

Organic wheat variety testing by a network of farmers

Problems

In the absence of formal organic variety testing mechanisms, British organic farmers struggle to reliably predict the best performing cereal cultivar to grow on their farm. This jeopardises organic arable production in terms of yield, quality and reliability, with a shrinking acreage and a shortage of UK-grown organic cereals, especially wheat.

Solutions

A network of British organic wheat growers has been testing winter wheat cultivars at a field-scale since 2017. Each farmer is allocated a subset of cultivars to grow as strips in their commercial winter wheat field. Yield from each strip is measured and grain samples are tested for grain quality. At wheat anthesis, crop and weed cover, crop height, disease severity and ear density are assessed by researchers. A plot trial including additional cultivars supports the network with more precise information on diseases and with highlights about new cultivars to test at a field scale.

Practical recommendations

- A control cultivar is included in all farms. Each farm replicates one cultivar in two strips.
- The experiment follows an incomplete block design and can be statistically analysed through mixed-effect models.
- Besides farmers, results can inform seed producers about varieties to multiply organically and breeders about traits relevant to low-input farming.
- Documentation of the cropping systems in use, sheds light on their impact on crop and cultivar performance.
- Data from the farm network can have important secondary uses for crop modelling and monitoring.

Further information

[Overview on the current organizational models for cultivar testing for Organic Agriculture over some EU countries](#) LIVESEED D2.1

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LIVESEED: Boosting organic seed and plant breeding across Europe. LIVESEED is based on the concept that cultivars adapted to organic systems are key for realising the full potential of organic agriculture in Europe. Research project 2017-2021.

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Figure 1: Strips of wheat cultivars with different weed suppressive ability on a farm participating to the network. (Photo: ORC)



Figure 2: Farmers place white pegs on their preferred cultivar on the plot-scale trial (Photo: ORC)

