"*Agriculture mechanization vision for the future: the Club of Bologna thirty years of contribution for improve its diffusion and sustainability*"

30th Members' Meeting of the Club of Bologna

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Key Note Reports Extended Abstracts

SESSION 1 – A SUSTAINABLE MECHANIZATION FOR THE FUTURE **Moderator: Francesco Bartolozzi (Journalist – New Business Media)** **Rapporteur: Daeun Choi (Pellizzi Prize 2018 Winner)**
1.1 – A sustainable mechanization for the future: first contribution *Giuseppe Gavioli (Gavioli Consulting LLC - USA)*
1.2 – A sustainable mechanization for the future: second contribution (provisional) *Francesca Henning-Possenti (John Deere)*

1.1 – A sustainable mechanization for the future: first contribution

by Giuseppe Gavioli (Gavioli Consulting, LLC - USA)

When we speak about sustainability, we should change our perspective; let us think about Earth not just as an "inhabited planet" but more as a "living organism". Planetary transformations happen across millions of years while living organisms can change at a much higher speed. Gaia may continue living without us in the "short term".

According to the 6th IPCC report, global warming is under significant acceleration, almost entirely driven by human activity. Reducing GHG emissions to zero is the top priority, not only to be sustainable but to be here tomorrow. So, we have the power, and we must act now.

The urgency to act opens an entirely new technological and economic scenario: agricultural mechanization companies have a tremendous opportunity to evolve as accelerators of sustainability for agriculture and the world. Manufacturers will transform how products are produced and used, dramatically expanding agricultural mechanization connection with biological engineering.

Artificial intelligence, digital platforms, and digital twins will boost the main breakthrough innovations, while energy management is the most effective short-term opportunity; green electrical energy will progressively replace all other energy sources, with a final migration from fossil fuels to renewable sources.

1.2 – A sustainable mechanization for the future: second contribution (provisional)

by Francesca Henning-Possenti (John Deere)

Abstract not yet sent.

SESSION 2 **– AGRICULTURAL MACHINERY MARKET AND PERSPECTIVES** **Coordinator&Chairman: Marco Pezzini (Federunacoma)** **Rapporteur: Marco Ramm (Pellizzi Prize 2016 Winner)**
2.1 *Drivers of the agricultural machinery worldwide markets: past, present and future* *Ignacio Ruiz (Agrievolution Alliance)*
2.2 *COVID-19: market change* *(provisional)* *Jerome Bandry (CEMA)*
2.3 – *Online machinery market* *(provisional)* *Dave Mowitz (USA) (online participation)*
2.4 – *Spare parts market* *(provisional)* *Alessandro Malavolti (AMA – Italy)*

2.1 – Drivers of the agricultural machinery worldwide markets: past, present and future

by Ignacio Ruiz (Agrievolution Alliance)

The agricultural machinery markets have been traditionally analysed making use of the expertise among manufacturers and other players in the supply chain of technologies, but such source of information, despite of its validity since it is supplied by the real experts on market trends, is suffering from a number of biases due to the lack of real and disaggregated data in a number of countries. As it usually occurs in different economic assessments, we can approach the actual market from two different sides, the supply or the demand, both with their own specific drivers at micro and macro levels.

Throughout this presentation we pretend to provide the tools than can be used, with the appropriate regional or local corrections and additions, to analyse the agricultural machinery markets at a macro level in order to identify current needs, supply-demand unbalances, unintended effects of the legislative measures, technology adoption trends, and business opportunities, based on drivers affecting the demand of machinery. Any other aspects about the market, as those used at a micro level to assess market shares, or macro drivers of the supply (like current industrial commodities prices or logistics) are not in the scope of this presentation.

In the analysis we will be suffering from data asymmetries since the amount of information available varies from country to country, and even more among world regions, but such asymmetries could be useful to ask for more data from Governments by demonstrating how market analysis are useful for political interventions aimed for agricultural development, specially while we enter the digitalization era at two different paces (the technology gap between the supply and demand is increasing) which could lead to the burst of a technology bubble.

2.2 - COVID-19: market change *(provisional)*

by Jerome Bandry (CEMA)

The Covid-19 pandemic had a very significant impact on European Agricultural Machinery manufacturers, especially in the second quarter of 2020. The industry demonstrated its resilience to catch up with demand, despite Covid-19 production and distribution constraints as well as supply chain challenges. The first half of 2021 confirmed high levels of demand. Covid-19 production and distribution constraints gradually improved in 2021 but did not come back to normal. Significant supply chain challenges remained, with new issues adding to ongoing problems.

The general Business Climate Index for the Agricultural Machinery Industry in Europe seems to have reached its peak in the months of May and June 2021. Demand from end customers in Europe seems to remain robust , but uncertainty continues as to what extent the orders can be realized against the backdrop of price increases and shortages on the supplier side.

There is consensus towards more sustainable farming, with the double challenge to produce enough food whilst further protecting nature and safeguarding our biodiversity. The European Green Deal, the Farm to Fork and Biodiversity strategies… have set very ambitious targets that will significantly impact agricultural practices for the years to come.

Food chain actors agree with the main principles set out. Nevertheless, several studies indicate that the current targets will come at a significant cost for EU farmers and the viability of European agriculture.

The use of digital farming tools, modern farm machines, farm data management systems … are part of the solution. However, to increase technology uptake, European policies, measures and support schemes need to be aligned. The reformed CAP can support investments in advanced farm machinery, precision farming technologies and digital solutions. The ball is now with the 27 Member States to make it happen, notably through well-crafted National Strategic Plans and eco-schemes.

2.3 – Online machinery market *(provisional)*

by Dave Mowitz (USA)

Abstract not yet sent.

2.4 – Spare parts market *(provisional)*

by Alessandro Malavolti (AMA – Italy)

Abstract not yet sent.

SESSION 3 – SPECIFIC MECHANIZATION: MACHINES FOR VITICULTURE **Coordinator&Chairman: Paolo Balsari (President Club of Bologna)** **Rapporteur: Marco Grella (Pellizzi Prize 2018 Winner)**
3.1 – *Viticulture in the world: present situation and perspectives* *Osvaldo Failla (Universities of Milan – Italy)*
3.2 – *Advanced technologies for precise viticulture* *Emilio Gil, Francisco García-Ruíz (Università Politecnica Catalunia UPC – Spain)*
3.3 – *Grapes mechanical harvesting* *Thierry Le Briquer (CNH)*

3.1 – Viticulture in the world: present situation and perspectives

by Osvaldo Failla (Universities of Milan – Italy)

Viticulture acreage is 7.4 million hectares world-wide (1% respect to cereals). World grape production is around 78 million tonnes. Most of the grape production (57%) is aimed at wine making, even if table grapes for fresh consumption (36%) and raisin (7%) represent an important part of yield in some countries.

The report, after the presentation of a synthetic updated framework on the structural aspects and trends of world viticulture, will analyse the critical points in terms of environmental sustainability with reference to the themes of the cultural matrix of the binomial grapevine and wine, the enhancement of agro-biodiversity, the conservation of the soil and the productive efficiency of the vineyards in agreement with the "Sustainable vitiviniculture" definition of OIV (2004) as a "Global strategy on the scale of the grape production and processing systems, incorporating at the same time the economic sustainability of structures and territories, producing quality products, considering requirements of precision in sustainable viticulture, risks to the environment, products safety and consumer health and valuing of heritage, historical, cultural, ecological and landscape aspects."

3.2 - Advanced technologies for precise viticulture

by Emilio Gil and Francisco García-Ruíz (Universitat Politécnica de Catalunya - Spain)

Precision viticulture can be defined as one that is supported by Information and Communication Technologies (ICT). These tools are presented in the form of sensors, Global Positioning Systems (GPS) and Geographic Information Systems (GIS), mobile applications for technical consultation in real time, robots, automated equipment or the use of drones. They serve to show the conditions of the crop and support decision-making in the field. These techniques are used to know the variability of the multiple characteristics of the crop and to improve efficiency in carrying out the different tasks. If differences are already detected between the different plots of a vineyard, within the plot itself variations can be found with respect to the density of vegetation or the impact of a pest. Precision viticulture aims to quantify this variability within the plot in order to give the best answer to the problem. For this, there are software and applications for mobile devices for the management of farm data, sensors for monitoring the properties of the vineyard, remote sensing systems, sensors and programs for mapping the plot and measuring the foliar mass or equipment for variable application of plant protection products. Latest improvements in the particular case of canopy characterization, crop protection and harvest are presented.

3.3 – Grapes mechanical harvesting

by Thierry Le Briquer (CNH)

Abstract not yet sent.