PRACTICE ABSTRACT No. 45

Target audience: farmers, breeders, researchers, public authorities

Institute of Agricultural Resources and Economics

LIVESEED

Heterogeneous spring barley populations in Latvia

Problems

Currently only homogenous varieties, produced for conventional farming, are used by organic farmers in Latvia. Such varieties perform well under high input conditions, but in organic system they might lack stability and resilience.

Only few varieties recommended for organic systems are included in Latvian Plant Variety Catalogue (see figure).

Broadening of diversity within a crop/field is needed to buffer against environmental fluctuations and make crop performance more efficient.

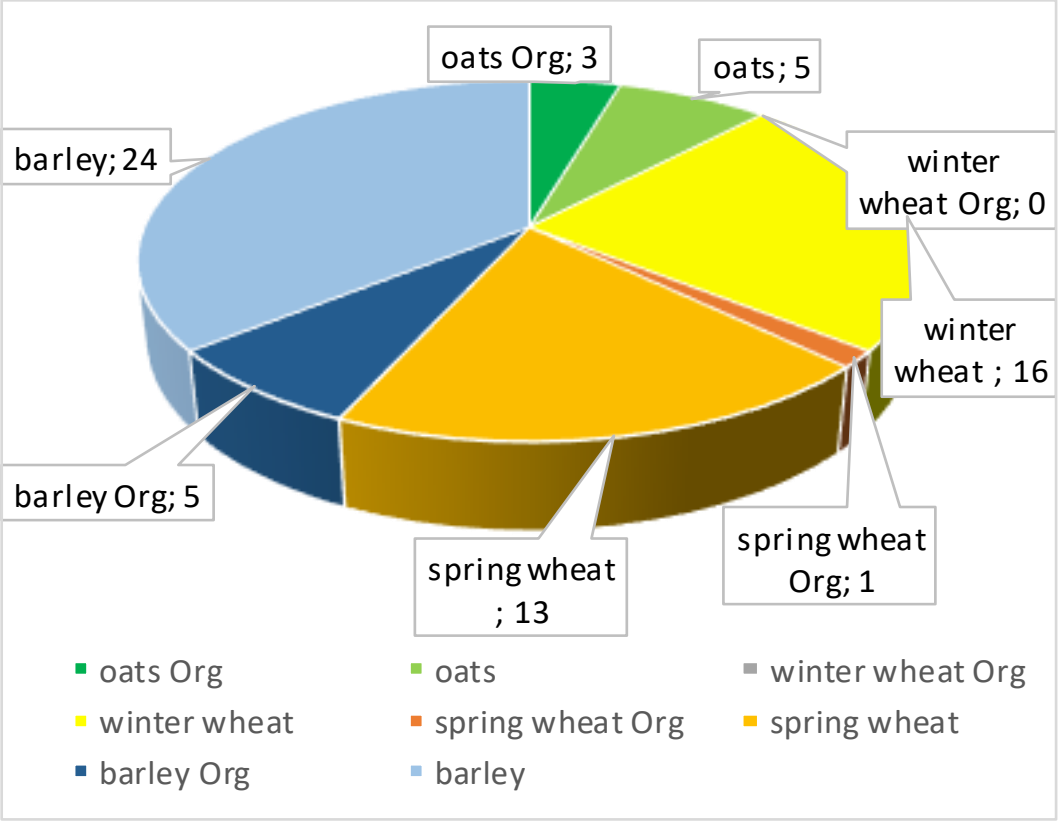

Figure: *Arable crop varieties in the Latvian Plant Variety Catalogue*

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Solutions

- Creation of heterogeneous composite cross populations (CCPs), involving diverse genetic material of 6-12 local and foreign varieties/lines with traits valuable for organic cultivation.
- Several spring barley CCPs are available at Institute of Agricultural Resources and Economics (AREI) and being tested in LIVESEED and other research projects. Creation of spring and winter wheat CCPs have been started and research on improvement of CCP breeding is going on.
- Spring barley CCP 'Mirga' is included in EC Temporary Experiment on marketing of populations and is cultivated on two organic farms.

Practical recommendations

- AREI is open to cooperate with farmers interested in populations.
- Trial results on CCPs in comparison to homogeneous varieties show: **good yield stability** and similar yield potential; **yield advantage under drought stress** conditions; **lower severity of leaf disease net blotch**; no notable differences in respect to ability to suppress weeds.
- Results indicate a **trend to local adaptation**. Therefore seeds of populations in early generations are recommended to be sent to farmers for growing on particular farms.

Further information

1. European Commission (2014). COMMISSION IMPLEMENTING DECISION of 18 March 2014 on the organisation of a temporary experiment

2. Ločmele I., Legzdiņa L., Gaile Z., Kronberga A. Assessment of spring barley populations in comparison to homogenous varieties. Research for Rural Development 2019, Jelgava, Latvija, 15.-17.05.2019., in press.

Authors: Linda Legzdiņa, Indra Ločmele (AREI)
Contact: linda.legzdina@arei.lv

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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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