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## Ra-Rake launch after EU funds €1.4m research

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EU funding of nearly €1 million has gone into a research project in Italy which has resulted in a new double-wheel rake that reduces dust contamination of forage.



In drier countries (or during droughts), dust contamination of silage or hay causes problems of fermentation and bacterial development in forage. In 2016 in Hungary, it was estimated that 1,000 tonnes of fodder was lost due to such contamination.

And contaminated fodder is linked with an estimated EU cattle mortality of 2.5% due to clostridial bacteria, and a 5% reduction in milk yield.

The EU's Horizon 2020 funding for development of this implement was also justified on the basis that current windrowing machines had serious limitations in terms of both productivity and quality of forage.

Existing machinery didn't ensure both clean forage and high working performance at an affordable speed with low operational costs.

Hence the EU funding for Reposi, an Italian company, which has devised the Ra-Rake, to collect hay with 75% less stones and dust and less ground damage, to provide higher quality fodder for use in milk and meat production.

Repossi got an EU contribution of €959,480 towards its costs of €1,370,685 in research and development of the new rake since July, 2017.

The Ra-Rake is estimated to be 20% more fuel-efficient than existing rakes.

It represents a modification of original wheel rake designs which were little improved since the 1960s.

Repossi says the Ra-Rake windrowing machine results in cleaner forage (1.8% ash content versus 7.5%), works faster (over 20 kilometres per hour, versus 12 km/h), and with a 35% lower initial investment, compared to the best-selling rotary rake windrower. Gabriele Reposi, the inventor of the new machinery, says the key design feature is two star-wheels of different diameters.



A payback for the EU estimated at €155m will come mainly from saving an estimated 18,000 cattle from contaminated fodder, according to the Department of Environmental Sciences and Policies of the University of Milan, which was in charge of assessing the advantages obtainable from the Ra-Rake.

"In comparative tests, we have calculated that those who work about 200 hectares per year (in the case of alfalfa, five cuts for an area of 40 hectares), if they use Ra-Rake instead of the rotary, can save about €1,400 per year," said Jacopo Bacenetti, researcher at the University of Milan.

"On a larger area, 1,000 hectares worked per year, the savings are €4,900, while on 2,000 hectares, it is as high as €9,800".

The cost per hectare has been calculated by adding all the costs related to the machinery, including the initial investment, the hourly costs of the operator, and the out-of-pocket expenses for use and maintenance (diesel, oil and lubricant).

In Italy, some farmers collect alfalfa at night or early in the morning to take advantage of the humidity and to preserve the leaf, which contains most of the protein.

The Ra-Rake may enable them to harvest the forage at different times of day.

Farmers in Northern Europe will be interested to see if the new design could also be advantageous for them.

However, dust in forage crops is less of a problem for them, and forage crops are likely to be much heavier than the alfalfa in which the machine was tested in Italy.

But northern farmers who depend on imported fodder from the south due to drought or other problems in the north will also benefit, if the Ra-Rake brings about the hoped-for significant improvement in forage quality.