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**Electrification and robots, Italy in the world's top five**

***Italy is one of the most advanced countries in the world for the automation of agricultural machinery, after the USA, Holland, France and Germany. It has produced four advanced agricultural robots out of the hundred currently on the international scene. Most of them, still at the prototype stage, are powered by electricity. At the 44th edition of EIMA, the international exhibition of agricultural machinery, the spotlight will be on electrification and robotization.***

With a historical tradition in the field of agricultural mechanics, Italy is trying to carve out a leading role for itself in applied research in the service of automation and electrification. The numbers are still too small to speak of the existence of new demand. But they are still large enough to place Italy among the top five countries in the world for innovation in this field. Today there are about a hundred agricultural robots on the international scene, many of which are still in the prototype phase. Of these, twenty-four have been produced by large US groups, sixteen by Dutch companies, twelve by French companies and seven by German companies in the sector. With four examples of the latest generation of robots, Italian companies, on a par with English, Danish and Spanish companies, have taken fifth place in the global classification of automation. The data come from a survey presented at EIMA, the international exhibition of agricultural machinery in Bologna, currently underway, during the workshop "Electrification of agricultural machinery", promoted by the trade publication L'Informatore Agrario, together with Francesco Marinello, professor of Agricultural Mechanics at the University of Padua. "Italy is increasingly heading towards a progressive contraction in the number of active farms, with fewer workers having to guarantee the cultivation of more hectares," Marinello explains. "This is another reason why automation can be an answer to the new needs and characteristics of the business world. Of the robots produced to date, 44% are destined for herbaceous crops, 35% for trees and 21% for horticultural crops. The vast majority are powered by electric motors (78%) or diesel (14%). Only 8% are hybrids. Lastly, just 3% are autonomous tractors, while over 30% are used for mechanical weeding or harvesting. Together with electric machines, robots respond to the demand for greater control and transmission capacity and higher yields. "On board the agricultural machine," continues Marinello, "the conversion efficiency of mechanical energy varies depending on the type of propulsion. With petrol it varies between 20 and 30%, with electric accumulators between 70 and 90%. Moreover, the price per kilo of lithium batteries has been falling steadily for the past ten years, unlike that of diesel per tonne, which has been on an upward trend in recent years and whose value depends on many factors, including geopolitical ones.

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