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SMART FARMING

# DIE LANDWIRTSCHAFT DER ZUKUNFT GESTALTEN

THE FUTURE OF PRECISION AGRICULTURE

-SMART Farming

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NEWSLETTER NO.3

## FIELD CULTIVATION AND MANAGEMENT

### FIELD STUDY TO ANALYZE STRESS FACTORS IN WHEAT LAUNCHED

As part of our research activities to improve wheat production, we have begun a targeted analysis of artificially induced stress factors on wheat fields during the 2024/2025 and 2025/2026 growing seasons. Data collection is carried out exclusively on wheat plots and encompasses a total of 36 experimental parcels—18 stressed and 18 control plots. The layout is arranged in a  $6 \times 6$  grid with 5 m spacing between each plot, covering approximately 0.7225 ha in total.

Sowing is complete—and we'll keep you updated on the field developments!



#### The stress factors include:

- **Water Stress:** Irrigation at three levels (0 %, 50 %, 100 %) via drip lines to simulate varying soil moisture deficits.
- **Heat Stress:** Planting at two different time points to expose crops to elevated temperatures.
- **Nitrogen Deficiency:** Three fertilization regimes (low, medium, normal), further modulated by a preceding maize crop to deplete soil nitrogen reserves.



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## A First Glimpse of the Trial Field During the 2024/2025 Wheat Season

On the trial field, the different plots are already clearly visible. Drip irrigation is in place, and the first data collections are underway. Our team is on-site to document plant conditions under each stress treatment—an important step toward more sustainable wheat production!



To prepare and oversee our experimental parcels, Prof. Dr. Hakan Alphan (Landscape Architecture Department), Prof. Dr. Celalettin Barutçular (Faculty of Agriculture), and Dr. Volkan Mehmet Çınar from the Eastern Mediterranean Agricultural Research Institute visited the field. Together with the project team, they inspected the plots and agreed on the next steps for data collection.

## OUR NEXT STEPS...

- Field Monitoring in Turkey with Çukurova University
- Laboratory Analyses in Romania for sample evaluation
- Smart Farming Handbook: Updates based on new findings

*For more information:*

[www.smartfarm-ai.com](http://www.smartfarm-ai.com)

