Bulletin of Tropical Legumes

11 Nov. 2011

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 & 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 South Asia. TL II aims to improve the livelihoods of smallholder farmers in drought-prone areas of the two regions through enhanced grain legumes productivity and production.

TNAU-CO 6, A New Virginia Bunch Groundnut Variety for Tamil Nadu

Groundnut is a major oilseed legume grown in the state of Tamil Nadu, India, in an area of 413,000 ha with production and productivity of 890,000 metric tons and 2154 kg/ha, respectively. Groundnut productivity in Tamil Nadu is the highest of all groundnut growing states in the country. However, it has suffered from fluctuations due to frequent changes in the rainfall pattern (Table 1) and also due to long spells of drought experienced during the crop growth period. With more than 70% of the area, the kharif (June-July sowing) rainfed groundnut is the most affected among the cereals and legumes due to drought. The Tropical Legume II (TL II) project, funded by the Bill & Melinda Gates Foundation and implemened by ICRISAT in collaboration with Tamil Nadu Agricultural University (TNAU) in Namakkal district, the most drought-prone terrain of the state, was very successful in identifying a drought tolerant Virginia bunch variety ICGV 87846 through the Participatory Varietal Selection (PVS) approach. The district receives an average of about 783 mm rainfall annually and the distribution during May to August is only about 308 mm, which is not adequate to meet the normal growth and development of the crop. Local Virginia bunch landraces normally grown in this region are highly adapted and drought tolerant but have poor yield. There was a need to improve the economic status of the smallholder and resource-poor marginal farmers of this district where groundnut is a major source of income.

Hence, this variety with much improved yield and consumer preference was released as TNAU Groundnut CO-6 and has been recommended for the entire northwestern zone of the state. Among seven Virginia bunch genotypes evaluated along with the local check in PVS trials during the initial implementation of the project in 2008 in Namakkal district, the genotype ICGV 87846 was found to be superior, with high and consistent pod yield and other favorable traits such as drought tolerance and foliar disease resistance.

CIAT
Centro Internacional de Agricultura Tropical
International Center for Tropical Agriculture
Consultative Group on International Agricultural Research

ICRISAT
Science with a human face

IITA
Research to Nourish Africa

Table 1: Rainfall pattern in Namakkal district

Month	Rainfall (mm)				No. rainy days		
	10-yr avg.	2008	2009	2010	2008	2009	2010
Jan	10.0	3.7	0.0	0.0	1	0	0
Feb	8.5	6.3	0.0	0.0	1	0	0
Mar	10.5	84.3	94.0	1.0	5	2	0
Apr	46.5	27.3	19.0	7.0	3	2	2
May	100.4	93.0	67.0	122.0	10	8	7
Jun	42.9	16.5	14.3	5.0	2	2	1
Jul	60.8	55.8	24.0	57.0	6	1	6
Aug	104.2	155.0	128.5	256 .0	12	7	7
Sep	108.3	102.0	42.0	86.0	3	3	4
Oct	162.9	152.0	20.0	122.0	11	3	6
Nov	95.0	136.0	182.0	274.0	10	12	14
Dec	32.8	3.0	45.0	41.0	1	4	4
Total	782.8	834.9	635.8	971.0	65	44	51

Its remarkable ability to withstand drought during post-flowering phase was much appreciated by the farmers. The bold and plump kernels with a tan color testa of this variety were an added advantage and are preferred by traders, who actually dictate the price of the produce. This variety recorded an overall mean dry pod yield of 1914 kg/ha (Table 2) under rainfed situation; this meant a 77.1% yield advantage over the local variety commonly grown in this region. Apart from farmers' fields it also continued its impressive performance in the multi-location trial conducted in the research stations with a pod yield of 2342 kg/ha. In addition to the high shelling outturn and oil content of 73.5% and 49.5%, respectively, the variety also has good fodder yield, which is yet another important criterion for the farmer's varietal selection.

Table 2: Performance of the groundnut genotype ICGV 87846 compared to two checks in various trials for pod yield (kg/ha)

Trial type	No. of locations	Genotype		
		ICGV 87846	VRI(Gn) 7	Local
On-station	3	2682	2088	1757
Multi-location	5	2342	1794	-
PVS (kharif 2008)	38	1604	1165	863
PVS (kharif 2009)	91	1029	869	624
Mean		1914	1479	1081
% increase over VRI(Gn) 7		29.4	-	-
% increase over local		77.1	-	-

The real benefit of the project lies with the rapid spread of the variety among the farmers of this region. Groundnut is a high volume seed crop, requires a well planned and organized seed multiplication program to meet the farmers' demand. After the release of the variety, 100 farmers identified from the district were each provided with 10 kg of seed pod and they were asked to produce 100 kg every season so as to distribute 10 kg of seed pod to 10 farmers each in the following season. By adopting this informal seed multiplication system, so far more than 1000 farmers have been brought under the varietal coverage and it is being continued to cover the entire district within another two or three seasons. The impact created by this variety in terms of its rapid spread and the farmers' welcome adoption in the drought-prone Namakkal district of Tamil Nadu is an indication that the farmers are reaping the benefit of this project.

A farmer's field with TNAU Groundnut CO 6 variety in Namakkal district of Tamil Nadu, India (single plant, pods and kernels inset)

The Tamil Nadu Agricultural University is grateful to the TL II Project and ICRISAT for their cooperation and support in the identification and release of the groundnut variety under this project and for enhancing groundnut production in the state. ■

P Vindhiyavarman, N Manivannan, K Ganesamurthy and K Thiyagarajan, Tamil Nadu Agricultural University, Coimbatore, India; SN Nigam, ICRISAT-Patancheru, India

TL II welcomes Bangladesh

Bangladesh is a new target country for the second phase of TL II project in South Asia. The first annual work plan meeting was held at the Bangladesh Agricultural Research Institute (BARI), Gazipur, Bangladesh, on 18-19 October 2011. There were about 30 participants from BARI and ICRISAT. In his welcome address, Dr Rafiqul Islam Mondal, Director General, BARI, thanked the Bill & Melinda Gates Foundation for extending TL II project activities on groundnut and chickpea to Bangladesh. The participants in the meeting from ICRISAT included Cynthia Bantilan, SN Nigam, Pooran Gaur and Uttam Deb. The BARI scientists who will be working as focal points for various TL II activities included Dr Sahadat Hossain (Chief Scientific Officer, Agricultural Economics Division) and Dr Md. Abdur Rashid (Senior Scientific Officer) for socioeconomic studies; Dr Rawshan Ali (Chief Scientific Officer, Oilseed Research Centre) and Mr. Manjurul Kadir (Senior Scientific Officer, Groundnut Breeding) for groundnut activities; and Dr Md Abid Hossain (Chief Scientific Officer, Pulses Research Center) and Mr. Md Jahangir Alam (Scientific Officer, Chickpea breeding) for chickpea activities.

The current status of groundnut and chickpea production was reviewed and varieties were identified for PVS trials. It was decided to initiate groundnut activities in three districts (Jamalpur, Kishoreganj and Panchgarh) and chickpea activities in two districts (Rajshahi and Chapai Nawabganj). Work plans were developed for baseline studies in target locations with a special emphasis on technology need assessment for chickpea and groundnut. The crop-based activities for which work plans were developed included (1) farmer-participatory research and development, (2) fast tracking of varietal development, (3) seed systems, and (4) capacity building. The TL II activities in Bangladesh will start from the current post-rainy season (sowing starting from November 2011). ■

Pooran Gaur

Consultation Meetings Held in WCA Region

A series of consultation meetings and discussions were held with TL II stakeholders in the Western and Central Africa region between 17 October and 05 November 2011 to kickoff the second phase of TL II. The countries visited during this period included Ghana, Mali, Burkina Faso, Niger, and Nigeria. A videoconference session was also conducted with researchers of Senegal. Briefings were given to researchers and research officials in the respective countries on the status of TL II. Field visits were also made to follow up on the progress made so far in those countries that were included in Phase 1 of the project. A tentative date for holding the regional meeting for the coming season was agreed to be first week of March 2012 to be hosted by INRAN of Niger in Niamey.

A pictorial review of the visits is presented below.

Meeting with Dr. Stephen Nutsuga (second from right), Director of Savanna Agricultural Research Institute (SARI) and Mr. Richard Oteng-Frimpong (far left), groundnut researcher at SARI, in Accra

With Dr. Eric Danqua (second right) of West Africa Centre for Crop Improvement, University of Ghana, Legon.

With groundnut researchers of IER, Kayes, northern Mali

With women groundnut farmers in Yatela, northern Mali

At Cinzana Agricultural Research Station, Cinzana, Mali

With researchers and officials of Burkina Faso, Ouagadougou

With researchers and officials of Niger, Niamey

With researchers at Maradi, southern Niger

At Ahmadu Bello University, Samaru, Zaria, Nigeria

A proud groundnut seed producer in Kudai village, Jigawa, Nigeria

Contact: Tsedeke Abate, email: t.d.abate@cgiar.org; tel: +254 20 722 4566; mobile: +254 714 054 868
Website: http//www.icrisat.org/tropicallegumesII