IEEE RTSI 2018 – Track 1 – 1.6

SUSTAINABLE AGRICULTURE

Precision agriculture practices are the most effective way to increase agriculture sustainability, significantly reducing the negative environmental impact of farming due to over-application of chemicals and water consumption, while still producing enough food to satisfy a growing demand. Indeed, turning traditional farming into precision farming, not only lowers the chemical load in food and environment, but also improves profits and harvest yields, giving farmers a return on their investments. The introduction of advanced sensing capabilities allows monitoring at plant level, spotting problems before they spread. Furthermore, introducing farming robots, chemicals can be applied with honeybee precision, pesticides and fungicides can be used only when needed and in the smallest necessary amount, or even be substituted by less impacting techniques (e.g., mechanical instead of chemical thinning, biological control instead of chemical pesticides).
On the other side, European terrain morphology is often characterized by hilly or mountainous regions that represent the best soil for some cultivations but, at the same time, require heavy farming works. This issue, in combination with population aging, will determine the loss of those valuable cultivations, whilst the introduction of farming robots able to replace the humans in the heavier jobs will ensure their survival or even open the way to an increase of productions and, consequently, to a potential increase of job positions.
The Technical Session aims at bringing together scholars and practitioners to discuss the future of farming 4.0 as the most promising way to support sustainable agriculture.

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