



## MAGB Due Diligence Programme 2021-22

### Introduction

A Due Diligence plan is a structured and risk-based approach to providing assurance that all raw materials used for malting comply with food safety regulations and are safe to use. This is carried out on behalf of the UK malting sector by the MAGB Technical Committee. The resulting programme is then used by member malting companies, in conjunction with their own in-house Due Diligence programmes, to assure the safety of their products.

### Approval of agrochemicals for use on malting barley

Agrochemicals are approved for use in the UK by the Chemicals Regulation Division (CRD) on behalf of Ministers in the UK Government. This is a rigorous process which is based on extensive risk assessment using the outcome of toxicological studies. Further details can be found here [Pesticides registration \(hse.gov.uk\)](https://www.hse.gov.uk/pesticides/registration/)

Once an agrochemical has been approved for use it is then assessed for its suitability for malting, brewing and distilling by the British Beer and Pub Association in collaboration with Campden BRI. This is a process whereby chemicals are assessed using a combination of field, desk, laboratory and pilot plant studies. Only chemicals shown to present no detrimental effects in malting, brewing and distilling will be included in the final approved list. The evaluation involves pesticide application rates double what they would be in the field and a cross check is made of the WHO database to ensure no reported detrimental effect to human health. The latest list is linked here [BBPA Agrochemicals List](#)

### Identification of hazards

MAGB determines the range of hazards to be assessed through its Due Diligence programme using a range of information:

- Chemicals approved for use in agriculture and grain storage (see section above). The list is extensive and focusses on those most likely to be found in harvested and stored grain samples. Chemicals sprayed on early in the growing season are less at risk of persisting than those sprayed just before harvest. Water soluble chemicals are less likely to persist into the malt than those insoluble in water.
- Chemicals at risk of fraudulent use (e.g. recently expired regulatory approvals, chemicals reported in RASFF alerts and other horizon scanning activities)
- Mycotoxins identified as likely to be present in grain samples and/or regulated with maximum limits
- Environmental contaminants likely to be found in grain samples (e.g. heavy metals)
- Processing contaminants identified as possible within malting samples (e.g. NDMA, acrylamide)

### Sampling

Grain is sampled by malting companies using methods that ensure representative lots and sent to a central laboratory for testing. All samples are milled, and a representative subsample taken for the analytical procedure. All methods used are documented procedures.

Samples are selected based on geography and intake tonnage processed by each maltster. This ensures that overall results are representative of the total UK malting barley harvest processed by maltsters, generally in the region of 1.9 million tonnes.

Different types of samples are taken based on the risk assessment carried out annually at a meeting of the MAGB technical Committee, and are generally as follows:

1. Barley at intake – multiresidue agrochemicals and field mycotoxins
2. Barley at pre-steep – shortlisted agrochemicals\* (those identified most prevalently in samples e.g. those sprayed late in plant development or in storage) and storage mycotoxins
3. Barley/malt pairs – shortlisted agrochemicals\*, storage mycotoxins, and processing contaminants
4. Malt culms/pellets – field and storage mycotoxins

*\*Shortlisted agrochemicals - Bifenthrin, chlorpyrifos-methyl, chlormequat, deltamethrin, diquat, glyphosate, malathion, mepiquat chloride, pirimiphos methyl*

### Analysis

Analysis is undertaken by third-party laboratories selected on the basis of their ability to deliver high quality results within the timescales required and for an economic cost. They are selected annually through a tender process and screened for the ability to deliver the project. A key criterion is that the methods of analysis must be accredited to ISO17025.

If results are reported that exceed the UK regulatory limit for a particular residue then an investigation is triggered via the MAGB. This may include additional testing, tracing the history of samples, and identification of causes. The results are communicated with all MAGB members so that lessons can be learned, and further incidences prevented.

The multiresidue screen for agrochemicals includes an extremely wide range of target analytes, including some not approved for barley but have been known to occur as cross-contaminants (e.g. chlorpropham). The list of mycotoxins is increasing as additional target compounds are added to multiresidue screens. These invariably include 'masked' forms.

### Risk assessment

An annual risk assessment is undertaken in order to modify the programme to include any emerging threats and new regulatory limits. Horizon scanning is undertaken on an ongoing basis by the MAGB, and this is considered at the annual risk assessment by the MAGB Technical Committee. The current programme of testing is shown in Table 1.

**Table 1. Due Diligence risk assessment for 2021 (includes both AHDB and MAGB testing)**

Contaminant	Freshly harvested barley	Stored barley (pre-steep)	Barley/malt pairs	Malt culms/pellets
Field pesticides	Yes. Multiresidue screen to include all BBPA list and many additional compounds	Yes. Shortlisted agrochemicals*	Yes. Shortlisted agrochemicals*	
Storage pesticides	Included in multiresidue screen	Shortlisted agrochemicals*	Shortlisted agrochemicals*	
PGRs	Chlormequat and mepiquat		Chlormequat and mepiquat	
Glyphosate	Yes	Yes	Yes	
Field mycotoxins	DON, ZON, T2/HT2, and corresponding masked forms. Ergot alkaloids.		DON, ZON, T2/HT2, and corresponding masked forms.	DON, ZON, T2/HT2, and corresponding masked forms. Aflatoxin
Storage mycotoxins	Ochratoxin A		Ochratoxin A	Ochratoxin A
Processing contaminants	Not relevant		Acrylamide (malts only)	
Heavy metals	No – has been included in previous years			
Other contaminants			Chlorate and perchlorate	