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Environmental release of engineered pests: Building an international governance framework

An ethical framework for releasing genetic pest and disease vectors

The development, use and governance of genetic pest management (GPM) strategies occur in complex environmental, social, political and ecological systems. Our deployment of these tools demands a sophisticated appreciation of the way in which these systems exist and interrelate. Yet historically, debates about acceptability of genetic technologies have been diminished by a tendency to either mystify ethics and ethical-decision making, or segregate ethical considerations from the more tangible science questions, effectively treating them as separate, static constructs.

Containing debates to discussions about risks and benefits without identifying: the values that underpin the formulation of these; who participates in the decision-making process and how an engagement process is managed, are examples of this practice. Previous ethical debates about the acceptability of GM crops have tended to neglect these deeper governance questions.

In discussions about the development and use of emerging technologies three themes feature repeatedly in the literature, particularly in respect of gene drives:

(1) The centrality of *evidence*. The need for a clear and justifiable rationale for pursuing a (potentially) high-risk strategy to help solve a complex problem including the extent of our knowledge to make assessments of risks associated with technology deployment;

(2) The role of *governance*. An often narrowly-defined reference to formal accountability processes, such as risk management and risk communication strategies, regulatory preparedness and oversight and;

(3) The impact of *context*. This is the institutional and political lenses used to ultimately judge the appropriateness or otherwise of technological innovations and their widespread use. How novel applications fit within existing regional and global agendas such as reaching sustainable development goals or reducing the global burden of disease are especially relevant under these criteria.

A common international framework for governing GPM technologies will need to take account of these factors and more. This paper provides an ethical framework for the release of genetic pest and disease vectors using a social justice framing. A case is made to look beyond traditional Anglo-American normative approaches to research ethics which can carry historical, institutional and organisational baggage. I offer a framework that attempts to take account of these shortcomings and presents a more inclusive and process-orientated approach to ethical decision-making.