Have you taken your Vitamin E today?

Eric J. Shaw* and Istvan Rajcan*

Soybeans for improved human health
- Soybean is the largest protein and oilseed crop grown in the world and the principal source of vitamin E as a supplement. Vitamin E can reduce the risk of lung cancer, osteoporosis and heart disease.
- The goal of this research was to improve vitamin E levels in soybean by identifying the genetic and biochemical components that effect the trait.

How do you improve vitamin E?
- Two years (2009-2010) of field trials in three locations with 90 soybean lines were tested for vitamin E content. Growth room tests were also conducted.
- Three fertilizer, temperature and drought levels were implemented to find out what levels improve vitamin E the most in soybean.
- DNA markers that tag regions in the genome were used to correlate the regions with the trait.
- The DNA was sequenced to see if any difference exist among the lines.

Did vitamin E improve in soybean?
- It was found that higher phosphate levels from fertilizer significantly improved vitamin E content.
- Several DNA markers were identified which correlate with the trait.
- Differences in the DNA were found which may explain the vitamin E variability among the 90 soybean lines.
- Plant breeders may use the genetic information generated in this study to develop improved vitamin E soybean varieties.

Natural vitamin E can improve human health
- From this research, new soybean varieties with high vitamin E can be developed for the nutraceutical industry for natural vitamin use, which may provide a premium for producers.
- Public health can be improved by consuming natural vitamin E through soybeans which can decrease lung cancer risk, heart disease and many other health related problems.

To know more
Eric J. Shaw
(519) 824-4120 ext. 52414
shawe@uoguelph.ca

This research was supported by the OMAFRA-U of G Partnership and the Grain Farmers of Ontario

*Department of Plant Agriculture, University of Guelph, Guelph, Ontario, Canada, N1G 2W1