



## **Response by GM Freeze to the Defra Consultation on Action to be taken against *Diabrotica virgifera* (Western corn rootworm)**

**March 2007**

### **GM Freeze**

GM Freeze is an alliance of 55 organisations *calling for a moratorium on GM foods, the growing of GM crops for any purpose and on patents on genetic resources in agriculture, food production and forestry until the need for and safety of GM technology has been established and alternative approaches have been fully evaluated.*

Our members include consumer groups, farming organisations, environmental groups, development agencies, religious groups, animal welfare groups and food companies.

This response is submitted on behalf of GM Freeze. It covers our response to Defra's consultation on action to be taken against *Diabrotica virgifera* (Western Corn Rootworm) published in March 2007.

### **Summary**

GM Freeze welcomes Defra's efforts to eliminate the current out breaks of *Diabrotica* in SE England. We are calling for urgent research to establish the origins, timings and modes of introduction of this potentially economic pest of maize. GM Freeze supports control strategies based on good farming practices of three year rotations of maize crops plus natural pest controls. The possibility that climate change will mean more favourable conditions for *Diabrotica* in the UK in the future means that control measure need to be statutory and put in place as soon as possible. We urge Defra to extend cost benefit analysis to 2050 and to avoid short term penny pinching on control measures which are needed now. The current budget of £200,000 is considered to be too small in view of the economic implications if *Diabrotica* became a major pest in the UK and the need for excellent communications and co-operation with landowners to prevent this. GM Freeze rigorously opposes any attempt to justify the introduction of GM insect tolerant maize into the UK because of the current small outbreaks or the use of pesticides. We believe that all efforts need to concentrate on controlling these and preventing future ones by adopting good farming practices of crop rotation and effective control methods to limit further arrivals of the pest.

### **Introduction**

GM Freeze is concerned about the arrival of *Diabrotica virgifera* and welcomes the current efforts by Defra to control and eliminate this potentially serious pest of maize. There are a number of facets to this problem which need to be researched if the UK is to prevent *Diabrotica* becoming an established and economically significant pest. It is all

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the more important that the problems is dealt with swiftly and effectively if summers continue to get warmer so as to allow the pest to breed over a wide area of the England. Our comments cover what we see as the urgent research requirements and any need for new techniques as well as addressing the specific questions set out in the consultation paper.

## General Comments

GM Freeze is extremely concerned that *Diabrotica virgifera* has been found in the wild in the UK. If it became permanently established and developed as a pest of maize crops as a result of favourable climatic conditions, the costs of controlling could be huge. Our comments are based on a basic principle of pest control that prevention is better than retrospective attempts to eradicate or control of an established threat. This would require vigilance by a number of agencies around the world which would potentially include agricultural and transport ministries, airports authorities, airlines or institutions/corporations where *Diabrotica* is used in research. We would strongly oppose any move to justify the introduction of GM insect resistant maize into the UK because of the current outbreaks in the south east or the use of organo-phosphate insecticides.

To develop a practical and effective prevention strategy it is vital to understand the pest in question in the fullest detail. From the papers posted on the Defra website there appears to be more to learn about *Diabrotica's* presence in the UK not least how it arrived in this country in the first place. Any plans to further expand maize cultivation in the UK, for instance for biofuels, should be suspended until the present UK *Diabrotica* out break is ended.

## Research Needs

### Origins of the Outbreak

The consultation paper states that the cause of the outbreak from Belgrade Airport, London and Gatwick was stowaways on aircraft. There are no data showing *Diabrotica* presence on aircraft to support this statement and it is assumed because outbreaks occur around airports that airliners are the means of transport.

In the case of the UK outbreaks, there are at least two other plausible explanations for the presence of *Diabrotica* in SE England. One is that escaped from a UK laboratory(ies) licensed to use them in experiments. In fact, there are three such establishments close to the UK outbreaks – Syngenta at Jealotts Hill near Bracknell, Kew Gardens and Birkbeck College University of London (revoked 2006).

We believe that these sources need to be eliminated or confirmed before a prevention strategy can commence. It would only take a moment of carelessness or failure of biosecurity systems for such an escape to be possible. We believe that this can best be achieved by DNA profiling of the strains used in the laboratories against those found in the field in the UK.

The second plausible way for introduction(s) to have occurred is that there have been escapes during the transportation of stocks *Diabrotica* between the licensed institutions – a practice known to occur. Once again it would only take a lapse in security or a moment of carelessness for this to occur.

DNA profiling should help in confirming or eliminating this as a possible source.

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Of course, the possibility that the UK outbreaks come from several different sources cannot be ruled out.

*Diabrotica* populations are found in North America and Central Eastern Europe. If aircraft are the sources of the UK outbreak then it is important to identify which of these population centres is the origin so that preventative measures can be applied in the appropriate place(s). DNA profiling would also help in this respect.

### **How is *Diabrotica* Transported by Aircraft?**

The prevailing theory is that *Diabrotica* has been moved around the world by aircraft.

From the information provided by Defra it is not clear what type of aircraft were involved, for instance, freight, passenger /freight or passenger or where the insects were stowed away on board. Did the planes contain maize as part of their cargo or can stowaways get aboard any aircraft? Have adult *Diabrotica* been observed in the hold or within the fuselage of any aircraft at Heathrow or Gatwick?

Is the arrival of adults specific to a time of year or origin of incoming flight?  
What measures, if any, are taken by airlines to prevent insect stowaways getting on board their aircraft?

This type of information needs to be gathered in order to assess how feasible and effective on flight or pre flight trapping or other forms of destruction might be. If feasible Defra would need to co-operate with the airports authorities or agriculture departments in infested countries as well as the airlines to conduct efficacy trials for the preferred method of preventing or killing stowaways.

### **Prevention/Control methods for Aircraft**

Once it has been established which types of aircraft, from where and at what time of year transportation takes place, research into methods of on-board control or preventing insects boarding planes in the first place will be required. In view of the pan-European interest in restricting the movement of *Diabrotica* to prevent economic damage to maize crops, we suggest that Defra seeks additional funding from the EU for this research with partners in "at risk" member states. The research outlined in the previous section will help to inform this work and one of the key things to establish is whether or not *Diabrotica* movements are associated with the transportation of maize export.

There seems to be a number of different control/prevention options:

- pheromone trapping in and around departure terminals at airports.
- pheromone trapping in aircraft holds.
- quarantine plus pheromone trapping at receiving airports.
- a ban on maize imports from countries where *Diabrotica* is present as a pest.

This list is by no means exhaustive of the methods which could be applied. This is why research is urgently needed to understand the nature of the arrivals.

## Dealing with the Current Outbreaks

GM Freeze support action to prevent the current “wild” *Diabrotica* population in the UK. We believe this can be best achieved by monitoring the population closely and through cultural techniques within a *cordon sanitaire*.

Any *cordon sanitaire* must extend well beyond the maximum range of adult *Diabrotica*. This area would need to be very large if the adults can travel 500 miles in 3 to 4 days as reported in Defra’s leaflets. In the light of the available information, we would support the 40km buffer zone put forward in the consultation paper provided that it was reviewed on an annual basis following the results of monitoring both in and outside the zone. In view of *Diabrotica*’s ability to travel long distance, the option to make the whole of England, Wales and Southern Scotland an infected area should not be delayed if monitoring shows the pest is spreading.

Within the area we would support immediate implementation into the following measures:

- A ban on the use of maize in game cover. Landowners should be provided with information on alternative seed mixtures excluding maize.
- Compulsory rotation of maize silage crops and commercial sweet corn crops so that the crops are not grown more than one year in three (this would be in line with a more sustainable production systems and would go some way to reducing the chances of weed resistance developing if maize is grown every year on the same plot and to control problem weed species in silage maize crops, such as, Black Nightshade (*Solanum nigra*).
- Autumn cultivation of affected sites to allow predators and frost access to eggs. In some circumstances we would suggest stock proofing the site and introducing free range pigs to dig over the site in the winter to root out maize roots to eat and expose eggs frosts and other predators, such as *Corvid* species and starlings, before sowing a crop the following spring.

In the interest of sustainable farming systems, GM Freeze believes that the rotation of maize silage crops, as outlined above, should be a requirement of the Single Farm Payment system throughout the country.

## Budget

Given the potential for *Diabrotica* to become a major economic pest in the UK in the next 20-100 years if climate change produces favourable conditions for them to breed in and spread, we believe the budget available for research, control and prevention needs to be substantially increased. Given the commitment from the Secretary of State for the Environment, Food and Rural Affairs and the present and previous Prime Minister to tackle the affects of climate change it would be inconsistent to penny pinch on the control of *Diabrotica* at a stage when a major outbreak could be prevented.

Another reason for having an adequate budget is to ensure that maize and sweet corn growers are made aware of the risk that *Diabrotica* could become a major pest in the future and to inform them of necessary changes to the cultivation practices and rotations. We also believe that funds should be available to compensate farmers/landowner/tenants in full for any financial losses incurred as a result of an

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outbreak of *Diabrotica* in their crop. This would encourage people to report outbreaks to Defra as early as seen and to be vigilant.

## **Specific Questions in the Consultation**

### **1. Should there be a co-ordinated campaign against this pest?**

GM Freeze fully supports the establishment of a rigorous and adequately funded campaign to prevent *Diabrotica* becoming an established pest in the UK.

### **2. Should statutory measures be enforced to support such a campaign?**

GM Freeze fully supports the use of statutory measures to enforce control and reporting of *Diabrotica* outbreaks. These would include a ban on the growing of maize in game covers and compulsory three year rotation of maize crops within the infected area and *cordon sanitaire*. We would also support making the three year rotation of maize crops compulsory under the Single Farm Payment scheme which would have the dual benefit of reducing the chances of a *Diabrotica* becoming established and improving the overall sustainability of forage systems.

### **3. Do you have any comments on the proposal to require rotation within a mile and a half of international airports in major maize growing areas, so that maize is not grown more than once in two years?**

GM Freeze supports compulsory rotation of maize crops within the infected area and *cordon sanitaire*. We recommend that the rotation should be one year in three to also improve the sustainability of maize forage systems. There should be a ban on maize in game cover within the same area.

### **4. Would you support the establishment by the industry of a responsibility and cost sharing scheme to provide some compensation to growers who take measures such as rotation to reduce the risk of this pest spreading to new areas?**

It is in the national interest to prevent *Diabrotica* becoming an established maize pest. Therefore GM Freeze believes that funding and compensation payments should come from the tax payers. The only exception should be in farmers or landowners breach statutory control provisions or fail to report *Diabrotica* outbreaks. Given that the main maize growers in the UK are currently dairy farmers who are currently suffering from extremely low farm gate prices it would be inappropriate to impose any additional cost on this sector at present.

### **5. Do you have any other suggestions or comments on the options or on the preliminary regulatory impact appraisal?**

In view of the growing evidence of climate change linked to the release of greenhouse gases and the extreme difficulties in reversing changes quickly, GM Freeze believes that the regulatory impact should be extended beyond 20 years to 2050. Control measures taken now need to be compared with the cost of the losses and control measures required if *Diabrotica* became established as a pest species up to this date. In order to prevent the build up of the species control and prevention measure are needed now, rather than when climatic conditions are better for the pest, by which time measures may prove to be ineffective. This strategy would also take into account the possibility that *Diabrotica* may adapt to UK conditions over several decades and suddenly emerge as a pest from a relatively low population of highly adapted individuals. This again emphasises the need to keep on top of the outbreaks if and when they occur and the value of preventative work.

**GM Freeze June 2007**

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