

MINUTES

HOUSE ENVIRONMENT, ENERGY, & TECHNOLOGY COMMITTEE

DATE: Thursday, February 12, 2015
TIME: 1:30 P.M.
PLACE: Lincoln Auditorium
MEMBERS: Chairman Thompson, Vice Chairman Anderst, Representatives Raybould, Hartgen, Vander Woude, Nielsen, Anderson, Mendive, Trujillo, Beyeler, Chaney, Nate, Scott, Smith, Rusche, Jordan, Rubel
**ABSENT/
EXCUSED:** Representative(s) Hartgen, Vander Woude, Chaney
GUESTS: Becky Johnstone, ICIE; Leah Clark, Idaho Department of Agriculture; Vince Matthew, USDA, WASS Idaho Field Office; Linda Jones, Holland and Hart, LLP; Randy MacMillan, Clear Springs Food; Mitch Royer, Food Producers; Travis Jones, Idaho Grain Producers Association; Nate Fisher, Eiguren Fisher Ellis; Elli Brown, Elizabeth Criner, Vintas Advisors, LLP; Norm Samanko, Idaho Water Users Association; Doz Sanke, Ada Farm Bureau; Rich Wally, Benjamin Kelly, Idaho Food Producers; Mark Duffin, Idaho Sugarbeet Growers; Jim Lowe, Food Producers of Idaho, Abe Copeland, BSU Arbiter; Dennis Tanikuni, Idaho Farm Bureau; Pat Laubacher, Amalgamated Sugar Company

Chairman Andrus called the meeting to order at 1:34 p.m.

Dr. Joseph Kuhl Assistant Professor, College of Agriculture & Life Sciences, Department of Plant, Soil, & Entomological Sciences, University of Idaho presented What are GMO's. In 1992 Papaya Ringspot Virus (PRV) was discovered in the Puna district of the island of Hawaii that accounted for 95% of the state's papaya production. PRV is efficiently spread from plant to plant by sixty species of aphids making netting not feasible. There is no known natural resistant to the disease only some tolerance that is rapidly lost. Genetically modified resistance is provided through genetically engineered plants that contain the virus coat protein. The coat protein is used by the plant to fight against the pathogen.

Dr. Kuhl presented how DNA is unraveled in RNA and down to the proteins that create our different traits. These traits in plants can produce long stems or short stems and axial or terminal flowers depending on the trait passed down. Plant breeding is the development of new cultivated varieties. Traditional breeding is called either natural or cross hybridization and controlled hybridization or classical breeding. Plant hybridization has rapid widespread genomic changes, chromosome rearrangements, genomic expansion, differential gene expression and gene silencing also called transposable elements. Plant breeding methods include wide crosses, embryo rescue, ploidy manipulation, mutagenesis, and somatic fusion. Through the breeding methods for the desired traits they were able to produce Red Gold Potatoes.

Dr. Kuhl presented reduced expression of a specific gene in a species through silencing created plants that are genetically modified (GM). They can also be called Genetically Engineered (GE), transgenic, cisgenic, or intragenic. A GM crop plant contains a gene or genes which have been artificially inserted instead of the plant acquiring them through pollination. Defined by how a new variety is generated, not by what the variety is. Modification methods are either physical (DNA transfer) with a gene gun or biological (DNA transfer) targeted gene modification. The inserted DNA sequence may come from a related or unrelated plant, or from a completely different species. Transgenic transfers gene(s) from sexually non-compatible distant species. Cisgenic transfers gene(s) from sexually compatible related species. Intragenic is a direct modification of target genes or gene expression via regulatory RNA's for example gene silencing via short hairpin RNAs (shRNAs).

Dr. Kuhl explained only genes from closely related species are involved with traditional methods versus the ability of GM to transfer a gene(s) from a wide range organisms. Traditional methods mixes large sets of genes of mostly unknown function, as opposed to one or a few well characterized genes with genetic engineering. Major GM crops are corn and cotton. *Bacillus thuringiensis* (Bt) is a soil bacterium whose spores contain crystalline (Cry) proteins in Bt insect resistant crops. Cry breaks down in an insect gut to release a toxin called delta endotoxin which is toxic to some insects. Disease resistance like late blight resistance in potatoes is handled by Katahdin transformed with RB from *solanum bulbocastanum*. Gene silencing exploits the plant defense system with RNA Interference (RNAi). It targets specific plant gene(s) which decrease or eliminate expression of the trait.

Dr. Kuhl explained GM crops are the most extensively tested crops ever added to the food supply. GM plants must be shown to be the same as the parent crop from which it was derived. If a new protein trait has been added, the protein must be neither toxic nor allergenic. The NAS committee on the safety of genetically engineered food expressed the likelihood of unintended changes as a continuum with gene transfer more likely than all other modification techniques other than mutagenesis. There are several regulatory systems in the United States over GMs. There is a proprietary protection applications that cover genes, processes that isolate genes, processes of genetic modification and seeds or lines generated or Plant Variety Protection. For example golden rice has seventy patents belonging to thirty-two patent holders.

In response to questions, **Dr. Kuhl** explained there is no need to label GM's in stores they are all monitored in a case by case basis and the process itself shows they are safe to consume. They did check the Cry in animal systems and no specific problems were found. Unintentional changes can occur and the nutritional value is checked and must be equivocal. There is a wide range of research programs to better understand resistance and gain long term to help the economy. It may possibly three to five years until potato resistance in achieved.

ADJOURN:

There being no further business to come before the committee, the meeting adjourned at 2:48 p.m.

Representative Thompson
Chair

Heidi McKay
Secretary