

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.



Grain Legumes of Nigeria

Crops

The National Bureau of Statistics (NBS) of Government of Nigeria (www.nigeriastat.gov.ng) lists cowpea and groundnut as two of about a dozen major crops that includes sorghum, millet, maize, cassava, yam, rice, melon, cocoyam (taro), and cotton in Nigeria. The database, covering the period from 1994/95 to 2005/06, shows that cowpea and groundnut are grown at approximately 2.2 million ha of land each per year (Table 1). The two crops account for about 9.7% and 9.5% of the total area planted to the major crops of more than 22.8 million ha for all of Nigeria.

According to this source, the annual rate of growth (ROG) for area of cowpea and groundnut has declined at 3.95% and 0.82%, respectively, during the above period. Meanwhile, the yield for cowpea grew at 0.94% per year whereas the yield of groundnut showed a slight decline (0.04%)

per year. Annual production is estimated at nearly 1.55 million and 2.57 million metric tons (MT), respectively, and declined at the rate of 3.01% and 0.85% per year, respectively, (Table 1).

The FAOSTAT for the above period also lists soybean as an important legume for Nigeria. The estimated area coverage is reported as approximately 3.95 million ha for cowpea, 2.09 million ha for groundnut and 581000 ha for soybean. The huge disparity between the NBS and FAO databases for cowpea is perhaps the former includes only pure stand whereas

Table 1: Trends of major grain legumes of Nigeria

Crop	Area		Grain Yield		Production	
	1000 Ha	ROG (%)	Kg/Ha	ROG (%)	1000 MT	ROG (%)
Cowpea	2,207	-3.95	700	0.94	1,546	-3.01
Groundnut	2,159	-0.82	1191	-0.04	2,571	-0.85
Soybean	581	0.91	910	5.28	529	6.24
Total/avg.	4,947	NA	NA	NA	4,646	NA

Source: Cowpea and groundnut area and production are from NBS; yield data for the two crops are calculated from NBS by authors; soybean data are from FAOSTAT (Dec. 2011); area, yield and production are 2003-05 averages; NA=not available.

Table 2: Cowpea trends in top 10 producing states of Nigeria

State	Area		Yield		Production	
	1000 Ha	ROG (%)	Kg/Ha	ROG (%)	1000 MT	ROG (%)
Zamfara	406	0.84	410	0.94	166	1.77
Borno	195	-12.63	977	7.41	191	-5.22
Kano	159	-5.13	569	-6.35	90	-11.48
Jigawa	158	-8.00	310	7.33	49	-0.67
Bauchi	153	-5.08	408	-1.15	62	-6.23
Sokoto	151	1.15	709	11.28	107	12.44
Niger	141	-4.32	1973	4.88	279	0.56
Kaduna	135	-0.94	879	-2.85	119	-3.79
Yobe	130	1.30	686	0.05	89	1.35
Katsina	128	-2.26	362	-2.02	46	-4.28
Others	452	NA	398	NA	348	NA
Nigeria	2207	-3.95	700	0.94	1546	-3.01

Source: Calculated from NBS (www.nigeriastat.gov.ng)

the latter also reports intercroops with cereals. According to the FAO data, the ROGs for area planted to cowpea, groundnut and soybean were 0.41%, 0.06%, and 0.91%, respectively, whereas the annual growth for yield was 4.33% for cowpea, 5.72% for groundnut, and 5.28% for soybean. The FAO data estimates put the area occupied by all crops of Nigeria at approximately 41.42 million ha.

Major areas of production

Cowpea and/or groundnut are grown in the majority of the states of Nigeria (Figure 1). Cowpea is produced in 32 of 37 states and the Federal Capital Territory (FCT) of Abuja. With about 18.4% of the total land area, Zamfara is the largest producer, followed by Borno, Kano, Jigawa, Bauchi, Sokoto, Niger, Kaduna, and Katsina (Table 2). These top 10 states account for about 82% of the country's total area planted to cowpea.

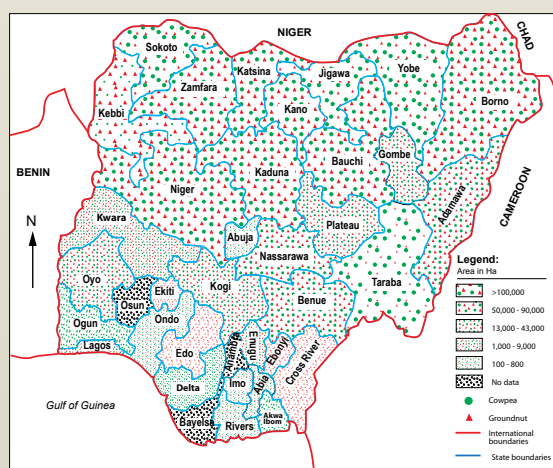


Figure 1: Cowpea and groundnut distribution in different states of Nigeria

Eighteen of the 32 states and FCT showed declines in the area planted to cowpea over the 1994/95 to 2005/06 period. Notable among these were Borno (-12.63%), Kano (-5.13%), and Bauchi (-5.08%); the national average ROG was -3.95% (Table 2). Four of the top 10 producing states showed substantial ROGs for yield; these were Sokoto (11.28%), Kano (7.41%), Borno (7.33%) and Niger (4.88%).

Dominant varieties of cowpea grown in Nigeria include IT97K-499-35, IT89KD-288, IT90K-277-2, IT89KD-391, and IT98K-205-8.

Groundnut is also grown in 31 of the 37 states and FCT. Kano and Niger states account for about 19.6% and 10.7%, respectively, followed by Kaduna, Benue, Zamfara, Taraba, Bauchi, Borno, Katsina and Nasarawa (Table 3). These top 10 producing states account for nearly 80% of the total area of groundnut for Nigeria. Some states achieved substantial increases in the area expansion for groundnut; examples Taraba, Borno, Katsina, Kaduna, and Bauchi; groundnut area for Kano, Zamfara and Niger showed declines ranging from 4.41% to 2.27% (Table 3). The total groundnut area for Nigeria declined by 0.82% in the 12 years between 1994/95 and 2005/06. Yield estimates reveal negative ROGs for eight of the top 10 producing states; examples include Borno (-9.34%), Taraba (-8.67%), and Yobe (-6.41%). The national average ROG for yield was -0.85% (Table 3). SAMNUT 22, SAMNUT 21, SAMNUT 23, and SAMNUT 10 are the dominant varieties of groundnut in Nigeria.

Soybean is a relatively new crop in SSA but has now become an important component of the smallholder cropping systems in some parts of Nigeria. The major production areas are the Moist Savanna and Sudan Savanna zones. Nigeria accounts for 43% of the total soybean production in Africa. A number of factors have now generated fresh and growing demands for this crop—for domestic processing to meet the rising domestic demand for soybean meal and soybean oil and the flourishing small- to medium-scale processing and utilization outfits. TGx 1835-10E, TGx 1951-3F, TGx 1904-6F, TGx 1935-3F, and TGx 1955-4F (7) are the dominant varieties of soybean in Nigeria.

Table 3: Groundnut trends in top 10 producing states of Nigeria

State	Area		Yield		Production	
	1000 HA	ROG (%)	Kg/Ha	ROG (%)	1000 MT	ROG (%)
Kano	423	-4.41	782	-1.07	331	-5.47
Niger	231	-2.27	1365	2.55	316	0.28
Kaduna	203	4.11	1650	-1.31	335	2.79
Benue	199	2.03	1787	-1.18	356	0.86
Zamfara	145	-3.22	839	-0.03	121	-3.25
Taraba	143	28.48	1237	-8.67	177	19.80
Bauchi	140	2.65	955	1.75	134	4.40
Borno	109	5.93	2067	-9.34	226	-3.41
Katsina	105	4.67	529	-0.86	56	3.82
Nassarawa	67	1.02	1153	-0.10	77	0.92
Others	394	NA	580	NA	443	NA
Nigeria	2159	-0.82	1191	-0.04	2571	-0.85

Source: Calculated from NBS (www.nigeriastat.gov.ng)

Trade

Data on international trade for cowpea are scanty. However, considering a projected deficit of 1,331,000 MT in 2010 (Table 4) and the 2007-09 average price for Sub-Saharan Africa (SSA) of US\$ 472.20 per MT (FAOSTAT), Nigeria's current import of cowpea is estimated at approximately US\$ 628, 498,200 per year. The FAOSTA for 2005-07 averages indicate estimates of US\$3,346,000 and US\$5,800,000 worth of imports of groundnut and soybean, respectively.

Projected production and demand

Nigeria is projected to plant 3.637 million ha of land to produce 3.364 million MT of cowpea grains, with projected yield of 925 kg per ha, by 2015. Similarly, the projected area, production and yield by 2020 are estimated at 3.857 million ha, 4.097 million MT and 1062 kg per ha, respectively. However, Table 4 reveals that the national demand for cowpea would outstrip production. For example, the demand by 2015 and 2020 would be greater than production by

Table 4: Projected production and demand for cowpea, groundnut and soybean in Nigeria

Commodity	Production (1000 MT)			Demand (1000 MT)		
	2010	2015	2020	2010	2015	2020
Cowpea	2,761	3,364	4,097	4,092	5,273	6,906
Groundnut	3,275	3,563	3,784	3,335	3,497	3,726
Soybean	633	709	793	643	748	869
Total	6,669	7,636	8,674	8,070	9,518	11,501

some 1.909 million and 2.809 million MT, respectively. At the 2007-09 average price of US\$ 472.20 per MT, this would translate into cowpea imports worth US\$ 901,429,800 and US\$ 1,326,409,800 by 2015 and 2020, respectively.

In a similar fashion, soybean demand would outstrip production by about 39,000 MT by 2015 and by 76,000 MT by 2020 (Table 4). At the 2007-09 average producer price for SSA of US\$ 479.45 per MT, this is the equivalent of US\$ 18,698,550 and US\$ 36,438,200 by 2015 and 2020, respectively.

Nigeria is projected to have surplus groundnut production of 66,000 MT and 58,000 MT by 2015 and 2020, respectively (Table 4).

Challenges and opportunities

Technical constraints, including drought, foliar diseases, pod-feeding insects, parasitic weeds and storage insects (bruchids) are the key constraints to one or more of the grain legumes grown in Nigeria. Poorly developed markets, weak farmer organizations, poorly motivated extension staff, and fluctuations in producer prices are among the major institutional and organizational constraints. The lack of consistency in agricultural statistics, particularly for cowpea, makes it very difficult to determine priorities and develop strategies for agricultural research and development.

TL II made good progress in helping Nigeria's grain legume research and development during its first phase of 2007-2011. A total of seven new varieties (three cowpea & four soybean) have been released and promoted; 640 MT (294 MT cowpea, 98 MT groundnut and 247 MT soybean) of seed produced and distributed to farmers; seed-producing farmers were linked to local seed companies; well over 21,000 farmers (about 12,000 cowpea, 5,500 groundnut and 4,000 soybean) have been reached; and four graduate students (one PhD and three MSc) have completed their studies and rejoined the national research programs.

The government of Nigeria is revitalizing its agricultural development and grain legumes are among the high priority crops. There is increasing demand for all of the legumes in the country.

Emphasis in Phase 2 will be on doubling efforts of seed multiplication and delivery (with particular attention to strengthening community-based seed systems); putting more emphasis on integrated

crop management aspects, including moisture conservation technologies; releasing varieties in the pipeline and promoting their adoption; collaborating with PICS to promote the hermetic bag technology; and engagement in policy advocacy. ■

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News and Events

Data management meeting held



A meeting on data management was held on 30 November to 2 December 2011 in Dubai, United Arab Emirates. The purpose of this meeting was to engage with the project leadership and data managers from HOPE, TL II and N2Africa to define user requirements for a data management platform with technical support from aWhere. It was arranged by ICRISAT as part of its efforts to explore possibilities and tools to coordinate, monitor, and document the impact of complex, multi-partner projects.

Eighteen participants representing ICRISAT, the Bill & Melinda Gates Foundation (B&MGF), aWhere, CIAT, IITA and Wageningen University (representing N2Africa project) attended this meeting.

Key outcomes of the meeting included, among others, agreements on using a systematic and participatory approach for software development; exposure of project data to external audiences; and communicating with users on how data will be managed to acknowledge authorship. ■

TL II Regional Meeting for WCA

This year's regional meeting for the West and Central Africa region is scheduled to be held on 12-14 March 2012, in Niamey, Niger. The main topics for discussion are: a) launching of the second phase; b) review of research activities for the 2011 crop season; and c) preparation of work plan for the 2012 season. Participation will include national crop leaders of Burkina Faso, Ghana, Mali, Niger, Nigeria and Senegal; management team of TL II; coordinators of sister projects; other partners and stakeholders of TL II in the region; representation from B&MGF; and other invited bodies. The locale and other details will be announced in the next issue of this bulletin. ■