

Latest GMO Research: Decreased Fertility, Immunological Alterations and Allergies

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(NaturalNews) Genetically modified organisms (GMOs) are created through an inexact science of shooting genes spliced from bacteria, viruses, insects, animals or humans with a .22 caliber pistol into the DNA of plants or animals laced with a metal such as tungsten. This unsafe science ostensibly supplants millions of years of evolution with little or no scientific justification. In fact, recent research on GMO crops have reported yields to be between 4 to 20 percent less than conventional crops [1-6].

In the 1970's when genetic engineering was pioneered, scientists believed the genome was static and genes could be altered in a uniform manner with the organism only expressing the one intended modification. As research progressed in the 1980's, scientists scrapped the idea of the static genome and moved towards a dynamic genomic belief model. This came about from the realization that by inserting a new gene into a plant, a cascade of unintended consequences arose. Scientists found that there was no possible way to introduce a new gene into an organism and only get one intended result. The genes quickly changed based on a myriad of unknown circumstances that sometimes could not be repeated in the lab even though the exact same procedures were used. The levels of instability from these newly created organisms were overwhelming, but many scientists were silenced.

Safety has always been the number one priority of consumers when it comes to GMOs; antithetically, the seed companies' only priority has been to increase profits at any expense. Therefore, it is no surprise that objective and unbiased researchers have recently added to the growing knowledge of the realities of the increased instability and unintended consequences regarding the long-term safety of GMOs. These researchers recently found clear links among the consumption of GM-corn and decreased fertility, immunological alterations in the gut and the exacerbation and creation of allergies.

Fertility in GM-Fed Mice

Scientists in Austria recently conducted the first ever long-term multi-generational feeding study of Monsanto's genetically modified (GM) corn (NK 603 x MON 810) in mice [7]. The study consisted of two groups: an experimental group, which was fed a 33% GM corn (maize) feed, and a control group, which was fed an equivalent non-GM corn feed. The mice were allowed to live a natural life and were monitored for four generations. Scientists recorded organ weight, gene expression, body mass, metabolism, life span and number of offspring of both groups of mice. The scientists found that mice fed GM corn had significantly less pups per litter than the control group on the third and fourth generation. Furthermore, pups whose parents were fed GM-feed weighed less at birth and at weaning and experienced significantly higher mortality rates than those fed non-GM corn. Lead author of the study Professor Zentek reported that there was a direct link between the decrease in fertility and the GM diet and mice fed non-GM corn reproduced more efficiently.

Gene Expression in GM-Fed Mice

Using a microarray analysis, the scientists reported that 1016 genes had been differentially expressed in the mice fed GM corn with most being up-regulated. Essentially, the GM-fed mice had hundreds of their proteins, which are encoded by genes, expressed in an increased or decreased quantity, which as a corollary altered certain biological processes in their bodies. For example, sensory perception, ion transport and the ability to breakdown proteins (proteolysis) were down-regulated or under-expressed, while the ability of the mice to regulate T-cells (a

primary immunological response especially in fighting cancer), circadian rhythm regulation and the FAS signalling pathway (which is a major pathway for cell apoptosis and is important in the elimination of cancers) were over-expressed. This study elucidates the fact that biologic damage from GMOs may not manifest until the third generation and details strong evidence for the mandatory labelling, and even more so for the mass extinction, of these highly dangerous and unnecessary foods.

Immunological Reactions in GM Fed Mice

Italian researchers at the National Institute of Nutrition in Rome, Italy, recently published a study examining the effects of a 50 percent GM-corn (maize) diet on the intestinal immune response of mice [8]. The GM-corn was known as Monsanto's transgenic MON810 and was created using an inserted foreign DNA sequence from the bacteria, *Bacillus thuringiensis* (BT) designed to protect against a fungus known as the *Fusarium* species. The study was conducted over 30 and 90-day periods respectively, with mice from two groups, weaning age (mean of 21 days) and old age (mean of 15 months). The study evaluated the peripheral and intestinal immune response to long-term GM-corn and non-GM corn consumption of each group across the two periods. The young and old mice were used because of the lack of research on these subsets as well as their potential susceptibility to immunological changes, more so than non-aged adult animals.

The results of the long-term study revealed significant changes in the immunophenotype of the gut, spleen, circulating lymphocytes and the level of serum cytokines of the mice fed GM-corn. Immunophenotyping essentially determines the expression of proteins by the cells. Any differences in the expression of proteins between the control and the experimental groups would be attributable to the GM diet. Specifically, the researchers found an increased presence of several cytokines in the GM fed mice, which are specifically involved in inflammatory and allergic responses by the body. The researchers also found an increase in the protein expression of lymphocytes (TCR $\gamma\delta$ + population). Within this population, the $\gamma\delta$ T cells reside in the gut and are associated with regulatory elements of the immune response, specific to infectious agents [9-11]. Elevated amounts $\gamma\delta$ T cells have been found in asthmatics, children suffering from food allergies, gastrointestinal symptoms and juvenile arthritis [12]. The GM-fed mice also exhibited significant alterations in the number of T and B cells, indicating a significantly abnormal immune response to the genetically altered feed. Furthermore, other researchers have found a newly expressed protein from the consumption of GM corn (50 kDa γ -zein), which is a widely known allergenic protein [13]. In conclusion, from the newly presented research it is apparent that ingesting genetically engineered BT corn not only invokes an anaphylaxis (allergenic) response within the body, it also deregulates several proteins, inhibits fertility and alters the overall immunological response by the body. Clearly, Monsanto whose sole goal is to control the world through food, has a lot of explaining to do.

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