

Tools to identify heterogeneous cereals 2: traceability

Problems

Identification and traceability of genetically diverse populations is required for variety registration and seed certification. Whilst in (genetically homogeneous) varieties one individual plant can represent the whole plant grouping, making univocal identification possible, in (genetically heterogeneous) populations an individual plant cannot represent the population, and therefore a range of description and identification metrics is needed.

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. It assessed different tools' effectiveness at guaranteeing population identification and the identity of the seeds of a population. It was possible to conduct a SWOT analysis of the different tools used in different contexts. The second set of tools that were critiqued related to the region of production, documentation/databases and representative samples – or the traceability of registered populations (Table 1).

Table 1: Summary of the SWOT analysis conducted on tools relating to the traceability of populations

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> Provides evidence of history in the light of evolution Informs end-users understanding of the context of production Can guarantee certain qualities and be of reference in case of commercial conflicts 	<ul style="list-style-type: none"> It is difficult to define/quantify what a region means – spatial and temporal variation in environment does not relate to geographical boundaries Does not provide all the necessary information to understand population performance Difficult to obtain samples that represent the population as a whole
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> Can outline the agro-climatic context of a populations' breeding and multiplication Can provide a paper trail to guard against development of parallel market Crucial for tracking of individual seed lots, rather than entire populations 	<ul style="list-style-type: none"> Defining region as a specific geographic area can limit the evolutionary potential of a population and limit access to material High administrative burden and lack of clarity on who is responsible for record keeping Potential for development of fraudulent paper work if only depends on this mechanism

Practical recommendations

- Traceability tools are necessary to provide evidence of population development and history and to prevent parallel markets.
- Keeping a record of region of production for seed lots can inform understanding of the evolutionary history of a population.
- Documenting where a seed lot was multiplied should not limit where the seed lot can be grown.

Further information

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

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