

Special Issue

Agricultural Tractors: Evolutionary Trends, Current and Future Challenges, and Opportunities

Message from the Guest Editors

In the context of growing attention to sustainability and food security, the agricultural tractor remains central to farm mechanization. Its technological evolution has followed production demands, integrating advanced engine control, automation, digital data, and precision farming tools. Today, the challenge is to combine productivity and efficiency with lower environmental impact, consistent with green transition goals. Innovation now focuses on new energy sources (electric, hybrid, biofuels), fuel optimization, lighter sustainable materials, and intelligent onboard systems for monitoring and data management. Increasing interest also concerns smart or autonomous tractors using artificial intelligence to enhance precision, efficiency, and decision-making. Key issues include safety, ergonomics, emission reduction, and adaptability to diverse production contexts. This Special Issue welcomes interdisciplinary research and reviews analyzing trends, challenges, and opportunities in tractor evolution and envisioning future directions across engineering, energy, AI, logistics, safety, and farm management.

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Message from the Editor-in-Chief

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