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| <p><b>Club of Bologna</b><br/> <a href="http://www.clubofbologna.org">www.clubofbologna.org</a></p> | <p><b>SESSION REPORT</b><br/> <i>"Agricultural machinery market and perspectives"</i></p> | <p><b>Report S2</b><br/> <i>Bologna (Italy)</i><br/> <i>October 2021</i><br/> <i>Page 1</i></p> |
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## **SUMMARY AND REMARKS - SESSION 2: Agricultural machinery market and perspectives**

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### **1. Introduction**

In these times, the machinery markets of the world are in a special focus of the news, because it has already come to production delays and even stops, due to bottlenecks in the supply chains. The Corona Pandemic, the blockade of the Suez Canal, and the lorry drivers' shortage in the UK have shown how sensitive the production of machines has become. If even the automotive sector is affected due to missing components, then it is likely that this also concerns the agricultural machinery market. On the other hand, it could be shown in the past that in many cases the agricultural machinery market behaves differently to the usual trends and drivers which are known from other areas.

Besides these current uncertainties in the production, the understanding of the agricultural machinery markets is of utmost importance. Topics like: the global warming and the trend to reduce the pollution by eliminating combustion engines at least in the automotive sector, the growth of the world population and the linked hunger in many regions of the world, force the governments and associations of the world to guide the markets in the right direction. How can this work if the agricultural machinery market behaves differently and the drivers are not fully understood?

Based on these aspects, the Club of Bologna drew the focus on this topic by discussing, in one dedicated session, different perspectives of the agricultural machinery market and its perspectives. Therefore, high-level experts could be motivated to prepare reports on the following topics.

First a general analysis of the past, present and future **drivers of the agricultural machinery market** was given by Ignacio Ruiz, the secretary general of the Agrievolution Alliance.

In the second part Jerome Bandry, the secretary general of CEMA, reported on the specific impact of the **Covid-19 Pandemic on the European agricultural market**.

Dave Mowitz, the editorial director at Meredith, which is also known for the Successful Farming Magazine, prepared a presentation about the **online machinery market** in the US.

Finally, Fabio Ricci from FederUnacoma gave a report about the **spare parts market** which is also affected by the global supply chain crisis.

### **2. Drivers of the agricultural machinery worldwide markets: past, present and future**

Ignacio Ruiz analysed the agricultural machinery market trends of the past to derive the most useful drivers. This analysis has been challenging due to the lack of real and disaggregated data in a number of countries. Nevertheless, he looked on the supply and the demand side of the agricultural market from a global macro perspective. His collected statistics have been divided into former, current and future drivers for the market.

Already in **former times** you could notice that, despite of worldwide growing arable land (>10% growth in 1981 to 2018), and also growing permanent crop land (>50% growth between 1981 to 2018), the human labour decreased continuously. Thereby, the differences in the statistics for low- and high-income countries are tremendous. The share of employees who are working in the agricultural area in the high-income countries amounts to ca. 3%, while in the low-income countries these are ca. 60%. For the machinery market it is the complete opposite. In the high-income countries ca. 160 million tractors are in use while, on the low-income side, the quantity of used tractors is neglectable. This is a clear indicator that areas like Africa are far

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away from implementation of mechanization in agriculture, which leads to a high human capacity to compensate this.

On the production side, the growth varies between 0.5 to 5% which needs again to be differentiated between low-, middle- and high-income countries. The biggest growth is noticeable in the middle-income countries which could double the value-added production value from 1.2 to 2.5 trillion US\$ in the last 30 years (inflation corrected).

The study of the **current drivers** has shown that governmental programs are positive but generate only short-term effects on the agricultural market with noticeable effects of 1-2 months. Also the Corona crisis had such a short term impulse on the agricultural machinery market that could be monitored in the tractor registration statistics (see also the report from Jerome Bandry related to this topic).

To analyse **long-term trends** it is worth studying the yearly change of farm incomes. From 2014 to 2016 the farm incomes in the world decreased – as a consequence of this the investments in this business started to stagnate. Furthermore, it is also worth studying the investment trends. In the given example it could be shown that in Spain the increase of the fixed capital in plantations is increasing from 2014, while the growths in the general machinery market are relatively low. This might be an indicator for the need of more specialized machines. With data from the CEMA this indicator could be verified – in 2021, special machines had yearly growths of more than 25%, while standard tractors grew by ca. 10%.

Mr. Ruiz proposed further tools like the sentiment analysis, which describes, besides the current situation, also the future expectations. In this context he could show that the expectation for Europe, Central Asia, North and Latin America (represents also the mid- and high-income countries) is growing, while the Pacific region and Africa (low-income countries) will decrease until 2030 (see [figure 1](#))

That implies that the mid- and high-income countries have to produce enough food also for the poor areas of the world. To avoid this trend, it will be necessary to strengthen the low-income countries. Therefore employment needs to be created and vocational programs must be introduced – also for women. Furthermore, the reduction of post-harvest losses needs to be supported. All these activities are necessary to avoid additional increase of hunger in the world.

It has been pointed out that this analysis has been suffering from data asymmetries, since the amount of information available varies from country to country, and even more among world regions. These asymmetries could be useful to ask for more data from Governments by demonstrating how market analyses are useful for political interventions aimed for agricultural development.

### 3. Covid-19 impact on EU market

Jerome Bandry, the secretary general of CEMA, reported on the specific impact of the Covid-19 Pandemic on the European agricultural market. While the tractor registrations in the total year 2020 were largely unimpressed (just -3% vs. 2019), the sudden decrease in the second quarter of the year 2020 hit the market significantly and with long term consequences. The tractor registrations dropped down by almost 20% in Q2 2020 versus Q2 2019. The recovery of the market to almost usual annual figures demonstrated the resilience to catch up with demand despite of the distribution constraints and the supply chain challenges. One of the reasons of the unimpressed market behaviour is that the seasonal agricultural work cannot wait.

With a more detailed view on the tractor registrations, it must be concluded that not all tractor powerbands could catch up later in 2020. The powerband between 56 to 129 kW, which represents almost 60% of all registered tractors in Europe, is still facing a 8% drop in comparison to 2019. This is related to the transition phase of these engines to lower emissions, which required a lot of capacities in engineering and production. Fortunately, the EU decided to postpone the transition phase of this powerband, which contributed

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essentially to manage through these extraordinary times (see [figure 2](#)).

In the first half of 2021 the demand for tractors was still on a high level (+25% in first half of 2021 vs. 2020) to compensate the drop down that was caused by the Covid-19 impact, but the distribution constraints are still challenging the machinery productions. In October 2021, the significant supply chain bottleneck led to a change in the business climate index for agricultural machinery. The peak of the index was reached in May and June 2021, but meanwhile 45% of the machinery producers expect a production stop due to lack of parts in the next coming months (after October 2021) (see [figure 3](#)).

Due to the unchanged high demands from end customers in Europe, these restrictions in supply chain and production leads to price increases and shortages on the supplier side. Again, the globally complex supply chains are more and more visible in the time of Covid-19 – even in Europe. Also forced by the Covid-19 Pandemic the agile supply-chain-management gains in importance.

Mr. Bandry also pointed out that the challenges in the agricultural machinery market are ambitious, even without Covid-19. The consensus towards more sustainable farming, the protection of nature and safeguarding the biodiversity (see also the European Green Deal) and the challenges to produce enough food, also for the poor regions of the world, will significantly impact agricultural practices in the coming years.

In the times of Covid-19 Pandemic, the associations and governments have to find the right balance between stimuli for the advanced agricultural machinery and solutions to seed the future of sustainable farming, while taking into account that the Covid-19 crisis has hit the worldwide supply chains and the production of machines and spare parts tremendously.

#### **4. Online machinery market**

In the previous reports the effects of the Covid-19 Pandemic have been described already. The CoB-Members and the presenters expressed their expectation that this crisis might enforce the trend towards online machinery markets. Dave Mowitz has performed an investigation of this possible trend. He studied the trend towards online machinery markets for the North American auctions, which are very popular for selling agricultural machines usually as a “life experience” – the impersonal online markets cannot fit to this format (see [figure 4](#)).

However, also this segment has been impaired by the Covid-19 crisis to a time in which the auctions houses are at their height of the machinery sale season. The sellers needed to react and switched to online-only auction sales. Luckily, already before Covid-19 they had one half of the successful bids at the live auctions placed by online buyers.

The online format is not new at all. In 2001, the first online experiments in combination with live auctions took place, but the bad internet connections limited the possibilities of this kind of auctions. Meanwhile you can participate in an auction while sitting on a harvesting machine, thanks to smart phones and good internet availability. Over 81% of machinery auctions are conducted online.

The usage of the online format, also for new machinery purchase, is still limited. Over 90% of these sale transactions still take place at the dealership. On the other hand, more than 82% of farmers research the features of new machines and compare prices prior to visiting a dealership. Readers of the agricultural magazine “Successful Farming” in the US report that it is more likely to purchase small pieces of equipment online. Furthermore, the use of the internet to purchase repair parts, maintenance supplies and services like pre-sale inspections, instant financing, and trucking arrangements are welcome for users of the online machinery market.

During the discussions in the CoB it was concluded that the online selling of machines and the offer of services will also impact the service behaviour of agricultural machines. Today the dealers are usually the drivers of

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repair services. With the online market, this might change due to the need for a local or nearby service possibility. Furthermore, it was stated that the trend from the US might also become relevant in EU. For spare parts it is an already growing business.

## 5. Spare parts market

Fabio Ricci, from the FederUnacoma, has analyzed the spare parts market, which has been already mentioned in combination with the growing online business. In 2020, the total after market of spare parts in Europe had a volume of 6.790 million € (see [figure 5](#)) – a huge market that is shared between the original and non-original components. In Europe, almost 43% are not original components; in some countries like Italy, Spain and Portugal the share between original and not original components is even 50%. The split depends mainly on the average income of farms, the age of machines and the number of manufacturers of components in the area.

Mr. Ricci also summarized the success criteria for the after market. One of the most essential criteria is the fast delivery of parts to keep the machines running. In this context you can also take the clients’ time optimization into account. Furthermore, a good partnership with the dealer is important. Besides other criteria also the packing should be mentioned, which sometimes tends to be not so relevant – but this might be also an indication for a “quality” or “European” product.

Besides the spare parts market, Fabio Ricci also gave an outlook for the agricultural machinery business. A growth of ca. 18% is expected in the global agricultural production from 2021 to 2030. Due to the Corona crisis, the growth in 2021 is tremendous to catch up with the lost demand from 2020. About 78% of the Italian parts and components manufacturers believe in a growth of more than 10% in 2021. That does also affect the spare parts and component manufacturing market.

In the CoB discussions, also the question was raised of how the repair can be used to retrofit the machines toward smarter machines. This might be a relevant option for precision agriculture, especially for small farms.

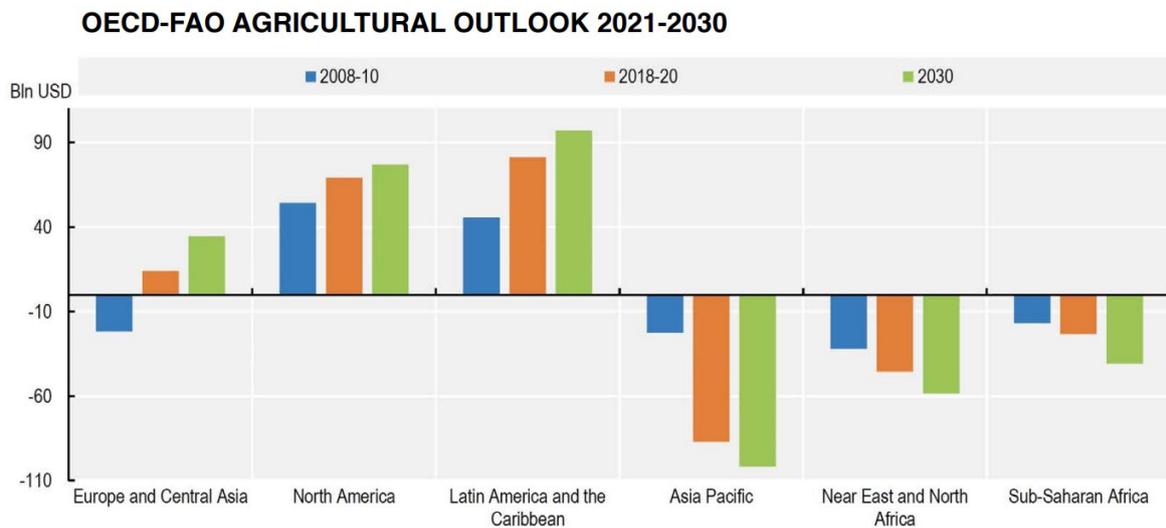
## 6. Overall conclusion and general remarks from the session participants

In a nutshell, the session provided an overview about today’s challenges on the agricultural machinery market. Relevant topics, like Covid-19 and the related supply-chain-crisis, but also the outlook to the ambitious targets of the agricultural business for more sustainable agriculture in Europe were discussed. Despite the negative impact of Covid-19, the outlook for a modern agriculture capable of feeding the world and contributing to sustainable agricultural production, created a positive general mood among all participants.

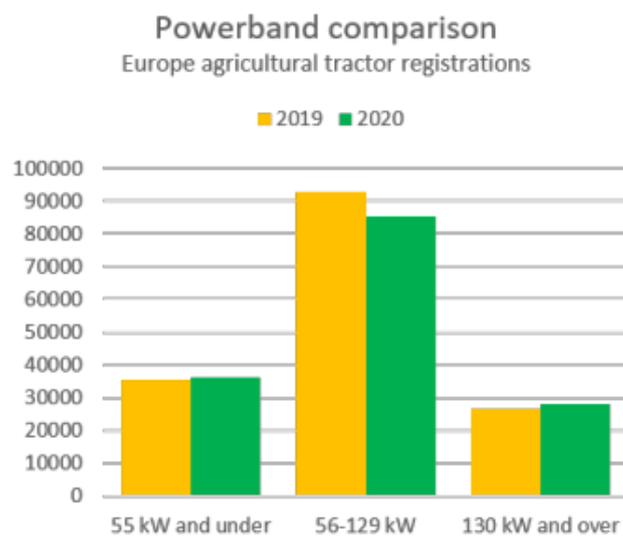
In this context, the session participants discussed the possible improvement of the agricultural situation in areas such as Africa. High-income countries need to strengthen the cooperation with these regions of the world to reduce the backlog of mechanization. Exporting used machinery that is still usable could be a first step in this direction.

In addition, the accessibility to precision agricultural machines for low- and mid-income farms was discussed. The retrofitting of used machines with improved technologies might be a relevant option for them. The manufacturers should think about this option to create specific offers for this market. It could also be stated that the number of manufacturers specialized for spare parts is growing. The online machinery and spare parts market does support this trend tremendously.

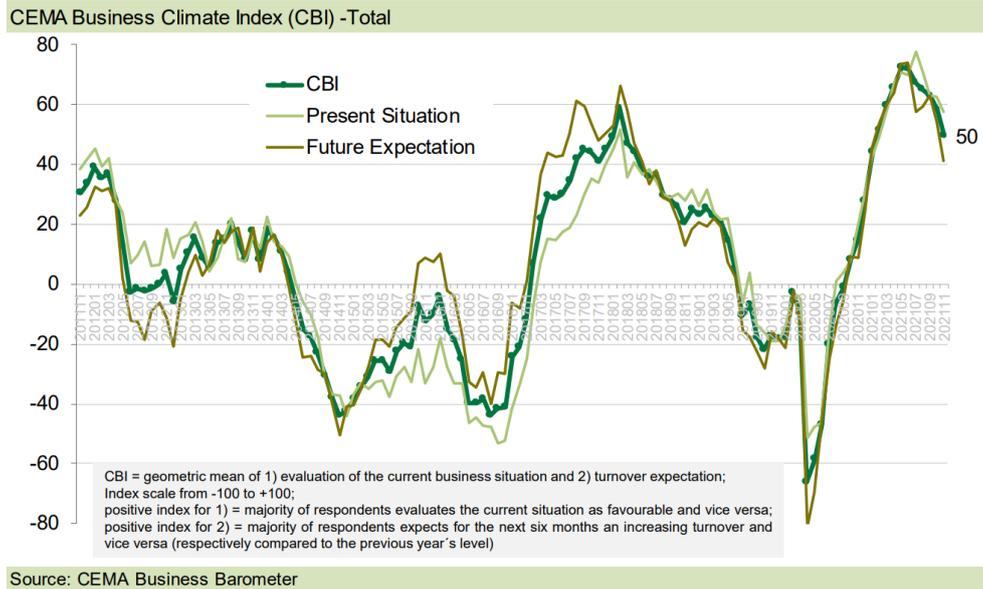
**FIGURES**



**Figure 1:** Future Drivers of demand of machinery / Trade by region [Ruiz, CoB 2021]



**Figure 2:** Powerband comparison of tractor registrations in Europe [Bandry, CoB 2021]



**Figure 3: Business climate index from CEMA [Bandy, CoB 2021]**



**Figure 4: Life auctions for agricultural machinery in the US [Mowitz, CoB 2021]**

| After Market of spare parts in 2020 (million of €) |  |                       |                 |                     |
|--|--|-----------------------|-----------------|---------------------|
| Country  | Including original & not original Items 2020 | Original Items Market | Original Market | Not Original Market |
| Italy  | 670  | 50%                   | 335             | 335                 |
| France   | 1150   | 60%                   | 690             | 460                 |
| Germany & Austria                                  | 1100   | 60%                   | 660             | 440                 |
| UK & Ireland                                       | 840  | 55%                   | 462             | 378                 |
| Benelux  | 520  | 60%                   | 312             | 208                 |
| Scandinavia  | 600  | 55%                   | 330             | 270                 |
| Spain & Portugal                                   | 360  | 50%                   | 180             | 180                 |
| Eastern European Countries                         | 1550   | 55%                   | 853             | 698                 |
| <b>Total</b>                                       | <b>6.790</b>                                 |                       | <b>3.822</b>    | <b>2.969</b>        |

Source: AMA SpA

Figure 5: After Market of spare parts in Europe [Ricci, CoB 2021]