



# FEED<sup>THE</sup>FUTURE

The U.S. Government's Global Hunger & Food Security Initiative

## **Groundnut Production Constraints and Opportunities for Young Adults in the Senegalese Groundnut Basin**



### **Peanut Innovation Lab Policy Brief**

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## **Introduction**

Young adults are the future of the Senegalese economy. But young adults in the rural areas face challenges like climate change, land degradation, and land tenure insecurity that will strongly shape the role that agriculture plays in their future livelihood strategies. This research note examines how young adults, 16 to 29 years of age, in rural areas of the Senegalese Groundnut Basin are positioning themselves to meet these challenges. First, we examine how the prevalence of out-migration of young adults influences rural household composition. Second, we look at the diversity of young adult occupations and participation in agricultural production. Particular emphasis is placed on participation in groundnut cultivation, since it is the primary source of income for most rural young adults in the Groundnut Basin and a cornerstone of the regional economy. Third, we examine how education and use of TV, radio, and social media may impact outreach and training efforts. Fourth, we examine experience, training, and aspirations in groundnut production. Fifth, we report young adult perceptions of current constraints in groundnut production, as well as constraints to future investment. We then provide additional details on young adult perceptions of, and adaptations to, the challenges of land tenure insecurity and climate change. The research note concludes by distilling implications for policies and technologies to support young adults as next generation farmers in the Groundnut Basin. A separate research note provides a field-level analysis of groundnut soil-fertility management strategies, revenues, and expenditure of youth adults.

## **The Data**

The data used in this research note comes from a representative sample of 1,123 rural households in the heart of the Groundnut Basin (the provinces of Kaolack and Kaffrine and the department of Koumpentoum within the province of Tambacounda) surveyed in February and March of 2020. The survey sample is drawn in two stages. First, 75 rural villages are chosen as a population weighted random sample of all villages in the study region with populations less than 900 persons in the Senegal Census of 2014 (figure 1). Second, 15 households are randomly drawn from village lists of all households that contain young adults and that cultivate groundnuts.<sup>1</sup>

The household survey consisted of two main parts. In part one the household head, or other member responsible for overall management of the household, was interviewed about the demographic composition of the household (focusing on members 16 years of age and older), fields cultivated, details on inputs and outputs associated with groundnut production, and roles

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<sup>1</sup> The initial sample was 1,125 households based on 75 villages and 15 households per village. However, two households were lost due to incorrect unique identifying numbers.

of young adult members of the household in groundnut production. In part two of the survey, one young adult member of the household was randomly chosen for an in-depth interview on their goals and aspirations, their experience, and constraints in groundnut production, and their perceptions of land tenure and climate risks.<sup>2</sup>

### Rural Household Composition and Young Adult Migration

Young adults are an important component of rural Groundnut Basin households. The average rural household in the Groundnut Basin contains 6.8 adults age 16 or above who are currently living in the household or who are not currently living in the household but resided there within the last five years; of these economically active members over half (3.6) are young adults between age 16 and 29 (table 1).<sup>3</sup> Individuals not currently living in the household are important household members, providing remittance income and rainy-season agricultural labor. Adults who have left the household in the last five years either temporarily or permanently represent 17 percent of all adult household members and 25 percent of young adult household members. The vast majority are temporary migrants, who reside within Senegal (98 percent) and return to the household during the cropping season to assist in agricultural production. Young adult males are far more likely to out-migrate (38 percent) than females (10 percent), as a result female young adults account for 56 percent of young adults currently residing in rural Groundnut Basin households.

Table 1: Average Household size and member migration status

	Members	Temporary Migrants	Permanent Migrants
<b>All adults (over 16 years)</b>	6.78	1.08	0.07
<b>Young adults</b>	3.57	.83	.05
<b>Young women</b>	1.66	.16	.01
<b>Young men</b>	1.91	.67	.04

Out-migrants are also an important source of household income (table 2). About 29 percent of all adult out-migrants send remittance payments back to the household, and the average amount sent back in a year is CFA 318,450 (USD \$540).<sup>4</sup> However, young adults are both less likely to send remittances (18 percent) and send lower levels of payments (CFA 115,396 or \$195

<sup>2</sup> In a third part of the survey, all household groundnut fields were visited and perimeters were walked and measured using a GPS field measurement application.

<sup>3</sup> Households are defined as family units of individuals who eat meals together.

<sup>4</sup> In March 2020 the exchange rate was 590 CFA to \$1 USD.

USD). As a result, while young adults represent 76 percent of all out-migrants, they contribute only 31 percent of household remittance income.

Table 2: Household remittance income from out-migrants

	<b>Sending %</b>	<b>Average sent (CFA)</b>
<b>All adults (over age 15)</b>	29	318,453
<b>Young adults</b>	18	115,396

### Occupations and Attachment to Agriculture

Young adults in the Senegalese Groundnut Basin maintain a strong attachment to the agricultural sector. Over half of young adults list agriculture as their primary occupation (table 3), with the next largest category being students (23 percent). Female young adults are notably more likely to list agriculture as their primary occupation (62 percent). Few young adults list wage employment and small business, reflecting the lack of diversity in economic opportunities in rural areas of the Groundnut Basin.

Table 3: Primary occupation of young adults (% in occupation)

	<b>All</b>	<b>Female</b>	<b>Male</b>
<b>Agriculture</b>	52	62	43
<b>Livestock</b>	2	1	3
<b>Commerce</b>	6	3	8
<b>Wage or salary</b>	1	1	2
<b>Student</b>	23	18	27
<b>Other</b>	17	15	18

Most young adult household members participate in agriculture, even if it is not their primary occupation. In fact, 95 percent of young adults – both female and male – report involvement in agricultural activities during the last cropping season (table 4). Levels of participation in groundnut cultivation are only slightly lower than overall levels of participation in agriculture; with 89 percent of males and 77 percent of females participating in groundnut cultivation during the previous cropping season. As mentioned, young adult temporary migrants continue to play an important role in household agriculture and, particularly, groundnut production; 83 percent of young adult males and 65 percent of young adult females who were living away from

the household at the time of the survey participated in household groundnut production during the previous cropping season.

Table 4: Participation in agriculture and in groundnut cultivation

	In agriculture (%)	In groundnuts (%)	Out-migrants in groundnut (%)
<b>Young adults</b>	95	83	79
<b>Young women</b>	95	77	65
<b>Young men</b>	95	89	83

### Educational Opportunities and Media Use

Young adults are roughly equally likely to attend state ‘French schools’ and Koranic schools, while attendance of schools with instruction in Arabic and no school attendance are less frequent. Gender disparities in education persist; most notably 21 percent of female young adults list “none” as their schooling type, as compared to 10 percent of male young adults.

Table 5: Type of school attended

	French (%)	Arab (%)	Koranic (%)	Basic literacy (%)	None
<b>Young adults</b>	37	12	35	1	15
<b>Young women</b>	35	14	29	1	21
<b>Young men</b>	39	10	41	0	10

We also examine highest level of school attainment for those who attended French and Arabic schools (table 6). Secondary school is the most common terminal degree. However, 52 percent of young adult females and 36 percent of young adult males report primary school or no terminal degree as the highest level attained. University degrees are rare and heavily skewed by gender; one percent of young adult females and 9 percent of young adult males report attainment of a university degree.<sup>5</sup>

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<sup>5</sup> Levels of secondary and university degree attainment may show a slight downward bias, as some young adults at the lower end of the 16- to 29-year-old age range may not yet have completed their highest degree.

Table 6: Level of schooling for French and Arab school attendees  
*Type of school attended (%)*

	No degree	Primary	Secondary	University
Young adults	18	25	51	5
Young women	23	29	47	1
Young men	15	21	55	9

An alternative functional measure of education is basic ability to read and write. Again, gender disparities are notable in this measure, with 79 percent of young adult males reporting they are able to read and write, compared to 60 percent of young adult females. Note, non-responses have no schooling and are likely to have very low levels of literacy.

Different schooling types and associated differences in languages and literacy levels complicates development outreach efforts in the rural Groundnut Basin, as does the variation in young adult access to and use of media. A little over half of young adults watch TV and the same proportion listen to radio, in both cases for a little over 2 hours per day on average. Social media use is more limited, with 29% of young adults indicating that they use social media platforms for a little over two and a half hours per day, on average. On the other hand, 20% of young adults indicate they do not access any form of media.

Table 7: Literacy  
*Able to read and write (%)*

	Yes	No	No response
Young adults	70	14	15
Young women	60	19	21
Young men	79	11	10

Table 8: Young adult media use

	%	Hours/day
Watch TV	52	2.2
Listen to radio	54	2.3
Use social media	29	2.6
No media use	20	

## Experience, Aspirations, and Training in Groundnut Production

Virtually all young adults (99 percent) have experience in groundnut production and that experience starts from an early age (table 9). Young adult males first become involved in groundnut production at 12.9 years of age on average, while females are slightly older at 13.8 years of age at first involvement. Only 52 percent of young adults indicate that they see their future career as an agricultural producer. The second most common career aspiration listed was retailer, followed by wage employment and government employment. However, economic opportunities outside of agriculture are limited in rural areas of the Groundnut Basin and over 85 percent of young adults plan to grow groundnuts in the future. Similarly, 65 percent of young adults would prefer to stay in their village, while 29 would prefer to move to an urban area within Senegal and 6 percent would prefer to move abroad. Females are more likely to prefer to remain in the village. Despite the strong attachment to groundnut production only 1 percent of respondents reported receiving any formal training in groundnut production (most often in seed selection), suggesting that significant opportunities remain for agricultural training and outreach efforts in the rural Groundnut Basin.

Table 9: Young adult attachment to groundnut production

	Experience with groundnut farming (%)	Age of first groundnut experience	Agricultural career aspirations (%)	Plan to grow groundnuts in coming years (%)	Wish to stay in village (%)	Received groundnut training (%)
<b>All</b>	99	13.4	53	86	64	1
<b>Female</b>	99	12.9	55	86	68	1
<b>Male</b>	99	13.8	49	85	59	1

## Constraints in Groundnut Production

Young adults were asked about both constraints to current groundnut production and more broadly about major deterrents to future investments in groundnut production if they were provided funds. In terms of current constraints to groundnut production, young adults most frequently list specific basic inputs like fertilizer (76%), seed (54%), implements (30%) and land (26%). Broad environmental conditions like low rainfall (19%) and climate change are less frequently listed as direct current constraints (Table 10).

Table 10: Common constraints in groundnut production for young adults

	Listed as one of up to three constraints (%)
<b>Lack of fertilizer</b>	76
<b>Lack of seed</b>	54
<b>Lack of implements</b>	30
<b>Lack of land</b>	26
<b>Lack of rainfall</b>	19
<b>Climate change</b>	16

An alternative question asks young adults to list the constraints that deter future investments in groundnut production (table 11). Responses address broader conditions for production within the sector, but also continue to suggest that access to inputs are seen as a major constraint. In this case, 73% indicated high input costs is a major deterrent to investment in groundnut production. Variable rainfall is the next most commonly listed constraint (44%), followed by low yields (37%), and poor soils (35%). Lack of labor, difficulty of the work, and insecure land tenure are listed far less frequently.

Table 11: Constraints to investment in groundnut production for young adults

	Listed as constraint (%)
<b>High input costs</b>	73
<b>Variable rainfall</b>	44
<b>Low yield</b>	37
<b>Poor soils</b>	35
<b>Lack of labor</b>	13
<b>Difficult work</b>	10
<b>Insecure land tenure</b>	7

Young adults were asked additional questions about two challenges faced in future groundnut production: insecure land tenure and climate change. While insecure land tenure is rarely listed by young adults as a major constraint, future access to land is a major concern. Only 31% of young adults indicate that they have ownership rights to family land, and almost all those rights are in the form of traditional inheritance (table 12). As a result, 61% of young adults indicated that they worry about future access to land for groundnut production. The most common actions taken to establish land tenure on currently cultivated land are to plant trees on the field, however young adult farmers indicated they also established hedges, fences or demarcated fields with tires or stakes to establish use rights. Young adults very rarely have



formal use rights in the form of a title to fields, but some (15%) do establish use rights by registering fields through the less formal process of “deliberation.”

Table 12: Young adult perceptions of land tenure

	Perceptions (%)
<b>Have ownership rights to family land</b>	31
<b>Worry about future land access</b>	61
<b>Actions Taken:</b>	
<b>Formal title</b>	1
<b>Register</b>	15
<b>Continually use</b>	4
<b>Fence</b>	8
<b>Demarcate (tires, stakes)</b>	05
<b>Hedges</b>	14
<b>Trees</b>	24

Young adults also expressed significant concerns about climate change when prompted, with the over-whelming majority (98%) believing that the climate is changing (table 13). When asked to describe how the climate is changing, 53% indicate that the rainy season is starting later, 45% feel the rains are generally weaker, 38% feel the rains are ending earlier, and 31% feel the rains are more irregular. About half (46%) of respondents also feel the Groundnut Basin is getting hotter and 13% feel winds are becoming stronger. The majority of young adults (64%) feel these climatic changes have resulted in strong declines in groundnut production, while 31% feel they have resulted in mild to moderate declines. In terms of adaptations to the perceived changes in climate, 45% of young adults listed changing or diversifying crops, 38% listed changing varieties, and 28% listed planting later in the rainy season as adaptations. Use of climate information and agroforestry methods were also frequently listed (19%) adaptations.

Table 13: Young adult perceptions of climate change

a. Is climate change happening?

Answer	%
Yes	98

b. How is climate changing?

Observation	%
Rainfall is more irregular	31
Rain is generally weaker	45
Rains start later	53
Rains end earlier	38
Hotter	46
Stronger winds	13

c. How are you adapting to climate change?

Adaptations	%
Varieties	38
Climate information	19
Agroforestry	19
Late planting	28
Best practice training	13
Change or diversify crops	45

### Implications for Groundnut Sector Technologies and Policies to Support Young Adults

Young adults in rural areas of the Senegal Groundnut Basin show tremendous resilience and adaptability in the face of a challenging environment for agricultural production. At the same time, youth struggle to identify viable occupations outside of agriculture. Out-migration, particularly among male young adults, is a common response to this situation. Temporary out-migration should be viewed as an opportunity for economic diversification, not a threat to rural household livelihoods. In rural areas of the Groundnut Basin, temporary out-migrants maintain a notably strong connection to their village, and almost all return to assist in agricultural production activities during the rainy season. Given these strong connections, rural development policies and programs need to explore opportunities to make better use of the

skills and connections of out-migrants, particularly as cellphone and mobile money transfer applications dramatically lower transactions costs of economic interactions. Examples include programs that allow out-migrants to send remittances as deliveries of inputs like fertilizer to ease input access constraints. Similarly, temporary out-migrants can be assisted in developing agricultural value-chain opportunities that broaden the employment base in the rural economies and maintain village linkages.

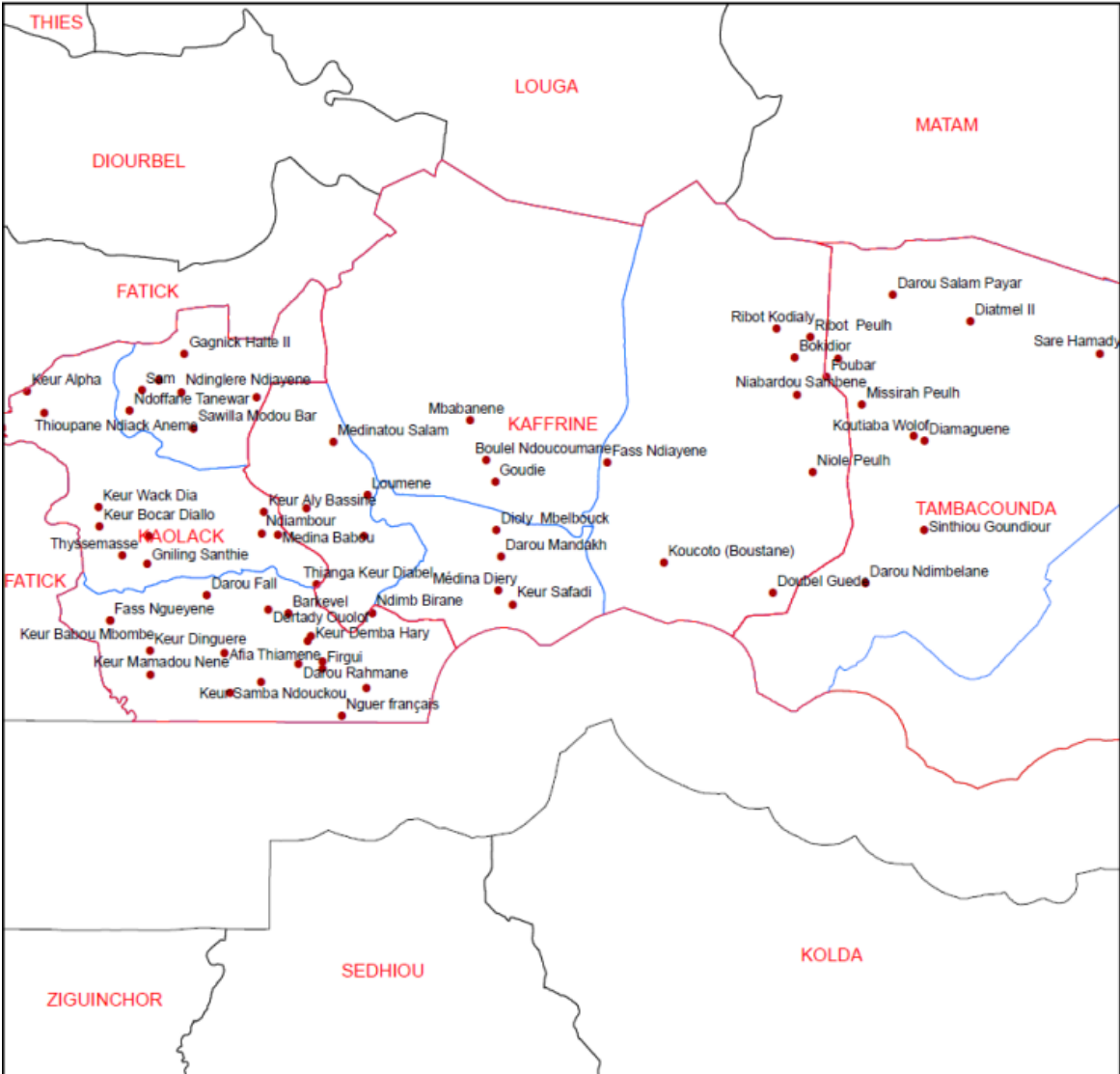
The variety of education pathways in rural areas of the Groundnut Basin also presents challenges, as well as opportunities. Outreach efforts cannot assume functional literacy, and must be adaptable across multiple languages and levels of content complexity. Diversity of media use also poses a challenge for outreach efforts, as there is no dominant media source for information. On the other hand, significant opportunities exist to increase agricultural training and outreach efforts for rural young adults in the Groundnut Basin, as current exposure is virtually non-existent. Agricultural training and outreach programs can also target temporary out-migrants, who are often seen as a credible source of external knowledge by village elders.

Young adults are well aware of the difficult agricultural production environment within which they operate in the Groundnut Basin. High input prices, variable rainfall, low yields, and degraded soils deter investment in agriculture. Insecure land tenure also inhibits long-term agricultural production investments by young adults, making security of land access an important policy issue in the Groundnut Basin. Currently, few households use the formal legal process to title land, while deliberated land rights are more commonly secured for fields. Policies to broaden access to deliberated land titles will increase young adult confidence that they will have land for future production and enhance propensities to investments in agricultural land.

Groundnut production continues to represent a unique and widespread opportunity for young adults to generate income in the region. But groundnut production is currently constrained by lack of access to inputs, particularly inorganic fertilizer. Young adults also perceive the climate to be changing and are actively adapting through diversification of crops, later planting, and use of adapted varieties. Research and outreach efforts can use the strong demand for inputs, particularly fertilizer, as a nudge to move young adult farmers toward broader adaptations that entail short-term costs, but have long-term benefits. For example, inorganic fertilizer could be provided as a subsidy to adopt long-term intensified soil organic carbon management practices to rehabilitate degraded soils. Incorporation of trees and shrubs in field production systems can increase soil organic matter in depleted soils, while at the same time demarcating fields and increasing the security of land access. Inorganic fertilizer subsidies can also be justified to donors as North-South transfers for the social value of carbon sequestered under improved soil organic carbon management systems.



Figure 1: Survey Villages



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