18th European Weed Research Society Symposium

EWRS 2018

17-21 June 2018
Ljubljana, Slovenia

New approaches for smarter weed management

Book of Abstracts

www.ewrs2018.org

18th
European
Weed
Research
Society
Symposium

EWRS 2018

17-21 June 2018
Ljubljana, Slovenia

**New approaches for
smarter weed management**

Book of Abstracts

–

Co-design of a Decision Support Dystem for integrated weed management

Floriane Colas[1], Stéphane Cordeau[1], Alain Rodriguez[2], Jean Villerd[3], Nathalie Colbach[1]
[1]INRA, DIJON CEDEX, France
[2]Acta, BAZIEGE, France
[3]UMR1121 LAE, VANDOEUVRE-LES-NANCY, France

Each cropping practice affects weed dynamics depending on pedoclimate or time-step. Weed management must be reasoned at the cropping-system scale and multiperformant cropping-system design is difficult. Decision Support Systems (DSS) for farmers and crop advisors are essential, and to make these tools operational and utilized in practice, end users must be involved when designing the tools. Our aim was to test a DSS prototype with end users to identify its strengths and weaknesses. The prototype consisted of (1) a »design guide«, i.e. a decision tree visually linking combinations of cropping practices to performances in terms of weed harmfulness for crop production and weed-borne biodiversity, (2) a »fast prediction tool«, i.e. a random forest predicting these performances from cropping-practice combinations proposed by users. Both were built from a cropping-system database simulated with the mechanistic weed dynamics model FLORSYS.

Workshops were conducted in 2017 with five advisors from Champagne-Ardenne (France). The first workshop aimed to design innovative cropping systems adapted to different regional production situations and to choose weed-impact indicators to evaluate the systems. In-between workshops, the systems were simulated with FLORSYS to estimate indicators. In the second workshop, the simulation results and the design guide were presented, testing different output formats. After the workshops, the prediction tool was tested by the advisors via an online R-shiny application. Feedbacks on the application's use were collected via an online questionnaire.

Several improvements were suggested, especially for synthetically describing a cropping system. The DSS promoted discussions among advisors, especially when confronted with surprising results (e.g., alfalfa did not increase field infestation). The workshop format was adapted to improve the DSS and to demonstrate its usefulness.

EWRS

18th
European Weed
Research
Society
Symposium

EWRS 2018

June 17-21, 2018
Ljubljana, Slovenia