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THE VISION ANALYSIS OF AGRICULTURAL PRODUCERS ON ROUTES OF MODERNIZATION AND DEVELOPMENT ON THE FARM IN ARGES COUNTY

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Abstract

This paper aims to present an outlook for agriculture in terms of vision Arges farmers. In this paper going to disseminate some of the information obtained through questionnaires, evaluation of data from the survey was conducted the test of association, (Chi, Chi-square, $\chi 2$ Hi or theoretically), waste is standardized (R), contingency coefficient C Pearson's correlation coefficient and Cramer's V. The purpose of the questionnaire was to identify farmers' opinion on the landform where the farms surveyed found the following aspect: the ways of upgrading deemed necessary to be implemented on farms in the county Arges. As a result of the survey revealed that farmers consider mechanization as a method of upgrading a 86%, the choice being influenced by the mechanization of farms located where one can find relief, followed by varieties (76%) and crop technologies (72%) as a method of upgrading but their choice is influenced by the relief where it is found located holdings held by respondents, this was observed by using nonparametric correlations.

INTRODUCTION

The main segment we provide food resources is agriculture, which has a vital role in the economy through agricultural production which are the source of food for mankind growing, given the demographic explosion in poorer countries, and also the raw material for a range of industries.

Currently, 60% of Earth's populations make a living directly from agriculture practice. However, agricultural development is conditioned by differences in geology, topography, climate and natural resources, and diverse regional activities, infrastructure and social customs [2].

Romania has about 14.6 million ha of agricultural land, of which about 9.4 million ha arable. With a share of agricultural area about 61% of the total, Romania is the first in the European Union [2].

Rural areas in Romania are a cardinal component of the overall evolution of the Romanian economy. Three rural resources give the true extent of the need of restructuring agriculture and rural development in our country: usable agricultural area, agricultural employment (3.5 million) and the total area of the countryside (90% of the country) [8].

Committee on Agriculture and Rural Development of the European Council welcomes the report on the European Charter of rural areas, the rural areas of Europe represents 85% of its total area affect, directly or indirectly, more than 50% of the continent [15].

In Romania, a major issue, this diminishes the subsistence production in agriculture. About half of the agricultural land is worked in subsistence farms that maintain overall agricultural efficiency low. In 2011 it was estimated that approximately 3.5 million farms have land less than one hectare, which prevents them from accessing EU funds. Romanian agriculture are slowed performance and ownership fragmentation in small parcels, which requires merging their farms need large

areas to be able to move to a modern agriculture.
Prevails in our country with small holdings of 3.45 ha, which totaled about 98% of the total situation which is reflected in the Arges county. To achieve rational dimensions of rural farm coherent policies are required to support the formation and consolidation [1].
The current situation of Romanian agriculture is characterized by many social and economic problems, and the existence of many farms viable economically [3].
Picture ownership structures and exploiting of the Romanian agriculture is bipolarized, in terms of size and in terms of yields, weak productive. Bipolarity is shown by the coexistence of two categories of farms: small and large.
The category included small peasant holdings (can be found under the name of, the individual farm ").
On the opposite side are large farms, typically organized as units with legal personality: associations and agricultural cooperatives, businesses, etc. [13].
In both categories of production units are modest performance compared to the results of EU agriculture. Based on these general considerations and taking into account the experience and results developed European countries, we believe in Romania's agriculture, agrarian policy action is paramount in defining and sizing of the modern spirit farms.
In this context, we try to analyse which aspects of Arges County farmers consider important in order to increase production and profitability of farms they own considering using competitive varieties, irrigation, size, degree of mechanization and technology culture.

MATERIALS AND METHODS

Central objective of this research is the analysis of farmers on ways to modernize vision considered necessary to be implemented in the county of Arges, the factors that determine and influence on agricultural producers worldwide because there is a tendency of concentration of agricultural production meet new production technologies [6].
This vision could be captured by application of two questionnaires: one for farmers and one for representatives of association of Arges County. To establish the statistical significance of the data collected by questionnaire Chi-square test was used.
The first phase covered before developing the questionnaire was such that the elements have been identified that would be obtained through questionnaires. It was also considered aspects: the purpose of the investigation, the territorial area of Arges County, location of farms according to the form of relief, asking questions, conducting surveys, analyses data from the questionnaires, and so on, and on this basis they structure was formulated questions and questionnaires.
Farmers questionnaire was applied during July to November 2011 in 34 communes of the 95 common as Arges county totals after the dominant landform lies villages questionnaires were applied:
- In 17 communes in the plains of the 32 communes are located in the plains of Arges;
- In 14 communes in the hills, of the 53 communes in the hilly ranges of Arges;
- In 3 common in the mountains, of the 10 communes in the mountain ranges of Arges.
People who have been interviewed representatives farms both legal form and the individual holdings without legal form.
In each village were applied by 3 questionnaires (if applicable), a total of 100 questionnaires farm in the county of Arges.
The questionnaire applied representatives of association was in the same period, a total of 25 questionnaires.
Evaluation of data from the survey was conducted the test of association, (Chi, Chi-square, $\chi 2$ Hi or theoretically), this test involves checking the hypothesis of association between: a questionnaire responses from a question alternatives and verification of a particular set of data I can follow a known statistical distribution. The socio-economic problems after the composition is applied to contingency tables

in which data are categorized by one, two or more segmentation variables [12].

This test allows to highlight the existence/ non-existence of a link between sub-collectivises association created segmentation variables studied.

Because the chi-square test expression is obtained from observations that is a statistic and therefore is not a parameter, so it is also called non-parametric statistical test or distribution free test, a test that does not depend on the form of the original law base [4].

According to the methodology for application of the test is based on the following assumptions:

- H_0, between the observed and expected no significant differences, which implies that the two variables analysed are not related;
- H_1, there are significant differences between observed and expected frequencies, which means there is a link between the variables analysed [17].

For example, the data obtained through the questionnaires, analyse the structure of respondents' opinion on ways to modernize farm development by landform located that match the holdings held by interviewees considered necessary to be implemented by the Arges County landform in this example we will analyse the manufacturers opinion on upgrading the varieties.

Null hypothesis H_0 wording, which states that the two variables are not questions segmentation causal or association;

X - consider varieties a method of upgrading your farm? (,, yes,, or,, no,,).

Y - landforms, which are found holdings held by respondents (plains, hills, mountains).

Table 1. Contingency table of the variables X and Y for the observed

Specification	Yes	Not
Plain	42	9
Hill	33	5
Mountain	1	10

Source: Data processing by:,, Questionnaire Arges county farmers association" [7];

The probable contingency table values (theoretical expected) is calculated from the frequencies actually incurred (observed) to the total responses. For example:

- The total number of subjects who agreed with the statement (da) is 76. Since in total there are 100 subjects who responded to the questionnaire, the percentage of those who agreed with the statement is 76/100, 76% of the group. Thus, if there is no difference between the group of respondents who own farms in the lowlands, the group of respondents who have holdings in the hill and the group of respondents who own farms in the mountains (the null hypothesis), then 76% of respondents who have farms in the lowlands (0.76 x 51 = 38.76), 76% of respondents who own farms in the hilly (0.76 x 38 = 28.88) and 76% of respondents who own farms in the hilly (0, 76 x 11 = 8.36) should be agreed with the statement (theoretical frequency) (Table no. 2.).
- The total number of subjects who agreed with the statement (not) is 24. Since in total there are 100 subjects who responded to the questionnaire, the percentage of those who agreed with the statement is 24/100, 24% of the group. Thus, if there is no difference between the group of respondents who own farms in the lowlands, the group of respondents who have holdings in the hill and the group of respondents who own farms in the mountains (the null hypothesis), then 24% of respondents who have farms in the lowlands (0.24 x 51 = 12.24), 24% of respondents who own farms in the hilly (0.24 x 38 = 9.12) and 24% of respondents who own farms in the hilly (0, 24 x 11 = 2.64) should be agreed with the statement (theoretical frequency) (Table no. 2.).

Formula's Chi-square (χ^2) [14]:

$$\chi^2 = \sum \frac{(O-E)^2}{E}$$

where:

- O = observed frequency (frequency effect occurs);
- E = Expect frequency (frequency probable theoretically expected frequency).

Table 2. Calculation of the expected theoretical frequencies

Specification	Yes	Not	Total
Plain			
Observed	42	9	51
Probable (theoretical expected)	38.76	12.24	
Hill			
Observed	33	5	38
Probable (theoretical expected)	28.88	9.12	
Mountain			
Observed	1	10	11
Probable (theoretical expected)	8.36	2.64	
Total	76	24	100

Source: Data processing by:,, Questionnaire Arges county farmers association" [7];

Table 3. Calculation of Chi-square (χ^2)

O - E	(O – E) ²	(O – E) ² / E
3.24	10.50	0.27
4.12	16.97	0.59
-7.36	54.17	6.48
-3.24	10.50	0.86
-4.12	16.97	1.86
7.36	54.17	20.52
Calculated Chi-Square (χ2)=		30.58***

Source: Data processing by:,, Questionnaire Arges county farmers association" [7];
Note: (*) significantly distinct, (**) significant (***) very significant;

Choosing the materiality level or α and calculating the number of degrees of freedom of the table as [14]: (r-1) * (c-1); (example: (3-1) * (2-1) = 2), where ,,r,, is the number of rows and number of columns is ,,c,, , on the basis of these data, it takes in the value of χ2 distribution table, theoretical χ.

Searching the table of significance at df = 2 (df = degrees of freedom), we see that df = 2 has a value of 9.21 at p <0.01.

Comparing the results obtained [5] that there are situations:

- If the null hypothesis is rejected and so there is a potential association or relationship between variables;
- If it admits the existence of a null hypothesis and so there is an association or potential relationship between the variables studied.

The value obtained by Chi-square 30.58*** is very significant. This tells us that the null hypothesis should be rejected.

To determine which category made major contributions to achieving waste is calculated standardized differences (R). Formula is:

$$R = \frac{O - E}{\sqrt{E}}$$

This formula is applied in each situation. If waste is standardized is greater than 2 (in absolute value, regardless of sign) we believe that the item has brought an important role in obtaining a significant χ^2.

Note the use of **chi-square test** (χ^2):

For tables of type 2 x 2 contingency is necessary to apply a correction, called Yates correction for continuity. It operates a decrease of 0.5 the difference between the observed and theoretical (expectations, probably) before picking up the square [14]:

$$\chi^2 = \sum \frac{(O - E - 0,5)^2}{E}$$

Also to evaluate the survey data were used and the contingency coefficient C and Pearson's correlation coefficient V of Cramer. These two factors similar functions and are used to identify the association between two nominal variables (categorical) whose conduct is greater than 2 x 2, can reach 10 x 10.

C contingency coefficient of Pearson's formula can be generalized to any number of rows and columns. To calculate the coefficient C but first we need to know the value of χ2. Deficiency of this factor appears to be the formula below and is that it can never take the value 1, even if a perfect combination. Thus, for a 3 x 3 table type, the maximum attained is 0.82, for a type 4 x 4 it reached 0.87. As the size of the table increases, the limit of C is moved to 1, so that the respective coefficient is recommended especially in the case of large contingency tables (rows or columns 7-8 of the above). Here's the formula C:

$$C = \sqrt{\frac{\chi^2}{N + \chi^2}}$$

To overcome this impasse the subunit value, Cramer Association proposes the following coefficient, size can achieve the value 1:

$$V = \sqrt{\frac{\chi^2}{N(s-1)}}$$

where are needed:
- $\chi 2$;
- N - the total number of subjects in the study;
- s - the lowest number of rows and number of columns.

Interpretation of C, and V is theoretically based on the idea that an outcome as close to 1 indicates a positive correlation, and a negative coefficient indicates an inverse association. It can be said that the two variables there is an association.

RESULTS AND DISCUSSIONS

In this paper we analysed and interpreted some of the data obtained using a questionnaire that was applied to agricultural producers and the presidents of association , being pursued their vision on ways to modernize deemed necessary for the development of farms in the county of Arges. The results, in conjunction with theoretical analysis allowed pragmatic perspectives on agriculture in Arges county through the vision of farmers in the study.

Table 3. Structure of the opinion of chairmen of the forms of association on the means of modernization concerning the Increase development of exploitation in the year 2011

Specification	**Unit Size**	**Yes**	**Not**	**Total**	
		No.	**No.**	**No.**	**%**
Cultivars	Nr.	18	7	25	-
	%	72%	28%	-	100
Mechanization	Nr.	21	4	25	-
	%	84%	16%	-	100
Irrigation	Nr.	11	14	25	-
	%	44%	56%	-	100
Culture technology	Nr.	15	10	25	-
	%	60%	40%	-	100
	%	72%	28%	-	100

Source: Data processing by:,, Questionnaire Arges county farmers association" [7];
Note: (*) significantly distinct, (**) significant (***) very significant;

Analysing data obtained on farmers' opinion and of association presidents about ways to modernize the production and hence increase farm profitability, we find that they differ from the ways of upgrading their attention, such as:
- to upgrade competitive varieties using 76% of farmers were to use them and 24 % felt that the quality is not relevant varieties to increase farm profitability . Note that 72 % of the presidents of association surveyed agreed with the importance of varietal characteristics used and 28 % considered this issue irrelevant (Table 3 and Table 4).
- interestingly respondents answer on the implementation of the irrigation system as follows: 41% (or 44 %) felt that irrigation is a way to increase farm profitability and 59% (respectively 56 %) felt that they did not influence directly increase profitability (Table 3 and Table 5).
- to the size of farm mechanization level , we see that 86% of farmers (84% of presidents) considered beneficial activities increased mechanization of farms , and 14% (16%) considered irrelevant this to increase farm profitability (Table 3 and Table 6).

Table 4. Structure opinion on the varieties farmers as a way to modernize the farm in 2011

Cultivars					
After landform	Unit Size	Yes	Not	Total	
		No.	No.	Nr.	%
Plain	No.	42	9	51	51
Hill	No.	33	5	38	38
Mountain	No.	1	10	11	11
Total	No.	76	24	100	
	%	76	24		100
The Residue Standardized					
Plain	No.	0.52	-0.93		
Hill	No.	0.77	-1.36		
Mountain	No.	**-2.55**	**4.53**		
Calculated Chi-Square =	**30.58*** **	Critical value (theoretical)=	1.39	p > 0.5(*)	
			4.61	p > 0.1(**)	
Degrees of freedom =	2		**9.21**	**p > 0.01(***)**	
Cramer's V =	**0.55**	Pearson's C =	**0.48**		

Source: Data processing by:,, Questionnaire Arges county farmers association" [7];
Note: (*) significantly distinct, (**) significant (***) very significant;

- the relevance towards of quality crop technologies 72% (or 60 %) felt that they are essential in increasing the profitability of farms , and 28 % (respectively 40%) felt that they are not the deciding factor in increasing profitability (Table 3 and Table 7).

The statistical test of association on ways to modernize farm development by landform located that match the holdings held by interviewees noted that the modernization of the varieties depending on where they are located landform farms studied, it is found that there is a very significant association between farmers' opinion on the type of relief the problem analysed (chi-square = 30.58 ***; critical value = 9.21 at a probability <0.01), we see that the large distribution of respondents who consider a method of upgrading varieties are in the plains (42 respondents), and the analysis of R (standardized residual) significant differences are observed especially in terms of respondents who consider / not consider varieties method modernization with farms located in the mountains towards farms located in different areas of relief, however we were allowed to issue the conclusion that the method of upgrading choosing varieties for farm relief area is influenced by where they stand (Table 4).

Also the interpretation of Pearson's C, and Cramer's V, in this case it can be said that among the respondents' opinion on the varieties as a way to modernize the farm and location of farms owned by respondents (Pearson's C = 0.48, Cramer's V = 0.55), no association between the aspects considered, the method of choice varieties for agricultural modernization is influenced by the relief where they stand (Table 4).

The modernization by implementing irrigation by landform where farms are located studied, it appears that there is a significant association between farmers view (Chi-square = 6.25 **; critical value 4.61 at a probability <0.1), and the largest distribution of respondents who do not consider implementing a method of irrigation modernization in the lowlands (33 respondents), and the analysis of R (standardized residual) did not observe significant differences in terms of respondents who consider / not consider implementing a method of irrigation modernization and relief area where farms are found respondents however allowed us to issue the conclusion that failure to elect the method of implementation of irrigation systems for agricultural modernization not influenced by the relief where they stand (Table 5).

Table 5. Structure opinion farmers on irrigation as a way to modernize the farm in 2011

Irrigation					
After landform	Unit Size	Yes	Not	Total	
		No.	No.	No.	%
Plain	No.	18	33	51	51
Hill	No.	21	17	38	38
Mountain	No.	2	9	11	11
Total	No.	43	57	100	
	%	41	59		100
The Residue Standardized					
Plain	No.	-0.64	0.53		
Hill	No.	1.37	-1.14		
Mountain	No.	-1.18	0.99		
Calculated Chi-Square =	**6.25****	Critical value (theoretical)=	1.39	p > 0.5(*)	
			4.61	**p > 0.1(**)**	
Degrees of freedom =	2		9.21	p > 0.01(***)	
Cramer's V =	**0.25**	Pearson's C =	**0.24**		

Source: Data processing by:,, Questionnaire Arges county farmers association" [7];
Note: (*) significantly distinct, (**) significant (***) very significant;

Analysing opinion on modernizing the mechanization of farms depending on where they are located landform farms studied, it appears that there is a distinct significant association between farmers view (Chi-square = 3.83 **; critical value = 1.39 at probability <0.5), and the largest distribution of respondents who consider mechanization method of upgrading is in the plains (47 respondents), and the analysis of R (standardized residual) is not observed significant differences in the respondents who consider / not consider a method of modernization and mechanization of the farms found relief where respondents however allowed us to issue the conclusion that the method of upgrading choice for mechanized

farming is not influenced by the relief where they stand (Table 6).

Table 6. Structure opinion on mechanization to farmers as a way to modernize the farm in 2011

Mechanization					
After landform	Unit Size	Yes	Not	Total	
		No.	No.	No.	%
Plain	No.	47	4	51	51
Hill	No.	31	7	38	38
Mountain	No.	8	3	11	11
Total	No.	86	14	100	
	%	86	14		100%
The Residue Standardized					
Plain	No.	0.47	-1.18		
Hill	No.	-0.29	0.73		
Mountain	No.	-0.47	**1.18**		
Calculated Chi-Square =	**3.83***	Critical value (theoretical)=	**1.39**	**p > 0.5(*)**	
			4.61	p > 0.1(**)	
Degrees of freedom =	2		9.21	p > 0.01(***)	
Cramer's V =	**0.20**	Pearson's C =	**0.19**		

Source: Data processing by:,, Questionnaire Arges county farmers association" [7];
Note: (*) significantly distinct, (**) significant (***) very significant;

The statistical test of association on ways to modernize farm development by landform located that match the holdings held by interviewees noted that the modernization of culture technologies depending on where they are located landform farms studied it appears that there is a significant association between farmers view by landform analysed the problem (Chi-square = 18.04, critical value = 9.21 at a probability <0.01), and that most distribution of respondents who consider a method of upgrading technologies is growing in the lowlands (39 respondents), and the analysis of R (standardized residual) significant differences are observed especially in terms of respondents who consider / not consider culture technologies a method of upgrading with farms located in the mountains to the farms located in different areas of relief, however we were allowed to issue the conclusion that the method of upgrading choosing varieties for farm relief area is influenced by where they stand (Table 7).

Table 7. Structure opinion farmers on crop technologies as a way to modernize the farm in 2011

Culture technology					
After landform	Unit Size	Yes	No.	Total	
		No.	No.	No.	%
Plain	No.	39	12	51	51
Hill	No.	31	7	38	38
Mountain	No.	2	9	11	11
Total	No.	72	28	100	
	%	72	28		100
The Residue Standardized					
Plain	No.	0.38	-0.60		
Hill	No.	0.70	-1.12		
Mountain	No.	**-2.10**	**3.37**		
Calculated Chi-Square =	**18.04*****	Critical value (theoretical)=	1.39	p > 0.5(*)	
			4.61	p > 0.1(**)	
Degrees of freedom =	2		**9.21**	**p > 0.01(***)**	
Cramer's V =	**0.42**	Pearson's C =	**0.39**		

Source: Data processing by:,, Questionnaire Arges county farmers association" [7];
Note: (*) significantly distinct, (**) significant (***) very significant;

Also the interpretation of Pearson's C, and Cramer's V, in this case it can be said that among the respondents' opinion on the technologies of culture as a way of upgrading a holdings and location of farms owned by respondents (Pearson's C = 0.39, Cramer's V = 0.42), no association between the aspects considered, the choice of the method of culture technologies for agricultural modernization is influenced by the relief where they stand (Table 7).

CONCLUSIONS

1. After data analysis, it is noteworthy similarity with the farmers opinion presidents of association, given that they were interviewed separately by the two questionnaires.
2. By prioritizing the modernization of farm horses put to the attention of farmers, it appears that the method of upgrading mechanization choice (86%) were not influenced by the relief where farms are found placed, followed by varieties (76%) and technology culture (72 %) as the method of upgrading but their choice is influenced by the

relief where it is found located holdings held by respondents.

3. Interestingly, respondents answer on the implementation of the irrigation system as follows: 41% (or 44%) felt that irrigation is a way to modernize farms and 59% (respectively 56%) felt that they did not directly influence farm modernization.

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