

Application details:

A1139 Food derived from potato lines F10, J3, W8, X17 and Y9

Two points from this application are of particular concern;

- The modified potatoes initiate an immune response in a way that is not currently used by this plant species.
- Significant alterations have been made to amino acids; it is stated that this does affect the levels of essential amino acids but this does not ensure that the changes are safe.

The statement “not nutritionally consequential” highlights the point that this application appears to want to introduce something that impacts purely on an aesthetic level, not on any nutritional or beneficial advantage. This is an unacceptable reason to risk this introduction. The sale of potato chips has not declined as a result of acrylamide blemishes

Amino acids are the building blocks of a large proportion of cells and form the basis of protein. Protein plays a crucial role in almost all biological processes and gives cells their structure, including that of muscle tissue, brain and placenta.

Genes encode protein and protein dictates cell function.

The ability of proteins to induce an allergic response in susceptible individuals is well established. Because such allergic responses require complex interactions between the protein and the immune system, they are notoriously difficult to predict.

In regard to genetically modified plants, attention must be paid closely to newly expressed proteins and their interaction with, and adverse effect to, human (and animal) health and the environment. Newly expressed protein has the potential to cause unintended effects, effects that go beyond that of the original modification that may impact on health.

Allergenic potential is a risk; this is compounded in those individuals that have a low tolerance to the nightshade family of foods.

There is inadequate scientific data in regard to immune activation and allergic response (US department of Agriculture).

Proteins have been shown to elicit a defence response that is designed to subdue the host's defences, leading in turn to the potential for allergenic and immunosuppressant action. Complex interactions cannot be readily predicted.

Genetically modified plants have been proven to hybridize with non GM plants. An example of this is GM maize and the impacts on non-GM crops via gene flow and the disastrous effects to neighbouring growers and the wider environment.

In a review of the world's 13 most important food crops it was shown that 12 of these crops hybridized with relatives during distribution. All aspects of equipment, handling, transport and storage pose risks in the prevention of gene flow into the environment.

In addition there is significant uncertainty in regard to potential risks including the “shutting off” of undesirable characteristics; the prion that activated the emergence of BSE is an example of collateral genetic damage.

The New Zealand public, (including Iwi); are strongly opposed to GM foods. The vast majority (92%) of public submissions presented to the Royal Commission on Genetic Modification were opposed to GM applications in New Zealand.

New Zealand received \$14.5 in tourism expenditure in 2016.

Millions of dollars have been spent to build a reputation for New Zealand to be presented as wholesome and “clean”. One of the biggest issues reported by tourism operators is New Zealand’s rapidly declining reputation in regard to a safe, clean environment, “as long as visitors perceive New Zealand as a clean, safe place to travel then that's the reality for tourism”.

The Fonterra contamination incident has impacted on this perception already, it would be foolish to risk further contamination situations.

#### References:

Journal of Royal Society of Medicine.

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