

Lecture Notes in Civil Engineering

Simone Pascuzzi
Francesco Santoro *Editors*

Farm Machinery and Processes Management in Sustainable Agriculture

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Preface

The Russian-Ukrainian war is the most serious geopolitical conflict since the Second World War and will have certainly more significant global consequences than the previous financial or health crises suffered in the last twenty years.

In this particular critical moment, it is necessary to carefully analyze and evaluate the foreseeable repercussions on food and energy supplies and the potential impact on the international scene. At the same time, it appears indispensable and urgent to respond flexibly to current dynamics and make strategic choices consistent with long-term interests.

The direct and indirect criticalities generated by the difficult situation that has developed in recent times have already determined negative impacts on the current management of agricultural production and food products, with high-risk consequences for the stability of numerous agri-food chains.

These critical issues immediately have a different impact depending on the sector such as, for example:

- for cereal crops, protein, and oil crops, there is the sudden unavailability of raw materials due to the closure of important markets, the consequent sharp rise in prices also due to limitations in logistics and procurement;
- in the fruit and vegetable sector, there may be an oversupply on domestic markets and a drop in the remuneration of producers;
- in the nursery and horticultural sector in hot greenhouses, the interruption of production processes may occur due to the increase in fuel prices for heating;
- in breeding, the unavailability of basic raw materials for the production of feed and therefore for nutrition, also exacerbated by an unsustainable increase in energy costs, could lead to the impossibility of completing the production cycles, forcing farmers to resort to the slaughter of heads in full production.

In the medium to long terms, these criticalities can aggravate some structural problems of agricultural systems such as, for example:

- the growing dependence on foreign countries for genetic materials (varieties and hybrids) used for national crops, such as corn and wheat;

- the continuing difficult situation for many companies linked to the scarce availability of necessary manpower and production costs that often exceed the remuneration of the products;
- the increase in fuel costs, with an immediate impact on fruit processing and conditioning plants and on transport to markets.

In this difficult and cyclical phase of instability, the eleventh edition of the “Farm Machinery and Process Management in Sustainable Agriculture” International Symposium was an opportunity to present and discuss some proposals based on objective criteria to be implemented in the short and medium terms to address the main problems and possible solutions for agriculture and for the entire agri-food system.

The FMPMSA International Symposium, in large part, in responding to the ambitious goal of proposing scientific and technological solutions as well as structural measures useful for increasing the resilience of agri-food systems.

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