

On behalf of NGICA we are pleased to share the following exciting news with you:

**Cowpea has now been transformed with the *ABO* drought-tolerance gene AND with SOS salt-tolerance genes.**

This breakthrough was accomplished by Purdue University Distinguished Professor Ray Bressan and his associates in China. Commercial interests that Prof. Bressan helps direct collaborated with associates in Chinese plant transformation laboratories to produce the plants. A drought-tolerant cowpea may protect yields, particularly in years when rainfall is below normal, and extend the area under cowpea cultivation into lower rainfall areas. A salt tolerant cowpeas may likewise expand the area where cowpea can be grown. This news is particularly exciting given predictions for continued and increased drought conditions in the cowpea-growing regions of Africa. Systematic testing of the performance of the *ABO*- and SOS-modified cowpeas under drought and salinity conditions and development of an optimized drought and/or salt-tolerant cowpea remain to be undertaken.

Professor Bressan's association with genetic transformation of cowpea traces back to 1989, when Larry Murdock orchestrated a collaboration involving Purdue University, a consortium of Italian scientists, and the International Institute of Tropical Agriculture (IITA). This was the beginning of a still-continuing effort to bring the tools of biotechnology to bear on cowpea improvement for Africa.

The intellectual property for use of *ABO* outside of China resides in Prof. Bressan's companies. **Professor Bressan affirms that the *ABO* and SOS cowpeas will be sublicensed to NGICA (incorporation pending), under the terms of a non-exclusive license for use in the African geography.** Accordingly, *NGICA* will seek partners, commercial or otherwise, to develop this and other traits for the benefit of African cowpea growers and consumers.

**In addition to the *ABO* and *SOS* genes, Prof. Bressan's companies will non-exclusively sublicense to NGICA the *LOS5* gene for use with cowpea in Africa.**

Additional genes for drought and salt-tolerance are expected to become available via NGICA in due course.

Larry Murdock, Co-Chair NGICA

#### References

##### **ABO gene:**

Chen Z., Zhang H., Jablonowski D., Zhou Z., Ren X, Hong X., Schaffrath R., Zhu J.-K., and Gong Z. (2006) Mutations in *ABO1/ELO2*, a subunit of holo-elongator, increase abscisic acid sensitivity and drought tolerance in *Arabidopsis thaliana*. *Mol. Cellular Biol.* 26: 6902-6912.

##### **SOS gene:**

Shi HZ, Quintero FJ, Pardo, JM, Zhu JK (2002) The putative plasma membrane  $\text{Na}^+/\text{H}^+$  antiporter *SOS1* controls long-distance  $\text{Na}^+$  transport in plants. *Plant Cell* 14:465-477

##### **LOS5 gene**

Xiong LM, Ishitani M, Lee H, Zhu JK (2001) The *Arabidopsis* *LOS5/ABA3* locus encodes a molybdenum cofactor sulfurase and modulates cold stress- and osmotic stress-responsive gene expression. *Plant Cell* 13: 2063-2083