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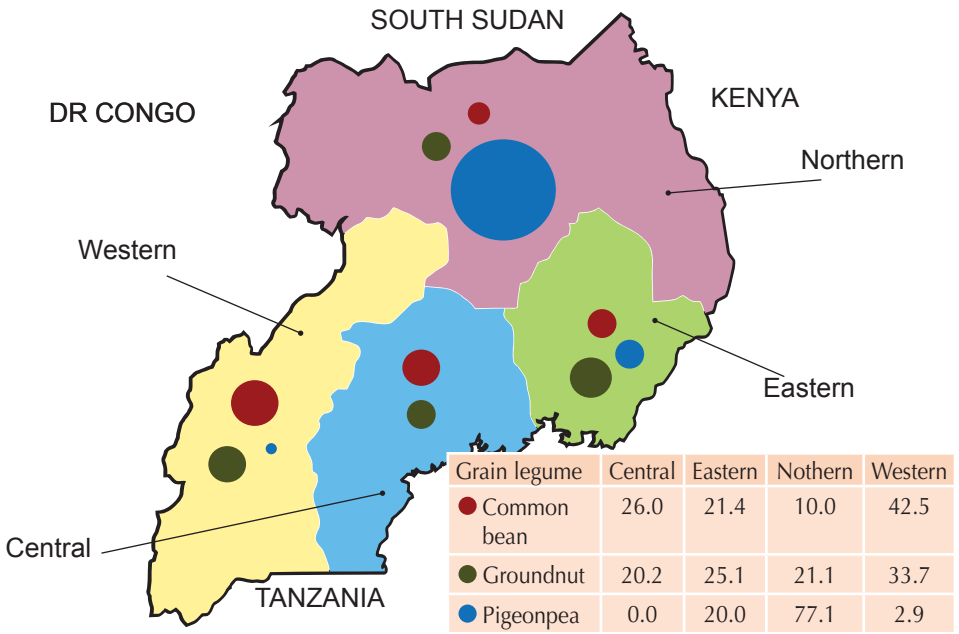
Bulletin of Tropical Legumes

14 Feb 2012

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 legume	Central	Eastern	Nothern	Western
Common bean	26.0	21.4	10.0	42.5
Groundnut	20.2	25.1	21.1	33.7
Pigeonpea	0.0	20.0	77.1	2.9

Distribution of grain legumes in Uganda (values are percentages)

Grain Legumes of Uganda

The crops

Uganda has rich agro-biodiversity consisting of close to 40 crop species. Plantain, beans, maize, sweet potato, and millet are the dominant crops. Major grain legumes of this country include common bean (*Phaseolus vulgaris*), groundnut (*Arachis hypogaea*), soybean (*Glycine max*), pigeonpea (*Cajanus cajan*), cowpea (*Vigna unguiculata*), field pea (*Pisum sativum*), and chickpea (*Cicer arietinum*), in descending order of importance. These crops collectively account for greater than 20% of the country's more than 7.55 million ha of total cultivated area.

Area planted to major grain legumes showed variable levels of growth (Table 1). Relatively higher rates of growth (ROG) were observed for groundnut, followed by common bean, chickpea, and cowpea; soybean and pea registered a less than 1% growth each.

Yields were lowest for common bean, followed by chickpea and groundnut whereas soybean, cowpea and pigeonpea yields were greater than 1 MT per ha (Table 1). Rates of growth for yield were relatively greater for cowpea than the rest of the crops. Common bean yields fluctuated sharply over the years (Figure 1).

Table 1: Status of grain legumes in Uganda

Crop	Area			Yield		Production	
	Ha	ROG (%)	% of total area	Kg/Ha	ROG (%)	MT	ROG (%)
Common bean	917,000	2.72	12.14	491	-4.55	450,667	-1.96
Groundnut	257,667	2.85	3.41	718	0.74	185,000	3.60
Soybean	151,000	0.77	2.00	1177	0.75	177,667	1.53
Pigeonpea	90,000	1.38	1.19	1015	0.23	91,333	1.61
Cowpea	77,000	2.16	1.02	1074	2.02	82,667	4.23
Peas	26,600	0.15	0.35	626	1.36	16,663	1.51
Chickpea	8,051	2.51	0.11	547	-0.65	4,400	1.85
Total/average	**1,527,318**	**2.37**	**20.22**	**807**	**0.23**	**1,008,397**	**0.34**

Source: FAOSTAT (2012); area, yield and production are 2008-2010 averages; ROGs are for 2001-2010

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Rates of growth for production were largest for cowpea and groundnut; chickpea, pigeonpea, soybean, and field pea also showed positive growth rates, but all of them grew at less than 2% per annum. Common bean production declined over the above period (Table 1).

Economic importance and major areas of production

According to the Uganda Bureau of Statistics (UBOS) data for the 2005/06 crop season, grain legumes are grown across the four regions of Uganda. However, Western Region is by far the most important, accounting for more than 40% of the national production for all legumes in the country. Uganda was not part of the Tropical Legumes II project during its first phase (Sept 2007 to August 2011). Three major grain legumes are included in the second phase (Sept 2011 to August 2014).

Common bean

Common bean is the most important grain legume for Uganda; it occupies the second largest area, after plantain, of the country. According to FAO, the average area planted to this crop is nearly 920,000 ha, more than 12% of the total cultivated area of Uganda (Table 1). Uganda is second only to Tanzania among 28 countries that produce common bean in Sub-Saharan Africa (SSA). The area grew at the rate of 2.72% per annum between 2001 and 2010. According to UBOS, the average common bean farm size for the 2005/06 crop season was about 0.13 ha per household. According to UBOS (2010), about 65% of common bean is grown in mixed stand while 35% is pure stand.

Yields are estimated at less than 500 kg per ha, much less than the SSA average of more than 770 kg per ha. They have been declining at the rate of 4.55% per year over the 10 year period mentioned above. Production is close to 451,000 MT (Table 1). It declined at the rate of nearly 2% per year, indicating that the increase in the area could not offset the decline in yield. The declines were particularly sharp during the mid 1990s and since the early 2000s (Figure 1).

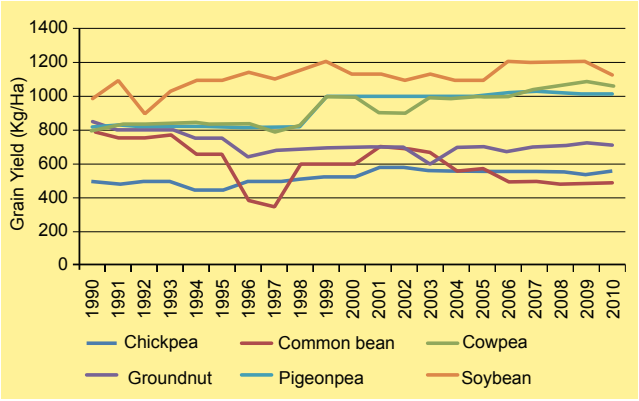

Figure 1: Yield trends of major grain legumes in Uganda

Common bean is widely grown in Uganda. According to UBOS, nearly 81% of agricultural households (or more than 3.35 million rural households) grew the crop in the 2005/06 crop season. Common bean production in Uganda is concentrated in Western Region (43%), followed by Central Region (26%), Eastern Region (21%), and Northern Region (10%).

More than a dozen improved commercial varieties and three landraces are commonly grown in Uganda. Examples include K 132, NABE 1, NABE 2, NABE 4, and NABE 6. The landraces are Masindi Yellow, Kanyebwa, and Kahura. These are popular among farmers but are susceptible to diseases.

Groundnut

Groundnut is the second most important grain legume for Uganda. The cultivated area is estimated at nearly 260,000 ha; it grew at the rate of 2.85% per year (Table 1). The average farm size of groundnut per household in Uganda is estimated at 0.15 ha, according to UBOS.

The average yield is about 720 kg per ha, which is much less than the SSA average of nearly 880 kg per ha. The annual rate of growth for yield and production areas are estimated at 0.77% and 3.60%, respectively (Table 1), suggesting that the increases in production were mainly due to area expansion rather than increases in productivity.

Groundnut production in Uganda is concentrated in the Western Region (34%), followed by Eastern Region (25%), Northern Region (21%) and Central Region (20%).

Most commonly grown groundnut varieties include Serenut 2, Serenut 3R, and Serenut 4T. There are also new releases from 2010 (Serenut 5R and 6T) and 2011 released Serenut series (Serenut 7T, Serenut 8R, Serenut 9T, Serenut 10R, Serenut 11T, Serenut 12R, Serenut13T and Serenut14R)

Pigeonpea

Uganda stands third in area (after Malawi and Kenya), and second in production (after Malawi) among seven major producing countries in Africa. Cultivated area is estimated at 90,000. The UBOS data for the 2005/06 crop season indicate that the

average pigeonpea farm size is about 0.12 ha per household.

Average yields are estimated at more than 1000 kg per ha, much higher than the SSA average of less than 770 kg per ha. In fact, Uganda is the only country that reaps more than 1 MT per ha among SSA countries (according to FAOSTAT, 2012). Area, yield and production showed modest increases of 1.38%, 0.23%, and 1.61%, respectively (Table 1). The UBOS data for the 2008/09 crop season show that about 77% of pigeonpea is produced in Northern Region, with about 20% grown in Eastern region.

Commonly grown pigeonpea varieties are the locals Apio Elina and Adong; and the improved varieties are Sepi-I, Sepi-II and ICPL 90029.

Other legumes

Soybean, cowpea, field pea and chickpea also play a significant role in the food security, nutrition and economy of Uganda. This country stands third in SSA, after Nigeria and South Africa, in the area planted to soybean; major areas of production include Northern Region (72%), Eastern Region (20%), Western Region (6%) and Central Region (2%), according to the UBOS data for the 2008/09 crop season. Cowpea and field pea are grown mainly for local consumption.

Trade

It appears that the bulk of grain legumes trade in Uganda comes from domestic market. The UBOS data for the 2008/09 crop season indicate that, depending on the crop, about 32-52% of the grain is used for consumption, with sales ranging from 6% for pigeonpea to about 32% each for common bean and groundnut (Figure 2). On the other hand, the UBOS data for the 2005/06 crop season show that 80% of soybean is sold.

Currently, Uganda is a net exporter of grain legumes. Available data show that the country obtains modest amounts of revenue from international trade in grain legumes. For example, average export earnings in 2007-09 were estimated at about US$ 10.5 million, the bulk (85%) of which was attributed to common bean, with soybean a distant second (Table 2). Grain legume imports are also minimal, amounting to about US$ 2.6 million during the period mentioned above.

Table 2: Grain legumes trade in Uganda

Crop	Import		Export	
	MT	US$ 1000	MT	US$ 1000
Common bean	3,310	1,837	22,860	9,064
Soybean	0	0	3,893	1,314
Groundnut	4,464	761	85	82
Chickpea	7	4	35	9
Total	**7,781**	**2,602**	**26,873**	**10,469**

Source: Calculated from FAOSTAT (2012)

Common bean export showed heavy fluctuations between 1990 and 2009 (Figure 3). Export volume and value were particularly low in the early 1990s and late 1990s through early 2000s. Production suffered heavy declines in this latter period but did not seem to be correlated with the declines in export.

Projections

It has been projected that production of all of Uganda's major grain legumes would have positive growth through 2020 (Table 3). Overall, the country's production would outstrip the national demand. ROGs of more than 5% are predicted for chickpea and pigeonpea whereas common bean, soybean, and groundnut are expected to grow at 3.71%, 3.35%, and 2.73% per annum, respectively. Both production and national demand for cowpea are projected to grow at a slow rate of 0.68%.

Uganda has been welcomed to the second phase of TL II. Common bean, groundnut and pigeonpea are the crops to be included here. Lessons learned and knowledge gained from first phase in neighboring countries would be leveraged to speed up technology adaptation and adoption. On-station experiments with pigeonpea at NgeZARDI and with groundnut at Soroti, respectively, are currently under way. Work on common bean shall start in the coming season.

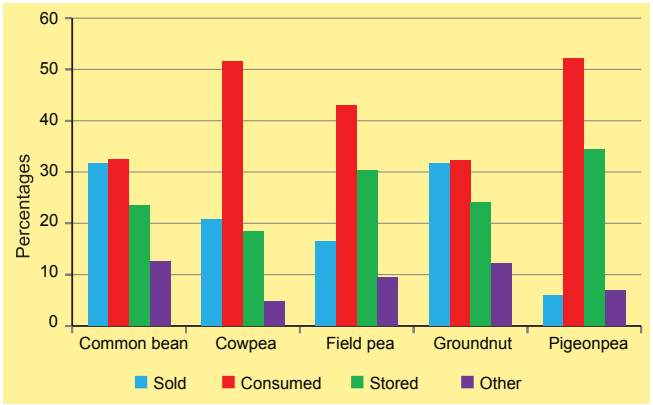

Figure 2: Disposition of grain legumes in Uganda (adapted from UBOS, 2010)

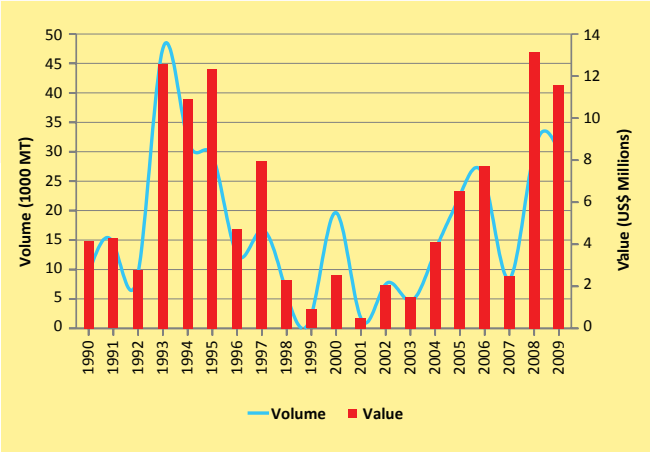

Figure 3: Common bean export in Uganda (source: calculated from FAOSTAT, 2012)

It is anticipated that work in the coming season shall focus both on on-station and on-farm trials based on PTS (participatory technology selection) principles. There exists ample opportunity to bring about impact through multiplication of seeds of released varieties and promoting them among smallholder farmers.

Respective crop leaders shall organize proposals for the coming season on the basis of their respective priorities. The proposals shall be presented to the National Planning Workshop, suggested to be held before the onset of the upcoming season. Leaders of the three crops shall also identify and include local partners such as NAADS, NGOs like CRS, and others and create linkages with other projects such as AGRA and Peanut CRSP. ■

Tsedeke Abate, Michael Ugen, David Kalule Okello, Yuventino Obong, Said Silim and NVPR Ganga Rao

Table 3: Projected production and national demand

Commodity	Production (1000 MT)			ROG (%)	Demand (1000 MT)			ROG (%)
	2010	2015	2020		2010	2015	2020	
Common bean	480	575	662	3.71	464	545	641	3.30
Soybean	182	219	255	3.35	177	215	257	3.80
Groundnut	193	224	253	2.73	186	214	251	3.08
Pigeonpea	145	196	253	5.65	105	124	151	3.80
Cowpea	52	53	55	0.68	52	53	55	0.68
Chickpea	6	9	12	6.08	4	5	6	3.95
Total	**1,058**	**1,276**	**1,490**	**3.68**	**987**	**1,156**	**1,362**	**3.27**

Source: Calculated from various sources; ROG figures are for 2010 t0 2020 period

News and Events

Regional meetings for 2012

Preparations for regional meetings this year are under way. Venues and dates are summarized below.

Region	Date	Venue	Host institution	Paticipating NARS/CG
WCA	12-14 Mar	Niamey, Niger	INRAN	Burkina Faso, Ghana, Mali, Niger, Nigeria, Senegal
WCA	15-16 Mar	Niamey, Niger	ICRISAT (Forensic Project training)	Burkina Faso, Ghana, Mali, Niger, Nigeria, Senegal, TL I, TL II
ESA	11-14 Apr	Nampula, Mozambique	IIAM	Ethiopia, Kenya, Malawi, Mozambique, Tanzania, Uganda
SA	14-16 May	Bhabuneswar, India	OUAT	Bangladesh, India (Bihar, Orissa, Andhra Pradesh, Karnataka, Maharashtra, Tamil Nadu)

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. Additional participation will include other partners and stakeholders of TL II in the respective region; representation from B&MGF; and other invited bodies.

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