



Appraisal of Potato Production Practices in the Adamawa and West regions of Cameroon

Baseline Survey Report

SEPT
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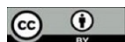
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Content

Summary.....	8
1. INTRODUCTION.....	9
1.1. Project overview.....	9
1.2. Objectives of the baseline study	10
2. METHODOLOGY	11
2.1. Tools Development	11
2.2. Study area	11
2.3. Sampling Technique and Size	13
2.4. Field Preparation and Data Collection.....	13
2.4.1 Field Preparation	13
2.4.2 Survey administration	14
2.5. Data Processing	15
3. RESULTS AND DISCUSSION	16
3.1. ADAMAWA REGION	16
3.1.1 Identification of respondents and survey zones	16
3.1.2 Farmer information and activities	17
3.1.3 Potato production.....	18
3.1.4 Training and Technology Adoption	22
3.1.5 Potato Constraints	23
3.2. WEST REGION.....	23
3.2.1 Identification of respondents and study zones.....	23
3.2.2 Farm information and activities	24
3.2.3 Potato production.....	25
3.2.4 Training and Technology Adoption	29
3.2.5 Potato Constraints	30
4. CONCLUSION AND RECOMMENDATIONS.....	31
References	33
Appendix.....	34

LIST OF ACRONYMS AND ABBREVIATIONS

BMZ	German Federal Ministry for Economic Cooperation and Development
CIP	International Potato Center
CPF-Mbouo	Centre Polyvalent de Formation at Mbouo
CSPro	Census and Survey Processing System
FBS	Farmer Business School
FFS	Farmer-Field School
hh	Households
MINADER	Ministry of Agriculture and Rural Development
MINEPIA	Ministry of Livestock, Fisheries and Animal Industries
ProCISA	Green Innovation Centers for the Agricultural and Food Sector
PVCD	Potato Value Chain Development
SPSS	Statistical Package for Social Science
SSA	sub-Saharan Africa

LIST OF TABLES

Adamawa Region

Table 1. Sample distribution of households (hh) among the divisions in the Adamawa region	16
Table 2. Total area of potato plots owned by potato households (hh) in the Adamawa region.....	17
Table 3. Major other crops cultivated by potato farmers in the Adamawa region.....	18
Table 4. Cultivation techniques in the Adamawa region	18
Table 5. Watering systems for potato cultivation in the Adamawa region.....	18
Table 6. Potato varieties grown in the Adamawa region	19
Table 7. Cultivation of varieties introduced by ProCISA	19
Table 8. Source of seed potato used by smallholder farmers in the Adamawa region	20
Table 9. Farmers using pesticides in the Adamawa region.....	21
Table 10. Sources of pesticides against potato pests and diseases in the Adamawa region	21
Table 11. Types of fertilizers used by potato farmers in the Adamawa region	21
Table 12. Sources of mineral fertilizers used for potato cultivation in the Adamawa region.....	22

West Region

Table 13. Sample distribution of respondents per division in the West Region	24
Table 14. Total land holding of plots owned by farmers in the West Region	24
Table 15. Other crops grown by potato farmers in the West region	25
Table 16. Cultivation techniques commonly used in the West region.....	26
Table 17. Watering systems for potato cultivation in the West region	26
Table 18. Main potato varieties grown in the West region by smallholder farmers interviewed	26
Table 19. Cultivation of varieties introduced by ProCISA	26
Table 20. Sources of seed potato in the West region	27
Table 21. Number of farmers using pesticides in the West region.....	28
Table 22. Sources of potato pesticides used by farmers in the West region	28
Table 23. Types of fertilizers used by potato farmers in the West region	29
Table 24. sources of mineral fertilizers in the West region	29

LIST OF FIGURES

Figure 1. PVCD project geographic scope on the country map.....	12
Figure 2. Training of enumerators held in Ngaoundere on November 25, 2020.....	14
Figure 3. Hands-on training on questionnaire administration in Ngaoundere on November 25, 2020	14
Figure 4. Courtesy visit to the Divisional Delegate of the Menoua division, West region	15

Adamawa Region

Figure 5. Map of the Adamawa region showing the respondents' households.....	16
Figure 6. Factors that hinder farmers from cultivating all their plots in the Adamawa region.....	17
Figure 7. Criteria for seed and variety selection by smallholder farmers in the Adamawa region	19
Figure 8. Most common pests and diseases reported by respondents in the Adamawa region	20
Figure 9. Farmers trained on good agricultural practices for potato production in the Adamawa region	22
Figure 10. Level of potato technology adoption by potato farmers in the Adamawa region.....	22
Figure 11. Potato constraints encountered by respondents in the Adamawa region	23

West Region

Figure 12. West region map showing the investigated households	23
Figure 13. Factors preventing farmers from planting potatoes in all their plots in the West region.....	25
Figure 14. Criteria used by farmers when selecting potato varieties in the West region	27
Figure 15. Most common pests and diseases reported by respondents in the West region.....	28
Figure 16. Farmers trained on good agricultural practices for potato production in the West region.....	29
Figure 17. Level of technology adoption by potato farmers in the West region	30
Figure 18. Potato constraints encountered by farmers in the West region.....	30

Summary

We conducted a baseline survey to appraise the current potato practices and farming systems in the Adamawa and West regions of Cameroon where a GIZ-funded project (ONE WORLD – No Hunger, or SEWOH) titled "Green Innovation Centers for the Agricultural and Food Sector" (ProCISA) is being implemented. We employed a mix of qualitative and quantitative methods to gather and analyze data/information. This study focused on potato farmers that have been into potato production for at least two years.

We developed a structured questionnaire which was administered to small- and medium-sized potato growers based on a literature review and consultation with key stakeholders. The questionnaire was pretested through ten in-depth interviews with selected farmers in the Adamawa and West regions. Local enumerators were recruited in each region and trained to administer the questionnaire in the field.

In total, 341 questionnaires were completed (141 in Adamawa and 200 in the West region) in 133 villages (35 in Adamawa and 98 in the West region) using a modified systematic random sampling technique to ensure even representation. The collected data was then coded and analyzed.

Farmers in both regions cultivate an area typically not more than 1 hectare (ha), but in Adamawa, farmers grow only one round of potatoes, while in the West they cultivate two in a year (i.e., during the rainy season from March to October).

Top challenges to farmers in our survey area include low access to quality seed, poor management and agronomic practices, and limited access to credit, fertilizers and pesticides. In Adamawa, just over half of the farmers (51%) reported having received no agricultural training in the past, compared to just 43% in the West region. Thus, interest in and willingness to participate in future trainings are high.

1 INTRODUCTION

1.1 Project overview

The “ONE WORLD – No Hunger” Initiative (SEWOH) by the German Federal Ministry for Economic Cooperation and Development (BMZ) as part of the G7’s goal to lift 500 million people from hunger and malnourishment by 2030. SEWOH intends to contribute significantly to the reduction of poverty and hunger in developing countries, including Cameroon.

In Cameroon, the "Green Innovation Centers for the Agricultural and Food Sector" (ProCISA) project serves as the vehicle for SEWOH activities. Implemented since November 2014 in close collaboration with the Ministry of Agriculture and Rural Development (MINADER) and the Ministry of Livestock, Fisheries and Animal Industries (MINEPIA), ProCISA focuses on the potato sector (among other sectors) to introduce and promote technical and institutional innovations along with the capacity building to increase productivity from potato farming, with special emphasis on creating jobs for women and youth in agriculture.

To help ProCISA achieve its objectives, GIZ has partnered with the International Potato Center (CIP) for its technical expertise and experience with potato agri-food systems in a project entitled, "Potato Value Chain Development." The objectives of the project are to promote sustainable intensification of potato production and provide business opportunities for small to medium-sized seed enterprises through innovative production practices, capacity-building, and appropriate business model development. The project is structured in five components: 1) policy engagement and advocacy; 2) training at scale; 3) seed production and variety promotion; 4) promotion of good agricultural practices; and 5) monitoring and evaluation and knowledge sharing.

CIP and its partners have developed and validated technologies and delivery systems that address bottlenecks to strengthen potato value chains (VCs), such as appropriate decentralized seed systems, climate-smart agricultural practices, and crop and disease management tailored for smallholder farmers. With long-term experience in sub-Saharan Africa (SSA), CIP brings expertise in breeding, pest and disease management, agronomy, nutrition, value development, food technology, gender and youth inclusive growth, capacity development, and management of multi-partner initiatives. CIP’s experience with farmer field schools (FFS) is particularly applicable to this project as they seek to equip farmers and extension works with a set of skills to grow value chains and develop business opportunities.

Potato production is an important agricultural activity in Cameroon: an estimated 205,000 hectares of land are used for its production.¹ The first potato planting generally takes place at the beginning of the rainy season (in March) with harvest in June (Fontem et al., 2004). The second season generally takes place in August. Over 200,000 farmers grow potatoes in Cameroon, mostly smallholders and predominately women in this group (Fontem et al., 2004). Most farmers grow only one round of potato due to limited precipitation outside the rainy season. However, some farmers grow potato from November to January along the riverbanks and valleys.

Potato is cultivated in small-scale localities in six of the 10 regions of the country. The West and the North West regions account for 80% of national production. Seventeen percent of the national production is exported to neighboring countries like Gabon, Central African Republic, Congo, and Equatorial Guinea (Mengui et al., 2019). These two regions are located in the western highlands of the country, which are characterized by cool

¹ <https://www.potatopro.com/cameroon/potato-statistics>

temperatures and rainfall of at least 800 mm per year at altitudes ranging from 900 to 3000 meters above sea level.

Potato production is still constrained by poor access to quality seed, poor farming practices, pests and diseases, poor soil fertility, high cost of inputs like pesticides and fertilizers, lack of access to credit, and a lot more, despite Government subsidization (Achancho, 2013, KIT, 2019).

1.2 Objectives of the baseline study

The aim of this survey was to obtain baseline data from farmers who will be supported by the project and some farmers that will not be supported by the project to serve as test farmers. The results of this baseline survey will establish a reference to selected indicators for farmers who will be supported by the project. In the future, this baseline data will serve as the basis of comparison whether the project has reached or not its main objective of reducing food insecurity and generating income.

The specific objectives of this study:

1. To provide insights into current agronomic practices by potato farmers to identify entry points for innovation;
2. To construct a farmer typology of potato farmers that relates to adoption potential for improved agronomic practices; and
3. To serve as a basis for Monitoring, Evaluation and Learning (MEL) for the actual and upcoming projects.

2 METHODOLOGY

An appropriate mix of qualitative and quantitative methods was used to gather and analyze data/information of diverse perspectives from the baseline and to promote the participation of different stakeholders.

This baseline study targeted potato farmers the project is planning to engage with, especially households that have been into potato production for the past two years.

2.1 Tools Development

A structured questionnaire was developed for the small and medium holder potato growers based on the literature review and knowledge of the study areas. The questionnaire was pretested through ten in-depth interviews with some farmers in the Adamawa and West regions and later presented to the ProCISA team for inputs and amendments.

To achieve the above-mentioned purpose, the questionnaire (Appendix 1) was developed to collect the following data:

- Identification of respondents or households (hh) and zones;
- Farm history and activities;
- Potato production (January 2019- September 2020);
- Training, access to information and technologies, adoption; and
- Production constraints.

2.2 Study area

This baseline survey was meant to be conducted in all three project intervention regions, i.e., the Adamawa, North-West, and West regions. But due to the current crisis in the North-West region, the survey was conducted only in the Adamawa and West regions.

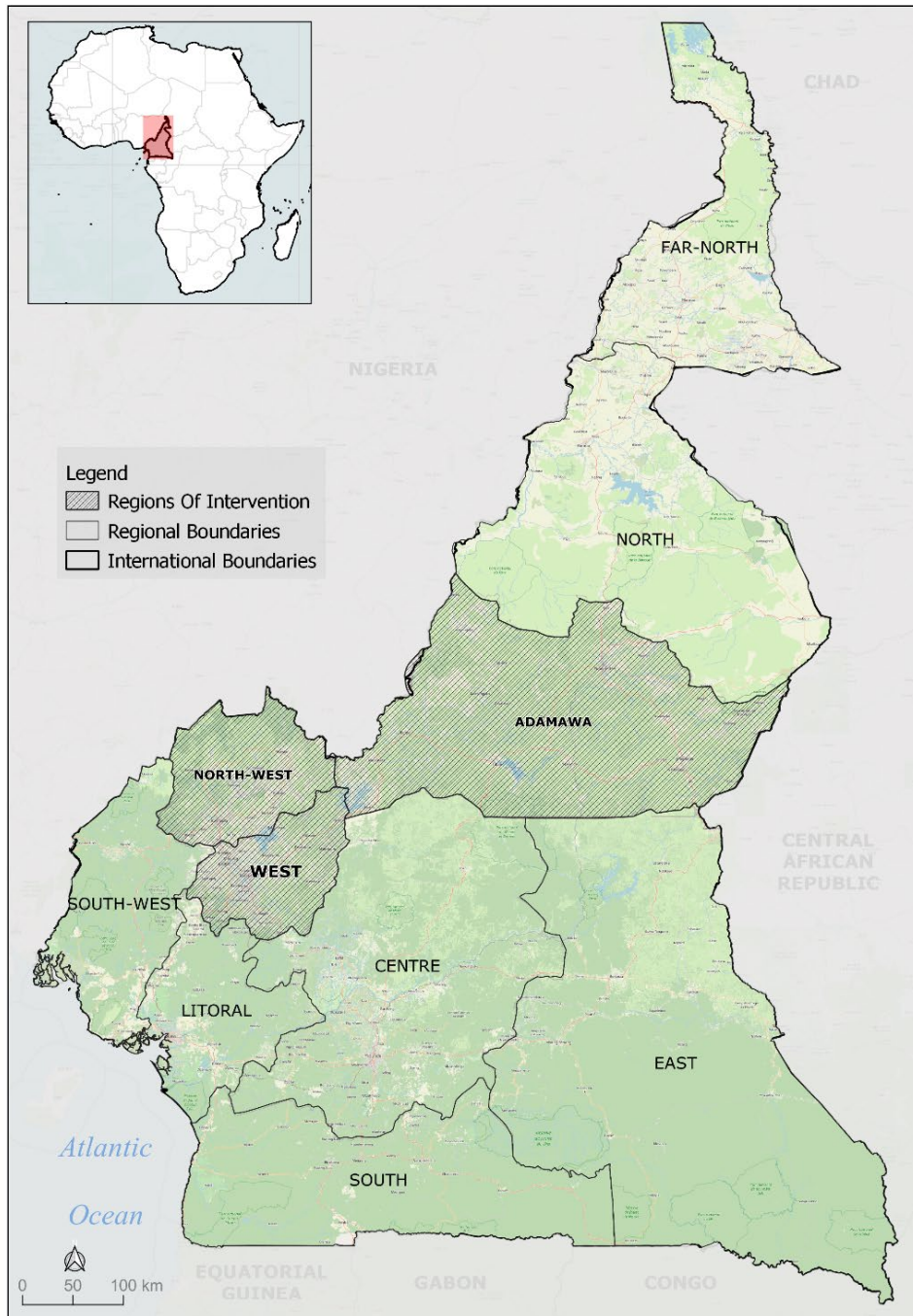


Figure 1. Geographic scope of PVCD project in Cameroon

Data was collected in 133 villages (35 in the Adamawa region and 98 in the West region). These villages were selected with the assistance of the Regional Delegates of MINADER and CIP regional coordinators, based on the following criteria:

- Recognizable and reasonable potato production;
- Availability of farmers;
- Accessibility at the period that was previewed for the questionnaire administration; and
- Level of security.

Appendices 2 and 3 present the lists of villages in the Adamawa and West regions, respectively, where questionnaires were administered.

2.3 Sampling Technique and Size

Modified systematic random sampling technique was used for sample selection which is widely used as a probability sampling method. The rationale for choosing this technique is due to its simplicity and it also ensures even coverage of the entire region for all units. The results obtained after using this technique are usually representative of the given region or population unless certain characteristics of the population are repeated for every individual, which is highly unlikely to occur.

The total sample size was 341 questionnaires administered: 141 questionnaires in the Adamawa region and 200 questionnaires in the West region.

2.4 Field Preparation and Data Collection

2.4.1 Field Preparation

The field plan was prepared and finalized after consultation and brainstorming with the CIP project and ProCISA teams.

A call for application was launched for the hiring of enumerators to administer the questionnaire-based survey through individual interviews in each region.

After receiving 116 applications (62 from the West and 54 from the Adamawa region) and screening, thirty-four (34) locally-based enumerators (20 in the West region and 14 in the Adamawa region) were recruited to collect data (Appendices 2 and 3). These enumerators were recruited based on the following criteria:

- Availability at the time of the survey;
- Flexibility to move to any village in the region of the survey as assigned or instructed by the supervisor;
- Mastery of the villages selected for questionnaire administration;
- Being a holder of at least an advanced level with some basic knowledge in agriculture and/or a diploma in agriculture;
- Basic knowledge of the local languages (Fulfulde and Gbaya in the Adamawa region and Bamileke in the West region); and
- Physically fit for field work.

The recruited enumerators received a one-day training on 17 November 2020 in the West region and 25 November 2020 in the Adamawa region (Fig. 2). In this training, enumerators were introduced to various techniques for administering the questionnaire, and to the study localities.



Figure 2. Enumerator training in Ngaoundere in November 2020

As part of the training, the enumerators carried out some practical tests amongst themselves, i.e., some played the role of the respondent while others played the role of the enumerators (Fig. 3). The objective of this activity was to make them have a good mastery of the questionnaire and the sequencing of the questions.



Figure 3. Questionnaire training in Ngaoundere in November 2020

2.4.2 Survey administration

Each field enumerator interviewed around ten (10) respondents from at least two villages with the structured questionnaire for a duration of two (02) days, i.e., 18-19 November 2020 in the West region and 26-27 November 2020 in the Adamawa region. Minor changes were made to the work plan when required in consultation with the project staff.

The administrative authorities (Regional, Divisional, and Sub-Divisional Delegates of MINADER and the Civil authorities) and some of the traditional leaders were officially informed about this activity through letters and courtesy visits (Fig. 4). The objective for informing them was to facilitate access to the households and fields and most especially to assure support in case of any insecurity.



Figure 4. Courtesy visit to the Divisional Delegate in the Menoua division, West region, Cameroon

While the enumerators were busy in the field gathering data, supervisors improvised unannounced monitoring visits to ascertain the proper execution of the exercise and provide support.

After the field work, filled questionnaires were carefully checked page by page by enumerators before submission. This was to ensure that the questionnaire was properly administered.

2.5 Data Processing

The completed forms were scrutinized, and data coding was done through the proper code plan for both qualitative and quantitative responses. The data entry mask was generated using the Census and Survey Processing System (CSPPro) software, where the collected data was entered, edited, and tabulated for disseminating. The entered data was then exported to the Statistical Package for Social Science (SPSS) (Version 21.0. 14 Aug 2013) database and analyzed for descriptive statistics. The report was prepared according to the study guidelines, and the sections were organized accordingly.

3 RESULTS AND DISCUSSION

3.1 ADAMAWA REGION

3.1.1 Identification of respondents and survey zones

The baseline survey covered four divisions out of the five in the Adamawa region, i.e., Djérem, Faro et Déo, Mbéré and Vina. The map below shows the different households surveyed per division in the Adamawa region. Not all the enumerators were having an android phone that could permit them collect GPS coordinates of the enumerated households.

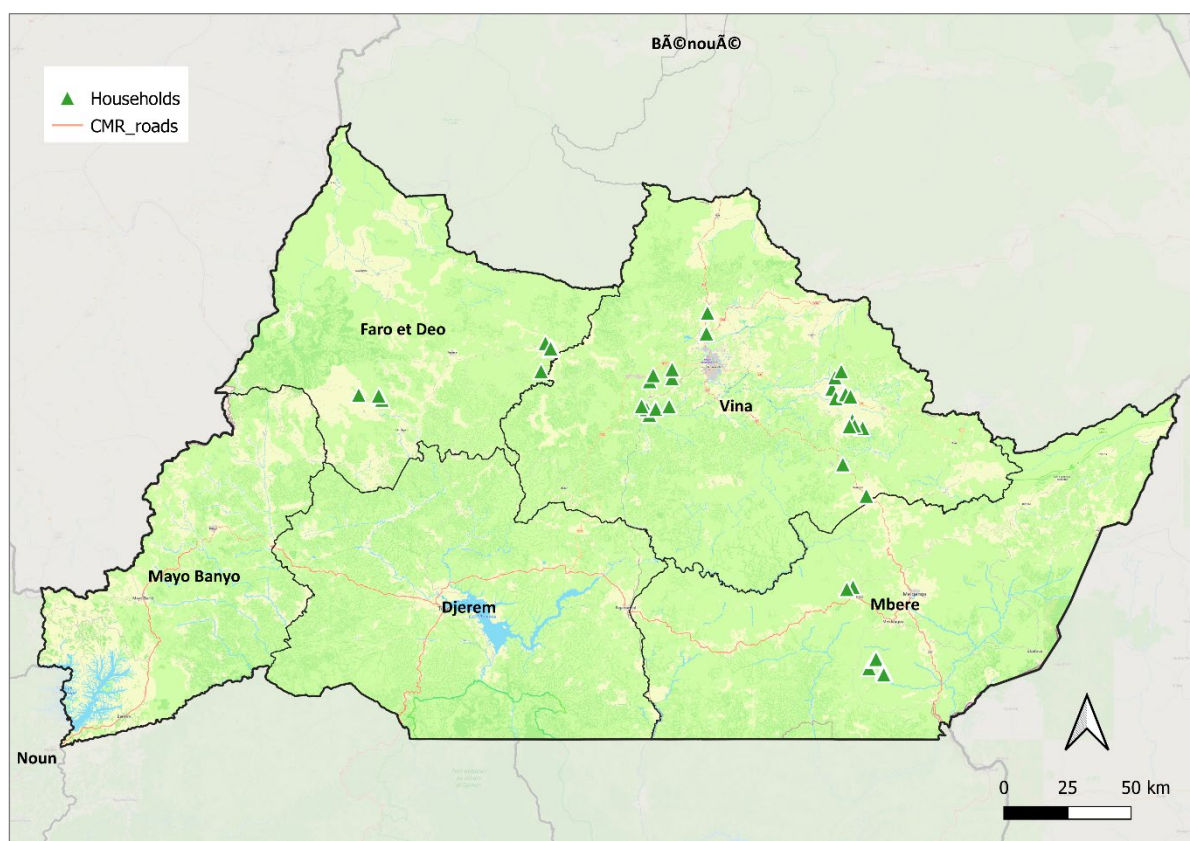


Figure 5. Map of the Adamawa region showing some of the respondents' households

The sample distribution among the divisions is shown in table 1.

Table 1. Sample distribution of households (hh) among the divisions in the Adamawa region

N°	Division	Number of hh	% of hhs
1	Djerem	10	7
2	Faro et Deo	21	15
3	Mbere	20	14
4	Vina	90	64
Total		141	100

In Adamawa, it resulted that 89% of the respondents were male while only 11% were female. Also, amongst these respondents, 34% were youths, while 66% were adults.

In this region, this gender imbalance could be explained by the fact that cultural barriers hinder most women from attending to strangers. Also, this was due to the fact that 89% of the questionnaires were responded to by the head of the family, who are generally men.

Around 41% of these respondents were members of a producer’s organization that grow potato. In total, 39 potato-related associations were identified.

3.1.2 Farmer information and activities

We found that most farmers possess at least two different plots for potato cultivation. The total surface area of farm holding for 45% of respondents is less than or equal to 0.5 ha (Table 2).

Table 2. Total area of potato plots owned by potato households (hh) in the Adamawa region

Total area (ha)	Number of hh	% of hhs
≤ 0.5	64	45
> 0.5 ≤ 1	25	18
>1 ≤ 1.5	19	14
>1.5 ≤ 2	13	9
> 2 ≤ 4	10	7
> 4	10	7
Total	141	100

It was also reported that the majority of the farmers (70%) only plant potato during the rainy season against 30% who plant in rainy and dry seasons. Those planting in the rainy season can carry out two potato cycles.

Only about 62% of the interviewed households cultivate potato on all their total farm holding allocated to potato cultivation. Thus, 38% of farmers do not exploit all their potato farm holdings due to the lack of seed potato in both quality and quantity as declared by 68% of the respondents (Fig. 6).

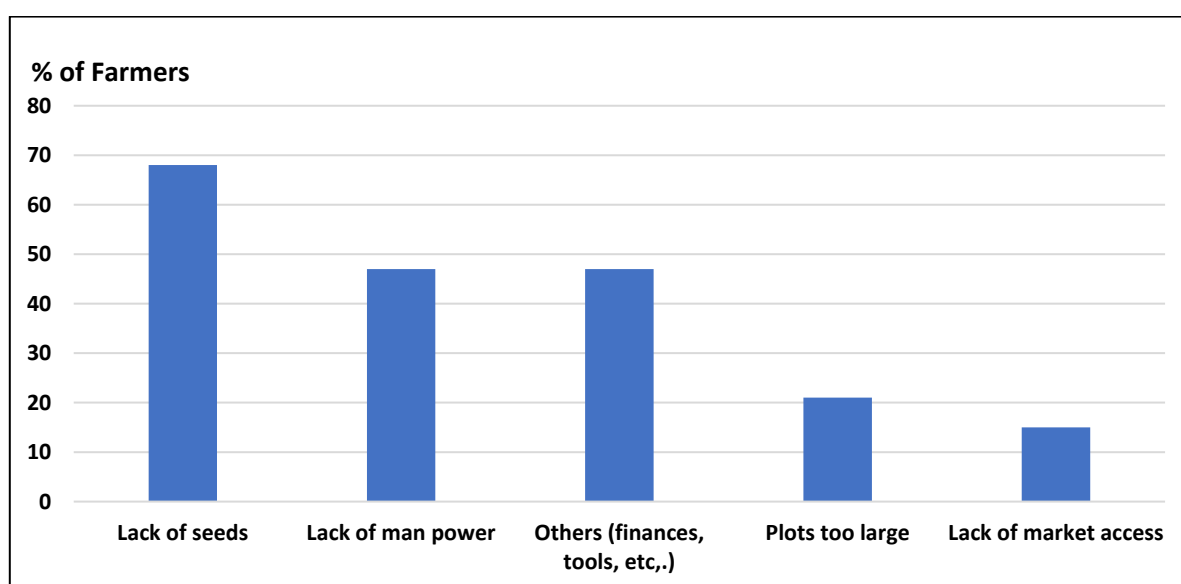


Figure 6. Factors that hinder farmers from cultivating all their plots in the Adamawa region

The lack of manpower also causes the farmers not to exploit all their land and coupled with other factors such as lack of equipment, high seed cost, lack of access to finance, lack of phytosanitary products, lack or insufficient knowledge of good farming methods, and unstable rainfall patterns.

Apart from potato, these farmers also cultivate some other crops like beans, sweetpotato, yams, and especially maize for food security. For example, 77% of the farmers cultivate maize, and 69% cultivate beans as cash crops and for food security (Table 3).

Table 3. Other crops cultivated by potato farmers in the Adamawa region

Crops	Number of hh	% of hh
Maize	109	77
Beans	97	69
Sweetpotato	32	23
Vegetables	18	13
Yams	16	11
Others	86	61

3.1.3 Potato production

3.1.3.1 General Production

The cultivation period for farmers that carry out only one rainy cycle per year runs from mostly April to July, while for those who carry out two rainy cycles per year, planting occurs in April for the first cycle and from August for the second.

As concerns farming techniques, 95% of the farmers cultivate manually, although some of them (37%) are assisted at times by animal traction. Very few of the farmers (17%) own machines for mechanized cultivation or industrialized farming (Table 4).

Table 4. Cultivation techniques in the Adamawa region

Cultivation Technique	Number of hh	% of hh
Manual	134	95
Motorized	24	17
Animal traction	52	37

Most farmers (70%) depend only on rainfall for crop development, while 30% practice irrigation, amongst which 13% only rely on irrigation (Table 5).

Table 5. Watering systems for potato cultivation in the Adamawa region

Watering system	Number of hh	% of hh
Rainfall (only)	99	70
Irrigation (only)	18	13
Both	24	17
Total	141	100

3.1.3.2 Varieties grown

We noted that the most used variety in the Adamawa region is Dosa, where 74% of the respondents acknowledged the use of this variety (Table 6).

Table 6. Potato varieties grown in the Adamawa region

Variety	Number of hh	% of hh
Dosa	104	73.8
Désirée	16	11.3
Cipira	5	3.5
Manate	1	0.7
Banso	1	0.7
Other varieties	125	88.7

We learn from the above table that 88.7% of the hhs use less known varieties (e.g., Jacob 2005, Bambui wonder, Mafo, etc.), while some do not know the name of the varieties they are using.

Amongst the 141 hhs interviewed, only 11% are vest with the varieties introduced by ProCISA. The most cultivated of these varieties is Juwell (Table 7), where only 3% of the interviewed population cultivate it.

Table 7. Cultivation of varieties introduced by ProCISA

Varieties	Number of hh	% of hh
Juwell	4	3
Jelly	3	2
Krone	2	1
Sevim	4	3
Bavapom	1	1
Marabel	1	1

3.1.3.3 Seed Potato Used

Given that most farmers cultivate potato for both consumption and commercialization, the criteria on which most farmers (62%) rely for the selection of varieties is the yield. In some circumstances, some farmers (30%) just go in for seed that is available during the planting season. Figure 7 shows various criteria farmers rely on when getting their seed potato.

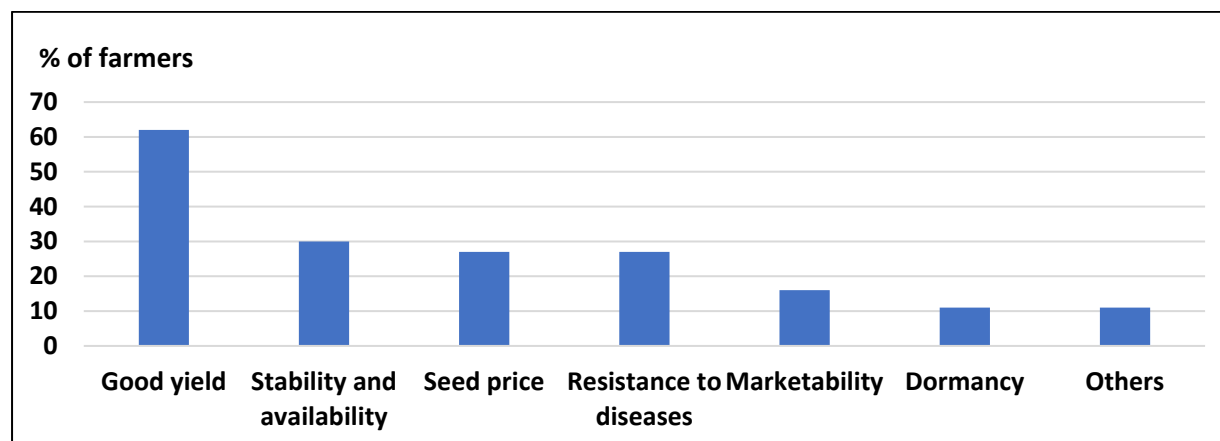


Figure 7. Criteria for seed and variety selection by smallholder farmers in the Adamawa region

It is always important to know the source of seed to give some orientations for the way forward and for traceability. Most farmers (84%) get their seed from the local market (Table 8) at an average price of 535 FCFA per kg. Not really knowing from where these vendors get the seed makes traceability difficult.

Table 8. Source of seed potato used by smallholder farmers in the Adamawa region

Seed source	Number of hh	% of hh
Market	118	84
MINADER	4	3
Gift (friends and family)	4	3
Own seed	8	6
Seed multipliers	6	4
Total	141	100

Even though the market remains the main source of seed for most farmers, it is not always available at the desired time as 74% of producers do have difficulties accessing good quality seed potato.

There is the need to improve on seed quality because 43% of the farmers replace their seed every year due to a decrease in yields (46% of farmers) and due to pests and diseases (32% of farmers).

3.1.3.4 Potato Pests, Diseases, and Control

Pests and diseases are very important factors having a great negative impact on potato production. The most common diseases and pests reported by respondents were late blight (51%), bacterial wilt (25%), and nematodes (8%), as shown in Figure 8.

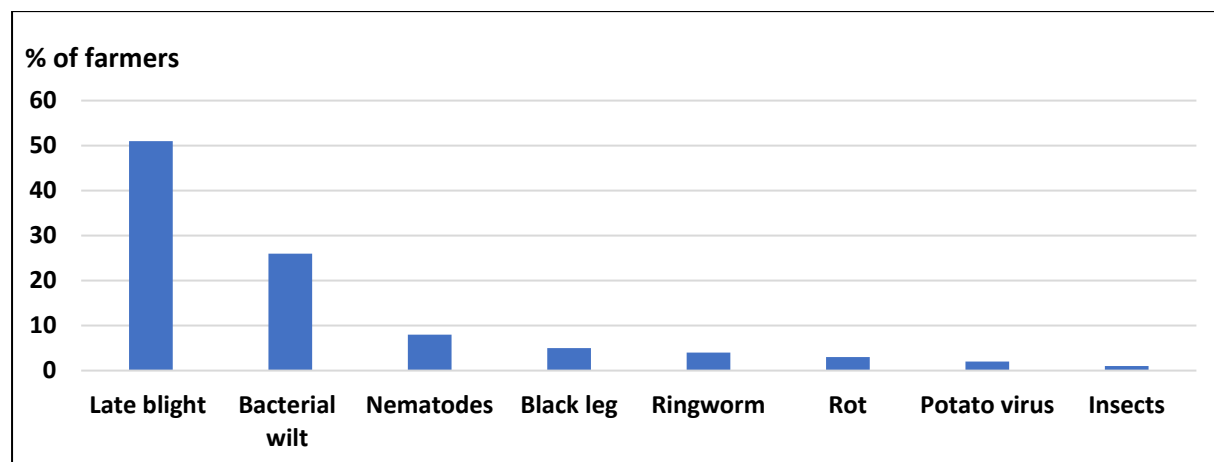


Figure 8. Most common pests and diseases reported in the Adamawa region

Most farmers (79%) use pesticides for the management of pests and diseases, while 21% of them do not take any measures for pest and disease management (Table 9).

Table 9. Farmers using pesticides in the Adamawa region

Use of Pesticides	Number of hh	% of hh
Yes	111	78.8
No	30	21.2
Total	141	100

For the management and control of pests and diseases, potato farmers mostly use Maneb, Ridomil, and Penncozeb.

The main source of pesticides for 93% of respondents is the local market (Table 10). Their choice of pesticides is based on their effectiveness previously experienced, advice from local agricultural technicians, and availability on the market.

Table 10. Sources of pesticide against potato pests and diseases in the Adamawa region

Source of pesticides	Number of hh	% of hh
Market	131	93
MINADER	7	5
Others	3	2
	141	100

Most farmers in Adamawa treat their potato farms, on average, eight times per cycle. Most of these farmers (72%) hardly change the pesticides they use, whereas a minority of farmers change them every season.

3.1.3.5 Fertilizers Used

Data collected in Adamawa showed that some farmers (14%) do not use fertilizers when growing potatoes. Most of them (44%) use both organic and chemical fertilizers (Table 11). This means that over 56% of farmers interviewed in the Adamawa region don't fertilize properly potato.

Table 11. Types of fertilizers used by potato farmers in the Adamawa region

Type of fertilizers	Number of hh	% of hh
Organic only	33	23
Mineral only	26	19
No fertilizer	20	14
Both	62	44
Total	141	100

For those who use mineral fertilizers in their production, it was noticed that an average quantity of 423 kg is used per ha, while for those who use organic manure, an average quantity of 191 kg of those fertilizers is used per ha.

Amongst the farmers that use mineral fertilizers, 74% of them usually buy it from the market, as shown in table 12.

Table 12. Sources of mineral fertilizers used for potato cultivation in the Adamawa region

Fertilizer source	Number of hh	% of hh
Market	104	74
MINADER	9	6
Other (gift, support from individuals, etc.)	28	20

The majority (53%) of the hhs changes their fertilizers due to the poor effectiveness of the fertilizer, while 37% of them changes theirs every year depending on the availability in the market.

3.1.4 Training and Technology Adoption

3.1.4.1 Training on potato production

Fifty-one percent of respondents have never received training on potato production (Fig. 9). For those who had received training, 67% of them had been trained just once. All the farmers expressed willingness to receive more training if given the opportunity.

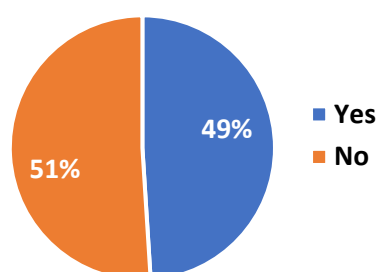


Figure 9. Farmers trained in good agricultural practices for potato production in the Adamawa region

3.1.4.2 Technology Adoption

Most farmers still lag in technology adoption: 86% have not received training on the following technologies and innovations: positive selection, negative selection, small seed plot technology, crop rotation, certified seed production, quality seed storage, motorized mechanization or animal traction, disease and pest management, irrigation optimization and optimization of fertilization (Fig. 10).

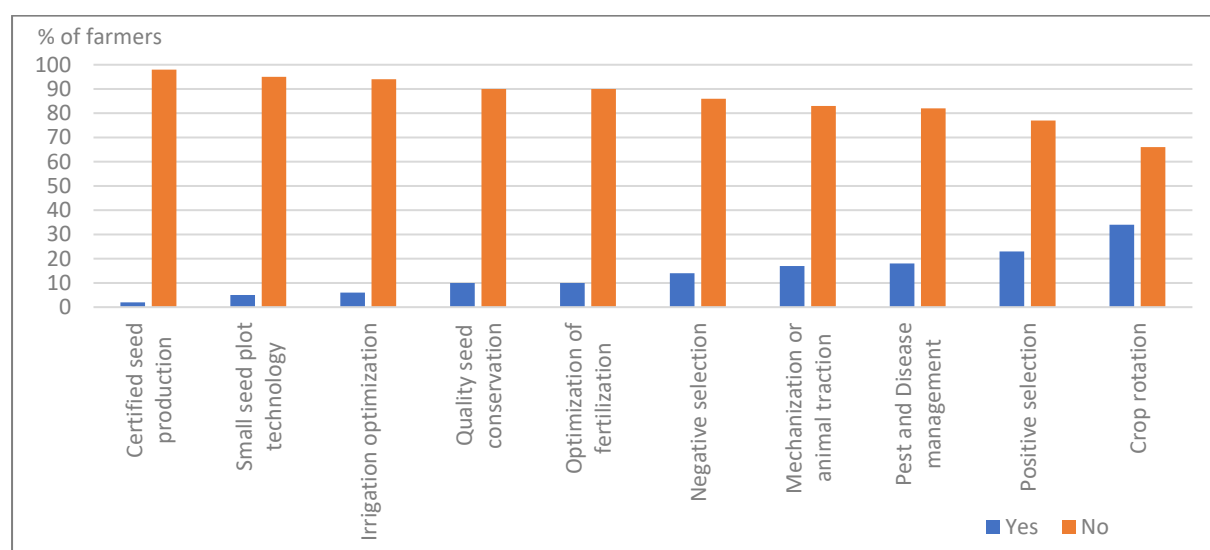


Figure 10. Level of potato technology adoption by potato farmers in the Adamawa region.

3.1.5 Potato Constraints

The five major constraints to potato farmers are (in descending order): limited access to quality seed (84%), poor management of pests and diseases (57%), limited access to recommended fertilizers (29%), and limited access to pesticides (26%) and lack of access to credit (24%). A full list is available in Figure 11.

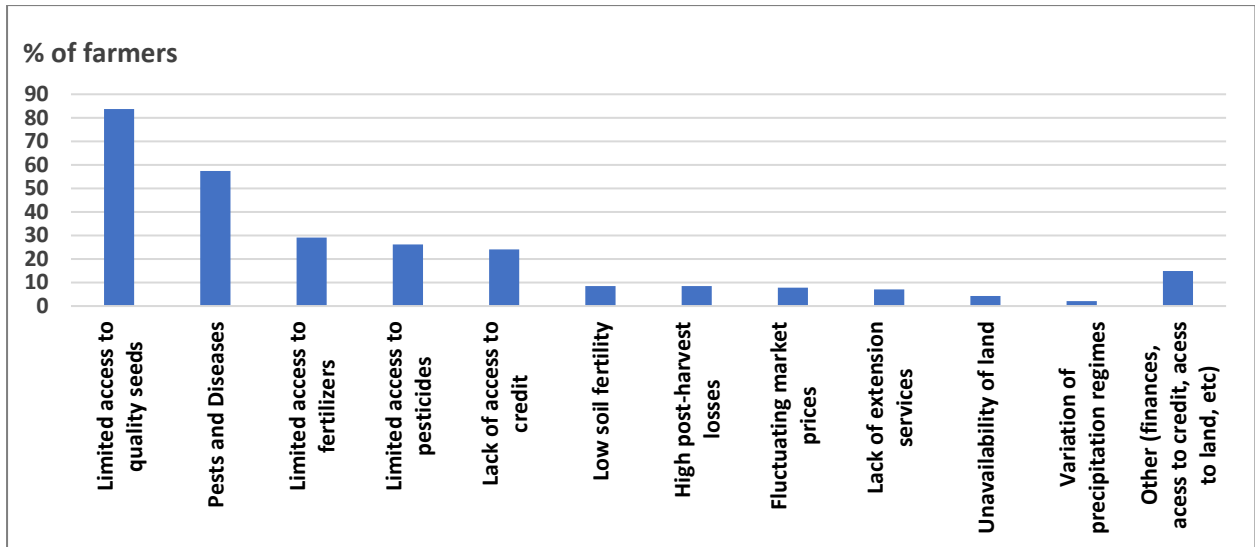


Figure 11. Constraints to potato production in the Adamawa region

3.2 WEST REGION

3.2.1 Identification of respondents and study zones

The baseline survey covered seven divisions in the West region (i.e., Bamboutos, Hauts plateaux, Haut-Nkam, Menoua, Mifi, Nde, and Noun) (Fig. 12). Not all the enumerators were having an android phone that could permit them collect GPS coordinates of the enumerated households

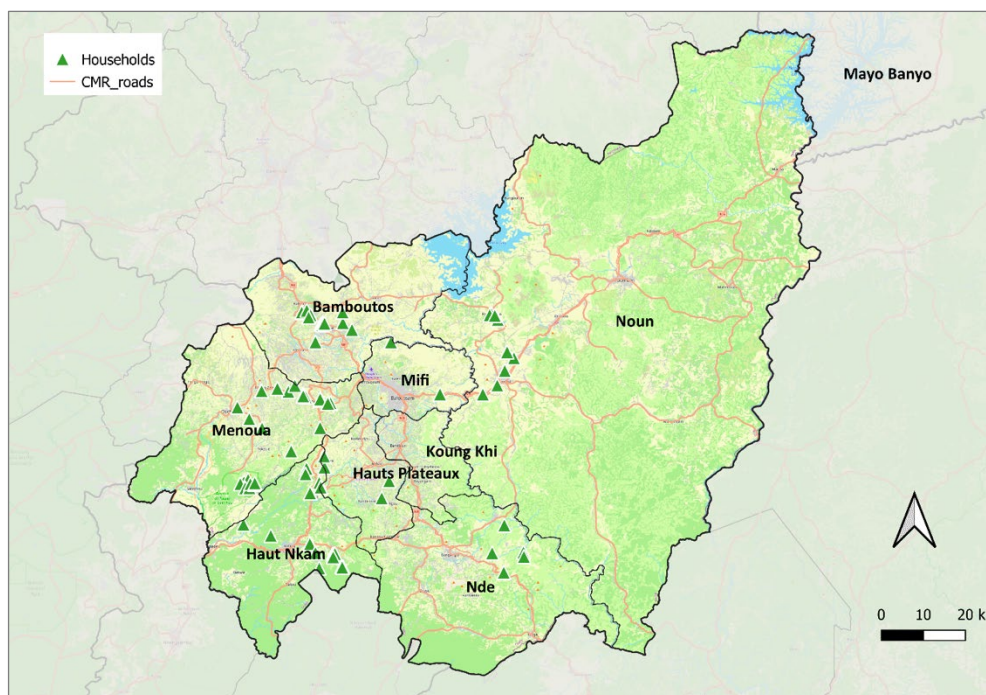


Figure 12. Locations of some of the households interviewed in the West region.

The sample distribution per division is shown in table 13 below.

Table 13. Sample distribution of respondents per division in the West region

N°	Division	Number of hh	% of hh
1	Bamboutos	40	20
2	Haut plateaux	20	10
3	Haut-nkam	20	10
4	Menoua	60	30
5	Mifi	20	10
6	Nde	20	10
7	Noun	20	10
Total		200	100

Fifty-seven percent of the respondents were male, while 43% were female. Also, amongst these respondents, 28% were youths while 72% were adults.

In this region, there are no cultural barriers for women to attend to strangers, as we also noticed that 57% of the questionnaires were responded to by the head of the family, who are generally men, and 37% by their spouses.

Some of these respondents were members of producers' organizations (PO) growing potato (47%). In total, 13 POs were identified in the region.

3.2.2 Farm information and activities

We found that most farmers possess at least two plots for potato cultivation. The total surface area of farm holding for the majority (52%) is less than or equal to 0.5 ha (Table 14). About 62% of farmers cultivate potato on their farms.

Table 14. Total land holding of plots owned by farmers in the West Region

Total area (ha)	Number of hh	% of hh
≤ 0.5	104	52
> 0.5 ≤ 1	22	11
>1 ≤ 1.5	19	10
>1.5 ≤ 2	13	7
> 2 ≤ 4	29	14
> 4	13	6
Total	200	100

In the West region, most farmers (61%) carry out two cycles per year, while 35% of the farmers carry out only one. Some of the farmers (4%) even go to the extent of carrying out three cycles per year.

The act of farmers cultivating potatoes in one cycle per year is mainly due to the lack of seed in both quality and quantity, as declared by 48% of the respondents (Fig. 13).

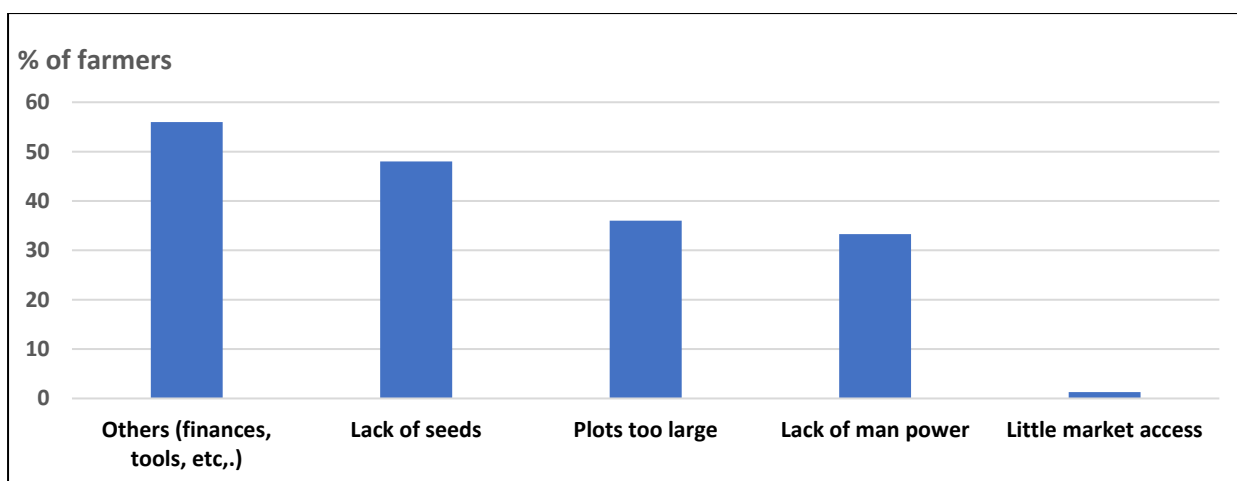


Figure 13. Factors preventing farmers from planting potatoes in all their plots in the West region

Other factors such as lack of equipment, high seed cost, lack of access to finance, lack of pesticides, lack or insufficient knowledge of good farming methods, and unstable rainfall patterns also cause the farmers not to exploit all their plots.

Apart from potato, farmers cultivate some other crops like maize, beans, yams, sweetpotato, vegetables, etc., both as cash crops and for food security. In addition to potato, the most cultivated crops in the region are maize and beans, where 89% and 86% of farmers respectively are involved in the cultivation (Table 15).

Table 15. Other crops grown by potato farmers in the West region

Crops	Number of hh	% of hh
Maize	178	89.2
Beans	172	86.1
Others	89	44.3
Vegetables	31	15.5
Yams	27	13.4
Sweetpotato	19	9.3

3.2.3 Potato production

3.2.3.1 General Production

Farmers who carry out only one cycle per year carry out their cultivation from March to June, whereas those who carry out two cycles per year have their first cultivation from March to June and from June to September for the second cycle, and for those who carry out three cycles (i.e. they practice irrigation) cultivates from October to January for their third cycle.

As concerns farming techniques, 99% of the farmers cultivate manually. Very few of them (8%) own machines for the mechanized cultivation. Others (2%) are assisted at times by animal traction (Table 16).

Table 16. Cultivation techniques used in the West region

Technique	Number of hh	% of hh
Manual	197	99
Mechanized	15	8
Animal traction	3	2

Most farmers (78%) exclusively depend on rainfall for crop development, while only 7% practice irrigation, and 15% of them practice both rainfed farming and irrigation (Table 17).

Table 17. Watering systems for potato cultivation in the West region

Water system	Number of hh	% of hh
Rainfall (only)	156	78
Irrigation (only)	14	7
Both	30	15
Total	200	100

3.2.3.2 Varieties grown

We noticed that the most used variety in the West region is Dosa where 58% of the farmers acknowledged using it on a regular basis, while 19% use local varieties that some of them are not even known (Table 18).

Table 18. Main potato varieties grown in the West region

Varieties	Number of hh	% of hh
Dosa	116	58
Manate	30	15
Cipira	25	12.5
Désirée	17	8.5
Banso	5	2.5
Others	38	19

Nineteen percent of the farmers use other varieties (e.g., Jacob 2005, Bambui wonder, Mafo, etc.).

Amongst the 200 hh interviewed, only 15% are vested with the varieties introduced by ProCISA. The most commonly cultivated of these varieties is Marabel (Table 19).

Table 19. Cultivation of varieties introduced by ProCISA

Varieties	Number of hh	% of hh
Marabel	9	5
Jelly	7	4
Juwel	6	3
Sevim	5	3
Bavapom	2	1
Krone	1	1

3.2.3.3 Choice of seeds

Given that farmers cultivate in this area primarily for commercialization and use the leftovers for consumption, 59% of the farmers interviewed in the West region look for high-yielding varieties when acquiring seed. Other farmers (28%) go in for varieties that are resistant to pests and diseases (Fig. 14).

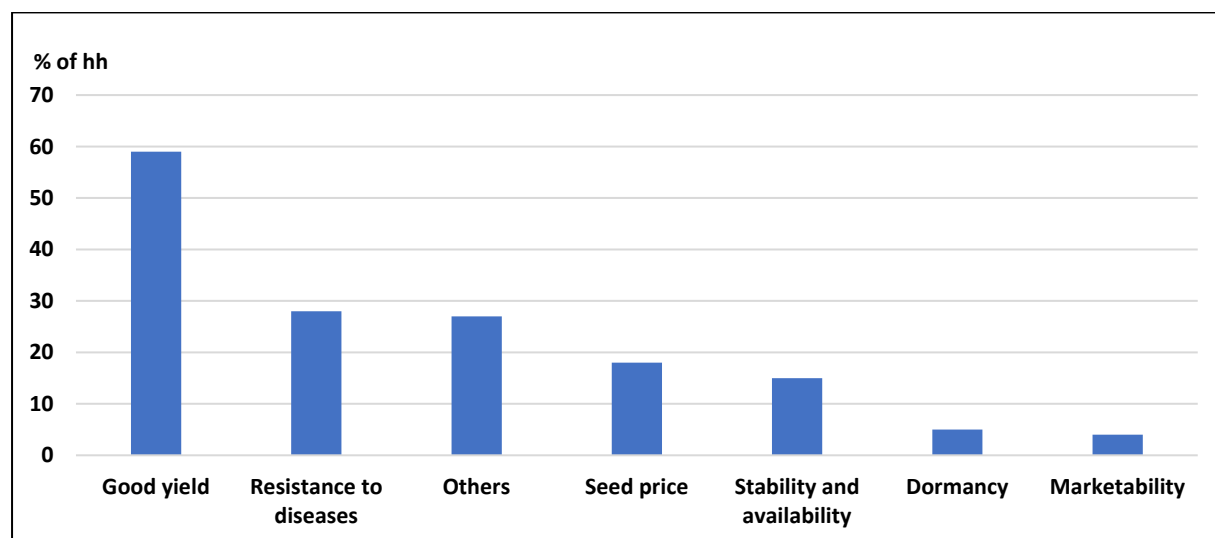


Figure 14. Criteria used by farmers when selecting potato varieties in the West region

Most farmers (73%) get their seed from the local market (Table 20) at an average price of 722 FCFA per kg. Not knowing from where seed suppliers get their initial seed makes tracing seeds difficult.

Table 20. Sources of seed potato in the West region

Seed source	Number of hh	% of hh
Local market	146	73
Own seed	29	15
Seed multipliers	13	7
MINADER	5	3
Project/Program	4	2
Gift	2	1
Total	200	100

Even though the market remains the main source of seed to most farmers, it is not always available at the desired time as 27% of producers do have difficulties accessing seed potato.

There is a need to improve seed quality because about 41% of the farmers replace their seed every year due to a decrease in yield (55%) and diseases (21%).

3.2.3.4 Pests, Diseases, and Pesticides

Pests and diseases (Fig. 15) are factors having a great impact on potato production. In this study, the most common diseases reported in the West region are late blight (45%), bacterial wilt (28%), and soft rot (9%).

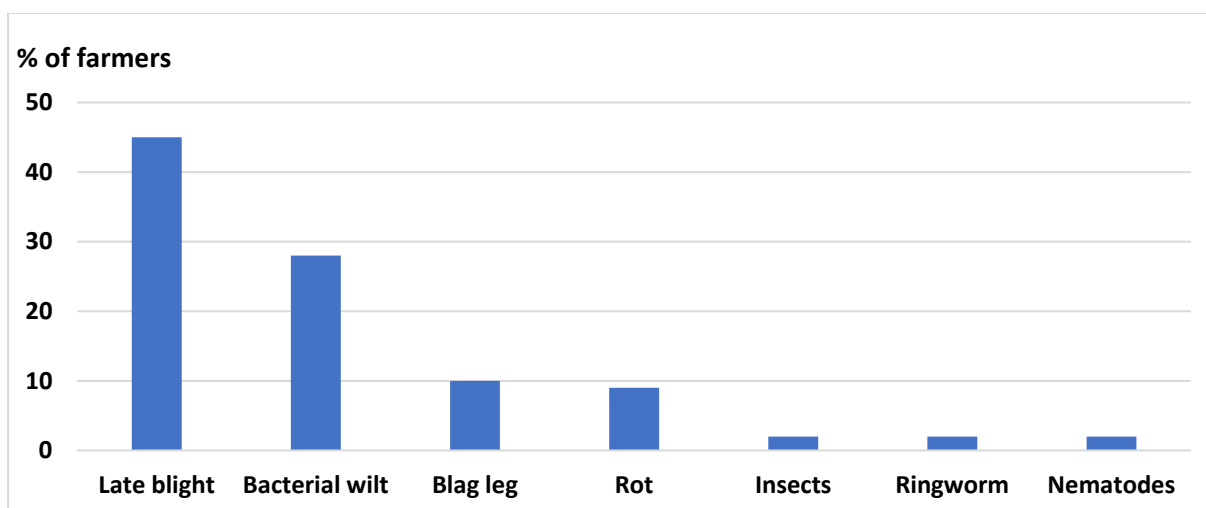


Figure 15. Most common pests and diseases reported by respondents in the West region

Almost all farmers (95%) use pesticides for the management of pests and diseases, while 5% of them cannot afford them (Table 21).

Table 21. Number of farmers using pesticides in the West region

Pesticide use	Number of hhs	% of hhs
Yes	190	95
No	10	5
Total	200	100

For the management and control of pests and diseases, the most used pesticides are Maneb, Bonsoin, and Balear, as declared by the farmers. The main source of pesticides for farmers (97%) is the local market (Table 22).

Farmers usually rely on their knowledge of the pesticide's effectiveness to choose a specific product. Also, they consult agricultural technicians on the same. Others indicated that their choices are based on the availability of the pesticides on the market.

Table 22. Sources of potato pesticides used by farmers in the West region

Source of pesticides	Number of hhs	% of hhs
Market	194	97
MINADER	2	1
Other	4	2

Farmers reported that they treat their potato fields on average eight times per cycle. The majority of these farmers (53%) hardly change the pesticides. Of those who do change their pesticides often, 80% change their pesticides after every season.

3.2.3.5 Fertilizers

Unlike in the Adamawa region, where there are some farmers (14%) that do not use fertilizers in their potato production, all the interviewed farmers in the West region confirmed using fertilizers, be it organic or mineral. Most of them (86%) use both organic and chemical fertilizers (Table 23).

Table 23. Types of fertilizers used by potato farmers in the West region

Fertilizers	Number of hhs	% of hhs
Chemical (only)	16	8
Organic (only)	12	6
Both	172	86
Total	200	100

Amongst the farmers that use mineral fertilizers, 97% of them usually buy it from the market, as shown in Table 24.

Table 24. sources of mineral fertilizers in the West region

Sources of fertilizers	Number of hhs	% of hhs
Market	194	98
MINADER	2	1
Others	4	1

It was noticed that 29% of farmers change their fertilizers every year depending on the availability on the market, while 71% do not. Amongst those that change their fertilizers, the majority (71%) change them to get a better yield (effectiveness), and about 64% of the farmers consider these fertilizers to be of good quality.

3.2.4 Training and Technology Adoption

3.2.4.1 Training

In the West region, 43% of the investigated farmers have never received any training on potato production (Fig. 16). All the farmers indicated that they are still willing and ready to receive more training if they are given an opportunity.

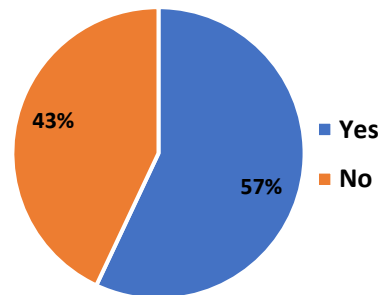


Figure 16. Farmers trained on potato production in the West region

3.2.4.2 Technology Adoption

Most farmers in the West region are still lagging in technology adoption as we noticed that an average of 66% of them have never received training on the following specific topics: positive selection, negative selection, small seed plot technology, crop rotation, certified seed production, quality seed storage, mechanization or animal traction, disease and pest management, irrigation and optimization of fertilization (Fig. 17).

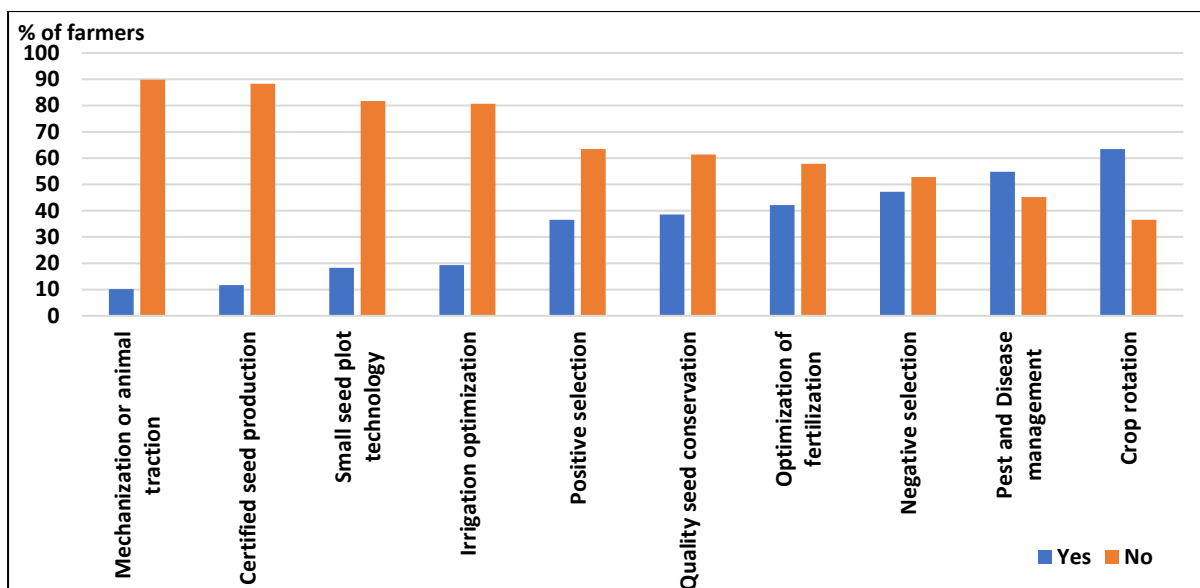


Figure 17. Level of technology adoption by potato farmers in the West region

3.2.5 Potato Constraints

Given that farmers usually have many constraints in potato production, survey results showed that the three major constraints to the farmers in the West region (Fig 18) in descending order are: limited access to quality seed (59%), management of pests, and diseases (45%) and limited access to credit (32%).

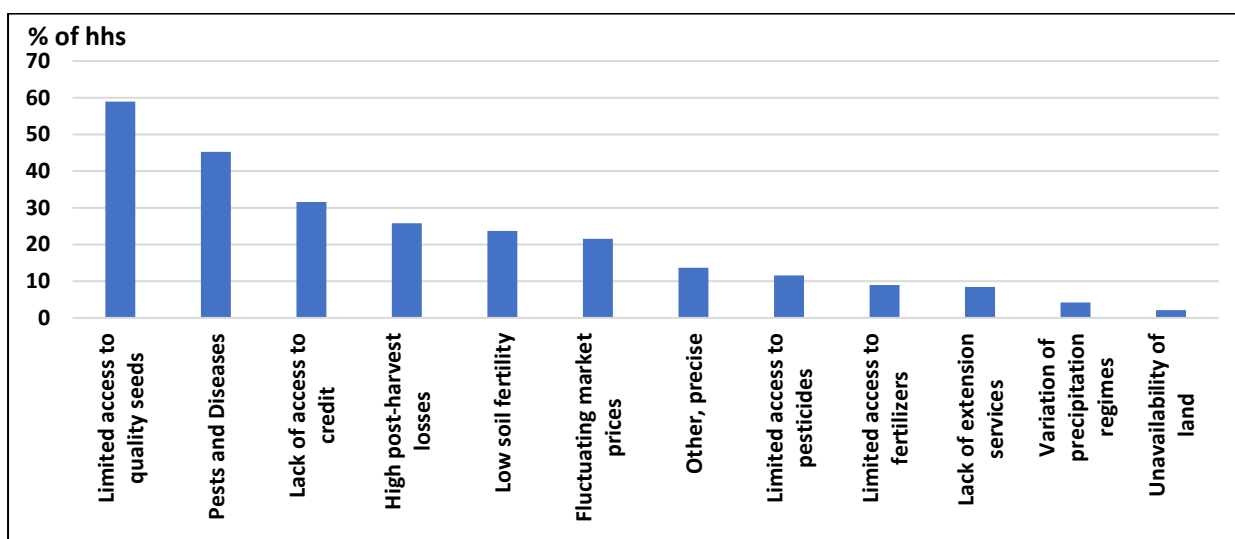


Figure 18. Potato constraints reported by farmers in the West region

4 CONCLUSION AND RECOMMENDATIONS

This study provided us with useful insights into current agronomic practices in the Adamawa and West regions of Cameroon. We found that the farmers have limited knowledge in and access to good agricultural practices. The main constraints reported are as follows: limited access to quality seed potato, management of pests and diseases, and limited access to quality fertilizers and pesticides. These limitations will now serve as project entry points for capacity building and the introduction of innovations.

Most farmers who participated in this survey are passionate about the crop and full of plans that can contribute to a strong and valuable potato chain: from seed to ware, to storage and market expansion to processing.

It was noticed that the identification of varieties with greater yield and productivity is a major problem in the Adamawa region. This could be explained by the fact that most of them are illiterate and could rarely retain the names of the varieties, especially the imported ones. Thus, there is a need to train and sensitize farmers there on the identification and selection of the best varieties to boost their production. Meanwhile, in the West region, we noticed that majority of the farmers have good knowledge in identifying the varieties, and they know which varieties to cultivate for getting a good yield. But the main issue at hand is the availability of quality seed of preferred varieties. However, the training remains relevant in all regions on various aspects of the potato crop with much emphasis in the Adamawa region, where little has been done.

The database generated and its accessibility to collaborators will serve as a basis for the monitoring, evaluation, and learning team to carry out midterm and endline surveys of the actual project and a foundation for upcoming projects.

Overall, the recommendations proposed by the farmers are similar in both regions. Therefore, four categories can be outlined, i.e., inputs and materials, technologies and practices, finance, and governance.

i. Inputs and materials

The unavailability of some agricultural inputs negatively affects potato production. Farmers recommended the constant availability of:

- Improved and certified seed potato both in quality and in quantity;
- Good pesticides and other products for the management of pests and diseases;
- Appropriate fertilizers for potato production in both quantity and quality; and
- Adequate materials and equipment needed for potato cultivation.

ii. Technologies and practices

Farmers recommended capacity building on the following topics:

- Production techniques;
- Effective management of bacterial wilt;
- Varieties and specific packages for cultivation; and
- Mechanization and maintenance.

iii. Finance

In rural areas, lack of access to finance to acquire some facilities is a frequent problem in the studied regions. Some recommendations that came up from farmers are:

- Facilitate the obtention of agricultural credits; and
- Subsidize the cost of seed, fertilizers, pesticides, materials, and equipment.

iv. Governance

In some localities, land ownership with a land title has always been a point of concern. Some farmers recommended that the government intervene to:

- Reduce the rental price for the benefit of producers that rent land;
- Facilitate the obtention of land title to become permanent owners; and
- Facilitate the release of land that was seized or claimed by authorities.

Finally, due to lack of information, the farmers also recommended sensitization and improvement of communication channels and keeping to the promises made to them.

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7 Appendix

Appendix 1: Questionnaire



QUESTIONNAIRE POUR L'ENQUÊTE DE RÉFÉRENCE DES PRODUCTEURS DE POMME DE TERRE

SECTION 0: Identification de l'enquêteur	
1- Nom :.....	2- Date: _ _ / _ _ / _ _
3- Âge: 1= ≤ 35, 2= >35 : _	4- Sexe: 1=Homme; 2=Femme : _
4- Email:.....	5- Tel: _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

SECTION 1: Identification du répondant, du ménage et de la zone	
6- Avez-vous actuellement un champ de pommes de terre cultivées ou avez-vous récemment (en 2020) récolté un champ de pommes de terre? 1=Oui 2=Non <i>Sì "Non", l'enquête ne doit pas continuer</i>	_
7- Région : 1=Adamaoua; 2=Ouest; 3:Nord-Ouest	_
8- Département :.....
9- Arrondissement :.....	10- Village :.....
11- Coordonnées GPS	E : _ _ . _ _ _ _ _ _ _ _ _ _ _ _ N : _ _ . _ _ _ _ _ _ _ _ _ _ _ _ Altitude :.....
12- Nom du répondant:.....	
13- Age du répondant: 1= ≤ 35, 2= >35 :	_
14- Sexe: 1=Homme; 2=Femme :	_
15- Numéro de téléphone du répondant:	_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
16- Quel est le statut du répondant au sein du ménage ? 1 = Chef de ménage ; 2 = Conjoint du chef de ménage; 3 = Enfant du ménage; 4 = Autre	_
17- Sì «4» dans 16, précisez.
18- Qui prend les décisions dans le ménage?
19- Êtes-vous membre d'une association agricole qui s'occupe de la pomme de terre? 1=Oui 2=Non	_

20-	Si «1» dans 19, quel est le nom de l'association?
21-	Quel est votre rôle dans l'association ? 1 = membre du bureau exécutif; 2 = simple membre	_

Section 2 : Informations et activités sur le champ		
22-	Quelle superficie (ha) de terre possède votre ménage ? 1=0 – 0.5 ha; 2=>0.5≤1; 3=>1≤1.5; 4=>1.5≤2 5=>2≤2.5; 6=>2.5≤3 ; 7=>3≤3.5 8=>3.5≤4 9=>4	_
23-	Louez-vous des terrains pour cultiver la pomme de terre? 1 = Oui; 2 = Non	_
24-	Si «1» dans 23, quelle superficie pour cette saison (ha)?	_ _
25-	Combien de parcelles de pommes de terre par saison ?	_
26-	Quelle est la superficie moyenne d'une parcelle de pommes de terre (ha)?	_ _
27-	Combien de saisons de pommes de terre par an ?	_
28-	Chaque parcelle de PDT est-elle entièrement cultivée ? 1=Oui; 2=Non;	_
29-	Si «2» dans 28, dites-nous pourquoi il n'est pas cultivé. 1 = manque de main-d'œuvre; 2 = terrain trop grand; 3 = manque de semences; 4 = peu d'accès au marché; 5 = autre	_ _ _ _
30-	Si «5» dans 29, précisez
31-	Faites-vous louer une partie de vos terres à d'autres producteurs? 1 = Oui; 2 = Non	_
32-	Si «1» dans 31, quelle superficie pour cette saison (ha)? 1=0 – 0.5 ha; 2=>0.5≤1; 3=>1≤1.5; 4=>1.5≤2 5=>2≤2.5; 6=>2.5≤3 ; 7=>3	_
33-	Quel est le coût de location d'un ha par an?	_
34-	En dehors de la culture de la pomme de terre, au cours des 12 derniers mois, quelles sont les 3 cultures les plus importantes que votre ménage cultive et qui rapportent des revenus ? 1 = ignames; 2 = maïs; 3 = haricots; 4 = légumes; 5 = patate douce; 6 = autres à préciser	_ _ _
35-	Votre ménage possède-t-il du bétail ? 1 = Oui; 2 = Non	_
36-	Si «1» dans 35, nommez-les par ordre d'importance décroissante: 1 = vache; 2 = chèvre; 3 = mouton; 4 = porc ; 5 = poulet	_ _ _ _

SECTION 3: PRODUCTION DE POMMES DE TERRE (janvier 2019 - septembre 2020)

A: Production générale

Saison	Nom du quartier	Superficie des parcelles (ha)	Variété (Voir les codes de variétés ci-dessous)	Qualité des semences plantées 1 = certifiée 2 = non certifiée	Pesticides utilisés 1 = Oui 2 = Non	Engrais utilisés 1 = chimique; 2 = organiques 3 = les deux	Travail au champ 1 = manuel; 2 = motorisé; 3 = traction animale	Système d'irrigation 1 = pluvial 2 = irrigué 3 = les deux	Quantité de semences utilisées		Pommes de terre récoltées	
									Unité	Quantité	Unité	Quantité
			_	_	_	_	_ _ _ _ _	_ _ _ _ _				
			_	_	_	_	_ _ _ _ _	_ _ _ _ _				
			_	_	_	_	_ _ _ _ _	_ _ _ _ _				
			_	_	_	_	_ _ _ _ _	_ _ _ _ _				

Avez-vous déjà eu à utiliser les variétés suivantes : (introduire par ProcISA) 1=Oui ; 2=Non	Juwell	Jelly	Krone	Sevim	Bavapom	Marabel
	_	_	_	_	_	_

Codes des variétés: 1=Désirée; 2=Dosa; 3=Manate; 4= Cipira ; 5=Banso ; 6=Autre (spécifier).....

B: Choix des Semences		
B1	Qu'est-ce qui détermine le choix de la semence de pomme de terre à utiliser (max. 2 choix)? 1=Prix des semences; 2=Résistance aux maladies et ravageurs; 3 = Bon rendement; 4 = Stabilité et disponibilité de semences; 5 = Dormance; 6 = Vente rapide sur le marché; 7 = Autre	_ _
B2	Si «7» dans B1, spécifiez
B3	D'où tirez-vous normalement vos semences (max. 1 choix)? 1 = Achat au marché; 2 = MINADER; 3 = Projets et programmes; 4 = Dons; 5 = Autoproduction; 6 = Multiplicateur de semences	_
B4	Si «1» dans B3, quel est le prix moyen (FCFA) d'1 kg de semence ?	_ _ _ _
B5	Si «3» dans B3, citez le nom du projet ou programme.
B6	Si «1» dans B3, les semences sont-elles toujours disponibles à tout moment que vous souhaitez acheter ? 1 = Oui ; 2 = Non	_
B7	Remplacez-vous votre semence pour la campagne suivante ? 1 = Oui; 2 = Non	_
B8	Si «1» dans B7, quelle est la raison du remplacement des semences (max. 1 choix)? 1 = Chute de rendement; 2 = Eviter la dégénérescence des semences; 3 = Conseil d'un Technicien d'Agriculture; 4 = C'est une routine; 5 = Pour obtenir une nouvelle variété	_
B9	À quelle fréquence remplacez-vous les variétés ? 1 = chaque année ; 2 = après 2 ans ; 3 = après 3 – 5 ans ; 4 = après plus de 5 ans; 4 = Autre	_
B10	Si «2» dans B7, pour quelle raison vous ne remplacez pas vos semences (1 seul choix)? 1 = Meilleur rendement; 2=Conseil d'un TA; 3= Manque de semence ; 4=autre (à préciser)	_
B11	Comment évaluez-vous la qualité des semences de votre source décrite en B3 ? 1 = Très bonne; 2 = Bonne; 3=Passable 4 = Médiocre ; 5=Je n'y fais pas attention	_



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C: Maladies / Ravageurs et Traitements / Pesticides utilisés										
C1	Quelles sont les maladies/ravageurs les plus courantes et les traitements/pesticides que vous utilisez souvent?									
	<table border="1"> <thead> <tr> <th>Maladie / Ravageur (max. 3)</th> <th>Traitement / Pesticides utilisés (noms commerciaux)</th> </tr> </thead> <tbody> <tr> <td>.....</td> <td>.....</td> </tr> <tr> <td>.....</td> <td>.....</td> </tr> <tr> <td>.....</td> <td>.....</td> </tr> <tr> <td>.....</td> <td>.....</td> </tr> </tbody> </table>	Maladie / Ravageur (max. 3)	Traitement / Pesticides utilisés (noms commerciaux)
Maladie / Ravageur (max. 3)	Traitement / Pesticides utilisés (noms commerciaux)									
.....									
.....									
.....									
.....									
C2	<p>Que considérez-vous lorsque vous décidez des pesticides à utiliser (Max. 3 choix)?</p> <p>1 = Prix du pesticide; 2 = Efficacité contre les ravageurs ou les maladies;</p> <p>3 = Disponibilité; 4 = Rémanence sur/dans la plante;</p> <p>5 = Moins dangereux pour la santé humaine; 6 = Avis d'At; 7 = Autre</p>									
C3	Si «7» dans C2, précisez									
C4	<p>D'où tirez-vous normalement vos pesticides (Max. 1 choix)?</p> <p>1 = Marché; 2 = MINADER;</p> <p>3 = Projets et programmes/ ONG? 4 = Autre</p>									
C5	Si «3» dans C4, citez le nom du projet ou programme.									
C6	Si «4» dans C4, précisez									
C7	Combien de fois par cycle pulvérisiez-vous votre champs de pomme de terre?									
C8	Changez-vous souvent vos pesticides? 1 = Oui; 2 = Non									
C9	<p>Si «1» dans C4, a quelle fréquence achetez-vous les pesticides?</p> <p>1 = Chaque saison; 2 = Après 2 saisons; 3 = Après 3 saisons;</p> <p>4 = Après plus de 3 saisons; 5 = Varie (précisez)</p>									
C10	<p>Comment évaluez-vous la qualité des pesticides que vous utilisez?</p> <p>1 = Très bonne; 2 = Tonne; 3=Passable ;</p> <p>4 = Médiocre 5= Je n'y fais pas attention</p>									
C11	<p>Acquériez-vous des pesticides de la même source mentionnée en «C4» ci-dessus, si disponible?</p> <p>1 = Oui; 2 = Non</p>									

D: Choix d'engrais		
D1	Quel type d'engrais utilisez-vous? 1 = Organique; 2 = Minéral; 3 = Les deux	_
D2	Si «1 ou 3» dans D1, combien de fois par cycle pour la fiente ou fumure organique?	_
D3	Si «2 ou 3» dans D1, combien de fois par cycle pour les engrais minéraux?	_
D4	Quelle quantité (en kg/unité de surface) utilisez-vous la fiente ou fumure organique par cycle de culture	
D5	Quelle quantité (en kg par unité de surface) utilisez-vous les engrais minéraux par cycle de culture	
D6	Que considérez-vous lorsque vous décidez quel engrais à utiliser (Ma. 2 choix)? 1 = Prix de l'engrais; 2 = Disponibilité; 4 = Capacité de stockage; 5 = Avis d'AT; 6 = Autre (précisez)	_ _
D7	D'où provient la majorité des engrais que vous utilisez (max. 1 choix)? 1 = Marché; 2 = MINADER; 3 = Projets et programmes/ONG; 4 = Autres	_
D8	Si «3» dans D7, citez le nom du projet ou programme.
D9	Remplacez-vous souvent les types d'engrais que vous utilisez? 1 = Oui; 2 = Non	_
D10	Si «1» dans D9, quelle est la raison du remplacement des engrais 1 = Meilleur rendement; 2 = Conseil d'un TA; 4 = C'est une routine; 5 = Juste pour changer	_
D11	À quelle fréquence remplacez-vous les types d'engrais? 1 = Chaque année; 2 = après 2 - 5ans; 3 = après plus de 5 ans; 4 = Quand il n'y en a plus sur le marché	_
D12	Comment évaluez-vous la qualité des engrais que vous utilisez? 1 = Très bonne; 2 = bonne; 3 = Passable; 4 = médiocre 5 = Je n'y fais pas attention	_
D13	Acquériez-vous des engrais de la même source mentionnée en D7 si disponible? 1 = Oui; 2 = Non	_

SECTION 4: Formation, Accès à l'information et Adoption des Technologies

E. Formation, accès à l'information et adoption des technologies				
E1	Avez-vous déjà reçu une formation sur la production de pomme de terre ? 1 = Oui; 2 = Non		_	
E2	Si «1» dans E1, combien de fois avez-vous assisté aux formations?		_	
E3	Pendant combien de jours s'est déroulée la formation /se sont déroulées les formations?		_	
E4	Si «1» dans E1, êtes-vous toujours prêt à assister à plus de formations? 1 = Oui; 2 = Non		_	
E5	Si «2» dans E1, êtes-vous prêt à suivre une formation? 1 = Oui; 2 = Non		_	
E6	Veuillez fournir des informations sur l'utilisation de la technologie dans la production de pommes de terre entre janvier 2019 et septembre 2020.			
	Saison	Technologie	1=Oui 2=Non	Quelle est la structure qui vous a présenté cette technologie ?
		Sélection positive	_	
		Sélection négative	_	
		Technologie de petites parcelles de semence	_	
		Rotation des cultures	_	
		Production de semence certifiée	_	
		Conservation de semences de qualité	_	
		Mécanisation motorisé ou traction animale	_	
		Gestion des maladies et ravageurs	_	
		Optimisation de l'irrigation	_	
		Optimisation de la fertilisation		

Qui vous a présenté cette technologie? 1 = MINADER; 2 = ONG; 3 = Centres de formation; 4 = IRAD; 5 = autres (précisez)

SECTION 5: CONTRAINTES DE LA PRODUCTION ET RECOMMANDATIONS
F1- Contraintes

<p>Quels sont les 3 défis et contraintes les plus importants auxquels vous faites face dans la culture de la pomme de terre?</p> <p>1 = faible fertilité du sol; 8 = accès limité aux pesticides; 2 = maladies et ravageurs ; 9 = pertes post-récolte élevées; 3 = prix du marché fluctuants; 10 = variation des régimes de 4 = manque de services de précipitations; vulgarisation; 11 = indisponibilité de la main- 5 = manque d'accès au crédit; d'œuvre; 6 = accès limité à des semences 12 = indisponibilité des terres; de qualité; 13 = autre: précisez 7 = accès limité aux engrais;</p>	<p style="text-align: center;"> _ _ _ </p> <p>.....</p>
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F2. Recommandations (Max. 3 recommandations)

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Appendix 2:

List of Enumerators, Division, Sub-Divisions and Villages in the Adamawa region

Enumerators	Division	Sub-Division	Villages
Souleymanou Maikano	Vina	Betel	Tourningal
			Ngawa
Ndoumwa Elie	Mbere	Meiganga	Djallo
			Meidouougou
Yiita Tossom Beatrice	Vina	Ngaoundere 1er	Marza
			Beka Matari
Salihou Abdoulwahabi	Vina	Ngan-Ha	Madol
			Mamoum
			Borongou
			Mbang Bouhari
			Ngaoubala
			Mbanga
Dongno Francis	Vina	Nyambaka	Neminaka
			Katil Boum
Abba Abdoulwahabou	Vina	Ngaoundere	Youkou
			Velambai
Aicha Hadja Yougouda	Vina	Nyambaka	Nyambaka
			Mambaka
Diguir Bamiya Beatrice	Vina	Ngaoundere	Malo Mbifal
		Ngaoundere 3eme	Maiborno
Faysal Ousmaila	Mbere	Meiganga	Nandeke
			Dana
Adamou Alim	Djerem	Ngaoundal	Mbarnang-Graya
			Djounde Docko
Honang Alain	Vina	Nyambaka	Lawana
			Yangai
			Nyambaka Hossere
Aboubakar Saidou	Faro Et Deo	Tignere	Pastoral
			Tignere
			Mayang
Kami Kirimi	Faro Et Deo	Tignere	Libong Mboum
			Libong Mayo Ponga
			Libong SODEPA
Jahtaiwour Noel	Vina	Belel	Tello
			Idool

Appendix 3:

List of Enumerators, Division, Sub-Division and Villages in the West region

Enumerators		Division	Sub-Division	Village
1	Titti Roland Wilfried	Bamboutos	Batcham	Bakom
				Bangang
			Batcham	Ndindong
				Batsa'a
2	Tiyong Djimelo Diane	Koung-Khi	Bayangam	Kassap-Djeche
				Djeuve
				Touegwe Yenom
				Tougwe-Pou
			Poumougne	Djeuve
				Dja-Bandjoun
3	Kuenbou Djikeng Jodelle	Bamboutos	Bamessingue	Bamedjing
				Bamessigue
			Babadjou	Bameto
4	Moffodi Selatsa Ivana	Noun	Foumbot	Fossang
				Margoum
				Fossang
				Chefferie Baigom
				Koundumbain
			Kouaptamo	Mbantou
				Mbankouap
				Magoumou
				Ndoumkain
				Koupara
5	Etame Kossi Georgis	Bam Boutos	Batcham	Bamoungony
				Blamougong
				Bangang
				Tsopoua
				Mont
				Batchio
				Ndzindong
6	Tchapga Franck Junior	Haut Plateaux	Baham	Chengne
			Bangou	Bangou
				Bangou Ville
7	Kuenbou Joachim	Menoua	Penka Michel	Bansoa
				Bamendou
				Bamendou-Neguibe
8	Ganno Tatong B	Mifi	Bafoussam	Djunang
				Tchouong
			Bafoussam III	Lafie
				Tchipou
				Gassa

Enumerators		Division	Sub-Division	Village
				Lafie
				Latsit
				Tapou
9	Tagnang Fofie Valvine	Menoua	Penka Michel	Balessing
				Bakeng
10	Kenfack Sovanie	Noun	Kouoptamo	Ngoudam
				Mbankouop
				Ngeinsoiunzn
			Foumbot	Fosset
				Jindoum
				Magoum
				Njiinb
Koutaba	Koutie			
Bangourain	Banganbi			
11	Mbeutcha Tchakoutio Guystant	Nde	Bagangte	Bamena
				Kamna
12	Assougouma Ebongo Merveille	Mifi	Bafoussam li	Badeng
				Basse
13	Medjou Linda	Haut Plateaux	Bamendjou	Bangam
				Tidong
			Bangoua-Bamendjou	Ngougwa
14	Feudjio Pierre Rene	Menoua	Nkong-Ni	Touoza li
				Zuenlah-Meguïn
				Mbou-Baleveng
				Melia-Baleveng
				Zem-Baleveng
				Lekatchouo-Touodja-Baleveng
				Tsintgio-Baleveng
				Sur-Feng-Baleveng
				Mekang Baleveng
Kiagni Baleveng				
15	Nguimgo Cedric	Koung-Khi	Poumougni	Djiomghuo
			Bayangam	Batoufam
				Bandrefam
16	Tchiffo Fokou Carnot	Bamboutos	Babadjou	Bamendjinga
			Mbouda	Banwa
				Banbadjui
			Bamesso	
17	Kaptche Edithe Flore	Nde	Babante	Bahouc
				Bangoua
18	Tchuenkam Kamgaing Patrick	Menoua	Dschang	Belevoni
				Letsa-Foto
19	Nangmo Temateu Kelie	Menoua	Dschang	Fonakekeu

Enumerators		Division	Sub-Division	Village
				Djutitsa
				Lefe Foto
				Fialan Foto
				Bangang
20	Kouam Djoko Idriss	Menoua	Nkongni	Balepe
				Mika
				Tsinto
				Bassessa
				Bafou
				Bafou Pastorale
				Touga

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