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Farmers' Adaptation: What Factors Affecting Agricultural Innovations?

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CONTENTS

1. Introduction

The aim of the research is to present the results about innovation activity of different farm groups and factors affecting agricultural innovations.

Data for analysis is based on a representative of the country survey among 333 farmers in 2013.

2. Methodology

- Rogers' model for farms grouping, according the level of innovation intentions;
- statistic groupings;
- method of weighted averages;
- econometric modeling for establishment of quantitative relation between farms' economic potential and innovation activity level;
- statistical analysis and survey method.

2. Methodology

- The farmers' intentions have been analyzed in the following ***innovation areas***:

- agricultural machines, technique, equipment; production technologies;
- crop varieties; animal breeds; biological methods and preparations to fight diseases and pests;
- methods and medicines for animals' treatment; irrigation methods; information technologies.

2. Methodology

The included in the research factors have been generally divided in motivating, demotivating and social-demographic characteristics of the farm manager; and economic-production factors:

- economic size of the farm;
- production specialization;
- field production conditions of the farm:
- plains, hills and mountains;
- type of the implemented agricultural system: traditional or biological; duration of farms' functioning.

2. Methodology

The group of ***motivating factors*** the agricultural innovation are:

1) Production: Receiving of higher yields; Obtaining of higher livestock productivity;

2) Economic (financial): Realization of higher profit;

3) Social: Time saving;

4) *Ecological*: Lower environment pollution and nature protection.

2. Methodology

The group of ***demotivating factors*** having negative impact on the decision taking for innovations implementation in farms are the following:

1) Financial: Lack of necessary financial funds;

2) Market: Lack of enough markets for agricultural innovations; Lack of necessary information for innovations in agriculture;

3) Social-psychological: Unwillingness for risk taking at the implementation of innovations in agriculture; Attachment to old production methods and means;

4) Subjective: Lack of necessary qualification and skills.

2. Methodology

The idea is to define the degree of economic size of the farms based on the regression models. Using the obtained quantitative expression of the regression between SPV and level of real innovation activities we define a new farm structure by SPV.

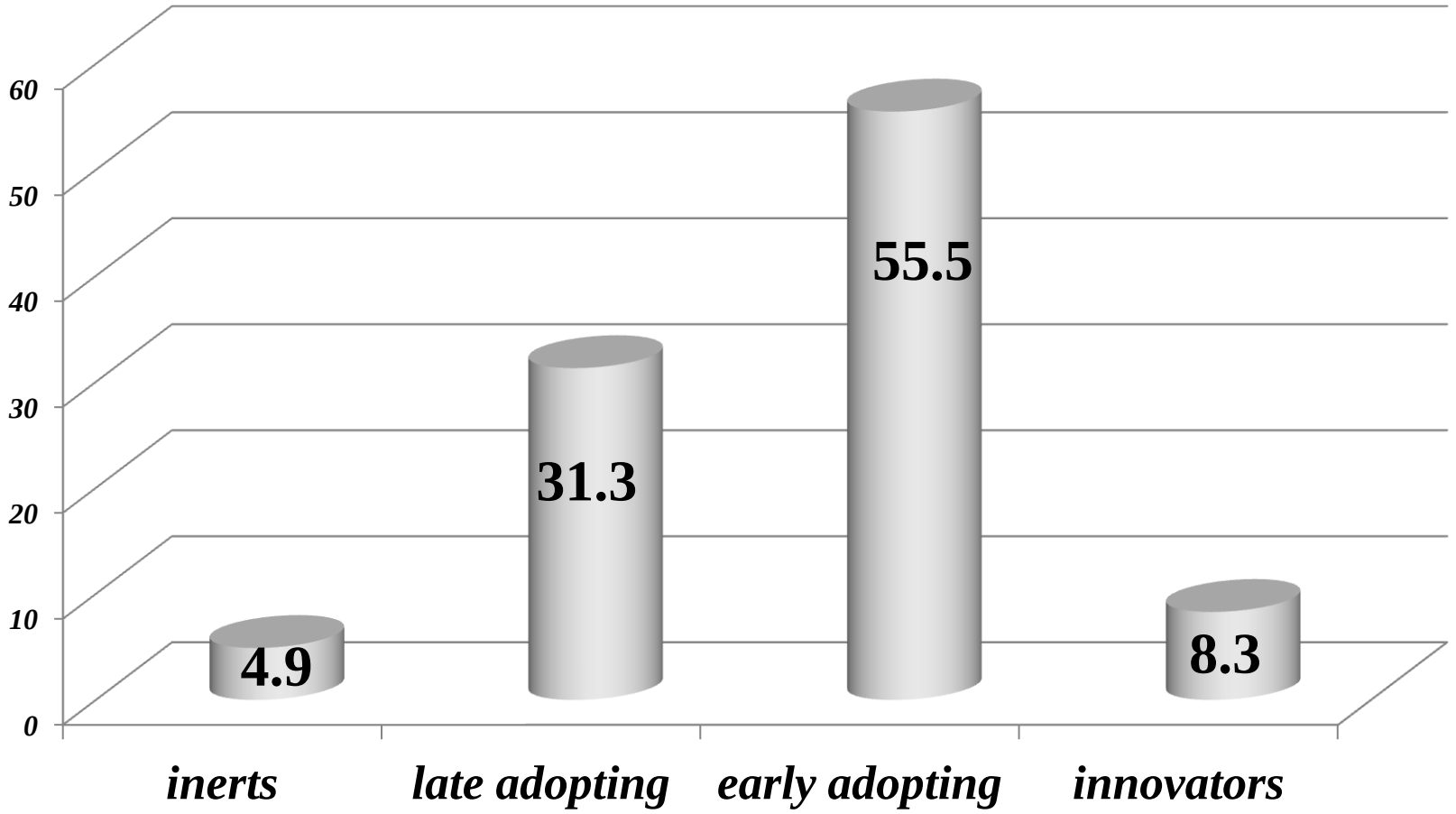
The specified groups of farms are the following:

- the first group includes farms with (SPV) up to 4000 EUR
- the second – farms with SPV between 4000 and 8000 EUR
- the third – farms with SPV between 8000 and 16000 EUR.

3. Survey Results

According to the results obtained on the model of Rogers, there is a prevalence of farms qualified as early-adopting agricultural innovations

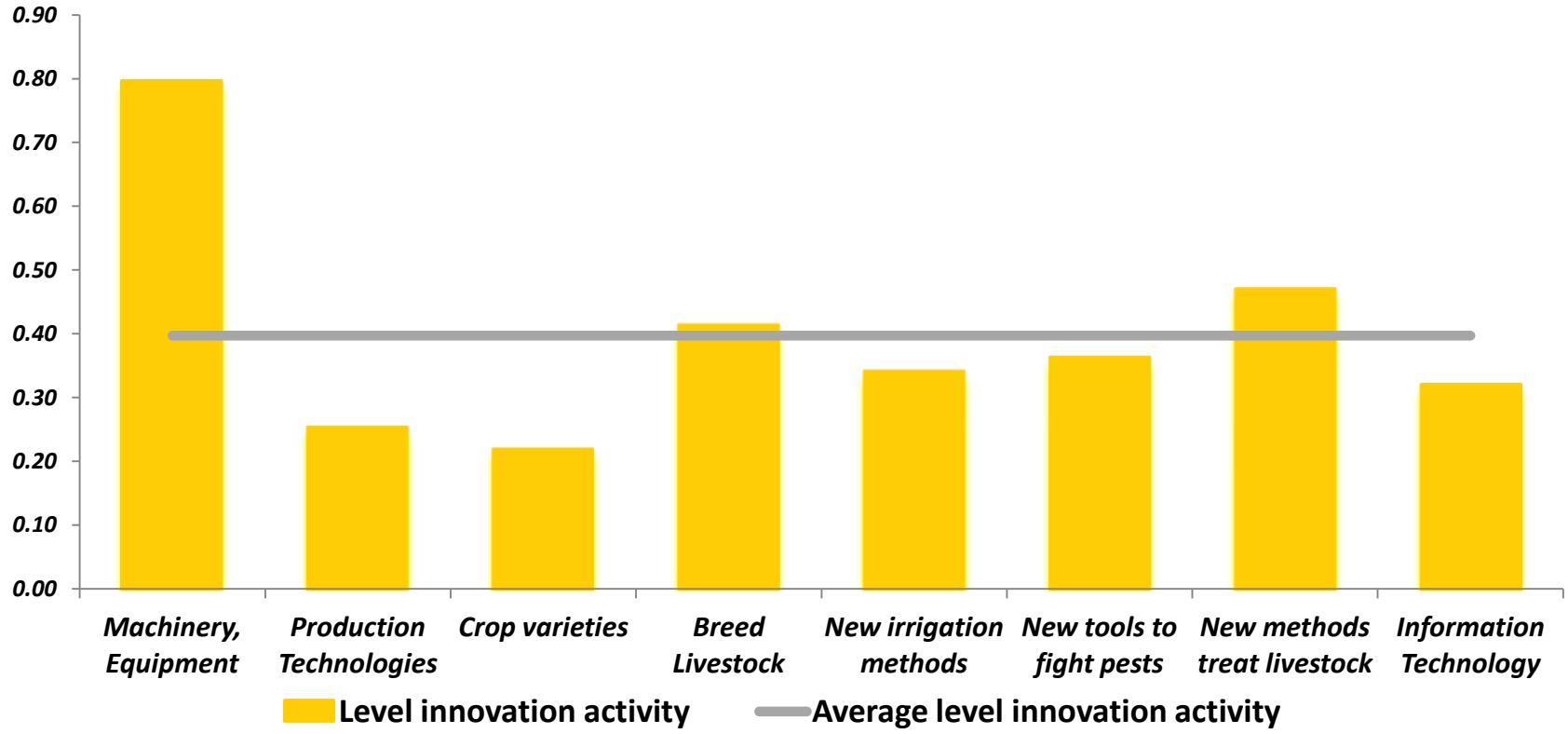
Fig. **Main farms groups, according their intentions to innovations**



3. Survey Results

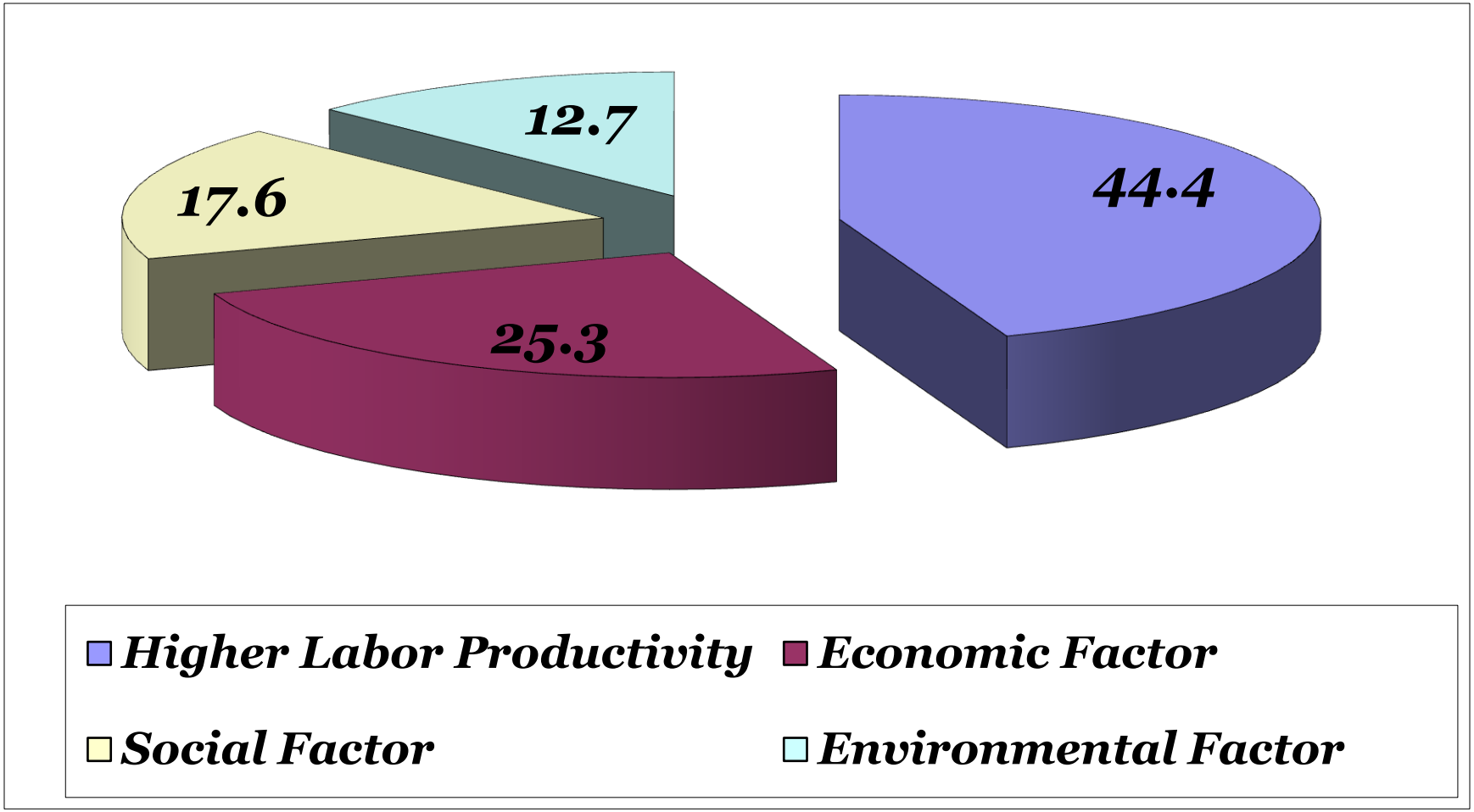
Among the innovators' group, the early-adopting and the late-adopting farmers, the strongest interest is in the implementation of new agricultural machines, technique and equipment

Fig. Level of innovation activity to different kinds of innovations



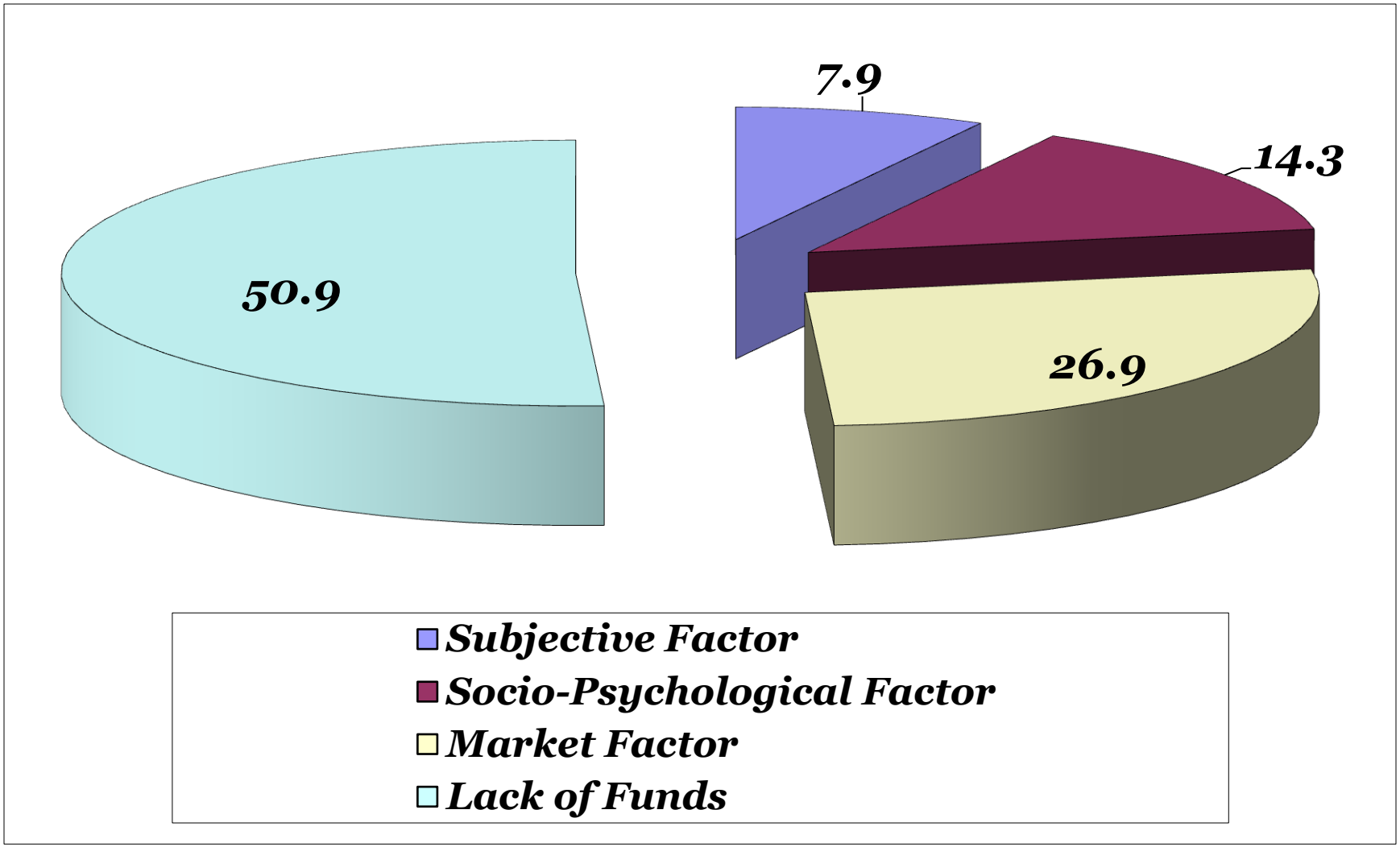
3. Survey Results

The importance of different factors for the formation of positive attitude to innovations in agriculture could be seen on Fig. **Structure of factors motivating the innovations' implementation** %



3. Survey Results

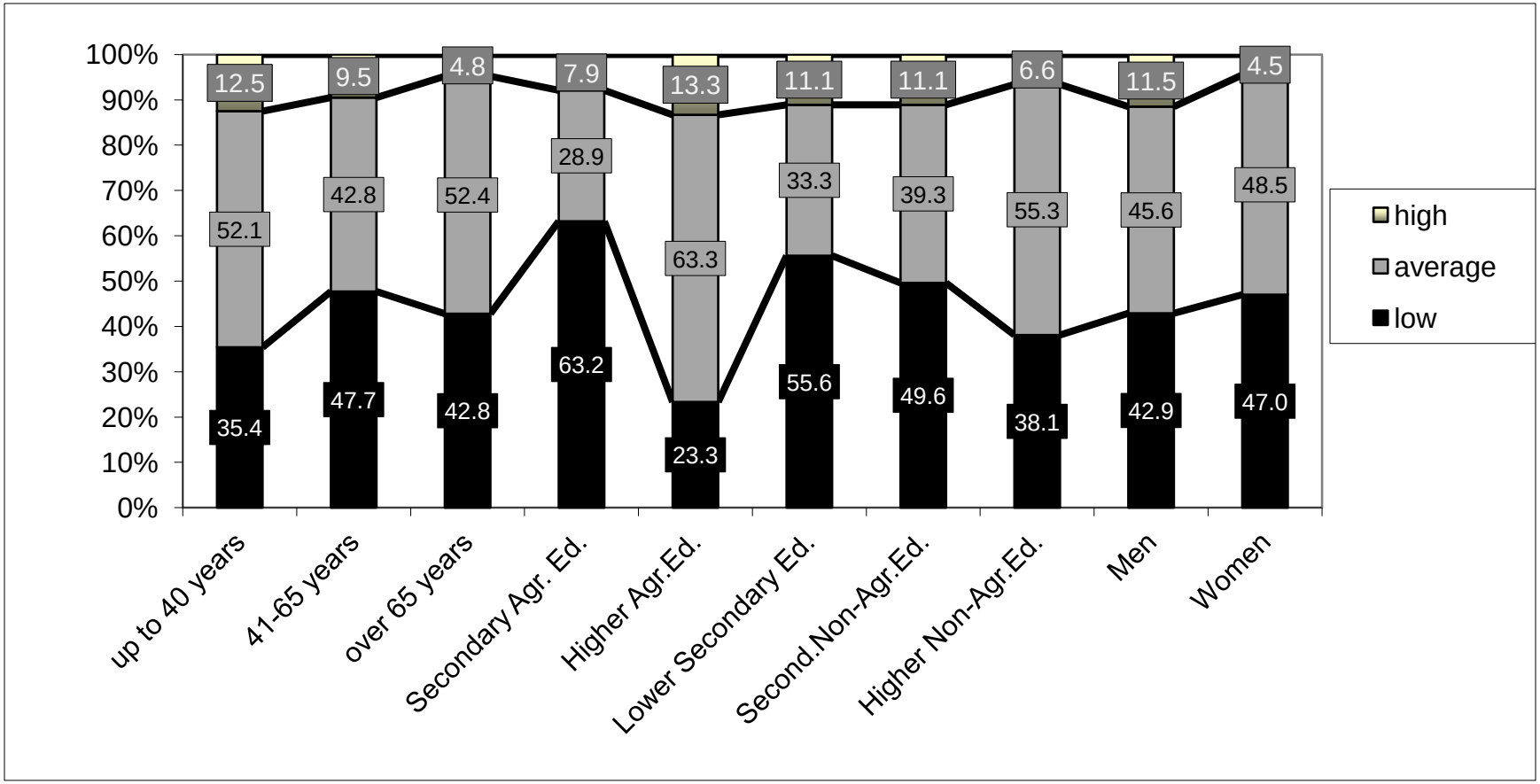
Structure of factors having the highest negative impact on the lack of willing to implement innovations %



3. Survey Results

Almost twice lower is the share of agricultural specialists with higher education with low level of innovation activity (23,3%) in comparison to the share of this group in all analyzed aggregation (44,1%)

Fig. Level of innovation activity in farms, according their social-demographic profile



3. Survey Results

The younger farmers from the age group up to 40 have higher activity, over the average for the sample.

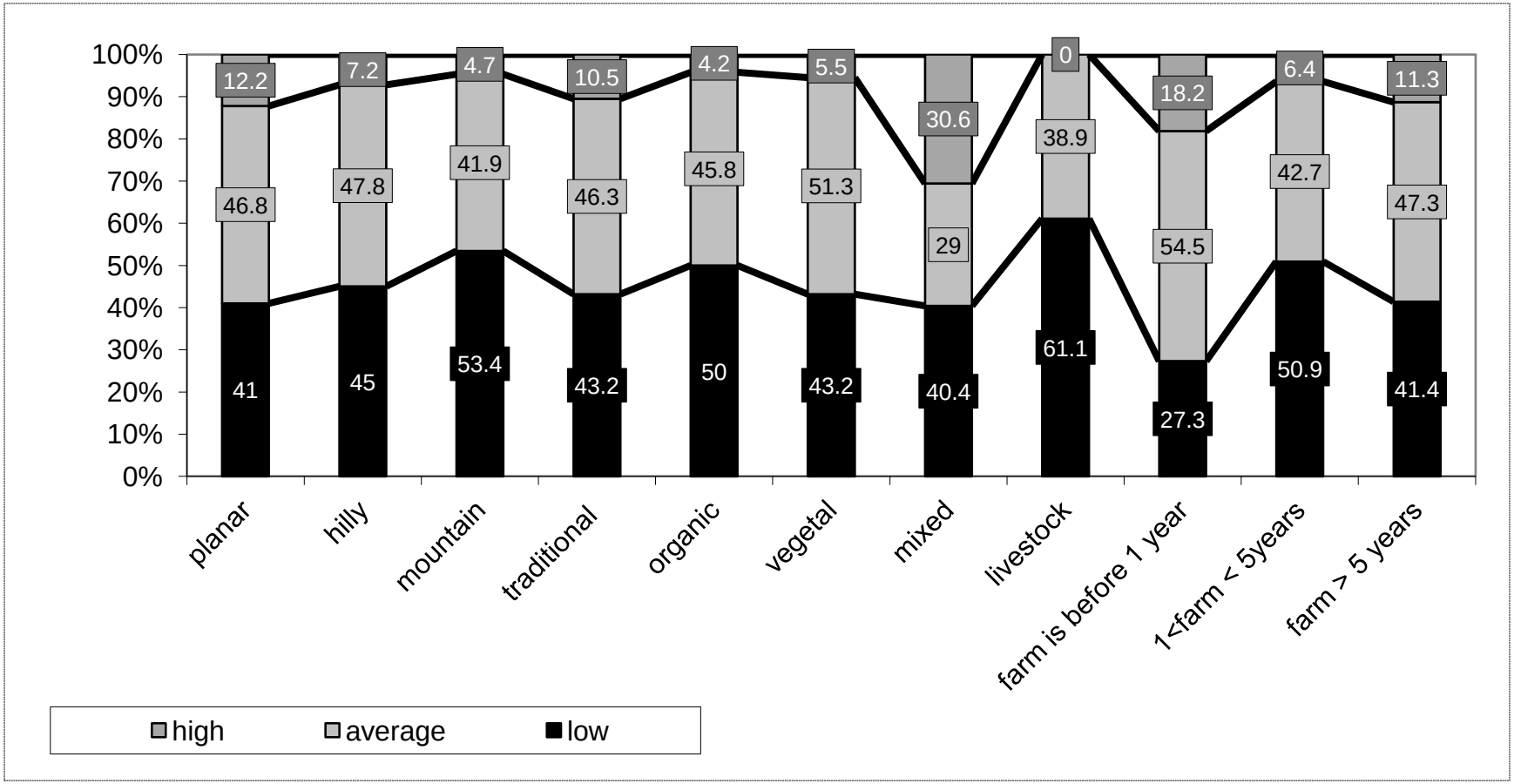
The research has shown that some common characteristics of farms affect also the formation of respective interest to agricultural innovations. These characteristics are classified in the following groups:

- production method – traditional (conventional) and predominantly traditional or organic and predominantly organic;
- production direction;
- duration of farm's functioning from its creation until the moment of survey leading

3. Survey Results

The farms typology, according their production direction, has relatively bigger importance. Farms of mixed type have the highest orientation to innovations .

Fig. Level of innovation activity, according some farms' typological characteristics



3. Survey Results

Results about the quantitative assessments of the farms' economic potential in relation to the innovation activity show that on average, one farm from the group having CPV up to 4000 EUR will increase its economic size of 28,1% , at a condition to implement at least one innovation.

For the group with size from 4000 to 8000 EUR this increase would be of 47%.

4. Conclusions

- The majority of farmers fall within group early-adopting agricultural innovations in accordance with the Rogers` model and accordingly they have an average level of innovative activity;
- The distribution of different motivating and demotivating factors and of funding sources are similar in the three groups of farmers (innovators, early-adopting and late-adopting innovations).
- Priority among motivating factors are these with production-economic character (higher production results and respectively higher economic effects). The social and particularly the ecological factor are in backward position.

4. Conclusions

- In the structure of demotivating factors the lack of financial resources has primordial importance, followed by the lack of enough developed markets for innovation in agriculture.

- The existing dependence between the innovation activity level and the main characteristics of farms, as their typological profile, economic vision and juridical state is moderate.

4. Conclusions

- There is a strong dependence between the economic size and the level of their innovation activity.
- The strongest interest to implementation is manifested regarding the new agricultural machinery, technique and equipment. For them the degree of innovation activity is almost twice higher than the average for all innovations.
- For the formation of the potential attitude to innovations in the sector, the most significant indicators turned out the education degree of farmers and the juridical state of farms.

Thank you for your attention!