

Development of a continuous soil GHG emission measurement system and implementation in irrigated Mediterranean conditions

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➔ Experiences with these systems in semiarid Mediterranean areas are scarce. Its implementation would contribute to increase the knowledge of soil GHG emissions under these conditions. ➔

Objectives & Methods

1

Development of a measurement system with automated chambers linked to an in-situ multigas analyzer



Chambers (500 x 500 x 150 mm) ('Queensland' design); with steel bases inserted into the soil

Gas analyzer based on photoacoustic spectroscopy



2

Implementation in an irrigated long-term experiment located in Zaragoza (NE Spain)

- Split-plot design (3x18m)
- Rotation: **wheat (2022)**-canola (2023)

Treat.

TILLAGE



Conventional tillage (CT)
No-tillage (NT)

FERTILIZER



Mineral fertilizer (min)
Organic fertilizer (org)

3 replicates → 12 chambers
12 chambers measured = 3h

Early results!

Early results showed an **impact of tillage and fertilization treatments** on soil GHG emissions, which will be quantified in detail during 2022/2023 wheat-canola rotation.