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How to implement organoleptic quality assessment in a participatory plant breeding approach



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WP and Task objectives: WP7: quality

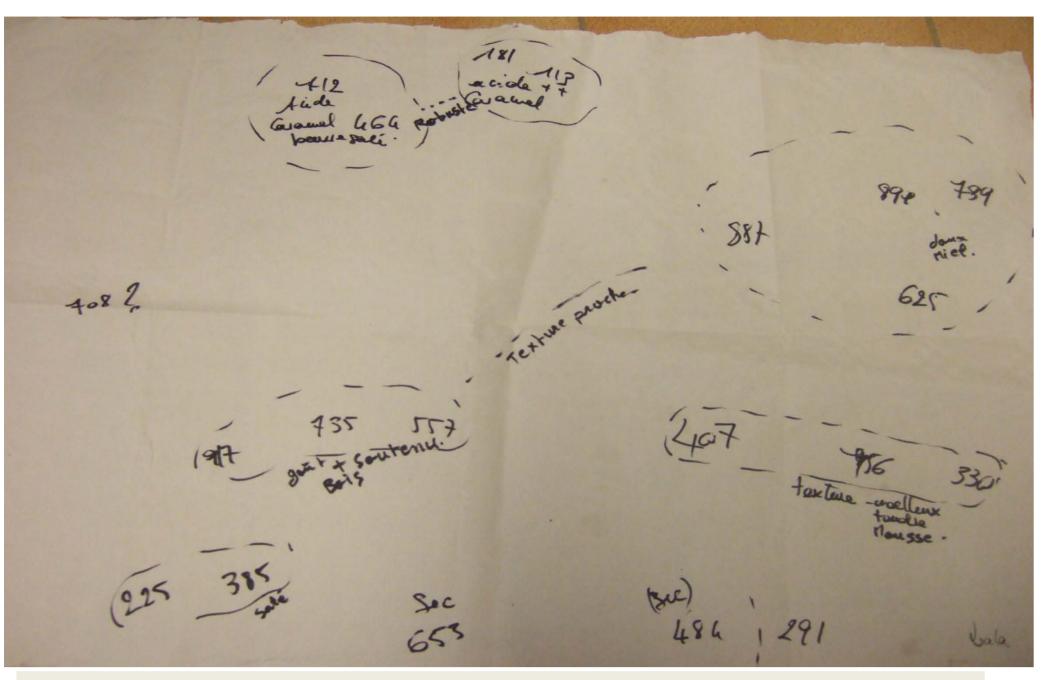


Figure 1: Individual Napping®.

Figure 1 shows the bread's perception of a panellist. We can see here, word near the product which eased the axis interpretation.

Methodology

Three varietal structures (a modern variety Renan, a population, Sixt-sur-Aff and a dynamic population) and four geographic areas are tested;

Objectives:

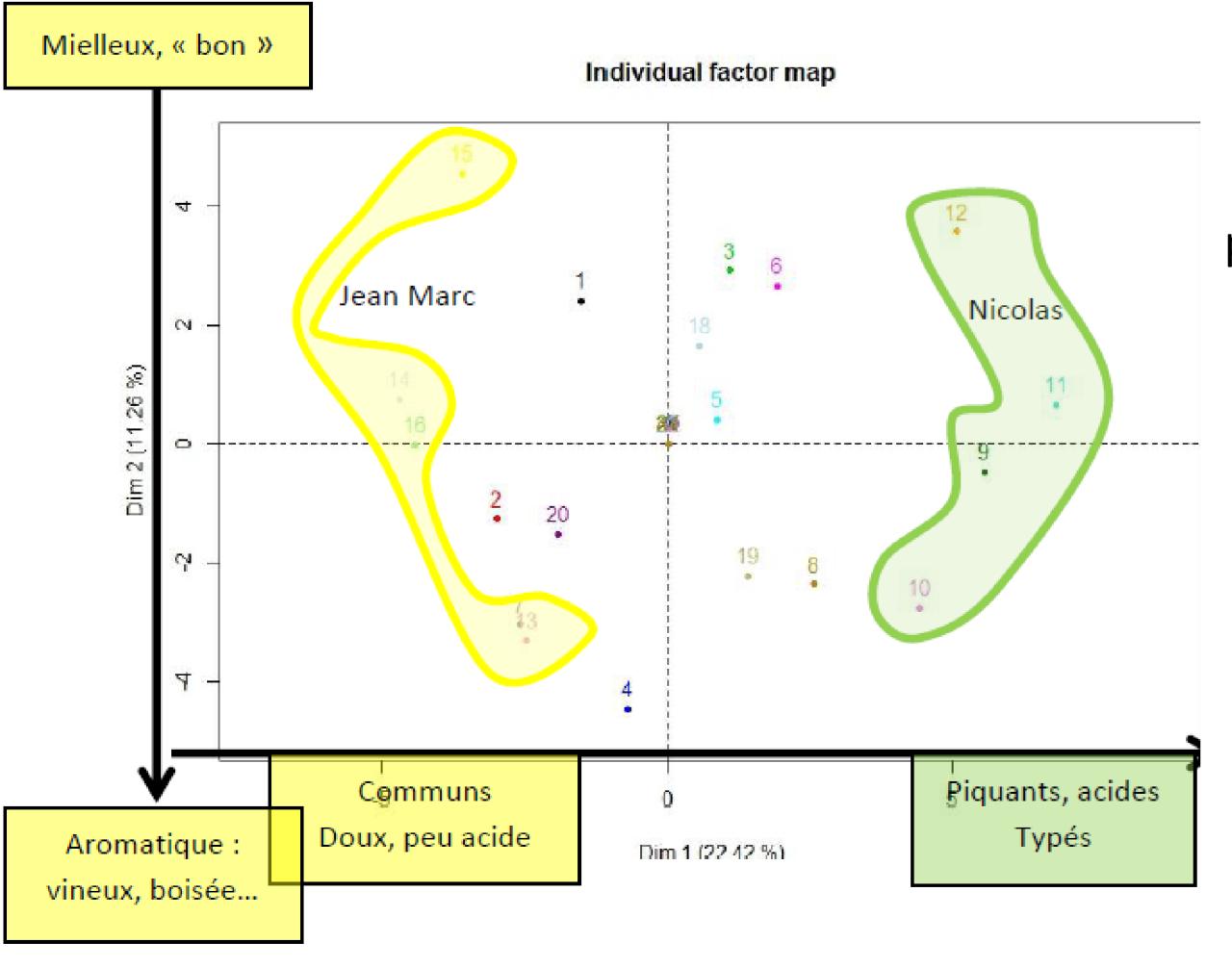
Sensory quality is a great expectation from consumers and more specifically from the new organic consumer (post food crisis) which is more interested in the practical aspect than the environmental ones (Zanoli et al.). Whereas some objectives' quality parameters can be measured by instruments (firmness, maturity, acidity...), sensory quality measurement need to analyze human perception.

In the context of the European project SOLIBAM, a new methodology is experimented to integrate gustatory criterion in the breeding process, and particularly in participatory plant breeding programs. This methodology called "Napping®" involves a panel of professionals of the product (breeders, bakers, farmers), who have to position the product onto a large sheet of paper according to the sensory distance (similarity/dissimilarity) he perceives between the products. Once the panellist had position its products, he had to associate one or two descriptors words to each product. This poster aims to illustrate the methodology with an example on breads.

Moreover, to take into account the transformation process, five bakers (five baking processes) are tested. In order to understand the relative role of the three factors (genotype, environment, baking process), a unique milling technique have been applied and one of the three factors have been fixed at each experiment. In the following results, the variety has been fixed. A final experiment will test the genotype*environment interaction and fixed the baking process. A panel of 12 baking-farmers, researchers and few consumers have analyzed twenty bread products from four flour samples (the four geographic areas) and transformed by five bakers.

First results

The results analyses used a Multiple Factorial analyses and the INDSCAL model, which let taking into account the importance according to a dimension by each panellist. It offers a representation of the common perception.



The variety test on the left is the Sixt population. We can see that the main factor affected the perceived quality of bread is the bakers. On the contrary, the right representation highlight the importance of the environmental factor for the dynamic population.

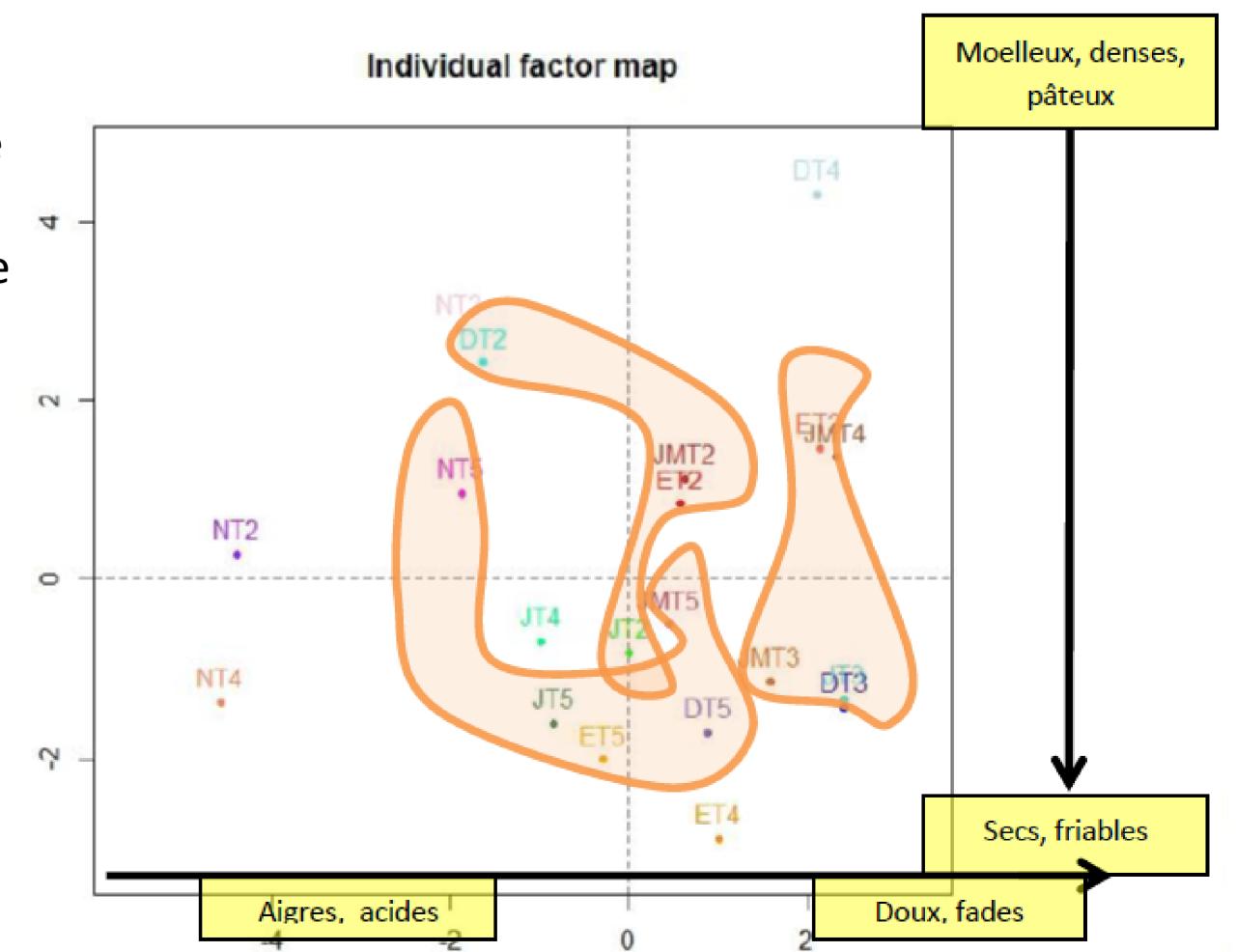


Figure 2: Common representation of bread, Sixt sur Aff

Figure 3 : Common representation of bread, dynamic population

In this case, groups are formed according to their provenance more than according to the baker. The next step is to put forward hypothesis in on the agronomical and technological behavior of populations and test it.

