

# Niger

## Groundnut

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### Introduction

Groundnut is an important crop mainly due to its contribution to poverty reduction and food security. It is a basic food and cash crop and contributes to livestock feeding. From recent surveys (Source: Ndjeunga et al. 2010) in the major groundnut regions of Niger groundnut is planted on about 15% of total cultivated area in Niger and contributes 66% of household cash revenue. It accounts 31% of the total value of crop production in Niger. Groundnut is a major source of dietary protein, oil/fat, and vitamins such as thiamine, riboflavin and niacin. Groundnut paste is an important source of calories for small children, particularly those being weaned. Groundnut cake and haulms (straw, stems) are used as livestock feed, helping to increase livestock productivity. The crop season is short (June–September) and the end-of-season drought is frequent. Some key statistics are presented below. The national demand and expected growth of production are presented in Table 1 and trends in area, production and yield are presented in Figure 1.

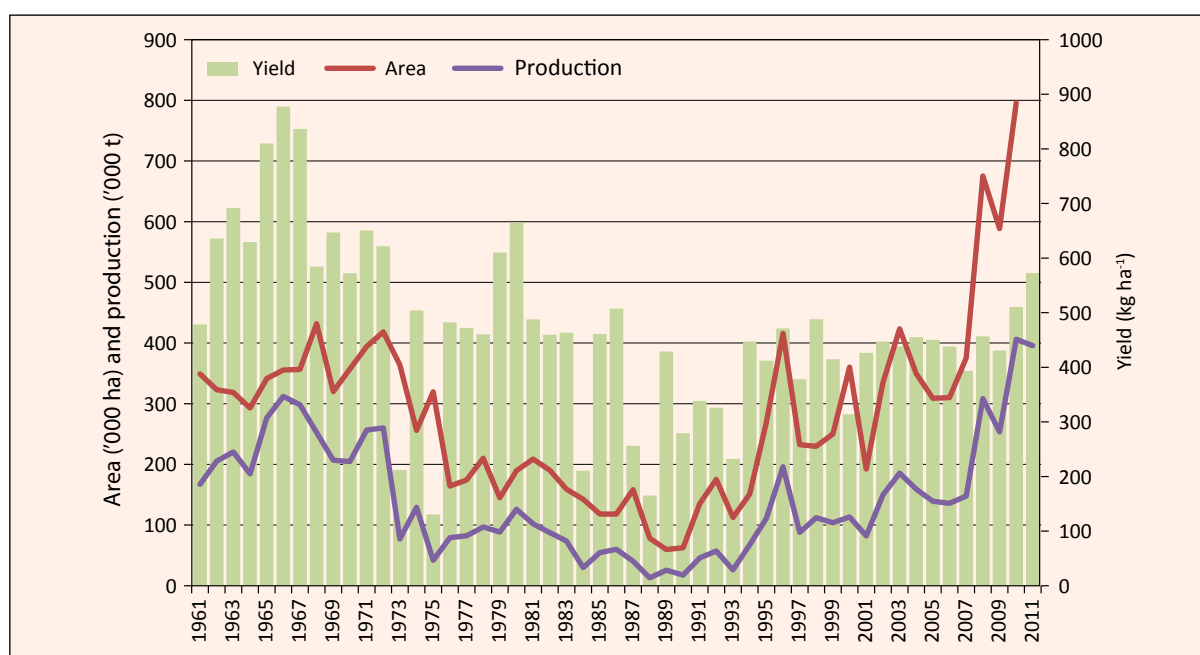


Figure 1. Trends in area, production and yield of groundnut in Niger during 1961 to 2011.

**Table 1. National demand and growth in production of groundnut in Niger<sup>1</sup>.**

Parameter	Value
Average area (ha)	625,213
Average production (t)	302,319
Average yield (current) (kg ha <sup>-1</sup> )	473
Average yield (2015) (kg ha <sup>-1</sup> )	600
National demand (t)	229,206
Expected growth of production (%)	4.46
Proportion of production sold (%)	76

1. Source: FAOSTAT (2005–08).

## Research and dissemination process

Groundnut research in Niger was initiated by IRHO, a French research organization in 1960 with essential introduction of germplasm from other French territory stations such as Bambey in Senegal and Niangoloko in Burkina Faso. Groundnut improvement was boosted by the establishment of ICRISAT in Niger in 1988. Due to lack of technical staff on groundnut research, the use of germplasm from ICRISAT has been limited. However, through projects implemented by ICRISAT including TL-II, the varieties are now being adopted by farmers.

The most widely grown groundnut variety in Niger is 55-437 followed by TS 32-1. However, four new varieties including Fleur 11, RRB, J 11 and ICG 9643 were released in 2011. Among these RRB is the most popular. The last release of varieties in the national catalog was more than two decades.

## Agroecologies

The arable land in Niger is a thin belt bordering Nigeria, Benin and Burkina Faso below the Sahara desert. It is predominantly Sahelian with a very short growing cycle (June–September). Groundnut is largely grown under rainfed conditions in the regions of Dosso, Maradi and Zinder (Table 2) all lying in the Sahel savanna agroecology with average annual rainfall of 400–600 mm. These regions account for more than 75% of groundnut production in Niger.

**Table 2. Agroecological zones and biotic constraints of groundnut production in Niger.**

Region	Area (ha)	Key biotic and abiotic constraints
Dosso	21,006	Poor soil fertility, drought, rosette and aphids
Maradi	175,000	Same as above
Zinder	136,155	Same as above

## Seed system

### Socioeconomic constraints

These include poorly organized producers, limited access of farmers to inputs especially seeds of improved varieties and fertilizers at affordable prices, and high labor costs for planting, weeding and harvesting. Poor access roads to farms makes movement of produce to markets expensive and also leads to middle men exploiting the rural community-based farmers. In such situations farmers are unable to derive the most benefit from their efforts.

### Organizational constraints

There are no strong farmers' associations involved with production of groundnut. However, under the TL-II projects, women groups in the region of Dosso have emerged and are supplying about 65% of the newly released varieties. The process of crop variety registration and release is still very slow and could be frustrating. However, TL-II is committed to facilitating the variety registration and release process.

### Strategic partners

The strategic partners and their role in the seed system are given in Table 3.

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**Table 3. Strategic partners and their role.**

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Strategic partner	Role
ICRISAT	Technology development (varieties and crop management options) in partnership with NARES and ARIs, breeder seed production and variety maintenance; Assessment and identification of sustainable seed delivery systems in partnership with NARES; Assist in the promotion of measures to reduce aflatoxin contamination; Provide training in priority skills [data management, impact assessment methodology, breeding methodology and farmer participatory variety selection (FPVS)].
Institut National de Recherche Agronomique du Niger (INRAN)	Technology development and deployment with backstopping from ICRISAT; Ensure the production of breeder and/or foundation seeds; Evaluate technologies using the FPVS methodology; Facilitate the release of new varieties.
Ministry of Agriculture (SICCLA)	Formulate seed laws and regulations as well as overall inputs (fertilizers, pesticides, etc).
Ministry of Agriculture (including Extension Services)	Formulate agricultural policies in the Rural Development Strategy; Ensure the delivery of technologies and advisory extension services.
Association of Private Seed Producers of Niger	Coordinate seed production and marketing of certified/commercial seed.
Small-scale vegetable oil processing units	Processing of groundnut – oil and cake, soap and paste; Provide market for groundnut grain.
NGOs such as World Vision and SNV	Promote improved farming practices and link farmers with markets.
Farmers' associations/Small-scale seed producers	Assist in the evaluation of FPVS trials; Monitor village-level seed production.
AGRA and WASA	Support the development of seed enterprise and agro-dealers (enhancing the capacity of local seed traders); Training agro-dealers (local seed traders) in marketing and small-scale business management.

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### **Capacity building needs (staff, infrastructure)**

- Training of technicians in basic integrated crop management
- Degree related training at MSc and PhD levels to enhance the legume breeding program

### **Strengthen phenotyping for drought tolerance Special cultural/gender considerations**

- At least 40% of groundnut plots are managed by women.
- More than 90% of small-scale processors are women.
- Increased groundnut production will empower women through increased income and better nutrition of children.

## **Processing and storage requirements and market opportunities**

Demand for groundnut and its products is high especially edible oil, paste and cake. Currently there are small-scale processing units constrained by processing equipment and consistent supply of good quality groundnut seed. Access and availability of appropriate equipment would improve quality and quantity of these products.

### **Key policies (recently implemented/needed)**

Implemented: Harmonization of regional seed policies and regulations.

Needed: Encourage private companies like OLGA oil to invest in contractual arrangements with producers to increase volume by guaranteeing buying the produce and an agreed price. Protect the local processing industries from competition with other imported vegetable oils of unknown quality. The opportunities through the presidential initiative of 3Ns (Nigerien (ne)s Nourir Nigerien) should boost groundnut production.

### **Key issues for competitiveness (ie, reducing production costs, increase market value)**

- Promotion of a wide range of productive varieties and crop management options to increase productivity
- Development of sustainable seed production and delivery schemes to increase access and availability of seed of preferred varieties
- Promote the adoption of best-bet pre- and postharvest techniques to minimize aflatoxin contamination to improve access to international markets for groundnut
- Increased awareness of the dangers of aflatoxin contamination to improve health of rural and urban consumers

### **Mechanization as it relates to timely planting/harvesting and processing**

All production operations (land preparation, planting, weeding and harvesting) are done manually by using hand tools that severely limit area planted. Thirty-three percent of producers own a plow, less than 1% owns a seeder and 52% own oxen. Groundnut production is a labor intensive enterprise. In this case, the returns to investment in small mechanization in the form of simple animal traction may be high. Access to suitable machinery for various small-scale field operations is essential to increase productivity and profitability.

### **Environmental/sustainability issues**

A range of improved varieties and exploitation of environment-friendly and sustained technologies (resistant varieties) will contribute to the preservation of biodiversity. Availability of resistant varieties with high productivity will reduce the need for pesticides and thus contribute to a safe and healthy environment. Also higher groundnut yields and creation of commercialization opportunities will lead to environmental benefits. Growth in income and employment (eg, labor for farming, crop processing and trade) will reduce the pressure on marginal lands using sustainable agricultural practices. Poverty is a major contributor to environmental degradation, and by reducing poverty, cultivation of groundnut will ease the pressure on natural resources in the fragile, drought-prone areas.

## **Monitoring and evaluation**

- Groundnut production, area cultivated and yield are monitored every year through survey of about 2,500 farm households in Niger. This sample is found to be highly representative.
- Annual sub-regional review and planning meetings are organized.
- Groundnut varieties are monitored by ICRISAT using key resource persons involved in technology development and delivery.
- A good monitoring system needs to be put in place at the national level.

## **Perspectives for Phase 2**

Niger is one of the countries where Phase 1 of the project was implemented for groundnut. Activities will continue with more vigor in Phase 2 of TL-II. Efforts will be made to increase the level of drought tolerance and facilitate the process of variety release and registration to ensure that farmers have access to improved crop varieties.

## **The seed strategy**

The seed roadmap for groundnut in Niger is presented in Table 4. The total amount of seed is estimated to cover 23% of the demand. This can only be attained assuming no drought spells during the four years. However, considering that the frequency of drought in Niger is high risk, this may be mitigated by using available irrigation facilities at the various seed farms. More secure sites such as Bengou Research Station will be used. The Sudan savanna will be more used for seed production than as at present. The possibility of using seed farms where there are irrigation facilities will be explored.

**Table 4. Groundnut seed production plan for Niger<sup>1</sup>.**

AEZ	Region	Variety	Current seed stocks by class in 2012 (t)						Projected stock by class in 2013 (t)						Projected stock by class in 2014 (t)						Projected stock by class in 2015 (t)						
			Breeder	Basic	R1	R2	R3	Breeder	Basic	R1	R2	R3	Breeder	Basic	R1	R2	R3	Breeder	Basic	R1	R2	R3	Breeder	Basic	R1	R2	R3
Sudanian	Dosso	55-437	0.843	0.72	11.2	0	0	0.086	8.43	49.35	112	0	0.086	0.86	84.3	493.5	1120	0.086	0.86	8.6	84.3	493.5	0.086	0.86	8.6	84.3	493.5
		RRB	0.046	0.44	12.5	4.35	0	0.092	0.46	6.7	125	43.5	0.092	0.92	4.6	67	1250	0.092	0.92	9.2	46	670	0.092	0.92	9.2	46	670
		J 11	0.05	0	0.8	0.35	0	0.1	0.5	2.5	8	3.5	0.1	1	5	25	80	0.1	1	10	50	250	0.1	1	10	50	250
		TS 32-1	0.05	0.315	0.35	0	0	0.1	0.5	5.65	3.5	0	0.1	1	5	56.5	35	0.1	1	10	50	565	0.1	1	10	50	565
		Fleur 11	0.05	0.14	0.85	1	0	0.1	0.5	3.9	8.5	10	0	0.1	1	5	39	85	0.1	1	10	50	390	0.1	1	10	50
Total		ICG 9346	0.05	0	0.2	0	0	0.1	0.5	2.5	2	0	0.1	1	5	25	20	0.1	1	10	50	250	0.1	1	10	50	250
			1.089	1.615	25.9	5.7	0	0.578	11.29	70.6	259	57	0.578	5.78	108.9	706	2590	0.578	5.78	57.8	108.9	706	0.578	5.78	57.8	108.9	706
Sudano-Sahelian	Maradi	JL 24	0.264	2.2	1.5	0	0	2.64	22	15	0	0	0	26.4	220	150	0	0	0	0	264	2200	0	0	0	264	2200
		T 169-83	0.067	0	0	0	0	0.67	0	0	0	0	0	6.7	0	0	0	0	0	0	67	0	0	0	67	0	
		T 181-83	0.045	0	0	0	0	0.45	0	0	0	0	0	4.5	0	0	0	0	0	0	45	0	0	0	45	0	
		T 177-83	0.078	0	0	0	0	0.78	0	0	0	0	0	7.8	0	0	0	0	0	0	78	0	0	0	78	0	
		55-437	0	2	12	0	0	0	0	20	120	0	0	0	0	200	1200	0	0	0	200	0	0	0	2000	0	
Total		Fleur 11			1.3	0	0	0	0	13	0	0	0	0	0	130	0	0	0	0	0	0	0	0	0	0	
		RRB			0.2	0	0	0	0	2	0	0	0	0	0	20	0	0	0	0	20	0	0	0	20	0	
Total		ICG 86124	0.2			0				0					0												
			0.454	4.4	15	0	0	0	4.54	42	150	0	0	45.4	420	1500	0	0	0	454	4200	0	0	0	454	4200	
Sudano-Sahelian	Zinder Tillaberi	55-437	0	0	0	0	0	0	2	2	0	0	0	0	20	20	0	0	0	0	200	0	0	0	200	0	
		JL 24	0	0.2	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		T 169-83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		T 181-83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		T 177-83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total		55-437	0	0.2	4	0	0	0	2	40	0	0	0	0	20	400	0	0	0	0	200	0	0	0	200	0	
		ICG 8612	0.2	0	0	0	0	0	0	2	0	0	0	0	20	0	0	0	0	20	0	0	0	20	0		
Total		RRB			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		ICG 86124	0	0.6	4.2	0	0	0	0	6	42	0	0	0	60	420	0	0	0	60	4200	0	0	0	600	0	

1. R1, R2 and R3 are registered seed classes.

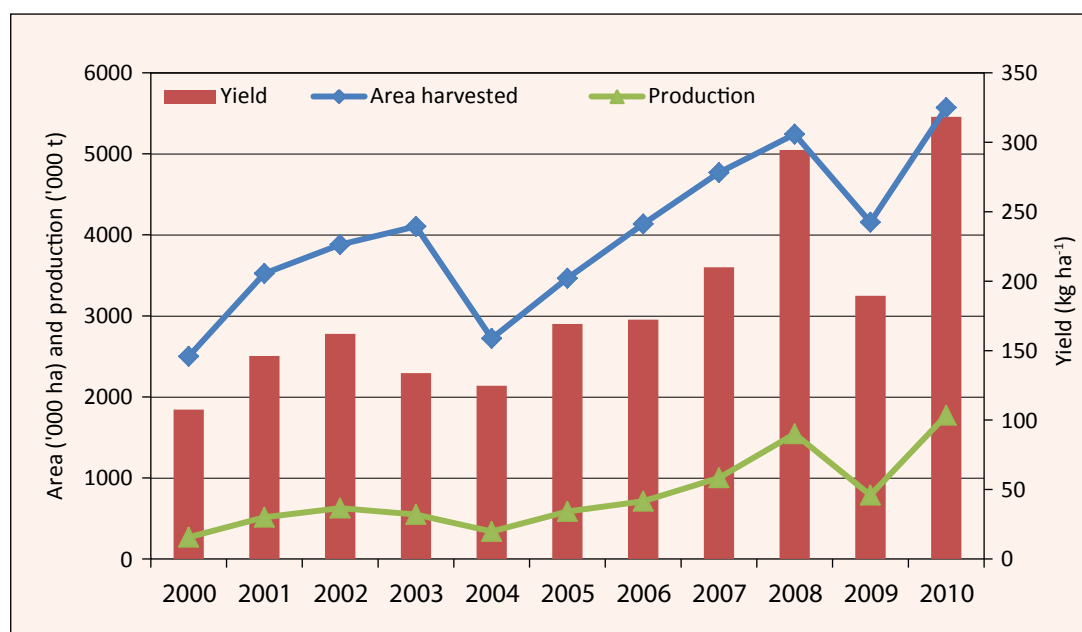
# Cowpea

*Moutari Adamou, Abdou Souleymane, Christian Fatokun, Ousmane Coulibaly, Alpha Kamara and Ousmane Boukar*

## Introduction

### Importance of the crop in Niger

Cowpea is one of the most important grain legumes in Niger, which is the second largest producer of cowpea in Africa. The bulk of cowpea produced in Niger is sold to neighboring countries, mostly Nigeria. About 764,000 tons are produced annually on about 4,132,000 ha (Fig. 1). Local consumption of cowpea has increased significantly in recent years and this is bound to have positive impact on the people's nutrition and health. Cowpea haulms are used as animal feed to increase livestock productivity. Farmers often grow long-duration spreading varieties for fodder (Source: Singh et al. 2003). Major production areas are Dosso (Soudan savanna), Maradi and Zinder in the Sahel, where the annual rainfall is 400–600 mm. These regions account for about 80% of cowpea production in the country. Crop productivity of cowpea is very low. The annual growth rate of cowpea yield from 1985–87 to 2005–07 was about 2.5% whereas the area has been growing at 7.4%. It has been projected that production of cowpea in Niger would grow at 4.2% between 2010 and 2020. The current national demand for cowpea is 142,000 tons but this is expected to increase at the rate of 3.7% per year.



**Figure 1. Cowpea area, production and yield in Niger during 2000 to 2010**  
(Source: FAOSTAT 2012).

### Cowpea contribution to national GDP, farmer income, food and nutrition security

West Africa is the main producer of cowpea with Nigeria being highest followed by Niger. Cowpea consumption in Niger is 7.82 kg per capita per year. Cowpea is an important cash crop in Niger. It constitutes the second largest agricultural product in Niger after onions. Over the period 2001–05 cowpea contributed about 12% of the monetary value of the total national exports of the country (Source: Ibro 2011). Farmers sell more than 88% of the produce in most of the cases. Niger is the

largest cowpea exporter in the world with an estimated 215,000 tons exported annually, mainly to Nigeria. Prices in the markets are attractive except for sales immediately after harvest when the supply is greater than demand.

Cowpea production in SSA is projected to grow at nearly 3% per annum – from 6 million tons in 2010 to 8 million tons in 2020. Niger is predicted to be among countries which continue to dominate cowpea production in SSA. High rate of growth (4.2%) is projected for the country.

Despite its contribution to cash income for farmers and to the national budget, cowpea is becoming more and more a national food crop which can significantly enhance the food security of the 66% poor farmers in Niger. It is widely consumed by both rural and urban inhabitants under different types of uses. In general cowpea grain can be cooked alone or mixed with rice and consumed as the main meal in the household. The grains can also be processed into flour which is used for a variety of recipes. Among these we can distinguish “Kossai”, a breakfast meal well known in the whole sub-region of West and Central Africa which contributes significantly to women income. The daily quantity of cowpea processed into “Kossai” was estimated up to 3,500 kg in the three main cities of the country including Niamey, Maradi and Zinder (Source: Ibro et al. 2008). This represents a market of 3,800 tons annually for these three cities.

Development of cowpea production, which concerns five regions of Niger (Zinder, Maradi, Tahoua, Tilaberi and Dosso), is principally justified because of its good export market value. Cowpea is exported unfinished and provides more income to producers and traders. The average income from grains is US\$ 147 ha<sup>-1</sup>. The grains are however difficult to store due to weevil attack. Chemicals are therefore applied to protect the grains in storage. The PIC Storage technology is being promoted in the country among cowpea growers and traders. State intervention in the cowpea sub-sector is mainly the regulation of trade (about 30 major traders). Many active informal distribution and sales channels of cowpea do exist.

Cowpea from Niger is exported mainly to the following countries: Nigeria (strong demand, continuous growth), Ghana, Benin and Togo (lower export levels and market growth). Prices and production vary widely from one year to the next (Source: EU 2002).

## **Research and development**

### **Variety development**

INRAN (Institut National de la Recherche Agronomique du Niger) is the national agricultural research center of Niger created in 1975 to replace the then French organizations (IRAT, IRFA, AFFT, etc) which were conducting agricultural research. Research in food crops (millets, sorghum, cowpea, groundnut) started before 1928 with IRAT, but important cowpea breeding efforts only started after the creation of INRAN. The main objectives of the program are to develop cowpea varieties resistant to *Striga*, insect pests (aphids, thrips) and tolerant to drought and low soil fertility. A longstanding harmonious working relationship exists between INRAN and IITA scientists in cowpea research and this will enhance progress in this project. Several improved cowpea breeding lines were registered in the country as shown in Table 1.

### **Major constraints to cowpea production in Niger**

The major constraints of cowpea production include social, biological, physical and technological environments.



**Table 1. Characteristic features of common cowpea varieties developed by the Niger research system.**

Official name of release	Year of release	Source of the material	Genetic background (parentage, pedigree, ancestry)	Area of potential coverage (ha)	Area of actual adoption estimate (ha)	Spillover national boundaries	Average yield potential (on-farm) (kg ha <sup>-1</sup> )	Varietal traits (selected characteristics)
IT90K-372-1-2	2002	IITA	IT90K-372-1-2	148,315	3,500	Yes	300	Semi-erect, white grain, moderately resistant to aphids
IT99K-573-1-1	2008	IITA	IT99K-573-1-1	111,236	2,000	Yes	350	Semi-erect, white grain, resistant to <i>Striga</i> , high grain yield
IT98K-205-8	2008	IITA	IT98K-205-8	111,236	2,000	Yes	300	Resistant to <i>Striga</i> and drought, high grain yield, early maturity
IT89KD-374-57	2002	IITA	IT89KD-374-57	148,315	3,500	Yes	350	Tolerant to aphids and drought
IT97K-499-38	2008	IITA	IT97K-499-38	111,236	2,000	Yes	400	Semi-erect, resistant to <i>Striga</i> and drought, high grain yield, early maturity
IT97K-499-35	2008	IITA	IT97K-499-35	111,236	2,000	Yes	400	Semi-erect, white grain, resistant to <i>Striga</i> and drought, high grain yield, early maturity

- Biotic stresses: Insect pests (aphids, flower thrips, pod sucking bugs, *Maruca*, bruchids), diseases (bacterial and viral) and *Striga*
- Abiotic stresses: Drought, heat, low soil fertility
- Poorly organized producers, limited access of farmers to inputs, especially seeds of improved varieties, insecticides and fertilizers at affordable prices
- High labor costs for planting, weeding and harvesting

## Planned Phase 2 activities and their contribution to national efforts

In TL-II Phase 2 we plan to bring about a mega impact approach where available cowpea technologies would be implemented in most, especially important cowpea production environments or agroecologies. The target set at the end of the phase is to achieve productivity of cowpea of 0.9 t ha<sup>-1</sup> in intervention areas and to influence the national productivity from 0.2 (current level) to 0.5 t ha<sup>-1</sup> by 2014.

## Expected outcomes from Phase 2 cowpea improvement for production and productivity

Cowpea farmers and farming practitioners will obtain higher income, and national cowpea production will increase to more than 862,455 tons by 2014 with productivity of 0.5 t ha<sup>-1</sup>. There would be excess production over the national demand which should allow for more export to other countries.

# Agroecologies for cowpea cultivation in Niger

In Niger cowpea is grown mainly in the Sudan Savanna and Sahel Savanna agroecologies. There are regions with cowpea coverage of more than 90,000 ha but there are very few regions where the average productivity levels are 0.21 to 0.36 t ha<sup>-1</sup> (Figs. 2 and 3). Niger is one of the countries with very low cowpea grain yield. The possible reason for this observation is that the farmers plant cowpea at very low population density. In addition, the cultivated areas are overestimated. Cowpea is usually grown as intercrop with sorghum, millets and groundnut and areas attributed to cowpea may be areas where the crops are grown together.

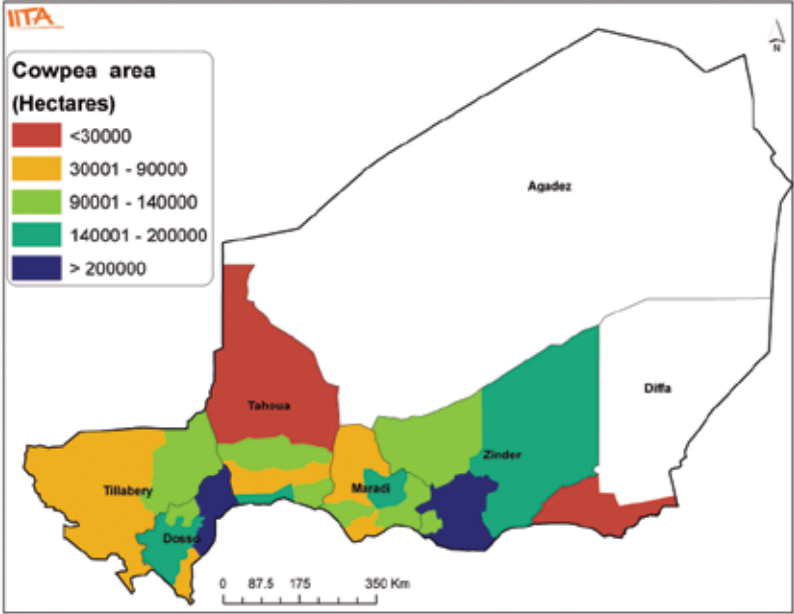


Figure 2. Cowpea production areas in Niger.

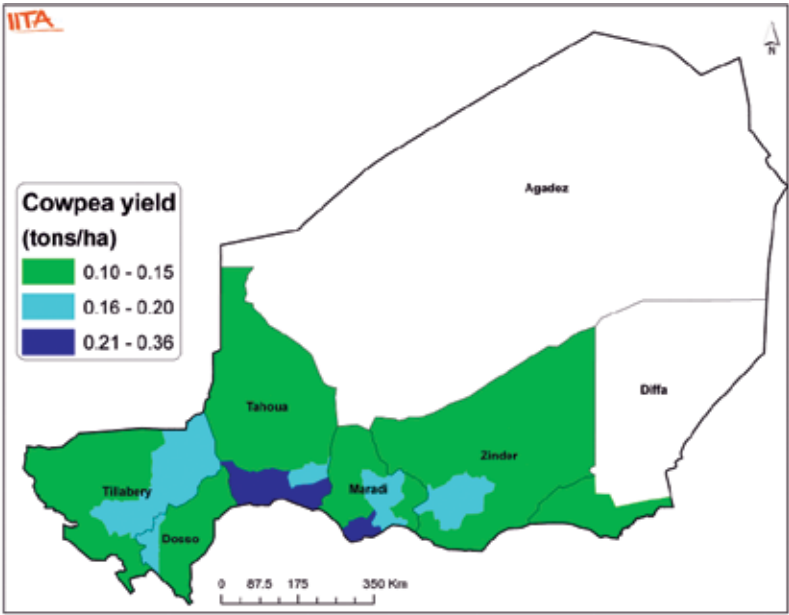


Figure 3. Cowpea yield distribution in Niger.

## Seed systems for a legumes green revolution in Niger

Niger Republic is a leading cowpea producer in the world, second to Nigeria, but all of its cowpea is produced in the short rainy season (June–September). At planting, there is a shortage of quality seeds and farmers plant whatever grain they get, which leads to poor stands and low yields. Private seed companies that produce and market cowpea seed are not many. Only one seed company (Alheri Seed) used to produce and market improved cowpea in Niger. Other private seed companies such as Fusaha, APPSN and Manoma SA which are producing mainly cereal seeds have also started recently to produce legume seeds. In general farmers mostly rely on NGOs to source and distribute improved cowpea seeds in the main producing areas of Dosso, Maradi and Zinder. Cowpea yields are low because of drought, the parasitic weed *Striga* and a number of diseases and insect pests. Through collaboration with the main research institution INRAN, IITA has developed a number of improved cowpea varieties that combine resistance to multiple biotic and abiotic stresses particularly drought and *Striga*. Despite the availability of improved varieties, adoption is low in Niger Republic because of shortage of seeds and lack of information on their availability in areas they are produced.

With the suggested promotion of a wide range of productive varieties and crop management options, cowpea productivity could be increased. To increase access and availability of seed of preferred varieties, the development of sustainable seed production and delivery schemes should be undertaken. The development of the cowpea seed sub-sector and closing the yield gap between on-station and farmers' fields through improved agronomic practices and better insect pest control should be targeted.

### Niger seed system strategy (2012–14)

The TL-II has built a seed production and distribution platform in Niger Republic to enhance production and effective distribution of cowpea in the country. The main organizations on this platform are the National Agricultural Research Institute (INRAN), Alheri Seed Co, Ministry of Agriculture and the Dutch NGO, SNV. It is expected that more NGOs will join the platform later. INRAN produces and supplies foundation seed to Alheri Seed Co and the NGOs involved in agricultural development in the country. While Alheri produces and sells certified seed, the NGOs particularly SNV and World Vision will disseminate the varieties through the establishments of demonstration plots, and also undertake production of seeds through the community seed schemes and promotion of seed marketing.

### Seed production target

Area: 4,774,250 ha

Seed rate (mean): 20 kg ha<sup>-1</sup>

National demand: 95,485 tons (2012–14)

Capacity to deliver 20%: 945,850 ha  $\approx$  19,097 tons

Target of productivity: 0.9 t ha<sup>-1</sup> at intervention sites and 0.5 t ha<sup>-1</sup> at national level

Total production target: 2,769,000 tons

### Opportunities, constraints, partnership and seed production plan

The target is to cover 20% of each important cowpea agroecology in Niger with improved seed.

### ***Opportunities***

- High consumption level/culture in the country
- High demand for cowpea as part of the daily staple
- Good market access for cowpea
- Liberalization of foundation seed production
- Availability of suitable varieties in major cowpea growing areas
- Favorable ecology (drylands) for cowpea production
- Cowpea haulm as fodder for livestock

### ***Constraints***

- Dominated by informal system that has technical and infrastructural challenges
- Total non-existence of mechanization at all steps
- Unpredictability of market price
- Low yield because of biotic and abiotic constraints
- Seed production and marketing is only picking up gradually
- Low capacity of national seed council to certify seed
- Insect pests from field to the store
- Poor seed distribution systems (lack of seed dealers in communities)
- Irregular rains especially early in the season

### ***Partners and their role***

- IITA: Technology development (varieties and crop management options) in partnership with NARES and ARIs; assessment and identification of sustainable seed delivery systems in partnership with NARES; provide training in priority skills (data management, impact assessment methodology, breeding methodology and PVS)
- Institut National de la Recherche Agronomique du Niger (INRAN): Technology development with backstopping from IITA; ensures the production of breeder and/or foundation seeds; evaluates technologies using the PVS methodology; facilitates the release of new varieties
- Ministry of Agriculture (SICCLA): Formulates seed laws and regulations as well as overall inputs (fertilizers, pesticides, etc)
- Ministry of Agriculture (including Extension Services): Formulates agricultural policies in the Rural Development Strategy; ensures the delivery of technologies and advisory extension services
- Association of Private Seed Producers of Niger: Coordinates seed production and marketing of certified/commercial seed
- NGOs such as SNV, World Vision, Africare, KKM, IFAD/IRDAR, IFAD/PPILDA: Promote improved farming practices and link farmers with markets
- Farmers' associations/small-scale seed producers: Assist in the evaluation of FPVS trials; monitor village-level seed production

- AGRA and WASA: Support the development of seed enterprise and agro-dealers (enhancing the capacity of local seed traders); provide training to agro-dealers (local seed traders) in marketing and small-scale business management

**Table 2. Seed roadmap for cowpea in Niger.**

Agroecological demand (ha)	Variety demand	Yield (kg ha <sup>-1</sup> )	Breeder seed in 2012		Foundation seed in 2013		Certified seed for use in 2014	
			Area (ha)	Production (t)	Area (ha)	Production (t)	Area (ha)	Production (t)
Sahel Savannah (Maradi) 1425046	IT90K-372-1-2	900	0.52	0.47	23.46	21.11	1055.59	950.03
	IT89KD-374-57	900	0.52	0.47	23.46	21.11	1055.59	950.03
	IT98K-205-8	900	0.52	0.47	23.46	21.11	1055.59	950.03
	IT97K-499-35	900	0.52	0.47	23.46	21.11	1055.59	950.03
	IT97K-499-38	900	0.52	0.47	23.46	21.11	1055.59	950.03
Sudan Savannah (Dosso) 1161065	IT99K-573-1-1	900	0.52	0.47	23.46	21.11	1055.59	950.03
	IT90K-372-1-2	900	0.42	0.38	19.11	17.20	860.05	774.04
	IT89KD-374-57	900	0.42	0.38	19.11	17.20	860.05	774.04
	IT98K-205-8	900	0.42	0.38	19.11	17.20	860.05	774.04
	IT97K-499-35	900	0.42	0.38	19.11	17.20	860.05	774.04
Sahel Savannah (Zinder) 1121783	IT97K-499-38	900	0.42	0.38	19.11	17.20	860.05	774.04
	IT99K-573-1-1	900	0.42	0.38	19.11	17.20	860.05	774.04
	IT90K-372-1-2	900	0.41	0.37	18.47	16.62	830.95	747.86
	IT89KD-374-57	900	0.41	0.37	18.47	16.62	830.95	747.86
	IT98K-205-8	900	0.41	0.37	18.47	16.62	830.95	747.86
Total	IT97K-499-35	900	0.41	0.37	18.47	16.62	830.95	747.86
	IT97K-499-38	900	0.41	0.37	18.47	16.62	830.95	747.86
	IT99K-573-1-1	900	0.41	0.37	18.47	16.62	830.95	747.86
Total			8.14	7.32	366.21	329.59	16479.53	14831.58

**Table 3. Certified seed production (t) plan over three years.**

Variety	2012	2013	2014
IT99K-573-1-2	1200	1800	2471.93
IT98K-205-8	1200	1800	2471.93
IT90K-372-1-3	700	1300	2471.93
IT89KD-374-57	750	1400	2471.93
IT97K-499-39	700	1350	2471.93
IT97K-499-36	700	1300	2471.93
Total	5250	8950	14831.58

### Seed production plan

Cowpea seed production plan for Niger is presented in Tables 2 and 3. The quantity of seed will be produced mainly by Alheri Seed Co, other small-scale seed companies and community seed producers and three seed companies that are now actively involved in cowpea seed production. IITA and INRAN will supply the foundation seed to the various seed companies.

## **Vision of success for cowpea in Niger**

Highest productivity level of cowpea of  $>0.5 \text{ t ha}^{-1}$  will be attained at national and global levels that attributes to the wealth of producer farmers with significant contribution to home consumption. The overall production will satisfy the national demand to significantly contribute to the GDP with significant amount of exports and/or agro-processing.