

A MONTHLY PUBLICATION OF THE TROPICAL LEGUMES II PROJECT



About the Bulletin

The Bulletin of Tropical Legumes is a monthly publication of the Tropical Legumes II (TL II) project, funded by the Bill and Melinda Gates Foundation, and jointly implemented by the International Crops Research Institute in the Semi-Arid Tropics (ICRISAT), the International Center for Tropical Agriculture (CIAT) and the International Institute of Tropical Agriculture (IITA) in close collaboration with partners in the National Agricultural Research Systems of target countries in Sub-Saharan Africa and in India. TL II aims to improve the livelihoods of smallholder farmers in drought-prone areas of the two regions through enhanced grain legumes production and productivity.

TL II Catalyzes Release of 40 Improved Varieties

Scientists working with the Tropical Legumes II (TL II) Project, funded by the Bill & Melinda Gates Foundation, have released 40 new varieties of five crops across target countries during the first phase (September 2007 - February 2011) of the project, as presented in Table 1. Cowpea and groundnut, with 11 varieties each, led the pack of crops, followed by soybean (8 varieties), chickpea (7 varieties), and pigeonpea (2 varieties and 1 hybrid). Tanzania got the highest number of varieties (9), followed by Niger (8), Nigeria (8), India (5), Mali (4), Malawi (3), Kenya (2), and Ethiopia (1).

The newly released varieties possess one or more of the following major desirable traits:

- Earliness (drought escape): Cowpea, groundnut;
- Resistance to *Ascochyta* blight and *Fusarium* wilt: Chickpea and pigeonpea;
- Resistance to aflatoxin: groundnut (J 11);
- Resistance to rosette disease: groundnut;
- Resistance to rust: soybean;
- Resistance to the parasitic weed *Striga* *gesnerioides*: cowpea;
- Resistance to lodging and tolerance to low phosphorus: soybean;
- Dual (grain and fodder) purpose use: Cowpea and soybean;
- Farmer and market preferences (such as large, bold seed and white seed coat): Pigeonpea; and
- High yield: All crops.

Table 1: Tropical legume varieties released under TL II during its first phase (Sept 2007 – Feb 2011)

Variety code (local name)	Year	Country	Recommended locations	On-farm yield (kg/ha)
Chickpea				
BGD 103 ⁵	2008	India	Karnataka State	1800 (13) ¹
ICCV 03107 (Minjar) ²⁵	2010	Ethiopia	Minjar areas	1700 (43)
MNK-1 [^]	2010	India	South India (Karnataka, Andhra Pradesh, Tamil Nadu, Orissa states)	1600 (15)
ICCV 00108 (Mwanza 1) ⁵	2011	Tanzania	Lake & northern zones	1432 (43)
ICCV 97105 (Ukiriguru 1) ⁵	2011	Tanzania	Lake & northern zones	1456 (46)
ICCV 00305 (Mwanza 2) [^]	2011	Tanzania	Lake & northern zones	1536 (54)
ICCV 92318 (Mwangaza) [^]	2011	Tanzania	Lake & northern zones	1192 (19)
Cowpea				
IT97K-499-35 (SAMPEA-10)	2008	Nigeria	Northern guinea/Sudan savanna region	835 (60)
IT89KD-288 (SAMPEA-11)	2009	Nigeria	Northern guinea/Sudan savanna region	800 (56)
IT89KD-391 (SAMPEA-12)	2009	Nigeria	Savanna region	900 (71)
CZ1-94-23-1 (Gana Shoba)	2009	Mali	Sahelian Zone (Mopti and Ségou)	1500 (65)
CZ11-94-5C (Cinzana Tilimani)	2009	Mali	Sahelian Zone (Mopti and Ségou)	1000 (60)
IT97K-499-35 (IT)	2009	Niger	Maradi and Zinder	800 (300)
IT97K-499-36 (IT)	2009	Niger	Maradi and Zinder	700 (200)
IT98K-205-8 (IT)	2009	Niger	Maradi, Zinder and Dosso	800 (300)
IT97K-499-35 (Jiguiya)	2010	Mali	Sahelian Zone (Mopti and Ségou)	1000 (70)
IT93K-876-330 (Fakson)	2010	Mali	Sahelian Zone (Mopti and Ségou)	1500 (80)
IT98K-573-11 (IT)	2010	Niger	Maradi	500 (100)
Groundnut				
ICGV-SM- 01711 (Nachningwea 09) ^B	2009	Tanzania	Southern highlands, Southern and parts of Lake Zone	1800 (88)
ICGV-SM-01721 (Masasi 09) ^B	2009	Tanzania	Southern highlands, Southern and parts of Lake Zone	1500 (56)
ICGV-SM-83708 (Mnanje 09) ^B	2009	Tanzania	Southern highlands, Southern and parts of Lake Zone	1600 (78)
ICGV-SM-99555 (Managaka 09) ^ψ	2009	Tanzania	Central, Western, Lake Zones and parts of Southern Zone	1400 (55)
ICGV-SM-99557 (Naliendele 09) ^ψ	2009	Tanzania	Central, Western, Lake Zones and parts of Southern Zone	1400 (55)
ICG 9346 ^ψ	2010	Niger	Dosso Department	956 (52)
RRB ^ψ	2010	Niger	Dosso Department	720 (36)
Fleur 11 ^ψ	2010	Niger	Dosso Department	694 (33)
J11 ^ψ	2010	Niger	Dosso Department	1453 (68)
ICGV 91114 ^ψ	2009	India	Karnataka	1500 (46)
ICGV 87846 ^B	2010	India	Namakkal (Tamil Nadu)	1600 (85)
Pigeonpea				
ICPH 2671 (Pushkal) ^x	2008	India	Widely adapted	2500 (27)
ICEAP 00557 (Mwaiwathu Alimi)	2009	Malawi	All regions	1192 (28)
ICEAP 01514/15	2011	Malawi	Central & Northern	1430 (59)
Soybean				
TGx 1835-10E [*]	2008	Nigeria	Southern Guinea Savanna (rust prone areas)	834 (25)
TGx 1835-10E [*]	2008	Nigeria	Southern Guinea Savanna (rust prone areas)	834 (25)
TGx 1904-6F	2009	Nigeria	Northern Nigeria	3034 (24)
TGx 1987-10F [*]	2010	Nigeria	Savanna regions	1626 (9)
TGx 1987-62F (DPSB19) [*]	2010	Nigeria	Savanna regions	1567 (5)
TGx 1740-2F (DPSB8)	2010	Kenya	Western Kenya	1100 (7)
TGx 1895-33F (Tikolore)	2010	Kenya	Western Kenya	1500 (8)
TGx 1740-2F	2011	Malawi	Central Malawi	2248 (38)

*Rust resistant varieties

1 Values in parentheses indicate percent yield advantage over the check

2 ⁵ and [^] represent desi and kabuli types of chickpea, respectively; ^Band ^ψ represent Virginia and Spanish types of groundnut, respectively; ^x=hybrid

The grain yield advantage over the current improved or local check varied from crop to crop (Fig. 1) and country to country. The average yield advantage for cowpea, groundnut, pigeonpea, chickpea and soybean was approximately 124%, 59%, 38%, 33%, and 18%, respectively. The largest yield advantage for cowpea was observed in Niger, mainly because yields of the existing varieties are already very low. It should also be noted that the yield barrier of less than 1 metric ton per ha that has existed in Sub-Saharan Africa and South Asia is being broken for many of the tropical legume varieties released here. For example, average yields of the newly released varieties of chickpea, cowpea, groundnut, pigeonpea and soybean are approximately 1531 kg/ha, 940 kg/ha, 1329 kg/ha, 1707 kg/ha, and 1701 kg/ha, respectively. This is a substantial increase over the base year data for 2005-07 averages of 812 kg/ha, 441 kg/ha, 1065 kg/ha, 785 kg/ha, and 1060 kg/ha,

respectively. Some of the varieties have been released to address stresses for specific locations whereas a few are very widely adapted to several agro-ecological zones of a country or across a region. For example, the soybean variety TGx 1740-2F has been released both in Kenya and Malawi and shows great promise for Mozambique; other examples of wider adaptation within countries include the *kabuli* type chickpea variety MNK-1 for southern India (Karnataka, Andhra Pradesh, Tamil Nadu and Orissa states); the groundnut variety ICGV-SM-99557 for Central, Western, Lake zones and parts of Southern Zone of Tanzania; the pigeonpea hybrid ICPH 2671 widely adapted in India; and the variety ICPH 00557 pigeonpea for all regions of Malawi.

Several milestones have been reached for variety releases in many countries. For example, this is the first release of soybean varieties

for Malawi since 1993; Tanzania has not released groundnut since 1998; and the groundnut variety ICGV 87846 (named CO 6, locally) is a replacement for the “ruling variety” TMV1 for Namakkal district of Tamil Nadu, India. The groundnut variety J11 has been released in Niger for its resistance to aflatoxin and is expected to replace the variety “55-437” that has been in use for more than four decades; the latter is resistant to drought but susceptible to aflatoxin. Furthermore, the chickpea and pigeonpea varieties/hybrid released in India are expected to replace the respective ruling varieties of Annigeri and Asha.

Variety release is usually a long and slow process but fast tracking of available knowledge, the use of a participatory variety selection approach with smallholder farmers, and effective partnerships among the International Research Centers and National Agricultural Research Systems have helped to achieve this rapid release of large numbers of varieties in such a relatively short period of time. TL II’s effort does not end with variety release; rather, the project strives to develop effective seed production and delivery system and a strong monitoring and evaluation mechanism.

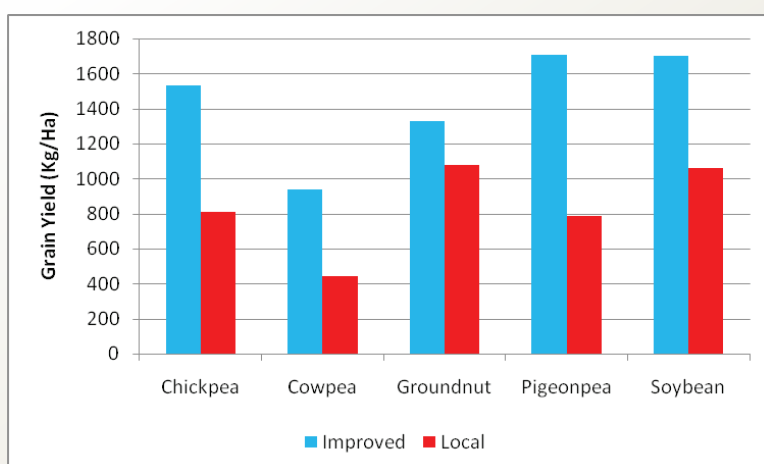


Figure 1: Average yields of newly released *versus* local check varieties of TL II crops

News

US Lawmakers Team Visits TL II in Malawi

The Lawmakers Team visit took place in the morning hours of 21 March at the Chitedze Research Station of the Department of Agricultural Services, Ministry of Agriculture, Government of Malawi. There were oral presentations (no PowerPoint) followed by a field visit within Chitedze campus. Members of

the team interacted with TL II scientists and had fruitful discussions. The team comprised six chiefs of staff/senior staffers of the US Senators and Congressmen/ Congresswoman and seven members of the US-based agriculture advocacy non-governmental organization called ONE. This is a grassroots advocacy and

campaigning organization that fights extreme poverty and preventable disease, particularly in Africa, by raising public awareness and pressuring political leaders to support smart and effective policies and programs that are saving lives, helping to put kids in school and improving futures.



Representatives of US Congressional Team, ONE Team and TL II researchers in a soybean experimental field at Chitedze, Malawi (21/03/2011)

Upcoming TL II Events

9-11 May 2011

National Review and Planning Meeting for India (groundnut and pigeonpea)
ICRISAT-Patancheru

16-19 May 2011

Regional Review and Planning Meeting for Western and Central Africa
IITA, Ibadan, Nigeria

22-25 May 2011

Regional Review and Planning Meeting for Eastern and Southern Africa
Lilongwe, Malawi

July/August 2011

National Review and Planning Meeting for India (chickpea)
ICRISAT-Patancheru

Progress made during Phase 1 will be reviewed and work for the coming year will be drawn up. The meetings will also feature the launching of Phase 2. Participation includes the TL II Team (CG and NARS scientists), development partners (including NGOs, private sector, and community-based organizations), representatives of other projects, Deputy Directors General of the three centers (CIAT, ICRISAT and IITA), TL II Advisory Board, and invited guests.