

AMERICAN MALTING BARLEY ASSOCIATION, INC.

QUALITY EVALUATION PROGRAM PROCEDURES

**June, 2020**

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**I. Program Objective**

- A. The purpose of the American Malting Barley Association, Inc. (AMBA), Quality Evaluation Program is to determine the suitability of new barley selections as malting barley varieties.
- B. New barley selections developed by breeders may be evaluated by AMBA in a two-stage program.
  - 1. Initial testing may be conducted in a pilot scale evaluation program.
  - 2. Pilot scale evaluations may be followed by testing in a plant scale evaluation program.
- C. New selections that are rated satisfactory in this two-stage evaluation program, as described in the following procedures, may be recommended by AMBA as malting barley varieties subject to the preference and use by individual maltsters and brewers. Completion of this two-stage program is not an absolute requirement for addition to the recommended list.

**II. Pilot Scale Evaluation Program**

A. General Procedure

- 1. A minimum of two of three crop years rated satisfactory may be required for advancement to plant scale evaluation.
- 2. Selections are evaluated in comparison to check varieties. Checks are determined by AMBA and breeders are to be notified prior to planting what these check varieties are for their growing region.
- 3. Checks are to be grown at the same site as the selections submitted for testing. Breeders within different growing regions will be asked to grow samples for AMBA evaluations in cooperative nurseries. Two sites of each selection and checks are to be submitted for testing.

B. Acceptance of a Selection into the Program - Initial Consideration

- 1. Only those selections in a breeder's program that show promise of becoming a recommended malting barley variety will be considered.
- 2. Supporting qualification data and information in a standard format (see attached example) must be submitted to AMBA for all selections that are pilot malted. AMBA may request such descriptions, as part of the initial consideration process for selections that the breeder wants considered for inclusion in their first year of evaluation.

This data and information must include the following:

- a. Agronomic data (uniform, acceptable field trials and presented in U.S. units) showing that the selection is equal to or exceeds presently grown dominant U.S. malting barley varieties in agronomic performance.
- b. Quality data (ASBC methods or acceptable equivalents applied consistently) showing that the selection is equal to or exceeds presently grown dominant U.S. malting barley varieties in quality parameters. A minimum of four station years of data is required before a selection will be considered for testing.

3. AMBA staff will submit its recommendations to the Technical Committee for final action.
4. If a selection is judged to be suitable for the program, it may be grown in one of the cooperative nurseries.

#### C. Cooperative Nurseries

1. First year selections found to be acceptable after initial consideration, and those in their second or third year of evaluation, will be grown in a regional cooperative nursery.
2. Breeders with entries in the nurseries and other volunteers will grow all the selections and checks in their region's cooperative nursery.
3. Each program will be limited to a maximum number of selections that can be submitted to AMBA for prescreening each crop year. This number may be revised by AMBA on an annual basis.

##### a. Current Limitations:

- i. Each program at an institution may be limited to a maximum number of five (5) selections plus the appropriate station check(s). AMBA may set lower quotas for some institutions.

"Institution" shall be defined as any university, college, or other institution of higher learning; any governmental agency such as, but not limited to by way of enumeration, USDA/ARS facilities operating separate programs at separate geographic locations; any corporation including, but not limited to by way of enumeration, any subsidiary or any division thereof; any partnership; and any joint venture.

- ii. The number of entries grown in a nursery may exceed the quota if a breeder is undecided on which entries to submit for testing. The cooperators growing the nursery may limit its size on an annual basis.

iii. Breeders will notify AMBA which entries are to be evaluated prior to that season's harvest.

#### D. Malting Quality Evaluation

1. At harvest, two hundred-gram samples of a subset of entries from each nursery will be sent to the USDA/ARS CCRU for initial barley quality screening. AMBA will select the two sites with the best overall barley quality for each cooperative nursery for pilot scale malting tests.
2. Selections/varieties and checks are to be shipped by the barley breeder to a location specified by AMBA. Delivery deadlines will be determined annually.
  - a. A minimum sample weight specified by AMBA must be delivered or the selection/variety will not be tested.
  - b. Minimum sample weights may be revised by AMBA on an annual basis. The minimum samples weights are dependent on the number of evaluation collaborators participating and their specific requirements.

3. Portions of the sample will be distributed by AMBA to pilot malting collaborators as unidentified coded samples.
4. Each collaborator performs prescribed evaluations on the samples and submits the data to AMBA for statistical evaluations.
5. The statistically analyzed data is compared to established AMBA barley and malt standards (see attached guidelines).
  - a. The performance of the quality standard grown at the same location as the selection is taken into consideration to account for environmental interactions.

#### E. Malting Quality Evaluation Decisions

1. Based on the results of the malting quality evaluations, each selection tested will be given one of the following ratings.
  - a. The selection is rated satisfactory for the crop year tested with a continuation of pilot scale testing or consideration of advancement to plant scale testing in subsequent crop year(s).
  - b. The selection is rated unsatisfactory for the crop year tested but is not discontinued from the program. Testing in future crop year(s) will be considered.
  - c. The selection is rated unsatisfactory for the crop year tested and is discontinued from the program. Testing in future crop years will not be considered.
2. One of the ratings in II E 1(a-c) for each selection each crop year will be adopted as follows.
  - a. The Quality Evaluation Subcommittee will recommend a rating to the Technical Committee.
  - b. The Technical Committee will act on the Subcommittee's recommendation and will recommend a rating to the Board of Directors.
  - c. The Board of Directors will adopt the final rating.
3. The breeder will be notified of the malting quality results and decisions. If the breeder disagrees with the decision, the breeder can request a review of the decision.
  - a. If a review is requested by the breeder, the breeder is to notify AMBA and may supply additional supporting information within a specified time limit.
  - b. The request will be reviewed by the Subcommittee in consultation with the AMBA staff. They will act on the review and submit their recommendation to the Technical Committee for a decision.
  - c. The Technical Committee will submit their recommendation on the review to the Board of Directors for final action.

### III. Plant Scale Evaluation Program

#### A. General Procedure

1. Selections that are rated satisfactory for a minimum of two of three crop years in the pilot scale evaluation program may be advanced to the plant scale evaluation program. Established malting barley varieties may be advanced to plant scale evaluations without pilot trials.

2. Data from uniform and acceptable field trials showing that the selection is agronomically competitive with presently grown, dominant, U.S. malting barley varieties may be required for advancement to plant scale evaluation, continuation of plant scale evaluation, and recommendation as a malting barley variety.
3. A minimum of two of three crop years rated satisfactory may be required in plant scale evaluation for recommendation as a malting barley variety.
4. Selections are evaluated in comparison with the participating brewer(s) specified variety or blend.

#### B. Barley Production

1. An AMBA member company will be designated to contract production and malt the plant scale barley.

#### C. Selections Developed by Private Sector Institutions

The American Malting Barley Association, Inc. may plant scale test private selections provided that:

1. The institution agrees that the selection will be available without restriction for commercial use.
2. The institution agrees to sell plant scale test barley in suitable quantity and quality to AMBA members for processing and evaluation at prevailing market prices and terms in effect for that particular class of barley and locale.

#### D. Malting Quality Evaluation

1. Barley of acceptable quality and quantity will be malted by an AMBA designated member using their own procedures for producing malt.
2. The AMBA member malting a selection will evaluate its processing and analytical characteristics and will report a rating to AMBA.
3. The malt produced will be distributed by the maltster to those AMBA brewing companies interested in evaluating the selection in plant scale production of beer.

#### E. Brewing Quality Evaluation

1. AMBA brewing companies interested in plant scale evaluation of a selection in the AMBA program will indicate their intent to AMBA prior to production of that selection or variety.
2. AMBA brewing members evaluating a selection will brew the selection according to their own procedures.
3. The AMBA member brewing a selection will evaluate its processing and analytical characteristics and will report a rating to AMBA.

#### F. Malting and Brewing Quality Evaluation Decisions

1. Based on the results of the malting and brewing quality evaluations, each selection tested will be given one of the following ratings.
  - a. The selection is rated satisfactory for the crop year tested with a continuation of plant scale evaluation or considered for recommendation as a malting barley variety.

- b. The selection is rated unsatisfactory or intermediate for the crop year tested but is not discontinued from the program. Testing in future crop year(s) will be considered.
  - c. The selection is rated unsatisfactory or intermediate for the crop year tested and is discontinued from the program. Testing in future crop years will not be considered.
- 2. One of the ratings in III F 1(a-c) for each selection for each crop year will be adopted as follows.
  - a. Based on malting and brewing evaluations, the Technical Committee will recommend a rating to the Board of Directors.
  - b. The Board of Directors will adopt a final rating.
- 3. The breeder will be notified of the malting/brewing quality results and decisions. If the breeder disagrees with the decision, the breeder can request a review of the decision.
  - a. If a review is requested by the breeder, the breeder is to notify AMBA in writing within a specified time limit. The breeder can also submit additional supporting information.
  - b. The request will be reviewed by the Technical Committee in consultation with AMBA staff.
  - c. The Technical Committee will submit their recommendation on the review to the Board of Directors for final action.