The RA-Rake has received funds from the European Union's Horizon 2020 research and innovation programme (funding n. 778475)

international patent

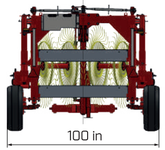
RA-RAKE DATA SHEET

MODELS	Working width	Length	Transport height	Front star wheels	Rear star wheels	Main wheels	Secondary wheels	Weight	Minimum power
12+12 VS	24.6 ft	27.70 ft	6.90 ft	12	12	10.0/75-R15.3	200/60-14.5	5,400 lb	40 Hp
14+14 VS	29.5 ft	30.50 ft	6.90 ft	14	14	10.0/75-R15.3	200/60-14.5	5,840 lb	40 Hp

The Ra-Rake has obtained **European Road Approval** from the Italian Ministry of Infrastructure and Transport, in compliance with EU regulation 167/2013 (aka the Mother Regulation).

SAFE ON THE ROAD

The machine is **8.36 ft wide** for easy, safe road transportation.

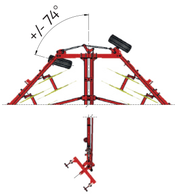


HEAVY DUTY

Swivel wheel **dampers** absorb shocks on uneven ground and protect the structure.

MANOEUVRABLE

A steering angle of +/- 74° means the machine is highly **manoeuvrable.**



REPOSSI MACCHINE AGRICOLE

Repossi Macchine Agricole was founded in 1898 and has been owned by the Repossi family for four generations. The company designs and manufactures hay-making machines and equipment for animal husbandry. Its history is marked by the first trailed comb rake (called the Fortuna), which was joined over the years by other types of rake (self-propelled, rotary, double, triple and electro-hydraulic), hay tedders, machines for barns, etc., right up to the current wide range of products and services, which result from a high degree of specialization and expertise.

Repossi macchine agricole

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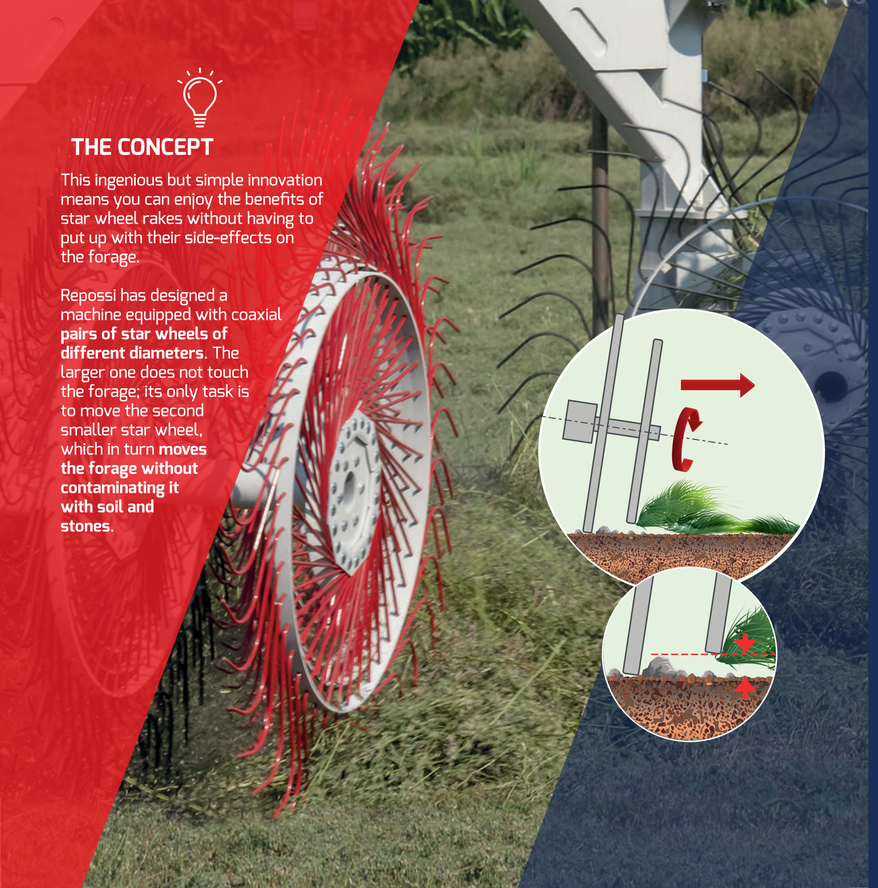
THE DOUBLE STAR WHEEL RAKE

THE CONCEPT

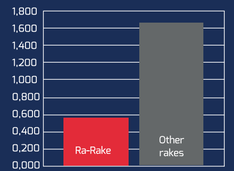
This ingenious but simple innovation means you can enjoy the benefits of star wheel rakes without having to put up with their side-effects on the forage.

Repossi has designed a machine equipped with coaxial **pairs of star wheels of different diameters**. The larger one does not touch the forage; its only task is to move the second smaller star wheel, which in turn **moves the forage without contaminating it with soil and stones**.



FORAGE QUALITY

-66% ASH



Raking always increases the amount of forage ash contamination. This contamination has to be kept to a minimum.

The average increase in ash in the forage the Ra-Rake produces is 66% lower **than that caused by other existing types of rake (rotary, etc.) with all the consequent benefits**.

+ 1.8 lb/day
GREATER MILK PRODUCTIVITY

+ $ 26,000 YEAR x 250

The **difference** between forage harvested with the RA-Rake and forage harvested with a rotary rake has been measured in **terms of energy** in scientific tests (FUm = Feed Unit Milk). The difference in favour of the RA-Rake is 0.0178 FUm per pound of dry matter.

Since the animal has to consume 0.19 FUm in order to produce one pound of milk, the energy difference between the two forages means that each **cow produces 1.8 lb more milk every day under the same conditions**.

This increase in productivity results in a herd of 250 animals producing 164,000 lb more milk each year. With the price of milk at 0.16 $/lb, this means about $ 26,000 per year in extra income.

-0,66 lb/day
LOWER RATION COSTS

+ $ 10,500 YEAR x 250

On the basis of the results of the analysis of the numerous samples collected, **two rations** were simulated, each measured out to produce 60.60 lb of milk: the first with forage raked with the RA-Rake, and the second with forage obtained using another rake.

In order to achieve a sufficiently high nutritional value, a certain amount of **soybean meal** was added to each ration.

Thanks to the higher energy value of the forage harvested with the RA-Rake, the corresponding ration contains 0.66 lb less soybean meal than the other. With a 250-animal herd and with a soybean meal price of $ 0.18 per pound, this means an annual **saving of about $ 10,500**.

LOWER MANAGEMENT COSTS

+ $ 1,900 YEAR x 680 ac

Researchers at the University of Milan compared the operating costs of the RA-Rake to other rakes. In particular they looked at **fixed costs** (initial purchase and machine lifespan) and **variable costs** (maintenance and repair costs, operating capacity, and hours of labour arising from the working speed).

The cost per acre of using the **RA-Rake is $ 2.80 less** than in the case of rotary rakes. Over a working area of 680 acres, this means a saving of about $ 1,900.

Results of scientific tests carried out by a team coordinated by professor Luca Rapetti, head of the Department of Agricultural and Environmental Sciences at the University of Milan, as part of the European Horizon 2020 project.

-66% ASH → **+0.0178 FUm** → **+1.80 lb milk**

Would you like to calculate how much your company could save with an RA-Rake? Display and access the spreadsheet on our website.

12.5 mph SPEED

-2.80 $/ac
Cost per acre compared to a rotary rake