

# **Genetic Control of Water Uptake in Food-Type Soybean. (C01-cober145047-Poster)**

## **Authors:**

- E.R.Cober - *AAFC-ECORC, Ottawa, ON*
- J.Fregeau-Reid - *AAFC-ECORC, Ottawa, ON*

## **Abstract:**

Soaking soybean (*Glycine max* (L.) Merr.) seed is the first step in the production of natto and other soyfoods. The amount of water absorbed following a defined soaking period has been studied in natto soybean but there are no reports of studies of the rate or rapidity of water uptake. This study was conducted to examine water uptake parameters from multiple location tests and to examine a recombinant inbred line population generated from diverse parents. Ten natto lines were grown in 17 environments from 1999 to 2001. Water uptake observations were taken at 0, 1, 3, 6, and 24.5 h using seed from individual plots. The exponential rise to a maximum equation,  $Y = a(1 - \exp(-bX))$ , was fitted for each plot. The parameters  $a$  and  $b$  and the derived parameter  $a16$  (predicted water absorption at 16 h) were then used in an analysis of variance. Genotype, location, genotype x year and genotype x location x year effects were significant for these parameters. Year and genotype x location effects were not significant. Genotype values for  $a16$  ranged from 1.41 to 1.28 g g<sup>-1</sup> and values for  $b$  ranged from 0.0057 to 0.0028 min<sup>-1</sup>. A RIL population from the cross AC Colibri x OT91-3 exhibited transgressive segregation for both low and slow water uptake. Seed size was not associated with either water uptake parameter. The exponential model fit the data well. The two parameters are independent when examined at 24.5 h. It seems possible to select for both rapid and high final water uptake in natto soybean.

## **Corresponding Author Information:**

Elroy Cober

Agriculture and Agri-Food Canada

Bldg. 110, Central Exp. Farm

Ottawa, ON K1A 0C6

Canada

phone: 613-759-1610

fax: 613-759-6597

e-mail: coberer@em.agr.ca

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