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Innovative IPM Solutions for Winter Wheat-based Rotations (WP2): Cropping Systems Assessed in the INRA Trials (France)

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OBJECTIVE

Within the context of the PURE project (WP2), innovative IPM solutions were designed, tested and validated for winter wheat-based rotations in different pedoclimatic conditions in Europe.

In each location, three cropping systems (C.S.) were designed according to a gradient of pesticide-use intensity: (1) current agricultural practices with a conventional use of pesticides, (2) intermediate level of IPM with a reduction in pesticide use and (3) advanced level of IPM where no pesticides are allowed.

Here, we describe the field trials and the main characteristics (i.e. agricultural practices) of the three cropping systems assessed in the INRA long-term field trials in France.

MAIN CHARACTERISTICS OF THE 3 CROPPING SYSTEMS ASSESSED

(Colenne-David C. and Doré T., 2014)

CURRENT SYSTEM (C.S.)
The C.S. was designed to maximize gross margin in bread wheat-based rotation:
- high amount of pesticides allowed
- yield targets: close to the current regional system.

INTERMEDIATE SYSTEM (I.S.)
The I.S. was designed with:
- multiple environmental targets (i.e. to reduce pesticide use, to lessen energy consumption, to decrease N leaching, to stabilize the amount of soil organic matter)
- yield targets: close to the regional low-input C.S.

ADVANCED SYSTEM (A.S.)
The A.S. was designed with:
- a pesticide constraint: no pesticide is allowed
- multiple environmental targets (i.e. see I.S.)
- yield targets: higher than the regional organic C.S.

Mean values are calculated at rotation scale

REFERENCE: Colenne-David C., Doré T., 2014. Designing innovative productive cropping systems with quantified and ambitious environmental goals. "Renewable Agriculture and Food Systems", doi:10.1017/S1742796314000313

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