

*Donahaye, E.J., Navarro, S. and Leesch J.G. [Eds.] (2001) Proc. Int. Conf. Controlled Atmosphere and Fumigation in Stored Products, Fresno, CA. 29 Oct. - 3 Nov. 2000, Executive Printing Services, Clovis, CA, U.S.A. pp. 651-655*

## **THE AQIS STANDARD FOR QUARANTINE FUMIGATIONS WITH METHYL BROMIDE**

JUDITH DOWNEY,<sup>1</sup> G. EDDY,<sup>1</sup> H.J. BANKS<sup>2\*</sup> AND J. VAN S. GRAVER<sup>2</sup>

<sup>1</sup>*Australian Quarantine and Inspection Service, Canberra ACT 2601, Australia*

<sup>2</sup>*CSIRO Entomology, Stored Grain Research Laboratory, Canberra ACT 2601, Australia*  
[\*e-mail: [jb@ento.csiro.au](mailto:jb@ento.csiro.au)]

### **ABSTRACT**

The Australian Quarantine and Inspection Service (AQIS), an operating group within the Commonwealth Department of Agriculture, Fisheries and Forestry – Australia, has the responsibility for minimising the risk of introducing exotic pests and diseases into Australia. In doing this AQIS is mindful of the need; (a) to ensure worldwide access for imports into Australia, and exports from Australia, through international negotiations and efficient certification systems, (b) for effective inspection systems to protect Australia's agricultural production, consumers and environment.

Increasingly AQIS seeks to manage quarantine risks offshore. A pivotal aspect of that process concerns the efficacy of quarantine treatments performed overseas. To minimise the risk of introducing exotic pests and diseases into Australia, AQIS has developed a document that sets out the minimum standards that apply to disinfection treatments using the fumigant methyl bromide (MB) with guidance for undertaking fumigations to meet Australia's requirements.

It is proposed to implement an accreditation scheme that will restrict AQIS acceptance of treatment certificates to those issued by fumigators with a demonstrated capacity to perform effective fumigations.

The information in this document covers the AQIS quarantine requirements only. Whilst the document is current on the date of issue, AQIS will update this information from time to time.

### **INTRODUCTION**

The Australian Quarantine and Inspection Service (AQIS) is the Government agency responsible for exercising quarantine border controls on imports entering, and exports leaving, Australia. A fundamental AQIS activity is the screening of all imported sea and air cargo entering Australia to address the quarantine risk posed by imported commodities and the packaging associated with them. In performing this role, AQIS is mindful of the need:

- (i) to ensure worldwide access for imports into Australia, and exports from Australia, through international negotiations and efficient certification systems; and
- (ii) for effective inspection systems to protect Australia's agricultural production, consumers and environment.

Currently Australia benefits from a natural environment that is relatively free from many of the serious pests and diseases of humans, animals, and plants that are present elsewhere in the world. As the volume of imports into Australia increases, so does the pressure to provide quarantine clearance and move imported goods rapidly through the ports. Consequently, AQIS is increasingly reliant on the cooperation of Australian importers, overseas regulatory authorities, and exporting communities to ensure that Australia's quarantine status is maintained - and remains unbreached.

Quarantine breaches are a significant problem because they:

- (i) represent an increased risk of exotic pests and diseases becoming established in Australia,
- (ii) require significant allocation of Australian resources to manage such breaches, and
- (iii) indicate areas of deficiency in national quarantine border controls.

To prevent quarantine breaches AQIS adopts specific requirements based upon scientific assessment processes, for importing particular products to reduce the risk of introducing potentially hazardous pests and diseases.

For some high-risk goods (such as grains, timber, wooden articles, animal products and fresh fruit and vegetables) often the most effective way importers can meet quarantine requirements is through treatment either to meet mandatory AQIS requirements, or as a voluntary measure to reduce their business risk. Examples of treatments used for some commodities include heat treatment, kiln drying, irradiation, and fumigation. AQIS acceptance of these treatments is subject to an evaluation of the efficacy and suitability of each treatment - as a quarantine disinfestation measure on a commodity/product and target pest basis.

Currently AQIS clears approximately 1 million consignments *upon provision of fumigation certificates* annually. Thus quarantine controls are dependent, among other things, on acceptance of fumigation certificates *that meet Australian import requirements*.

An analysis of records has indicated that a significant cause of quarantine breaches between July 1997-April 2000 resulted from failed fumigation treatments, almost all of which were performed offshore/overseas.

Fumigation with MB is currently recognised by AQIS as a particularly important treatment for quarantine purposes in view of its:

- (i) proven effectiveness as a biocide across a broad spectrum of pests,
- (ii) suitability for treating a wide range of commodity types, and
- (iii) the relative ease with which it can be applied and used.

The relative ease with which MB can be used appears to be a cause for most failed fumigation treatments. The reasons for failure include; poor equipment, lack of fumigator training, need for management awareness, poor fumigation techniques, incorrect exposure periods, underdosing, poor stack preparation, and failure to monitor fumigant concentrations during the exposure period.

Additionally, it is generally assumed that the fumigation process, and its success are the sole responsibility of the fumigator. This is not always true because there are usually several parties involved in a quarantine treatment. Each of these parties has responsibilities to themselves, and to one another, to achieve a successful *treatment outcome*. Frequently fumigation failures may be the result of factors outside the fumigator's control, but within the control of other parties involved. To ensure that a fumigator can complete the treatment successfully, everyone involved should understand and act on their individual responsibilities.

### **The AQIS Standard for methyl bromide**

Increasingly AQIS seeks to address quarantine risks to Australia through offshore initiatives. A pivotal aspect of that process concerns the efficacy of quarantine treatments performed overseas to meet Australian quarantine requirements. To assist in minimising the risk of introducing exotic pests and diseases into Australia, AQIS has commenced developing a manual that outlines the minimum standards applicable for treatments that are accepted by AQIS in its quarantine protection role. This document, entitled *AQIS Quarantine Treatments – Aspects and Procedures* contains the draft of the AQIS MB Fumigation Standard, which sets out:

- (i) the minimum standards that apply to disinfection treatments using the fumigant MB, and
- (ii) a best practice guide for undertaking MB fumigations *to meet Australian quarantine requirements*.

The AQIS MB Fumigation Standard has been developed with substantial input from the Commonwealth Science and Industrial Research Organisation (CSIRO) Entomology, the Australian Cargo Industry, and Environment Australia and represents the first stage in the progressive development of the AQIS treatment manual.

The guidelines contained in the AQIS MB Fumigation Standard are based upon world's best practice recommendations and cover a range of topics including sheet and container fumigation, dosage calculation, safety precautions, fumigant distribution considerations, and methods to conduct fumigation on commodities with impervious surfaces.

The draft AQIS Quarantine Treatments – Aspects and Procedures document was submitted for consideration by World Trade Organisation member states in June 2000. At the date when this paper was presented (October 2000), a number of comments had been received by AQIS in response to this initiative and were the subject of further consultation prior to finalisation of the document by AQIS.

A draft copy of the AQIS quarantine treatment manual can be obtained from the AQIS website at: <[www.aqis.gov.au/docs/border/interimfuminate.htm](http://www.aqis.gov.au/docs/border/interimfuminate.htm)>

AQIS is aware that MB has been listed as an ozone depleting substance and that its use will eventually be restricted to quarantine and pre-shipment uses (and 'critical agricultural uses' that have yet to be determined). It is also understood that there is a real possibility that this fumigant will become increasingly difficult to obtain for quarantine purposes. Because of the wide utility of MB for Australian quarantine, it is accepted that suitable replacements for MB will be required in the near future.

In the interim, and in support of the objectives of the Montreal Protocol, AQIS aims to minimise MB use wherever possible by:

- (i) encouraging effective use of treatments with this fumigant at minimum effective application rates, and
- (ii) avoiding re-treatments.

Currently there is a lack of well-tested alternatives to match the versatility of MB for quarantine purposes. However, as new fumigants and quarantine treatment technologies become available, and are demonstrated to be effective for Australian quarantine requirements, AQIS will expand the scope of the manual to incorporate minimum standards for these treatment alternatives.

These may, for example, include development of standards and best practice guidelines for conducting treatments using phosphine, sulfuryl fluoride, and other suitable fumigants, kiln drying techniques and other heat treatments.

In preparation for (i) the introduction of potential replacements for MB, and (ii) to ensure the continued effective use of MB, it is proposed to implement a fumigation accreditation scheme for quarantine disinfestation treatments.

### **Australian Fumigation Accreditation Scheme (AFAS)**

The Australian Fumigation Accreditation Scheme (AFAS) is being developed as a measure to address the limitations of current AQIS controls on ineffective offshore fumigation treatments.

Currently, when live pests are detected in cargoes that have been certified as appropriately fumigated, the AQIS response is to suspend and/or cancel fumigation companies as recognised treatment providers. It is recognised that this system of "suspension and approval" provides limited value in addressing the quarantine risk posed by ineffective offshore treatments because it is reactive in nature and does not ensure that offshore fumigators have the opportunity or capacity to deliver effective treatments.

Under the proposed AFAS arrangements, AQIS acceptance of treatment certification (i.e. Fumigation certificates) for consignments fumigated overseas will be restricted to only those provided by fumigators who can demonstrate a capacity to perform an effective fumigation for Australian quarantine requirements.

This system represents a significant change from existing arrangements whereby treatment certificates are accepted from the majority of sources until such time as they demonstrate an inability to perform an effective fumigation whenever AQIS detects an infestation in treated consignments.

The objective is to:

- move away from an ‘unacceptable’ list approach for dealing with ineffective treatments,
- to one based upon progressive registration and auditing of overseas fumigation providers.

This will be based on AQIS sponsored training and demonstration of competence in the performance of MB fumigations, based generally on the guidelines laid out in the AQIS standard for quarantine fumigations with MB. A timetable has yet to be set, but it is envisaged that implementation will commence in ‘high risk’ regions followed by progressive adoption in lower risk regions.

#### **REFERENCE**

AQIS Quarantine Treatments – Aspects and Procedures. Available at the AQIS website:  
<[www.aqis.gov.au/docs/border/interimfuminate.htm](http://www.aqis.gov.au/docs/border/interimfuminate.htm)>