

IBD APPROVAL PROCEDURE & SYSTEM

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THE SYSTEM

Introduction

The IBD (Institute of Brewing and Distilling) system has a long history (over 40 years) of working with UK cereal recommended list committees to identify and **Approve** varieties that are of interest to the malting, brewing and distilling industries of England and Scotland. Originally managed by the IoB (Institute of Brewing) Barley Committee, the task migrated to the Malting Barley Committee (MBC) and the brand was later changed from IoB Approval to IBD Approval, to acknowledge the importance of distilling and reflect the IoB's revised name. IBD is effectively a brand designed to guide the UK industry, but widely recognised abroad. Responsibility for Approval decisions now rests with the MBC.

Throughout this period the system has been characterised by:
Participation covering the whole grain chain from breeder to brewer and distiller;
Participation based on members appointed by industry bodies eg MAGB, BSPB;
Willingness by competing businesses to work together in a transparent manner;
The production of decisions (Approvals) rapidly put into the public domain.

The objectives, composition and operation of the Malting Barley Committee's (MBC) three layers of Committees operating the IBD system are described below

In 2012 meetings of the Scottish Working Party (SWP) and the EWP were combined and named the MBC Working Party (WP). With effect from 2016, the brewing and distilling micro-malting data will be scrutinised by a single Micro-malting group (MMG) drawing on expertise formerly held within the English and Scottish Micro-Malting Groups.

Outline of system

The Malting Barley Committee (MBC) has a tiered system of Committees in relation to its operation of the IBD Approval system. The analytical work is carried out by the Micromalting Group (MMG): it draws on expertise for both brewing and distilling with results scrutinised separately. Sitting between the MBC and the MMG is the MBC Working Party (WP). In reaching their recommendations and decisions for Approval the WP and MBC take account not only of the technical assessment of malting quality but also wider commercial considerations such as whether the agronomic performance is sufficiently competitive and how the variety will compare with currently purchased varieties.

Samples from BSPB National List and HGCA Recommended List trials are analysed by the Micromalting Groups to produce data using the Protocols/Procedures listed in Appendix B. The decision on which varieties to test rests with breeders at NL1. At NL2 it is normally restricted to those varieties selected as candidates for Recommended List trials by HGCA. Varieties tested from RL1 are normally restricted to those entering their first year of recommendation by HGCA. The data are considered by the MBC Working Party (see Appendix B) on an individual year basis ie NL1, NL2 and RL1. The Micromalting Group's assessments and recommendations

are brought together, considered firstly by the MBC Working Party and subsequently by the Malting Barley Committee: the Malting Barley Committee is the ratifying or decision-making body. Three years of micromalting assessment lead to the decision on whether to award IBD Provisional Approval. The recommendations on data from the NL1 and NL2 are used to identify varieties meeting the HGCA criteria for candidate selection and provisional recommendation.

Breeders are expected to be aware of progress under both the HGCA and IBD systems such that commercial bulks should be available to maltsters from the harvest following first recommendation by HGCA: these bulks are expected to meet normal commercial specifications. The detailed Procedure for macroscale trials is given in Appendix B. To achieve Full Approval requires a specified number of satisfactory results in commercial maltings, breweries and/or distilleries. Approvals are dealt with separately for brewing and distilling, each requiring tonnages likely to be in excess of 1000t. For grain distilling it is impracticable to have a macroscale distillery test so decisions are based on micromalting and macroscale malting.

It is important to understand that these macroscale tests are **not** under the control of the MBC. They rely on a breeder/agent allocating sufficient seed to growers to produce the required bulks that meet normal malting specifications. In most cases the breeder/agent not only makes arrangements for growing the bulk but also identifies a maltster to carry out the macroscale malting. In most cases the maltster will identify a brewer or distiller to complete the test for that specific bulk. The MBC, WP and the Secretariat have a role **assisting** this process, checking that breeders are aware which varieties may be needed for macroscale trials, checking what bulks have been produced, that plans are in hand for the macroscale tests and receiving the reports based on the MBC forms (see Appendix D). The results from macroscale trials are evaluated by the WP and recommendations forwarded to the MBC for ratification.

Unless a new variety is assessed by the malting, brewing and distilling industries as having the potential to have a significant commercial future, then it is unlikely there will be volunteers to carry out the macroscale malting, brewing and distilling tests. These tests are expensive to conduct and there are relatively few businesses able and willing to conduct the test and complete the reporting requirements. Where a variety fails to complete macroscale testing within two years, it automatically fails to have a place on the IBD Approved List.

Communicating decisions

Communication between the MBC and HGCA's Barley and Other Crops' Committee (BOCC) is achieved as follows:

The micromalting database is held and updated by HGCA; any revisions to the colour-coding will be recorded by the HGCA staff member attending WP and MBC meetings. This includes any changes to the colour-coding of candidates; information on candidates will also be communicated by an extract from the draft minutes of the WP and MBC covering the candidates. Those who sit on both the WP/MBC and BOCC should be prepared to provide supporting explanation.

Decisions on progress within the IBD Approval system are published in a press note normally issued just prior to Cereals. The HGCA staff member attending the MBC should communicate information on those varieties exiting the IBD Approval system.

Appeals

The appeal system is against a recommendation of the Working Party: The MBC considers the appeal and has the final decision.

It provides those responsible for a variety with the opportunity to ask the MBC to give further thought to any downgrading recommendation of the WP.

A representative from BSPB's Secretariat (Jeremy Widdowson or alternate) will be invited to attend the WP meeting. Data summaries arising from the MMG will be sent to BSPB ahead of the WP meeting so breeders have an opportunity to flag up issues with the BSPB representative.

WP meeting not immediately preceding the MBC

BSPB are sent an extract of the unapproved minutes of the WP meeting. BSPB are responsible for sending information to all breeders and agents. A breeder/agent would have the opportunity to forward a single page to the MBC giving reason why the recommendation of the WP should be changed for their variety. This would be considered by the MBC, and the resulting decision regarded as final.

WP meeting immediately preceding the MBC

During the interval for lunch, or earlier if possible, the BSPB representative should inform the breeders where the WP recommendation would result in a downgrading of a variety's status in the IBD system ie:

A recommendation not to progress a variety as a result of unsatisfactory or insufficient macroscale trials;

A recommendation not to award Provisional Approval to a recent HGCA recommendation based on micromalting data, normally from three years;

Recommendation to downgrade to a red colour rating (brewing and/or distilling) for this year's candidates (based on NL2 and NL1 micromalting data);

Recommendation to award a red colour rating (B &/or D) for varieties that may become next year's candidates (based on NL1 micromalting data).

Breeders must indicate immediately if they wish to appeal and follow this up quickly with a short written case transmitted by email to the BSPB Secretariat representative.

The appeal must indicate whether the breeder is questioning a recommendation on technical grounds or seeking to challenge the WP's commercial interpretation of the results. At the subsequent MBC meeting, the BSPB Secretariat representative should register any appeals and present the brief summary of the reasoning behind the appeal.

Where a variety has been downgraded to red, it means that the WP does not consider the variety is technically of further interest to the UK malting, brewing and distilling industries; the appeal should not be based on agronomic or other considerations.

Appeals will be considered by the MBC, and the resulting decisions regarded as final.

MBC MICROMALTING GROUP (MMG) – Protocol for assessment of varieties with potential for malt and grain distilling

Objectives

1. To produce barley and micromalting data on the potential of new barley varieties with particular emphasis on use for malt and grain distilling.
2. To examine the data, correct errors and remove outliers that might damage the integrity of the database.
3. To compare the performance against chosen controls in order to make recommendations to the MBC Working Party on suitability for malt and grain distilling.
4. To revise the analytical protocol as needed and maintain a degree of uniformity across labs.

Composition

Membership is drawn primarily from representatives of those laboratories prepared to carry out the analytical work. HGCA provide data-handling and assist with co-ordination. SWRI assist with Glycosidic Nitrile (GN) identification and carry out further testing especially for grain distilling. SRUC provide samples and interact on grain distilling. See Appendix A for membership details. The Chairman is appointed by the MBC Working Party from among the technically qualified malting members.

General Description of Work

BSPB National List and HGCA Recommended List trials in Scotland provide the samples, controls to provide comparison and continuity are selected from the National List controls; occasionally an additional control is needed. Sample selection is co-ordinated by HGCA both in respect of sites and varieties. Trial site managers are instructed by HGCA in the selection of sites, varieties, sample handling and submission to the selected testing laboratory.

Testing is carried out using a Protocol (See Appendix B). The Protocol is revised when appropriate at the annual meeting and checked for uniformity across laboratories using standard samples analysed by all laboratories.

The results are handled as in the Protocol, passing via the Chairman to HGCA. Anomalies noticed at this stage are referred back to the originating laboratory. Shortly before the annual meeting (normally in April), the results are transferred electronically to all members; for each character there is a table listing the varieties tested against the individual laboratory results – the number of results depend on how many suitable sites were available. Statistical techniques are applied to identify outliers. Laboratory representatives are expected to check the integrity of their results prior to the meeting. At the meeting the results for each year and each

character are inspected with the group correcting errors where possible and assessing whether outliers should be excluded from the database. The figures are then rerun to provide the means on which decisions are taken.

The means for key characters are then examined against the controls and colour-coded – see below extract from 2012 minutes:

“Evaluation of Varieties:

Following the validation and Fitcon treatment of the data, the group rank the varieties and make comments on the performance of each variety compared to the site controls.”

The MMG needs to decide and minute which site controls are used for this evaluation.

The system for grading each variety is based on the following criteria using a colour coded scheme:

Colour Code Ranking Criteria

GREEN	Good	- overall performance better than the controls
AMBER	Possible	- overall performance equivalent to the controls
RED	Poor	- overall performance worse than controls / no benefit to the industry

Once the key characteristics have been colour-coded, the varieties are ranked, GREEN, AMBER or RED with separate rankings for malt and grain distilling.

The revised means, together with the MMG recommended colour-coding for distilling potential, and minutes form part of the Agenda at the subsequent meeting of the MBC Working Party; they are presented by the Chair of the MMG or lead person on the MMG for distilling.

The revised means form the data-set on which discussions and decisions are based. Once the revised data-set has been cleared by the Chair of the SMMG, a copy should be sent to BSPB ahead of the WP meeting.

The source data providing results from individual lab results will not be divulged; that is part of the agreement between MBC and the firms/labs doing the work. A breeder may ask HGCA or an MMG Chair to have another check on the source data.

MBC MICROMALTING GROUP (MMG) – Protocol for Assessment of varieties with potential for brewing

Objectives

The primary task of MMG meetings is to validate and make adjustments to the data prior to comparing trial results with the controls and to check that the barley analysis shows that the nitrogen specification is within a commercially acceptable range with mostly good germination characteristics, noting any exceptions. Verified and Fitcon treated, malt data is then colour coded, using the traffic light scheme: Red/Amber/Green.

Composition

The membership is drawn primarily from representatives of those laboratories prepared to carry out the analytical work to the agreed procedures. HGCA provide data-handling and assist with co-ordination. See Appendix A for membership details. The Chairman is appointed by the MBC Working Party from among the technically qualified malting members.

General Description of Work

BSPB National List and HGCA Recommended List trials in England provide the samples. Controls to provide comparison and continuity are selected from the National List controls. Sample selection is co-ordinated by HGCA both in respect of sites and varieties. Trial site managers are instructed in the selection of sites, varieties, sample handling and submission to the selected testing laboratory.

Testing is carried out using the Procedure in Appendix B. The Procedure is revised when appropriate at the MMG annual meeting and checked for uniformity across laboratories using standard samples analysed by all laboratories.

The results are handled as in the Procedure, passing via the Chairman to HGCA. Anomalies noticed at this stage are referred back to the originating laboratory. Shortly before the annual meeting (normally in April), the results are transferred electronically to all members; for each character there is a table listing the varieties tested against the individual laboratory results – the number of results depend on how many suitable sites were available. Statistical techniques are applied to identify outliers. Laboratory representatives are expected to check the integrity of their results prior to the meeting. At the meeting the results for each year and each character are inspected with the group correcting errors where possible and assessing whether outliers should be excluded from the database. The figures are then rerun to provide the means on which decisions are taken.

Performance against agreed controls is used as judgement criteria for the trials. The MMG makes judgements based solely on malting performance of the trial varieties related to these controls in a brewing context.

MMG brewing decisions are summarised and varieties ranked by descending extract. Text in the comments column of the tables is coloured to indicate good (green), marginal (amber) or poor (red) characteristics independently of the overall MMG brewing proposal for the variety.

MMG Brewing proposals for each variety are shown in the final column of each table, again using the colour code as below:

Red = recommended not to proceed
(Poor -overall performance worse than controls/no industry interest)

Amber = refer to WP
(Possible -overall performance equivalent to controls)

Green = recommended to proceed
(Good -overall performance better than controls)

N.B. NL1 data sets receive division into only amber or red categories.

The revised means, together with the MMG recommended colour-coding for brewing, and minutes form part of the Agenda at the subsequent meeting of the MBC Working Party where they are presented by the Chair of the MMG or lead person on the MMG for brewing.

THE MBC WORKING PARTY (WP)

Objectives (Evaluation of Varieties)

1. To assess the technical recommendations of the MMG in a more commercial context in order to make firm brewing and distilling recommendations to the Malting Barley Committee.
2. To track and assist the macroscale malting, distilling and brewing testing of commercial bulks as part of the IBD Approval system, interpret the results in a commercial context and make recommendations to the MBC.
3. To make recommendations to the Malting Barley Committee for revision of the distilling and brewing part of the IBD Approved List.

Composition

The MBC Working Party is made up of any interested parties involved in macroscale trials who will be invited to have representation including SWRI, BRi, SRUC and NIAB (if contracted to HGCA).

See Appendix A for current composition. Membership is primarily appointed by MAGB, SWA and BBPA with the chairmanship rotating as directed by the Malting Barley Committee. The Committee draws support from HGCA, SWRI, SRUC, BRi and NIAB. MAGB provide the Secretariat.

General Description of Work

The WP meets twice a year (May and Oct/Nov). The sample agendas given below are typical of the matters addressed by the Working Party.

At the May meeting the WP receives a report from the Chairman of the MMG providing meaned data by variety and parameter in respect of the NL1, NL2, RL1 years and any additional grain distilling means, together with the recommended colour-code rating. The recommendations are checked for consistency and account is taken of commercial considerations. In particular the WP considers whether the control or controls chosen by the MMG set an appropriate commercial threshold for further decisions; the WP may reset the threshold to reflect commercial usage and revise the colour-coding.

The results from RL1 are looked at in conjunction with the previous NL2 and NL1 years in order to decide whether candidate varieties should be recommended for IBD Provisional Approval (this is based on micromalting analysis).

The WP receives reports from the macroscale malting, brewing and distilling trials, assesses for performance, compliance and completeness before making a recommendation on progress within the IBD Approval system. The WP interprets the contents of the reports to reflect current commercial usage. Also dealt with are plans for macroscale trials from the forthcoming harvest.

THE MALTING BARLEY COMMITTEE

MBC WORKING PARTY

The next meeting of the MBC Working Party to be held at xxx, at 10.30 am on xxx October

AGENDA

1. Welcome
2. Apologies for Absence
3. Membership (attached)
4. Declarations of Interest
5. Minutes of Previous Meeting
6. Harvest Reports
 - a) NIAB Harvest Report
 - b) SRUC Harvest Report
 - c) Collation of Barley Purchases
7. Report from Crops Board Meeting
8. Micromalting Group Reports
9. Micromalting Data Handling for current Harvest
10. Review of Varieties for two years after Full Approval
11. IBD Approved List for next Harvest
12. Candidates for Micromalting Trials from next Harvest
13. Choice of Trial Plot Sites
14. Progress of Macroscale Trials from current Harvest
15. Potential Macroscale Trials next Harvest
16. Advice to Crops Board Meeting attendees
17. Date and Venue of Next Meetings
18. Any Other Business

The report from Crop Board meetings (HGCA's BOCC) provides an opportunity for HGCA to inform the WP about decisions arising from the HGCA RL Project Board Barley Committee. The micromalting and choice of trial sites items deal with plans for the forthcoming work of the Micromalting Group. There is an opportunity to assess any further macroscale results and revise the IBD Approved List. The WP checks that plans for macroscale trials are progressing and identify where further encouragement is needed. Under advice to Crop Board meeting attendees, there is a discussion on those varieties that HGCA's Barley Committee will consider for the new Recommended List so that Barley Committee attendees get the benefit of comment from across the malting, brewing and distilling industries. At this stage the Working Party considers not only the technical merits of candidate varieties but also whether they appear to have both the agronomic and quality characters to be competitive and significant in the market place and therefore worth supporting through macroscale trials.

THE MALTING BARLEY COMMITTEE

Constitution

Briefing

To administer the selection of new malting barley varieties and ensure adequate publicity.

The Malting Barley Committee is constituted of two members from each of the three funding bodies – MAGB, BBPA and SWA. A Chairman will be elected, by rotation, from these representatives to serve for three years. The Chairman of the MAGB Trade Committee holds one of the two MAGB places on the Malting Barley Committee. The Committee is supplemented by one each from AIC (Seeds), HGCA and BSPB plus Secretariat provided by MAGB.

Terms of Reference

To administer a joint industry committee for the selection of new malting barley varieties and to ensure the continued supply of good quality raw materials for malting, brewing and distilling purposes.

Funding

In proportions 2:1:1 respectively from the three trade sources – MAGB, BBPA and SWA. Some of the MAGB commitment is in-kind, including the time and expenses of staff member to head up the administration of the committee.

Issues

The committee will have the authority to show acceptance of new and existing malting barley varieties by the award of an asterisk which signifies such approval. This to be known as IBD Approval.

Publicity

- ❖ Cereals Events
- ❖ Newsletter/via HGCA
- ❖ Websites

Objectives

1. To administer a joint industry committee for the selection of new malting barley varieties and to ensure the continued supply of good quality raw materials for malting, brewing and distilling purposes.
2. To oversee the operations of the MBC Working Party and The Brewing and Distilling Micromalting Group.

General Description of Work

The Malting Barley Committee examines the recommendations of the WP, revising where needed and takes the final decisions in respect of the IBD Approval system. Responsibility for publicity rests with the MBC.

APPENDIX A COMPOSITION OF COMMITTEES

The MBC Micromalting Group – Brewing Members

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APPENDIX B PROTOCOLS AND PROCEDURES

Procedure for IBD Approval

1. Criteria for IBD Provisional Approval

- Candidates for Provisional Approval will be selected from those varieties in UK Recommended List trials with promising NL1 and NL2 micromalting results and the potential to supply a significant proportion of UK malting industry purchases.
- Provisional Approval 1 will be awarded to those varieties that demonstrate useful malting quality in micromalting tests following the first Recommended List trial harvest.
- For winter varieties only, Provisional Stage 1 Approval will be given after RL1 where the data are strong with borderline varieties being assessed a year later using additional data from the RL2 harvest. Once a decision has been made to delay consideration for Approval the variety will only be considered at its due date.
- Varieties entering the UK system via the EU Common Catalogue will be eligible for Provisional Approval once the Working Parties are satisfied that sufficient comparable data on UK grown barley is available, and that the micromalting or commercial performance demonstrates useful quality.

2. Criteria for IBD Full Approval

- Candidates for Full Approval will normally have been awarded Provisional Approval 1 based on micromalting results. To gain Full Approval, the Malting Barley Committee must have evidence of satisfactory commercial performance in the maltings/brewery/distillery. Each year a maximum of 5 varieties will be chosen for commercial scale trials, no more than 2 of which will be Winter varieties. A minimum of 1000 tonnes of barley needs to be made available per test in order for sufficient trials to be carried out to enable a variety to proceed from Provisional Approval 1 to Full Approval in a single crop year. If a variety is to be trialled for both brewing and distilling then a minimum of 2000 tonnes would be required.
- Wherever possible the barley available for testing should have nitrogen content of:
Brewing 1.55 – 1.75%
Distilling maximum 1.65%
Grain distilling minimum 1.85%
- In order to ensure a variety has the best opportunity of gaining Full Approval within the required timescale trial barley should be in store and dried by the end of September. This will then enable maltsters to complete their trials by the end of January and Brewers/Distillers to complete the trials by the beginning of May.
- Multiple trial data from individual brewers/distillers may be admissible providing each trial is performed through a different process system (i.e. mash tun, lauter tun or mash filter).

- It is preferable that a spring barley variety should be tested against another spring barley and likewise with a winter variety.
- Satisfactory micromalting results should be confirmed by a minimum number of satisfactory macro trials.

Macro Trials:

For Full Approval for Brewing Use

2 commercial malting and 2 different brewing trials (one of which must be a mash filter)

For Full Approval for Distilling Use

2 commercial malting and distilling trials

For Full Approval for Grain Distilling Use

2 high DP commercial malting trials plus 1 acceptable test report by SWRI

- A variety should normally progress to Full Approval with one year of commercial trials. Where there have been insufficient satisfactory malting, brewing or distilling trials to award Full Approval in one year of commercial trials, the Malting Barley Committee may award Provisional Approval 2 to denote that a variety has not been rejected and is still progressing through the approval process. Macro-scale data from outwith the UK can provide secondary evidence to back up the primary evidence from UK macro-scale trials.
- A variety should progress to Full Approval within two years of commercial trials. Any variety failing to gain Full Approval within two years will be removed from the List.
- The Malting Barley Committee may consider for Provisional and Full Approval varieties with special qualities providing that they demonstrate satisfactory (but not necessarily the best) malting and brewing/distilling performance in all respects.
- The Malting Barley Committee may use its absolute discretion with regard to awarding of Approval, which might under circumstances override the above criteria.

3. Criteria for Removal from the List of IBD Approved Varieties

- Varieties may be removed from the List of IBD Approved or Provisionally Approved Varieties when, at the discretion of the Malting Barley Committee, the Approved or Provisionally Approved variety no longer warrants promotion by the industry.
- Criteria from removal may include insufficient commercial scale trials, poor or outclassed performance, low purchases or lack of seed availability.

MBC Micromalting Group (MMG)- Brewing

Experimental Procedure for Barley and Malt Samples

Analytica-EBC Recommended Methods

These methods (quoted in brackets after each analysis)

1. Barley Analysis

1. Distribution to collaborators is usually in December/ January.
2. When received, a sample of each batch of barley should first be analysed for corn size distribution, using a barley grader (Glasblaserei), having slotted sieves of 2.8mm, 2.5mm and 2.2 mm.

Please record the results as:

Corns >2.8mm (%) = weight of grain retained on 2.8 mm sieve

Corns <2.5mm (%) = weight of all grain that passes through 2.5mm sieve (i.e. includes that which will also pass through 2.2 mm)

Corns <2.2mm (%) = weight of all grain that passes through 2.2mm sieve

3. The complete sample should then be dressed over the 2.2mm sieve and all barley <2.2mm discarded. A visual examination of the screened barley should also be recorded (splits, loose husk, lost embryos, mould etc). N.B. Where possible barleys should be stored at 20°C prior to malting.
4. Barley should be analysed for:
Moisture (3.2), Thousand Corn Weight (), Germinative Capacity (),
Germinative Energy and Water Sensitivity () and Total Nitrogen (3.3.2 Dumas).

N.B. All germination plate tests to be made just prior to malting and recorded as cumulative counts at 72h.

2. Micromalting

1. Steeping

The grain should be steeped to moisture content of 44 - 46%, measured 24h from casting. **A two or three steep regime should be used** to achieve this moisture and temperature may be in the range 12 - 20°C. Up to 48h is allowed for steeping. Sufficient grain should be steeped to allow full malt analysis to be carried out.

2. Germination

A nominal 96h is to be employed and no processing aids used.

Total wet processing time (i.e. steep time + germination time) is not to exceed 144h.

The normal temperature for the particular Micromalting system should be used.

Both cast moisture (24h after steeping) and kiln load moisture should be recorded.

3. Kilning

The malt should be dried to 4 - 5% moisture at a maximum temperature of 65°C.

3. Malt Analysis

Each collaborator should then carry out analysis by IOB MASH for:

- (i) HWE₇ (4.6)
- (iii) Colour (4.7.2)
- (iv) DP (4.12)
- (v) DU (4.13)
- (vi) TN (4.3.2 Dumas)
- (vii) TSN (4.9.3 Dumas)
- (viii) SNR
- (ix) FAN (4.10)
- (x) Wort viscosity (4.8)
- (xi) Fermentability **ON BOILED WORT (4.11)**
- (xii) Friability/Homogeneity (4.15)
- (xiii) Wort β -glucan (4.16.2)
- (xiv) Glassy corns

(Results should be reported on the basis of 450g mash where applicable.)

4. Expression of IOB Results

Please express malt analyses as follows:

Moisture (%)	To one decimal place
HWE ₇ (litre ^o kg ⁻¹)	DRY to nearest whole number
Colour (EBC)	To one decimal place
TSN (%)	DRY to two decimal places
TN (%)	DRY to two decimal places
SNR (%)	To nearest whole number
FAN (mg l ⁻¹)	AS IS to nearest whole number
Fermentability (%)	REAL to nearest whole number
Viscosity (mPa.s)	To two decimal places
Friability (%)	To nearest whole number
Homogeneity (%)	To nearest whole number
DP (^o IOB)	AS IS to nearest whole number
DU (-)	DRY to nearest whole number
B- Glucan (mg l ⁻¹)	AS IS to nearest whole number
Glassy corns (%)	To one decimal place

MBC Micromalting Group (MMG) - Distilling

Protocol for Barley and Micromalt Testing

Recommended List and National List Trials

Sample Reception and Barley Analysis

- All samples are identified by the AFP Number.
- On arrival 100g of sample is used to measure the percentage corns >2.8mm, <2.5mm and <2.2mm.

Corns >2.8mm (%) = weight of grain retained on 2.8 mm sieve

Corns <2.5mm (%) = weight of all grain that passes through 2.5 mm sieve
(i.e. includes that which will also pass through 2.2 mm)

Corns <2.2mm (%) = weight of all grain that passes through 2.2 mm sieve

- The sample should be screened over a 2.2mm sieve and used for barley analysis and micromalting.

Reporting of Results

- Results may be recorded directly on the electronic data sheets provided, or recorded on a paper hard copy and then typed into the electronic data sheets.
- Use a separate spreadsheet for each trial
- Record your company and barley trial (eg NL1 Spring) on each spreadsheet.
- Record all data by AFP number and in AFP numerical order with controls at the top of the list.
- Use IoB Recommended Methods of Analysis wherever possible.
- Data must be reported electronically via e-mail to the RL & Agronomy Trials Data Analyst and to Chairman of the SMMG (alan.brown@bairds-malt.co.uk)

Barley Analysis

- It will save you work if the barley analysis is carried out after HGCA have reduced the number of NL1 and NL2 entries (i.e. in November/December). A Brown & Bill Handley to distribute these lists ASAP.
- Only varieties identified as non-producers of GN will be tested by the SMMG
- Use the sample screened over 2.2mm.
- Carry out the following analyses:

Moisture

1000 Corn Weight (g)

Total Nitrogen (dry base)

% Split or damaged corns. If damage is apparent, try to assess this quantitatively.

% Skinning

Pre-germination (record this only if entries are obviously pregerminated)

- Before micromalting, carry out a Germinative Capacity Test (Peroxide) and Germinative Energy / Water sensitivity test (4ml and 8ml) on the trial and control samples.

Dormancy Testing

- Storage and dormancy monitoring will be conducted by the NIAB
- Dormancy Testing to be done only on NL barleys

- The data is to be forwarded to the Chairman of the SMMG as soon as they are complete.

Micromalting

- After taking a sub sample for barley analysis, store the remaining screened (2.2mm) sample at 20-25°C to promote dormancy recovery.
- The HGCA will issue updated lists detailing which varieties from the NL trials need micromalting.
- Just prior (ca one week) to micromalting, carry out Peroxide Germinative Capacity and 4ml and 8ml Germinative Energy tests.
- Record these germination counts on the SMMG BARLEY & MICROMALTING SPREADSHEET.
- If a sample shows persistent dormancy (< 90%) it may be micromalted but the results may be excluded from the mean figures in the data base.
- Screen barley over 2.2mm and record the sample moisture content.
- If possible steep all the trial samples in a single micromalting run. If this is not possible, ensure that micromalting conditions do not vary from run to run.
- Do not attempt to optimise micromalting conditions for each variety.
- Each variety shall receive the same steeping, germination and kilning cycles.
- Process cycles should reflect commercial practice.
- A two or three wet stand steep cycle may be used. Steep additives including Gibberellic Acid should be avoided.
- Record the “cast moisture” a suitable time after the last steep. Typical target cast moistures are:
 - distilling malt 45-46 %
 - high enzyme malt >48%
- Record steep cycle and conditions.
- Ideally varieties will be sprayed to the same moisture content after casting from steep. Record the moisture after spraying.
- Where possible ensure that all varieties keep similar moistures during germination.
- For pot still malts kiln at 60-70°C as per a lager or distilling malt. The final moisture should be 3.5 – 5.0%, target 4.0 – 4.5%.
- For high enzyme malts kiln at 50-55°C as per a grain distilling malt type. The final moisture should be 5.5 – 7.0%, target 6.0 – 6.5%.
- Record processing conditions on the SMMG MICROMALTING REPORT SHEET.
- Additional comments may be made eg grain mouldy, uneven growth etc.

Malt Analysis

- Where appropriate, use IBD Recommended Methods of Analysis.
- SMMG members are expected to take part in the MAPS proficiency scheme and are responsible for their own laboratory precision.
- Please record all data listed in the SMMG MICROMALTING REPORT SHEET.
- GN testing regime is detailed as follows:

Testing regime for Pot Still Distilling Malts:

- GN analysis is not required on the non-producers at NL1
- GN analysis is required on non-producers at NL2
- GN analysis is optional on varieties at RL
- GN analysis is not required on material from the High N grain distilling trials

APPENDIX C IBD APPROVED LIST AND 'STAIRWAY TO HEAVEN'



UPDATE TO MALTING BARLEY APPROVED LISTS HARVEST 2016

The Malting Barley Committee held its Spring 2016 meeting to discuss the progress of new varieties within the testing system. The outcome was that **Octavia** has been given Full Approval for brewing and malt distilling use, and **RGT Planet** has been given Full Approval for brewing use.

Sienna (brewing and malt distilling) and **Olympus** (grain and malt distilling) have been moved to Provisional Approval 2 pending further commercial trials.

The winter variety **Craft** (brewing) and the spring varieties **Fairing** (grain distilling), **KWS Sassy** (brewing and malt distilling) and **Laureate** (brewing and malt distilling) have been given Provisional Approval 1.

The winter varieties **Cassata** and **Pearl** have been removed from the list for brewing use.

For regional and agronomic information on malting barley varieties the current HGCA Recommended List should be consulted (www.hgca.com/varieties).

The updated IBD Approved List, incorporating the changes described above, is given below:-

INSTITUTE OF BREWING AND DISTILLING APPROVED LIST HARVEST 2017

	Winter Varieties for Brewing Use	Spring Varieties for Brewing Use	Spring Varieties for Malt Distilling Use	Spring Varieties for Grain Distilling Use
Full Approval	Flagon Talisman Venture	Concerto KWS Irina Octavia Odyssey Propino RGT Planet	Belgravia Concerto Octavia Odyssey	Belgravia
Provisional Approval 2		Sienna	Olympus Sienna	Olympus
Provisional Approval 1	Craft	KWS Sassy Laureate	KWS Sassy Laureate	Fairing

PROGRESS TO IBD FULL APPROVAL

POSITION OF VARIETIES UNDER TEST AT 3rd June 2016

F8 and F9 NL1 and NL2 YEAR 0	F10 RL1 YEAR 1	F11 RL2 Provisional Approval (1) YEAR 2	>F11 Provisional Approval (2)	>F11 Full Approval Harvest 2016
Micromalt <i>England</i> NIAB EMMG <i>Scotland</i> SMMG	Micromalt <i>England</i> NIAB EMMG <i>Scotland</i> SMMG	Macroscale Maltsters Brewers Distillers	Macroscale Maltsters Brewers Distillers	In commercial use
				Flagon w B Venture w B Talisman w B Concerto s BD Odyssey s BD Octavia s BD Propino s B KWS Irina s B RGT Planet s B Belgravia s DG
			Sienna s BD Olympus s DG	
		Craft w B KWS Sassy s BD Laureate s BD Fairing s G		
	Rubinesse w B Chanson s B Opera s BD Acorn s BD			

F8/9/10/11 = stage in seed production
 NL1/NL2/RL1/RL2 = stage in official testing
 s = spring variety
 w = winter variety

B = approved for brewing use
 D = approved for malt distilling use
 G = approved for grain distilling use

1.2 Barley Analysis	Trial	Control
Moisture, %		
Total Nitrogen, % dry		
Germinative energy (4 ml / 5ml) 24/48/72 h %		
Germinative energy (8 ml) 24/48/72 h %		
Germinative capacity % (Stain or peroxide test)		
1000 corn weight, g dry		
Grading : > 2.8 mm % 2.5-2.8 mm % 2.2-2.5 mm % < 2.2 mm %		
Any other analyses / comments :		

2. MALTING

2.1 Target Malt Type/Grade

2.2 Steeping	Trial	Control
Batch size, tonnes		
Number of batches		
Steeping schedule (total hours; 2 wet/3 wet)		
Water temperature, °C		
Water uptake (Slow/Normal/Rapid)		
Moisture content on cast, %		
Processing aids GA rate, ppm.		
Comments :		

2.3 Germination	Trial	Control
First chit (Slow/Normal/Rapid : Even/Uneven)		
Germination time, hours		
Germination temperature profile, °C		
Uniformity of growth (Good/Normal/Poor)		
Moisture content on kiln loading, %		
Comments:		

2.4 Kilning	Trial	Control
Kilning regime (Temperature/time profile)		
Comments on Malt Appearance and Yield/Out-turn.		
Other Comments :		

2.5 IOB Malt Analysis Parameter	Units	Trial	Control
Variety			
Moisture	%		
Extract (Dry, 0.7mm or specify mill setting)	L°/kg		
Extract (Dry, 0.2mm)	L°/kg		
Fine/Coarse Difference (Specify mill settings)	L°/kg		
Colour	°EBC		
Boiled Wort Colour	°EBC		
Cold Water Extract	%		
Alpha Amylase	DU		
Diastatic Power	°IOB		
Free Amino Nitrogen	% dry malt		
Soluble Nitrogen	%		
Total Nitrogen	%		

S.N.R.	%		
Friability	%		
Homogeneity	%		
Wort Viscosity	mPas		
Wort β -Glucan	mg/litre		
S-Methylmethionine	mg/kg		
Fermentability (unboiled)	%		
Predicted Spirit Yield	L/t/as is		
Glycosidic Nitrile	g/t		
Other Malt Analyses			

2.6 Comments on Overall Malting Quality and Processability

3. CONCLUSION

The trial variety produced a quality of malt which was :

* BETTER THAN / AS GOOD AS / POORER THAN the control malt.

The variety is considered to be :

* BETTER THAN / AS GOOD AS / POORER THAN the control variety.

Is there a requirement for further assessment? *Yes / No

* Delete as appropriate

If there is a requirement for further work, please state why and what needs to be done.

.....

.....

Signed Print

DateTele-mail.....

IBD NEW BARLEY VARIETY MALTING/DISTILLING TRIALS

DISTILLING TRIALS DATA

Guidelines

Please complete this form electronically and return to tracy@magb.org.uk
 If necessary fill out hardcopy and fax to Tracy Lawton, MAGB 01636 701836

- Please provide details wherever possible.
- Some details may be “commercially sensitive” – omit if necessary or replace with “conforms to profile” etc.
- It is essential that the trial and control barleys will be barleys sown in the same season; i.e. both Spring barleys or both Winter barleys (no mixed season).
- It is essential that the trial and control malts are both produced from barleys from the same harvest.
- The control batch may be the mean of several batches from the control malt variety distilled to the same target specification.
- For the test variety, please give an indication of the number of batches and total volume of spirit produced.

1. TRIAL INFORMATION

	Trial Barley	Control Barley
Distilling Company		
Distillery		
Malt Supplied by		
Variety		
Origin of Barley (Specify Area)		
Crop Year		
Malt Supplier		

2. DISTILLERY DATA

Malt analysis data provided by Maltster /Distiller (*delete as appropriate*)

2.1 IOB Malt Analysis Parameter	Units	Trial Malt	Control Malt
Variety			
Moisture	%		
Extract (dry, 0.7mm or specify mill)			

setting)	1°/kg		
Extract (dry, 0.2mm)	1° /kg		
Fine/Coarse Difference (specify mill settings)	1° /kg		
Alpha Amylase	DU		
Diastatic Power	° IOB		
Free Amino Nitrogen	% (dry malt)		
Soluble Nitrogen	%		
Total Nitrogen	%		
S.N.R.	%		
Friability	%		
Homogeneity	%		
Wort Beta-Glucan	mg/l		
Wort Viscosity	mPas		
Fermentability (unboiled)	%		
Predicted Spirit Yield	Lalc/te (as is)		
Glycosidic Nitrile	g/te		

2.2 Milling	Trial	Control
Type of mill		
Gap Size (mm)	Top	
	Middle	
	Bottom	
Conditioned (Yes/No)		
Grist Analysis (%)	Husk	
	Grits	

Flour		
Comments:		

2.3 Mashing	Trial	Control
Number of Mash		
Mash Vessel Type		
Process (eg single temperature infusion, temperature programmed, number of waters, etc)		
Washback OG		
MTE <i>(% or 1°/kg)</i> <i>(% of laboratory HWE 2 or 7)</i>		
Washback Fill Time (<i>min</i>)		
Draft Analysis (<i>% TAE</i>)*		
Sparge (draft) Losses (%)*		
Comments:		

*** these data are essential to evaluate whether all the potential HWE/SY has been recovered.**

2.4 Fermentation*	Trial	Control
Yeast Type/Rate (<i>kg/tonne</i>)		
Setting Temperature (<i>°C</i>) (all fermentations)		
Fermentation Time (<i>hours</i>) (all fermentations)		
Comments:		

**where appropriate, state whether values quoted are distillery or laboratory derived "shorts vs. longs" – define times, comment on differences*

2.5 Distillation	Trial	Control
Still heating type (eg. kettles, indirect steam)		
Wash Control/Behaviour		

(eg. sticking stills, build up of material on pans/ kettles)		
Comments		

2.6 Spirit Yield	Trial	Control
Washback Spirit Yield (l alc/tonne, dry)		
Production Spirit Yield (l alc/tonne, dry)		
Comments (If there is an unexpected difference between the two then explanation is required):		

3. SUMMARY COMMENTS AND CONCLUSION

This section is crucial in presenting a headline summary of the performance of the trial variety compared to the control variety.

- Please consider for each of the process areas, and for the overall spirit yield, whether the trial variety was POORER, AS GOOD AS, or BETTER than the control variety (*only one assessment for each parameter can be selected*).
- Enter concise comments in the appropriate boxes to substantiate your assessment for each of the key parameters.

	Processability			Spirit Yield
	Mashing	Fermentation	Distillation	
POORER than Control				
AS GOOD AS Control				
BETTER than Control				

Signed

Print

Date..... e-mail

Germinative energy (4 ml / 5ml) 24/48/72 h %		
Germinative energy (8 ml) 24/48/72 h %		
Germinative capacity % (Stain or peroxide test)		
1000 corn weight, g dry		
Grading : > 2.8 mm % 2.5-2.8 mm % 2.2-2.5 mm % < 2.2 mm %		
β-Glucan content %		
Any other analyses / comments :		

2. MALTING

2.1 Target Malt Type/Grade

2.2 Steeping	Trial	Control
Batch size, tonnes		
Number of batches		
Steeping schedule (total hours; 2 wet/3 wet)		
Water temperature, °C		
Water uptake (Slow/Normal/Rapid)		
Moisture content on cast, %		
Processing aids GA rate, ppm.		
Comments :		

2.3 Germination	Trial	Control
First chit (Slow/Normal/Rapid : Even/Uneven)		
Germination time, hours		
Germination temperature profile, °C		
Uniformity of growth (Good/Normal/Poor)		
Moisture content on kiln loading, %		
Comments:		

2.4 Kilning	Trial	Control
Kilning regime (Temperature/time profile)		
Comments on Malt Appearance and Yield/Out-turn:		
Other Comments :		

2.5 IOB Malt Analysis	Units	Trial	Control
Parameter			
Variety			
Moisture	%		
Extract (Dry, 0.7mm or specify mill setting)	L°/kg		
Extract (Dry, 0.2mm)	L°/kg		
Fine/Coarse Difference (Specify mill settings)	L°/kg		
Colour	°EBC		
Boiled Wort Colour	°EBC		
Cold Water Extract	%		
Alpha Amylase	DU		
Diastatic Power	°IOB		
Free Amino Nitrogen	% dry malt		
Soluble Nitrogen	%		
Total Nitrogen	%		
S.N.R.	%		
Friability	%		
Homogeneity	%		
Wort Viscosity	mPas		
Wort β -Glucan	mg/litre		
S-Methylmethionine	mg/kg		
Fermentability (unboiled)	%		
Predicted Spirit Yield	L/t/as is		
Glycosidic Nitrile	g/t		
Other Malt Analyses			

2.6 Comments on Overall Malting Quality and Processability

3. CONCLUSION

The trial variety produced a quality of malt which was:

* BETTER THAN / AS GOOD AS / POORER THAN the control malt.

The variety is considered to be:

* BETTER THAN / AS GOOD AS / POORER THAN the control variety.

Is there a requirement for further assessment? *Yes / No

* Delete as appropriate

If there is a requirement for further work, please state why and what needs to be done.

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Signed Print.....

DateTele-mail.....

IBD NEW BARLEY VARIETY MALTING/BREWING TRIALS

BREWING TRIALS DATA

Guidelines

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- It is essential that the trial and control malts are both produced from barleys from the same harvest.
- The control batch may be the mean of several batches from the control malt variety distilled to the same target specification.
- For the test variety, please give an indication of the number of batches and total volume of spirit produced.

1. TRIAL INFORMATION

	Trial Barley	Control Barley
Brewing Company		
Brewery		
Malt Supplied by		
Variety		
Origin of Barley (Specify Area)		
Crop Year		
Malt Supplier		
Type of Brew (Ale,lager etc.)		
Number of brews @ 100%		
Cereal Adjuncts used?		
Brewing Sugars used?		

2. BREWERY DATA

Malt analysis data provided by Maltster /Brewer (*delete as appropriate*)

2.1 IOB Malt Analysis Parameter	Units	Trial Malt	Control Malt
Variety			
Moisture	%		
Extract (dry, 0.7mm or specify mill setting)	1°/kg		
Extract (dry, 0.2mm)	1° /kg		
Fine/Coarse Difference (specify mill settings)	1° /kg		
Colour	°EBC		
Boiled Wort Colour	°EBC		
Alpha Amylase	DU		
Diastatic Power	° IOB		
Free Amino Nitrogen	% (dry malt)		
Soluble Nitrogen	%		
Total Nitrogen	%		
S.N.R.	%		
Friability	%		
Homogeneity	%		
Wort Beta-Glucan	mg/l		
Wort Viscosity	mPas		
S-Methylmethionine	mg/kg		

Please add any analyses that are considered important to the individual process of the Brewery concerned in the trial.

2.2 Milling	Trial	Control
Type of mill		
Gap Size (mm)	Top	
	Middle	
	Bottom	
Conditioned (Yes/No)		
Grist Analysis (%)	Husk	
	Grits	
	Flour	
Comments:		

2.3 Mashing and Mash Separation	<i>Trial</i>	<i>Control</i>
Mash Temperature Profile °C		
Liquor : Grist Ratio litres/kg		
β-Glucanase Additions litre/tonne		
Run-off Time (mins)		
Number of Rakes		
Clarity of Wort		
Gravity of Last Runnings		
Comments:		

Please add any observations that are considered important to the individual process of the Brewery concerned in the trial.

2.4 Boiling	Trial	Control
Boil time		
Evaporation rate		
Copper finings rate / time of addition		
Hot break description		
Cold break description		

Comments:

2.5 Whirlpool & Wort Cooling	<i>Trial</i>	<i>Control</i>
Whirlpool stand time		
Trub appearance / description		
Wort pH		
Volume collected in FV		
Gravity in FV		
Brewhouse Extract Yield %		
Comments:		

2.6 Fermentation	<i>Trial</i>	<i>Control</i>
Type of vessel		
Yeast pitching rate		
Please attach fermentation gravity / temperature profile		
Comments:		

2.7 Cask Beer Fining Performance	<i>Trial</i>	<i>Control</i>
Clarity		
Time to drop bright		
Amount of bottoms		
Comments:		

2.8 Conditioning & Filtration	<i>Trial</i>	<i>Control</i>
CT clarity		
Filtration performance		
Shelf life stability		
Comments:		

2.9 Beer Analysis	<i>Trial</i>	<i>Control</i>
Original gravity		
Present gravity		

Fermentable residue		
Alcohol content %v/v		
pH		
Colour, °EBC		
Bitterness, EBU		
Taste		

Please add any analyses that are considered important to the individual process of the Brewery concerned in the trial.

SUMMARY COMMENTS AND CONCLUSION

This section is crucial in presenting a headline summary of the performance of the trial variety compared to the control variety.

- Please consider for each of the process areas, and for the overall spirit yield, whether the trial variety was POORER, AS GOOD AS, or BETTER than the control variety (*only one assessment for each parameter can be selected*).
- Enter concise comments in the appropriate boxes to substantiate your assessment for each of the key parameters.

	Processability				
	Mashing	Boiling	Fermentation	Filtration	Cask Action
POORER than Control					
AS GOOD AS Control					
BETTER than Control					

Signed

Print

Date.....

e-mail