



# NEWS

Volume 1, No. 4, October 10, 2004 Idah Sithole-Niang & Larry Murdock, editors

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This newsletter is our informal way of keeping you up-to-date on developments relevant to our Network for the Genetic Improvement of Cowpea for Africa (NGICA). We'll include news, announcements about people, meetings, publications, achievements, and other useful information. We'll try to keep it short, because all of us are awash in a sea of information, but, on the other hand, there are a lot of us and many interesting things are going on! If you have something to share, please send it to us and we'll pass it along in the next newsletter.



This is to share with all who have invested their time and energy in the sustained effort to find better or new ways to introduce genetic improvements into cowpea. Below is news from T.J. Higgins and his colleagues that is heartening indeed:

Dear Colleagues,

Many people, over many years have devoted a lot of inspiration and effort to transforming cowpeas. The results have been mixed and most putative transgenics turned out to have untransformed germline cells which resulted in no transmission to the T<sub>1</sub> generation.

We have adapted a system for transformation of cowpea cotyledonary nodes using *Agrobacterium tumefaciens*. Over a dozen primary transgenics are flowering and seed from the first couple of plants have been shown to contain and express the GUS transgene. Thus this system looks promising for the production of transgenic cowpeas that transmit the transgenes in a mendelian manner.

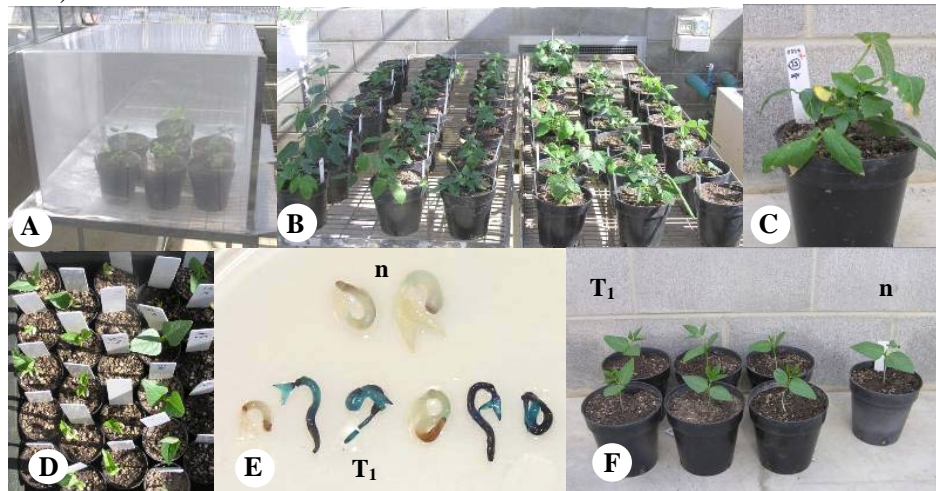
The figure shows Gus-reporter gene expression in T<sub>1</sub>-progeny of the first transgenic plant. Further characterization will include Southern analysis and segregation of reporter

and selectable marker genes. A manuscript containing the detailed experimental protocol and complete results is in preparation. If you would like a copy of the transformation protocol in advance of publication we are happy to send it to you.

We hope to start transformation experiments with *Bt* genes in the very near future. When we obtain access to such useful genes then the potential of transgenic cowpeas can be tested. If all goes to plan we predict that new cowpeas will have an enormously positive impact on sub-Saharan farmers and their families.

We gratefully acknowledge funding from The Rockefeller Foundation and NGICA for guidance and encouragement.

**TJ Higgins** (on behalf of **Carlos Popelka** and **Stephanie Gollasch**)



**Figure: Transgenic cowpeas transmit transgene to sexual progeny.**

- A:** High moisture chamber for hardening off of putative transgenic T0 cowpea plants following transfer from tissue culture room to greenhouse conditions.
- B:** Putative transgenic cowpea plants (T0) in greenhouse are normal in phenotype and several are already flowering and producing seed.
- C:** Cowpea transformation event 33 (T0 plant) carrying the Gus reporter gene and the selectable marker gene bar.
- D:** T1 progeny of a transgenic cowpea plant.
- E:** T1 seedlings of transformation event 33 segregate (4 positives to 2 nulls) for Gus reporter gene activity. (n = non-transgenic seedlings)
- F:** T1 seedlings of transformation event 33 appear normal in phenotype when compared to a non-transgenic seedling.