

## Metaldehyde ban overturned – implications for amphibians

Slugs and snails are a major agricultural pest, causing extensive damage to food crops each year (Figure 1). Metaldehyde is an organic pesticide that has been used for the control of slugs and snails for many years. It is commonly applied to agricultural fields in the form of small, blue pellets. Metaldehyde slug pellets are typically ingested or absorbed by slugs and snails where it causes acute toxicity. However, its use has been controversial since it may have negative impacts on non-target species. In December 2018, the former Secretary of State (Mr Gove) passed a ruling to withdraw all products containing metaldehyde, with immediate effect. However, Chiltern Farm Chemicals, who supply the metaldehyde slug pellets, took legal action to bring Mr Gove's decision before the High Court. This week the ban was over-ruled, stating that the impacts on non-target organisms had been overstated. Therefore, metaldehyde slug pellets will soon be back on the market. See full report at: [https://www.farminguk.com/news/metaldehyde-slug-pellet-ban-overturned\\_53580.html](https://www.farminguk.com/news/metaldehyde-slug-pellet-ban-overturned_53580.html).

**Figure 1.** Slugs can be a major agricultural pest, decimating a range of crops.



Photo credit: [https://commons.wikimedia.org/wiki/File:Arion\\_vulgaris\\_eating.jpg](https://commons.wikimedia.org/wiki/File:Arion_vulgaris_eating.jpg)

The impacts of metaldehyde on the wider environment are poorly understood. It has been demonstrated to have negative impacts on household pets such as cats and dogs and may lead to tremors, drooling, restlessness and eventually death if left untreated. The impacts on amphibians are not fully understood but it has been shown to be toxic to tadpoles at high concentrations (e.g. Attademo *et al.*, 2016). Since slug pellets are typically left on the surface of the soil amphibians are at highest risk during their terrestrial phase where they could potentially absorb chemicals through their skin (Brühl *et al.*, 2011; 2013; Fryday *et al.*, 2012). In addition, often the highest applications of pesticides coincide with high migratory activity of frogs and toads (Berger *et al.*, 2013; Lenhardt *et al.*, 2015) (Figure 2). However, the direct and potential sublethal impacts of metaldehyde slug pellets on amphibians during their terrestrial phase have not been demonstrated and further research is required to determine the long term impacts of using this chemical.

**Figure 2.** High application of agricultural chemicals often coincides with high migratory activity in amphibians.



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One potential indirect impact of slug pellets may be a decrease in availability of invertebrate prey, which frogs and toads consume. Slugs and snails form a large component of the diet in adult common frogs and toads, typically comprising 25% of the diet of a common frog (Beebee, 1985). However, amphibians are often not associated with intensive agricultural fields and forage in a wide range of habitats. Therefore, it is difficult to determine the impacts of a decline in prey species in agricultural habitats when frogs and toads typically forage in other locations. However, it is possible that this additional stress in the environment may act synergistically with other factors such as climate change, other chemical pollutants and loss of habitats, resulting in long-term population decline (Carrier & Beebee, 2003). Research into the impacts of combined stressors on amphibian populations is particularly important. At present, conservation of natural habitats, along with enhanced landscape connectivity in an increasingly urbanised and high-intensity agricultural environment appears to be one of the most effective options for helping our amphibian species.

## References

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