AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
http://ageconsearch.umn.edu
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

World Agricultures Watch
Observatoire des Agricultures du Monde
Observatorio de las Agriculturas del Mundo

Classifying agricultural holdings in Nicaragua: Proposal of a typology based on the IV Agricultural Census

IXMATI - CIRAD

Managua, May 2014

Food and Agriculture Organization of the United Nations
IFAD Investing in rural people
cirad LA RECHERCHE AGRONOMIQUE POUR LE DÉVELOPPEMENT
Liberté • Égalité • Fraternité RÉPUBLIQUE FRANÇAISE

Table of contents

Acknowledgment and authors 3
I. Introduction 5
II. Key findings 9
III. Selection of criteria for classifying the agricultural holdings of the IV CENAGRO 12
3.1 Labor: a central criterion for classifying agricultural holdings from a socio-productive perspective 12
3.2 Legal status and type of management: two complementary and necessary indicators allowing the differentiation of farms 14
3.3 Constructing production systems as a proxy for assessing agricultural income level and insertion into output produces markets 17
IV. Descriptive statistics of the three types of agricultural holdings 21
V. Conclusion and perspectives 26
VI. References 28
VII. Statistical Annexes 30
7.1 Characteristics of the types of household (social sector level) 30
7.1.1 Familiar Farms 30
7.1.2 Patronal Farms 35
7.1.3 Corporate Farms 40
7.2 Characteristics of the Proposed Sub-types and Its statistical validation 45
7.2.1 The Cattle producers 45
7.2.2 Grains Producers 48
7.2.3 Coffee Producers 51
7.2.4 Peanut Producers 53
7.2.5 Sesame Producers 56
7.2.6 Plantains and Banana Producers 59
7.2.7 Fruit Producers 62
7.2.8 Horticulture Producer 65
7.2.9 Tobacco Producer 68
7.2.10 Cocoa Producer 71
7.2.11 Oil Palm Producer 74
7.2.12 Forest Producer 77

Acknowledgment and authors

This report presents the main results of a research study that was conducted in the framework of an initiative called World Agriculture Watch (English Acronym: WAW). The aim of WAW is to provide quality analysis on agricultural dynamics in terms of agricultural production and the contribution of agriculture to economic, social and environmental sustainability at various levels. These levels include the assessment of performances of different existing forms of agricultural production in the world, with order to bring the results of the research to the public debate. WAW functional objectives are:

(1) Documenting the diversity of agricultural sectors, the changes that have occurred in the last decades -which have translated into the conformation of the current national agricultural structures and value chains-, the adaptability of the different forms of agricultural production to current global challenges (climate change, globalization, economic and demographic structural change, employment, etc. .), and their contributions to sustainable development;

(2) Producing socio-economic analysis, including spatial and temporal perspectives, at various levels (local , national , regional), with a common methodological framework, which can therefore possibly be compared at the global level ;

(3) Producing tools for action to possibly monitor potential crises and to characterize the vulnerability of forms of agricultural production in the agricultural sectors, drafting tailor-made recommendations to decision makers and key stakeholders in terms of national agricultural and rural development;

(4) To strengthen the capacity of groups of interests at the local, national, and regional levels, in terms of analysis of relevant information regarding agrarian dynamics, with appropriate methodologies.

WAW proposes a common conceptual and methodological framework, based on a systematic approach that takes into account both the sectoral dimensions of agriculture as well as the social forms of production. Therefore, it seeks to develop typologies of agricultural holdings to better characterize and provide key social, environmental and economic indicators, covering three scales:

- Production units (farms) characterized by their structures (type of labor, farm size, land tenure, financial capital, etc.) and activities (on-farm and off farm, agricultural and non-agricultural activities);
- Agricultural regions characterized by their agro-ecological conditions, which are closely linked to the development of specific production systems,
- Agro-food and agro-industrial markets and value chains, but also land, labor, services, etc. markets.

Classifying and elaborating typologies of agricultural holdings respond to the necessities of agricultural and rural policies objectives. This process will allow a better identification of the socio-productive sectors that are affected by production constraints. It also allows targeting socio- productive sectors involved in commercial high value chains for domestic markets and exports, which contribute to agricultural growth. Finally, a typology of agricultural holdings is a key instrument to identify and geographically locate these different socio-productive sectors, in order to design differentiated policies for different target groups, based on a territorial approach and of planning public resources distribution.

The present investigation presents the results of developing a typology of agrarian farms based on the IV CENAGRO. Its aims is to contribute to the national debate and policy making in Nicaragua. This typology is an academic exercise, but it also mobilized the empirical knowledge of the researchers who conducted it. There are marked differences in the types of farms that have been established, mainly due to the variability of local conditions (ecosystem, biophysical endowments, infrastructure, and social networks). Nevertheless, the typology developed assumes that the local variability and consequent variations in local production systems, generates no significant differences in the socio- productive logic of identified types.

This publication was coordinated by Sandrine Fréguin-Gresh, senior researcher in Agricultural Economics and Rural Geography at CIRAD, currently Research Associate at UCA-Nitlapán (Instituto de Investigacion y Desarrollo local de la Universidad Centroamericana), and Francisco J. Pérez, senior researcher in development economics at IXMATI-INIES-UNAN.

The research study received contributions from other researchers that were involved in a scientific Committee. This committee has been consulted at different steps of the research process, and it included Peter Marchetti[1], Patrick Dumazert[2], Arthur H. Grisgby[3], Tomas Rodriguez Alas[4] and Ligia I. Gomez[5].

[1] University Rafael Landivar, author of El Campesino Finquero I
[2] Independent Consultant, part of the research team: El Campesino Finquero I
[3] Vice President of FDL, former Director of Nitlapan and part of the research team: El Campesino Finquero I, II and III
[4] IXMATI, Macroeconomist and specialist on Microfinances
[5] IXMATI, is part of Central Bank of Nicaragua and specialist on Rural Poverty

I. Introduction

Historically, economic development and growth in Nicaragua have strongly relied on agriculture. Depending on the periods, different value chains mostly oriented toward exports, have played a major role in agricultural growth and in the Nicaraguan economy: cattle and indigo before 1890, coffee from 1890 onward, agro-industrial crops (banana, cotton, and sugar) in the 1950-70s, cattle and agro-industrial crops (sugar cane, banana, oil palm, groundnut, etc.) from the 1980s up to date. In that context, contrasting political and economic models have been developed by the different governments, to promote agriculture: a model based on modernization paradigms for the development of agro-exports (1950-79), a state-centered model combining the promotion of agro-exports and food production for the internal market (1980-89), and a free-market economy model promoting agro-exports (1990-2006). Recently, the government has oriented the agricultural policy to meet several goals: on the one hand, some public program continue to promote agricultural exports, the value chains being currently controlled by strong oligopolistic companies, which are also well inserted into regional and international markets, to sustain economic growth at the national level; on the other hand, newly designed transversal programs propose to target and enhance family agriculture and marginalized forms of agricultural production (indigenous communities, small scale cooperatives, women producers, etc.), in order to reduce rural poverty and inequality. In that context, classifying agricultural holdings to better target the beneficiaries of the differentiated policies and programs in a core strategic issue for the government.

With 59,000 km^2 (8.5 million Nicaraguan manzanas) dedicated to agriculture, where more than 4.2 million of heads of cattle are grazing and where nearly 2 million hectares of agricultural land are used for cropping, including grains and agro-industrial crops (INIDE 2011), the agricultural sector is viewed as a key strategic sector in Nicaragua. According to the Central Bank of Nicaragua (BCN, 2013) and the World Bank (WB 2013), agriculture is still the most important economic sector given its contribution to GDP (18.6 per cent), employment (31 per cent) and share of total exports (89 per cent of exports)[6]. It was stated recently in the headlines of one of the two major newspapers in the country in a special analysis of the national economy, Nicaragua is "proudly a huge farm" (El Nuevo Diario 2013).

However, the analysis of the agrarian structure at the macro-economic level allows characterizing a core aspect of the agricultural sector. Since the 1960s, evidences based on agricultural censuses show that in Nicaragua, the vast majority of agricultural holdings are small to medium-size farms, more than half of them own less than 7 ha, and 75 % of total farms own less than 35 ha (Table 1). This situation has changed over time. In the case of agricultural holdings with less than 35 ha, it has been increasing their weight in the agrarian structure, from 78.2 % by 1971, to 80.4 % by 2001 and 85 % by 2011. However, land access have not developed similar path, there was an important land distribution between 1971 (14 % of agricultural land), to 24.8 % in 2001, and in the last ten year a small increment up to 25.5 %. There is a difference of 4.6 percentage points in terms on number of farms, but only 0.7 percentage points in terms of land access.

[6] The share of agriculture in total exports in the period 2009-12 (88 per cent) evidences the important role of agriculture in Nicaragua's economy.

Table 1 – Evolution of the number of agricultural holdings in Nicaragua (1963 – 2011)

Census year	1963		1971		2001		2011	
Size	**#**	**% of farm land**	**#**	**% of farm land**	**#**	**% of farm land**	**#**	**% of farm land**
0-7 ha	50.8	3.5	44.3	2.2	47.4	4.3	**59.4**	5.6
7.1-35 ha	27.4	11.2	31.5	10.9	33	20.5	25.6	19.9
35.1-70 ha	10.7	12.4	12.1	11.5	10.9	18.7	8.1	17.9
70.1-140 ha	6.2	14.1	6.5	12.2	5.4	18.1	4.2	18
140.1-350 ha	3.5	17.6	3.7	15.6	2.6	18.4	2.1	19.4
+ 350 ha	1.5	41.2	1.9	47.6	0.8	**19.8**	0.6	19.2

Sources: authors

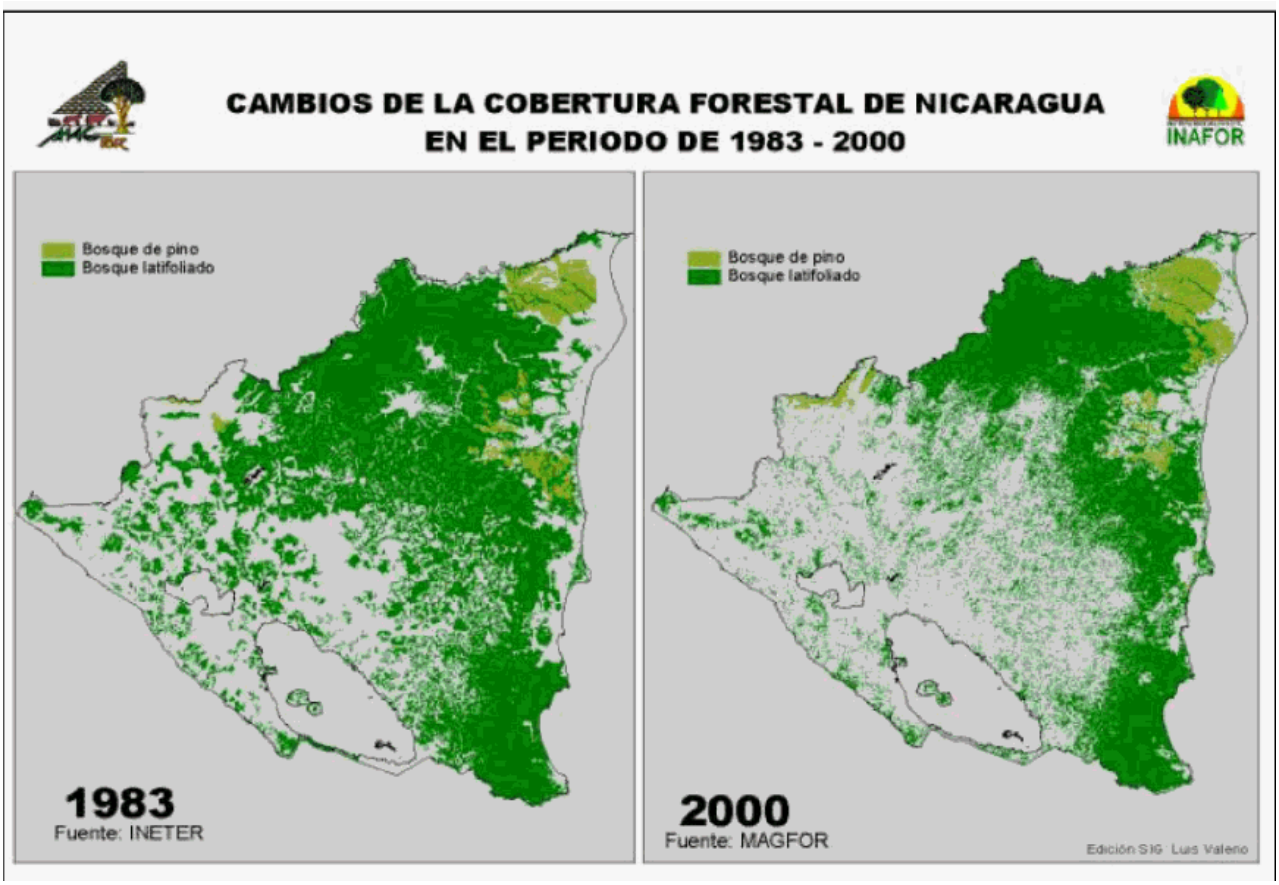
This situation results from the historical conditions in which the development of agriculture in Nicaragua has occurred, based on the advance of the agricultural frontier from the Pacific to the Atlantic Coast[7] and processes of land concentration in the hands of an agricultural bourgeoisie and an agro-business elite over the time (Perez and Fréguin-Gresh, under review). Up to 1890s -and except in the Atlantic Coast where indigenous people[8] had developed a relatively small scale agriculture adapted to the *"humid tropical ecosystem, combining crop production with hunting, fishing, and the harvesting of extensive jungle territories, within a dispersed settlement pattern and population densities much lower than in the Mesoamerican zone"* (Pérez Brignoli 2003)-, agricultural production in Nicaragua was mostly centered in the fertile plains of the Pacific (Maldidier and Marchetti, 1996) where various forms of agricultural productions coexisted, from small scale peasant agriculture base on grain production up to large-scale cattle and indigo producers, which were early linked to export markets; between, 1890s and the 1970s, the Central region of the country was progressively colonized in a context of the boom of the coffee production in the country (by both coffee entrepreneurs, small-scale-farmers and landless peoples, the latter being progressively moved from the plains of the Pacific where land concentration in the hands of the agricultural bourgeoisie oriented toward agro-industrial crops for exports was particularly intense). The armed conflicts during the 1980s stopped during a decade the advance of the agricultural frontier, as the Central region and the Atlantic Coast were also the places of serious violence; With the post-conflict reconciliation in the 1990s, the agricultural frontiers moved forward to the East (see map 1), and land concentration continued, even if the processes have changed due to the new international and globalization context.

[7]

[8] In Nicaragua, according to the 2005 Census, indigenous populations are found throughout the national territory: people with Chorotega-Nahua/Mange, Cacaopera/Matagalpa, Ocanxiu/Sutiaba, Nahoa-Nicarao/Náhuatl origins in the Pacific and Central-North Regions; people with Miskitu, Sumu-Mayangna, Rama, Garífuna origins and Afro-descendants/Kriols in the Atlantic Coast of the country. However, although the whole population of Central America has indisputably strong indigenous origins, *"a myth of intermixing* ['*Mestisaje*' in Spanish] *was created as a way of denying the existence of indigenous people in the Pacific, Central, and Northern regions, with the idea* [that] *the trend towards exclusion and extermination and inferior treatment of indigenous people was heightened, something which is reflected in the different legal frameworks"* (Soto Quirós and Diaz Arias 2007). In this way, the '*Mestisaje*' which had been particularly strong in the Pacific and Central regions of Nicaragua and Honduras in particular, had resulted in the creation of a population of 'mestizos' that have for decades been considered as peasants, excluded from being either Spanish or indigenous, and deprived of rights over NR (Merlet 2002; Mendoza-Vidaurre 2012).

By 2011, the process of consolidation of former (1960s) and new (2000s) agricultural frontier have advance up to concentrate most of the land in few hands. New agricultural fronts are linked to the development of large-scale holding oriented toward cattle production for exports to regional markets (both for meat and dairy) or toward oil palm (for processing and exports) and rapidly expand from east to west and form north to south.

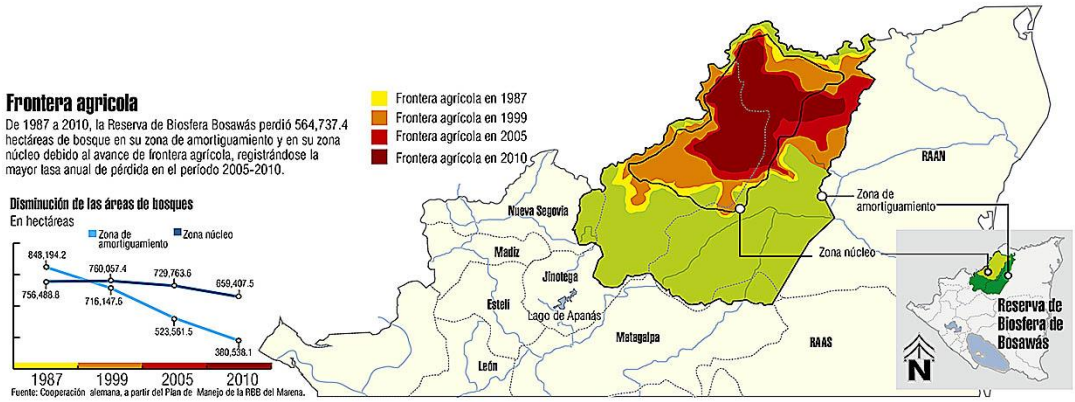
Map 1 - Nicaragua: Changes on Forest cover between 1983 and 2000



Source: INETER, MAGFOR INAFOR

According to the National System of Environmental Information (2011), virgin primary forests are only remaining in the two biosphere Reserves of Bosawas and Indio Maiz, which are also the home of various indigenous groups, who have legally recognized rights over the land (see Map 2). This situation raises the hypothesis that the whole national territory has currently been completely colonized by agriculture or that land in Nicaragua is nowadays fully subject to rights holders and cannot be colonized anymore to expand agriculture. Consequently, it is expected than land concentration will continue, but at the expense of the medium-scale and small-scale agriculture.

Map 2 – the advance of the agricultural frontier in Nicaragua between 1987 and 2010

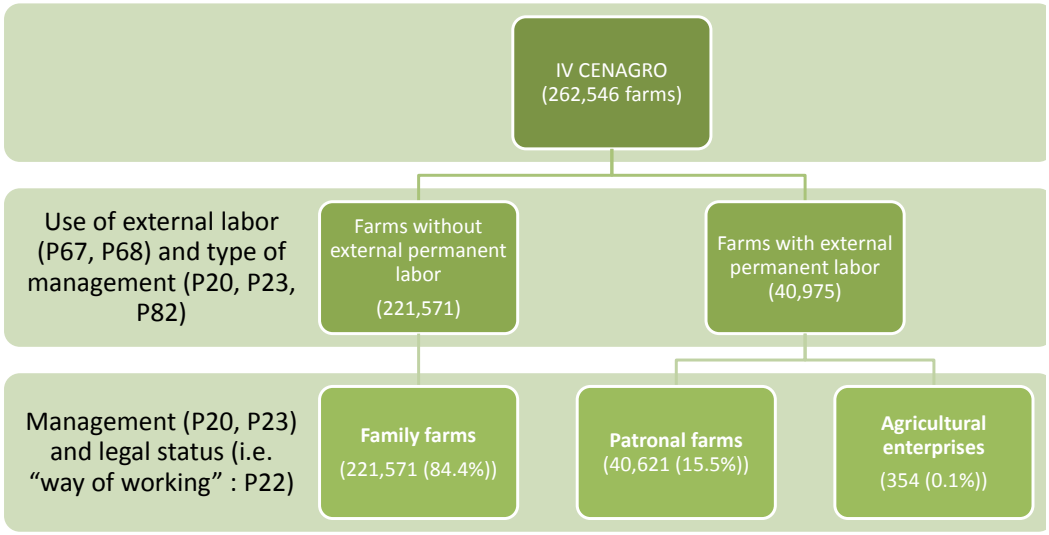


Source: http://www.elnuevodiario.com.ni/files/info/1365390968_Frontera%20Agricola.jpg

II. Key findings

Using variables relating to labor, type of management and way of working (a proxy for legal status – see below), the universe of the IV CENAGRO[9]was classified into three groups. The first group is the family farms, defined as farms that do not use permanent workforce. The second is the patronal farms, which use both permanent and family workforce. The third group includes agricultural enterprises that not use family labor at all, which legal status is defined as corporate.

Figure 1 – Methodology to classify three groups of socio-productive agricultural holdings in Nicaragua



Source: authors

Assessing the other important dimensions of the WAW approach: level of income and integration into value chains, it was decided to split these three groups of agricultural holdings into 19 key production systems' types, 14 of them being common to the three core groups of agricultural holdings (family/patronal/enterprises)

.

[9] which counts for 262,546 agricultural holdings

Table 2 - Variables used on segmenting farms of the 2011 Agrarian Census from Nicaragua

Dimension	Variable used in the IV CENAGRO	Criterion used in the classification
Labor	**Hired permanent labor**, defined as external laborers working during at least 6 months per year in the farm This dimension was crossed with the nature of respondents (family members or relatives versus others), the type of management (the head of the farm versus managers/administration/production supervisors, etc.) to check (and correct the inconsistencies. As the variable referring to the characteristics of family workforce in the farm (P82) showed too many inconsistencies to be used as a differentiation criterion, we used the "way of working" in the farm (a proxy for legal status) as the discriminant criterion to identify agricultural enterprises. It a	Dichotomous variables: 1) use/not use of permanent labor in the farm to differentiate between family and patronal farms 2) corporate "way of working" to differentiate agricultural enterprises from family/patronal farms
Management type and legal status	"way of working" in the farm (agricultural enterprises versus other types of farms, such as individual, family collective, cooperatives, etc.)	Dichotomous variable to identify corporate farms
Commercialization	Construction of production system From the combination of the different types of agricultural products in each farms, and then, the identification of the major agricultural product in each farm (crossing the land size of each products or the number of heads of cattle AND the spatial localization of the farm regarding the different agro-ecological regions of the country)	Differentiation of products types, based on assumption regarding their destinations: 1) Exports value chains 2) Urban value chain 3) Local markets and self-consumption.

Table 3 - Summarizing results of the typology of agricultural holdings and production systems in Nicaragua.

Definitions and support variable	Categories proposed (hereby examples combining different results)		
It is based on legal status. However, it make emphasis on the way the land is working. For instance: a group of producer might be part of a cooperative, however if they works their land individually, they will be reported as individual farm.	Familial farms: those which includes familiar labor force and they might hire temporary and/or permanent labor force.		Corporate business. Those defined by the national statistic institute, based on their production and lack of familial labor force and with a professional team for management
Who perform the production activities in the farm. Familiar and/or hired labor force	Mostly family labor with no permanent hired labor. The key threshold considered is hiring permanent labor, since that will demand capital flows	Patronal family farms with at least one permanent hired labor. Most of them includes temporary workers for specific seasons and production activities	Only hired labor; they do not report familial labor. They also reports a hired manager for the farms
	1	2	3
Definitions and support variable	**Categories proposed (hereby examples combining different results)**		
Items in the farms production system, classified on those integrated to export and industrial Value chains, those integrated to urban value chains and self-consumption	Familial Farms (19 sub types; 84.39 % of total farms)	Patronal Farms (18 subtypes, 15.47 % of total Farms	Corporate Business (14 subtypes; 0.13 of total firms)
	Familiar Coffee Producer	Patronal Coffee Producer	C Business Coffee Producer
	Familiar Cocoa Producer	Patronal Cattle Producer	C Business Cattle Producer
	Familiar Sesame Producer	Patronal Sesame Producer	C Business Sesame Producer
	Familiar Peanut Producer	Patronal Peanut Producer	C Business Peanut Producer
	Familiar Sugar Cane Producer	Patronal Sugar Cane Producer	C Business Sugar Cane Producer
	Familiar Tobacco Producer	Patronal Tobacco Producer	C Business Tobacco Producer
	Familiar Cotton Producer	Patronal Cotton Producer	C Business Cotton Producer
	Familiar Soybean Producer	Patronal Soybean Producer	C Business Soybean Producer
	Familiar African Palm Producer	Patronal African Palm Producer	C Business African Palm Producer
	Familiar Cattle Producer	Patronal Cocoa Producer	C Business Cocoa Producer
	Familiar Banana and plantains Producer	Patronal Banana and plantains Producer	C Business Banana and plantains Producer
	Familiar Horticulture Producer	Patronal Horticulture Producer	C Business Horticulture Producer
	Familiar Fruit Producer	Patronal Fruit Producer	C Business Fruit Producer
	Familiar Grains Producer	Patronal Grains Producer	C Business Grains Producer
	Familiar forestry producer	Patronal forestry producer	C Business forestery producer
	Familiar fishery producer	Patronal fishery producer	
	Familiar Patio (horticulture and animal) producer	Patronal poultry producer	
	Familiar Patio (animal) producer	Patronal Patio (horticulture and animal)	
	Familiar Patio (horticulture) producer		

Source: authors, based on IV CENAGRO

III. Selection of criteria for classifying the agricultural holdings of the IV CENAGRO

3.1 Labor: a central criterion for classifying agricultural holdings from a socio-productive perspective

The IV CENAGRO includes variables related to labor, in particular the use of family and hired (permanent and temporary) workforce in farms. Using these variables allow segmenting the universe of the agricultural Census into three socio-productive sectors, which respond to three different logics or rationales.

Based on previous research works (see Perez and Grigsby, 2007 and 2009), the authors acknowledge that hiring temporary labor can be associated to peak workloads in the production cycle (growing, harvesting). Consequently very dependent from the type of production developed in the farm. While hiring permanent labor respond to another logic and rational behavior, which is discriminant among farmers. A producer who is able to employ permanently external workforce, she is also capable to generate over time a certain level of income and cash flow. Consequently, hiring permanent labor can be seen as a proxy of the level of total income and the weight of agriculture in total income to the extent that labor, both family and/or hired labor, is invested in agriculture.

In addition, research antecedents also show different patterns of distribution of the percentage of on-farm income in total income (which is also dependent of the level of on-farm agricultural diversification) with two extremes: on the one hand, are found farms that are diversified in terms of economic activities (on-farm versus off-farm), but specialized in the production of staple food, which do not allow them to generate important on-farm income and oblige them to engage in off-farm labor, particularly as agricultural laborers or poorly paid off-farm jobs; on the other hand, are found farms which can be diversified in terms of economic activities (in particular off-farm activities generating high returns), but specialized in the production of higher value agricultural production, which allow them to generate higher agricultural incomes but also oblige them to hired permanent labor. In between those two groups of farms, are found a large bunch of agricultural holdings where there is a strong correlation between the level of on-farm-specialization, the diversification of agricultural production, which is more oriented toward cash crops as the income increase and which oblige producers to employ permanent workforce as they access more assets (land in particular), and the income. The authors designed the typology of agricultural holdings in Nicaragua, based on these assumptions, which are summarized in Table 2.

NB: The set of variables in the IV CENAGRO do not allow estimating neither agricultural income nor total income, which could have permitted to assess the importance of agriculture in total income. However, it was decided to build a proxy indicator, using a categorization of production systems (see below).

Table 4 - General approach retained for elaborating the typology of agricultural holdings in Nicaragua,

Income level	Labor Source	Farm Diversification	Off Farm specialization
Low, below extreme poverty line	Family	Low level, mostly specialized on staple food production for self-consumption (or diversified in small scale patio gardening)	High level, rural Labor Markets, with low returns
Low, below poverty line	Family	Medium level, specialized in staple food production for consumption and in a limited number (1 or 2) of cash crops for domestic markets or exports	High level, rural Labor Markets, with low returns
Middle Income (above poverty line)	Family + Temporary	Medium level, specialized in staple food production for consumption or local markets and cash crops for exports or local markets	Medium to low level, rural Labor Markets: off farm activities with medium returns
Middle Income (above poverty line)	Family + Temporary+ Permanent	High level, specialized in cash crops or exports or local markets	Medium to low level, off farm activities with medium returns
High Income	Temporary+ Permanent	Low level, specialized on specific export crop	High level, off farm activities with higher returns

Source: authors, based Grigsby and Perez (2007 and 2009) and Losch et al. 2012.

Based on these assumptions, and according to the theoretical and conceptual framework of WAW, three primary groups of agricultural holdings were identified:

- **Family farms**. In this group, family labor is the only source of workforce, and therefore, family farms do not hire any permanent worker. This primary socio-productive group of farms can be divided into two sub-groups: one sub-group of farms in which family members participate in rural labor market (as agricultural laborers or engaged in other off-farm activities); another sub-group in which family members only rely on the farm and agricultural production to sustain their livelihoods. This group can also be divided into two other sub-groups: one which is formed by farms which are specialized in staple food production for self-consumption (which are also usually those who work outside the farm), another group of farms, which is more diversified in terms of on-farm agricultural production and therefore, can be obliged to hire temporary labor;
- **Patronal farms.** In this group, family labor combines with external labor, which can be temporary and/or permanent, depending on the production systems. In these farms, the analysis of production systems is necessary to understand the logics or external workforce requirements along the year. However, this group is expected to be more specialize in agriculture and on-farm activities.
- **Corporate farms or agricultural enterprises**. In this group, farms only employ external labor, both temporary and permanent laborers. In these farms, permanent staff is in charge of managing production in specialized tasks (inputs, sales, financial management, etc.) and family labor is not reported, even if financial capital can contribute to investing in agricultural operations.

In order to proceed to the segmentation of the universe of the Census, a core variable of the IV CENAGRO relating to labor was used, referring to permanent labor, which was defined in the agricultural Census defines

labor as following: "*permanent workers are the hired persons, whose services are used regularly and continuously for six months and more; temporary workers are the hired persons whose services are used during a certain time, i.e. during a fixed duration of less than six months* "(INIDE, 2012, p.50).

To differentiate the family/patronal farms groups from the corporate/agricultural enterprises group, the criterion of non-use of family workforce was supposed to be sufficient, in particular as in the IV CENAGRO, is found a variable (P82) relating to the characteristics of households/family of the head of the farm, which, in theory, was supposed to be documented "only when the informant is the producer, relative or family", allowing to identify farms that do not use family labor, which, following our definition, refer to corporate or agricultural enterprises.

However, inconsistencies in the answers to this question (see Table 3) and the amount of missing values in the database obliged the authors to abandon the idea of calculating a percentage of use of family labor, forcing them to find another way to identify a proxy to identify agricultural enterprises.

Table 5 –Inconsistencies found in the database referring to P82

		Without external workforce		With external workforce	
		n	%	n	%
Type of informant	Not a family member nor a relative	644	0,2%	2,027	0,8%
	Family member or relative	150,262	57,2%	109,613	41,8%

Source: authors based on IV CENAGRO

3.2 Legal status and type of management: two complementary and necessary indicators allowing the differentiation of farms

To identify the group of agricultural enterprises, it was decided to use a combination of dimensions, including the legal status of the farm and the type of management.
First, while the National Institute of Statistics (INIDE) provide a clear definition of agricultural enterprises, which are defined as "large companies (with the corresponding legal status), mainly associated with export products, which are clearly managed by a professional team", it appeared that the legal status would allow differentiating corporate farms from others.

However, the IV CENAGRO does not include a specific question on legal status, by only differentiate several categories of "way of working", defined as the following:

- Individual "way of working" are defined as farms in which a single person works and makes decisions regarding agricultural production in the farm, which can receive the help from family members or hire external workers.
- Cooperatives"[10] relate to an agricultural holding formed by ten or more persons legally constituted and registered in accordance with formal legislation. Farms that should not be considered as "cooperative" relates to farms owned by individual producers who are associated in order to obtain benefits such as inputs, credit, machinery, equipment, etc. In that case should be considered as individual producers;
- "family collective" way of working refers to farms owned by two or more individuals from the same family, which work and make decision regarding agricultural production in the farm, ; in that case, decision –are made jointly and profits are shared between all family members;
- Agricultural enterprises are defined as "economic unit under a single management, which can consist in one or more farm units";
- Farms in indigenous community should in theory refer to farms falling under the jurisdiction and/or administration of indigenous communities, and which are led by a council of elders[11].
- Public administrations[12] are defined as farms which are administered by a public entity, both at the central and local levels, and which are declared of public utility.

[10] The category of "cooperative" only includes a small portion of the farms under status of cooperatives that can be found in the country. Since the key definition is "the way of working" (and not the legal status), several farms that were classified as individual farms can have the legal status of cooperative, but as peoples work individually and/or at the family level, respondents considered that they were falling under the individual"way of working". Consequently, the total number of cooperatives IV CENAGRO does not match the total number of cooperatives registered at the National Institute of Cooperatives.

[11] Farms located at indigenous communities in the Atlantic region, where there are situations of customary rights of indigenous communities over land (mostly in the RAAN) are not reflected in the category of indigenous communities. As the IV CENAGRO explained during an interview, this situation reflect the fact that the "way of working" in farms in indigenous communities (there is no question explicitly referring to rights over resources) is individual or organized at family level. The only farm with the status of "indigenous community" in the Census was found in the Department of León (probably referring to the indigenous community of Sutiaba) was relocated into the category of cooperatives as it management related to cooperative, in order to avoids having a single case of indigenous community, which could not be analyzed alone. Consequently, CENAGRO IV does not count any farm with the status of indigenous community.

[12] Farms included in the category of public administrations refer to state enterprises (such as such a forest plantations that belong to the Natural Resources and Environment Ministry). They became companies, since their "way of working" is the same than any other private company.

In addition, since several inconsistencies were observed when analyzing descriptive statistics of the three socio-productive groups of farms[13], it was also considered necessary to incorporate the type of management and the nature of the respondent to the census interview in order to validate the classification.
After correcting some inconsistencies found in the IV CENAGRO database and recoding some variables, it was confirmed that 100 % of the agricultural holdings with a "way of working" associated to "agricultural enterprises" were hiring external labor, and 98 % of them were hiring permanent labor. The largest proportion of farms (70 %) and cooperatives (62.5 %) also hired external workforce. However, the weight of these forms of work is relatively small in terms of number of agricultural holdings, since farms with an individual "way of working" represent 99.5 % of farms in the country.

Table 6 – Legal status "Way of working" and labor allocation in the agricultural holdings censed in the IV CENAGRO

	Without external labor		**With external labor**					
			Without permanent labor		**With permanent labor**			
			With temporary labor		**Without temporary labor**		**With temporary labor**	
	n	%	n	%	n	%	n	%
Individual	150,657	57,4%	70,527	26,9%	10,020	3,8%	2,5947	9,9%
Cooperative	113	0,04%	55	0,02%	22	0,01%	108	0,04%
Family collectives	131	0,05%	74	0,03%	29	0,01%	202	0,08%
Enterprises	0	-	0	-	92	0,04%	235	0,09
Others	5	0,002%	9	0,003%	15	0,006%	99	0,04%

Source: authors, based on IV CENAGRO

While relevant, this indicator relating to "ways of working" was not considered as a sufficient criterion for segmenting agricultural holdings, as the category of "individual way of working" counts for 99.5% of the total number of agricultural holdings. However, using this criterion allows to identifying farms considered as agricultural enterprises, which cannot be done only using labor, as previously stated.

[13] For instance, inconsistencies were found between the type of management and the use of external workforce: it is not possible to find farms reporting a manager/administrator/production supervisor, without them reporting any hired labor; in the same way, if the position of the respondent to the Census interview was a farm worker, the farm should report at least a hired worker. Therefore, it was necessary to recode some variables.

Based on the descriptive statistics of the three groups and in a first attempt to classify agricultural holdings, it was decided not to differentiate cooperatives, as all cooperatives were not identified as such in the Census (see previous remark on that topic). However, at the time of in-depth analyzing the results of the typology, it will be possibly relevant to distinguish cooperatives within the family farms and the patronal farms.

Table 7 - Distribution of the three types of agricultural holdings in the IV CENAGRO

Typology	Individual	Collective	Corporates	Total
Familiar	221,184 (84.6%)	387 (31.4%)		**221,571 (84.4%)**
Patronal	40,129 (15.4%)	492 (39.9%)		**40,621 (15.5%)**
Agricultural enterprises	0		354 (100%)	**354 (0.1%)**
Total	**261,313**	**1,233**	**354**	**262,546**

Source: authors, based on data from the IV CENAGRO

3.3 Constructing production systems as a proxy for assessing agricultural income level and insertion into output produces markets

To build on the core assumptions that lead the establishment of the typology, it was decided to go further and integrate two other dimensions into the classification of agricultural holdings. As there is no variable in the IV CENAGRO dataset that allow estimating the agricultural income and assessing the integration of farms into output produce markets through commercialization, it was decided to use the combination of types of agricultural productions[14], as a proxy.

However, the IV CENAGRO showed many issues and inconsistencies. For instance, a core variable which could have been used regarding the main destination of agricultural products in terms of "sales / human consumption / animal consumption / seed production" presented an important proportion of missing values (between 10 up to 15% of missing values per type of agricultural production[15]), as illustrated in Table 7.

Table 8 – Missing values for different types of agricultural products in the IV CENAGRO

Grains	# of farms	Weight of missing values (%)	Vegetables	# of farms	Weight of missing values (%)	Fruits	# of farms	Weight of missing values (%)
Maize	16,284	9.8	Cassava	3,043	8.3	Avocado	7,819	9.7
Red Beans	13,627	10.3	Quequisque	969	8.6	Pawpaw	1,521	7.4
Rice	3,517	15.0	Malanga	788	9.0	Pineapple	1,410	9.5
Traditional Sorghum	2,090	11.7	Zucchini	755	11.6	Sugar Cane	1,120	9.4
Black Beans	1,804	12.9	Tomato	456	8.8	Dragon fruit	1,032	6.7
White Sorghum	1,734	12.9	Bell pepper	417	9.6	Banana	312	14.9
Red Sorghum	196	13.6	Onion	88	7.2	Cocoa	2,104	9.5
Total	39,252		Total	6,516		Total	15,318	

[14] At that stage, we only used the combination of types of production and did not assess the agricultural practices related to different crops or livestock.

[15] In the case of grains, 39,252 farms did not report any information regarding these productions.

Source: IV CENAGRO

To illustrate the issue of data inconsistency, the case of coffee over 4 years (productive coffee) is presented. For such farms, self-consumption of productive coffee should normally concern farms which produce only small quantity of coffee, which could have been possible following our expertise, for farms with less than 0.35 ha of productive coffee. Nevertheless, the Census indicated that farms producing productive coffee in plots ranging from 2.1 ha and 621.1 ha declared that their coffee production was mainly for self-consumption, which is obviously not possible. In the same way, some farms declared that their coffee production (including on plots larger than 7 ha) used their coffee for animal consumption, which is definitely not plausible. A hypothesis for these inconsistencies is that enumerators misunderstood the meaning of the response "human consumption" (which was supposed to translate into self-consumption).

Table 9 –Inconsistencies in the database: Destination of coffee production

	Sales	Human consumption	Animal consumption	Seed production	Total
less than 0.35 ha	6,304	4,872	8	10	11,194
0.351 - 0.7 ha	7,196	2,287	4	7	9494
0.71 ha - 2.11 ha	10,170	1,821	2	1	11,994
2.12 - 3.51 ha	3,211	422	4	2	3,639
3.52 - 7 ha	2,318	281	2	4	2,605
7.01 - 14.05 ha	938	88	1	0	1,027
14.06 - 35.13 ha	541	47	0	0	588
35.14 a 70.26 ha	185	13	0	0	198
more than 70.26 ha	133	5	0	0	138

Source: IV CENAGRO

Consequently, it was decided to build an index of agricultural production diversification based on the combination at each farm level of the different types of products censed. However, the number of different agricultural production (both vegetal and animal) made it very complicated, as all king of combination was in theory possible (see Table 9). In fact, the most diversified farm counted with 31 different types of products.

Table 10 –Crops reported by the IV CENAGRO

Annual crops (P40) - Cenagro 2011 P42-Cultivos Anuales	Temporal agro-industrial crops (P42) - BDD Cenagro 2011 P40-Cultivos Anuales Oleaginosas
Irrigated rice	Sesame
Rain-fed rice	Cotton
Black bean	Groundnut
Red bean	Soybean
Maize	Tobacco
White sorghum	
Traditional sorghum (millón)	
Red sorghum	

Annual horticultural crops (P43) - BDD Cenagro 2011 P43-Cultivos Otros Temporales			Semi-perennial or perennial crops (P44) - BDD Cenagro 2011 P44-Cultivos Permanentes y Semipermanentes			
Acelga	Culantro	Ñame	Achiote	Cúrcuma	Mamey	Palma pacena
Ajo	Diciplina	Ocra	Aguacate	Durazno	Mamon	Papaya
Albahaca	Escoba	Papa	Anona	Fresa	Mamon chino	Pera
Apio	Espárragos	Pepino	Araza	Fruto de pan	Mango	Pijibaye
Ayote	Espinaca	Pepino Chino	Banano de consumo	Granadilla	Manzana	Pimienta
Berenjena	Flor de Jamaica	Perejil	Banano de exportacion	Grosella	Marañón	Piña
Brócoli	Flores	Pipián	Borojo	Guaba	Matasano	Pithaya
Calabaza	Frijol Alacin	Plantas Medicinales	Cacao	Guanabana	Melocoton	Plama
Camote, Batata	Frijol Bayo	Quequisque	Café mayor de 4 años	Guandul	Menta	Plama africana
Cebolla	Frijol de Vara	Rábano	Café menor de 4 años	Guayaba	Mimbro	Plama real
Cebollin	Frijol Pinpin	Remolacha	Caimito	Guayaba china	Mora	Platano
Chayote	Girasol	Repollo	Calala	Guayaba de fresco	Nancite	Pulasan
Chía	Hierbabuena	Repollo Morado	Caña de azúcar	Helecho	Naranjilla	Raicilla
Chile	Lechuga	Sandía	Canela	Henequén	Níspero	Rosas
Chile Jalapeño	Linaza	Zukini	Cardamomo	Higo	Noni	Tamarindo
Chilote	Lirios	Tabaco	Cítricos	Ícaro	Ojoche	Tempate
Chiltoma	Malanga	Tomate	Clavo de olor	Jengibre	Ornamentales	Uva
Coliflor	Manzanilla	Vainica	Coco	Jícaro	Otras musáceas	Vainilla
Crisantemo	Melón	Yampi	Cultivo exótico	Jocote	Otros frutales	Zapote
		Yuca				Zungano
		Zanahoria				

Source: IV CENAGRO

Keeping in mind that production systems aimed at (1) establishing a proxy to address integration into agricultural output product markets, and (2) establishing a proxy of estimate of agricultural income level , it was decided not only to combine the different types of products present in each farm, but also to classify products according to their probable role in the production system, in order to identify the "leading" product in the farm, combining the probable destination of the product (for instance sales for agro-industrial/export crops), the geographical location of the farm (regarding the agro-ecological macro-regions of the country), and the relative importance of the crop or herd (surface or number of heads of livestock).

This situation was possible as in the IV CENAGRO, a farmer could report not only a physical area of production (in ha), but also an amount of plants (and of cattle heads for livestock). Therefore, a farmer with sugarcane, which could be a farmer with two plants of sugarcane or a farmer with 25,000 ha, was classified as a sugarcane producer in the case he had 25,000ha, but the sugarcane production was put aside if he only had two plants. This proceeding was mandatory as the IV CENAGRO did not include information on production neither on sales, and as previously mentioned, there were not way to correctly differentiate self-consumption and sales.

In addition, it was needed to make assumption using the meaning of each value-chain in the agricultural sector. For instance, in Nicaragua, some products are clearly export of agro-industrial products (such as coffee, sesame, groundnut, soybean, black bean, cotton, tobacco, cocoa, oil palm, sugarcane, and meat): others are strategic agricultural produces for domestic markets, in particular urban markets (such as horticulture, red beans, rice, and dairy). For cattle, the number of heads was a decisive criterion, and it was decided to establish a threshold to identify if farmers were oriented toward cattle production or not. In the same way, a threshold of production area for was used, to identify market grains production.

The application of this methodology allowed to classifying 98.97% of the agricultural holdings of the IV CENAGRO. In the case of the remaining 1.03% of farms, the analysis of the dataset showed that they were characterized by the lack of information regarding their production (missing values). This unclassified group accounts for 47 agricultural enterprises and 548 patronal farms.

Table 11 - Number of production systems per types of agricultural holdings

Typology	**# of production systems**	**# of agricultural holdings**	**% of agricultural holdings**
Family	19	219,459	83.6
Patronal	18	40,072	15.26
Agricultural enterprise	14	307	0.12
Total Classified	51	259,838	**98.97**
Total IV CENAGRO		**262,546**	

Source: authors, based on IV CENAGRO

IV. Descriptive statistics of the three types of agricultural holdings

The descriptive statistics of three types of agricultural holdings are consistent with the expected trends observed in the Nicaragua agriculture.

Family farms account for 84.39 % of total agricultural holdings. These farms own 14.2 ha in average and hire 2.2 temporary workers in average (they don't' hire any permanent worker as it was the discriminating criteria to identify that group). Land use is centered around pastures (48 % of farm land in average) and annual crops, but annual crop production areas are limited with only 2.2 ha.

Patronal Farms represent 15.47 of total agricultural holdings. These farms own 65.7 ha in average and hire 3.3 permanent and 11.6 temporal workers in average. Land use is centered around pastures (63 % of land in average) and annual crops (8 %).

Agricultural enterprises represent only 0.13 % of total agricultural holdings. These farms own 529.1 ha in average, hire around 46 permanent and 112 temporal workers in average. Their land use is centered around pastures (30.1 % of land) and perennial crops (38.4 % of land). Forest areas reach 45 hectares, while annual crops areas reaches 65.1 ha.

Table 12 – Descriptive statistics of structural variables regarding natural and human capital.

	Different types			Analysis per variable and way forward
Management type (based on Status)	Household (HH) management		Corporate management	There is an adjustment of the legal status based on "way of working".
Labor (permanet worker)	Family labor and temporary workers	Mixed and / or at least 1 permanent hired labor	Only hired labor	There is a chance of segmentation of the familiar estratum with those who hire temporary workers, those who participate in labor markets, and those who neither hire labor, nor participate on labor markets
Type names / number	**Familiar Farms**	**Patronal Farms**	**Corporate Business**	It might create two more types: rural workers, subsitence families
% of holdings	84.39	15.47	0.13	
K-Human Total of Permanent Labor force (average)	0.00	3.30	45.26	
K-Human Total of Temporal Labor force (average)	2.06	11.60	117.34	
K-Human Total of Family Members (average)	5.42	5.03	0.00	
K-Natural Total Land (ha, average)	14.3	65.76	529.13	
K-Natural Total Annual Crops area (ha, average)	2.2	5.28	65.13	
K-Natural Total Perennial Crops area (average)	0.7	3.30	203.12	
K-Natural Total Natural Pastures (ha, average)	4.9	29.09	111.43	
K-Natural Total Improved Pastures (ha, average)	2.0	12.15	51.01	
K-Natural Total Forestry area (ha, average)	2.2	7.38	45.04	
Commercialization (based on market integration) Farms	**219459**	**40072**	**307**	Total Farms per item
Basic Grains Producer	91.3	8.7	0.0	82955
Cattle producer	73.2	26.6	0.2	54770
Coffee Producer	79.9	19.9	0.2	49842
Plantain Producer	82.1	17.8	0.1	18342
Patio Producer (Animals)	98.8	1.2	0.0	14451
Fruit Producer	87.5	12.3	0.1	11248
Horticulture Producer	88.1	11.8	0.1	10528
Cocoa Producer	88.9	11.0	0.1	6492
Patio Producer (horticulture)	90.1	9.9	0.0	3862
Sesame Producer	85.1	14.7	0.2	3810
Patio Producer (horticulture and animal)	100.0	0.0	0.0	1216
Sugar Cane Producer	76.2	21.4	2.3	686
Forestry Producer	74.9	22.6	2.5	686
Peanut Producer	50.8	46.4	2.8	504
African Palm Producer	68.8	29.2	2.1	192
Tobbaco Producer	61.3	33.5	5.2	191
Soybean Producer	85.4	14.6	0.0	48
Fishery Producer	88.9	11.1	0.0	9
Cotton Producer	66.7	16.7	16.7	6

Source: authors, based on the IV CENAGRO

In order to validate the typology, an Analysis of Variance Test, with a post hoct test with Duncan criteria with an alpha of 0.05 was implemented. In this report, the coffee producer comparison is part of the main text, and the case of cattle producers and grains producer are located as annexes 6.1 and 6.2. The types were validated within their key cash crop, in order to reduce variability generated by the requirements of each production system. For instance, in a same sector such as corporate business, grain producers own an average of 79.7 ha, while cattle producers owns 974.5, which is 12 times larger. In the case of labor, coffee producers demand an average of 212 temporary workers, while grains producers demand only eight. Same trend is found in the Patronal farms, in the case of grains production they owns 35.1 ha, while cattle producers owns 112 ha.

In the three cases, the three types are statistical different in terms of total land and labor force. In the coffer producers, they are different in total land and total perennial area, which is expected since coffee is a perennial

crop. In terms of natural pastures, only the Corporate Business is different which is also expected, since they tend to invest in cattle production, while the accumulation process in familiar and patronal is less dynamic. In the case of temporary and permanent worker, the three categories are clearly different.

In the case of cattle producers (annexes 6.1), the three types of farms are different in terms of total area, natural and improved (managed) pastures, which is expected since pastures is the key resource for cattle production. Familiar and Patronal farms are similar in terms of annual and perennial production areas, which is understood, since the emphasis is animal production, thus the grains production areas tend to be relatively a small proportion. In the case of temporary and permanent workers, the three categories are clearly different.

Finally, in the case of grains producers, the three types of farms are different in terms of total area and annual crops that is expected since all grains are produced annually, even three times in a year. Familiar and Patronal farms are similar in perennial crops and pastures (natural and improved) areas. This is expected as well, since the driver of the production system is located on annual crops production. In terms of labor force, the three types are different in terms of permanent worker, but Familiar and Patronal farms are similar in terms of use of temporary workers.

Table 13 – Validation of Subtypes: Coffee Producers

ANOVA: K. Natural Coffee Producers Subtypes						
		Suma de cuadrados	gl	Media cuadrática	F	Sig.
K natural - Total Area of Farms	Inter-grupos	19065606.487	2	9532803.243	1852.372	0.000
	Intra-grupos	256484846.427	49839	5146.268		
	Total	275550452.914	49841			
K natural - total Area of annual crops	Inter-grupos	33355.929	2	16677.965	137.984	.000
	Intra-grupos	6023983.341	49839	120.869		
	Total	6057339.271	49841			
K natural - total Area of perennial crops	Inter-grupos	1702703.067	2	851351.533	3444.599	0.000
	Intra-grupos	12317983.190	49839	247.156		
	Total	14020686.256	49841			
K natural - total Area of pastures	Inter-grupos	412652.105	2	206326.052	299.808	.000
	Intra-grupos	34298918.621	49839	688.194		
	Total	34711570.726	49841			

Duncan Test: K natural - Total Area of Farms				
		Subconjunto para alfa = 0.05		
SubtipoB	N	1	2	3
Familiar Coffee Producer	39833	14.8		
Patronal Coffee Producer	9933		51.7	
C. Business Coffee Producer	76			351.8
Sig.		1.000	1.000	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.				
a. Usa el tamaño muestral de la media armónica = 225.841.				
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los				

Duncan Test K natural - total Area of perennial crops				
		Subconjunto para alfa = 0.05		
SubtipoB	N	1	2	3
Familiar Coffee Producer	39833	2.6		
Patronal Coffee Producer	9933		11.8	
C. Business Coffee Producer	76			120.7
Sig.		1.000	1.000	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.				
a. Usa el tamaño muestral de la media armónica = 225.841.				
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los				

Duncan Test K natural - total Area of pastures			
		0.05	
SubtipoB	N	1	2
Familiar Coffee Producer	39833	1.2	
Patronal Coffee Producer	9933	5.7	
C. Business Coffee Producer	76		59.8
Sig.		.069	1.000
Se muestran las medias para los grupos en los subconjuntos			
a. Usa el tamaño muestral de la media armónica = 225.841.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media			

ANOVA: K. Human Coffee Producers Subtypes						
		Suma de cuadrados	gl	Media cuadrática	F	Sig.
K human - Total Permanent Workers	Inter-grupos	245082.595	2	122541.297	2874.852	0.000
	Intra-grupos	2112806.048	49567	42.625		
	Total	2357888.642	49569			
K human - Total Temporary Workers	Inter-grupos	5217462.590	2	2608731.295	1157.929	0.000
	Intra-grupos	111278897.933	49393	2252.929		
	Total	116496360.523	49395			
K human - Total Family Members	Inter-grupos	212.602	1	212.602	15.554	0.000
	Intra-grupos	631372.104	46192	13.668		
	Total	631584.706	46193			

Duncan Test K humano - Total Permanent Workers				
		Subconjunto para alfa = 0.05		
SubtipoB	N	1	2	3
Familiar Coffee Producer	39833	0.00		
Patronal Coffee Producer	9661		4.37	
C. Business Coffee Producer	76			36.49
Sig.		1.000	1.000	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.				
a. Usa el tamaño muestral de la media armónica = 225.793.				
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los				

Duncan Test K humano - Total Temporary Workers				
		Subconjunto para alfa = 0.05		
SubtipoB	N	1	2	3
Familiar Coffee Producer	39833	4.4		
Patronal Coffee Producer	9489		21.1	
C. Business Coffee Producer	74			211.6
Sig.		1.000	1.000	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.				
a. Usa el tamaño muestral de la media armónica = 219.877.				
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los				

K humano - Total Family Member						
SubTypes	N	Mean	Desviación típica	Error típico	la media al 95%	
					Límite inferior	Límite superior
Familiar Coffee Producer	38964	5.71	3.685	.019	5.68	5.75
Patronal Coffee Producer	7230	5.53	3.764	.044	5.44	5.61
C. Business Coffee Producer	0					
Total	46194	5.68	3.698	.017	5.65	5.72

V. Conclusion and perspectives

The results of the present research study show that using WAW conceptual and methodological framework is relevant to establish a typology of farms based on the Nicaraguan Agricultural Census. The IV CENAGRO includes all the needed variables to establish a typology based on social sectors, including with two and even three levels of segmentation.

A first segmentation of the Census universe was based on variables related to labor and juridical status ("the way of working"). Combined with a production systems 'approach mobilizing expertise of the researchers and the destination of the production, the research study could differentiate various types of farms that are consistent with the local knowledge of the researchers. However, in this exercise, the database showed many inconsistencies. There should be a clear relationship among labor force nature and legal status and production systems, and there were several cases with inconsistencies (9.9 %) and missing information (1.1 %). Consequently, labor is the key variable for the first level of segmentation. The allocation of family labor on agricultural activities is a key proxy variable to picture the role of agriculture in the family economy. Hiring labor force permanently is an indicator related to positive cash flow and then related to a different social stratum. In this exercise, labor was divided in two groups: those farms hiring permanent labor force and those who don´t. As information related to family workforce was of poor quality, a variable referring to juridical status ("the way of working") was combined to labor to identify corporate farms. As result, three social segments were identified: those who do not contract permanent labor and use mainly familiar labor (considered in the WAW framework as family farms); those who hire permanent labor and still allocate familiar labor and do not have an enterprise status (referred in the WAW framework as patronal farms), and corporate farms that only reports hired labor with a status of enterprise.

Further analysis might incorporate another level of segmentation. Using the basic division, every segment reports a wide range on other variables. In order to reduce this heterogeneity some possible paths could be:

- Segmenting farms that hire temporal labor and combine with familiar labor force could allow identifying a fifth group formed by farms who do not hire labor at all. A complementary variable could be participate proxy related to the participation in rural/urban labor markets and migration; this could generate a new segment: farms that neither participate on labor markets, nor hire labor force at all.
- An important variable to analyze consistency after applying these segmentations could be the amount of hired labor force.

A key piece of missing information in the Census is related to rural labor markets and migration. In Nicaragua, migration is a key phenomenon, which explains labor force allocation in agricultural activities and even production system decision (such as what and amount of sowing and the fact of hiring or not temporary labor). A possible combination with the Living Standard Measure Survey (LSMS) could be explored to resolve this issue, with the limitation that individual cases (farms) in the Census cannot be matched with individual cases in LSMS database.

A second key variable for the segmentation was the Management type. As key variable, the census includes "legal status". However, the instructions on how to apply the options give to the enumerator decision power. The enumerator should identify the way in which famers works the land", and based in her/his perception decide if the farm is cooperative, family business, corporate business, individual farm producer. When the answers are crosschecked with assets and production areas, there are many inconsistencies. For these

exercises, the only legal status accepted was the corporate farms, since the National Institute of Statists ensured that they were correct criteria to identify agri-business. An important amount of time was developed to differentiate farms managed by a member of the family. In this case, it was checked with the family information, just to differentiate cases in which management was done by someone else with no "hired labor force"

In the case of market access, the key challenge was having no data on sales, thus it impossible to estimate the percentage of production for self-consumption and market. The Census included a variable relating to the destination of production that firstly was considered potential for being proxy. However, too many answers were missing (10 – 15 %) or inconsistent (10 -20 %). Thus, this variable was not used.

Based on these key indicators, three social segments were identified: Family farms with 84.4 % of total farms in the Census; Patronal Farms with 15.5 % of total farms and 0.13 % of farms were corporate farms. However, the heterogeneity was quite high; the ranges of land tenure, cattle, even production areas were hardly untestable. In this level, it was decided to use a production system approach based on a combination of agro-ecological zoning, of combination of production types and of amount of crops and animal production present in the farm. As result a second level of segmentation (sub types) were generated.

The first attempt was using the level of diversification as proxy. Based on previous studies, a close relationship between specialization and types of farms was established. Family farms, which are little inserted on output markets but rather inserted in rural labor markets tend to specialize on grain production. At the opposite, corporate farms tend to be specialized as well in one or two different products in the farm, but controlling a value chain. However, the index was quite complex, and the range were from 1 to 35 different king of products and since the census record all crops with same level (even when the farm have only one plant or 100 hectares), this variable was not used.

An alternative was to combine results with a value chain approach. Based on this, families tend to produce a key product (grains, cash crops, cattle, etc.) which is often very specific of the agro-ecological zone where the farm is located. This key product might be sold in export or domestic markets. Thus, segmented farms were classified based on their type of dominant crops: export, cash product and self-consumption, segmented by sowing areas and amount of animal. At the end, the subtypes were constructed by both approaches: the WAW conceptual and methodological framework, which was complemented with a Value Chains' approach.

As result, 51 subtypes were identified, 14 crops are part of the production system in the three stratums. Family farms are the most diversified (19 Subtypes) followed by (18) and Corporate farms (14). All the subtypes were validated using a variance analysis in order to identify if they were statistically different in terms of assets (a selection of variables referring to physical, natural capital and human capital). Further analysis should include a consistency analysis based on agricultural indicators, for instance the amount of animals that can be managed/the amount of land under production that can be managed without contracting labor force, etc.. This would create an intermediate segment between patronal and the corporate farms.

The key limitation in this research study was the quality of the database and the real possibility of revising the surveys. However, the Census has enough variables for farm typology and its validation.

VI. References

Banco Central de Nicaragua (2013) Annual Report 2012

BAULCH B & J. HODDINOTT (2000). The economic mobility and poverty dynamics in developing countries The Journal of Development Studies. Volume 36, Issue 6, 2000

CEPAL (2001) Panorama Social 2000-2001

CEPAL (2004) Alcanzando las metas del milenio: una mirada hacia la pobreza rural y agrícola

CEPAL (2005) La esquiva equidad en el desarrollo latinoamericano. Una visión estructural, una aproximación multifacética

CEPAL (2010) América Latina frente al espejo: Dimensiones objetivas y subjetivas de la inequidad social y el bienestar en la región

CEPAL (2010.a) El progreso de América Latina y el Caribe hacia los Objetivos de Desarrollo del Milenio. Desafíos para lograrlos con igualdad

CEPAL (2012) Cambio estructural para la igualdad. Una visión integrada del desarrollo. Trigésimo cuarto período de sesiones de la CEPAL.

CIPRES (2006) Los pequeños y medianos productores agropecuarios en Nicaragua. Tomos I y II. Centro para la Promoción, la Investigación y el Desarrollo Rural y Social.

Grigsby Vado, A. H. and F. J. Pérez (2007). Structural Implications of Economic Liberalization on Agriculture and Rural Development. RuralStruc Program Nicaragua—Phase I. Managua, Nicaragua, Universidad Centroamericana, Nitlapán: 128.

INEC (2006). VIII Censo de Población y IV de Vivienda. Managua, Nicaragua, Instituto Nacional de Estadísticas y Censos: 546.

INIDE (2011). IV CENGARO (Censo Nacional Agropecuario 2011). Managua, Nicaragua, Instituto Nacional de Información de Desarrollo.

LEVARD L. (2001) Economía Agraria: La racionalidad económica de las familias rurales. Área de Desarrollo Agraria. Universidad Centroamericana, Managua.

LEVARD L.; Y MARÍN: L. SERRA & F.J. PÉREZ (2000) Limitantes y potencialidades del desarrollo agropecuario en el municipio de Somotillo. (Co-autoría). FIDA-Nitlapán, Managua

Losch, B., S. Fréguin-Gresh, et al. (2012). Structural Transformation and Rural Change Revisited: Challenges for Late Developing Countries in a Globalizing World. Washington DC, USA, World Bank, Agence Française de Développement.

MARCHETTI P & C. MALDIDIER (1996) El Campesino Finquero y el potencial económico del campesinado Nicaragüense. Tomo 1 Instituto de Investigación y Desarrollo Nitlapan

MARIN Y & S. PAWELS (2001) El Campesino Finquero II Hacia la modernización Inclusiva de la región central de Nicaragua Tomo 2 Instituto de Investigación y Desarrollo Nitlapan

PÉREZ F. J. & GARCIA A. (2001) Limitantes y potencialidades del desarrollo agropecuario en el municipio de Telpaneca. (Co-autoría). FIDA-Nitlapán, Managua

PEREZ, F. J. (2005) Effects of land legalization in the agrarian dynamics of the indigenous communities of Alta Verapaz, Guatemala Center for International Studies, Ohio University (126 pp).

Perez, F.J., Fréguin-Gresh, S. (under review) Políticas públicas y Agricultura familiar en Nicaragua: Evoluciones y perspectivas. Contribution paper for the International Congress on Public Policy and Family Farming in Latin America, Santiago de Chile, November 2014.

UPTON M. (1996). The economics of tropical farming system, Wye Studies in Agriculture and Rural Development (Cambrigde University Press)

World Bank (2013) World Development Indicators

VII. Statistical Annexes

7.1 Characteristics of the types of household (social sector level)

7.1.1 Familiar Farms

Human Capital

Variables sobre el Capital Humana Explotaciones Familiares	N	Media	Desv. típ.
Total Trabajadores Permanentes	221571	0.00	0.0
Total Trabajadores Temporales	221571	2.06	8.5
Nb hombres hogar	215615	2.68	1.6
Nb mujeres hogar	215615	2.42	1.6
Total personas hogar	215615	5.42	3.6
Numero de personas entre 5-64 hogar	215615	3.22	1.9
Numero de personas de -15 hogar	215615	1.61	1.6
Numero de personas de +65 hogar	215615	0.28	0.6
Nb personas que trabajaron en la finca con relacion de parentesco	207227	2.98	1.9
Numero de personas entre 16-64 hogar	215615	3.54	
Relacion de Dependencia	215615	1.53	

Natural Capital

Variables sobre el Capital Natural en Explotaciones Familiares	N	Media (Ha.)	Peso	Desv. típ.
Superficie total de la finca (mz) S428	221571	14.3	100.0	63.1
Superficie de la finca en cultivos anuales (mz)	221571	2.2	15.7	7.4
Superficie de la finca en cultivos perenes (mz)	221571	0.7	4.8	3.8
Superficie de la finca en pastos sembrados (mz)	221571	2.0	13.8	15.8
Superficie de la finca en pastos naturales (mz)	221571	4.9	34.3	29.1
Superficie de la finca en tierras en descanso/tacotales (mz)	221571	1.8	12.9	15.1
Superficie de la finca en bosque (mz)	221571	2.2	15.3	31.8
Superficie de la finca en instalaciones (mz)	221571	0.2	1.5	1.4
Superficie de la finca en pantanos/otra tierra (mz)	221571	0.3	1.8	6.8
Superficie de la finca con riego (mz)	221571	0.0	0.3	1.8

Producción de Granos	Fincas Familiares	Peso Familiar	Peso CENAGRO
Maíz Blanco	142663	64.4	54.3
Frijol Rojo	114074	51.5	43.4
Arroz de Secano	21160	9.5	8.1
Sorgo Millón	15944	7.2	6.1
Frijol Negro	12060	5.4	4.6
Sorgo Blanco	11671	5.3	4.4
Sorgo Rojo	974	0.4	0.4
Arroz de Riego	451	0.2	0.2

Cultivos de Exportación	Fincas Familiares	Peso Familiar	Peso CENAGRO
Ganado Vacuno	109297	49.3	41.6
Café	40707	18.4	15.5
Plátano	32700	14.8	12.5
Cacao	18078	8.2	6.9
Caña de Azúcar	9314	4.2	3.5
Ajonjolí	3262	1.5	1.2
Banana Ex	1577	0.7	0.6
Palma Africana	533	0.2	0.2
Maní	256	0.1	0.1
Tabaco	138	0.1	0.1
Soja	42	0.0	0.0
Algodón	8	0.0	0.0

Cultivos	Fincas Familiares	Peso Familiar	Peso CENAGRO
Papaya	16986	7.7	6.5
Piña	12782	5.8	4.9
Pitahaya	12718	5.7	4.8
Ayote	5022	2.3	1.9
Tomate	3978	1.8	1.5
Yuca	3427	1.5	1.3
Chiltoma	3340	1.5	1.3
Sandia	1809	0.8	0.7
Quequisque	1082	0.5	0.4
Malanga	964	0.4	0.4
Cebolla	895	0.4	0.3
Repollo	874	0.4	0.3
Pepino	859	0.4	0.3
Melón	381	0.2	0.1
Papa	338	0.2	0.1
Lechuga	244	0.1	0.1

Access to Services (Technical Assistance, Training and Finance)

Servicios	Familiar	Peso Familiar	Peso CENAGRO
Asistencia Tecnica	30057	13.6	11.4
Capacitacion	31927	14.4	12.2
Financiamiento	31257	14.1	11.9

Acceso a Servicios de Asistencia Tecnica	Familiar	Peso Familiar	Peso CENAGRO
K humano/social - Asistencia MAGFOR	11271	5.1	4.3
K humano/social - Asistencia INTA	5781	2.6	2.2
K humano/social - Asistencia Cooperativa/Gremio/Asoc	5606	2.5	2.1
K humano/social - Asistencia ONG	5394	2.4	2.1
K humano/social - Asistencia Privada	1123	0.5	0.4
K humano/social - Asistencia IDR	1024	0.5	0.4
K humano/social - Asistencia Propia EA	577	0.3	0.2
K humano/social - Asistencia Banco/Microfinacieras	721	0.3	0.3

Acceso a Servicios de Capacitacion	Familiar	Peso Familiar	Peso CENAGRO
K humano/social - Capacitación MAGFOR	11027	5.0	4.2
K humano/social - Capacitación ONG	6619	3.0	2.5
K humano/social - Capacitación INTA	6320	2.9	2.4
K humano/social - Capacitación Cooperativa/Gremio/Asoc	6108	2.8	2.3
K humano/social - Capacitación IDR	1128	0.5	0.4
K humano/social - Capacitación Privada	855	0.4	0.3
K humano/social - Capacitación INAFOR	590	0.3	0.2
K humano/social - Capacitación Banco/Microfinacieras	728	0.3	0.3
K humano/social - Capacitación Propia EA	399	0.2	0.2

Acceso a Servicios Financieros	Familiar	Peso Familiar	Peso CENAGRO
K financiero - Recibió Préstamo de Banco/Microfinanciera	13507	6.10	5.1
K financiero - Recibió Préstamo de Cajas Rurales y Cooperativas A y C	7894	3.56	3.0
K financiero - Recibió Préstamo de ONG	2331	1.05	0.9
K financiero - Recibió otro tipo de Préstamo	1699	0.77	0.6
K financiero - Recibió Préstamo de Prestamista	1486	0.67	0.6
K financiero - Recibió Préstamo de Acopiador	1184	0.53	0.5
K financiero - Recibió Préstamo de Proyectos/Programas de Gobierno	1179	0.53	0.4
K financiero - Recibió Préstamo de Empresa/Casa Comercial	1174	0.53	0.4
K financiero - Recibió Préstamo de Banco Produzcamos	421	0.19	0.2
K financiero - Recibió Préstamo Forestal	119	0.05	0.0
K financiero - Recibió Préstamo Acuícola	44	0.02	0.0

Assets

Activos de Equipos	Familiar	Peso Familiar	Peso CENAGRO
K fisico - bombas de fumigacion manual	118473	53.5	45.1
K fisico - silos para foraje o granos (S1376H y S1376E corr)	30278	13.7	11.5
K fisico - arado tradicional	23657	10.7	9.0
K fisico - carretas, carreton, carretillas	21270	9.6	8.1
K fisico - despulpadora	12662	5.7	4.8
K fisico - motosierra	10102	4.6	3.8
K fisico - arado mejorado	4304	1.9	1.6
K fisico - camioneta	3950	1.8	1.5
K fisico - tractor	2955	1.3	1.1
K fisico - picadora	2930	1.3	1.1
K fisico - bote	2004	0.9	0.8
K fisico - desgranadora manual	1843	0.8	0.7
K fisico - herramienta de implementacion para tractor	1353	0.6	0.5
K fisico - desgranadora mecanizada	1003	0.5	0.4
K fisico - motocicleta	881	0.4	0.3
K fisico - camion	824	0.4	0.3
K fisico - cosechadora	251	0.1	0.1
K fisico - descortezadora	151	0.1	0.1
K fisico - trilladora de arroz	81	0.0	0.0

Activos de Infraestructura	Familiar	Peso Familiar	Peso CENAGRO
K fisico - pozo (S537F y S537G corr)	55457	25.0	21.1
K fisico - Gallinero/Gallera/Galerones (S1376N)	38540	17.4	14.7
K fisico - pilas para agua (S1376O y S1376P corr)	27767	12.5	10.6
K fisico - Chiqueros/Porquerizas (S1376O)	16735	7.6	6.4
K fisico - paneles solares	13380	6.0	5.1
K fisico - Trojas	9889	4.5	3.8
K fisico - Recolección agua lluvia	5993	2.7	2.3
K fisico - tanques de Agua (S1376Q corr)	5031	2.3	1.9
K fisico - Establos Comedero	3076	1.4	1.2
K fisico - motor electrico, gazolina/diesel	2591	1.2	1.0
K fisico - patio de secado	2042	0.9	0.8
K fisico - Salas de Ordeño	2026	0.9	0.8
K fisico - Bañaderos	1312	0.6	0.5
K fisico - generadora electrica	1147	0.5	0.4
K fisico - secadora	820	0.4	0.3
K fisico - beneficio seco	737	0.3	0.3
K fisico - trapiche	400	0.2	0.2
K fisico - beneficio humedo	182	0.1	0.1

Activos de Infraestructura de Riego	Familiar	Peso Familiar	Peso CENAGRO
EA conectada a una Red de agua pública	46202	20.9	17.6
K fisico - Tiene Sistema de riego en EA	7552	3.4	2.9
K fisico - Riego por Gravedad	3024	1.4	1.2
K fisico - bomba de riego	2567	1.2	1.0
K fisico - Riego por Goteo	978	0.4	0.4
K fisico - Riego por Aspersión	1637	0.7	0.6
K fisico - Riego Manualmente	2021	0.9	0.8

7.1.2 Patronal Farms

Human Capital

Variables sobre el Capital Humano en Explotaciones Patronales	N	Media	Desv. típ.
Total Trabajadores Permanentes	35425	3.30	7.98
Total Trabajadores Temporales	36442	11.60	526.62
Nb hombres hogar	27568	2.53	1.54
Nb mujeres hogar	27568	2.17	1.53
Total personas hogar	27568	5.03	3.57
Numero de personas entre 5-64 hogar	27568	3.17	1.85
Numero de personas de -15 hogar	27568	1.24	1.45
Numero de personas de +65 hogar	27568	.28	0.57
Nb personas que trabajaron en la finca con relacion de parentesco	26596	2.70	1.78
Numero de personas entre 16-64 hogar	27568	3.50	
Relacion de Dependencia	27568	1.44	

Natural Capital

Variables sobre el Capital Natural en Explotaciones Patronales	N	Media (Ha.)	Peso	Desv. típ.
Superficie total de la finca (mz) S428	40621	65.8	100.0	230.1
Superficie de la finca en cultivos anuales (mz)	40621	5.3	8.0	50.1
Superficie de la finca en cultivos perenes (mz)	40621	3.3	5.0	30.3
Superficie de la finca en pastos sembrados (mz)	40621	12.2	18.5	67.5
Superficie de la finca en pastos naturales (mz)	40621	29.1	44.3	122.5
Superficie de la finca en tierras en descanso/tacotales (mz)	40621	6.8	10.4	62.5
Superficie de la finca en bosque (mz)	40621	7.4	11.2	58.9
Superficie de la finca en instalaciones (mz)	40621	0.5	0.8	3.9
Superficie de la finca en pantanos/otra tierra (mz)	40621	1.2	1.8	27.0
Superficie de la finca con riego (mz)	40621	1.1	1.7	36.7

Producción de Granos	Patronal	Peso Patronal	Peso CENAGRO
Maíz Blanco	23864	58.7	9.1
Frijol Rojo	18664	45.9	7.1
Arroz de Secano	2403	5.9	0.9
Frijol Negro	1905	4.7	0.7
Sorgo Millón	1881	4.6	0.7
Sorgo Blanco	1779	4.4	0.7
Sorgo Rojo	452	1.1	0.2
Arroz de Riego	363	0.9	0.1

Cultivos de Exportación	Patronal	Peso Patronal	Peso CENAGRO
Ganado Vacuno	27255	67.1	10.4
Café	9898	24.4	3.8
Plátano	7769	19.1	3.0
Cacao	3937	9.7	1.5
Caña de Azúcar	2572	6.3	1.0
Ajonjolí	574	1.4	0.2
Banana de Exportación	507	1.2	0.2
Maní	233	0.6	0.1
Palma Africana	158	0.4	0.1
Tabaco	65	0.2	0.0
Soja	33	0.1	0.0
Algodón	3	0.0	0.0

Cultivos	Patronal	Peso Patronal	Peso CENAGRO
Papaya	3470	8.5	1.3
Pitahaya	2694	6.6	1.0
Piña	2127	5.2	0.8
Tomate	1204	3.0	0.5
Ayote	1051	2.6	0.4
Chiltoma	969	2.4	0.4
Yuca	780	1.9	0.3
Sandia	491	1.2	0.2
Repollo	394	1.0	0.2
Cebolla	330	0.8	0.1
Quequisque	300	0.7	0.1
Pepino	291	0.7	0.1
Malanga	244	0.6	0.1
Papa	169	0.4	0.1
Melón	124	0.3	0.0
Lechuga	80	0.2	0.0

Access to Services (Technical Assistance, Training and Finance)

Servicios	Patronal	Peso Patronal	Peso CENAGRO
Asistencia Tecnica	8249	20.3	3.1
Capacitacion	7357	18.1	2.8
Financiamiento	9045	22.3	3.4

Acceso a Servicios de Asistencia Tecnica	Patronal	Peso Patronal	Peso CENAGRO
K humano/social - Asistencia MAGFOR	2501	6.2	1.0
K humano/social - Asistencia Cooperativa/Gremio/Asoc	1893	4.7	0.7
K humano/social - Asistencia Privada	1301	3.2	0.5
K humano/social - Asistencia INTA	1139	2.8	0.4
K humano/social - Asistencia ONG	858	2.1	0.3
K humano/social - Asistencia Propia EA	570	1.4	0.2
K humano/social - Asistencia IDR	370	0.9	0.1
K humano/social - Asistencia Banco/Microfinacieras	377	0.9	0.1

Acceso a Servicios de Capacitacion	Patronal	Peso Patronal	Peso CENAGRO
K humano/social - Capacitación MAGFOR	2142	5.3	0.8
K humano/social - Capacitación Cooperativa/Gremio/Asoc	1856	4.6	0.7
K humano/social - Capacitación INTA	1127	2.8	0.4
K humano/social - Capacitación Privada	927	2.3	0.4
K humano/social - Capacitación ONG	897	2.2	0.3
K humano/social - Capacitación Propia EA	380	0.9	0.1
K humano/social - Capacitación IDR	373	0.9	0.1
K humano/social - Capacitación Banco/Microfinacieras	297	0.7	0.1
K humano/social - Capacitación INAFOR	173	0.4	0.1

Acceso a Servicios Financieros	Patronal	Peso Patronal	Peso CENAGRO
K financiero - Recibió Préstamo de Banco/Microfinanciera	4707	11.6	1.8
K financiero - Recibió Préstamo de Cajas Rurales y Cooperativas A y C	1898	4.7	0.7
K financiero - Recibió Préstamo de Empresa/Casa Comercial	557	1.4	0.2
K financiero - Recibió Préstamo de Acopiador	432	1.1	0.2
K financiero - Recibió Préstamo de ONG	328	0.8	0.1
K financiero - Recibió otro tipo de Préstamo	316	0.8	0.1
K financiero - Recibió Préstamo de Prestamista	315	0.8	0.1
K financiero - Recibió Préstamo de Proyectos/Programas de Gobierno	189	0.5	0.1
K financiero - Recibió Préstamo de Banco Produzcamos	165	0.4	0.1
K financiero - Recibió Préstamo Forestal	63	0.2	0.0
K financiero - Recibió Préstamo Acuícola	12	0.0	0.0

Assets

Activos de Equipos	Patronal	Peso Patronal	Peso CENAGRO
K fisico - bombas de fumigacion manual	31220	76.9	11.9
K fisico - carretas, carreton, carretillas	9250	22.8	3.5
K fisico - motosierra	7477	18.4	2.8
K fisico - silos para foraje o granos	7294	18.0	2.8
K fisico - camioneta	6094	15.0	2.3
K fisico - arado tradicional	5645	13.9	2.2
K fisico - despulpadora	5233	12.9	2.0
K fisico - picadora	5046	12.4	1.9
K fisico - tractor	2309	5.7	0.9
K fisico - arado mejorado	2121	5.2	0.8
K fisico - herramienta de implementacion para tractor	1391	3.4	0.5
K fisico - camion	1350	3.3	0.5
K fisico - desgranadora manual	724	1.8	0.3
K fisico - bote	460	1.1	0.2
K fisico - motocicleta	444	1.1	0.2
K fisico - cosechadora	391	1.0	0.1
K fisico - desgranadora mecanizada	344	0.8	0.1
K fisico - descortezadora	155	0.4	0.1
K fisico - trilladora de arroz	84	0.2	0.0

Activos de Infraestructura	Patronal	Peso Patronal	Peso CENAGRO
K fisico - pozo (S537F y S537G corr)	13422	33.0	5.1
K fisico - pilas para agua (S1376O y S1376P corr)	13188	32.5	5.0
K fisico - Gallinero/Gallera/Galerones (S1376N)	8605	21.2	3.3
K fisico - paneles solares	5988	14.7	2.3
K fisico - Chiqueros/Porquerizas (S1376O)	5653	13.9	2.2
K fisico - Establos Comedero	4763	11.7	1.8
K fisico - tanques de Agua (S1376Q corr)	3721	9.2	1.4
K fisico - Salas de Ordeño	3335	8.2	1.3
K fisico - motor electrico, gazolina/diesel	2963	7.3	1.1
K fisico - Trojas	2450	6.0	0.9
K fisico - patio de secado	1544	3.8	0.6
K fisico - Recolección agua lluvia	1339	3.3	0.5
K fisico - generadora electrica	1291	3.2	0.5
K fisico - Bañaderos	1139	2.8	0.4
K fisico - beneficio seco	758	1.9	0.3
K fisico - secadora	459	1.1	0.2
K fisico - trapiche	201	0.5	0.1
K fisico - beneficio humedo	145	0.4	0.1

Activos de Infraestructura de Riego	Patronal	Peso Patronal	Peso CENAGRO
EA conectada a una Red de agua pública	7260	17.9	2.8
K fisico - Tiene Sistema de riego en EA	3949	9.7	1.5
K fisico - bomba de riego	2475	6.1	0.9
K fisico - Riego por Gravedad	1872	4.6	0.7
K fisico - Riego por Aspersión	1086	2.7	0.4
K fisico - Riego Manualmente	665	1.6	0.3
K fisico - Riego por Goteo	581	1.4	0.2

7.1.3 Corporate Farms

Human Capital

Variables sobre el Capital Humano en Explotaciones Empresariales	N	Media	Desv. típ.
K humano - Total Trabajadores Permanentes	347	45.3	180.302
K humano - Total Trabajadores Temporales	334	117.3	418.821

Natural Capital

Variables sobre el Capital Natural en Explotaciones Empresariales	N	Media (Ha.)	Peso	Desv. típ.
K natural - Superficie total de la finca (mz) S428	354	529.1	100.0	2545.3
K natural - superficie de la finca en cultivos anuales (mz)	354	65.1	12.3	534.1
K natural - superficie de la finca en cultivos perenes (mz)	354	203.1	38.4	2287.6
K natural - superficie de la finca en pastos sembrados (mz)	354	51.0	9.6	354.5
K natural - superficie de la finca en pastos naturales (mz)	354	111.5	21.1	560.6
K natural - superficie de la finca en tierras en descanso/tacotales (mz)	354	37.6	7.1	234.2
K natural - superficie de la finca en bosque (mz)	354	45.1	8.5	178.9
K natural - superficie de la finca en instalaciones (mz)	354	3.0	0.6	10.1
K natural - superficie de la finca en pantanos/otra tierra (mz)	354	12.8	2.4	158.6
K natural - superficie de la finca con riego (mz)	354	124.4	23.5	1485.8

Producción de Granos	Empresarios	Peso Empresarial	Peso CENAGRO
Maíz Blanco	63	17.8	0.02
Frijol Rojo	51	14.4	0.02
Arroz de Secano	15	4.2	0.01
Sorgo Rojo	10	2.8	0.00
Arroz de Riego	8	2.3	0.00
Sorgo Blanco	7	2.0	0.00
Frijol Negro	4	1.1	0.00
Sorgo Millón	4	1.1	0.00

Cultivos de Exportación	Empresarios	Peso Empresarial	Peso CENAGRO
Ganadería Vacuna	135	38.1	0.05
Café	77	21.8	0.03
Plátano	56	15.8	0.02
Caña de Azúcar	26	7.3	0.01
Cacao	23	6.5	0.01
Maní	14	4.0	0.01
Tabaco	14	4.0	0.01
Palma Africana	8	2.3	0.00
Ajonjolí	7	2.0	0.00
Banano de Exportación	3	0.8	0.00
Algodón	1	0.3	0.00

Cultivos	Empresarios	Peso Empresarial	Peso CENAGRO
Papaya	29	8.2	0.01
Tomate	20	5.6	0.01
Chiltoma	17	4.8	0.01
Ayote	15	4.2	0.01
Pitahaya	14	4.0	0.01
Pepino	12	3.4	0.00
Yuca	10	2.8	0.00
Piña	9	2.5	0.00
Sandia	5	1.4	0.00
Cebolla	5	1.4	0.00
Malanga	4	1.1	0.00
Papa	2	0.6	0.00
Repollo	2	0.6	0.00
Melon	2	0.6	0.00
Lechuga	2	0.6	0.00
Quequisque	1	0.3	0.00

Access to Services (Technical Assistance, Training and Finance)

Servicios	Empresarial	Peso Empresarial	Peso CENAGRO
Asistencia Tecnica	226	63.8	0.09
Capacitacion	203	57.3	0.08
Financiamiento	69	19.5	0.03

Acceso a Servicios de Asistencia Tecnica	Empresarial	Peso Empresarial	Peso CENAGRO
K humano/social - Asistencia Propia EA	91	25.7	0.03
K humano/social - Asistencia Privada	80	22.6	0.03
K humano/social - Asistencia MAGFOR	54	15.3	0.02
K humano/social - Asistencia ONG	16	4.5	0.01
K humano/social - Asistencia INTA	13	3.7	0.00
K humano/social - Asistencia Cooperativa/Gremio/Asoc	4	1.1	0.00
K humano/social - Asistencia Banco/Microfinacieras	3	0.8	0.00
K humano/social - Asistencia IDR	1	0.3	0.00

Acceso a Servicios de Capacitacion	Empresarial	Peso Empresarial	Peso CENAGRO
K humano/social - Capacitación Propia EA	80	22.6	0.03
K humano/social - Capacitación Privada	67	18.9	0.03
K humano/social - Capacitación MAGFOR	53	15.0	0.02
K humano/social - Capacitación ONG	14	4.0	0.01
K humano/social - Capacitación INTA	13	3.7	0.00
K humano/social - Capacitación INAFOR	12	3.4	0.00
K humano/social - Capacitación Cooperativa/Gremio/Asoc	4	1.1	0.00
K humano/social - Capacitación Banco/Microfinacieras	3	0.8	0.00
K humano/social - Capacitación IDR	1	0.3	0.00

Acceso a Servicios Financieros	Empresarial	Peso Empresarial	Peso CENAGRO
K financiero - Recibió Préstamo de Banco/Microfinanciera	41	11.6	0.02
K financiero - Recibió Préstamo de Empresa/Casa Comercial	14	4.0	0.01
K financiero - Recibió otro tipo de Préstamo	4	1.1	0.00
K financiero - Recibió Préstamo de ONG	3	0.8	0.00
K financiero - Recibió Préstamo Forestal	2	0.6	0.00
K financiero - Recibió Préstamo de Proyectos/Programas de Gobierno	2	0.6	0.00
K financiero - Recibió Préstamo de Acopiador	2	0.6	0.00
K financiero - Recibió Préstamo de Cajas Rurales y Cooperativas A y C	1	0.3	0.00

Assets

Activos de Equipos	Empresarial	Peso Empresarial	Peso CENAGRO
K fisico - bombas de fumigacion manual	262	74.0	0.10
K fisico - tractor	133	37.6	0.05
K fisico - carretas, carreton, carretillas	119	33.6	0.05
K fisico - camioneta	119	33.6	0.05
K fisico - motosierra	108	30.5	0.04
K fisico - herramienta de implementacion para tractor	78	22.0	0.03
K fisico - silos para foraje o granos (S1376H y S1376E corr)	74	20.9	0.03
K fisico - camion	67	18.9	0.03
K fisico - picadora	63	17.8	0.02
K fisico - despulpadora	45	12.7	0.02
K fisico - arado tradicional	28	7.9	0.01
K fisico - cosechadora	25	7.1	0.01
K fisico - arado mejorado	22	6.2	0.01
K fisico - bote	15	4.2	0.01
K fisico - motocicleta	11	3.1	0.00
K fisico - desgranadora mecanizada	11	3.1	0.00
K fisico - desgranadora manual	9	2.5	0.00
K fisico - trilladora de arroz	6	1.7	0.00
K fisico - descortezadora	3	0.8	0.00

Activos de Infraestructura	Empresarial	Peso Empresarial	Peso CENAGRO
K fisico - pozo (S537F y S537G corr)	196	55.4	0.07
K fisico - tanques de Agua (S1376Q corr)	148	41.8	0.06
K fisico - pilas para agua (S1376O y S1376P corr)	146	41.2	0.06
K fisico - motor electrico, gazolina/diesel	108	30.5	0.04
K fisico - generadora electrica	92	26.0	0.04
K fisico - Gallinero/Gallera/Galerones (S1376N)	78	22.0	0.03
K fisico - Establos Comedero	61	17.2	0.02
K fisico - paneles solares	49	13.8	0.02
K fisico - patio de secado	45	12.7	0.02
K fisico - Chiqueros/Porquerizas (S1376O)	40	11.3	0.02
K fisico - Salas de Ordeño	37	10.5	0.01
K fisico - Bañaderos	29	8.2	0.01
K fisico - Recolección agua lluvia	24	6.8	0.01
K fisico - beneficio seco	12	3.4	0.00
K fisico - secadora	11	3.1	0.00
K fisico - beneficio humedo	3	0.8	0.00
K fisico - trapiche	1	0.3	0.00
K fisico - Trojas	1	0.3	0.00

Activos de Infraestructura de Riego	Empresarial	Peso Empresarial	Peso CENAGRO
K fisico - Tiene Sistema de riego en EA	98	27.7	0.04
EA conectada a una Red de agua pública	88	24.9	0.03
K fisico - bomba de riego	82	23.2	0.03
K fisico - Riego por Aspersión	50	14.1	0.02
K fisico - Riego por Gravedad	33	9.3	0.01
K fisico - Riego por Goteo	27	7.6	0.01
K fisico - Riego Manualmente	13	3.7	0.00

7.2 Characteristics of the Proposed Sub-types and Its statistical validation

7.2.1 The Cattle producers

Natural Capital

ANOVA K. Natural Cattle Producers Subtypes						
		Suma de cuadrados	gl	Media cuadrática	F	Sig.
K natural - Total Area of the Farm	Inter-grupos	347503207.627	2	173751603.814	4728.059	0.000
	Intra-grupos	2012634460.780	54767	36749.036		
	Total	2360137668.407	54769			
K natural - Total area of annual crops	Inter-grupos	4756138.444	2	2378069.222	1025.957	0.000
	Intra-grupos	126944661.355	54767	2317.904		
	Total	131700799.799	54769			
K natural - Total area of perennial crops	Inter-grupos	1339317.162	2	669658.581	896.454	0.000
	Intra-grupos	40911413.021	54767	747.008		
	Total	42250730.183	54769			
K natural - Total area of improved pastures	Inter-grupos	13585273.809	2	6792636.904	1715.997	0.000
	Intra-grupos	216790827.340	54767	3958.421		
	Total	230376101.149	54769			
K natural - Total area of natural pastures	Inter-grupos	75717998.649	2	37858999.325	3046.754	0.000
	Intra-grupos	680535435.068	54767	12426.013		
	Total	756253433.718	54769			

Duncan Test: K natural - Total Area of the farm				
		Subconjunto para alfa = 0.05		
SubtipoB	N	1	2	3
Familiar Cattle producer	40101	39.5		
Patronal Cattle Producer	14578		173.2	
C. Business Cattle Producer	91			1387.0
Sig.		1.000	1.000	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.				
a. Usa el tamaño muestral de la media armónica = 270.696.				
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los				

Duncan Test : K natural - Total area of annual crops			
		Subconjunto para alfa = 0.05	
SubtipoB	N	1	2
Familiar Cattle producer	40101	3.3151	
Patronal Cattle Producer	14578	7.1191	
C. Business Cattle Producer	91		229.3834
Sig.		.358	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 270.696.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica			

Duncan Test : K natural Total area of perennial crops			
		Subconjunto para alfa = 0.05	
SubtipoB	**N**	**1**	**2**
Familiar Cattle producer	40101	.4844	
Patronal Cattle Producer	14578	1.6175	
C. Business Cattle Producer	91		121.5804
Sig.		.630	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 270.696.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica			

Duncan Test : K natural - Total area of improved pastures				
		Subconjunto para alfa = 0.05		
SubtipoB	N	1	2	3
Familiar Cattle producer	40101	7.7		
Patronal Cattle Producer	14578		37.5	
C. Business Cattle Producer	91			226.8
Sig.		1.000	1.000	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.				
a. Usa el tamaño muestral de la media armónica = 270.696.				
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los				

Duncan Test : K natural - Total area of natural pastures				
		Subconjunto para alfa = 0.05		
SubtipoB	**N**	**1**	**2**	**3**
Familiar Cattle producer	40101	19.0		
Patronal Cattle Producer	14578		89.9	
C. Business Cattle Producer	91			530.8
Sig.		1.000	1.000	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.				
a. Usa el tamaño muestral de la media armónica = 270.696.				
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los				

Human Capital

ANOVA: K. Human Cattle Producers Subtypes						
		Suma de cuadrados	gl	Media cuadrática	F	Sig.
K human - Total Permanent Workers	Inter-grupos	205874.101	2	102937.050	7687.791	0.000
	Intra-grupos	719561.308	53740	13.390		
	Total	925435.408	53742			
K human - Total Temporary Workers	Inter-grupos	417475.158	2	208737.579	1021.634	0.000
	Intra-grupos	10874995.414	53226	204.317		
	Total	11292470.572	53228			
K human - Total Family Members	Inter-grupos	1953.390	1	1953.390	157.795	0.000
	Intra-grupos	593921.830	47977	12.379		
	Total	595875.221	47978			

Duncan Test K humano - Total Permanent Workers				
		Subconjunto para alfa = 0.05		
SubtipoB	N	1	2	3
Familiar Cattle producer	40101	0.00		
Patronal Cattle Producer	13554		2.81	
C. Business Cattle Producer	88			38.56
Sig.		1.000	1.000	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.				
a. Usa el tamaño muestral de la media armónica = 261.726.				
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los				

Duncan Test K humano - Total Temporary Workers				
		Subconjunto para alfa = 0.05		
SubtipoB	N	1	2	3
Familiar Cattle producer	40101	1.52		
Patronal Cattle Producer	13038		4.14	
C. Business Cattle Producer	90			64.54
Sig.		1.000	1.000	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.				
a. Usa el tamaño muestral de la media armónica = 267.553.				
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los				

K humano - Total Family Member						
SubTypes	N	Media	Desviación típica	Error típico	la media al 95%	
					Límite inferior	Límite superior
Familiar Cattle producer	38699	5.29	3.553	.018	5.26	5.33
Patronal Cattle Producer	9280	4.78	3.368	.035	4.71	4.85
C. Business Cattle Producer	0					
Total	47979	5.20	3.524	.016	5.16	5.23

7.2.2 Grains Producers

Natural Capital

ANOVA K. Natural Grains Producers Subtypes						
		Suma de cuadrados	gl	Media cuadrática	F	Sig.
K natural - Total Area of the Farm	Inter-grupos	6053648.351	2	3026824.176	512.213	0.000
	Intra-grupos	490188557.792	82952	5909.304		
	Total	496242206.144	82954			
K natural - Total area of annual crops	Inter-grupos	223595.865	2	111797.932	883.055	0.000
	Intra-grupos	10502022.791	82952	126.604		
	Total	10725618.656	82954			
K natural - Total area of perennial crops	Inter-grupos	4422.367	2	2211.184	171.469	0.000
	Intra-grupos	1069708.476	82952	12.896		
	Total	1074130.843	82954			
K natural - Total area of improved pastures	Inter-grupos	101361.899	2	50680.949	504.511	0.000
	Intra-grupos	8332989.718	82952	100.456		
	Total	8434351.617	82954			
K natural - Total area of natural pasture	Inter-grupos	669908.816	2	334954.408	1138.203	0.000
	Intra-grupos	24411407.681	82952	294.284		
	Total	25081316.498	82954			

Duncan Test: K natural - Total Area of the Farm				
		Subconjunto para alfa = 0.05		
SubtipoB	N	1	2	3
Familiar Grains Producer	75750	20.0		
Patronal Grains Producer	7188		50.0	
C. Business Grain Producer	17			113.4
Sig.		1.000	1.000	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.				
a. Usa el tamaño muestral de la media armónica = 50.868.				
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los tamaños de los				

Duncan Test: K natural - Total area of annual crops				
		Subconjunto para alfa = 0.05		
SubtipoB	N	1	2	3
Familiar Grains Producer	75750	4.2		
Patronal Grains Producer	7188		9.6	
C. Business Grain Producer	17			50.7
Sig.		1.000	1.000	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.				
a. Usa el tamaño muestral de la media armónica = 50.868.				
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los tamaños de los				

Duncan Test: K natural - Total area of perennial crops			
		Subconjunto para alfa = 0.05	
SubtipoB	N	1	2
Familiar Grains Producer	75750	.6758	
Patronal Grains Producer	7188	1.4921	1.4921
C. Business Grain Producer	17		2.4265
Sig.		.252	.189
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 50.868.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los			

Duncan Test: K natural - Total area of improved pastures			
		Subconjunto para alfa = 0.05	
SubtipoB	N	1	2
Familiar Grains Producer	17	.29	
Patronal Grains Producer	75750	2.13	
C. Business Grain Producer	7188		6.06
Sig.		.355	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 50.868.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los			

K natural - Total area of natural pasture			
		Subconjunto para alfa = 0.05	
SubtipoB	N	1	2
Familiar Grains Producer	17	3.8	
Patronal Grains Producer	75750	4.8	
C. Business Grain Producer	7188		14.9
Sig.		.784	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 50.868.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los			

Human Capital

ANOVA: K. Human Grains Producers Subtypes						
		Suma de cuadrados	gl	Media cuadrática	F	Sig.
K human - Total Permanent Workers	Inter-grupos	37728.644	2	18864.322	15316.509	0.000
	Intra-grupos	101395.437	82326	1.232		
	Total	139124.081	82328			
K human - Total Temporary Workers	Inter-grupos	30127.874	2	15063.937	196.102	0.000
	Intra-grupos	6309653.101	82139	76.817		
	Total	6339780.976	82141			
K human - Total Family Members	Inter-grupos	941.328	1	941.328	71.798	0.000
	Intra-grupos	1042263.711	79497	13.111		
	Total	1043205.038	79498			

Duncan Test K humano - Total Permanent Workers				
		Subconjunto para alfa = 0.05		
SubtipoB	N	1	2	3
Familiar Grains Producer	75750	0.00		
Patronal Grains Producer	6562		2.48	
C. Business Grain Producer	17			5.76
Sig.		1.000	1.000	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.				
a. Usa el tamaño muestral de la media armónica = 50.857.				
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los tamaños de los				

Duncan Test K humano - Total Temporary Workers			
		Subconjunto para alfa = 0.05	
SubtipoB	N	1	2
Familiar Grains Producer	75750	1.98	
Patronal Grains Producer	6377	4.22	
C. Business Grain Producer	15		8.00
Sig.		.225	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 44.886.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los			

K humano - Total Family Member						
SubTypes	N	Media	Desviación típica	Error típico	la media al 95%	
					Límite inferior	Límite superior
Familiar Grains Producer	74161	5.48	3.623	.013	5.46	5.51
Patronal Grains Producer	5338	5.05	3.596	.049	4.95	5.14
C. Business Grain Producer	0					
Total	79499	5.45	3.622	.013	5.43	5.48

7.2.3 Coffee Producers

Natural Capital

ANOVA: K. Natural Coffee Producers Subtypes						
		Sum of Square	gl	Square mean	F	Sig.
K natural - Total Area of Farms	Inter-grupos	19065606	2	9532803	1852.372	0.000
	Intra-grupos	256484846	49839	5146		
	Total	275550453	49841			
K natural - total Area of annual crops	Inter-grupos	33356	2	16678	137.984	0.000
	Intra-grupos	6023983	49839	121		
	Total	6057339	49841			
K natural - total Area of perennial crops	Inter-grupos	1702703	2	851352	3444.599	0.000
	Intra-grupos	12317983	49839	247		
	Total	14020686	49841			
K natural - total Area of pastures	Inter-grupos	412652	2	206326	299.808	0.000
	Intra-grupos	34298919	49839	688		
	Total	34711571	49841			

Duncan Test: K natural - Total Area of Farms				
		Subconjunto para alfa = 0.05		
SubtipoB	N	1	2	3
Familiar Coffee Producer	39833	14.8		
Patronal Coffee Producer	9933		51.7	
C. Business Coffee Producer	76			351.8
Sig.		1.000	1.000	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.				
a. Usa el tamaño muestral de la media armónica = 225.841.				
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los tamaños				

Duncan Test K natural - total Area of perennial crops				
		Subconjunto para alfa = 0.05		
SubtipoB	N	1	2	3
Familiar Coffee Producer	39833	2.6		
Patronal Coffee Producer	9933		11.8	
C. Business Coffee Producer	76			120.7
Sig.		1.000	1.000	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.				
a. Usa el tamaño muestral de la media armónica = 225.841.				
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los tamaños				

Duncan Test K natural - total Area of pastures			
		Subconjunto para alfa = 0.05	
SubtipoB	N	1	2
Familiar Coffee Producer	39833	1.2	
Patronal Coffee Producer	9933	5.7	
C. Business Coffee Producer	76		59.8
Sig.		.069	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 225.841.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica			

Human Capital

ANOVA: K. Human Coffee Producers Subtypes						
		Sum of Square	gl	Square mean	F	Sig.
K human - Total Permanent Workers	Inter-grupos	245082.595	2	122541.297	2874.852	0.000
	Intra-grupos	2112806.048	49567	42.625		
	Total	2357888.642	49569			
K human - Total Temporary Workers	Inter-grupos	5217462.590	2	2608731.295	1157.929	0.000
	Intra-grupos	111278897.933	49393	2252.929		
	Total	116496360.523	49395			
K human - Total Family Members	Inter-grupos	212.602	1	212.602	15.554	0.000
	Intra-grupos	631372.104	46192	13.668		
	Total	631584.706	46193			

Duncan Test K humano - Total Permanent Workers				
		Subconjunto para alfa = 0.05		
SubtipoB	N	1	2	3
Familiar Coffee Producer	39833	0.00		
Patronal Coffee Producer	9661		4.37	
C. Business Coffee Producer	76			36.49
Sig.		1.000	1.000	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.				
a. Usa el tamaño muestral de la media armónica = 225.793.				
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los tamaños				

Duncan Test K humano - Total Temporary Workers				
		Subconjunto para alfa = 0.05		
SubtipoB	N	1	2	3
Familiar Coffee Producer	39833	4.4		
Patronal Coffee Producer	9489		21.1	
C. Business Coffee Producer	74			211.6
Sig.		1.000	1.000	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.				
a. Usa el tamaño muestral de la media armónica = 219.877.				
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los tamaños				

K humano - Total Family Member						
SubTypes	N	Mean	Desviación típica	Error típico	la media al 95% Límite inferior	la media al 95% Límite superior
Familiar Coffee Producer	38964	5.71	3.685	.019	5.68	5.75
Patronal Coffee Producer	7230	5.53	3.764	.044	5.44	5.61
C. Business Coffee Producer	0					
Total	46194	5.68	3.698	.017	5.65	5.72

7.2.4 Peanut Producers

Natural Capital

ANOVA de un factor Productores de Maní: Capital Natural						
		Suma de cuadrados	gl	Media cuadrática	F	Sig.
K natural - Superficie total de la finca (mz) S428	Inter-grupos	17970765.495	2	8985382.747	38.327	0.000
	Intra-grupos	117453688.897	501	234438.501		
	Total	135424454.392	503			
K natural - superficie de la finca en cultivos anuales (mz)	Inter-grupos	6862713.002	2	3431356.501	34.156	0.000
	Intra-grupos	50330677.666	501	100460.434		
	Total	57193390.669	503			
K natural - superficie de la finca en cultivos perenes (mz)	Inter-grupos	17221.036	2	8610.518	4.302	0.014
	Intra-grupos	1002798.753	501	2001.594		
	Total	1020019.790	503			
K natural - superficie de la finca en pastos sembrados (mz)	Inter-grupos	60333.429	2	30166.714	10.584	0.000
	Intra-grupos	1427981.533	501	2850.263		
	Total	1488314.961	503			
K natural - superficie de la finca en pastos naturales (mz)	Inter-grupos	524701.284	2	262350.642	14.716	0.000
	Intra-grupos	8931587.815	501	17827.521		
	Total	9456289.098	503			
K natural - superficie de la finca en bosque (mz)	Inter-grupos	18722.309	2	9361.154	2.974	0.052
	Intra-grupos	1577028.977	501	3147.762		
	Total	1595751.286	503			

Prueba de Duncan: K natural - Superficie total de la finca (mz) S428				
		Subconjunto para alfa = 0.05		
SubtipoB	N	1	2	3
Familiar Manicero	256	33.7		
Patronal Manicero	234		294.3	
Empresarial Maní	14			1001.2
Sig.		1.000	1.000	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.				
a. Usa el tamaño muestral de la media armónica = 37.685.				
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los tamaños				

Prueba de Duncan: K natural - superficie de la finca en cultivos anuales (mz)				
		Subconjunto para alfa = 0.05		
SubtipoB	N	1	2	3
Familiar Manicero	256	21.1		
Patronal Manicero	234		206.8	
Empresarial Maní	14			550.9
Sig.		1.000	1.000	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.				
a. Usa el tamaño muestral de la media armónica = 37.685.				
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los tamaños				

Prueba de Duncan: K natural - superficie de la finca en cultivos perenes (mz)			
		Subconjunto para alfa = 0.05	
SubtipoB	N	1	2
Familiar Manicero	256	.96	
Patronal Manicero	234	11.36	11.36
Empresarial Maní	14		23.07
Sig.		.314	.256
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 37.685.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica			

K natural - superficie de la finca en pastos sembrados (mz)		
K natural - superficie de la finca en pastos sembrados (mz)		
		Subconjunto para alfa = 0.05
SubtipoB	N	1
Familiar Manicero	256	3.0
Empresarial Maní	14	14.3
Patronal Manicero	234	25.2
Sig.		.088
Se muestran las medias para los grupos en los subconjuntos		
a. Usa el tamaño muestral de la media armónica = 37.685.		
b. Los tamaños de los grupos no son iguales. Se utilizará la		

Prueba Duncan K natural - superficie de la finca en pastos naturales (mz)			
		Subconjunto para alfa = 0.05	
SubtipoB	**N**	**1**	**2**
Familiar Manicero	256	3.8	
Patronal Manicero	234	22.2	
Empresarial Maní	14		201.1
Sig.		.551	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 37.685.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica			

Human Capital

ANOVA de un factor Productores de Maní: Capital Humano						
		Suma de cuadrados	gl	Media cuadrática	F	Sig.
K humano - Total Trabajadores Permanentes	Inter-grupos	9040.052	2	4520.026	67.864	0.000
	Intra-grupos	31370.592	471	66.604		
	Total	40410.643	473			
K humano - Total Trabajadores Temporales	Inter-grupos	26563.809	2	13281.904	42.201	0.000
	Intra-grupos	154532.183	491	314.729		
	Total	181095.992	493			
K humano - Total personas hogar (suma sobre criterio genero)	Inter-grupos	56.522	1	56.522	3.983	0.047
	Intra-grupos	4328.396	305	14.191		
	Total	4384.919	306			

K humano - Total Trabajadores Permanentes				
		Subconjunto para alfa = 0.05		
SubtipoB	N	1	2	3
Familiar Manicero	256	0.00		
Patronal Manicero	204		7.36	
Empresarial Maní	14			17.86
Sig.		1.000	1.000	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.				
a. Usa el tamaño muestral de la media armónica = 37.389.				
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los tamaños de				

Prueba de Duncan: K humano - Total Trabajadores Temporales				
		Subconjunto para alfa = 0.05		
SubtipoB	N	1	2	3
Familiar Manicero	256	3.1		
Patronal Manicero	224		16.8	
Empresarial Maní	14			26.8
Sig.		1.000	1.000	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.				
a. Usa el tamaño muestral de la media armónica = 37.594.				
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los tamaños de				

7.2.5 Sesame Producers

Natural Capital

ANOVA de un factor Productores de Ajonjolí: Capital Natural						
		Suma de cuadrados	gl	Media cuadrática	F	Sig.
K natural - Superficie total de la finca (mz) S428	Inter-grupos	912936.937	2	456468.469	153.740	.000
	Intra-grupos	11303326.228	3807	2969.090		
	Total	12216263.165	3809			
K natural - superficie de la finca en cultivos anuales (mz)	Inter-grupos	51556.432	2	25778.216	78.902	.000
	Intra-grupos	1243791.017	3807	326.712		
	Total	1295347.449	3809			
K natural - superficie de la finca en cultivos perenes (mz)	Inter-grupos	1017.674	2	508.837	20.915	.000
	Intra-grupos	92618.531	3807	24.328		
	Total	93636.205	3809			
K natural - superficie de la finca en pastos sembrados (mz)	Inter-grupos	35331.611	2	17665.806	50.849	.000
	Intra-grupos	1322605.952	3807	347.414		
	Total	1357937.563	3809			
K natural - superficie de la finca en pastos naturales (mz)	Inter-grupos	87698.850	2	43849.425	98.244	.000
	Intra-grupos	1699193.866	3807	446.334		
	Total	1786892.716	3809			
K natural - superficie de la finca en bosque (mz)	Inter-grupos	17947.709	2	8973.855	16.743	.000
	Intra-grupos	2040461.647	3807	535.976		
	Total	2058409.356	3809			

K natural - Superficie total de la finca (mz) S428				
Prueba de Duncan: K natural - Superficie total de la finca (mz) S428				
		Subconjunto para alfa = 0.05		
SubtipoB	N	1	2	3
Familiar Ajonjolicero	3243	19.8		
Patronal Ajonjolicero	561		61.8	
Empresarial Ajonjoli	6			134.8
Sig.		1.000	1.000	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.				
a. Usa el tamaño muestral de la media armónica = 17.777.				
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los tamaños de				

K natural - superficie de la finca en cultivos anuales (mz)			
Prueba de Duncan: K natural - superficie de la finca en cultivos anuales (mz)			
		Subconjunto para alfa = 0.05	
SubtipoB	N	1	2
Familiar Ajonjolicero	3243	6.9838	
Patronal Ajonjolicero	561	16.2877	
Empresarial Ajonjoli	6		49.5317
Sig.		.125	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 17.777.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de			

K natural - superficie de la finca en cultivos perenes (mz)			
Prueba de Duncan: K natural - superficie de la finca en cultivos perenes (mz)			
		Subconjunto para alfa = 0.05	
SubtipoB	N	1	2
Familiar Ajonjolicero	3243	.3197	
Patronal Ajonjolicero	561	1.3239	
Empresarial Ajonjoli	6		9.9217
Sig.		.544	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 17.777.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de			

K natural - superficie de la finca en pastos sembrados (mz)		
K natural - superficie de la finca en pastos sembrados (mz)		
SubtipoB	**N**	**Subconjunto para alfa = 0.05** **1**
Familiar Ajonjolicero	3243	3.5907
Empresarial Ajonjoli	6	6.0000
Patronal Ajonjolicero	561	12.1848
Sig.		.196
Se muestran las medias para los grupos en los subconjuntos		
a. Usa el tamaño muestral de la media armónica = 17.777.		
b. Los tamaños de los grupos no son iguales. Se utilizará la media		

K natural - superficie de la finca en pastos naturales (mz)			
Prueba Duncan K natural - superficie de la finca en pastos naturales (mz)			
SubtipoB	**N**	**Subconjunto para alfa = 0.05** **1**	**2**
Familiar Ajonjolicero	3243	4.4211	
Patronal Ajonjolicero	561	17.3548	
Empresarial Ajonjoli	6		42.1667
Sig.		.068	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 17.777.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de			

Human Capital

ANOVA de un factor Productores de Ajonjolí: Capital Humano						
		Suma de cuadrados	**gl**	**Media cuadrática**	**F**	**Sig.**
K humano - Total Trabajadores Permanentes	Inter-grupos	4777.954	2	2388.977	876.987	0.000
	Intra-grupos	10242.518	3760	2.724		
	Total	15020.471	3762			
K humano - Total Trabajadores Temporales	Inter-grupos	14159.218	2	7079.609	51.499	0.000
	Intra-grupos	519497.621	3779	137.470		
	Total	533656.839	3781			
K humano - Total personas hogar (suma sobre criterio genero)	Inter-grupos	30.954	1	30.954	2.163	0.141
	Intra-grupos	52060.269	3638	14.310		
	Total	52091.224	3639			

K humano - Total Trabajadores Permanentes				
Prueba de Duncan: K humano - Total Trabajadores Permanentes				
		Subconjunto para alfa = 0.05		
SubtipoB	**N**	**1**	**2**	**3**
Familiar Ajonjolicero	3243	.00		
Patronal Ajonjolicero	514		3.05	
Empresarial Ajonjoli	6			10.83
Sig.		1.000	1.000	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.				
a. Usa el tamaño muestral de la media armónica = 17.760.				
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los tamaños de				

K humano - Total Trabajadores Temporales			
Prueba de Duncan: K humano - Total Trabajadores Temporales			
		Subconjunto para alfa = 0.05	
SubtipoB	**N**	**1**	**2**
Familiar Ajonjolicero	3243	3.60	
Patronal Ajonjolicero	533	6.90	
Empresarial Ajonjoli	6		43.17
Sig.		.401	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 17.767.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de			

7.2.6 Plantains and Banana Producers

Natural Capital

ANOVA de un factor Productores de Musaceas: Capital Natural						
		Suma de cuadrados	gl	Media cuadrática	F	Sig.
K natural - Superficie total de la finca (mz) S428	Inter-grupos	1486056.638	2	743028.319	529.787	0.000
	Intra-grupos	25720500.125	18339	1402.503		
	Total	27206556.763	18341			
K natural - superficie de la finca en cultivos anuales (mz)	Inter-grupos	4457.080	2	2228.540	40.348	0.000
	Intra-grupos	1012924.254	18339	55.233		
	Total	1017381.334	18341			
K natural - superficie de la finca en cultivos perenes (mz)	Inter-grupos	434491.554	2	217245.777	1457.811	0.000
	Intra-grupos	2732912.484	18339	149.022		
	Total	3167404.038	18341			
K natural - superficie de la finca en pastos sembrados (mz)	Inter-grupos	36816.513	2	18408.257	161.879	0.000
	Intra-grupos	2085435.374	18339	113.716		
	Total	2122251.887	18341			
K natural - superficie de la finca en pastos naturales (mz)	Inter-grupos	109324.299	2	54662.149	176.162	0.000
	Intra-grupos	5690491.292	18339	310.295		
	Total	5799815.591	18341			
K natural - superficie de la finca en tierras en descanso/tacotales (mz)	Inter-grupos	7803.602	2	3901.801	43.309	0.000
	Intra-grupos	1652181.642	18339	90.091		
	Total	1659985.244	18341			
K natural - superficie de la finca en bosque (mz)	Inter-grupos	9891.108	2	4945.554	45.415	0.000
	Intra-grupos	1997064.877	18339	108.897		
	Total	2006955.985	18341			
K natural - superficie de la finca en instalaciones (mz)	Inter-grupos	242.191	2	121.096	108.014	0.000
	Intra-grupos	20560.090	18339	1.121		
	Total	20802.281	18341			
K natural - superficie de la finca en pantanos/otra tierra (mz)	Inter-grupos	773.569	2	386.784	67.179	0.000
	Intra-grupos	105587.271	18339	5.758		
	Total	106360.840	18341			
K natural - superficie de la finca con riego (mz)	Inter-grupos	317675.609	2	158837.804	1422.673	0.000
	Intra-grupos	2047503.039	18339	111.647		
	Total	2365178.647	18341			

K natural - Superficie total de la finca (mz) S428				
		Subconjunto para alfa = 0.05		
SubtipoB	N	1	2	3
Familiar Musaceas	15062	9.9		
Patronal Musaceas	3259		28.4	
Empresarial Musaceas	21			177.6
Sig.		1.000	1.000	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.				
a. Usa el tamaño muestral de la media armónica = 62.510.				
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los tamaños de				

K natural - superficie de la finca en cultivos anuales (mz)		
		Subconjunto para alfa = 0.05
SubtipoB	N	1
Familiar Musaceas	15062	1.5
Empresarial Musaceas	21	2.5
Patronal Musaceas	3259	2.8
Sig.		.365
Se muestran las medias para los grupos en los subconjuntos		
a. Usa el tamaño muestral de la media armónica = 62.510.		
b. Los tamaños de los grupos no son iguales. Se utilizará la media		

K natural - superficie de la finca en cultivos perenes (mz)			
		Subconjunto para alfa = 0.05	
SubtipoB	N	1	2
Familiar Musaceas	15062	1.0	
Patronal Musaceas	3259	4.7	
Empresarial Musaceas	21		139.6
Sig.		.095	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 62.510.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de			

K natural - superficie de la finca en pastos sembrados (mz)		
		Subconjunto para alfa = 0.05
SubtipoB	N	1
Familiar Musaceas	15062	1.2447
Empresarial Musaceas	21	1.4524
Patronal Musaceas	3259	4.9514
Sig.		.065
Se muestran las medias para los grupos en los subconjuntos		
a. Usa el tamaño muestral de la media armónica = 62.510.		
b. Los tamaños de los grupos no son iguales. Se utilizará la media		

K natural - superficie de la finca en pastos naturales (mz)			
		Subconjunto para alfa = 0.05	
SubtipoB	N	1	2
Empresarial Musaceas	21	.4	
Familiar Musaceas	15062	3.2	
Patronal Musaceas	3259		9.5
Sig.		.386	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 62.510.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de			

K natural - superficie de la finca con riego (mz)			
		Subconjunto para alfa = 0.05	
SubtipoB	N	1	2
Familiar Musaceas	15062	.1	
Patronal Musaceas	3259	1.9	
Empresarial Musaceas	21		121.7
Sig.		.328	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 62.510.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de			

Human Capital

ANOVA de un factor Productores de Musaceas: Capital Humano						
		Suma de cuadrados	gl	Media cuadrática	F	Sig.
K humano - Total Trabajadores Permanentes	Inter-grupos	94528.693	2	47264.347	2203.542	0.000
	Intra-grupos	383212.570	17866	21.449		
	Total	477741.263	17868			
K humano - Total Trabajadores Temporales	Inter-grupos	61454.938	2	30727.469	465.770	0.000
	Intra-grupos	1174752.584	17807	65.971		
	Total	1236207.522	17809			
K humano - Total personas hogar (suma sobre criterio genero)	Inter-grupos	923.739	1	923.739	66.066	0.000
	Intra-grupos	232564.582	16633	13.982		
	Total	233488.321	16634			

Prueba de Duncan: K humano - Total Trabajadores Permanentes				
		Subconjunto para alfa = 0.05		
SubtipoB	N	1	2	3
Familiar Musaceas	15062	0.0		
Patronal Musaceas	2787		2.4	
Empresarial Musaceas	20			64.0
Sig.		1.000	1.000	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.				
a. Usa el tamaño muestral de la media armónica = 59.494.				
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los tamaños de				

Prueba de Duncan: K humano - Total Trabajadores Temporales				
		Subconjunto para alfa = 0.05		
SubtipoB	N	1	2	3
Familiar Musaceas	15062	1.0		
Patronal Musaceas	2729		4.2	
Empresarial Musaceas	19			46.1
Sig.		1.000	1.000	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.				
a. Usa el tamaño muestral de la media armónica = 56.535.				
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los tamaños de				

7.2.7 Fruit Producers

Natural Capital

ANOVA de un factor Productores Fruticultores: Capital Natural						
		Suma de cuadrados	gl	Media cuadrática	F	Sig.
K natural - Superficie total de la finca (mz) S428	Inter-grupos	1080694	2	540347.024	243.67	.000
	Intra-grupos	24936372	11245	2217.552		
	Total	26017066	11247			
K natural - superficie de la finca en cultivos anuales (mz)	Inter-grupos	2045	2	1022.296	56.46	.000
	Intra-grupos	203623	11245	18.108		
	Total	205667	11247			
K natural - superficie de la finca en cultivos perenes (mz)	Inter-grupos	2661	2	1330.723	36.26	.000
	Intra-grupos	412696	11245	36.700		
	Total	415357	11247			
K natural - superficie de la finca en pastos sembrados (mz)	Inter-grupos	34264	2	17131.969	70.44	.000
	Intra-grupos	2734942	11245	243.214		
	Total	2769206	11247			
K natural - superficie de la finca en pastos naturales (mz)	Inter-grupos	245803	2	122901.595	210.57	.000
	Intra-grupos	6563288	11245	583.663		
	Total	6809091	11247			
K natural - superficie de la finca con riego (mz)	Inter-grupos	849	2	424.570	12.97	.000
	Intra-grupos	368083	11245	32.733		
	Total	368932	11247			

K natural - Superficie total de la finca (mz) S428			
		0.05	
SubtipoB	N	1	2
Familiar Fruticultor	9847	15.16	
Patronal Fruticultor	1386		44.8
Empresarial Frutales	15		47.8
Sig.		1.000	0.8
Se muestran las medias para los grupos en los subconjuntos			
a. Usa el tamaño muestral de la media armónica = 44.451.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media			

K natural - superficie de la finca en cultivos perenes (mz)		
Duncan		
		para alfa =
SubtipoB	N	1
Familiar Fruticultor	9847	.5
Patronal Fruticultor	1386	2.0
Empresarial Frutales	15	2.4
Sig.		.169
Se muestran las medias para los grupos en los		
a. Usa el tamaño muestral de la media armónica = 44.451.		
b. Los tamaños de los grupos no son iguales. Se utilizará la		

K natural - superficie de la finca en pastos sembrados (mz)		
		Subconjunto para alfa = 0.05
SubtipoB	N	1
Familiar Fruticultor	9847	2.2153
Empresarial Frutales	15	3.3667
Patronal Fruticultor	1386	7.5255
Sig.		.130
Se muestran las medias para los grupos en los		
a. Usa el tamaño muestral de la media armónica = 44.451.		
b. Los tamaños de los grupos no son iguales. Se utilizará la		

K natural - superficie de la finca con riego (mz)		
		Subconjunto para alfa = 0.05
SubtipoB	N	1
Familiar Fruticultor	9847	.0353
Empresarial Frutales	15	.6167
Patronal Fruticultor	1386	.8697
Sig.		.521
Se muestran las medias para los grupos en los		
a. Usa el tamaño muestral de la media armónica = 44.451.		
b. Los tamaños de los grupos no son iguales. Se utilizará la		

Human Capital

ANOVA de un factor Productores Fruticultores: Capital Humano						
		Suma de cuadrados	gl	Media cuadrática	F	Sig.
K humano - Total Trabajadores Permanentes	Inter-grupos	5032	2	2515.960	3893.469	0.000
	Intra-grupos	7130	11034	.646		
	Total	12162	11036			
K humano - Total Trabajadores Temporales	Inter-grupos	9181	2	4590.643	115.380	0.000
	Intra-grupos	438098	11011	39.787		
	Total	447279	11013			
K humano - Total personas hogar (suma sobre criterio genero)	Inter-grupos	363	1	363.078	27.625	0.000
	Intra-grupos	138462	10535	13.143		
	Total	138825	10536			

K humano - Total Trabajadores Permanentes				
		Subconjunto para alfa = 0.05		
SubtipoB	N	1	2	3
Familiar Fruticultor	9847	0.00		
Patronal Fruticultor	1175		2.16	
Empresarial Frutales	15			3.27
Sig.		1.000	1.000	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.				
a. Usa el tamaño muestral de la media armónica = 44.366.				
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los				

K humano - Total Trabajadores Temporales			
		0.05	
SubtipoB	N	1	2
Familiar Fruticultor	9847	1.17	
Patronal Fruticultor	1155	3.71	
Empresarial Frutales	12		15.92
Sig.		.089	1.000
Se muestran las medias para los grupos en los subconjuntos			
a. Usa el tamaño muestral de la media armónica = 35.587.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media			

7.2.8 Horticulture Producer

Natural Capital

ANOVA de un factor Productores Horticultores: Capital Natural						
		Suma de cuadrados	gl	Media cuadrática	F	Sig.
K natural - Superficie total de la finca (mz) S428	Inter-grupos	167889.056	2	83944.528	36.154	.000
	Intra-grupos	24437564.746	10525	2321.859		
	Total	24605453.802	10527			
K natural - superficie de la finca en cultivos anuales (mz)	Inter-grupos	4260.010	2	2130.005	24.935	.000
	Intra-grupos	899073.480	10525	85.423		
	Total	903333.490	10527			
K natural - superficie de la finca en cultivos perenes (mz)	Inter-grupos	42.672	2	21.336	5.976	.003
	Intra-grupos	37576.961	10525	3.570		
	Total	37619.633	10527			
K natural - superficie de la finca en pastos sembrados (mz)	Inter-grupos	881.801	2	440.901	3.553	.029
	Intra-grupos	1306187.050	10525	124.103		
	Total	1307068.851	10527			
K natural - superficie de la finca en pastos naturales (mz)	Inter-grupos	14606.579	2	7303.289	20.598	.000
	Intra-grupos	3731850.978	10525	354.570		
	Total	3746457.557	10527			
K natural - superficie de la finca con riego (mz)	Inter-grupos	1069.382	2	534.691	32.854	.000
	Intra-grupos	171291.576	10525	16.275		
	Total	172360.957	10527			

K natural - Superficie total de la finca (mz) S428		
		Subconjunto para alfa = 0.05
SubtipoB	N	1
Familiar Horticultor	9277	19.64
Patronal Horticultor	1240	31.86
Empresarial Hortalizas	11	41.59
Sig.		.082
Se muestran las medias para los grupos en los subconjuntos		
a. Usa el tamaño muestral de la media armónica = 32.671.		
b. Los tamaños de los grupos no son iguales. Se utilizará la		

K natural - superficie de la finca en cultivos anuales (mz)			
		Subconjunto para alfa = 0.05	
SubtipoB	N	1	2
Familiar Horticultor	9277	3.93	
Patronal Horticultor	1240	5.78	
Empresarial Hortalizas	11		11.05
Sig.		.419	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 32.671.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica			

K natural - superficie de la finca en cultivos perenes (mz)		
		Subconjunto para alfa = 0.05
SubtipoB	N	1
Familiar Horticultor	9277	.57
Empresarial Hortalizas	11	.59
Patronal Horticultor	1240	.77
Sig.		.69
Se muestran las medias para los grupos en los subconjuntos		
a. Usa el tamaño muestral de la media armónica = 32.671.		
b. Los tamaños de los grupos no son iguales. Se utilizará la		

K natural - superficie de la finca en pastos sembrados (mz)		
		Subconjunto para alfa = 0.05
SubtipoB	N	1
Empresarial Hortalizas	11	0.0000
Familiar Horticultor	9277	2.3077
Patronal Horticultor	1240	3.1725
Sig.		.281
Se muestran las medias para los grupos en los subconjuntos		
a. Usa el tamaño muestral de la media armónica = 32.671.		
b. Los tamaños de los grupos no son iguales. Se utilizará la		

K natural - superficie de la finca en pastos naturales (mz)		
		Subconjunto para alfa = 0.05
SubtipoB	N	1
Empresarial Hortalizas	11	2.3864
Familiar Horticultor	9277	7.0072
Patronal Horticultor	1240	10.6264
Sig.		.095
Se muestran las medias para los grupos en los subconjuntos		
a. Usa el tamaño muestral de la media armónica = 32.671.		
b. Los tamaños de los grupos no son iguales. Se utilizará la		

K natural - superficie de la finca con riego (mz)			
		Subconjunto para alfa = 0.05	
SubtipoB	N	1	2
Familiar Horticultor	9277	.1850	
Patronal Horticultor	1240	1.1456	1.1456
Empresarial Hortalizas	11		2.6364
Sig.		.336	.135
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 32.671.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica			

Human Capital

ANOVA de un factor Productores Horticultores: Capital Humano						
		Suma de cuadrados	gl	Media cuadrática	F	Sig.
K humano - Total Trabajadores Permanentes	Inter-grupos	14220.965	2	7110.483	2037.207	0.000
	Intra-grupos	36058.392	10331	3.490		
	Total	50279.358	10333			
K humano - Total Trabajadores Temporales	Inter-grupos	17479.594	2	8739.797	93.891	0.000
	Intra-grupos	964917.221	10366	93.085		
	Total	982396.815	10368			
K humano - Total personas hogar (suma sobre criterio genero)	Inter-grupos	261.038	1	261.038	18.220	0.000
	Intra-grupos	142538.021	9949	14.327		
	Total	142799.058	9950			

K humano - Total Trabajadores Permanentes				
		Subconjunto para alfa = 0.05		
SubtipoB	N	1	2	3
Familiar Horticultor	9277	0.00		
Patronal Horticultor	1049		2.64	
Empresarial Hortalizas	8			31.25
Sig.		1.000	1.000	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.				
a. Usa el tamaño muestral de la media armónica = 23.798.				
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los tamaños				

K humano - Total Trabajadores Temporales			
		Subconjunto para alfa = 0.05	
SubtipoB	N	1	2
Familiar Horticultor	9277	1.76	
Patronal Horticultor	1082	5.81	
Empresarial Hortalizas	10		14.70
Sig.		.106	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 29.694.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica			

7.2.9 Tobacco Producer

Natural Capital

ANOVA de un factor Productores Tabacaleros: Capital Natural						
		Suma de cuadrados	gl	Media cuadrática	F	Sig.
K natural - Superficie total de la finca (mz) S428	Inter-grupos	175927.190	2	87963.595	9.050	.000
	Intra-grupos	1827355.788	188	9719.978		
	Total	2003282.978	190			
K natural - superficie de la finca en cultivos anuales (mz)	Inter-grupos	86132.597	2	43066.299	30.062	.000
	Intra-grupos	269329.222	188	1432.602		
	Total	355461.820	190			
K natural - superficie de la finca en cultivos perenes (mz)	Inter-grupos	130.895	2	65.448	1.705	.185
	Intra-grupos	7216.378	188	38.385		
	Total	7347.273	190			
K natural - superficie de la finca en pastos sembrados (mz)	Inter-grupos	335.743	2	167.871	1.016	.364
	Intra-grupos	31060.274	188	165.214		
	Total	31396.016	190			
K natural - superficie de la finca en pastos naturales (mz)	Inter-grupos	31655.426	2	15827.713	3.322	.038
	Intra-grupos	895720.450	188	4764.470		
	Total	927375.876	190			
K natural - superficie de la finca con riego (mz)	Inter-grupos	46551.612	2	23275.806	53.542	.000
	Intra-grupos	81726.828	188	434.717		
	Total	128278.440	190			

K natural - Superficie total de la finca (mz) S428			
		0.05	
SubtipoB	N	1	2
Familiar Tabaco	117	28.4736	
Patronal Tabaco	64		85.5663
Empresarial Tabaco	10		114.5000
Sig.		1.000	.309
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 24.160.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica			

K natural - superficie de la finca en cultivos anuales (mz)				
		Subconjunto para alfa = 0.05		
SubtipoB	N	1	2	3
Familiar Tabaco	117	10.9903		
Patronal Tabaco	64		34.5203	
Empresarial Tabaco	10			100.9930
Sig.		1.000	1.000	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.				
a. Usa el tamaño muestral de la media armónica = 24.160.				
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los				

K natural - superficie de la finca en cultivos perenes (mz)		
		Subconjunto para alfa = 0.05
SubtipoB	N	1
Empresarial Tabaco	10	0.0000
Familiar Tabaco	117	.9213
Patronal Tabaco	64	2.5494
Sig.		.180
Se muestran las medias para los grupos en los subconjuntos		
a. Usa el tamaño muestral de la media armónica = 24.160.		
b. Los tamaños de los grupos no son iguales. Se utilizará la		

K natural - superficie de la finca en pastos sembrados (mz)		
		Subconjunto para alfa = 0.05
SubtipoB	N	1
Empresarial Tabaco	10	0.0000
Familiar Tabaco	117	2.4555
Patronal Tabaco	64	4.8281
Sig.		.221
Se muestran las medias para los grupos en los subconjuntos		
a. Usa el tamaño muestral de la media armónica = 24.160.		
b. Los tamaños de los grupos no son iguales. Se utilizará la		

K natural - superficie de la finca en pastos naturales (mz)		
		Subconjunto para alfa = 0.05
SubtipoB	N	1
Empresarial Tabaco	10	0.0000
Familiar Tabaco	117	4.4328
Patronal Tabaco	64	31.2797
Sig.		.139
Se muestran las medias para los grupos en los subconjuntos		
a. Usa el tamaño muestral de la media armónica = 24.160.		
b. Los tamaños de los grupos no son iguales. Se utilizará la		

K natural - superficie de la finca con riego (mz)			
		0.05	
SubtipoB	N	1	2
Familiar Tabaco	117	3.6705	
Patronal Tabaco	64	12.9970	
Empresarial Tabaco	10		74.2930
Sig.		.122	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 24.160.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica			

Human Capital

ANOVA de un factor Productores Tabacaleros: Capital Humano						
		Suma de cuadrados	gl	Media cuadrática	F	Sig.
K humano - Total Trabajadores Permanentes	Inter-grupos	12053.997	2	6026.999	33.115	.000
	Intra-grupos	32942.155	181	182.001		
	Total	44996.152	183			
K humano - Total Trabajadores Temporales	Inter-grupos	641732.025	2	320866.012	40.265	.000
	Intra-grupos	1482219.605	186	7968.923		
	Total	2123951.630	188			
K humano - Total personas hogar (suma sobre criterio genero)	Inter-grupos	4.202	1	4.202	.315	.576
	Intra-grupos	1962.349	147	13.349		
	Total	1966.550	148			

K humano - Total Trabajadores Permanentes				
		Subconjunto para alfa = 0.05		
SubtipoB	N	1	2	3
Familiar Tabaco	117	0.00		
Patronal Tabaco	58		11.88	
Empresarial Tabaco	9			31.67
Sig.		1.000	1.000	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.				
a. Usa el tamaño muestral de la media armónica = 21.914.				
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los				

K humano - Total Trabajadores Temporales			
		0.05	
SubtipoB	N	1	2
Familiar Tabaco	117	16.10	
Patronal Tabaco	62	32.97	
Empresarial Tabaco	10		279.90
Sig.		.513	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 24.062.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica			

7.2.10 Cocoa Producer

Natural Capital

ANOVA de un factor Productores Cacaoteros: Capital Natural						
		Suma de cuadrados	gl	Media cuadrática	F	Sig.
K natural - Superficie total de la finca (mz) S428	Inter-grupos	254684.986	2	127342.493	3.660	.026
	Intra-grupos	225762255.951	6489	34791.533		
	Total	226016940.938	6491			
K natural - superficie de la finca en cultivos anuales (mz)	Inter-grupos	10030.553	2	5015.277	99.819	.000
	Intra-grupos	326030.074	6489	50.244		
	Total	336060.628	6491			
K natural - superficie de la finca en cultivos perenes (mz)	Inter-grupos	669.211	2	334.605	27.366	.000
	Intra-grupos	79340.064	6489	12.227		
	Total	80009.274	6491			
K natural - superficie de la finca en pastos sembrados (mz)	Inter-grupos	8257.317	2	4128.659	25.154	.000
	Intra-grupos	1065064.789	6489	164.134		
	Total	1073322.107	6491			
K natural - superficie de la finca en pastos naturales (mz)	Inter-grupos	56117.437	2	28058.719	4.109	.016
	Intra-grupos	44309939.928	6489	6828.470		
	Total	44366057.365	6491			
K natural - superficie de la finca con riego (mz)	Inter-grupos	11002.341	2	5501.170	981.494	.000
	Intra-grupos	36370.162	6489	5.605		
	Total	47372.503	6491			

K natural - Superficie total de la finca (mz) S428		
		Subconjunto para alfa = 0.05
SubtipoB	N	1
Familiar Cacaotero	5772	31.9451
Patronal Cacaotero	712	49.8170
Empresarial Cacao	8	114.7675
Sig.		.150
Se muestran las medias para los grupos en los subconjuntos		
a. Usa el tamaño muestral de la media armónica = 23.701.		
b. Los tamaños de los grupos no son iguales. Se utilizará la		

K natural - superficie de la finca en cultivos anuales (mz)			
		Subconjunto para alfa = 0.05	
SubtipoB	N	1	2
Familiar Cacaotero	5772	4.1763	
Patronal Cacaotero	712	4.6826	
Empresarial Cacao	8		39.3750
Sig.		.806	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 23.701.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de			

K natural - superficie de la finca en cultivos anuales (mz)			
		Subconjunto para alfa = 0.05	
SubtipoB	N	1	2
Familiar Cacaotero	5772	4.1763	
Patronal Cacaotero	712	4.6826	
Empresarial Cacao	8		39.3750
Sig.		.806	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 23.701.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de			

K natural - superficie de la finca en cultivos perenes (mz)			
		Subconjunto para alfa = 0.05	
SubtipoB	N	1	2
Familiar Cacaotero	5772	1.7421	
Patronal Cacaotero	712	2.7106	
Empresarial Cacao	8		4.9063
Sig.		.340	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 23.701.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de			

K natural - superficie de la finca en pastos sembrados (mz)		
		Subconjunto para alfa = 0.05
SubtipoB	N	1
Empresarial Cacao	8	3.2188
Familiar Cacaotero	5772	3.9557
Patronal Cacaotero	712	7.5629
Sig.		.274
Se muestran las medias para los grupos en los subconjuntos		
a. Usa el tamaño muestral de la media armónica = 23.701.		
b. Los tamaños de los grupos no son iguales. Se utilizará la		

K natural - superficie de la finca en pastos naturales (mz)		
		Subconjunto para alfa = 0.05
SubtipoB	N	1
Familiar Cacaotero	5772	12.1207
Empresarial Cacao	8	19.9325
Patronal Cacaotero	712	21.4994
Sig.		.716
Se muestran las medias para los grupos en los subconjuntos		
a. Usa el tamaño muestral de la media armónica = 23.701.		
b. Los tamaños de los grupos no son iguales. Se utilizará la		

K natural - superficie de la finca con riego (mz)			
		Subconjunto para alfa = 0.05	
SubtipoB	N	1	2
Familiar Cacaotero	5772	.0144	
Patronal Cacaotero	712	.0637	
Empresarial Cacao	8		37.1250
Sig.		.943	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 23.701.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de			

Human Capital

ANOVA de un factor Productores Cacaoteros: Capital Humano						
		Suma de cuadrados	gl	Media cuadrática	F	Sig.
K humano - Total Trabajadores Permanentes	Inter-grupos	3546.918	2	1773.459	4117.091	0.000
	Intra-grupos	2753.388	6392	.431		
	Total	6300.306	6394			
K humano - Total Trabajadores Temporales	Inter-grupos	61069.726	2	30534.863	787.726	0.000
	Intra-grupos	247620.069	6388	38.763		
	Total	308689.795	6390			
K humano - Total personas hogar (suma sobre criterio genero)	Inter-grupos	183.335	1	183.335	15.142	0.000
	Intra-grupos	75054.562	6199	12.108		
	Total	75237.897	6200			

K humano - Total Trabajadores Permanentes				
		Subconjunto para alfa = 0.05		
SubtipoB	N	1	2	3
Familiar Cacaotero	5772	0.00		
Patronal Cacaotero	616		2.26	
Empresarial Cacao	7			10.29
Sig.		1.000	1.000	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.				
a. Usa el tamaño muestral de la media armónica = 20.739.				
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los tamaños				

K humano - Total Trabajadores Temporales			
		0.05	
SubtipoB	N	1	2
Familiar Cacaotero	5772	1.07	
Patronal Cacaotero	611	3.21	
Empresarial Cacao	8		86.88
Sig.		.237	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 23.657.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica			

7.2.11 Oil Palm Producer

Natural Capital

ANOVA de un factor Productores de Palma Africana: Capital Natural						
		Suma de cuadrados	gl	Media cuadrática	F	Sig.
K natural - Superficie total de la finca (mz) S428	Inter-grupos	31755321.231	2	15877660.615	34.702	.000
	Intra-grupos	86474521.373	189	457537.150		
	Total	118229842.604	191			
K natural - superficie de la finca en cultivos anuales (mz)	Inter-grupos	.292	2	.146	.009	.991
	Intra-grupos	3046.708	189	16.120		
	Total	3047.000	191			
K natural - superficie de la finca en cultivos perenes (mz)	Inter-grupos	29379152.057	2	14689576.029	31.391	.000
	Intra-grupos	88442765.196	189	467951.139		
	Total	117821917.253	191			
K natural - superficie de la finca en pastos sembrados (mz)	Inter-grupos	1720.065	2	860.032	3.157	.045
	Intra-grupos	51488.417	189	272.425		
	Total	53208.482	191			
K natural - superficie de la finca en pastos naturales (mz)	Inter-grupos	11710.739	2	5855.369	6.189	.002
	Intra-grupos	178799.628	189	946.030		
	Total	190510.367	191			
K natural - superficie de la finca con riego (mz)	Inter-grupos	.161	2	.080	.525	.593
	Intra-grupos	28.899	189	.153		
	Total	29.060	191			

K natural - Superficie total de la finca (mz) S428			
		Subconjunto para alfa = 0.05	
SubtipoB	N	1	2
Familiar Palma Africana	132	28.3288	
Patronal Palma Africana	56	76.7057	
Empresarial Palma Africana	4		2886.0200
Sig.		.868	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 10.892.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los			

K natural - superficie de la finca en cultivos anuales (mz)		
		Subconjunto para alfa = 0.05
SubtipoB	N	1
Empresarial Palma Africana	4	2.5000
Familiar Palma Africana	132	2.5258
Patronal Palma Africana	56	2.6104
Sig.		.952
Se muestran las medias para los grupos en los subconjuntos		
a. Usa el tamaño muestral de la media armónica = 10.892.		
b. Los tamaños de los grupos no son iguales. Se utilizará la media		

K natural - superficie de la finca en cultivos perenes (mz)			
		Subconjunto para alfa = 0.05	
SubtipoB	N	1	2
Familiar Palma Africana	132	3.4691	
Patronal Palma Africana	56	18.8775	
Empresarial Palma Africana	4		2746.4300
Sig.		.958	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 10.892.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los			

K natural - superficie de la finca en pastos sembrados (mz)		
		Subconjunto para alfa = 0.05
SubtipoB	N	1
Familiar Palma Africana	132	2.5452
Empresarial Palma Africana	4	7.1250
Patronal Palma Africana	56	9.1071
Sig.		.386
Se muestran las medias para los grupos en los subconjuntos		
a. Usa el tamaño muestral de la media armónica = 10.892.		
b. Los tamaños de los grupos no son iguales. Se utilizará la media		

K natural - superficie de la finca en pastos naturales (mz)			
		Subconjunto para alfa = 0.05	
SubtipoB	N	1	2
Familiar Palma Africana	132	13.6192	
Patronal Palma Africana	56	26.3554	
Empresarial Palma Africana	4		54.3125
Sig.		.335	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 10.892.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los			

K natural - superficie de la finca con riego (mz)		
		Subconjunto para alfa = 0.05
SubtipoB	N	1
Familiar Palma Africana	132	.0492
Patronal Palma Africana	56	.0536
Empresarial Palma Africana	4	.2525
Sig.		.256
Se muestran las medias para los grupos en los subconjuntos		
a. Usa el tamaño muestral de la media armónica = 10.892.		
b. Los tamaños de los grupos no son iguales. Se utilizará la media		

Human Capital

ANOVA de un factor Productores de Palma Africana: Capital Humano						
		Suma de cuadrados	gl	Media cuadrática	F	Sig.
K humano - Total Trabajadores Permanentes	Inter-grupos	546884.658	2	273442.329	31.946	.000
	Intra-grupos	1566367.820	183	8559.387		
	Total	2113252.478	185			
K humano - Total Trabajadores Temporales	Inter-grupos	1049.518	2	524.759	37.180	.000
	Intra-grupos	2526.395	179	14.114		
	Total	3575.912	181			
K humano - Total personas hogar (suma sobre criterio genero)	Inter-grupos	8.173	1	8.173	.677	.412
	Intra-grupos	1955.827	162	12.073		
	Total	1964.000	163			

K humano - Total Trabajadores Permanentes			
		0.05	
SubtipoB	N	1	2
Familiar Palma Africana	132	0.00	
Patronal Palma Africana	50	2.94	
Empresarial Palma Africana	4		374.50
Sig.		.941	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 10.808.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de			

K humano - Total Trabajadores Temporales			
		0.05	
SubtipoB	N	1	2
Familiar Palma Africana	132	1.06	
Patronal Palma Africana	47	3.68	
Empresarial Palma Africana	3		18.33
Sig.		.158	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 8.283.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de			

7.2.12 Forest Producer

Natural Capital

ANOVA de un factor Productores Forestales: Capital Natural						
		Suma de cuadrados	gl	Media cuadrática	F	Sig.
K natural - Superficie total de la finca (mz) S428	Inter-grupos	6490354.423	2	3245177.211	51.126	.000
	Intra-grupos	43352922.777	683	63474.265		
	Total	49843277.200	685			
K natural - superficie de la finca en cultivos anuales (mz)	Inter-grupos	56.152	2	28.076	.365	.694
	Intra-grupos	52529.675	683	76.910		
	Total	52585.827	685			
K natural - superficie de la finca en cultivos perenes (mz)	Inter-grupos	1313774.640	2	656887.320	39.479	.000
	Intra-grupos	11364229.534	683	16638.696		
	Total	12678004.174	685			
K natural - superficie de la finca en pastos sembrados (mz)	Inter-grupos	5803.976	2	2901.988	4.960	.007
	Intra-grupos	399616.074	683	585.089		
	Total	405420.050	685			
K natural - superficie de la finca en pastos naturales (mz)	Inter-grupos	19301.149	2	9650.574	4.857	.008
	Intra-grupos	1357160.046	683	1987.057		
	Total	1376461.195	685			
K natural - superficie de la finca en bosque (mz)	Inter-grupos	360771.248	2	180385.624	45.672	.000
	Intra-grupos	2697565.510	683	3949.583		
	Total	3058336.757	685			

K natural - superficie de la finca en cultivos anuales (mz)		
		Subconjunto para alfa = 0.05
SubtipoB	N	1
Empresarial Forestal	17	0.0000
Familiar Forestal	514	1.0661
Patronal Forestal	155	1.5906
Sig.		.424
Se muestran las medias para los grupos en los subconjuntos		
a. Usa el tamaño muestral de la media armónica = 44.629.		
b. Los tamaños de los grupos no son iguales. Se utilizará la media		

K natural - superficie de la finca en cultivos perenes (mz)			
		Subconjunto para alfa = 0.05	
SubtipoB	N	1	2
Familiar Forestal	514	.6025	
Patronal Forestal	155	11.7949	
Empresarial Forestal	17		283.0971
Sig.		.682	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 44.629.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los			

K natural - superficie de la finca en pastos sembrados (mz)		
		Subconjunto para alfa = 0.05
SubtipoB	N	1
Empresarial Forestal	17	1.0588
Familiar Forestal	514	3.7693
Patronal Forestal	155	10.5649
Sig.		.079
Se muestran las medias para los grupos en los subconjuntos		
a. Usa el tamaño muestral de la media armónica = 44.629.		
b. Los tamaños de los grupos no son iguales. Se utilizará la media		

K natural - superficie de la finca en pastos naturales (mz)		
		Subconjunto para alfa = 0.05
SubtipoB	N	1
Familiar Forestal	514	8.8721
Empresarial Forestal	17	17.3235
Patronal Forestal	155	21.4339
Sig.		.212
Se muestran las medias para los grupos en los subconjuntos		
a. Usa el tamaño muestral de la media armónica = 44.629.		
b. Los tamaños de los grupos no son iguales. Se utilizará la media		

K natural - superficie de la finca en bosque (mz)				
		Subconjunto para alfa = 0.05		
SubtipoB	N	1	2	3
Familiar Forestal	514	13.9801		
Patronal Forestal	155		54.0846	
Empresarial Forestal	17			124.3059
Sig.		1.000	1.000	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.				
a. Usa el tamaño muestral de la media armónica = 44.629.				
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de los tamaños de los				

Human Capital

ANOVA de un factor Productores Forestales: Capital Humano						
		Suma de cuadrados	gl	Media cuadrática	F	Sig.
K humano - Total Trabajadores Permanentes	Inter-grupos	71967.246	2	35983.623	78.189	.000
	Intra-grupos	283953.147	617	460.216		
	Total	355920.394	619			
K humano - Total Trabajadores Temporales	Inter-grupos	182321.389	2	91160.695	22.792	.000
	Intra-grupos	2603760.390	651	3999.632		
	Total	2786081.780	653			
K humano - Total personas hogar (suma sobre criterio genero)	Inter-grupos	123.719	1	123.719	10.619	.001
	Intra-grupos	5697.397	489	11.651		
	Total	5821.116	490			

K humano - Total Trabajadores Permanentes			
		0.05	
SubtipoB	N	1	2
Familiar Forestal	514	0.00	
Patronal Forestal	89	5.58	
Empresarial Forestal	17		65.71
Sig.		.235	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 41.664.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de			

K humano - Total Trabajadores Temporales			
		0.05	
SubtipoB	N	1	2
Familiar Forestal	514	.61	
Patronal Forestal	126	10.85	
Empresarial Forestal	14		114.57
Sig.		.487	1.000
Se muestran las medias para los grupos en los subconjuntos homogéneos.			
a. Usa el tamaño muestral de la media armónica = 36.896.			
b. Los tamaños de los grupos no son iguales. Se utilizará la media armónica de			