

ACT NOW!

Cornell University has applied for a USDA permit to conduct the first **Open Air Release of a Genetically Engineered Diamondback Moth** at the Geneva, NY Experiment Station.



USDA's COMMENT PERIOD IS OPEN UNTIL THIS FRIDAY, MAY 19

YOUR COMMENTS ARE NEEDED!

Cornell University has [applied](#) for a permit to execute the world's first open-air trial of a genetically engineered diamondback moth (GDM). Diamondback moths are a potential pest to brassica plants (broccoli, cabbage, cauliflower, kale, etc.).

This new GM insect is intended to reduce pest populations of diamondback moths by engineering a new female lethality trait into male GDM — female larvae die, and males reproduce until the population is destroyed.

Those pushing this technology **have not completed any worldwide assessments of health and environmental safety**, and only cursory environmental reviews have been conducted by the USDA's Animal Plant Health Inspection Service (APHIS).

Unless and until all environmental and health impacts have been reviewed, it is reckless to release hundreds of thousands of novel organisms around the citizens and farms of New York State.

Take Action – Object to the Proposal NOW!

The deadline for the APHIS open comment period on the release proposal is Friday, May 19. Submit your comments [here](#) BEFORE May 19, 2017 and click the box, "Comment Now!"

For more information, see the complete [USDA/APHIS permit](#) and the [environmental assessment](#). Check out a [comprehensive review](#) and [article](#) by Gene Watch UK, plus NOFA-NY's [general fact sheet](#) and [farmers' fact sheet](#).

Comment Points to the USDA/APHIS:

1. Impact on Human and Environmental Health

- Human and animal health and environmental impacts of GDM are unknown.
- Impacts on non-target species exposed to the GDM larvae are unknown, including:
 - Farmworkers who may breathe or ingest dead larvae debris or live adults.
 - Vegetable consumers who may eat dead larvae remaining on the vegetable.
 - Other birds and animals that may eat the plant, larvae, or debris.

- Non-target species in the soil that may be exposed to dead GDM larvae.
- The use of a tetracycline antibiotic to breed the GDM could result in antibiotic resistant bacteria in their guts that spread into the environment and food chain.

2. Impact on Brassica Farming in New York State

- This trial could create a problem that doesn't exist today, with negative consequences to the vital brassica farming business and farm economy in NYS.
- Large releases of GDM could make it economically and agriculturally challenging to grow brassicas in NYS for both conventional and organic farmers.
- Diamondback moths are not a serious threat in New York, yet this trial could create a bigger problem. The permit allows non-GM moths to be released if there aren't enough naturally. GDM need to be released many times greater than natural numbers to overcome wild populations. Ratios of 10 to 1 and 40 to 1 GDM to wild moths have been used in caged experiments, taking repeated releases over six weeks to begin to suppress wild moth populations. The resulting damage to crops could be considerable.
- Farmers may need to use additional pesticides to protect crops against infestation. This could create a cycle of release/spray that require ever greater releases and spraying.
- Organic farms and methods of control could be overwhelmed in the face of the infestation created.
- If the release results in reductions in diamondback moth populations, other pests, including potentially more destructive ones, could move into the ecological niche created, resulting in serious ecological and agricultural problems.
- Since GDM female larvae die (presumably on the plant), farmers (conventional or organic) could experience large amounts of dead larvae on the plants, possibly resulting in market rejection of NY-grown brassicas.

3. Potential for Contamination and Other Unintended Consequences

- There are no appropriate bio-security measures in place to protect those who do not want to be exposed to GDM. Windblown moths can be dispersed hundreds of miles from where they emerge.
- When male GDM spread outside the trial site, breeding and release of large numbers could lead to a resistance to the female lethality trait. The GDM might encounter sufficient tetracycline in the environment to allow them to survive and breed.
- It is unknown how the insects might mutate and evolve as releases continue.
- Organic and other farmers who do not wish to have GDM on their crops will not be protected from the spread of GDM to their fields. No measures have been put in place to establish liability and responsibility for contamination by GDM.

Background to the plan:

The GM diamondback moth was developed by the British GMO insect developer firm Oxitec Ltd (now Intrexon) to reduce the population of the moth, which is a pest to Brassica family plants. In 2014 Oxitec received a permit from USDA/APHIS to allow the first world-wide efficacy trials in New York State by Dr Anthony Shelton, Cornell University.

The world's first GDM trials began in 2015 under netted cages at Cornell University's Geneva Experiment Station.

The 2014 permit was revoked in early 2016 (due to a USDA technical error) and the application was re-submitted in late 2016. The USDA/APHIS permit would allow for 2 years of open (non-netted) trials, releasing up to 1.44 million male GDM per year.

Diamondback moths are a serious pest to the Brassica family of plants in the southern US, UK, parts of Europe, South and Southeast Asia, Australia, New Zealand and Africa, although not particularly in New York State.

Concerns include the contamination of crops with female GM larvae, which die while feeding on the crop, and impacts of this single-species approach on other pests which could cause increases in numbers.

How is it supposed to work?

Male GDM are produced in the laboratory with fluorescence and 'female lethality' traits. The lethality trait is turned off by a tetracycline switch, so the insects can be bred to adulthood by feeding on this antibiotic. Thousands of male GDM are repeatedly released into the field and mate with wild females who produce eggs, which are laid on the brassica. Larvae develop and the GDM female larvae die. The GDM males pupate to continue the cycle and surviving GDM males—along with repeated additional releases of GDM males—suppress the numbers of wild diamondback moths. This takes six weeks or more in laboratory experiments.

In order to significantly affect the moth lifecycle, up to 100,000 male GDM will be released weekly from the lab for up to 4 months. There may also be a release of non-GE moths if there are not enough naturally existing. The release of male GDM must be in numbers an order of magnitude greater than wild moths in order for the GDM to overtake the wild ones. The release rate is unknown at this time, but numbers from 4X to 50X have been used in trials of other GM insects.