Controlled atmosphere disinfection of grain – is it time yet? (abstract only)

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Abstract
At this time, worldwide, there are few commercial applications of controlled atmospheres for storage of dry grain. Essentially, CA processes await application when the opportunity arises. Requirements (dosage rates and exposures, sealing level of structures, mechanical requirements, logistic needs) for use of either nitrogen or CO₂-based atmospheres are well established. Commercial scale proving trials have been successfully carried out on a wide variety of structures.

Principal constraints on CA use are the long exposure time required to kill some pests, cost of supply of the gases and the perception that a very high standard of gastightness is required for successful treatments. However, all of these constraints can be overcome in practice, and the benefits of use of CAs compared with chemical fumigants can be high. High pressure CO₂ has recently been adopted as a rapid disinfection treatment for some high value commodities in small lots.

Examples of current Australian commercial CA treatments of bulk grain are given, together with a discussion of the reasons why CA use is particularly appropriate in these instances-disinfection of bulk grain for an organic market with CO₂ and routine treatment of bulk export grain with nitrogen in place of methyl bromide and phosphine.

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