

Digital Farm: Farmers Expect Use of Artificial Intelligence to Triple



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Survey in five countries on four continents: Farmers dissatisfied with the level of digitalization on their own farms

- Digital transformation at different stages: More than 40 percent are already using apps or GPS-controlled agricultural machinery, while one in five are not using any digital technology at all

- Ismail Dagli, Head of the Autonomous Mobility and Commercial Vehicles business area at Continental:

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Hanover, Germany, March 18, 2024. The level of digitalization on farms around the world varies widely. While some farms already rely on technologies such as artificial intelligence, the use of drones or robotics, others are still insufficiently digitalized. These are the findings of the “Agriculture in transition” study, which Continental conducted together with the market research institute Innofact AG in fall 2023. 503 farmers from five countries were asked about their daily work, their concerns and challenges. Digital solutions support farmers in the necessary transformation towards sustainable and efficient agriculture. Precision farming is a good example. It uses GPS, sensors and data analysis to more precisely manage resources such as fertilizer, water and pesticides. This optimizes field management, protects the soil, and increases farm efficiency, value, and sustainability.

“We are currently experiencing a profound change in agriculture, driven primarily by connectivity, robotics and artificial intelligence. At the end of this transformation, agriculture will not only be more efficient, but also more environmentally friendly. We see the potential to transform the entire value chain. The results of our 'Agriculture in

transition' study show that farmers also see this potential. Our goal is to work closely with farmers to strategically harness technological advances to make agriculture more resilient to climate change,” says Ismail Dagli, Head of the Autonomous Mobility and Commercial Vehicles business unit at Continental.

Farmers are at different stages of digital transformation

The majority of respondents are currently using digital solutions. 79 percent already use such technologies today, and more than two-thirds of farmers say that digitalization plays a rather relevant role in their daily work (71 percent). Nevertheless, there are major differences between regions and company sizes.

In Germany, France and the U.S., about 13 percent of farmers do not use digital technologies, while in Brazil it is only one in twenty (5 percent). In Japan, however, around 60 percent of respondents state that they carry out their agricultural work without digital applications.

This also has an impact on the level of satisfaction with the digitalization of one's own farm. In an international comparison, Japanese farmers are the least satisfied with their level of digitalization. Around 77 percent of them state that they do not use enough technologies (international average: 37 percent). German farmers, on the other hand, appear to be the most satisfied with the extent to which digital technologies are used on their farms. About two-thirds (67 percent) say they use just the right amount (international average: 54 percent). These results make it clear: regardless of whether respondents are currently satisfied with their use of technology or not, the road to the digital farm is still a long one.

This is also confirmed by the size of the farm. In general, the smaller the farm, the less digitalized it is. On farms with less than 50 hectares of land, about 20 percent say they do not use any digital technologies. The figure is twelve percent for farms between 100 and 200 hectares, and ten percent for farms over 200 hectares.

Among those using digital technologies, a look at the level of digitalization also reveals big differences: While many farmers have already implemented solutions such as apps and GPS-controlled agricultural machinery (apps: 45 percent, GPS-controlled agricultural machinery: 41 percent) and almost one in three farmers (30 percent) use satellite images, the use of robotics (13 percent) and artificial

intelligence (10 percent) is less widespread. However, the use of drones is already becoming more popular: More than one in four farmers (27 percent) use drones, primarily to analyze land from the air.

Robotics use expected to double, AI applications expected to triple

There is no question that the use of digital applications will increase. However, the digital gap is likely to widen. About one in four farmers (24 percent) still have no concrete idea what technologies will be used on their farm in the future.

Farmers around the world are facing increasing challenges: growing demand for food, increasing regulations, and visible effects of climate change. In addition to politicians, who can set the framework, it is also up to technology suppliers to meet these demands with durable and environmentally friendly technologies,

explains Mario Branco, Head of Off-Highway at Continental.

On the other hand, technologies that are not widely used today will become more important: One-fifth (20 percent) of farmers who are not using robotics today expect to do so within the next five to ten years. By then, one-third of farmers would be using robotic solutions. This represents an increase of 138 percent – more than a doubling. The percentage is particularly high in Germany (28 percent), the U.S. (27 percent) and Brazil (24 percent). Expectations are lowest in Japan, at 9 percent.

A similar trend is seen in artificial intelligence, where farmers predict even greater growth. Respondents expect this number to triple in the next five to ten years. While an average of 10 percent of respondents are using AI today, an additional 19 percent expect to begin using AI during this time period. Only Germany and Brazil have higher percentages at 26 percent (Germany) and 25 percent (Brazil). The U.S. on the contrary has the lowest expectations, at around 13 percent.

In the coming years, many farmers will significantly increase their use of artificial intelligence and robotics to make their operations more efficient and environmentally friendly, including the use of pesticides and herbicides. This will fundamentally

change the way farming is done, from precise soil analysis to automated harvesting to intelligent yield prediction. We are already making an important contribution with our greenhouse robotic solution and our new herbicide-free Weed Control System. At the same time, we at Continental are supporting our customers in every step of the implementation to ensure that they can fully benefit from the potential of these technologies,

says Mario Branco, Head of Off-Highway at Continental.

Technology companies must address the individual digital needs of farmers

The study proves: Farmers need strong partners for change. When asked what (additional) services from technology companies would help them, 43 percent of respondents said more user-friendly technologies. 37 percent are interested in training courses on the usability of technologies provided, while 31 percent would like to see data presented in an understandable way.

If technology companies like Continental want to support farmers in their digital transformation, they need to address the individual challenges they face at each stage of their digital transformation,

says Mario Branco. Taking into account regional differences in technology availability, farm size and type, local infrastructure and technologies already in use, farmers need customized and intuitive digital solutions. In developing these solutions, the global technology company is drawing on its expertise in intralogistics, construction and mining, as well as passenger cars and commercial vehicles, and incorporating its knowledge of materials, big data, automation and sensors into its solutions for agriculture.

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