SEMINARIO PRINCIPALES RIESGOS LABORALES AGRARIOS
"ACCIDENTES POR VUELCO"
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ROLL-OVER ACCIDENTS and ROPS IN ITALY

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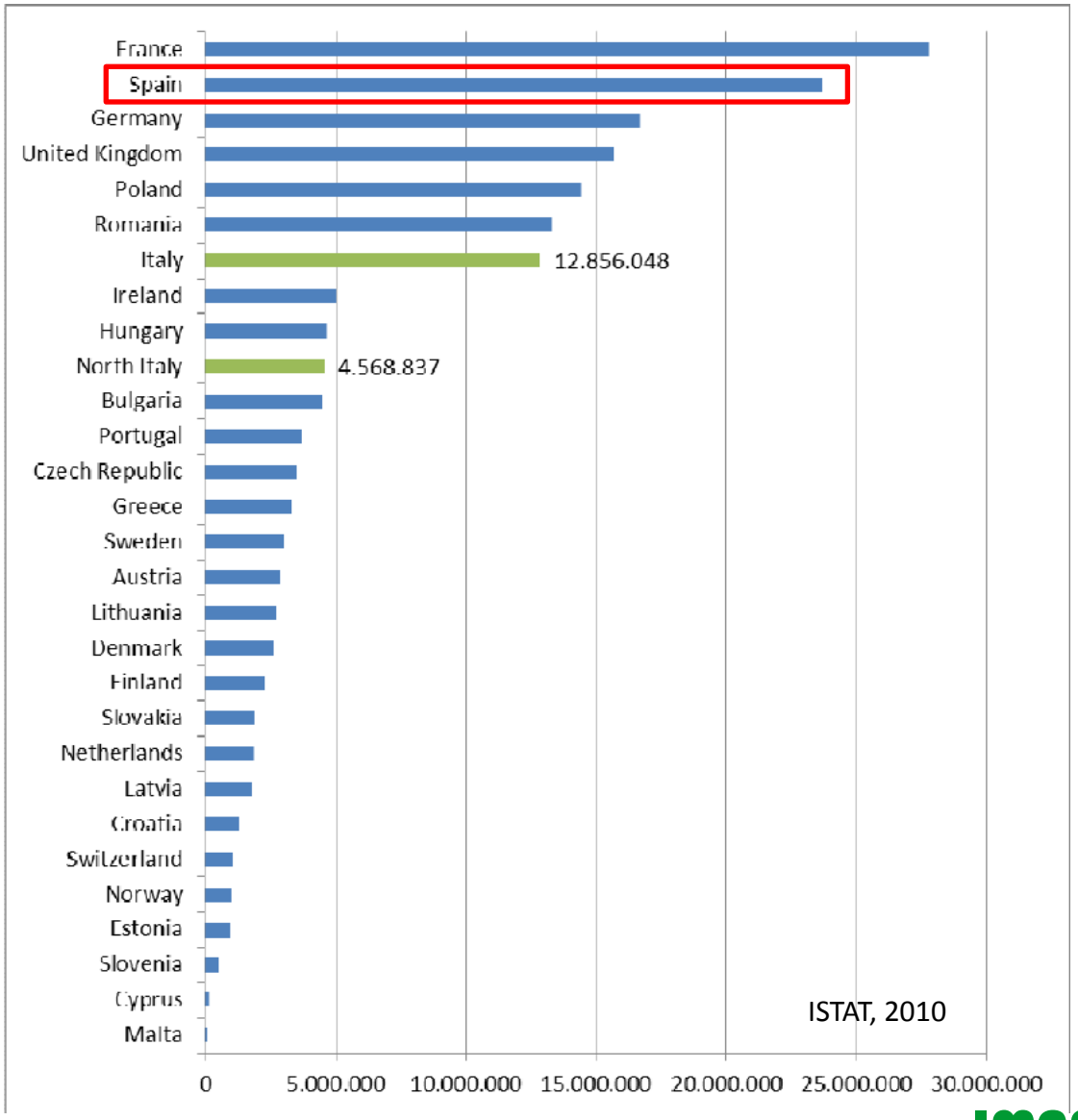
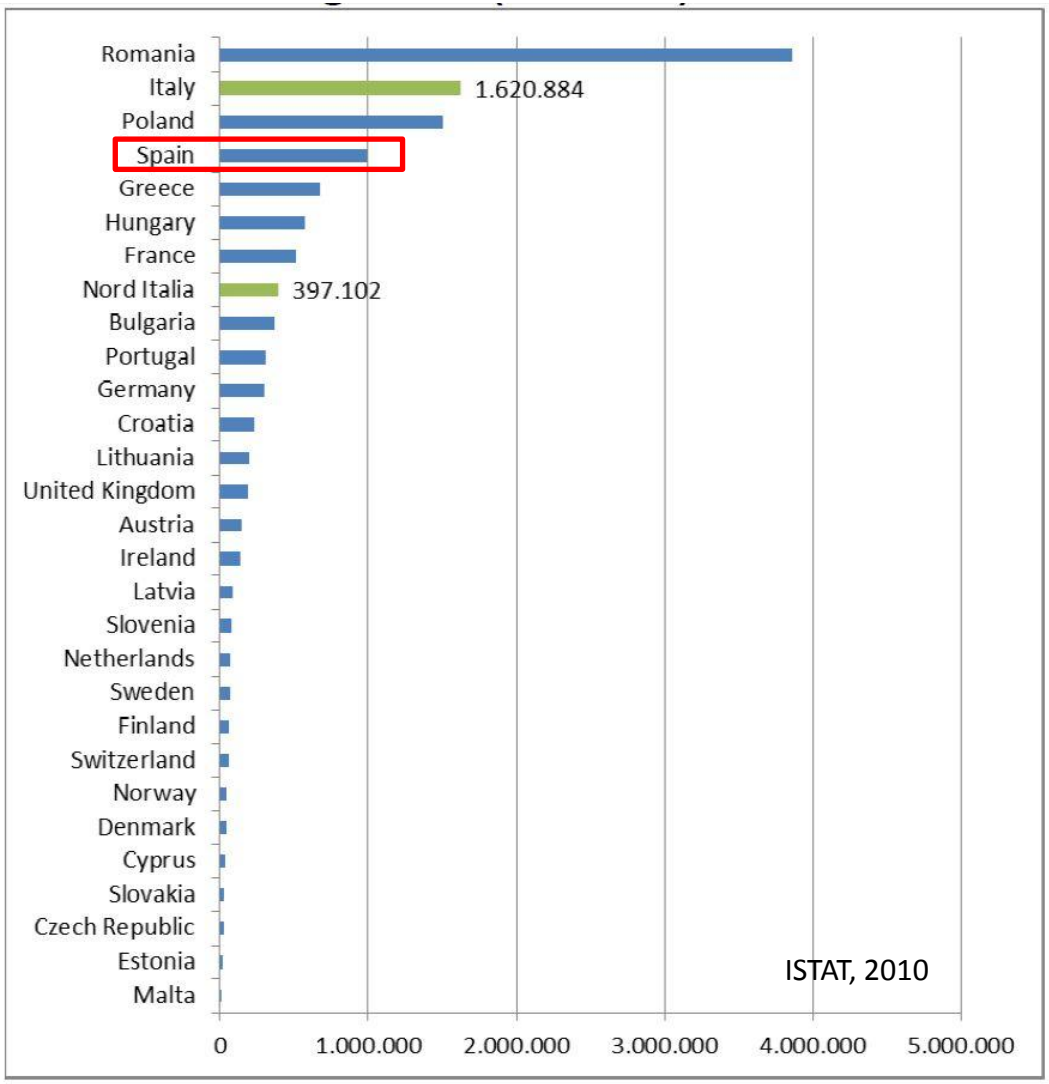
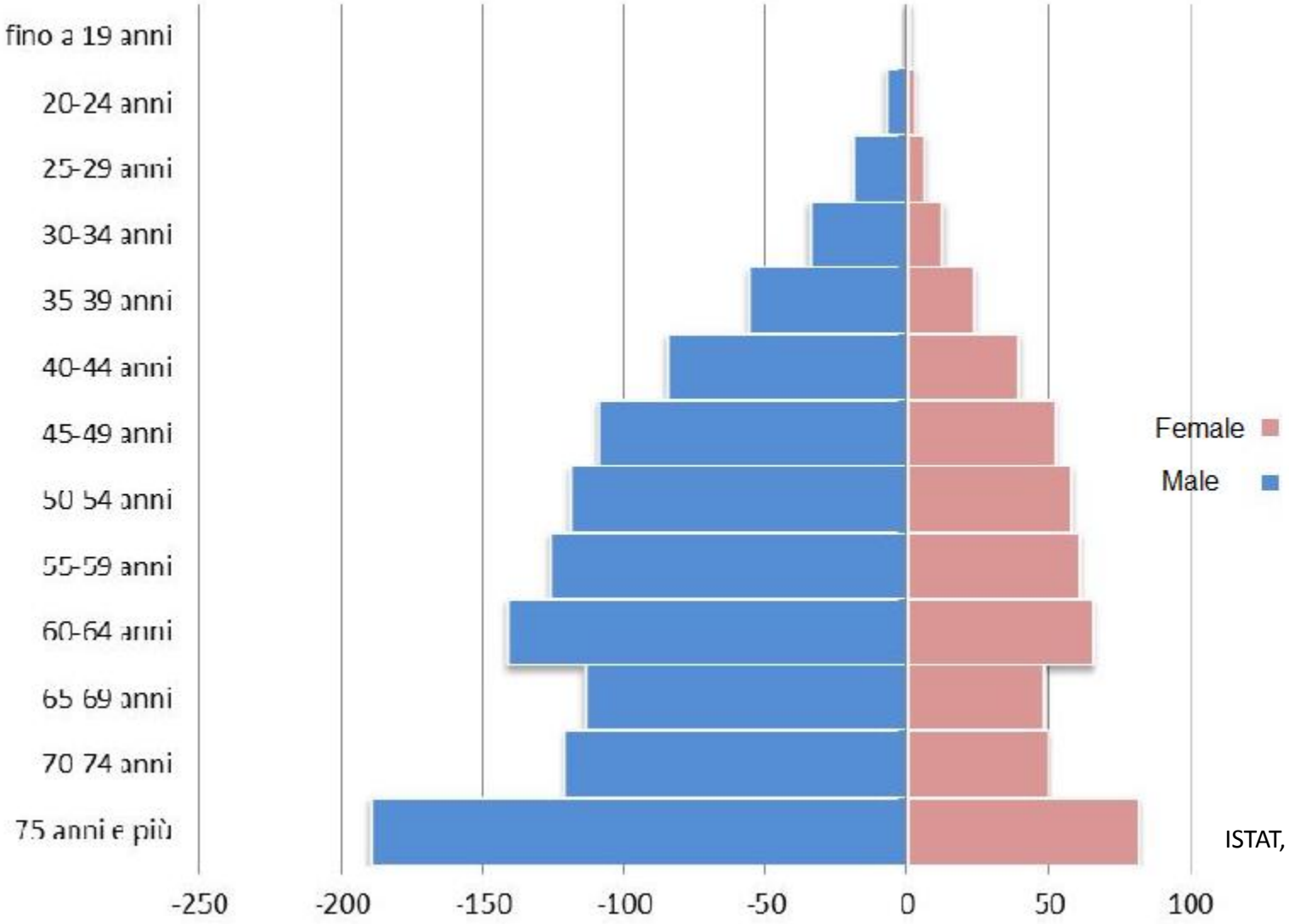
HA OF LAND FOR AGRICULTURE IN ITALY



NUMBERS OF FARMS IN ITALY

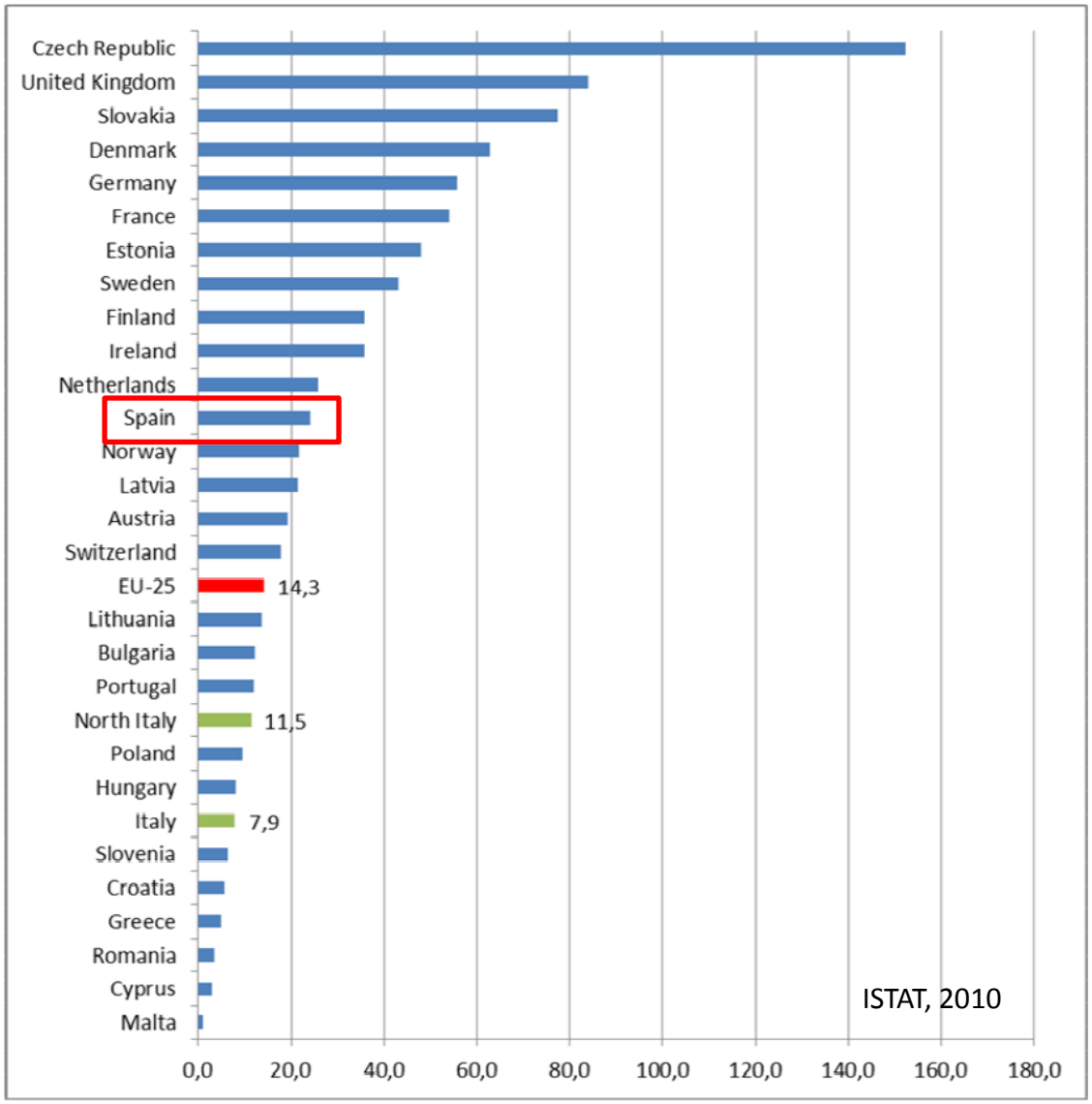


FARMERS IN ITALY

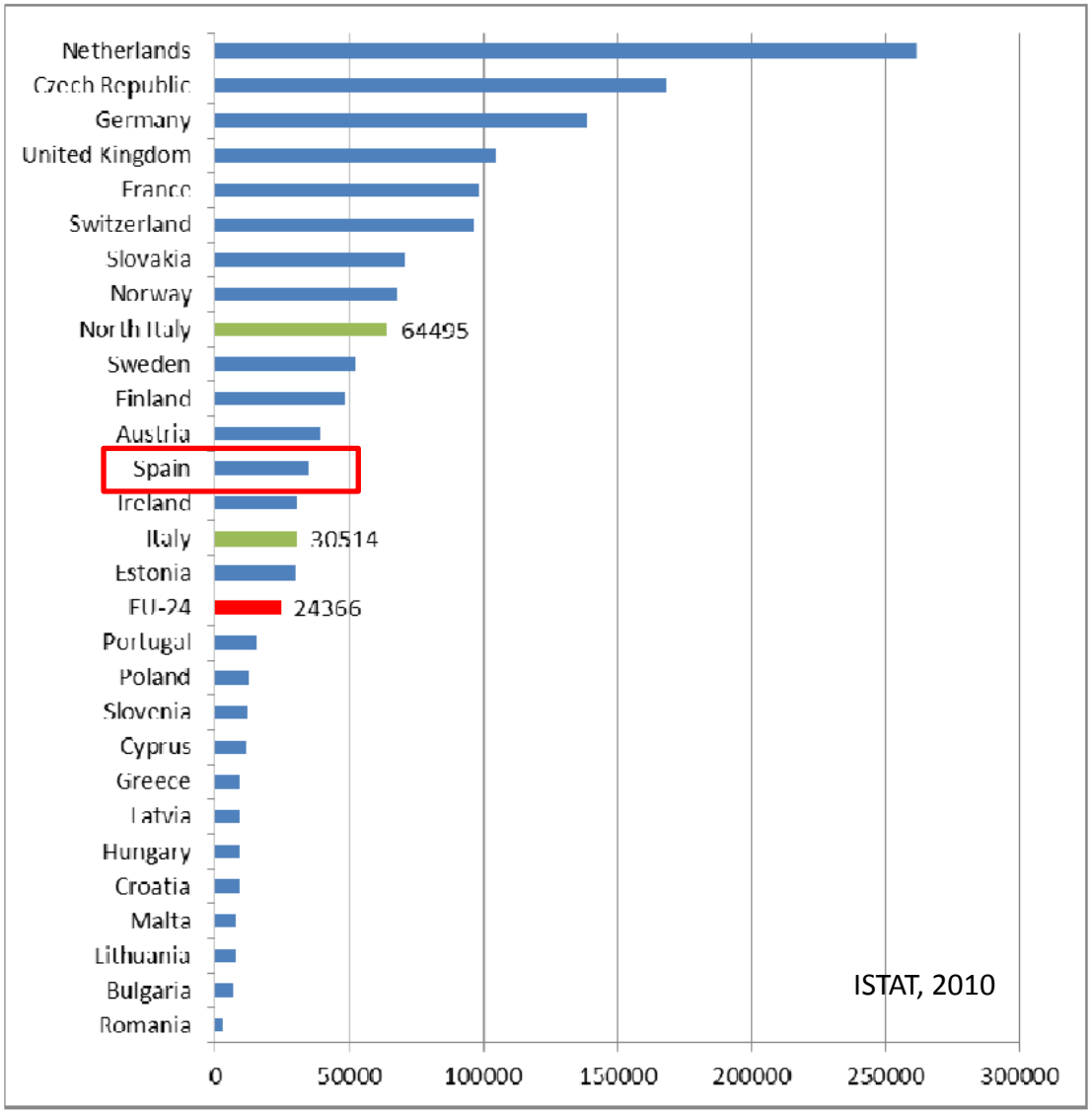


ISTAT, 2010

AVERAGE HA OF LAND FOR FARM IN ITALY



AVERAGE INCOME (€) FOR FARM IN ITALY



AGRICULTURE IN ITALY

35 %	42 %	23 %
Mountainous	Hilly	Lowland

INEA, 2013

NUMBER OF TRACTOR IN USE

#	COUNTRY	AMOUNT
1	United States	4.8 million
2	Japan	2.03 million
3	Italy	1.75 million
	Group of 7 countries (G7) average	1.73 million
4	India	1.52 million
5	Poland	1.31 million
6	France	1.26 million
7	Germany	1.03 million
8	Turkey	905,000
9	Spain	885,000
10	China	841,073
11	Brazil	806,000
12	Russia	785,000
13	Canada	711,335

www.nationmaster.com

TRACTOR DENSITY

Year	Tractors/1000 ha	Ha /tractor
Italy	138	7
Germany	86	11
France	64	15
Spain	37	27
US	27	37

In Italy, in average 1, tractor for any of the farms

www.nationmaster.com

In Italy

- family farms represents 96,1% of the total farms
- 310,000 farms (19% of the total) have size and income to be can be considered ‘‘real business’’

These “real business” account for ≈90% of the Italian standard production (€ 49.5 billion)

Small farms (<2 ha) are 50.6% of the total UAA

These small farms use self-propelled machine other than tractors

Farms with a standard value production < € 8,000

- are 62% of the total Italian farms
- are only 5.3% of the total production of domestic agriculture

Farms with such modest economic weight have low investments on machinery

The demand for agricultural machinery is strongly dependent on a farm's income which is influenced by exogenous variables

- agricultural and public policies
- socio-economic environment
- people attitude

In recent years the global crisis and structural changes in European agriculture have affected incomes increasing the level of uncertainty and reducing farmers' propensity for new equipment investment

MAIN AGRICULTURAL MACHINES REGISTRATIONS IN ITALY

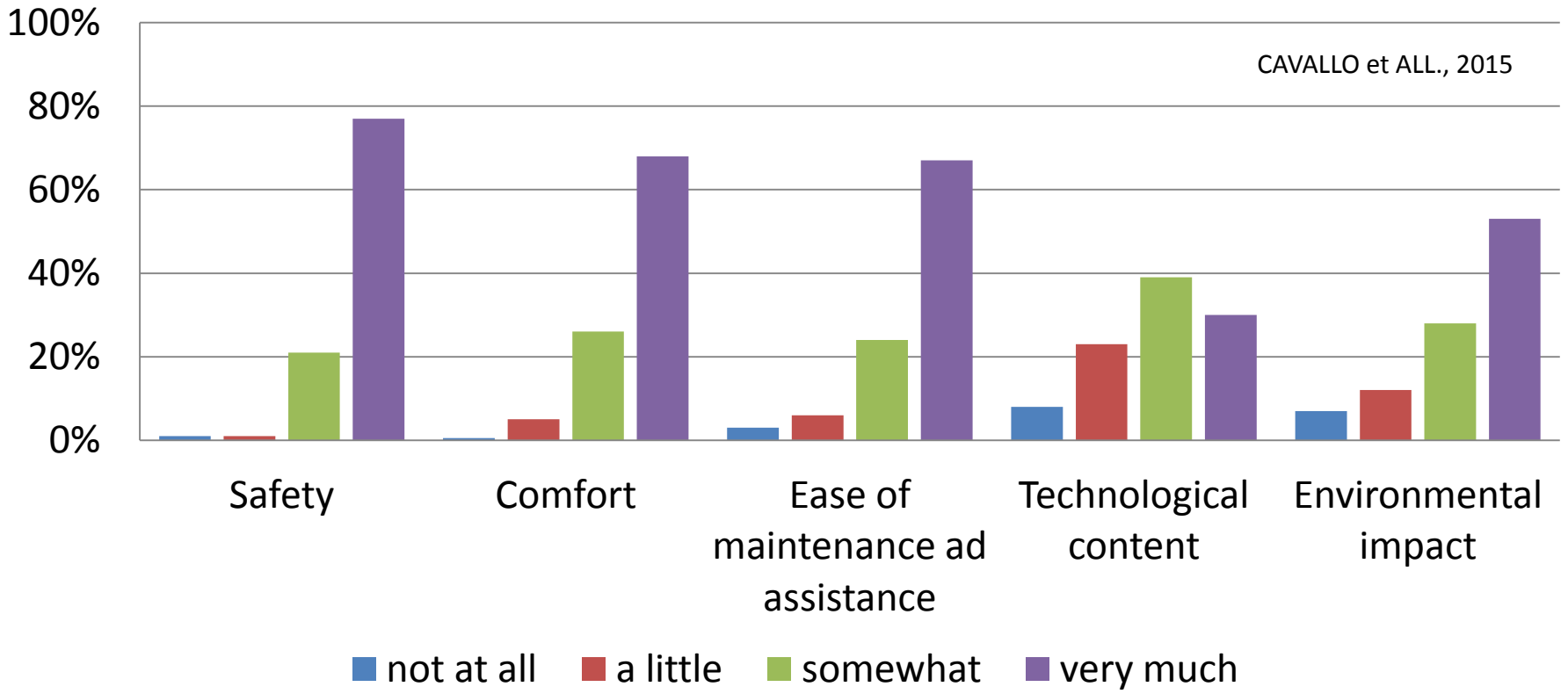
TRACTORS		COMBINE-HARVESTERS		TRANSPORTERS		TRAILERS	
2008	2014	2008	2014	2008	2014	2008	2014
27 261	18 178	631	325	2 123	908	12 649	9 460
-33%		-48%		-57%		-25%	

UNACOMA, 2015

In Italy 30% of the tractors currently in use are 20 years old, or more

(FARGNOLI et ALL. 2010)

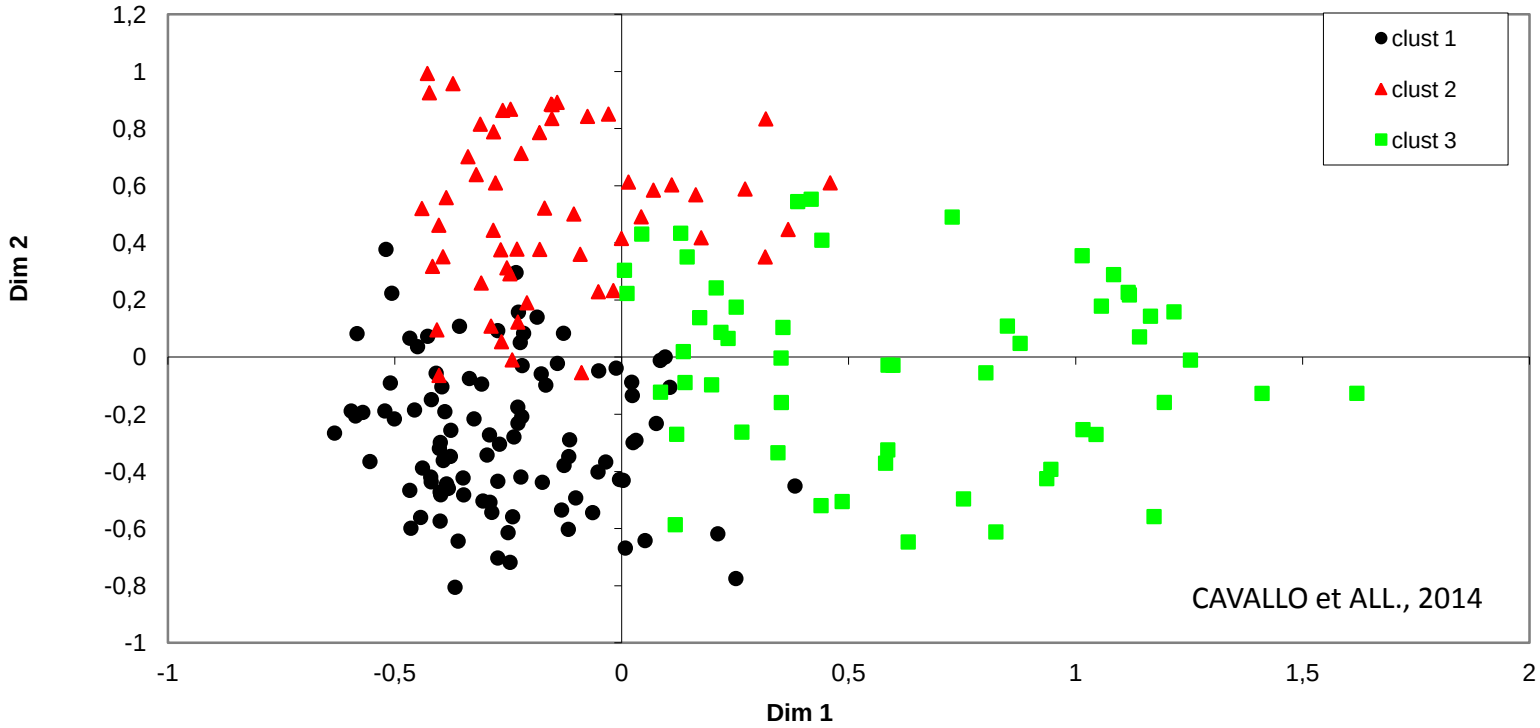
ASPECTS USERS RETAIN AS IMPORTANT IN TRACTOR USE



Users of agricultural machinery consider safety in high regard

Longer the time they work in agriculture more important safety is

PROFILES OF ITALIAN AGRICULTURAL MACHINERY USERS



1. Unwilling: lack of use and lack of desire for technological innovation
2. Willing-Cultural: technological innovation unavailable but desire to have innovative machine
3. Innovative-Owner: innovations available and used and positive attitudes towards new technology

FATAL ACCIDENTS INVOLVING TRACTORS IN ITALY

Year	Fatal accidents with tractors	Fatal accident caused by tractors' roll-over
2008	153	114 (74,5 %)
2009	146	123 (84,2 %)
2010	135	116 (85,9 %)
2011(*)	133	93 (69,9 %)

(*) until November

FARGNOLI et ALL., 2012

WHO IS INVOLVED IN ACCIDENT?

As a result on the different aspects characterizing Italian agriculture most of the accidents in agricultural industry involve:

- part-time workers
- old tractors
- people whose have rarely received professional training

FARGNOLI et ALL. 2010

NEW TRACTORS

STANDARD TRACTORS

Since 1974 it is mandatory to fit ROPS on standard tractors according to National laws/rules

Since 1981 EU Directive or OECD Code apply

NARROW-TRACK TRACTORS

Since 1989 EU Directive or OECD Code apply to narrow-track tractors

FRONT MOUNTED ROLL-OVER PROTECTIVE STRUCTURES ON NARROW-TRACK TRACTORS

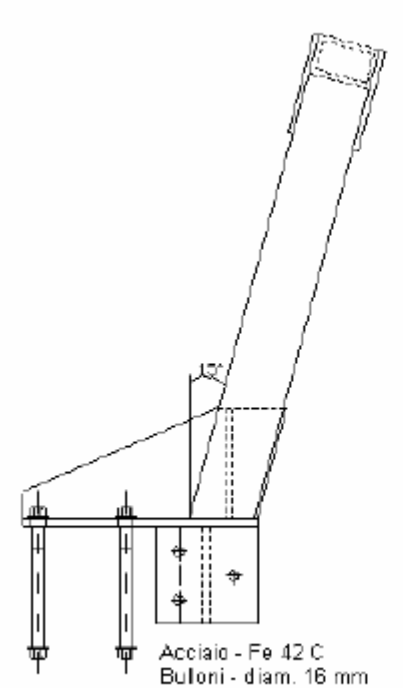
Since 1991 EU Directive or OECD Code apply to narrow-track tractors fitted with front mounted ROPS

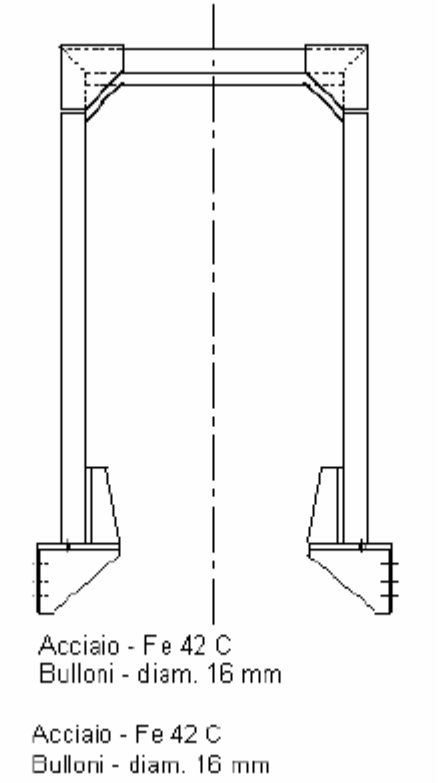
TRACKLAYING TRACTORS

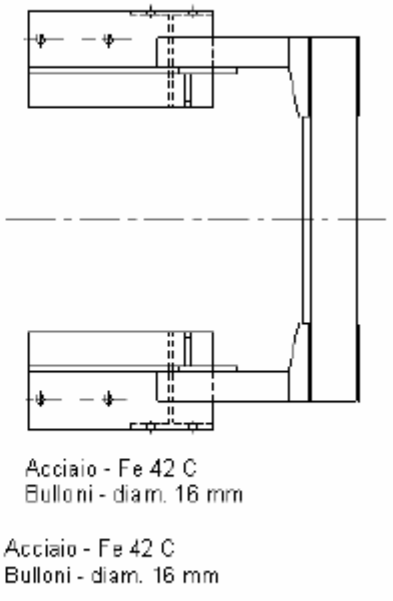
Since end of ‘80 manufacturers agreed to fit ROPS compliant with ISO standard or OECD Code on tracklaying tractors

TRACTORS IN USE

Since 1981 it is mandatory to retrofit tractor with ROPS in conformity with 2 different drawing and specification given in a specific ministerial memorandum.



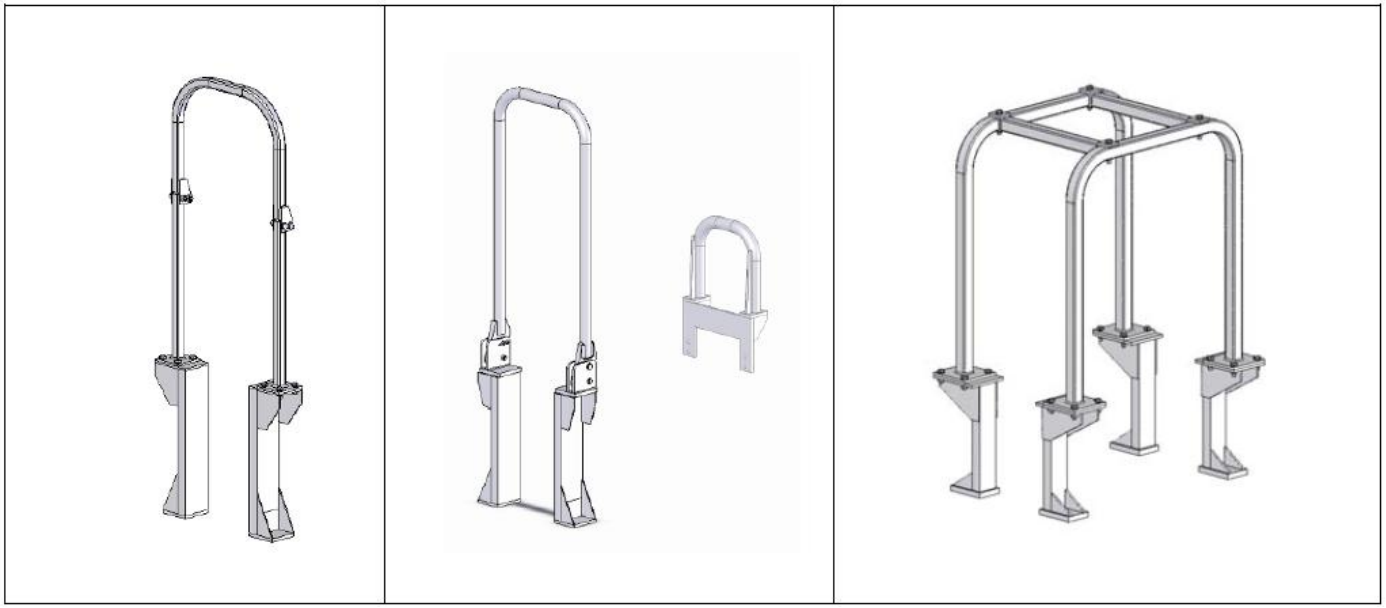




TRACTORS IN USE

In 1999 Legislative Decree 359/1999 (EU Dir 95/63) made mandatory the retrofit of ROPS on tractors (and other self propelled machine where the overturn risk exist)

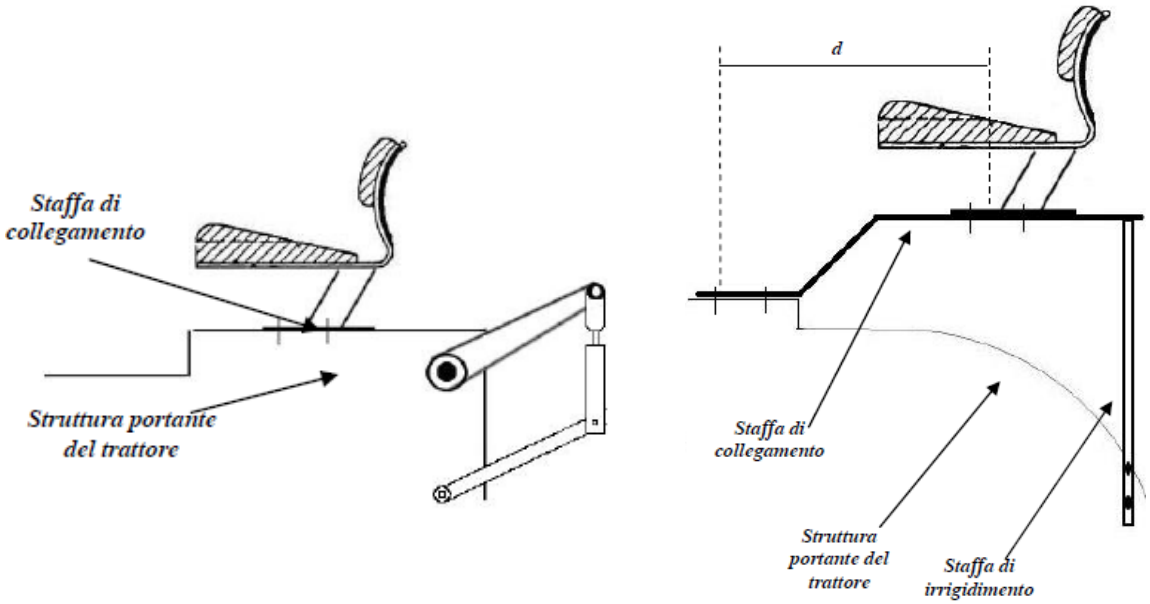
In 2006 INAIL issued guideline for the manufacturing and fitting of 44 different ROPS to retrofit the most common tractors in Italy (74 in 2011)



TRACTORS IN USE

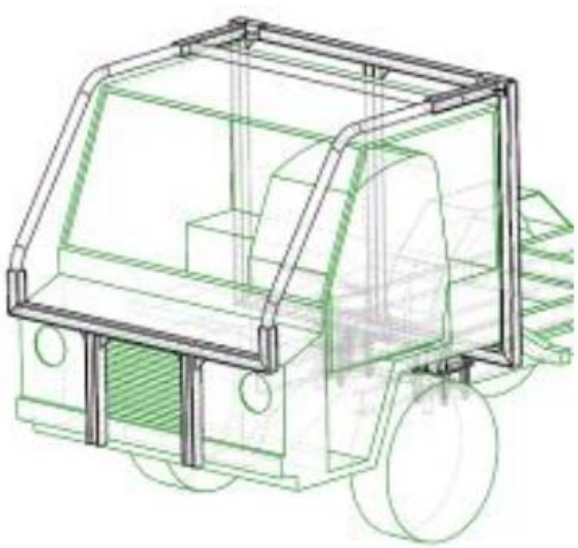
In 2008 Legislative Decree 81/2008 (updated by EU Dir 2009/104/EC) concerning occupational safety and health

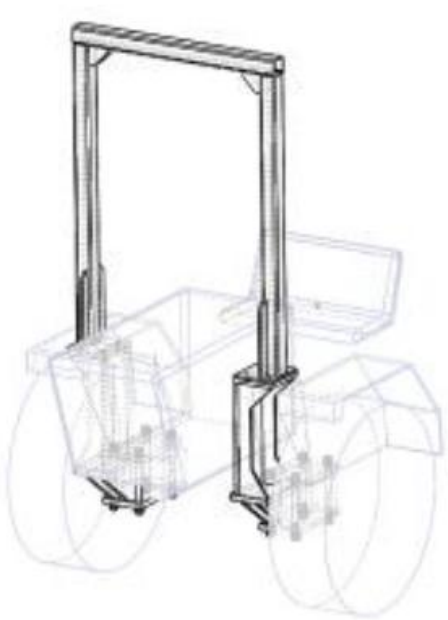
In 2009 INAIL issued guideline for the retrofitting of retention systems on agricultural tractors

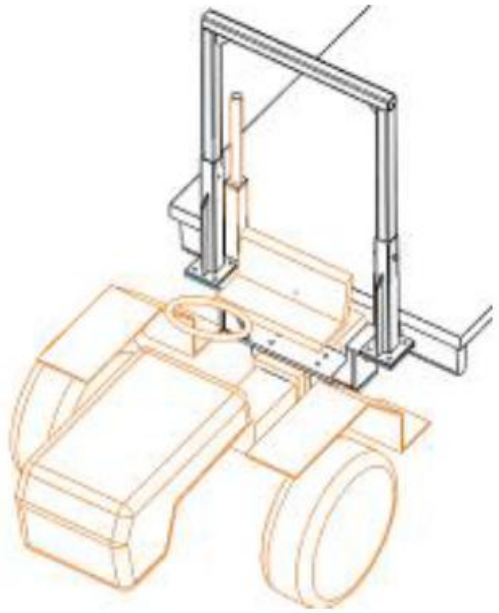


LOAD PLATFORM TRACTORS IN USE

In 2012 INAIL issued guideline for the manufacturing and fitting of 34 different ROPS to retrofit the most common load platform tractors







ROPS ON NEW AGRICULTURAL SELF-PROPELLED MACHINE

Directive 2006/42/EC requires that if there is the risk of rolling or tipping over on self-propelled machinery the machinery must be fitted with an appropriate protective structure

The majority of the agricultural self-propelled machines do not have a solution able to reduce the risk of the drivers in the rolling over event. Although methods to prevent the risks of overturn are under discussion in standardization bodies, the adoption of ROPS is in many case the main solution to reduce the risks for the drivers.

Due to the absence of specific standards to design and test ROPS for these machines, many manufacturer perform test on ROPS they fit on these vehicle in accordance with ISO 3471 or the OECD Code.

MOLARI et ALL., 2014

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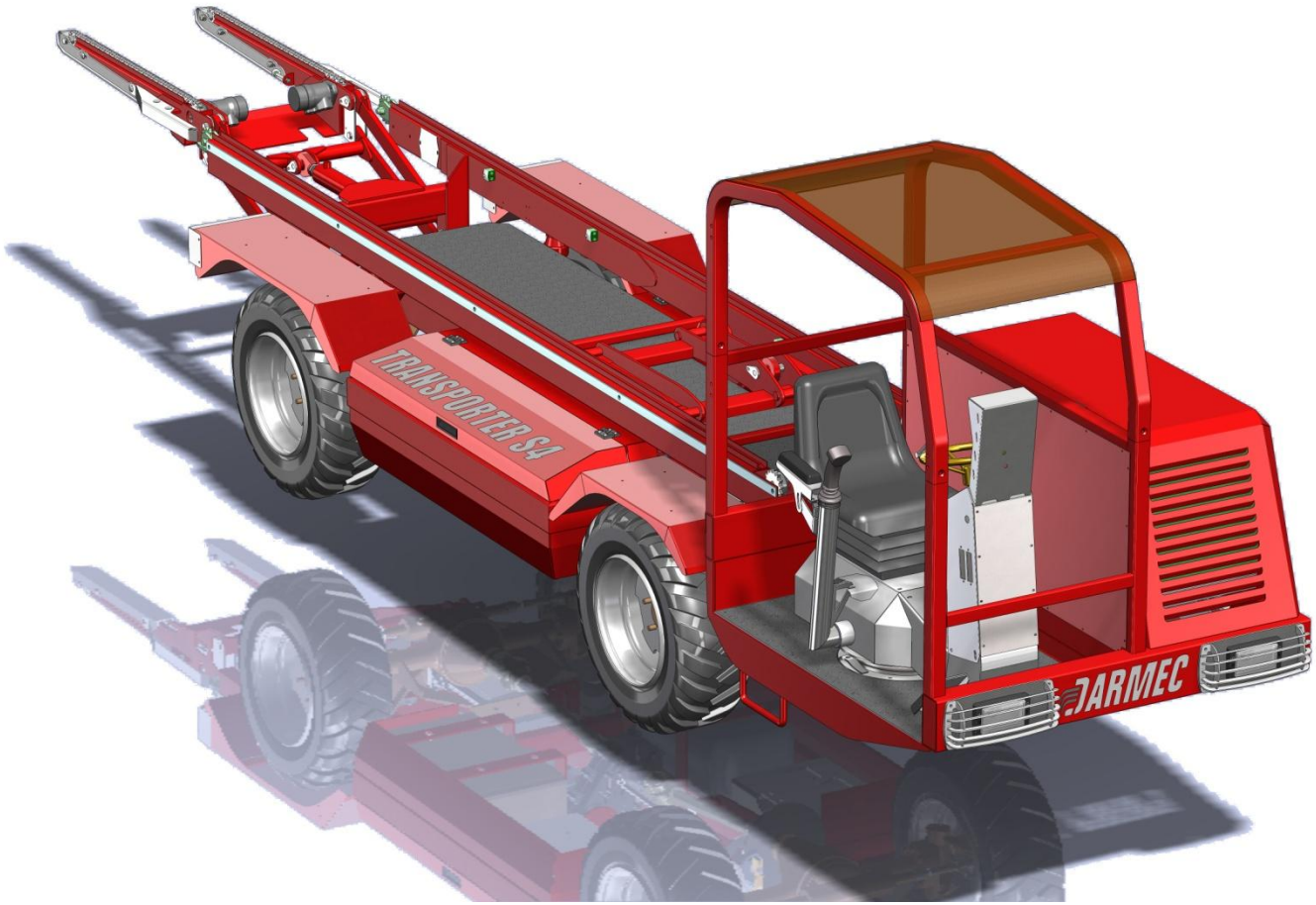


ROPS ON NEW AGRICULTURAL SELF-PROPELLED MACHINE

ROPS ON NEW AGRICULTURAL SELF-PROPELLED MACHINE

ROPS ON AGRICULTURAL SELF-PROPELLED MACHINE IN USE

ROPS FOR SOME AGRICULTURAL SELF-PROPELLED MACHINE

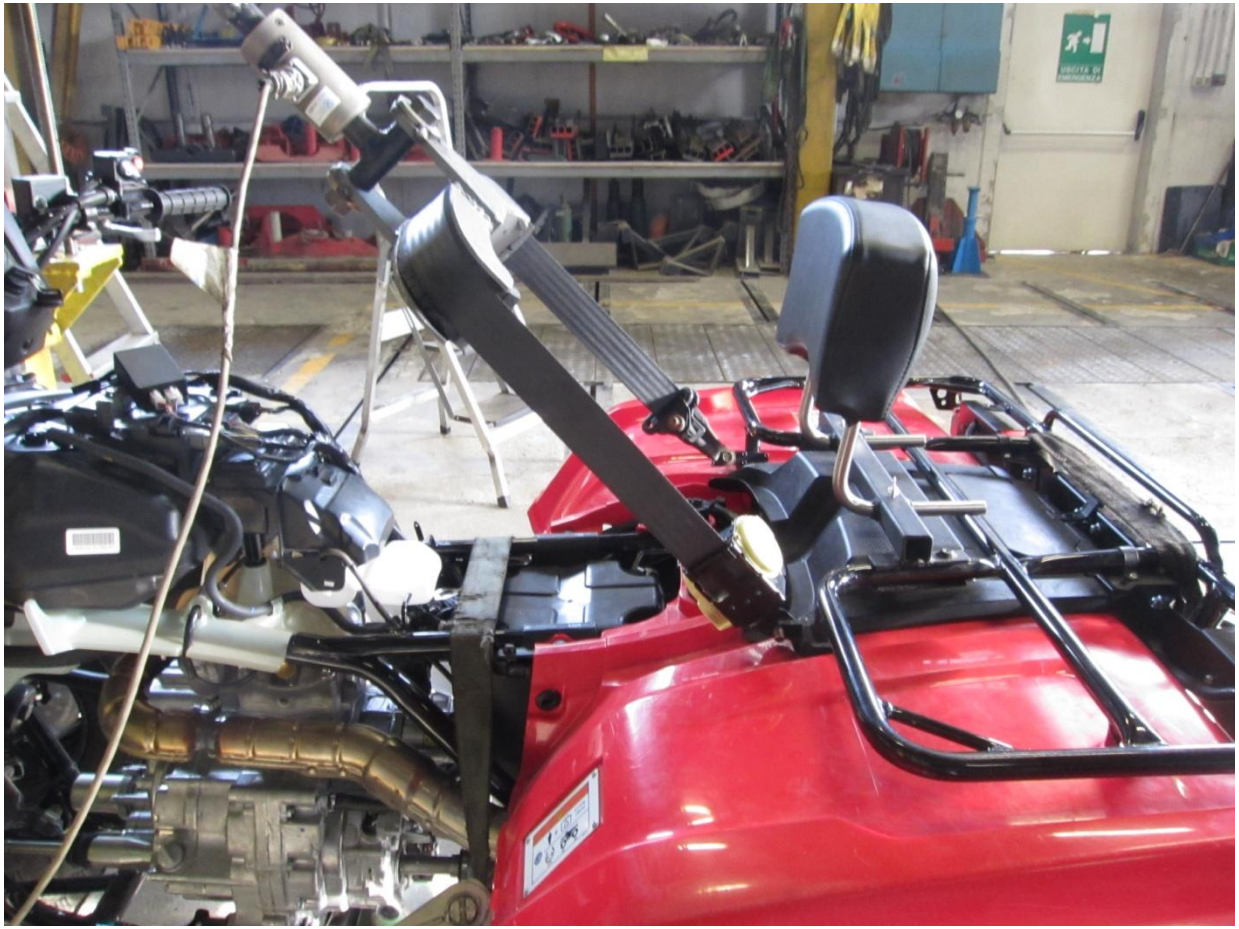
ROPS FOR SOME AGRICULTURAL SELF-PROPELLED MACHINE

ROPS FOR SOME AGRICULTURAL SELF-PROPELLED MACHINE

The structures presently fitted on some of the most common agricultural self-propelled machines are not able to comply to the safety requirements of the ROPS standard used for tractors

MOLARI et ALL., 2014

OPEN ISSUE ON ROPS



OPEN ISSUE ON ROPS

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