

Tools to identify genetically heterogeneous cultivars 3: description

Problems

In a variety, one individual plant can represent the whole plant grouping, making univocal identification possible, whereas in organic heterogeneous material (OHM) an individual plant cannot represent the population, and therefore a range of description and identification metrics is needed. Hence, seed registration and certification of OHM relies on information on the constitution, traceability and description of the OHM seed.

Solutions

A temporary experiment on the marketing of genetically diverse populations of wheat, barley, oats and maize was granted under the EU implementing decision 2014/150/EU, where tools to identify and describe genetically diverse populations were tested. Tools to describe the populations were set out as (i) degree of heterogeneity and (ii) performance testing. A SWOT analysis of these tools was performed to inform future developments of the legality of OHM (Table 1).

Table 1: Summary of the SWOT analysis conducted on tools for description of populations in 2014/150/EU: 'degree of heterogeneity' and 'performance testing'

<p>STRENGTHS – population description can:</p> <ul style="list-style-type: none"> ● recognise the variable nature of populations ● provide farmers and end-users with information on performance and hence align with national list protocols ● provide a reliable reference of what to expect from a population 	<p>WEAKNESSES – population description can:</p> <ul style="list-style-type: none"> ● bear risk of parallel market, as it can be hard to distinguish populations from one another ● be confusing in terms of which traits and parameters to measure ● insufficiently describe performance as it changes over space and time due to evolutionary pressures
<p>OPPORTUNITIES – population description might:</p> <ul style="list-style-type: none"> ● outline the agro-climatic context of a populations' breeding and multiplication ● bear potential to link to on-farm trials and end-use ● provide advice on environmental conditions for optimal performance (e.g. soil, climate, management) 	<p>THREATS – population description might:</p> <ul style="list-style-type: none"> ● be met by limited testing capacity especially in and for organic farming ● become overly prescriptive and limit the potential use of the population ● become exponentially complex from an administrative point of view if number of populations, actors and/or users increases significantly

Practical recommendations

- Description of the degree of heterogeneity and population performance can be useful in advising on the management and use of the population.
- Detailed description is likely to be difficult to implement, so it is not recommended as a legal requirement in the next stage of regulation for heterogeneous material.
- Good practice would be that developers/breeders maintain and share clear and transparent records on the parameters relating to the description and use of their population.

Further information

1. [Text of the Commission Implementing Decision 2014/150/EU](#)
2. [Main outcomes and SWOT of experiences from marketing populations under the Temporary Experiment into the commercialisation of heterogeneous populations in the European Union](#)

Authors: Charlotte Bickler (ORC)

Contact: charlotte.b@organicresearchcentre.com

Publisher: ÖMKi Hungarian Research Institute of Organic Agriculture

Date: May 2020

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.

Social Media: Facebook [[LIVESEED](#)] & Twitter [[@LIVESEEDeu](#)]

