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Organic heterogeneous material – opportunities and challenges

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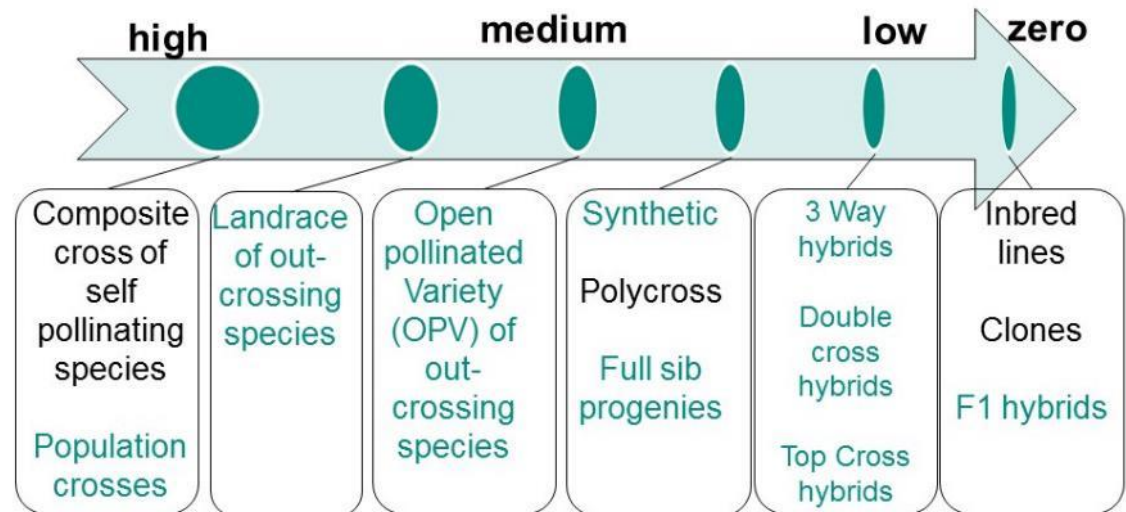
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Harnessing diversity

Important to have a wide range of species & cultivar types that are adapted to variable growing conditions and the demands of different value chains

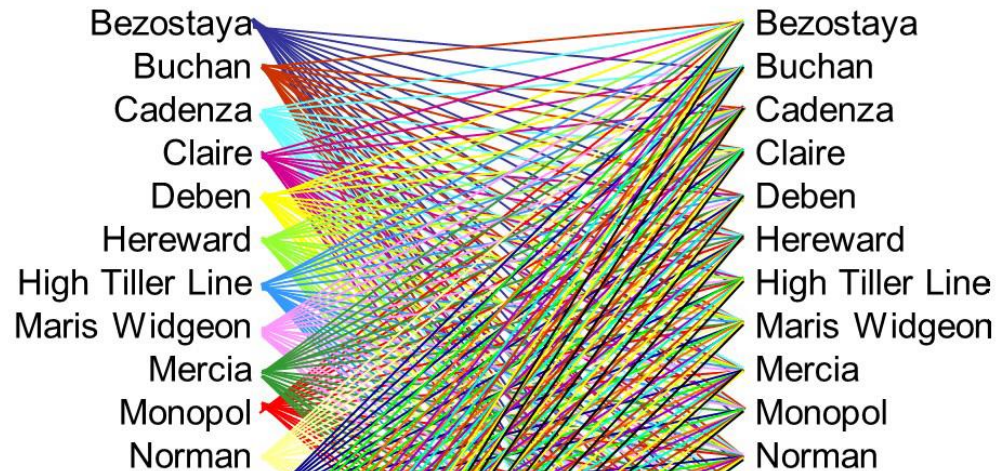
Genetic diversity within cultivar for different cultivar types



ORC's Experiment in heterogeneous material:

- An example of diversity-driven resilience

ORC Wakelyns Population



Composite Cross Population ≠ Mixture of Varieties

- "YQ mixture" would be 20 fixed types growing together
- "YQ CCP" is the **bulk progeny of 107 different crosses**, each generating a diversity of types

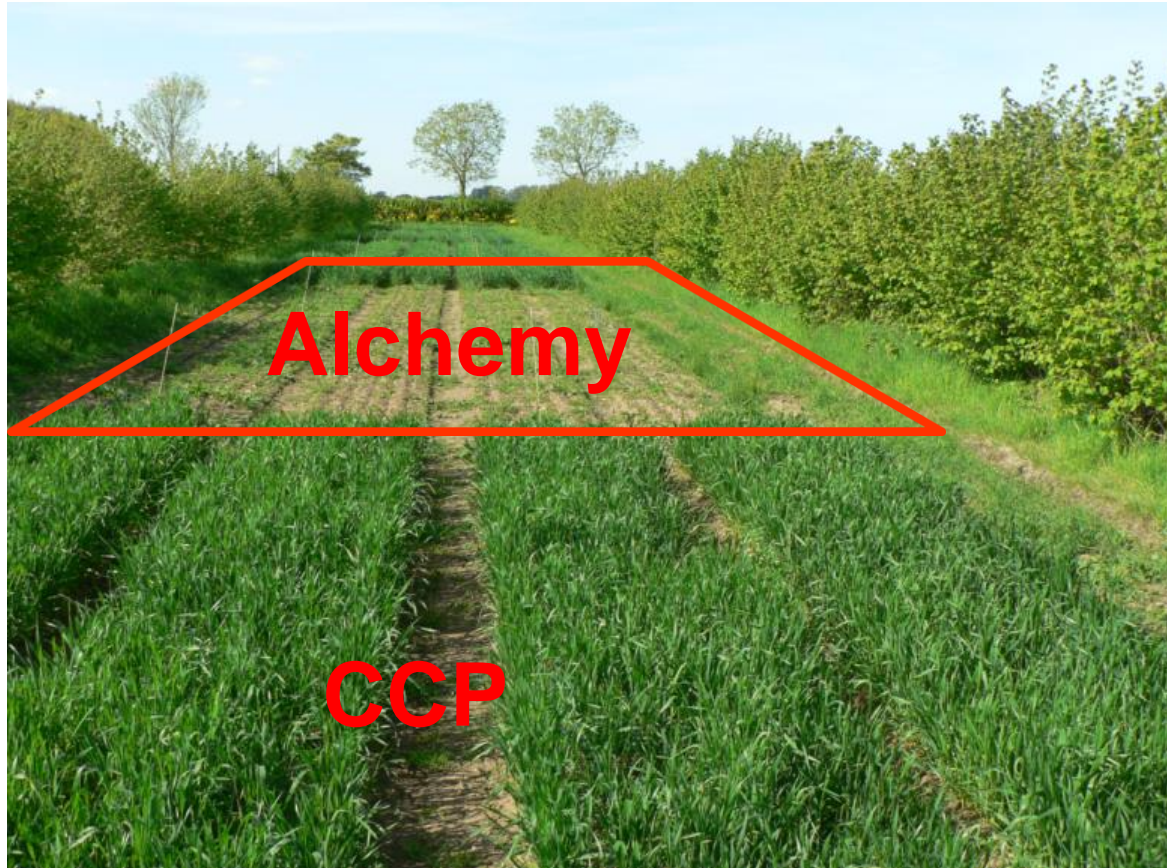


Evidence of resilience

Particularly under stressful conditions



“Normal” situation (early sowing)



“Stressful” situation (late sowing)

The starting point – 2014/150/EU

Article 1

Subject matter

2. The following elements shall be assessed:

- (a) whether the identification of populations of those species can take place on the basis of information on their breeding and production methods, the varieties used in the crossing, and the main characteristics of those populations; and
- (b) whether the identity of seeds from those populations marketed can be based on traceability requirements and identification of the region of production.

Alternatives to DUS

'Certified traceability'

From Article 2 "Scope"

Populations = plant groupings that result from a **given combination** of genotypes; ...considered as **units with regard to their suitability for being reproduced unchanged** once established in a given region of **production** with specific agro- climatic conditions; ...generated by...

- Crossing >5 varieties and **bulking progenies**
- Growing together >5 varieties of cross-pollinated spp. and **bulking the progeny**
- Inter-crossing varieties with other methods to produce a population that **does not contain varieties**



Definition
'population' ≠ 'variety'

Identification – 2014/150/EU

- Article 5
 - Parent germplasms
 - Breeding scheme
 - Region of production
 - Degree of heterogeneity
 - **Characteristics (Article 7 (2)(f))**

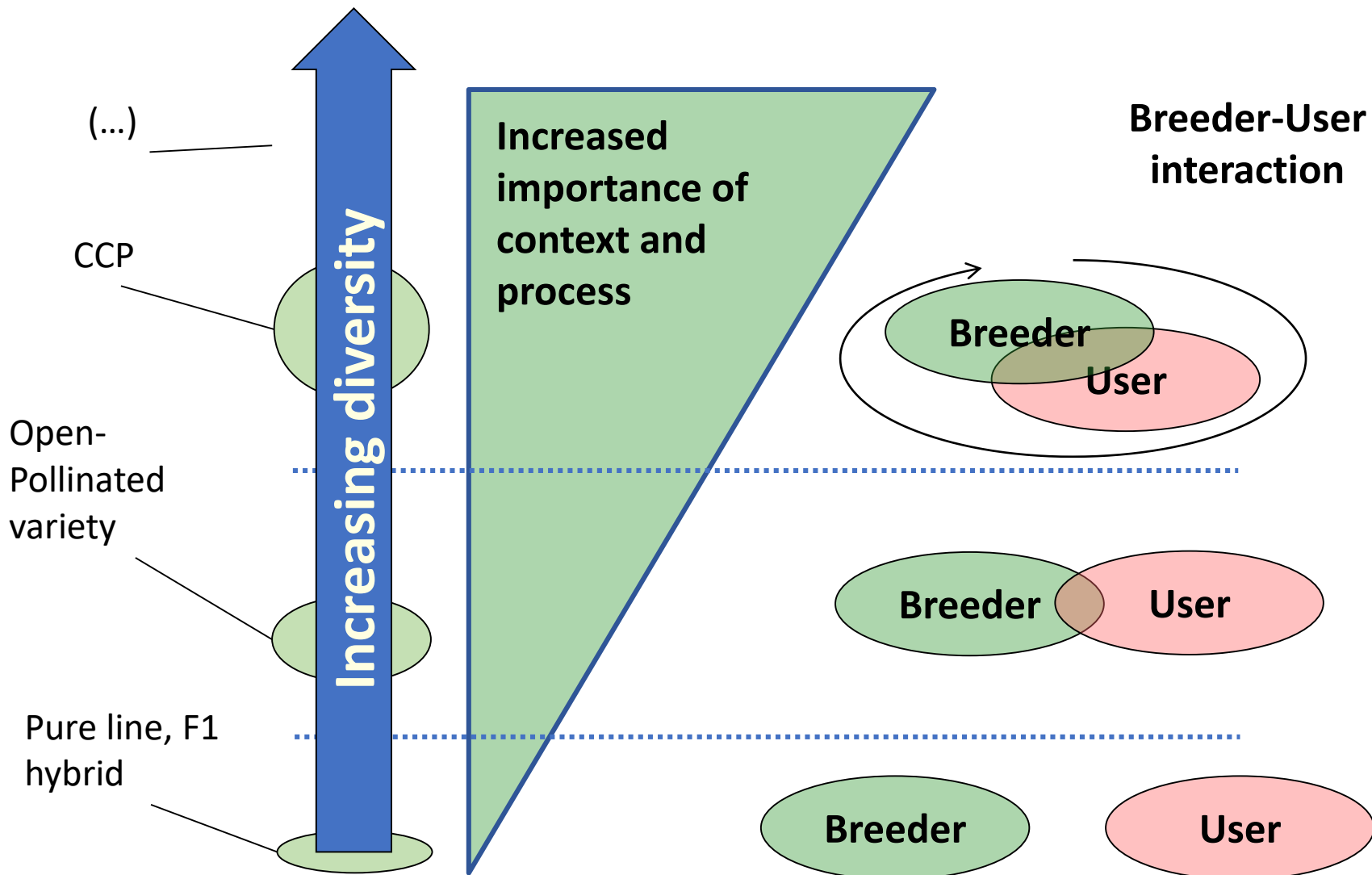


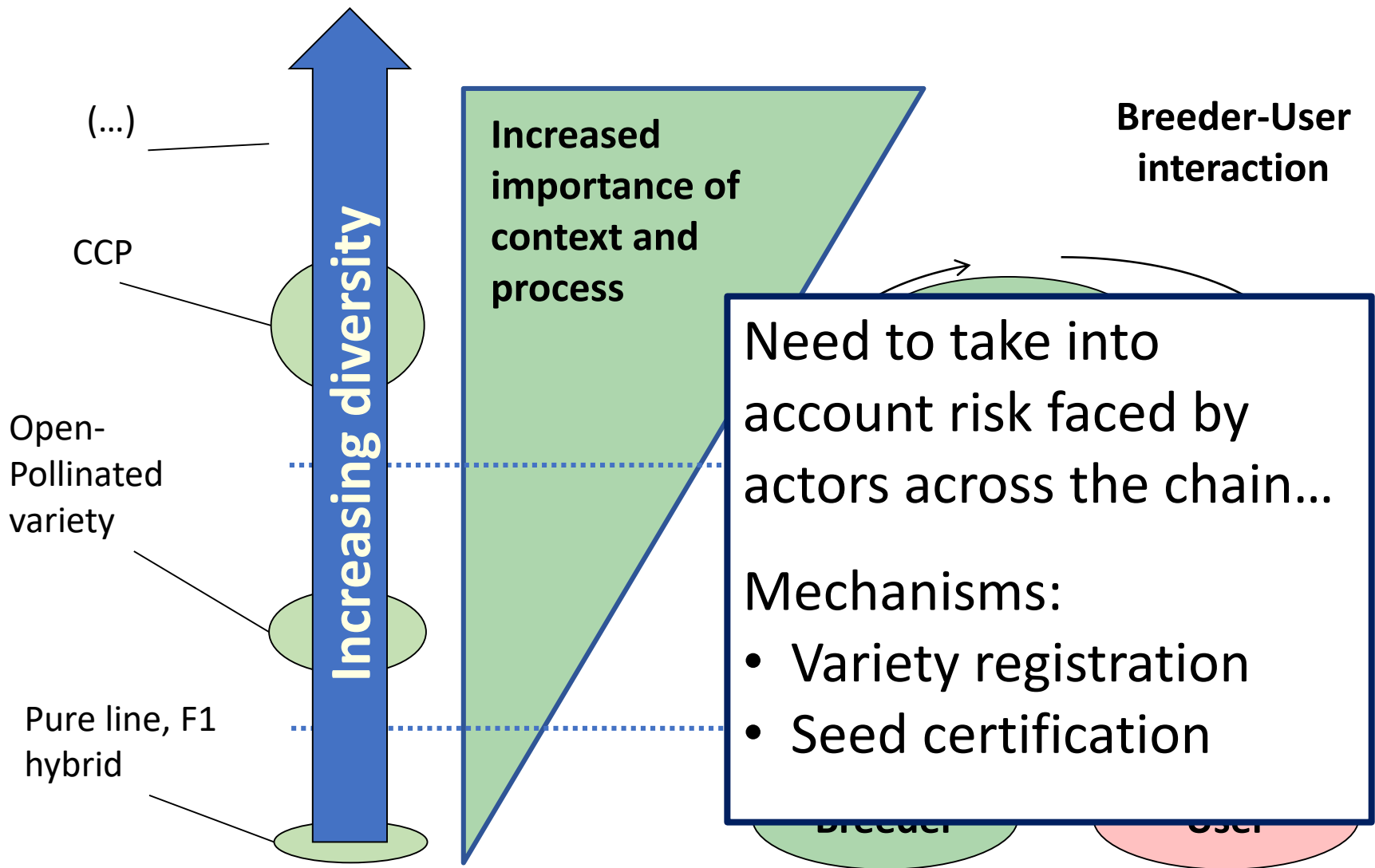
(f) a description of its characteristics:

(i) documentation of its characteristics which the applicant considers as important as regards yield, quality, performance, usability for low input systems, disease resistance, yield stability, taste or colour;

(ii) experimental trial results concerning the characteristics referred to in point (i);





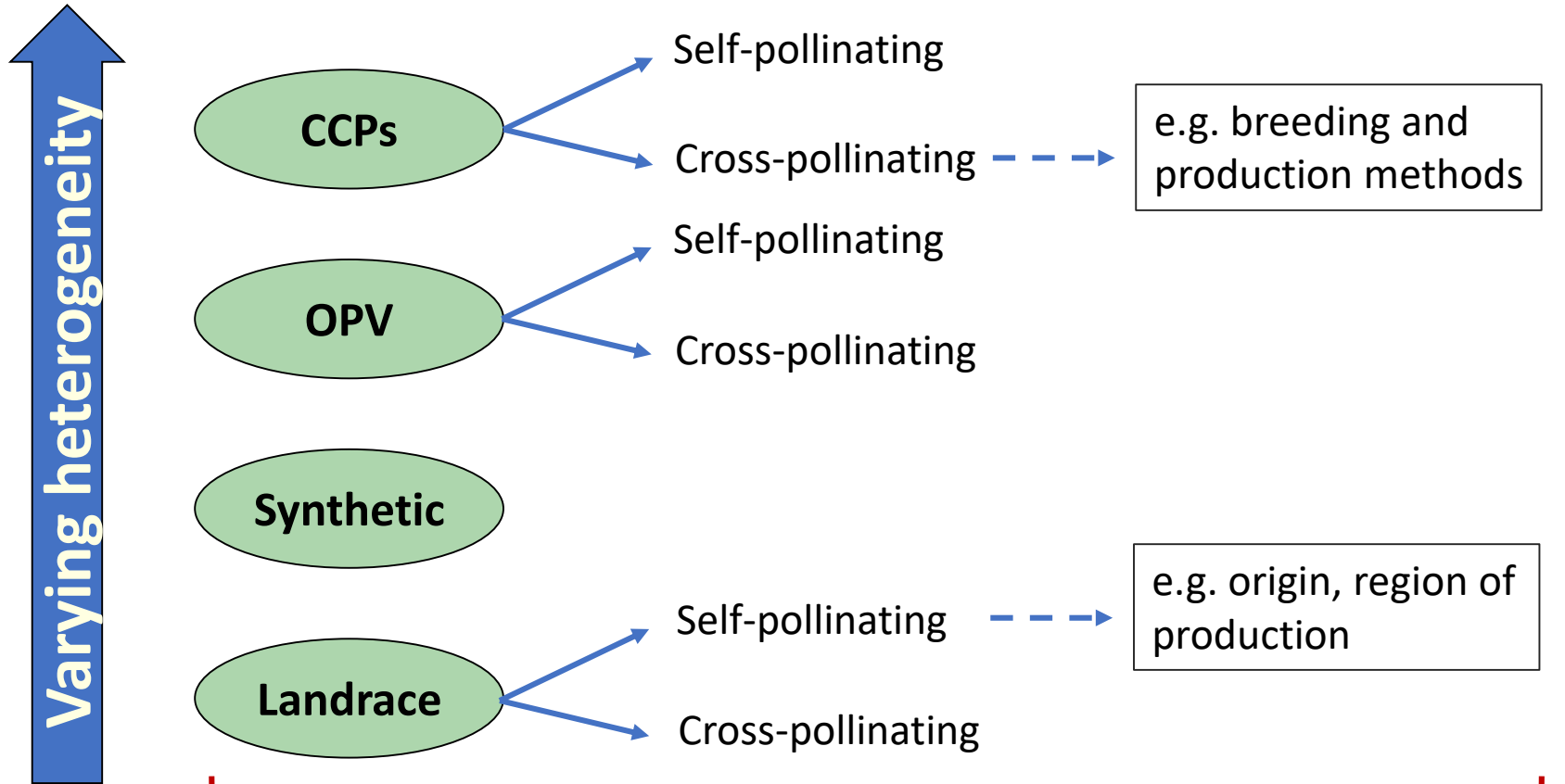


Reviewing progress

- Challenges with traceability – what can provide a back up if ID is not possible?
- Separating seed identity from population identity (when DUS is not possible)
- Preventing ‘parallel market’ – considering when the market grows
- Toolbox for ‘population description and identification’
 - Different tools to address different challenges



Different tools for different tasks



Common requirements e.g. performance guarantees, seed quality (seed certification and organic production provide traceability)