



Persatuan Pengguna Pulau Pinang  
Consumers Association of Penang

檳城消費人協會 பினாங்கு பயன்பட்டாளர் சங்கம்

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Our Reference: CAP/RS/GM/J101 Alfalfa/20/Mgs  
Date: 21 December 2020  
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Director General,  
Department of Biosafety  
Ministry of Environment and Water  
Level 1, Podium 2, Wisma Sumber Asli  
No. 25, Persiaran Perdana, Presint 4,  
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Dear Sir/Madam,

**Comments on application for approval for release of genetically modified products of  
J101 Alfalfa (*Medicago sativa*) for the purpose of supply or offer to supply for  
sale/placing in the market  
NBB Reference No: JBK(S) 600-2/1/16**

Please find below comments by the Consumers' Association of Penang (CAP) on the above application submitted by Monsanto Malaysia Sdn Bhd to the National Biosafety Board (NBB).

J101 is designed to be tolerant to glyphosate-based herbicides. It was developed by using genetic engineering to introduce the *cp4 epsps* gene from the bacterial species *Agrobacterium* sp. strain CP4 into an alfalfa variety.

**GM Alfalfa may contaminate environment**

The application factsheet states that the GM alfalfa will enter Malaysia as hay, or as feed meal for animals. While the GM variety is designated for animal feed, there is the potential that viable seeds may also be imported along with alfalfa hay feed. Considering it is an open-pollinated crop, genetic contamination of the environment is a concern.

Alfalfa is not commonly cultivated in Malaysia, but some farmers cultivate it for food as microgreens; or for industrialised products as a nutritional supplement.

**Lack of risk assessment data to confirm safety**

There appears to be no publicly available risk assessments to confirm safety of J101 alfalfa for animal or human consumption. The genetic engineering process is inherently unpredictable and associated with a variety of unintended effects, with food and feed safety implications<sup>1,2,3</sup>. It is therefore vital that risk assessments are performed and published for the independent scrutiny of the public, including farmers, consumers, public interest scientists and biosafety specialists.

The factsheet reports that with regard to crude nutritional analyses, J101 alfalfa is 'comparable' to conventional varieties, though what defines 'comparable' is scientifically unclear and suggests acknowledgement of a lack of 'equivalence'.

The summary on nutritional data indeed indicates the presence of unintended effects in J101 alfalfa. In section 5 (a), the factsheet states that there were 'statistically significant differences' in levels of nutrients in comparison to conventional control varieties, though no details were given on which, or how many of the nutrients or anti-nutrients were altered in the crop. The differences are dismissed in the factsheet, which is a concern. They instead should be further investigated in order to rule out the potential for the GM process to have altered levels of nutrients, anti-nutrients, toxins or allergens in the crop that may have detrimental health impacts.

Based on the factsheet and the lack of published risk assessments, it appears that not a single toxicology study, such as animal feeding experiments, has been performed on the plant. Potential toxic effects appear to have been ruled out in the application based solely on previous tests assessing the GM protein (the EPSPS protein produced by the transgene).

No effects of the whole plant have been published for food or feed safety, and the safety claims remain entirely unproven.

### **Glyphosate herbicide associated with serious health effects**

As the GM alfalfa is genetically engineered to be resistant to glyphosate, this means that the crop will be sprayed with glyphosate, with the residues remaining and consumed by animals fed GM alfalfa. Glyphosate is widely linked to serious and lethal toxic effects including cancers and birth defects, with several national and regional bans now being implemented as a result, including Austria, Togo, Vietnam and Germany. Many smaller regional bans, or bans in private use are also coming into force.

Glyphosate toxicity has been widely documented in both independent and industry data. The World Health Organization's International Agency for Research on Cancer has concluded that glyphosate is "probably carcinogenic to humans".

Glyphosate has further been shown to cause liver and kidney disease in laboratory animals at legal levels of exposure<sup>5</sup>; induce birth defects in independent and industry studies, and has also been linked to other adverse health effects including disruption of the microbiome in mammalian guts, an important mediator of various health effects. Further links to other illnesses including autism, neurodegenerative disease and digestive illness have also been associated with glyphosate.

### **GM feed associated with toxicity to farm animals**

There is a lack of data to ensure safety, raising concerns on how J101 alfalfa may adversely impact farm animal health, with added economic implications for farmers. Multiple farmer testimonies have reported adverse effects of GM feed on their livestock, with knock-on effects resulting from increased costs of medicines as well as reduced breeding efficiency as a result of spontaneous abortions and deformities in new-born animals.


GM maize and soybean varieties have been associated with gastric and stomach problems in pigs, and changes to the uterus of female pigs<sup>6</sup>. A German farmer also suffered imprisonment and the closing of his cow farm after publicly reporting on deaths and infertility problems in his cows that were fed a GM corn variety<sup>7</sup>.

Farmers who have switched from non-GM to GM diets have also reported that it improves the health of their animals, and in turn, increased profits<sup>8,9</sup>. A Danish pig farmer whose pigs suffered from deformities and reduced fertility reported detection of glyphosate in their pigs that may be behind the malformations<sup>10</sup>. Glyphosate has also been detected in the urine of cows<sup>10</sup>, and been associated with effects on cow and chicken microbiomes, with rises in the production of microbiome derived toxins<sup>12,13</sup>.

**Based on the above concerns and issues, CAP strongly urges the National Biosafety Board not to approve J101 Alfalfa release and entry into Malaysia.**

Thank you.

Yours sincerely,



MOHIDEEN ABDUL KADER  
President  
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