the best soil protection. It can run at 65 km/hour on roads where permitted. This is possible with its unique design that allows it to run at low pressure while carrying loads of up to 10,600 kg!

Innovation is meaningful only if it is shared, therefore Michelin allows all lovers of technological feats to explore the inside of this tyre in augmented reality.

A QR code is embossed on the sidewall of the Michelin AxioBib IF 900/65 R46 tyre, the largest tractor tyre in the world

After making its appearance in trade fairs, the world's largest tractor tyre, MICHELIN AxioBib IF 900/65 R46, is available both on original equipment and replacement markets.
Michelin offers premium service along with this premium tyre. A QR code is moulded into the tyre's sidewall. Farmers buying a tractor fitted with these tyres as original equipment can thus flash this QR Code and register. They will then be contacted by a person from the Michelin teams who will provide support and offer advice on how to optimise the use of this agricultural tyre masterpiece to meet expectations and obtain the best possible performance: more productivity while preserving soil quality.

The QR Code of the MICHELIN AxioBib IF 900/65 R46 tyre is moulded into its sidewall during curing. This feat was possible due to the ability to innovate and expertise of the Michelin teams.

With 6,600 people involved in research, development and industrialisation across 3 continents, Michelin strives to use its unique innovative strength to improve the mobility of people and goods. Over 100 experts are currently involved in the research and development of agricultural tyres to test and offer new solutions.

MICHELIN LIFEBIB VF 710/70 R42 concept tyre: when function meets shape

Highlights

The MICHELIN LIFEBIB tyre is a concept that focuses on productivity and soil fertility. The MICHELIN LIFEBIB tyre leaves behind a wheat ear shaped treadmark.

Michelin Group researchers can explore all avenues to develop tyre treadmarks

Changing needs, practices and uses push Michelin to innovate. What if there were alternatives to the traditional "V" pattern of agricultural tyres?

Soil protection has always been the primary concern of Michelin's agricultural tyre division. By preserving the soil capital of farmers through minimal compaction, the MICHELIN Ultraflex technology also guarantees increased yields and productivity.

When function meets shape

Michelin integrates notions of productivity into tyres to ensure soil protection. The MICHELIN LIFEBIB VF 710/70 R42 tyre leaves behind a wheat ear shaped treadmark on soft ground.

In addition to carving a unique design on a tyre's tread, the wheat ear mark made by the MICHELIN LIFEBIB VF 710/70 R42 tyre follows the general rules of tyre design, in this case with a central, rigid rubber block formed by the braided wheat grains, as well as side tapering. Precision, guidance and adhesion are thus maintained...
Thus, the MICHELIN LIFEBIB VF 710/70 R42 tyre is inspired by nature to celebrate the cycle of life, from production to harvesting. Adapting to various environments and geological conditions, wheat meets human needs by being one of the main components of our diet. With the MICHELIN LIFEBIB VF 710/70 R42 tyre, Michelin demonstrates its commitment to sustainable agriculture.

Michelin is exploring all avenues of research on the shape of agricultural tyres: the MICHELIN LIFEBIB VF 710/70 R42 tyre prototype proves it

Michelin's research and innovation ability enables it to innovate on all fronts. In most cases, the tread of agricultural tyres comprises two rows of V-shaped or herringbone -shaped studs. This is the "historic" pattern of the agricultural tyre.

Beyond the tread pattern, the shape is not sufficient to fulfil the function. The rigidity of the rubber blocks, the angle of contact with the ground, the strength of the bead wires, the flexibility of the sidewalls and quality of the rubber compounds, each detail enhances performance in each individual tyre to meet the needs of farmers. Despite a certain "likeness", state-of-the-art technologies and innovation ensure that not all agricultural tyres are equal.

The richness and complexity of wheat, as well as its simplicity and essential contribution to feeding the world, are represented on the MICHELIN LIFEBIB VF 710/70 R42 tyre.

MICHELIN Ultraflex: a range of low-pressure tyres that covers all stages of the crop cycle. Less compaction, more soil protection, greater yield...

Highlights

A complete range of tyres using the MICHELIN Ultraflex technology is available for all crop cycle needs.

Harper Adams University has certified the gains in yield generated by MICHELIN Ultraflex technologies.

MICHELIN Ultraflex technologies are an excellent investment to combine productivity with soil protection.

The full range of tyres using the MICHELIN Ultraflex technology includes MICHELIN XeoBib tyres for tractors, the MICHELIN AxioBib tyre for high power tractors, the MICHELIN SprayBib tyre for sprayers and processing machines, the MICHELIN CerexBib tyre for combine harvesters and harvesting machines and the MICHELIN CargoXBib High Flotation tyre, covering all crop cycle needs.

In order to produce more, farmers must be able to make optimal use of soil fertility. It must not therefore be compacted. In any given year, an estimated minimum of 45 % of the surface area of a grain field is driven over by an agricultural machine (study by Kroulik et *al*, 2009); this value can easily exceed 90%. The cost of compaction, as estimated in a study by the British Harper Adams University, annually exceeds €1.2 billion in Great Britain. These two items of data highlight the magnitude of the challenges faced by agricultural stakeholders.

MICHELIN Ultraflex Technologies, the best investment for larger harvests

In Great Britain, the British Harper Adams University studied productivity gains generated by the MICHELIN Ultraflex technology on control wheat plots, compared with agricultural machinery fitted with non-Ultraflex radial tyres. Similar studies are planned in various ecosystems.

This study shows that the MICHELIN Ultraflex technology improves yields by 4% each year.

Considering a yield of 8 tonnes per hectare and a harvest sold at €200.00 per tonne, extra production is valued at €64.00 per hectare on each harvest.

Assuming that investment in MICHELIN Ultraflex tyre equipment compared to a conventional tyre assembly is €1.2 per hectare for a tractor (to which a further investment of €1 per hectare can be added for a combine and €0.5 per hectare for a trailer), **it would thus appear that the return on investment in this case is greater than 23 times.**

MICHELIN Ultraflex tyres are therefore an excellent investment to improve yields and protect the soil.

MICHELIN BibLoad Hard Surface tyres will be fitted on JCB loaders and telescopic handlers.

Highlights

Michelin designed the MICHELIN BibLoad Hard Surface to cover new uses of loaders, especially on hard ground

JCB selected this tyre, for its qualities, to fit its compact loaders and telescopic handlers as original equipment

JCB, the manufacturer of loaders and telescopic handlers, announced that it would fit its machines with MICHELIN BibLoad Hard Surface tyres starting January 2015.

Before signing this original equipment contract with Michelin, JCB first conducted a large number of tests at its customer's sites. Users were impressed by the high level of safety, manoeuvrability on hard surfaces and excellent resistance to wear and tear demonstrated by the MICHELIN BibLoad Hard Surface tyres.

Rob Rawlins is one of the customers who took part in this test. He runs two farms in Wiltshire (United Kingdom). He mounted the MICHELIN BibLoad Hard Surface tyres on a recent JCB 536-70 loader (two years old) with which he performs a wide variety of tasks in the fields, on the road and on storage platforms. After 500 hours of operation and more than 4,000 km, the MICHELIN BibLoad Hard Surface tyres demonstrated excellent resistance to wear by maintaining a tread thickness of 29 mm compared with 33 mm on a new tyre. "A loader's work is very punishing on the tyres. We are therefore extremely pleased to see how the MICHELIN tyres have withstood wear," said Rob Rawlins.

The MICHELIN BibLoad Hard Surface tyres were introduced in the market last year. Their innovative design was conceived following in-depth brainstorming by the Michelin research and development teams on finding a balance between the use of machines, future changes and the tyre. Given the increasing time spent on hard surfaces and the numerous multi-directional manoeuvres performed by the loaders and telescopic handlers, Michelin created a radically innovative tread pattern, consisting of rubber blocks, diamond-shaped, bevelled on six sides, ensuring safety, grip, manoeuvrability and traction in all directions.

Each diamond-shaped block has 6 sides and 12 distinct edges. In fact, regardless of the direction taken by the Compact machine, the block is always in the right position to work effectively. It offers permanent and uniform 360° s tability. The patented pattern of the MICHELIN BibLoad Hard Surface tyre tread is multi-directional.

Specifications included resistance to wear and tear and durability of the tyre. These are integrated through two "mechanisms" provided on the new MICHELIN BibLoad Hard Surface tyre: a protective cord to protect the sidewalls against abrasion, which is one of the most frequently observed types of wear. The rim protecting stone deflector prevents any damage to the rim edges when used on tough ground and prevents stones from getting stuck between the rim and the bead.

The MICHELIN BibLoad Hard Surface design has also considered comfort, with a more rigid pattern, less vibrations and clearly lower driving noises.

Michelin Milestones

For more than a century, MICHELIN has leveraged its expertise and innovation to enhance the mobility of motorists around the world.

1889: Founding of "**Michelin et Cie**".
1891: Michelin files its first patents for removable and repairable tyres.
1895: Michelin introduces Éclair, the first car to be fitted with pneumatic tyres.
1898: Birth of "**Bibendum**", the Michelin Man.
1900: Publication of the first **Michelin guide**.
1905: Introduction of the "**semelle Michelin**" tread with hobnails to improve tyre grip and durability.
1910: Publication of the first 1/200,000 scale Michelin **road map**.
1913: Michelin invents the **removable steel wheel**.
1923: First **low-pressure car tyre** (2.5 bar).
1926: Michelin creates its first **Green Guide for tourists**.
1930: Michelin files a patent for the **built-in tyre inner tube**.
1938: Michelin launches **Metalic, the first truck tyre with a steel casing**.
1946: Michelin invents the **radial tyre**.
1959: Michelin introduces the first radial tyre for civil engineering machinery.
1979: The Michelin radial tyre wins the Formula 1 championship.
1981: The MICHELIN Air X is the first radial aircraft tyre.
1989: Michelin launches the first online travel itinerary service, 3615 Michelin, on France's Minitel teletext network.
1992: Launch of the fuel-efficient MICHELIN ENERGY™ tyre.
1993: Michelin invents the new C3M tyre manufacturing process.
1995: The US space shuttle lands on MICHELIN tyres.
1996: Michelin invents the vertically anchored tyre: PAX System
1998: The first Michelin Challenge Bibendum, the leading international clean vehicle event.
1998: The Michelin Man's 100th birthday.
2000: The Michelin Man elected best logo of all time by an international jury.
2001: Michelin markets the world's largest civil engineering tyre.
2003: Launch of a range of MICHELIN brand automotive accessories.
2004: Introduction of a new corporate signature: "**Michelin, a better way forward**".
2004: Launch of the MICHELIN XeoBib, the first agricultural tyre to operat at constant low pressure.
2004: First certifications for Michelin ExelAgri dealers.
2006: Michelin revolutionizes truck tyres with "MICHELIN Durable Technologies".
2007: Launch of the new MICHELIN ENERGY™ Saver tyre, which reduces fuel consumption by nearly 0.2 litres per 100 kilometres, thereby avoiding the release of nearly 4 g/km of CO_2
2009: 100th edition of the MICHELIN France guide.
2010: Market launch of the MICHELIN Pilot Sport 3 and MICHELIN Pilot Super Sport tyres.
2012: Market launch of the new MICHELIN ENERGY™ Saver+ and MICHELIN Agilis+ tyres.
2013: MICHELIN AxioBib IF 900/65 R46 becomes the largest tractor tyre worldwide.
2014: MICHELIN Ultraflex technology completes 10 years.

Michelin facts & figures

Founded:	1889
Production base:	67 production sites in 17 countries
Number of employees:	111,200 worldwide
Research and development:	More than 6,600 people working in R&D in Europe, North America, South America and Asia
2013 R&D budget:	Over **€640 million**
Annual output:	171 million tyres produced, over 13 million maps and guides sold in more than 170 countries and 1.2 billion itineraries calculated by ViaMichelin
2013 net sales:	€20.2 billion

An extensive portfolio of brands covering all market segments: MICHELIN, BFGoodrich, KLEBER, UNIROYAL, WARRIOR, Kormoran, RIKEN, TAURUS, TIGAR, Pneu Laurent, Recamic and MICHELIN Remix.

More than 3,500 proprietary and franchised outlets in 29 countries: Euromaster in Europe and TCi in the United States; TyrePlus in Asia, the Middle East, Russia, Australia and Mexico; Michelin Commercial Service Network in the United States; and Michelin Truck Service Center in Asia, the Middle East and Algeria.

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