



Pre-breeding strategies for obtaining new resilient and added value berries

Open Call fiche

Open Call #4: Development of methodological tool kits for sensorial quality assessment of berry genetic resources



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Sensory methodologies are used to define the commercial potential of pre-breeding material, new cultivars and innovative production techniques by assessing sensory attributes and consumer appreciation. Sensory profiles produced by trained assessor can identify strengths and weaknesses of genotypes' quality, improving the efficiency of selection phases. Advanced methods applied in consumer tests are useful for identifying preference drivers to foster the selection of pre-commercial material and provide tools for decision-making about cultivar release.

The objective of this Open Call is to involve European berry breeders and companies willing to develop their skills and knowledge to exploit sensory-quality evaluation of berries (strawberry, raspberry, blueberry) by using professional, coordinated and scientifically sound methodology. This can help in improving and speeding up the breeding project phases closest to market.

The participants in this Open Call will learn how to perform sensory tests for sensory panels (specially trained small groups to describe sensory quality) as well as for consumers tests (large untrained-audience events for fast acceptance testing). Thus, they will be able to obtain practical experience in training a panel for performing sensory tests, to obtain sensory profiles, how to plan and carry out consumer tests to assess hedonic appreciation as well as how to combine and interpret sensory and preference data.

The training will be given to provide competencies for sound evaluation of berry genotypes of strawberry, raspberry, and blueberry. Participants will be encouraged and supported in applying these sensory techniques on the genotypes of most interest to them.

In this Open Call, we will fund **7 projects à 13,600€**.

Who are we looking for?

We are looking for companies/organisations focused on breeding and pre-breeding programs, and/or interested in the application of state-of-the-art sensory methods for quality control of berries along the food chain, working on strawberry, raspberry or blueberry. We will select applicants interested in improving both their methodology as well as their own knowledge and practices in evaluating and selecting berry germplasm by using specific sensorial quality tools. Applicants need to have experience in evaluating plant genetic material, in berry quality analysis and/or in basic sensory science. Applicants should also be interested in developing skills for evaluating the sensory quality of their berries and setting up tests accordingly. Additionally, they should benefit from including sensory testing methodology in their work.

Your benefits

If you are selected for this Open Call, you will:

- ✓ Learn the methodology for validating sensory quality of pre-breeding, breeding materials and commercial cultivars.
- ✓ Acquire skills for setting up of a group of sensory judges that will allow you to provide effective and scientifically sound sensory data.
- ✓ Learn basic information for planning, performing and analysing consumer tests with advanced, rapid methods.
- ✓ Be able to include sensory science methodologies to foster genotype selection and fruit sensorial quality characterisation.

Eligibility criteria

You are qualified to apply for this Open Call if you fulfil the following criteria:

- ✓ You have to be legally registered in [member states of the European Union or in Horizon 2020 associated countries](#);

- ✓ The application has to be submitted before the deadline of the Open Call;
- ✓ The application has to be in the English language;
- ✓ The application has to be complete (including all required signatures);
- ✓ The application has to address one of the four topics of the Open Calls within BreedingValue;
- ✓ Absence of conflict of interest: You may not have an actual and/or potential conflict of interest during the application process and project implementation (see Declaration of Honour). Accordingly, members currently involved in the BreedingValue project as beneficiaries, subcontracts, linked (third) parties and advisors are not eligible to apply. Should any conflict of interest arise, this will be assessed on a case-by-case basis.

Evaluation criteria

The projects will be selected based on the following criteria:

- ✓ The applicant has a running breeding program or specific interests for strawberries, raspberries or blueberries quality evaluation methods;
- ✓ The applicant is willing to undertake training for sensorial quality assessment of berry genetic resources, breeding material and commercial cultivars;
- ✓ The applicant is able to name at least one to-be panel leader (PL). The PL will participate in the training activities and be responsible for setting up a panel of 6-12 persons to be trained on basic sensory methodologies.
- ✓ The applicant is able to provide a minimum of 8 genotypes, with 25 homogeneous fruits of each genotype per sensory session, for sensorial quality assessment. Additional genotypes can be supplied, which is regarded positively. The most interesting genotypes for the tests would be local varieties, providing peculiar features for taste, texture and/or flavours.
- ✓ The applicant is able and willing to organize sensory sessions and a small-scale consumer test to put into practice the testing methodologies learned.

Funding criteria

In order to qualify for financial assistance within this call, applicants will be asked to give an outline on how the money will be spent to meet the outlined criteria, e.g., attending meetings, travel, recruitment and training of panellists, organization of a consumer test, etc. For more details, please consult the Proposal Template and the Guide for Applicants.

- ✓ **Milestone 1:** Completion of training on state-of-the-art sensory (panel) evaluation techniques. Training report. (*May 2022*).
- ✓ **Milestone 2:** Planning and execution of sensory (panel) tests on selected material. Individual and panel performances are statistically elaborated (*November 2022*).
- ✓ **Milestone 3:** Completion of training on state-of-the-art consumer test techniques. Training report. (*June 2023*).
- ✓ **Milestone 4:** Planning and execution of a consumer test with the application of rapid methodology. Data are statistically elaborated. (*November 2023*).
- ✓ **Milestone 5:** Completion on training on sensory and consumer methods (analysis methods of panel and consumer test results) (*February 2024*).

The **payment** will be made after a **final report** has been submitted and approved (*March 2024*).

Please note that in case ethical issues were identified in the application phase, additional deliverables for monitoring of these issues will be added as contractual requirements during the Sub-Grant-Agreement negotiation.

Application, evaluation and project preparation timeline



Timeline and project implementation

The Open Call project will run for 2.5 years, from 2022 to 2024. The detailed timeline is described below.

Each participant organization shall participate in 4 trainings (**10 training days in total**), and may choose to work either on strawberry, raspberry or blueberry:

- 1) **Initial Training (1 day):** Discussions with participants on possibilities, needs, requirements and special issues connected to the evaluation of sensorial quality properties of fresh berries. Thereby, the special needs are surveyed for the upcoming tasks (1 day, as online web-meeting). Sensory techniques suitable to approach the different aims of the applicants are presented and discussed. The applicant should name a project leader (hereinafter panel leader (PL)), and eventually a deputy PL, who will be responsible for participating in the trainings as well as organizing and conducting short trainings at the applicant's site. In detail, the PL will be in charge of:
 - Participating in the training to acquire or increase knowledge in sensory methods
 - Recruiting candidate panellists (6-12) at the applicant's site.
 - Perform a short training for candidate panellists.
 - Organize on site a panel to test the sensorial quality of applicant material.
 - Organize on site a consumer test to assess hedonic value of applicant material.
 Preliminary time-table: *February 2022* (strawberry, raspberry, blueberry).

- 2) **Training on panel test methods (2 days):** For 1-2 PLs per company there will be a meeting (2 days) for training and communication on sensory evaluation: selection, training and monitoring of a panel, evaluation methodology, lexicon to be used. The training will take place in Bologna, Italy (if travelling possible). Preliminary time-table for training: *April 2022*.

Building on the skills and knowledge taught through training on panel test methods, the PLs will recruit at their site 6 to 12 persons for a short training (e.g. 2 days x 2 h) with standard commercial berries. The applicant can select 8 genotypes with clear sensory differences to be used for the panel test. The PL should: a) choose a place to run experimental panel tests on material of the applicant's interest; b) plan and execute a panel test (**1 day**) using genotypes selected by the applicant (2 replicates of each sample, for statistic needs). Approximately 25 fruits per genotype will be needed (25x8=200 fruits in total); c) collect sensory data and send them to the BreedingValue partner CNR-IBE for statistics (N.B. to protect the applicant's intellectual property, the applicant is not requested to indicate actual genotypes names). After the evaluation of the results, the PL will receive the sensory profiles of tested genotypes and the evaluation of panel performance.

For the planning and execution of the panel test, the PL will have the online support provided by an expert from the BreedingValue consortium (selected according to expertise in quality assessment of the specific berry under investigation).

Preliminary time-table for panel test (according to fruit availability): *June-September 2022*.

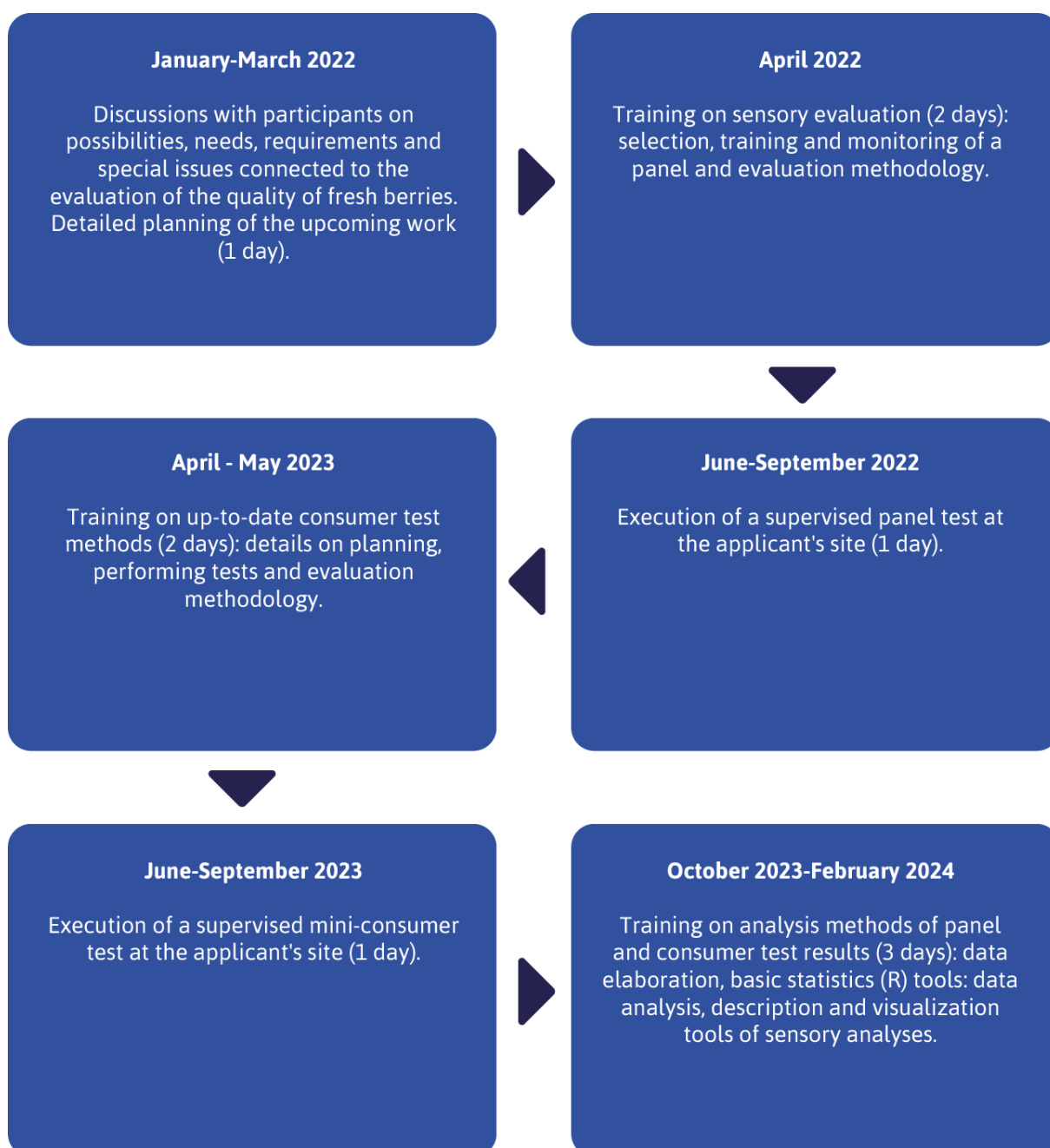
- 3) **Training on consumer testing methods (2 days):** For the PLs and company members there will be a meeting (2 days) for training and communication on familiarisation with up-to-date consumer test methods, with details on planning, performing tests and evaluation methodology. Depending on what is most practicable, the training will take place either online or at a site where a BreedingValue consumer test will be carried out (to be decided later, e.g., in Ancona, Italy). Preliminary time-table: *April-May 2023*.

Building on the skills and knowledge taught in the meeting, the PLs will then organize a consumer test in their own country (**1 day**), selecting the most adequate timing for quality evaluation, involving

a minimum of 30 consumers, to evaluate 5-8 genotypes, applying one of the proposed methods (for example Check-All-That-Apply (CATA)). To allow a valid evaluation of each genotype, the applicant should provide a number of fruits adequate to the number of consumers, plus an additional 20% to allow the selection of homogeneous samples. The PL will receive online and/or on-site by experts from the BreedingValue consortium (selected according to proximity to the consumer test site and expertise in quality of the specific berry under investigation). The obtained and collected consumer test data will be sent to the BreedingValue partner CNR-IBE for statistics, to receive a hedonic evaluation of the selected material and related preference drivers. (N.B. to protect the applicant's intellectual property the applicant is not requested to indicate actual genotypes names).

Preliminary time-table (according to fruit availability): *June-September 2023*.

- 4) Training on analysis methods of panel and consumer test results (3 days):** For 1-2 PLs per company there will be a meeting (3 days in Bologna, Italy) on data elaboration and basic statistics (R) tools: data analysis, description and visualization tools of sensory analyses. The results of the panel and consumer tests will be discussed. As an alternative, online participation will be provided. Preliminary time-table: *November 2023* (strawberry, raspberry, blueberry).



How to apply

Applications can only be made via e-mail and have to be submitted under the following address: opencalls@breedingvalue.eu

Please observe the instructions for formatting and submissions in the Guide of Applicants.

Deadline

The deadline for submissions is 31th **October 2021 at 17:00 CET**. Applications after the deadline will not be considered for evaluation.

Documents to be filled out for application

- ✓ Proposal template
- ✓ Declaration of Honour
- ✓ Data protection statement

Further information for the application is provided in the Guide for Applicants.

Contact Info

In case of questions, please consult the BreedingValue helpdesk: info@breedingvalue.eu