

REPUBLIQUE DU CAMEROUN
Paix – Travail – Patrie

MINISTERE DE L'AGRICULTURE
ET DU DEVELOPPEMENT RURAL

SECRETARIAT GENERAL

DIRECTION DES ENQUETES ET
DES STATISTIQUES AGRICOLES



REPUBLIC OF CAMEROON
Peace – Work – Fatherland

MINISTRY OF AGRICULTURE
AND RURAL DEVELOPPEMENT

GENERAL SECRETARIAT

DEPARTMENT OF AGRICULTURAL
SURVEYS AND STATISTICS

REPORT

Evaluation /Assessment of COVID-19 Effects on Agriculture and Food Safety in Cameroon Households

JUNE 2021

RESULTS

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Department of Agricultural Surveys and Statistics

JUNE 2021

Foreword

Survey on the evaluation of COVID-19 effects on agriculture and food safety in Cameroon households carried out by the Department for Agriculture Surveys and Statistics is an action which is part of the implementation of the sectoral respond plan of the Ministry of Agriculture and Rural Development (MINADER) against this pandemic.

This census aims at evaluating the impacts of COVID-19 pandemic at the level of households, Producers' Organizations (PO), agricultural monitoring personnel and agricultural enterprises on production, processing, marketing, monitoring, resilience activities and support received. With the help of four different questionnaires, data collection was conducted from March 29 to April 15 of the year 2021 in the ten regions of the country in 2087 households, 637 producer's Organisations, 421 monitoring structures and 71 agricultural enterprises.

We seize this opportunity to thank all stakeholders of agricultural holdings and monitoring structures that willing answered the questions of our census agents.

**The Minister of Agriculture and
Rural Development**

Gabriel MBAIROBE

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Initialisms and Abbreviations

CAPI	: Computer Assisted Personal Interviewing
COVID-19	: Corona Virus Disease 2019
CSPro	: Census and Survey Processing System
DDADER	: Divisional Delegation of Agriculture and Rural Development
DESA	: Department of Agricultural Surveys and Statistics
FAO	: United Nations Food and Agricultural Organization:
4th GPHC	4 th General Population and Housing Census
FAO	United Nations Food and Agricultural Organization
GCAL	: General Census of Agricultural and Livestock
IRAU	: Information and Rapid Alert Unit
MINADER	: Ministry of Agriculture and Rural Development
MINEPIA	: Ministry of Livestock, Fisheries and Animal Industries
MINSANTE	: Ministry of Public Health
NGO	: Non-Governmental Organization
NICT	: New Information and Communication Technologies
NIS	: National Institute of Statistics
POs	: Producers' Organizations
RDARD	: Regional Delegation of Agriculture and Rural Development
RS	: Raining Season
RSASS	: Regional Service for Agricultural Surveys and Statistics
SDARDC	: Sub divisional Delegation for Agricultural and Rural Development
SDEAS	: Divisional Section of Agricultural Survey and Statistics
SPSS	: Statistical Package for the Social Sciences
W.H.O	: World Health Organization
ZD	: Enumeration Area/Zone

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Analytical Summary

Just like many other countries, Cameroon is affected by COVID-19 plague that continues to cause several victims across the country. In response to this situation, the Government undertook a series of sanitary measures to reduce the spread of this plague. Due to these different measures, negative effects affect the economy as a whole, employment, subsistence measures, especially the agricultural sectors, trade, tourism, catering and transport.

In this context, and in the need to identify, specify and better structure efficient and adequate barrier measures to guide efficient agricultural holdings during this difficult period, the Ministry of Agriculture and Rural Development (MINADER) through the Department of Agricultural Surveys and Statistics (DESA) has carried out a census on the evaluation of COVID-19 effects on agriculture and food safety of households.

This census aimed to provide indicators on the immediate impacts of COVID-19 pandemic on agricultural campaign and food safety of household depending on agriculture in 2020. The geographic area of this census covered completely the national territory as well as the rural and urban area. The relevant period in this work corresponds to the outbreak of Covid-19 pandemic (from March 2020 to March 2021). Statistic units under this census were households depending on agriculture, producers' organizations and monitoring structures. The people enumerated were household heads depending on agriculture, enterprise, agricultural Producers' Organizations (PO) and monitoring structures. Data collection took place from March 29 to April 15 of the year 2021 in the sampled divisions. The singularity of this census lies on the fact that electronic data collection method was used. Four questionnaires corresponding to the census statistic units were elaborated and used.

The questions that were asked about the COVID-19 effects on production, processing, exchange, management and resilience activities of agricultural holdings. The personnel that mobilized for data collection on the field made up of 15 supervisors and 46 enumerators. This census was done thanks to the participation of 2087 households, 637 Producers' Organizations, 421 monitoring Structures and 71 enterprises.

The results of this census enabled us to realize that between March 2020 and March 2021, COVID-19 negatively affected the functioning of agricultural activities. It led to the degradation of exploitation existence and survival conditions. The effects of this plague drop on production, processing, exchange, monitoring, and resilience as well as support activities.

❖ Production Activities.

It can be concluded that, COVID-19 had effects at different levels on the grass removal operation. 70% of households enumerated confirmed that COVID-19 effects stroke their main crops cultivation. This census reveals that 65% of holdings faced negative impacts in the acquisition of seeds due to this pandemic. During the farming season, apart from cassava, COVID-19 impacted on more than half (about 64%) holdings as access to fertilizers is concerned regardless of the kind of agriculture practices. Besides, this pandemic highly affected 43% of producers' organizations and household's holdings as far as access to phytosanitary products are concerned, particularly for tomato, cocoa tree and Irish potato.

In sum, the results of this survey shows that no COVID-19 effect was recorded for all types of cultivation in the areas of labour force in households and PO. However, this pandemic led to drastic fall in labour force for all types of cultivations in enterprises. Some actions carried out by enterprises holdings to tackle the effects of this pandemic on the management of human resources are: technical personnel reduction and layoff of the administrative personnel as well as the reduction of working hours and salary.

❖ Processing and marketing activities.

COVID-19 led to quantity decrease in transformed maize, cassava, plantain in 76% of enterprise exploitation and 45% of PO. 38% of holdings/farms recorded an increased in post-harvest loss of maize. Nevertheless, all types of holdings recorded a moderate loss in cassava of 34%. The scale of post-harvest loss in plantain is elevated at 75% for all types of exploitations. Nonetheless, about 55% of households and PO recorded no change in the input supply mode in the entire agricultural practice. Globally, about 68% of holdings experienced a fall in the sale of their products. Nevertheless, no matter the type of cultivation, 65% of household and PO holdings maintained their product markets. Their markets remain on change, which is not the case with the transportation means of products to the markets. Indeed, more than half of holding census experience an increase in transportation cost of their

products to the markets. In addition, it can be concluded that most holdings experienced a drop in sales of their agricultural products.

❖ Monitoring activities.

In conclusion, COVID-19 has negatively influenced monitoring structures objectives. This pandemic greatly affected training objectives at 73% and those of sensitization at 65% from actions carried out, it can be concluded from the results that only 30% of monitoring structure carried out some measures to curb the pandemic. This situation however led to the malfunctioning in their activities conducts. in terms of importance, this meant the reduction of working hours, instauration of full working hours, personnel reduction or layoff with the slowdown of activities, most monitoring structures opted for phone calls (73.8%), e-mails (68.6%) and the circulation of technical forms (27%) for the evaluation follow up of their producers.

❖ Resilience and support to COVID-19.

The achievements obtained from this census show that households depending on agriculture, most follow up strategies such as the consumption of non-food (43.4%) as well as food (38.7%) and recourse to family/partner help (38.7%). Holdings away from households (enterprises and PO) mainly rely on savings, credit and other activities generating revenue. The main strategies used by enterprise managers are phone calls and email messages.

At the end of this study, the following recommendations were formulated.

Short term:

- Create a production bell of highly short cycle crops consumption around big towns and more affected areas by price increasing of products or reduction of the number of meals per days;
- Ensure the regulation price of agricultural inputs through the implementation of an observatory mechanism of agricultural inputs;
- Support holdings and monitoring structures with COVID-19 kits;
- Reinforce food assistance actions on local population in case of crisis.

Medium term:

- Work in collaboration with competent administrations, fluctuation control of transport cost which affects the production and sale of agricultural products;
- Put in place agricultural labour exchange to ensure contact with enterprises in case of limited mobility due to an eventual financial difficulty.
- Encourage value chain development of agricultural products with a view to processing and conserving the aforementioned products.
- Envisage the creation of a structure in charge of ensuring price stability of agricultural products through the actions of repurchasing and processing in case of disaster;
- Promote online business with a view to limiting physical contacts between the buyer and the sellers.
- Encourage partnership contracts between Producers' Organizations and potential national buyers.
- Promote the use of New Information and Communication (NICT) to monitor agricultural holdings through the following actions:
 - ✓ facilitating access to NICT tools before monitoring structures and producers (access to Internet, rural electrification);
 - ✓ Develop tools or platforms facilitating distant monitoring of farms in rural areas in order to ensure resilience in case of a pandemic outbreak.
- Grant support (like fertilizer, phytosanitary products, seeds, etc.) to producer who have been highly affected;

- Take into consideration perpetual mutation of Coronavirus (South African, Indian and Delta variants) carrying out a similar census every year will not only enable us distinguish COVID-19 effects on agriculture and food safety, but also favour decision making in time which is very necessary.

Long- Term:

- Promote agricultural biological production techniques in collaboration with agricultural research structures so as to reduce dependency on chemical products;
- Encourage the creation of agricultural input fabrication plants “made *in Cameroon*” in order to limit dependency on imports.

1 INTRODUCTION

1.1 CONTEXT AND JUSTIFICATION

Corona Virus pandemic (COVID-19) started in China in December 2019 and quickly spread in every country in the world. Sub-Saharan Africa recorded its first COVID-19 case on February 27, 2020 in Nigeria and the plague spread in an exponential way in almost all African countries.

On March 6, 2020, the first COVID-19 case was registered in Cameroon. To limit the rapid spread of this pandemic, the President of the Republic took 13 restrictive measures, which were published on March 17, 2020 by the Prime Minister, Head of Government. Among these measures, we can list the following: the closing land, air and sea borders; the closing of all secondary, universities and professional Schools; the restriction of gatherings of more than 50 people, closing of bars, restaurants and leisure parks as from 6pm, regulating consumer flow, limitation of urban and interurban movements; the strict observation of hygiene measures recommended by the World Health Organization (WHO). Cameroon already recorded 16 708 infected persons and 385 deaths following the statistics published by the Ministry of Public Health on July 23, 2020.

These different measures negatively affected the economy as a whole, especially on employment, household's subsistence means and sectors such as agriculture, trade, tourism, restauration and transport. The closing of borders could also hinder free movements of goods, which caused some necessity shortage. Indeed, according to the recent prediction in Cameroon, Economy will experience a small drop with -1.1% decrease in GDP and -3% for the secondary sector.

In the sub-section of Agriculture, one fears thread especially on the 2020 agricultural campaign, food safety, incomes from agriculture stakeholders (producers, sellers, etc.), the functioning of producers' monitoring structures, prices, demand and supply of food stuffs.

To deal with this sanitary issue, MINADER sectorial response plan for controlling COVID-19 pandemic mitigation in the sub-section of agriculture and rural development was elaborated with actions based on four major axes, combining sectorial operational response with sanitary response. This means to

- (i) reduce food shortage through the development of short cycle subsistence farming and high consumption,
- (ii) enhance access to markets and ensuring health safety of agricultural products;
- (iii) consolidate the advantages of cocoa sector in order to continuously ensure farmer's revenues and supply our economy in currency;
- (iv) Control subsistence means of vulnerable population and small agricultural entrepreneurs facing COVID -19.

In this context, MINADER has carried out a census with a view **to evaluating the effects of COVID-19** by identifying, specifying and better structuring urgent and adequate barrier measures to efficiently follow up enterprises, households depending on agriculture, and producer's organizations during this challenging period.

1.2 OBJECTIVES OF THIS SURVEY.

This census aims to provide indicators on the immediate impacts of COVID-19 pandemic on agricultural campaign and food safety of household depending on agriculture in 2020.

Specifically, this census aims at evaluating the setbacks of COVID-19 pandemic at the levels of households, Producers' Organizations (POs) and agricultural enterprises on:

- Production Activities;
- Employment and incomes of members;
- Processing, marketing and partnership activities;
- Monitoring activities and survival strategies;
- Supports.

1.3 REPORT STRUCTURING

This report is made up of two chapters. The First chapter briefly presents methodological and organizational aspects of the census while the Second chapter presents COVID-19 effects on production, processing, marketing, monitoring and agricultural holding resilience's activities. It ends with a conclusion with some recommendations.

2 CHAPTER 1: PRESENTATION OF THE SURVEY

2.1 DEFINITION OF KEY TERMS

- **Agricultural season:** This is the period whereby the normal vegetative cycle is covered. This cycle is the period between the beginning of the planting and harvesting seasons for annual cultivation. Agricultural season sometimes enables the practice of 1,2 ,3 cultivation cycles that goes through the 12 months of the year.
- **Household Heads:** Household recognised as such by other members.
- **Production cost:** the cost of expenditures spent to produce goods and services. This cost is made up of direct and indirect charges of production apart from marketing, abnormal cost or storage indirectly related to production.
- **COVID-19:** This refers to Coronavirus Disease 2019 by a virus family of *Coronaviridae*, SARS-CoV-2. This infectious disease is a zoonosis that emerged in December 2019 in the Chinese town Wuhan, in Hubei province.
- **Agricultural Enterprise:** This is an entity that is based on agricultural production which is characterised by a unique management and proper production means.
- **Agricultural Holding:** economic unit of agricultural production under a unique management comprising all land used in total or in part for agricultural production, separately from land tenure, legal or size method. Only an individual, households, jointly by two or many individuals or households, a clan or a tribe or a moral person such as society, collective and cooperative enterprise or a State Institution can exercise the management. Holding can include one or more households located in one or many different regions or in one or more territorial divisions or administration with the only condition of having in common production means like labour force, agricultural buildings, machines or animal used for exploitation.
- **Household depending on agriculture:** a household is characterized as one depending on agriculture if one of its members practices agricultures as main or secondary activity at his or her own expenses and not as an agricultural employee.
- **Producers' Organizations:** together, farmers group themselves to joint their means with a view to equilibrating business relations that they have with economic stakeholders in the downstream of their sector.
- **Resilience:** the ability for people, communities or systems to face disasters or crises to quickly recover from damages.
- **Seed:** Organ or part of an organ (vegetable) which after having been planted is ready to produce as whole plant.
- **Enumeration Areas/Zones:** part of a limited territory limited by visible details and closing from 700 to 1100 inhabitants, that is between an average of 140 and 220 households.

2.2 METHODOLOGICAL ASPECTS

This part presents sampling methodology data collection of the survey.

2.2.1 Geographic area and census period

The geographic area of this census covered completely the national territory that is the ten regions as well as the rural and the urban zones.

The reference period in this census corresponds to the outbreak of Covid-19 pandemic in Cameroon from March 2020 to March 2021.

2.2.2 Statistics and observation units

Statistic units under this census were households depending on agriculture, producers' organizations and monitoring structures.

Observation units are the household head depending on agriculture, producers' organizations head and monitoring structure heads or their representatives where necessary.

2.2.3 Method of sample selection

2.2.3.1 Households depending on agriculture sampling

Household selection took place at two levels. The first level, Enumeration zones (CA) were selected with a proportional probability of their size, which is the number of households in the Enumeration zones. Prior to the selection, the CA were selected in divisions and subdivisions. 2050 households depending on agriculture were sampled in the framework of this census (See. Appendix 1).

Indeed, the choice of households in Enumeration zones was done at random with the step of selection, which was according to the number of households and the number of households enumerated. Three great criteria enabled the determination of the sample size, that is:

- The specification (reliability) of the census estimations
- The quality of data collected under this survey;
- Data collection, processing and dissemination cost.

Sampling of enterprises, POs and monitoring structures.

The sample of enterprises was done through the file of agricultural enterprises of the GCAL. This was refreshed in collaboration with the personnel from MINADER decentralized Services according to the accessibility and operability of the said enterprises.

So far as POs are concerned, collection was mostly "snowball" data collection. Indeed, from the list of POs got from MINADER regional and divisional delegations, a sample of POs to be enumerated was constituted.

So far as monitoring structures are concerned, census mainly focused on partnership structures, NGOs and MINADER structures especially sub divisional delegations, agricultural posts, projects/ programs.

2.2.4 Data collection

Data collection took place from the March 29 to April 15 of the year 2021 in the 35 sampled divisions. This census used the electronic data collection method on the field, which is known as "Computer Assisted Personal Interviewing" (CAPI). However, questionnaire sheets were at the disposal of personnel in the field to solve possible problems related to electricity shortage or the malfunctioning tablets. Four questionnaires corresponding to the census statistic units were elaborated. Personnel that were mobilized for data collection on the field was made up of 15 supervisors and 46 enumerators (see appendix 2). This census was done thanks to the participation of 2087 households, 637 Producers' Organizations, 421 monitoring Structures and 71 enterprises (Table 1).

Table 1 : Assessment of data collection in the field

Regions	Agricultural households	Producer organizations	Agricultural Enterprises	Supervisory structures
Adamaoua	252	41	7	43
Centre	276	85	6	53
East	134	39	6	20
Far-North	258	85	4	53
Littoral	131	47	2	12
North	277	115	5	70
North-West	180	48	2	7
West	365	108	25	106
SOUTH	109	26	12	12
South-West	105	43	2	45
Total	2 087	637	71	421

Source: our calculation from BUCREP (2017), GCAL (2017), MINADER/DDLC (2020)

2.3 DATA EXPLOITATION AND DATA PROCESSING.

2.3.1 Data processing

Information collected and transferred in the central server of DESA were exploited and cleansed by a multidisciplinary team of DESA. The processing of this data was done in two stages as follows:

- **1st stage:** it consisted in carrying out first incoherence controls, multiple choice questions processing and allocations through batch applications designed for the four types of questionnaires with the help of CSPro software;
- **2nd stage:** after transferring data to SPSS software, we proceeded with the verification of additional incoherence per regions through sorts and selections of some variables, definition of multiple response vectors, creation and recodification of some categorical variables, imputations of some absent values and the deletion of some observations.

2.3.2 Evaluating data quality

Data quality evaluation was done by applying procedures for data quality indicators as defined by statistic institutions especially the National Institute of Statistics (INS and the Food and Agricultural Organization (FAO). For it to be done, cleansing was preceded by data collection in the field. It was done in two stages: manual and computer processing Data verification during collection was based on three criteria estimated pertinent: completion, coherence and exactitude.

2.3.3 Completion

Completion was essentially based on the exhaustive filling of questionnaires. The fundamental question was: fill all questionnaires completely and exactly. To this effect, the main indicators that were used were the percentage of complete questionnaires; percentages of incomplete questionnaires; the rate of no response or the filling rate of some variables. The identification of duplicated questionnaires was equally part of completion. The goal of duplicated identification was to bring out questionnaires having the same identification.

2.3.4 Verification of data coherence

The main part of these elements of coherence control were already included in the data collection application. Despite this, some verifications of data coherence were completed.

2.3.5 Data accuracy

To evaluate data accuracy concerning our study, the following actions were carried out.

- The use of a tabulation plan to bring out some indicators related to specification and reliability of data collection;
- The control of data possibility on the field by the personnel responsible for collection.
- The imputation of missing and incoherence data from statistic methods and with the help of SPSS and STATA software.

2.4 ORGANIZATION OF THE CENSUS

2.4.1 General Supervision

The General supervision of the census was ensured by Mr. the Minister of Agriculture and Rural Development and Technical Coordination by the Director of Agricultural Surveys and Statistics (DESA). The main objective of this supervision was to coordinate and follow up the realization of the census. As such, his main task was to:

- Follow up preliminary works (technical documents elaboration, cartography and training works):
 - for the sensitization and data collection;
 - for data collection evolution;
 - for data exploitation and data analysis;

- for report elaboration and validation.

To ensure this technical coordination, monitoring, exploitation and data analysis teams were constituted (cf. annex 2).

2.4.1.1 Monitoring team

The monitoring team mission was to follow up the evolution of data collected in the field, verify the performance of the personnel in the field; identify problems encountered on the field and solutions proposed; give suggestions to enhance data collection and data quality.

2.4.1.2 Data Exploitation and Analysis Team

Data exploitation and analysis team was responsible for data aggregation, program design for data processing, calculating indicators, production of tables and survey report.

2.4.1.3 Team on the field.

The team on the field was made up of collection supervisors and enumerators. Supervisors carried DESA head and senior personnel, whose role was to ensure the training of data collection enumerators and monitor the development of collection operations. Enumerators included MINADER decentralized service personnel, especially the Regional Service Head of Agricultural Surveys and Statistics (RSHASS), Divisional Section Head of Agricultural Surveys and Statistics (DSHASS) and Sub divisional Delegate of Agriculture and Rural Development (SDARD). They were responsible for collecting information in the sampled agricultural holdings.

3 CHAPTER 2: PRESENTATIONS OF ACHIEVEMENTS

3.1 CHARACTERISTICS OF HOLDINGS.

This section is mostly based on the characteristics of agricultural holdings as well as the sociodemographic characteristics of the different holding heads.

3.1.1 Sociodemographic characteristics for holding heads

In all holdings enumerated, it is clear that in every type of holdings; more than 76% of heads are male. Concerning age, more than 70 % heads are between the age limits of 35 and 64 in every holding. Those of less than 35 years old and more than 64 are less represented.

Table 2: Division in percentage of holdings per gender or age of head

	Households (%)	PO (%)	Enterprises (%)
Sex/gender of the responsible for the holding / farming			
Male	72,8	75,4	80,3
Female	27,2	24,6	19,7
Age of the responsible for the holding			
Less than 25 years	3,8	0,2	0,0
25 – 34 years	15,2	5,0	7,0
35 – 44 years	26,5	23,7	25,4
45 – 54 years	26,2	35,5	25,4
55 – 64 years	17,7	26,4	32,4
65 years and more	10,6	9,3	9,9
Total	100,0	100,0	100,0

Source: MINADER/ DESA, COVID-19 Survey

3.1.2 Characteristics of holdings.

It is clear that in all agricultural holdings enumerated, households and POs having 6-10 persons are the most populated. Meanwhile in enterprises, 45.10% have more than 20 employees.

Table 3: Division in percentages of holdings per numbers of persons and agricultural activities

Number of persons living in the holding	Households (%)	PO (%)	Enterprises (%)
Less than 5	38,1	2,5	15,5
6-10 persons	46,7	44,0	15,5
11-15 persons	11,5	21,4	16,9
16-20 persons	2,0	8,6	7,0
More than 20 persons	1,7	23,5	45,1
Total	100,0	100,0	100,0

Source: MINADER/ DESA, COVID-19 Survey

The next table shows that most households and POs practiced farm production activity (more than 90%), followed by the sale of agricultural products (more than 77%). The tendency reversed in enterprises. It can be noted that, few household and POs holdings process part of their production (less than 17%). Seed production activities and trainings are limited.

Table 4: Division in percentage of different holdings according to the agricultural activities practiced

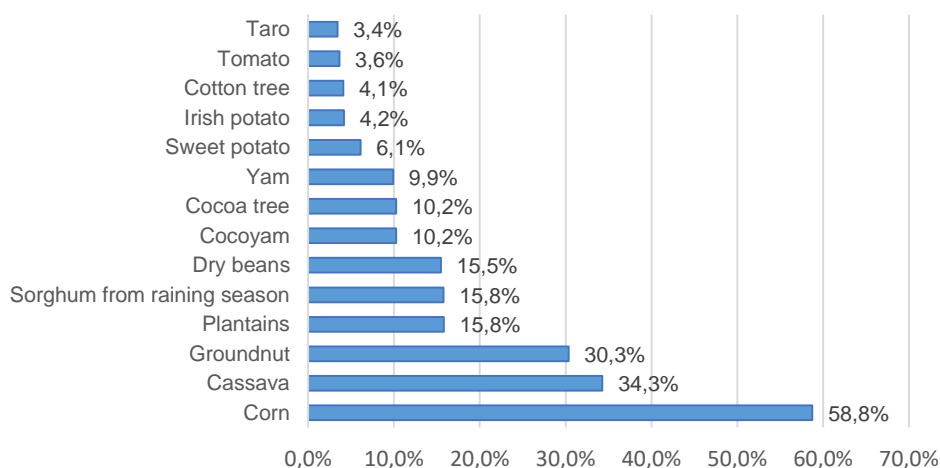
Agricultural activities practiced	Households (%)	PO (%)	Enterprises (%)
Farm Production	94,0	91,6	75,4
Production of agricultural seeds (including plant nursery)	3,8	9,1	21,7
Processing of agriculture products	13,2	16,1	37,7
Marketing of agriculture products	77,7	89,9	84,1
Training	4,4	8,2	17,4

Source: MINADER/ DESA, COVID-19 survey

3.1.3 Main crops cultivated

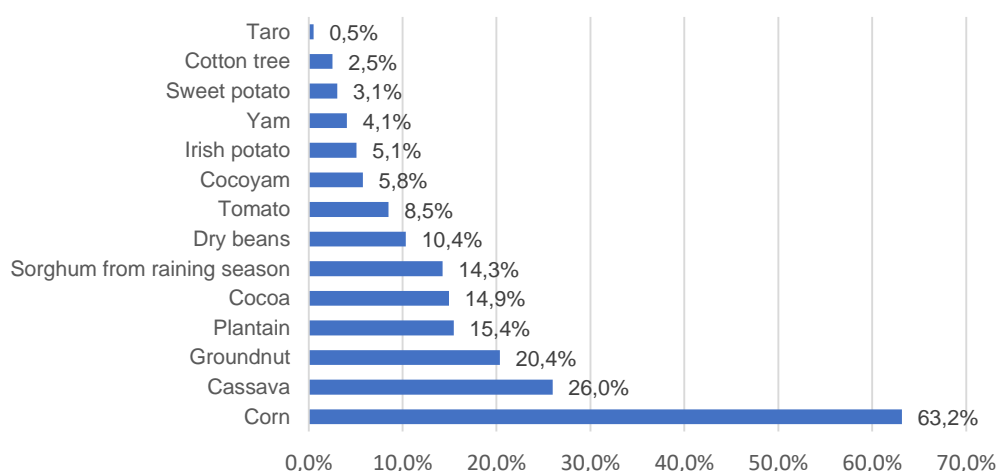
Graph 1 and 2 below indicate that the main crops cultivated are diversified. Maize/corn is the crop that is the most cultivated followed by cassava and groundnuts. These results can be explained by the fact that these three crops are highly consumed by the populations and are adapted to all agro-ecological zones.

Graph 1: Division in percentage of main crops cultivated by Household exploitation



Source: MINADER/ DESA, COVID-19 Survey

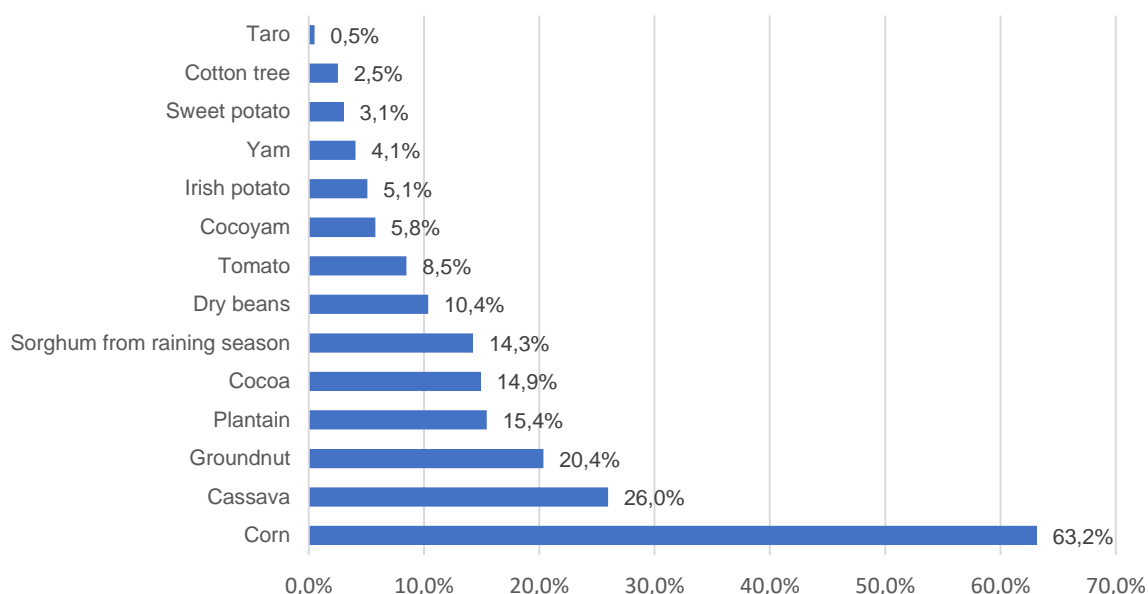
Graph 2: Division in percentage of main crops cultivated by POs holding



Source: MINADER/ DESA, COVID-19 Survey

From graph 3, it appears that, maize is the main crop cultivated by enterprises (54.8%), followed by cassava (24.2%) and plantain (22.6%).

Graph 3: Division in percentages (%) of main crops cultivated by enterprises



Source: MINADER/ DESA, COVID-19 Survey

3.2 COVID-19 EFFECTS ON PRODUCTION ACTIVITIES

3.2.1 COVID-19 effects on management technics

This sub-section deals with the scale of COVID-19 effects on managing technics of the four main crops cultivated by different agricultural holdings, especially weeding, cultivation, sowing, weeding, hoeing/ridging, harvesting and drying. At the end of this census four main crops identified in all regions are maize, cassava, sorghum SP and plantain.

3.2.1.1 Grass Removal in Agriculture farms

As a whole, and whatever the kind of crops, it is clear that, in most holdings enumerated, COVID-19 had different impacts on grass removal operations. Concerning household holdings and POs, effects induced by the outbreak of the pandemic on grass removal are irrespective of the kind of crop. These effects can be explained in the one hand by less availability of remunerated labour force and in the other hand, the scarcity and the high cost of herbicide during restriction period; this, being related to closed borders.

Table 5: COVID-19 effects of grass removal on holdings according to crops principles.

Crops	Effects on the weeding	Households (%)	PO (%)	Enterprises (%)
Corn (grain)	None	33,9	14,7	20,6
	Very low	14,1	18,3	14,7
	Low	15,9	20,4	17,6
	Moderate	18,3	25,9	23,5
	High	12,1	14,4	17,6
	Very high	5,9	6,3	5,9
	Total	100	100	100
Cassava	None	39,6	19,9	13,3
	Very low	12,3	11,3	13,3
	Low	15,7	21,2	40
	Moderate	17,9	30,5	26,7
	High	10,5	13,2	6,7
	Very high	4,0	4,0	0,0
	Total	100	100	100
Sorghum SP	None	35,9	25,9	nc*
	Very low	16,2	17,3	nc*
	low	20,0	22,2	nc*
	Moderate	22,5	24,7	nc*
	High	4,1	7,4	nc*
	Very high	1,3	2,5	nc*
	Total	100	100	
Plantain	None	39,0	31,1	14,3
	Very low	11,8	14,4	0,0
	low	14,7	14,4	21,4
	Moderate	17,6	24,4	21,4
	High	11,8	12,2	35,7
	Very high	5,1	3,3	7,1
	Total	100	100	100

*: not concerned

Source: MINADER/ DESA, COVID-19 Survey

3.2.1.2 Agricultural holding Cultivation.

From the next table, it can be noticed that about 30% of households enumerated did not experience COVID-19 effects on main crops' cultivations. For holdings that were affected, most were moderate. A non-negligible rate (36%) of enterprise managers recorded a high effect of the pandemic on plantain. These effects are justified by the reduction of labor force supply due to the application of barrier measures prescribed by the Government.

Table 6: COVID-19 effects on the cultivation of holdings according to the crop principles

Crops	Ploughing	Households (%)	PO (%)	Enterprises (%)
Corn/maize (grain)	None	29,5	15,7	17,6
	Very low	8,3	13,0	14,7
	Low	16,6	20,7	14,7
	Moderate	20,7	28,2	23,5
	high	18,4	16,0	23,5
	Very high	6,5	6,4	5,9
	Total	100	100	100
Cassava	None	37,4	20,5	13,3
	Very low	6,9	11,9	13,3
	low	13,5	18,5	33,3
	Moderate	20,7	29,1	33,3
	High	16,8	15,2	6,7
	Very high	4,8	4,6	0,0
	Total	100	100	100
Sorghum SP	None	32,9	25,9	nc*
	Very low	11,0	12,3	nc*
	Low	22,6	24,7	nc*
	Moderate	25,5	25,9	nc*
	High	6,8	9,9	nc*
	Very high	1,3	1,2	nc*
	Total	100	100	
Plantain	None	45,3	33,8	21,4
	Very low	7,3	10,8	0,0
	Low	12,7	10,8	7,1
	Moderate	16,7	28,4	28,6
	High	12,7	16,2	35,7
	Very high	5,3	0,0	7,1
	Total	100	100	100

*: not concerned

Source: MINADER/ DESA, COVID-19 Survey

3.2.1.3 Sowing farm

From table 7, it can be noticed that the pandemic affected sowing operations in different holdings in different ways. For the specific case of households, about 32% did not experience any effect on the said operation. Meanwhile for POs, COVID-19 effects on main sowing crops tend to be moderate (about 29%). For enterprises, effects are considerably high for the sowing of maize and plantain (more than 29%).

Table 7: COVID-19 effects on sowing farm according to the crop principles

Crops	Effects on the seedlings	Households (%)	PO (%)	Enterprises (%)
Crops	None	28,8	14,7	17,6
	Very low	8,3	11,4	11,8
	Low	15,7	21,2	17,6
	Moderate	23	30,7	17,6
	High	17,6	15,8	29,4
	Very high	6,5	6,3	5,9
	Total	100	100	100
Cassava	None	36,7	16,5	20,0
	Very low	7,9	12,2	13,3
	Low	14,7	20,9	33,3
	Moderate	22,8	30,2	26,7
	High	13,4	15,1	6,7
	Very high	4,5	5,0	0,0
	Total	100	100	100
Sorghum SP	None	33,3	24,7	nc*
	Very low	12,1	16,0	nc*
	Low	21,0	13,6	nc*
	Moderate	23,2	29,6	nc*
	High	9,8	14,8	nc*
	Very high	0,6	1,2	nc*
	Total	100	100	
Plantain	None	35,9	23,0	14,3
	Very low	8,5	14,9	7,1
	Low	16,7	14,9	14,3
	Moderate	20,3	35,1	28,6
	High	14,2	12,2	28,6
	Very high	4,3	0,0	7,1
	Total	100	100	100

*: not concerned

Source: MINADER/ DESA, COVID-19 Survey

3.2.1.4 Weeding farms

From table 8, it is clear that COVID-19 affected in different ways weeding operations in different holdings. About 34% of household holding census experienced no effects on weeding operation of the main crops cultivation. On the reserve side, the effects of this pandemic on weeding of main crops are moderate (about 27%) in POs holdings. These effects are high on the weeding of maize and plantain (25%) in enterprises.

Table 8: COVID-19 effects on weeding of holdings in respect to the main crops

Crops	Effects on the weeder	Households (%)	PO (%)	Enterprises (%)
Corn (grain)	None	29,0	13,9	17,6
	Very Weak	8,7	12,0	14,7
	Weak	15,4	20,1	14,7
	Moderate	22,9	32,1	17,6
	High	19,8	16,0	29,4
	Very high	4,2	6,0	5,9
	Total	100	100	100
Cassava	None	39,5	21,9	20,0
	Very Weak	8,2	10,6	13,3
	Weak	15,9	22,5	40,0
	Moderate	19,9	27,2	26,7
	High	11,9	13,9	0,0
	Very high	4,7	4,0	0,0
	Total	100	100	100
Sorghum SP	None	33,2	22,2	nc*
	Very weak	10,2	14,8	nc*
	Weak	18,2	11,1	nc*
	Moderate	25,2	27,2	nc*
	High	11,2	21,0	nc*
	Very High	1,9	3,7	nc*
	Total	100	100	
Plantain	None	44,0	29,7	28,6
	Very week	8,5	9,5	0,0
	Weak	13,5	13,5	14,3
	Moderate	18,9	29,7	28,6
	High	12,4	16,2	21,4
	Very high	2,7	1,4	7,1
	Total	100	100	100

*: not concerned

Source: MINADER/ DESA, COVID-19 Survey

3.2.1.5 Hoeing and ridging of agricultural holdings

Hoeing/ridging operation of households depending on agriculture were not affected by the pandemic. So far as enterprises are concerned, we can notice some variations in the effects of one crop cultivation type to the other. In addition, weeding operation in majority, enterprises (41%) that cultivate maize had no influence.

Table 9: COVID-19 effects on hoeing/weeding of holdings according to cultivation principles

Crops	Effects on the hoeing/weeder	Households	PO (%)	Enterprises (%)
Corn/maize (grain)	None	40,3	16,9	41,2
	Very weak	5,2	18,3	11,8
	Weak	15,5	19,4	17,6
	Moderate	20,8	28,4	14,7
	High	13,5	11,9	11,8
	Very High	4,6	5,0	2,9
	Total	100	100	100
Sorghum SP	None	40,9	57,1	nc*
	Very weak	8,5	4,1	nc*
	Weak	21,6	12,2	nc*
	Moderate	18,2	14,3	nc*
	High	8,5	8,2	nc*
	Very High	2,3	4,1	nc*
	Total	100	100	

*: not concerned

Source: MINADER/ DESA, COVID-19 Survey

3.2.1.6 Harvest of agricultural holdings products

Table 10 shows COVID-19 effects on the harvest of main crops cultivated by holdings enumerated; It can be concluded that this pandemic had negative effects on the harvest of different crops such as the Maize farm harvest (about 19.37 of holdings) and cassava (about 28.00 of holdings) that is moderately influenced by it. This is the same for Sorghum and plantain harvested that Households and POs accounted to have witnessed moderate effects. However, for these last cultivation types we can notice that approximately 30% households and POs did not face COVID-19 effects on their harvest

It should be mentioned that COVID-19 effects on plantain harvest was higher in enterprises (about 36%) This can be justified temporally by the decrease of labour force due to restriction of workers' movements from their housing areas to their exploitation zones.

Table 10: COVID-19 effects on holdings harvest according to main crops

Crops	Effects on the harvesting	Households (%)	PO (%)	Enterprises (%)
Corn/maize (grain)	None	29,4	15,8	26,5
	Very weak	9,3	11,7	11,8
	Weak	19,0	20,2	14,7
	Moderate	20,4	25,9	11,8
	High	18,7	18,3	23,5
	Very High	3,3	8,2	11,8
	Total	100	100	100
Cassava	None	39,3	20,9	13,3
	Very weak	9,3	11,8	13,3
	Weak	17,8	23,5	33,3
	Moderate	19,9	25,5	40,0
	High	10,3	13,1	0,0
	Very High	3,4	2,6	0,0
	Total	100	100	100
Sorghum SP	Aucun	35,7	27,7	nc*
	Very weak	7,7	15,7	nc*
	Weak	22,5	9,6	nc*
	Moderate	23,8	21,7	nc*
	High	8,0	21,7	nc*
	Very High	2,3	1,2	nc*
	Total	100	100	
Plantain	None	38,9	29,7	21,4
	Very weak	12,9	13,2	0,0
	Weak	15,8	15,4	14,3
	Moderate	17,7	22,0	21,4
	High	12,5	14,3	35,7
	Very high	2,3	3,3	7,1
	Total	100	100	100

*: not concerned

Source: MINADER/ DESA, COVID-19 Survey

3.2.1.7 Drying of products from agricultural holdings.

Drying activity whatever the type of cultivation is less influenced by COVID-19 in household holdings. This tendency was observed in enterprise and POs holdings.

Table 11: COVID-19 effects on the drying of holdings in respect to main crops

Crops	Effects on the drying	Households (%)	PO (%)	Enterprises (%)
Corn/grain (grain)	None	45,1	26,1	41,2
	Very weak	11,7	19,7	11,8
	Weak	15,8	15,9	14,7
	Moderate	13,1	17,8	17,6
	High	8,2	10,5	8,8
	Very high	6,0	5,9	5,9
	Total	100	100	100
Cassava	None	43,7	18,3	46,7
	Very weak	11,1	9,8	13,3
	Weak	15,9	13,1	33,3
	Moderate	17,7	16,3	6,7
	High	7,6	10,5	0,0
	Very high	3,9	2,6	0,0
	Total	100	100	100
Sorghum SP	None	51,6	50,6	nc*
	Very weak	7,3	6,0	nc*
	Weak	18,5	7,2	nc*
	Moderate	17,3	12,0	nc*
	High	4,0	6,0	nc*
	Very high	1,2	1,2	nc*
	Total	100	100	

*: not concerned

Source: MINADER/ DESA, COVID-19 Survey

3.2.2 COVID-19 effects on access to agricultural inputs

This sub-section is based on scale of COVID-19 negative effects on the use of agricultural inputs on the four types of crops cultivated by agricultural holdings.

3.2.2.1 Access to seeds

The following table shows that COVID-19 negatively affected the access of main crops. Indeed, more than 65% of holdings witness negative effects in the acquisition of seeds due to the pandemic. They are very important than agricultural enterprises that produce plantain (36%) and maize (30%). Meanwhile for all household holdings, the effect of the pandemic was more negative in the access to maize seed (23%) and cassava (21%).

The reasons highlighted which give an account of this COVID-19 negative effects on the access to seed by different holdings are restriction to interurban movements and closed borders.

Table 12: COVID-19 effects on the access to seeds for the different types of holdings according to main crops

Crops	Effects on the access to the seeds	Households (%)	PO (%)	Enterprises (%)
Corn/Maize (grain)	None	26,4	15,9	11,8
	Very weak	11,0	10,0	14,7
	Weak	20,8	17,0	14,7
	Moderate	18,1	28,3	29,4
	High	15,7	20,2	11,8
	Very High	8,1	7,5	17,6
	Total	100	100	100
Cassava	None	35,5	27,5	33,3
	Very weak	8,9	10,5	13,3
	Weak	16,7	17,0	20,0
	Moderate	16,4	24,8	26,7
	High	14,7	16,3	6,7
	Very high	7,7	2,6	0,0
	Total	100	100	100
Sorghum SP	None	36,7	26,5	nc*
	Very weak	14,5	15,7	nc*
	Weak	19,9	28,9	nc*
	Moderate	16,4	16,9	nc*
	High	7,4	9,6	nc*
	Very high	5,1	0,0	nc*
	Total	100	100	
Plantain	None	28,2	34,1	14,3
	Very weak	4,8	11,0	21,4
	Weak	30,3	11,0	14,3
	Moderate	14,3	16,5	14,3
	High	12,2	17,6	35,7
	Very high	10,2	3,3	0,0
	Total	100	100	100

*: not concerned

Source: MINADER/ DESA, COVID-19 Survey

3.2.2.2 Access to Fertilizers

The result show that during this period of study, (March 2020- March 2021), apart from cassava, more than half (64% average) of holdings were affected by COVID-19 in the access to fertilizers independently of the type of crops cultivated. Indeed, 53 from enterprises experienced no effect of the pandemic in the access to fertilizers for cassava cultivation. However, access to fertilizers for maize and sorghum cultivation is moderately affected for all farms.

These inconsiderable effects on access to fertilizers on cassava cultivation can be explained by the fact that most farms don't have the habit of using fertilizer on cassava crops.

Table 13: COVID-19 effects on the access to farm fertilizers according to crops cultivated

Crops	Effects on the access to fertilizers	Households	PO (%)	Enterprises (%)
Corn/maize (grain)	None	17,4	11,1	2,9
	Very weak	1,3	10,2	2,9
	Weak	14,1	14,8	17,6
	Moderate	25,1	27,0	29,4
	High	21,3	22,9	26,5
	Very High	11,8	11,9	20,6
	Total	100	100	100
Cassava	None	44,2	26,1	53,3
	Very weak	8,7	10,5	6,7
	Weak	13,2	11,1	6,7
	Moderate	11,4	16,3	13,3
	High	14,8	14,4	13,3
	Very high	7,7	5,2	6,7
	Total	100	100	100
SorghumSP	None	17,6	13,3	nc*
	Very weak	8,2	7,2	nc*
	Weak	16,4	16,9	nc*
	Moderate	28,1	28,9	nc*
	High	21,5	14,5	nc*
	Very high	8,2	2,4	nc*
	Total	100	100	
Plantain	None	25,3	22	35,7
	Very weak	13,4	4,4	14,3
	Weak	33,3	15,4	0
	Moderate	11,1	14,3	0
	High	9,2	26,4	35,7
	Very high	7,7	2,2	14,3
	Total	100	100	100

*: not concerned

Source: MINADER/ DESA, COVID-19 Survey

3.2.2.3 Access to phytosanitary products

In general, the pandemic greatly or highly affected 43% of POs and household holdings in the access to phytosanitary products, particularly for the cultivation of tomato, cocoa pants and Irish potato. In the same way, 37% of POs were affected by COVID-19 in the access to plantain phytosanitary products. The pandemic moderately affected 60% of enterprises in the access to Irish potato phytosanitary products.

Among the reasons that explain COVID-19 enormous effects in the access to phytosanitary products per holdings, we can enumerate: closed borders and restriction of interurban movements. These had the following consequence: decrease in the supply of phytosanitary products in most production basins.

Table 14: COVID-19 effects on the access to phytosanitary products according to the crops

Crops	Effects on the access to crop protection/ phytosanitary	Households (%)	PO (%)	Enterprises (%)
Tomato	None	5,6	8,3	nc*
	Very weak	8,3	10,4	nc*
	weak	12,5	18,8	nc*
	Moderate	29,2	25,0	nc*
	Elevé	33,3	29,2	nc*
	Très élevé	11,1	8,3	nc*
	Total	100	100	
Cacao	None	17,7	13,6	8,3
	Very weak	8,1	5,7	8,3
	weak	13,1	13,6	16,7
	Moderate	19,2	17,0	0,0
	High	33,3	34,1	50,0
	Very high	8,6	15,9	16,7
	Total	100	100	100
Irish potato	None	1,2	3,4	0,0
	Very weak	3,6	3,4	0,0
	weak	15,7	31,0	40,0
	Moderate	32,5	24,1	60,0
	High	27,7	24,1	0,0
	Very high	19,3	13,8	0,0
	Total	100	100	100
Plantain	None	52,6	20,9	35,7
	Very low	4,3	4,4	21,4
	Low	8,7	16,5	0,0
	Moderate	15,4	13,2	0,0
	High	12,3	27,5	35,7
	Very high	6,7	4,4	7,1
	Total	100	100	100

*: not concerned

Source: MINADER/ DESA, COVID-19 Survey

3.2.2.4 Access to small equipment

Concerning access to small equipment apart from enterprises, more than half of other holdings are not affected by COVID-19, or in case they are affected, it is mild. In addition, for cassava and plantain cultivation, COVID-19 effects were moderate in enterprises.

Table 15: COVID-19 effects on accessing to small farms in equipment according to main crops

Crops	Effects on the access to the small/minor equipment	Households (%)	PO (%)	Enterprises (%)
Maize/corn (grain)	None	36,5	30,2	23,5
	Very low	12,9	14,6	8,8
	Low	15,5	15,4	23,5
	Moderate	18,6	25,3	17,6
	High	11,4	9,4	14,7
	Very high	5,1	4	11,8
	Total	100	100	100
Cassava	None	43,7	37,3	13,3
	Very weak	11,6	13,1	20
	Weak	16,2	15,7	6,7
	Moderate	18,1	14,4	40
	High	8,8	11,1	13,3
	Very high	1,7	5,2	6,7
	Total	100	100	100
Sorghum SP	None	39,2	33,7	nc*
	Very weak	14	8,4	nc*
	Weak	19,9	22,9	nc*
	Moderate	16,6	15,7	nc*
	High	9,6	13,3	nc*
	Very high	0,7	2,4	nc*
	Total	100	100	
Plantain	None	54,3	46,2	7,1
	Very weak	7,1	9,9	14,3
	Weak	11,9	14,3	14,3
	Moderate	15,8	11	28,6
	High	9,3	14,3	21,4
	Very high	1,6	2,2	14,3
	Total	100	100	100

*: not concerned

Source: MINADER/ DESA, COVID-19 Survey

3.2.3 COVID-19 effects on access to other agricultural production factors.

3.2.3.1 Work force for Agricultural Holdings

The following table totally shows that for all types of crops, COVID-19 effects on the evolution of work force is moderately low. Besides, this effect is mostly low for all types of cultivations in POs and enterprises.

With movement restriction due to COVID-19, enterprises using seasonal work force suffered the most.

Table 16: COVID-19 effects on holdings' work force according to main crops

Crops	Effects on the labor	Households (%)	PO (%)	Enterprises (%)
Corn (grain)	Sharp/significant increase	6,5	6,7	12,1
	Moderate increase	16,5	11,6	12,1
	Significant decrease	13,0	23,2	30,3
	Moderate decrease	26,2	34,5	27,3
	No changes	34,7	21,6	18,2
	Reduction of self help	3,0	2,4	12,1
	Total	100	100	100
Cassava	Significant increase	6,8	2,6	0,0
	Moderate increase	21,3	15,7	20,0
	Significant decrease	10,9	19,6	53,3
	Moderate decrease	21,9	30,7	20,0
	No changes	34,3	24,2	6,7
	Reduction of self help	4,8	7,2	0,0
	Total	100	100	100
Sorghum SP	Significant decrease	0,6	1,2	nc*
	Moderate increase	5,0	3,6	nc*
	Significant decrease	12,9	19,3	nc*
	Moderate decrease	33,8	41,0	nc*
	No changes	44,8	32,5	nc*
	Reduction of self help	2,8	2,4	nc*
	Total	100	100	
Bananier Plantain	Significant decrease	6	7,7	0
	Moderate decrease	32	16,5	7,1
	Significant decrease	7	20,9	57,1
	Moderate decrease	15	25,3	35,7
	No changes	33	28,6	0
	Reduction of self help	6	1,1	0
	Total	100	100	100

*: not concerned

Source: MINADER/ DESA, COVID-19 Survey

3.2.3.2 Agricultural Input Supply

In general, about 55% of households and POs did not experience any change in the input supply for main crops. However, for Sorghum SP, 75% of PO experienced an increase in the quantities of inputs that were bought. This can be explained by the fact that, some brewing companies having adapted sorghum SP as main ingredient for the beer production and some humanitarian organizations demanded this product from POs to produce it in a more professional way in great quantity that they need. To satisfy this need, these POs acquired more inputs. Also, with the information on the closing of border, these organizations anticipated on input acquisition.

Table 17: COVID-19 effects on input supply for holdings according to main crops

Crops	Changes	Households (%)	OP (%)	Enterprises (%)
Maïs (grain)	None	58,7	57,1	33,3
	Supply channel	11,4	15,7	26,7
	Payment deadline	5,0	7,1	6,7
	Quantities purchased	23,9	18,6	26,7
	Formalization of partnerships	1,0	0,0	6,7
	Other	0,0	1,4	0,0
	Total		100	100
Manioc	None	65,4	54,4	37,5
	Supply channel	11,9	15,2	37,5
	Payment deadline	4,1	8,9	0,0
	Quantities purchased	16,0	17,7	12,5
	Formalization of partnerships	1,6	3,8	12,5
	Other	0,9	0,0	0,0
	Total		100	100
Sorgho SP	None	60,0	25,0	nc*
	Supply channel	10,0	0,0	nc*
	Payment deadline	10,0	0,0	nc*
	Quantities purchased	16,7	75,0	nc*
	Formalization of partnerships	3,3	0,0	nc*
	Other	0,0	0,0	nc*
	Total		100	100
Plantain	None	59,5	55,6	0,0
	Supply channel	13,5	11,1	75,0
	Payment deadline	8,1	5,6	0,0
	Quantities purchased	10,8	27,8	0,0
	Formalization of partnerships	5,4	0,0	25,0
	Other	2,7	0,0	0,0
	Total		100	100

*: not concerned

Source: MINADER/ DESA, COVID-19 Survey

3.2.3.3 Cultivated Surface area

For all types of crops, one can neither notice change nor drop due to COVID-19 on the evolution of surface areas in the different types of holdings. This drop is high for plantain at the level of enterprises (33%), and moderate for cassava and maize. Meanwhile, in households, one can notice no change on the cultivated surface area of different speculations.

This situation can be explained by the fact that workers from enterprises are far from their service zones and due to the respect of COVID-19 barrier measures especially on transport, transport cost increased. This, coupled to the fear of being contaminated made labour force scarce.

Table 18: COVID-19 effects on the cultivated surface area of holdings according to main crops

Crops	Effects on the cultivated area	Households (%)	PO (%)	Enterprises (%)
Corn (grain)	Significant increase	2,6	5,9	15,2
	Moderate increase	12,4	13,2	12,1
	Significant decrease	7,8	14,8	24,2
	Moderate decrease	29,1	34	18,2
	No change	48,2	32,1	30,3
	Total	100	100	100
Cassava	Significant increase	5,4	7,2	13,3
	Moderate increase	21,4	21,6	20
	Significant decrease	8	14,4	13,3
	Moderate decrease	24,9	19	33,3
	No change	40,2	37,9	20
	Total	100	100	100
Sorghum SP	Significant increase	0,3	0	nc*
	Moderate increase	5,4	3,6	nc*
	Significant decrease	5,4	18,1	nc*
	Moderate decrease	31,6	38,6	nc*
	No change	57,2	39,8	nc*
	Total	100	100	
Plantain	Significant increase	3,6	5,5	0
	Moderate increase	25,6	19,8	21,4
	Significant decrease	4,9	6,6	28,6
	Moderate decrease	13,4	14,3	35,7
	No change	52,5	53,8	14,3
	Total	100	100	100

*: not concerned

Source: MINADER/ DESA, COVID-19 Survey

3.2.3.4 Expenditures on Agricultural Production

COVID-19 effects on production expenses have the same tendency in all the types of crops. Indeed, one cannot experience change in household and drastic fall of enterprises and PO.

Drop in production expenditure experiences explained by the fact that enterprises and POs due to the lack of labor force reduced their surface area and used less inputs because of their high cost.

Table 19: COVID-19 effects on production expenditures for different types of holdings in respect to main crops

Crops	Effects on the expenditures	Households (%)	PO (%)	Enterprises (%)
Corn (grain)	Significant increase	2,6	11,9	6,1
	Moderate increase	12,4	15,7	18,2
	Significant decrease	7,8	57,6	54,5
	Moderate decrease	29,1	14,1	18,2
	No change	48,2	0,8	3,0
	Total		100	100
Cassava	Significant increase	5,4	31,4	13,3
	Moderate increase	21,4	5,9	0,0
	Significant decrease	8,0	46,4	60,0
	Moderate decrease	24,9	15,0	20,0
	No change	40,2	1,3	6,7
	Total		100	100
Sorghum SP	Significant increase	0,3	15,9	nc*
	Moderate increase	5,4	18,3	nc*
	Significant decrease	5,4	52,4	nc*
	Moderate decrease	31,6	13,4	nc*
	No change	57,2	0,0	nc*
	Total		100	100
Plantain	Significant increase	3,6	19,8	14,3
	Moderate increase	25,6	8,8	7,1
	Significant decrease	4,9	61,5	42,9
	Moderate decrease	13,4	8,8	35,7
	No change	52,5	1,1	0,0
	Total		100	100

*: not concerned

Source: MINADER/ DESA, COVID-19 survey

3.2.3.5 Actions carried out due to the effects of COVID-19

It can be noted from the following table that the type of holding, actions to face this pandemic was carried out in the management of human resources. This was mostly the reduction of the administrative personnel, reduction of working hours and the instauration of full-time working hours and salary reduction. Despite of the lack of workers, agricultural operations in most enterprises, the permanent personnel which is mostly administrative personnel experienced the reduction of its activities which were proportional to production activities 25.4% of enterprises carried their actions on personnel reduction and 19.7% opted for salary reduction.

Table 20: Actions carried out by agricultural holdings against COVID-19

Actions undertaken	Households (%)	PO (%)	Enterprises (%)
Reduction of personnel	4,6	7,4	25,4
Placed personnel on technical leave	1,0	2,5	14,1
Reduction of the number of working hours	6,0	9,6	15,5
Establishment of permanent/continually work	1,1	2,7	12,7
Wage cut	2,1	4,4	19,7
Other to be specified	4,3	5,5	4,2

Source: MINADER/ DESA, COVID-19 survey

3.3 COVID-19 EFFECTS ON THE PROCESSING OF AGRICULTURAL PRODUCTS

3.3.1 Quantity of agricultural products processed.

It can be concluded that COVID-19 affected in different ways the quantity of processed agricultural products. Plantain and maize are the most affected crops. A reduction of processed maize, cassava and plantain quality is recorded in enterprises (76% average) and POs (45% average). Meanwhile, an average of 38.2% of household holdings had no effect on the quantities processed of the four main crops. This reduction of processed maize, cassava and plantain quantity is consecutive to the drop of agricultural productions.

Table 21: COVID-19 effects on the quantity of product processed on holdings according to main crops

Crops	Effects on the quantity of product proceed	Households (%)	PO (%)	Enterprises (%)
Corn (grain)	Significant increase	5,4	3,2	0,0
	Moderate increase	17,2	11,3	20,0
	Significant reduction	12,9	21,0	53,3
	Poor reduction	23,6	35,5	13,3
	No change	4,9	29,0	13,3
	Total		100	100
Cassava	Significant increase	9,9	2,5	12,5
	Moderate increase	14,9	18,5	0,0
	Significant reduction	15,2	24,7	50,0
	Poor reduction	26,1	37,0	12,5
	No change	33,9	17,3	25,0
	Total		100	100
Sorghum SP	Significant increase	3,1	33,3	nc*
	Moderate increase	9,4	66,7	nc*
	Significant reduction	12,5	0,0	nc*
	Poor reduction	50,0	0,0	nc*
	No change	25,0	0,0	nc*
	Total		100	100
Plantain	Significant increase	0	0	0
	Moderate increase	14	7	0
	Significant reduction	11	14	50
	Poor reduction	21	50	50
	No change	54	29	0
	Total		100	100

*: not concerned

Source: MINADER/ DESA COVID-19 survey

3.3.2 Post-harvest loss

It can be observed that in average, 70% of household holdings were not affected by post-harvest loss in Sorghum SP. In general, an average of 38% of holdings recorded an increase in post-harvest loss of maize. However, for cassava, moderate loss is observed in every holding (about 34%). For plantain, the scale of post-harvest loss is high for 75% of enterprises. The restriction of interurban movements and closed borders coupled with the fact that most enterprises do not process plantain which is a perishable product, this justifies high scale of losses observed on this product.

Table 22: COVID-19 effects on post-harvest loss of holdings according to main crops

Crops	Effects on post-harvesting losses	Households (%)	PO (%)	Enterprises (%)
Corn (grain)	None	20,1	13,6	7,1
	Very low	4,1	6,2	0,0
	Low	17,8	14,8	0,0
	Moderate	38,4	28,4	35,7
	High	16,0	25,9	50,0
	Very high	3,7	11,1	7,1
	Total	100	100	100
Cassava	None	22,6	13,6	12,5
	Very low	5,9	12,3	0,0
	Low	15,2	19,8	12,5
	Moderate	34,7	29,6	37,5
	High	16,1	17,3	12,5
	Very high	5,6	7,4	25,0
	Total	100	100	100
Sorghum SP	None	67,6	33,3	nc*
	Very low	5,9	33,3	nc*
	Low	8,8	33,3	nc*
	Moderate	8,8	0,0	nc*
	High	5,9	0,0	nc*
	Very high	2,9	0,0	nc*
	Total	100	100	
Plantain	None	33,3	52,0	0,0
	Very weak	22,8	4,0	0,0
	Weak	10,5	16,0	0,0
	Moderate	21,1	16,0	25,0
	High	10,5	12,0	50,0
	Very high	1,8	0,0	25,0
	Total	100	100	100

*: not concerned

Source: MINADER/ DESA, COVID-19 survey

3.4 COVID-19 EFFECTS ON THE SALES OF AGRICULTURAL PRODUCTS

3.4.1 Sales of agricultural products

It is noted from the table below that about 68% of holdings experienced a drop on the sales of their products. Dried beans and cocoa crop were the most affected. Indeed, these barrier measures taken by the Government like containment, closed borders drastically reduced commercial transactions with neighbouring countries which consume a considerable quantity of products. Besides, the measures of limiting hours for opening the markets and structures in charge of selling foodstuff, restriction of ceremonies organizations and gathering of more than 50 people, greatly contributed to the decrease in the marketing of local agricultural products.

Table 23: COVID-19 effects on the sales of main products per type of agricultural holding.

Cultures	Effects on marketing	Households (%)	PO (%)	Enterprises (%)
Maize (grain)	Significant increase	8,0	6,8	6,7
	Moderate increase	18,6	22,6	20,0
	Significant decrease	8,0	20,8	20,0
	Moderate decrease	48,7	37,6	46,7
	No change	16,8	12,2	6,7
	Total		100	100
Plantain	Significant increase	7,7	2,9	8,3
	Moderate increase	23,0	25,7	0,0
	Significant decrease	14,4	20,0	58,3
	Moderate decrease	42,3	38,6	25,0
	No change	12,6	12,9	8,3
	Total		100	100
Cocoa beans	Significant increase	1,1	5,8	0,0
	Moderate increase	5,9	5,8	30,0
	Significant decrease	27,1	38,4	50,0
	Moderate decrease	49,5	43,0	20,0
	No change	16,5	7,0	0,0
	Total		100	100
Dry bean	Significant increase	2,2	2,7	0,0
	Moderate increase	14,1	27,0	33,3
	Significant decrease	16,2	29,7	33,3
	Moderate decrease	49,7	37,8	33,3
	No change	17,8	2,7	0,0
	Total		100	100

Source: MINADER/ DESA, COVID-19 survey

3.4.2 Market Variation of Agricultural products

According to the census, about 65% of households and POs holders did not experience market variation of their products during the period of COVID-19.

However, an average of 39% of enterprise heads declared that they changed the market places of their products to the advantages of local markets.

Table 24: COVID-19 effects on the market variations of main agricultural products per agricultural holdings

Crops	Change the markets	Households (%)	PO (%)	Enterprises (%)
Corn (grain)	None	61,6	59,5	60,0
	Local	29,8	21,1	33,3
	In the same division	6,9	15,1	0,0
	In the other region	1,4	3,2	6,7
	At the foreign	0,3	1,1	0,0
	Total	100	100	100
Plantain	None	63,5	72,9	33,3
	Local	27,0	22,9	16,7
	In the same division	6,3	4,3	25,0
	In the other region	0,5	0,0	16,7
	At the foreign	2,7	0,0	8,3
	Total	100	100	100
Cocoa bean	None	80,9	75,6	40,0
	Local	14,9	11,6	40,0
	In the same division	4,3	8,1	10,0
	In the other region	0,0	4,7	10,0
	At the foreign	0,0	0,0	0,0
	Total	100	100	100
Dry bean	None	50,3	45,9	33,3
	Local	29,7	10,8	66,7
	In the same division	16,8	43,2	0,0
	In the other region	2,7	0,0	0,0
	At the foreign	0,5	0,0	0,0
	Total	100	100	100

Source: MINADER/ DESA, COVID-19 survey

3.4.3 Transportation of agricultural products to the markets.

it appears from the following table that POs were the most affected (an average of 87.7%) More than half farmers enumerated recorded an increase in the transport cost of their products to the markets. Indeed, this increase can be justified by restriction on the number of passengers per vehicles, which led to inadequate supply and demand. It should be noted that 41.7% of enterprises enumerated highlighted that closed borders affected them so far as plantain transportation is concerned.

Table 25: COVID-19 effects on the transportation of main products to the market per type of agricultural holdings

Crops	Difficulties of transport	Households (%)	PO (%)	Enterprises (%)
Maïs (grain)	None	24,8	12,9	26,7
	Lack of vehicle	5,3	15,8	20,0
	Cost increased	66,4	63,1	46,7
	Closing of borders	2,7	7,5	6,7
	Other	0,9	0,7	0,0
	Total	100	100	100
Plantain	None	24,3	15,7	16,7
	Lack of vehicle	12,2	12,9	16,7
	Cost increased	49,1	45,7	25,0
	Closing of borders	12,6	18,6	41,7
	Other	1,8	7,1	0,0
	Total	100	100	100
Cocoa bean	None	30,9	15,1	10,0
	Lack of vehicle	17,6	18,6	10,0
	Cost increased	44,1	46,5	40,0
	Closing of borders	5,3	11,6	30,0
	Other	2,1	8,1	10,0
	Total	100	100	100
Dry beans	None	24,9	5,4	33,3
	Lack of vehicle	7,0	13,5	0,0
	Cost increased	66,5	73,0	66,7
	Closing of borders	1,6	8,1	0,0
	Other	0,0	0,0	0,0
	Total	100	100	100

Source: MINADER/ DESA, COVID-19 survey

3.4.4 Change of the cost prices for agricultural products.

It can be noted that COVID-19 affected in different ways the cost prices of agricultural products on the markets. POs and household farmers remarked a decrease in the price of maize (about 40%). Unlike enterprise farmers who acknowledge that the prices of dried maize and beans did not change.

This price fluctuation recorded during this period is justified by the restriction of good transportation and containment. What limited producer movements to the market was fear to be contaminated and consequently, it weakened their capacity to negotiate and this slowed down the sale of their products. Maize cultivation is characterized by distancing production areas from consumption ones. Indeed, it is highly produced in most parts of the Northern Regions but mostly consumed in the high agglomerations (Douala and Yaoundé) and by animal feed in the Western region. As for beans, an important part was exported to neighboring countries. For this reason, their cost price decreased due to movement restrictions and closed borders. In consumption areas, prices of products increased.

Table 26: COVID-19 effects on the price of main products per agricultural holding

Crops	Effects on the price of sales	Households (%)	PO (%)	Enterprises (%)
Corn (grain)	Very high	5,3	3,2	6,7
	High	31,9	15,4	6,7
	Same	23,0	33,0	40,0
	Low	37,2	12,2	13,3
	Very low	2,7	29,0	26,7
	Total	100	100	100
Plantain	Very high	0,9	12,9	0,0
	High	25,2	5,7	0,0
	Same	20,3	22,9	33,3
	Low	43,7	7,1	8,3
	Very low	9,9	37,1	33,3
	Total	100	100	100
cocoa bean	Very high	0,0	7,0	10,0
	High	8,5	2,3	0,0
	Same	13,8	10,5	40,0
	Low	70,7	5,8	0,0
	Very low	6,9	47,7	40,0
	Total	100	100	100
Dry beans	Very high	3,2	0,0	0,0
	High	34,6	8,1	0,0
	Same	23,8	37,8	100,0
	Low	35,7	13,5	0,0
	Very low	2,7	29,7	0,0
	Total	100	100	100

Source: MINADER/ DESA, COVID-19 survey

3.4.5 Poor Sale of Agricultural Products

It can be seen in the table below that majority of holdings suffered from the poor sale of agricultural products. This is the most severe in enterprises, which produce plantain and cocoa seed and other products moderately. This is justified for the case of plantain by low demands and its perishable nature. The poor sale of cocoa seed and exploitation product is related to the restriction of movements and the closed borders.

Table 27: Poor sale of main agricultural products due to COVID-19 per holding

Crops	Poor sales of main products	Households (%)	PO (%)	Enterprises (%)
Corn (grain)	None	48,8	39,4	40,0
	Severe	7,6	13,3	20,0
	Moderate	43,5	47,3	40,0
	Total	100	100	100
Plantain	None	29,7	25,7	25,0
	Severe	17,6	28,6	50,0
	Moderate	52,7	45,7	25,0
	Total	100	100	100
Cocoa beans	None	25,5	25,6	10,0
	Severe	20,2	27,9	50,0
	Moderate	54,3	46,5	40,0
	Total	100	100	100
Dry beans	None	42,7	32,4	0,0
	Severe	8,6	10,8	0,0
	Moderate	48,6	56,8	100,0
	Total	100	100	100

Source: MINADER/ DESA, COVID-19 survey

3.5 COVID-19 EFFECTS ON MONITORING ACTIVITIES

3.5.1 COVID-19 effects on Monitoring Structures

Generally, we observe that the pandemic effects influence mission completion for enumerated structures. The most affected activities are training (73%) followed by sensitization (65%). Funding and support in agricultural inputs are less affected. This situation is justified by gathering restrictions of more than 50 people and interurban movements. Training and sensitization generally imply gatherings of many stakeholders. For funding activities and input support, measures were taken by structures for the decentralization of their activities completion without gathering beneficiaries.

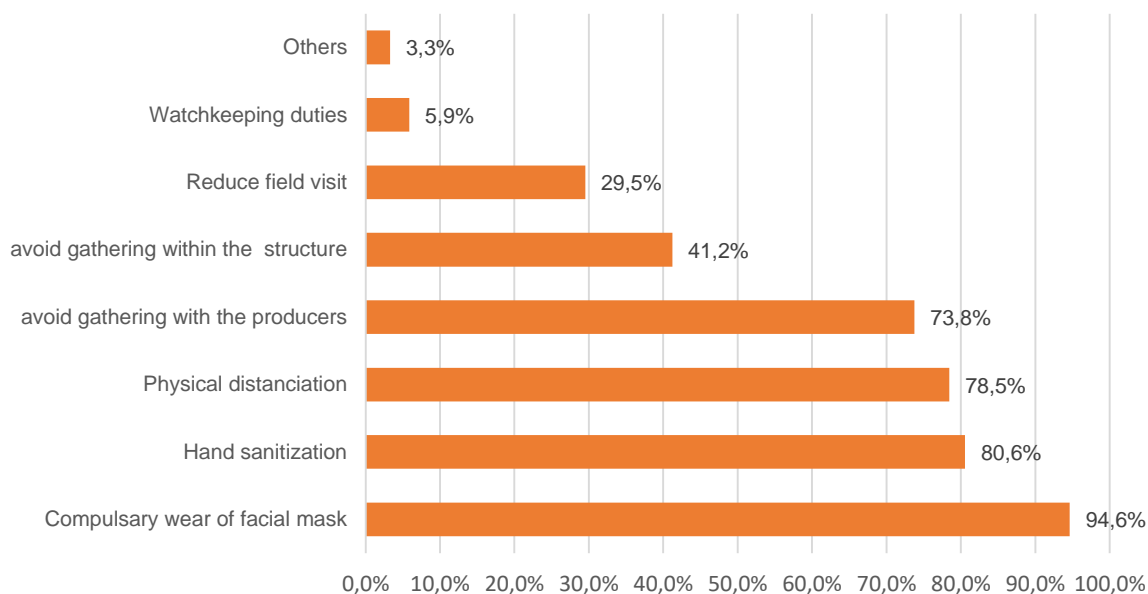
Table 28: COVID-19 Effects on the Objectives of Monitoring Structures

Effects on the missions	Missions for the management of structures				
	Monitoring/evaluation	Sensitization	Financing	Support in inputs and equipment	Training
Significant increase	5,4	7,4	2,7	2,8	4,1
Moderate increase	5,6	7,4	8,0	9,0	5,7
No change	23,1	17,7	36,0	27,8	14,2
Moderate decrease	43,7	43,1	25,3	27,8	45,0
Significant decrease	21,7	22,8	20,0	27,1	28,9
Not concerned	0,6	1,6	8,0	5,6	2,2
Total	100	100	100	100	100

Source: MINADER/ DESA, COVID-19 survey

In graph 4, it can be concluded that all structures adopted at least one barrier measure prescribed by the Government in the response framework against the spread of COVID-19: Compulsory facemasks wearing (94.6%) was the most adopted measure by structures followed by hand sanitization (80.6%), social distancing (78.5%) and the restriction of gatherings of more than 50 people. This high rate of barrier measures adopted in monitoring structures is justified by communication actions and sensitization carried out by the Government so far as this pandemic was concerned.

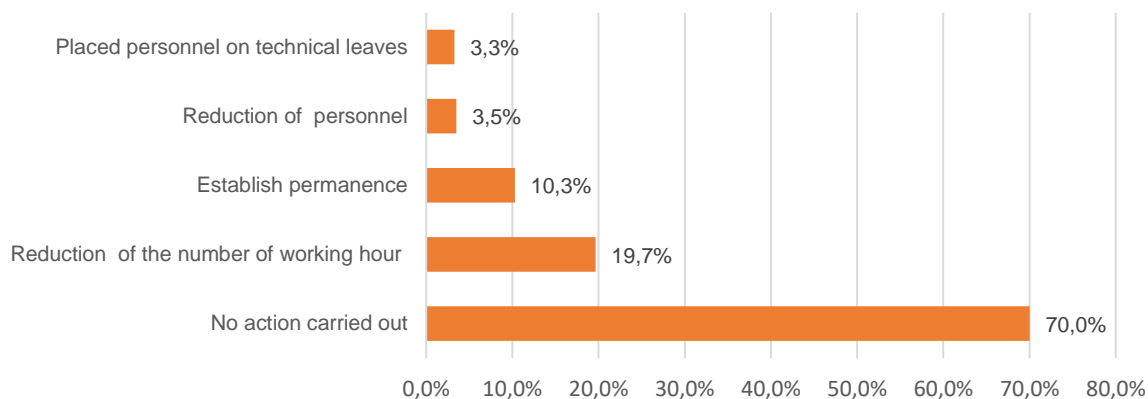
Graph 4: Division in percentage (%) of monitoring structures according to barrier measures



Source: MINADER/ DESA, COVID-19 census

The results show that 30% of monitoring enumerated structures carried out some preventive measures against the pandemic. In chronological order, this includes the reduction of working hours, the instauration of full working hours, personnel reduction and the layout of some administrative personnel.

Graph 5: Division in percentages (%) of monitoring structures according to the type of action carried out

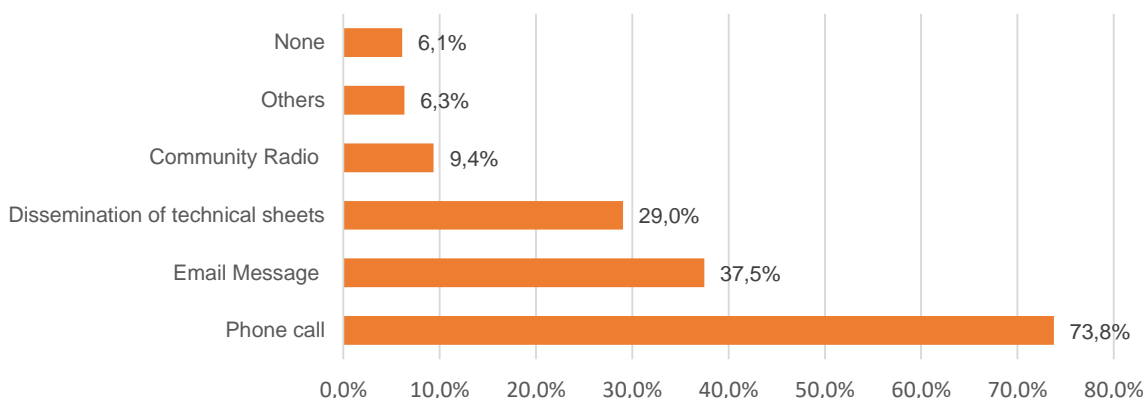


Source: MINADER/ DESA, COVID-19 census

3.5.2 Strategies of Monitoring Structures against the effects of COVID-19.

In graph 6 below, it can be noticed that most monitoring structures opted for phone calls (73.8%), email message (68.6%) and for circulation of forms (27.2%) in order to follow up producers. As these monitoring structures were bound to respect limited gathering of not more than 50 people, they made good use of New Information and Communication Technologies (NICT). At every moment, the local radios channels are seldom used.

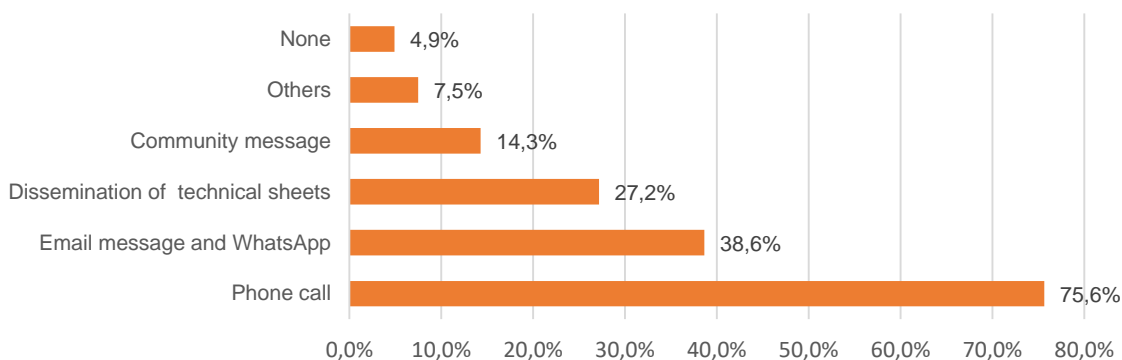
Graph 6: Strategies used by monitoring structures for following up the evaluation of farmers



Source: MINADER/ DESA, COVID-19 survey

Phone calls, email message and circulation of technical forms are the most used strategies by monitoring structures to sensitize producers 4.9% of monitoring structures did not use any sensitization strategy during COVID-19 period.

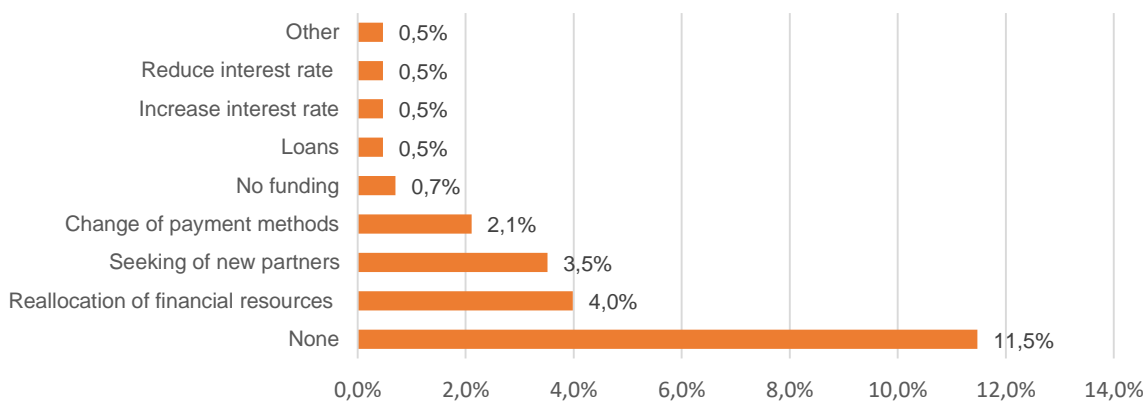
Graph 7: Strategies used by monitoring structures to sensitize farmers



Source: MINADER/ DESA, COVID-19 survey

According to the graph, 8 most monitoring structures did not adopt any new funding strategy. The important part of these operations took place via bank transactions. It is equally important to reveal that a non-negligible proportion of structures reallocated financial resources in emergency activities and in the search for new financial partners.

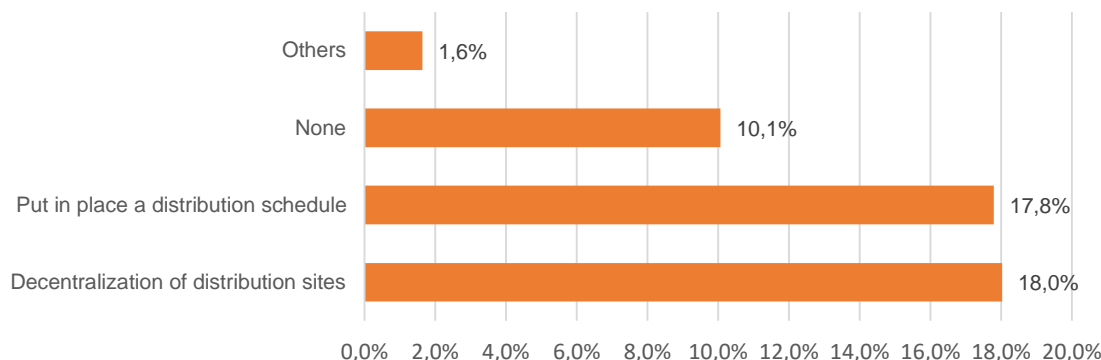
Graph 8: Strategies used by monitoring structures for the funding of farmers



Source: MINADER/ DESA, COVID-19 Survey

The next graph reveals that the decentralization of distribution zones and the implementation of a distribution timing chart of inputs, agricultural products are the most adopted strategies per structures. This is advantageous for reducing gathering to less than 50 persons.

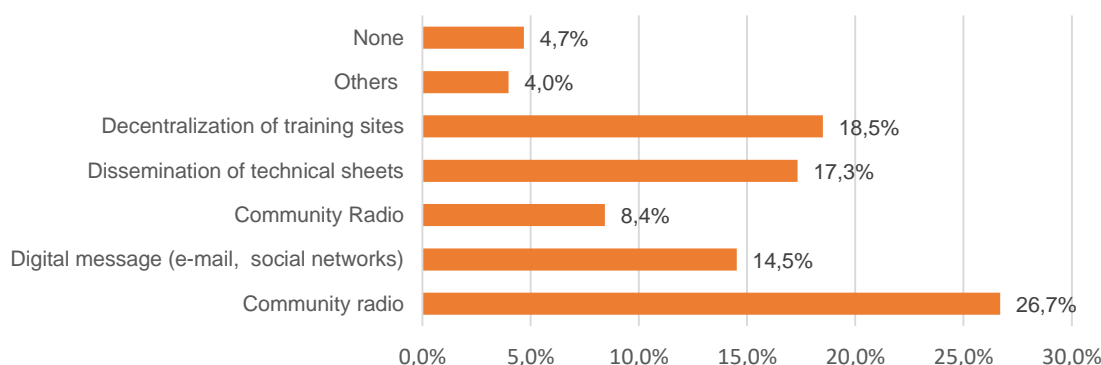
Graph 9: Strategies used by monitoring structures for input and material supports of producers



Source: MINADER/ DESA, COVID-19 Survey

Even though, these structures use some methods to ensure the training of their producers, the main methods are, phone calls (26.7%), decentralization of training zones (18.5%), circulation of technical forms (17.3%) and email message (14.5%).

Graph 10: Strategies used by the managing structures for farm producers' training



Source: MINADER/ DESA, COVID-19 survey

3.5.3 Difficulties and proposals of the management structures

Generally, regardless the type of missions, it appears that more than 80% of monitoring structures declare having facing difficulties. The difficulties are significant or more significant for more than 50% of them. This high rate is justified by the fact that majority of service beneficiaries do not have a good knowledge of NICT tools and have difficulties accessing electricity and internet. In addition, it should be pointed out that some management structures are not yet equipped with NICT tools.

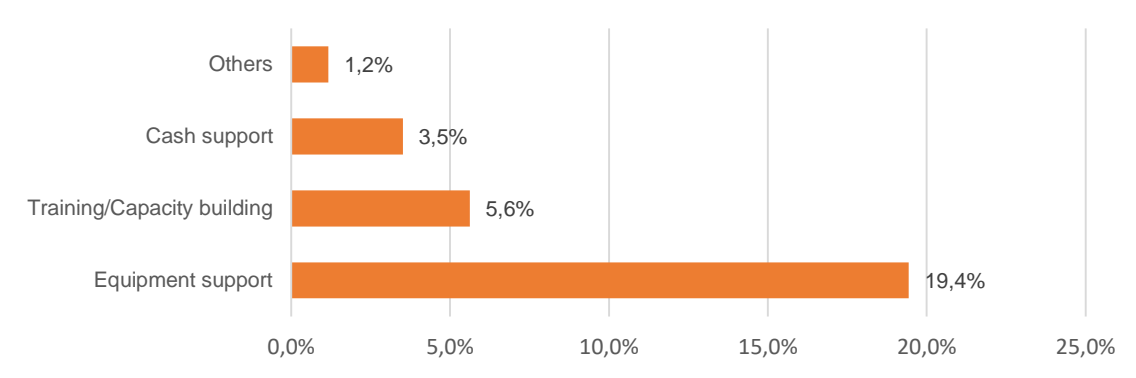
Table 29: Difficulties encountered in relation to COVID-19 according to the type of support mission for agricultural producers.

Level of difficulties	Missions of the management of structures (%)				
	Monitoring-evaluation	Sensitization	Financing	Support in inputs and equipment	Training
None	4,0	2,8	17,0	12,6	4,7
Very important	22,0	18,4	21,3	19,4	22,0
Important	37,4	38,4	27,7	32,0	34,7
Moderate	29,1	30,4	27,7	23,3	28,0
Very moderate	7,5	10,0	6,4	12,6	10,6

Source: MINADER/DESA, COVID-19 survey

Graph 11 shows that less than 30% of the management structures enumerated stated that they had received support. Material help, which is the most common form of support, concern less than 20% of structures very few management structures (5.6%) have received training support. This low rate related to the restriction of gathering more than 50 persons, for fear of contamination.

Graph 11: Distribution (%) of management structures according to the type of support received



Source: MINADER/DESA COVID-19 survey

3.6 DIFFICULTIES ENCOUNTERED THROUGH AGRICULTURAL HOLDING

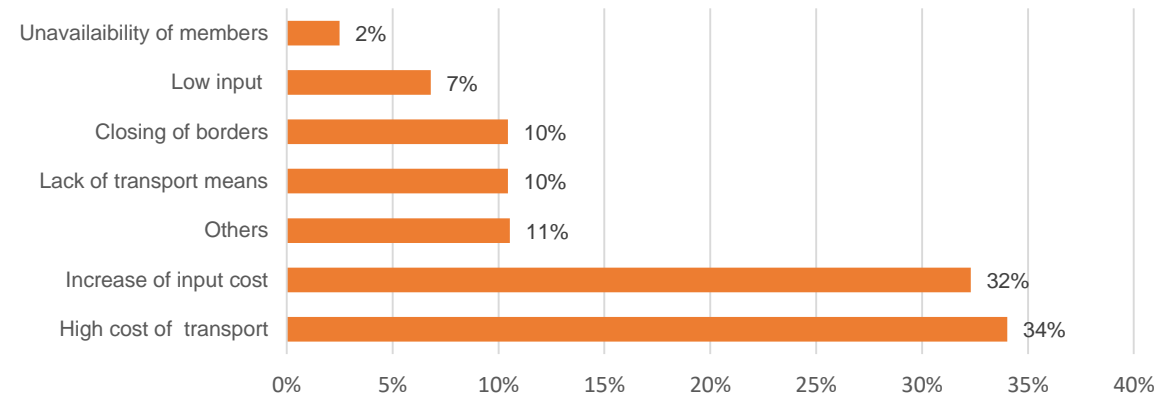
This sub-section sets out the division of main difficulties related to COVID-19 encountered by households, enterprises and POs in carrying out their various activities.

3.6.1 Difficulties encountered by households

The following table shows that the main difficulties are the high cost of transport (34%), the increase in price of agricultural inputs (32%), the lack of means of transport (10%) and the closures of borders (10%).

In effect, the high cost of transport is justified by the fact that transporters forced to respect the limitation of the number of passengers that have increased the cost of transport. Most producers transporting their products in public transport have witnessed an increase in the cost of transporting agricultural products.

Graph 12: Main COVID-19 showed difficulties encountered by households



Source: MINADER/DESA, COVID-19 survey

3.6.2 Difficulties encountered in enterprise

The following table shows that agricultural enterprise has suffered from various effects on the performance of their activities in the face of COVID-19. Indeed, enterprises have suffered the most from high cost of transport, the increase in the price of production and closure of borders, which affected all the segments of their activities.

As for training, other difficulties encountered are instability of personnel and insufficient partnership.

The closure of borders, which has mostly affected enterprises, is justified by the specialization of most of them regarding export products.

Table 30: Main difficulties from COVID-19 encountered by enterprises in carrying out their activities

Key difficulties	Activities (in %)						
	Farm production	Production of agricultural seeds	Processing of farm products	Production and processing of farm products	Marketing of farm products	Training	Others
None	4,0	20,0	15,0	7,0	14,0	25,0	33,0
Increase transport cost	12,0	33,0	4,0	13,0	25,0	17,0	0,0
lack of transport means	6,0	0,0	4,0	13,0	9,0	0,0	0,0
Availability of personnel	13,0	0,0	15,0	7,0	7,0	17,0	0,0
Closing of borders	19,0	13,0	12,0	20,0	18,0	0,0	0,0
Increase of inputs price	23,0	20,0	23,0	7,0	14,0	8,0	33,0
Low inputs supply	10,0	7,0	15,0	13,0	5,0	0,0	33,0
None	13,0	7,0	12,0	20,0	9,0	33,0	0,0
Total	100,0	100,0	100,0	100,0	100,0	100,0	100,0

Source: MINADER/DESA, COVID-19 survey

3.6.3 Difficulties encountered in POs farms

POs have suffered from various effects on carrying out their activities due to COVID-19. They mostly suffered from high cost of transport, which affected all the activities. In addition, the increase in input prices has mostly affected the production and processing of their products. The unavailability of members mostly affects POs involved in training, agro-processing and agricultural production. This is because POs work, which is generally carried out in groups, has suffered enormously from the limitation of gathering and the restriction on movement.

With respect to training, the other difficulties encountered are insufficiently funding and the application of barrier measures.

Table 31: Main difficulties from COVID-19 encountered by the Producer Organizations in carrying out their activities

Main difficulties	Producer' Organization activities (in %)						
	Farm Production	Production of farm seeds (including plant nursery)	Processing of farm products	Production and Processing of farm products	Marketing of farm products	Training	Others
None	6,0	9,0	8,0	3,0	9,0	10,0	35,0
Increase of transport cost	28,0	29,0	26,0	27,0	29,0	15,0	10,0
Lack of transport means	8,0	10,0	14,0	6,0	13,0	2,0	8,0
Availability of membres	10,0	9,0	17,0	10,0	7,0	29,0	10,0
Closing of borders	9,0	14,0	10,0	13,0	19,0	10,0	10,0
Increase of inputs price	31,0	16,0	7,0	25,0	12,0	6,0	14,0
Low inputs supply	4,0	10,0	12,0	11,0	5,0	13,0	5,0
Others	3,0	3,0	7,0	4,0	6,0	15,0	9,0
Total	100,0	100,0	100,0	100,0	100,0	100,0	100,0

Source: MINADER/DESA, COVID-19 survey

3.7 RESILIENCE RELATED TO COVID-19

The following table shows that the use of savings, credit, family/partner support and other income-generating activities and the sale of assets are the survival strategies most used by all farm managers.

Furthermore, for agricultural households, the most common strategies used are reducing non-food consumption (43.4%) and food consumption (38.7%), and resorting to family/partner support (38.7%).

Non-households (enterprises and POs) rely mainly on savings, credit and other income-generating activities.

Table 32: Main strategies used as a result of COVID-19 by farm managers

Main survival strategies	Type of farm holdings		
	Households (%)	PO (%)	Enterprises (%)
Nonfood consumption reduction	43,4	nc*	nc*
Reduction of food consumption	38,7	nc*	nc*
Recourse to family help/partener	38,7	35,1	37,5
Recourse to saving	35,0	54,6	48,2
Recourse to credit	29,0	49,8	46,4
Recourse to other income generating revenues	27,2	38,2	42,9
Sales of assets	14,0	17,0	3,6
Others	3,2	0,0	10,7

* not concerned

Source: MINADER/DESA, COVID-19 survey

3.7.1 Households' food strategies

The following table shows that the overall trend in the number of meals per day is decreasing during COVID-19. In effect, the percentage of households that consumed one meal per day increased from 1.3% to 12.2%. This trend is also observed among those who consume two meals per day (26% before against 48% during COVID-19).

Whereas households, which used to consume at least three meals per day decreased during the pandemic. The number of such households fell from 70.1% before to 37.4% during COVID-19.

This situation is justified by the limited availability of foodstuffs and the low purchasing power of households during the pandemic.

Table 33: Distribution (%) of household according to the number of meals consumed per day before and after the COVID-19

Number of meals taken per day	Before	During
None	0,0	0,1
1 meal	1,3	12,2
2 meals	25,7	48,4
3 meals	70,1	37,4
More times	2,9	1,9
Total	100,0	100,0

Source: MINADER/DESA, COVID-19 survey

3.7.2 Strategies adopted by farm managers

Overall, the main strategies used by agricultural enterprise managers are telephone calls and email messages mostly used by enterprises involved in seed production (73.3%) followed by those involved in the production and processing of agricultural products (66.7%), then those marketing agricultural products (59.6%) and agricultural production (55.8%).

In terms of email messages, enterprises involved in agricultural seed production (including plant nurseries) are in the majority, followed by those involved in the marketing of agricultural products and those involved in the processing of agricultural products. It is important to note, however, that a significant proportion of enterprises have not adopted any strategy to limit the effects of COVID-19 in carrying out their activities.

Table 34: Main strategies used by holding managers of COVID-19 according to their activities

Strategies	Activities from the enterprise's holdings (in %)						
	Production	Production of farm products (including plant nursery)	Processing of farm products	Production and processing of farm products	Marketing of farm products	Training	Others
Phone call	55,8	73,3	42,3	66,7	59,6	25,0	66,7
Email							
Message and WhatsApp	7,7	20,0	11,5	6,7	17,5	0,0	0,0
Community Radio	5,8	0,0	3,8	0,0	0,0	16,7	0,0
Dissemination of technical sheets	7,7	0,0	7,7	6,7	1,8	8,3	0,0
Decentralization of training sites	1,9	0,0	3,8	0,0	3,5	16,7	0,0
None	17,3	6,7	30,8	20,0	14,0	25,0	33,3
Other	3,8	0,0	0,0	0,0	3,5	8,3	0,0
Total	100,0	100,0	100,0	100,0	100,0	100,0	100,0

Source: MINADER/DESA, COVID-19 survey

3.7.3 Strategies adopted by production organization managers

The following table shows that POs use various strategies to cope with the effects of this pandemic. Telephone calls are mostly used by enterprises involved in seed production, processing and marketing of agricultural products.

Table 35: Main strategies used by POs managers for COVID-19 according to their activities.

Strategies	Activities from PO holdings (in %)						
	Farm Production	Production of farm seeds	Processing of farm products	Production and processing of farm products	Marketing of farm products	Training	Others
Phone call	69,6	53,4	55,9	69,8	52,7	46,2	31,3
Email Message and WhatsApp	3,6	15,5	12,7	14,6	16,3	7,7	15,0
Community Radio	1,0	3,4	4,9	0,0	3,0	5,8	0,0
Dissemination of technical sheets	0,5	0,0	1,0	0,0	2,4	11,5	2,5
Decentralization of training sites	1,9	3,4	4,9	0,0	2,2	5,8	2,5
None	16,4	15,5	14,7	12,5	19,3	17,3	45,0
Other	6,9	8,6	5,9	3,1	4,0	5,8	3,8
Total	100,0	100,0	100,0	100,0	100,0	100,0	100,0

Source: MINADER/DESA, COVID-19 survey

3.8 COVID-19-RELATED SUPPORT TO FARMS FOR THEIR ACTIVITIES

In general, a very small proportion (less than 1/3) of farm managers surveyed had received COVID-19 related support from the Government and aid agencies.

Table 36: Distribution (%) of farms that received COVID-19 related support from the government and aid agencies

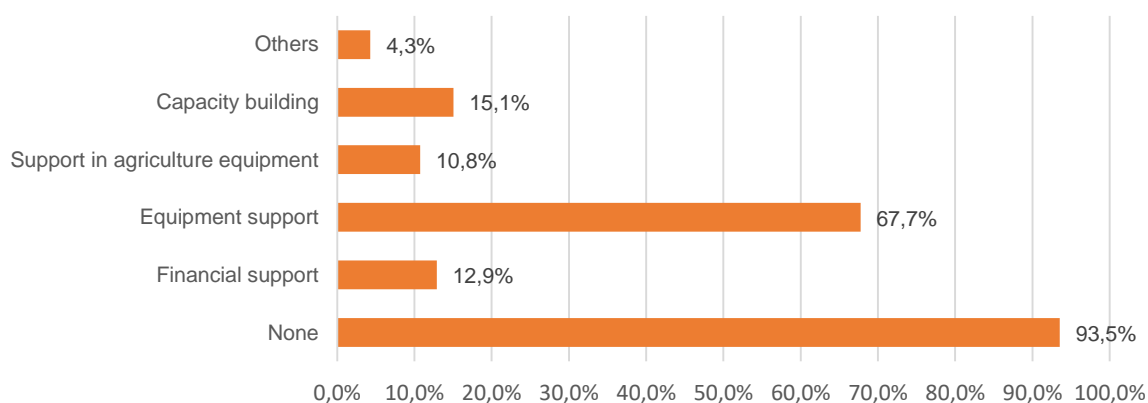
Support received	Type of agriculture holdings		
	Households (%)	PO (%)	Enterprises (%)
Yes	4,5	5,4	20,0
No	95,5	94,6	80,0
Total	100,0	100,0	100,0

Source: MINADER/DESA, COVID-19 survey

3.8.1 Types of support received by household farms

Graph 13 shows that the support received by household farms in relation to COVID-19 mainly concerns: support for agricultural equipment (61.2%), capacity building (13.6%), financial support (11.7%) and support for agricultural inputs (9.7%).

Graph 13: Distribution (%) of household farms according to the support received



Source: MINADER/DESA, COVID-19 survey

3.8.2 types of supports received by the agricultural enterprises

The following table shows that the main types of supports received by enterprises are financial and material. Material support concerns enterprises that operate in all areas of activities, while financial support is essentially intended for those involved in production and processing of agricultural products. Furthermore, the majority of enterprises producing agricultural seeds benefited from technical capacity building for their personnel (33.3%).

Table 37: Types of supports received by agricultural enterprises according to their activities

Types of supports	Activities from enterprise (in %)					
	Farm Production	Production of farm seeds	Processing of farm products	Production and processing of farm products	Marketing of farm products	Training
Financial supports	12,5	0,0	11,1	50,0	16,7	14,3
Support in equipment	50,0	66,7	55,6	50,0	41,7	42,9
Support in inputs	12,5	0,0	0,0	0,0	8,3	14,3
Capacity building	12,5	33,3	11,1	0,0	8,3	14,3
others	12,5	0,0	22,2	0,0	25,0	14,3
TOTAL	100,0	100,0	100,0	100,0	100,0	100,0

Source: MINADER/DESA, COVID-19 survey

3.8.3 Types of support received by producer organizations

The table shows that equipment support concerns all POs, regardless of type of activities they carried out. As for financial support, it concerns more POs that process agricultural products. While supports in terms of inputs particularly concerns those involved in the production of agricultural seeds, including plant nurseries.

On the other hand, POs involved in the training activity received support in equipment, farm inputs, and capacity building.

Table 38: Types of supports received by POs according to their activities

Supports	Activities from PO holdings (in %)						
	Farm Production	Production of farm seeds (including plant nursery)	Processing of farm products	Production and processing of farm products	Marketing of farm/ agricultural products	Training	Others
Financial supports	11,5	18,2	57,1	0,0	11,8	0,0	0,0
Supports in equipment	44,2	27,3	14,3	66,7	29,4	33,4	25,0
Supports in inputs	19,2	36,4	14,3	16,7	11,8	33,3	0,0
Capacity building	17,3	18,2	14,3	16,7	17,6	33,3	12,5
None	7,7	0,0	0,0	0,0	29,4	0,0	62,5
Total	100,0	100,0	100,0	100,0	100,0	100,0	100,0

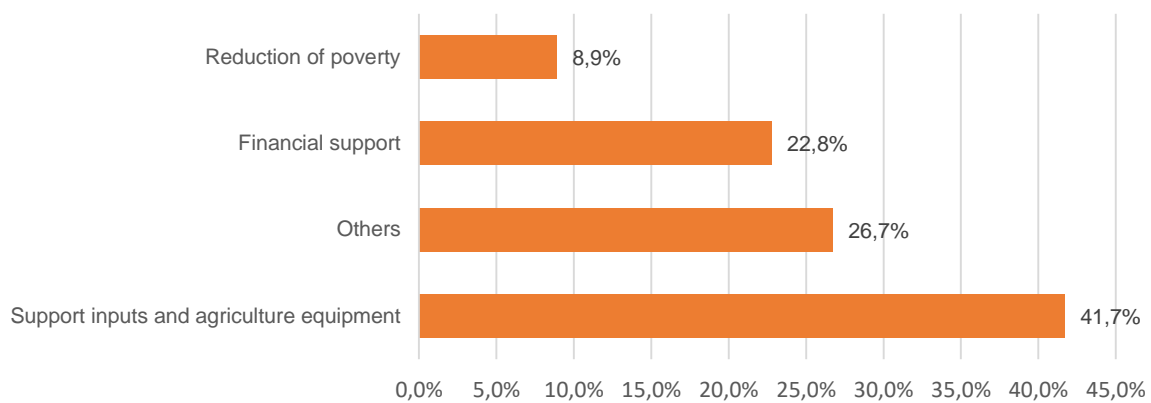
Source: MINADER/DESA, COVID-19 survey

3.9 MEASURES PROPOSED BY FARM HOLDING MANAGERS TO MITIGATE THE DIFFICULTIES ASSOCIATED WITH COVID-19

This section represents the different measures proposed by farm managers to decision-makers to strengthen their resilience strategies to cope with the COVID-19.

More than 60% of the farms request financial or in-kind supports (agricultural input and equipment 26.7% requested other types of supports, including community development infrastructures, food aids, COVID-19 kits, lower prices for agricultural inputs and lower transport costs.

Graph14: Proposal from farm managers according to the assistance measures proposed



Source: MINADER/DESA, COVID-19 survey

Conclusion and recommendations

To conclude, the survey revealed that more than 70% of the Farm managers surveyed are men in the group of 35 to 64 years old, with an average size of 6 to 10 people. Maize is the most common crop, followed by cassava and groundnuts. COVID-19 has affected both production and processing and marketing activities. The pandemic has led to a sharp decline in the labour force on enterprise farms, forcing them to reduce the area planted of plantain, cassava and maize. Due to high prices for agricultural inputs, coupled with high transport cost and border closures, more than 50% of farms have faced difficulties in accessing fertilizer. This situation had led most farms to reduce their production expenses with regard to product processing, there was decrease in the quantities of maize, cassava and plantain processed in enterprises and PO farms. More than two thirds of the farms faced difficulties in marketing their products. In terms of supervision, training and awareness-raising activities were the most affected. Almost all farms were informed of the measures taken by the Government to respond to the pandemic COVID-19 have led to a decrease in the number of meals per day. In effect, the percentage of households consuming one meal per day rose from 1.3% to 12.2%, despite family assistance, the use of credit and diversification of income generating activities. To mitigate the effects of the pandemic, most of the management structures have adopted email messages for their affected activities. Faced with the production and survival difficulties, farm managers are seeking financial and in-kind support to revive their farms.

The results obtained call for the following recommendations.

Findings	Recommendations	Type of recommendations	Managers
During COVID-19, the prices of staple food (maize, beans, sorghum, cassava, plantain, Irish potatoes, vegetable...) dropped in production while they rose in the large cities where these are consumed in a significant extent. This is why in some consumption areas, households have had to reduce the number of meals consumed per day.	Create a short-circle food crop production belt around major cities and areas most affected by rising commodity prices or reduce daily meals.	Short term	MINADER
High cost of agricultural inputs (fertilizer, plant protection products) has influenced the smooth running of cultivation operations, in this case chemical weeding.	<ul style="list-style-type: none"> Ensure the regulation of agricultural input prices through the establishment of an agricultural input observatory; 	Short term	MINADER
	<ul style="list-style-type: none"> Enhance, in collaboration with agronomic research structures, organic crop production techniques to reduce dependence on chemical products; 	Long term	MINADER MINRESI
	<ul style="list-style-type: none"> Encourage the creation of "made in Cameroon" agricultural input manufacturing 	Long term	MINADER MINMIDT

Findings	Recommendations	Type of recommendations	Managers
	units in order to limit dependence on imports.		
The high cost of transport had limited the number of field visits.	To contribute, in collaboration with the competent administrations, to control the fluctuation of transport costs which have an impact on the production and marketing of agricultural products.	Medium term	MINADER MINCOMMERCE MINFI MINTRANS GDNS SED
The scarcity of seasonal labour has disrupted farming operations on enterprise farms.	Set up the agricultural labour exchange to ensure contact with companies in the event of limited movement due to a possible economic factor.	Medium term	MINADER MINEFOP Public and Private Partners (PPP) PTF
The closure of borders has led to poor sales, as foreign buyers are no longer able to buy from local markets.	<ul style="list-style-type: none"> • Encourage the development of value chains for agricultural products with a view to processing and preserving these products; • Consider the creation of a body in charge of ensuring, in disaster situations, the stability of prices of agricultural products through purchasing and processing action; • Promote online trade in order to limit physical contact between buyers and traders; 	<p>Medium term</p> <p>Medium term</p> <p>Medium term</p>	<p>MINADER MINPMEESA CAPEF PPP PTF</p> <p>MINADER MINCOMMERCE MINFI PPP</p> <p>MINADER MINPOSTEL CAPEF PPP</p>
A large part of agricultural production is exported to the detriment of local market.	Encourage partnership contracts between producer organizations and potential national buyers.	Medium term	MINADER MINCOMMERCE

Appendix

Appendix 1: Breakdown of households to be surveyed per region, division and subdivision

Region	Division concern	Subdivision concern	Personnel for data Collection	Number of household farms to be surveyed	Number of EZs selected for data collection	EZs selected for data collection	Setting (1=urban /2=Rural)	Estimated households in the selected DZ	Number of households to be surveyed in DZ	Not selected
ADAMAWA	Mbéré	Meiganga	CSDESA	45	3	43	1	154	20	8
						738	2	115	15	8
						795	2	81	10	8
	Faro-et-Déou	Tignère	CSDESA	45	1	12	1	196	45	4
	Djerem	Tibati	CSDESA	45	2	11	1	171	26	7
						700	2	123	19	7
	Vina	Ngaoundéré 1	CSRESA	45	1	700	2	100	45	2
		Ngaoundéré 3	CSDESA	45	1	24	1	211	45	5
Total	4	5	5	225	8			225		
CENTRE	Haute-Sanaga	Nanga-Eboko	CSDESA	46	1	7	1	200	46	4
	Lekié	Monatélé	CSDESA	46	1	10	1	160	46	3
	Mbam et Kim	Ntui	CSDESA	46	1	701	2	204	46	4
	Mefou et Afamba	Soa	CSRESA	46	2	66	1	177	27	7
						713	2	126	19	7

		Mfou	CSDESA	46	1	18	1	173	46	4
	Nyong et Kélé	Eséka	CSDESA	46	1	16	1	283	46	6
Total	6	6	6	276	7				276	
EAST	Haut - Nyong		CSDESA	45	1	703	2	136	45	3
	Lom et Djerem	Bertoua 1	CSRESA	45	2	38	1	240	25	10
		Garoua-Boulaï	CSDESA	45	1	708	2	200	20	10
Total	2	3	3	135	4				135	
FAR NORTH	Diamaré	Maroua 3	CSRESA	45	2	32	1	207	29	7
						701	2	116	16	7
			CSDESA	45	2	1	1	183	27	7
						741	2	118	18	7
	Mayo Danay	Yagoua	CSDESA	45	3	43	1	128	13	10
						711	2	179	19	10
						718	2	126	13	10
	Mayo-Sava	Mora	CSDESA	45	5	71	1	170	11	16
						14	1	124	8	16
48						1	120	8	16	

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						793	2	78	5	16
						711	2	210	13	16
	Mayo-Tsanaga	Mokolo	CSDESA	45	6	37	1	207	10	21
						48	1	116	5	21
						45	1	183	9	21
						906	2	118	5	21
						830	2	214	10	21
						860	2	128	6	21
	Mayo Kani		CSDESA	45	3	773	2	152	13	12
						814	2	175	15	12
						27	1	128	17	7
Total	5	6	6	270	21				270	
LITTORAL	Moungo	Njombé-Penja	CSDESA	45	1	700	2	128	45	3
		Dibombari	CSRESA	45	2	715	2	119	17	7
	Sanaga Maritime	Edéa 2ème	CSDESA	45	1	3	1	266	45	6
Total	2	3	3	135	4				135	
North	Bénoué	Garoua 3	CSRESA	45	2	732	2	183	24	8

						769	2	163	21	8
		Tchéboa	CSDESA	47	2	6	1	725	43	17
						735	2	59	4	17
	Faro		CSDESA	47	1	11	1	72	47	2
			CSDESA	47	1	708	2	111	47	2
						3	1	172	10	18
						26	1	116	7	18
	Mayo Rey	Touboro	DAADER	47	6	702	2	183	10	18
						713	2	163	9	18
						43	1	100	6	18
						862	2	104	6	18
						34	1	376	23	17
	Mayo Louti		CSDESA	47	4	764	2	118	7	17
						772	2	175	11	17
						850	2	109	7	17
Total	4	6	6	280	16				280	
North West	Mezam	Bamenda 1	CSRESA	45	1	24	1	174	45	4
		Bamenda 2	CSDESA	20	1	40	1	247	20	12

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		Bamenda 2		20	1	7	1	126	20	6
Total	1	3	2	85	3				85	
West	Bamboutos	Mbouda	CSDESA	47	3	27	1	209	25	8
						727	2	95	11	8
						763	2	87	10	8
	Haut-Nkam	Bafang	CSDESA	47	1	23	1	246	47	5
	Menoua	Dschang	CSDESA	47	1	726	2	113	47	2
	Haut-Plateaux	Baham	CSDESA	47	3	1	1	194	17	12
						708	2	137	12	12
						715	2	219	19	12
	Mifi	Bafoussam 2	CSRESA	45	1	114	1	204	45	5
		Bafoussam 3	CSDESA	47	1	733	2	135	47	3
	Ndé	Bangangté	CSDESA	47	2	7	1	247	26	10
						724	2	208	21	10
	Noun	Foumban	CSDESA	47	3	28	1	195	20	10
						76	1	219	22	10
705						2	54	5	10	
Total	7	8	8	374	15				374	

SOUTH	Vallée du Ntem	Kyé-Ossi	CSDESA	45	2	2	1	376	17	22
						22	1	634	28	22
	Mvilla	Ebolowa 2	CSRESA	45	2	30	1	156	19	8
						703	2	222	26	8
			CSDESA	45	1	2	1	266	45	6
Total	3	3	3	135	5				135	
SOUTHWEST	Fako		CSRESA	45	1	705	2	164	45	4
		Tiko	CSDESA	45	1	48	1	897	45	20
	Mémé		CSDESA	45	1	2	1	224	45	5
Total	2	3	3	135	3				135	
Overall total	36	46	45	2050	86				2050	

Appendix 2: Survey team

N ^o	Surname and Given name	Post
1) General supervision		
	Mr. MBAIROBE Gabriel	Ministry of Agriculture and Rural Development
2) Technical coordination		
1.	Mr. MBAIROBE Gabriel	Director of agricultural surveys and statistics
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4) Team on the field

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	TIGNÈRE	KAMI KIRIMI	CSDESA/DDADER
CENTRE	ESÉKA	MBOK MBABI Eugene Cédric	CSDESA/DDADER
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	BERTOUA 2	ENDOM ASSENGUE Salomon	CSRESA/DRADER
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