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# **A Study on Market Inclusion through Enhanced Eco-management in Bulgarian Farms**

**Hrabrin Bachev<sup>1</sup>**

**Abstract:** Enhancing environmental performance is a prospective way for increasing market inclusion, effectiveness and sustainability of small-scale farms in Eastern Europe and Central Asia. Nevertheless, with very few exceptions, there are no studies on forms, factors and efficiency of “eco-driven” market inclusion of smallholders in modern supply chains in Bulgaria. This paper presents findings of a first large-scale study on state, driving forces, and efficiency of market inclusion of farms through enhanced eco-management in Bulgaria. First, we identify diverse forms of eco-management in farms with different size, market orientation, product specialization, and location. Second, we assess costs, effects, and efficiency of eco-management, including the extent it contributes to increased market inclusion of farms. Third, we specify critical personal, economic, contractual, institutional, etc. factors of managerial choice in the eco-active farms. Finally, we estimate perspectives of expansion of this particular mode of market inclusion, and suggest directions for improving public policies and business strategies of smallholders.

## **Introduction**

Enhancing environmental performance is a prospective way for increasing market inclusion, effectiveness and sustainability of small-scale farms in Eastern Europe and Central Asia, and around the globe (Bachev, 2011a; Biénabe, Berdegué, Peppelenbos and Belt; Bitzer, Wijk, Helmsing, and Linden; Harris, Brown, Barrett, and Cadoret; Guidi; Marscheke and Wilkings; Silva, Leite, Clemente, and Perez; Murphy; Perez-Aleman; Prato and Longo; Sharma, Kumar, and Singh; Taylor; Torero; Vorley, Ferris, Seville, and Lundy). Eco-management improvement in the region has been driven by the increasing consumers and market demands for environmentally sound agriculture, the evolving requirements of vertical counterparts (suppliers, processors, retailers, exporters) for eco-friendly practices, novel institutional restrictions and opportunities (officially introduced new eco-standards and new public support measures for eco-compliance and eco-products), diverse private initiatives and collective actions of farmers (various professional codes of eco and related behavior, eco-norms, eco-performance), etc.

With very few exceptions (Bachev, 2011b, 2014) there are no studies on forms, factors and efficiency of “eco-driven” market inclusion of smallholders in modern supply chains in Bulgaria.

This paper presents findings of a first large-scale study on state, driving forces, and efficiency of market inclusion of farms through enhanced eco-management in Bulgaria. The study is based on a 2014 survey with 259 “eco-active” individual and family farms (Physical Persons)<sup>2</sup>.

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<sup>2</sup> The survey was carried out during the National Agricultural Advisory Service's training on the Measure 214 “Agri-environmental payments” of the National Program for Agrarian and Rural Development (NPARD). The training

The biggest proportion of surveyed holdings is self-determined as small (49%) or “semi-market” (15,1%) producers, 30,9% are middle sized, while the rest (1,9%) are large enterprises. A major part of the studied farms is specialized in permanent crops (34,7%), field crops (17,4%), mix crop-livestock production (14,3%), vegetables and mushrooms (11,2%), mix livestock production (10,8%), and mix crop production (7,7%), while a small portion is in grazing livestock (1,9%), beekeeping (1,5%), and pigs, poultry and rabbits (0,8%). Investigated farms are predominately located in plain (59,8%) and plain-mountainous (25,5%) regions, with a petite share in mountainous regions (8,9%), with lands in protected zones and territories (5,4%), in less-favored mountainous regions (6,9%), and in less-favored regions different from mountainous (3,5%)<sup>3</sup>.

First, we identify diverse forms of eco-management in farms with different size, market orientation, product specialization, and location. Second, we assess costs, effects, and efficiency of eco-management, including the extent it contributes to increased market inclusion of farms. Third, we specify critical personal, economic, contractual, institutional, etc. factors of managerial choice in the eco-active farms. Finally, we estimate perspectives of expansion of this particular mode of smallholders’ market inclusion, and suggest directions for improving public policies and business strategies of small-scale producers.

In this study we have broadly incorporated the framework for assessing the system of agri-environmental management presented in our previous publication (Bachev, 2014).

### **Forms and scope of environmental management**

Knowledge and implementation of principles of environmentally friendly agriculture is the base and determine the internal capability for effective eco-management in farms. None of the surveyed farms believe that it is “not important to know” the principles of environmentally sustainable agriculture, which proves a good understanding of the importance of eco-management integration in the overall farm management.

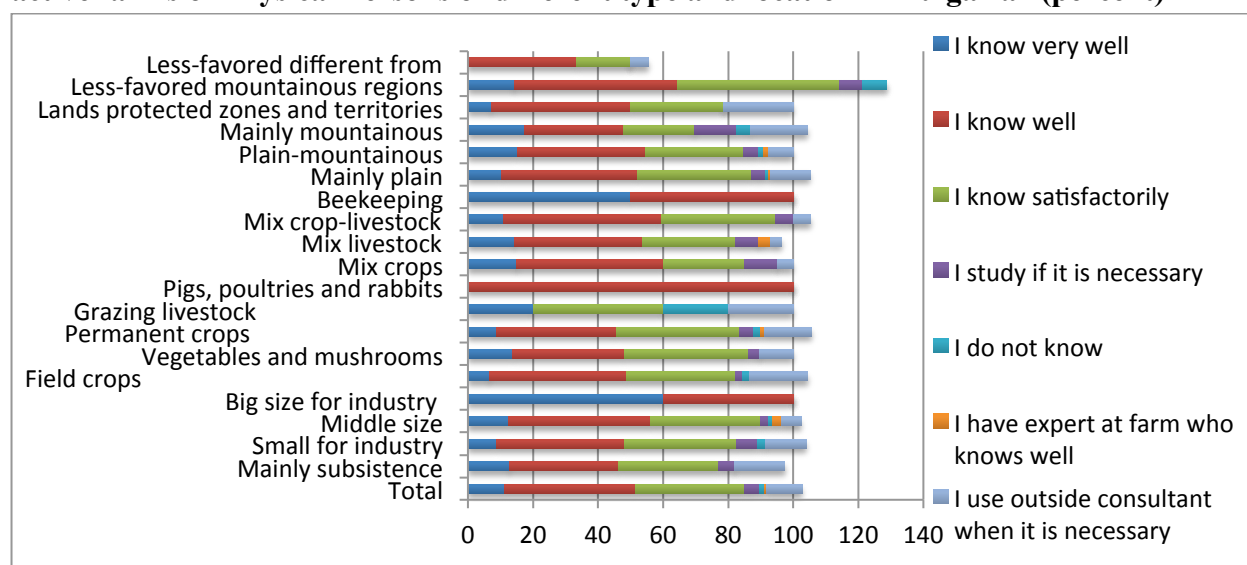
According to the more than a half of surveyed farmers, they know “well” or “good” the principles of environmentally friendly agriculture (Figure 1). With relatively higher internal capability for eco-management are the bigger holdings, farms with mix productions, and those with lands in less-favored mountainous regions. A small portion of farms improves the eco-capability by hiring an expert as 0,8% point out that they “have specialists in the farm, who knows well principles of environmentally friendly agriculture”.

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was free of charge and mandatory for all beneficiaries. Therefore, interested farmers had strong incentives and low costs (time for traveling and training, etc.) for participating. The survey covered 0,38% of all farms in the country registered according to the Regulation № 3, 1999 for creation and maintaining a register of agricultural producers.

<sup>3</sup> Structure of surveyed farms by size, specialization and location approximately corresponds to the real structure of holdings of Physical Persons in the country. Nevertheless, among the eco-active farms there are relatively more specialized in permanent crops in comparison with other directions of production.

**Figure 1. Extent of knowledge of principles of environmentally friendly agriculture in eco-active farms of Physical Persons of different type and location in Bulgaria\* (percent)**



Source: survey with agricultural producers, May 2014

\*multiple answers

Besides, more than a tenth of surveyed farms “use outside consultant if it is necessary”, as the form of external supply with eco-knowledge is most popular among holdings which are predominately for subsistence (15,4%) and with a small size (12,6%), those specialized in grazing livestock (20%), field crops (17,8%) and permanent crops (14,4%), and holdings located in mountainous regions (17,4%), and with lands in protected zones and territories (21.4%).

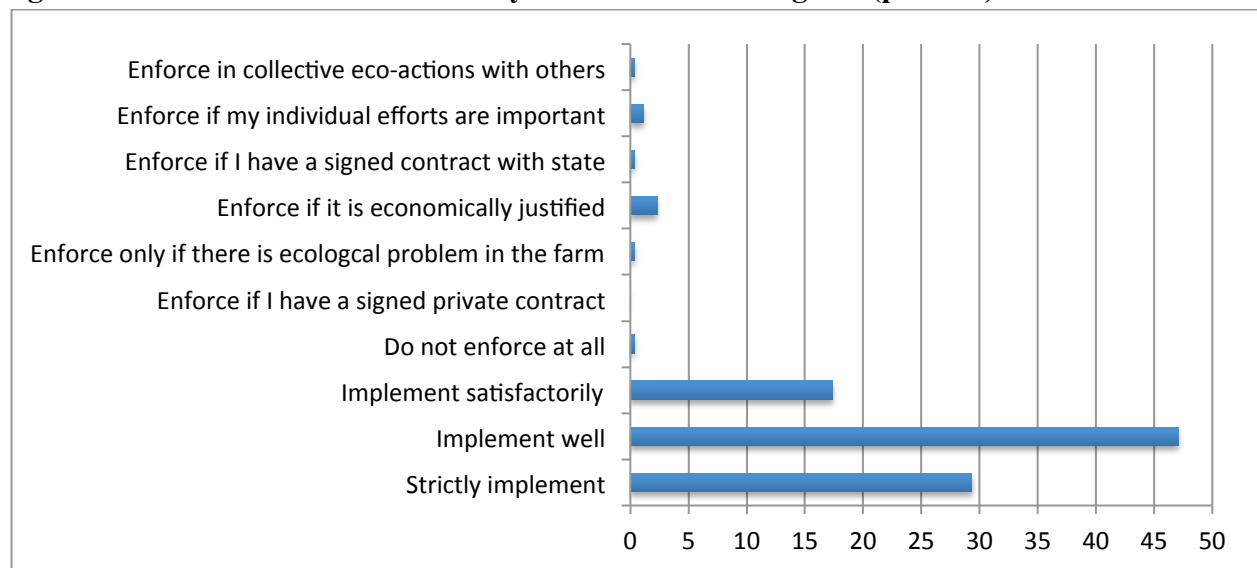
However, in a third of the eco-active farms the level of competency in environmentally sustainable agriculture is “satisfactory”. The later indicates that the internal capability for effective eco-management is low in a considerable portion of farms. The highest share of holdings with such features are among those specialized in grazing livestock (40%), vegetables and mushrooms (37,9%), permanent crops (37,8%), and mix crop-livestock productions (35%) as well as farms located in plain regions (34,8%), and in less-favored mountainous regions (50%).

Moreover, some farms (4,6%) study eco-principles “only if that is necessary”, while a small proportion of them (1,5%) reports they “do not know” the principles of environmentally sound agriculture. Therefore, in the future more efforts are to be put to improve the eco-competency of farms in groups with low eco-culture through education, training, consultation, advises, etc.

Eco-competency is a necessary but not a sufficient condition for the effective eco-management. Due to various reasons (economic, technological, behavioral, etc.) and/or in different periods of time, farmers not always strictly implement the principles of environmentally friendly agriculture.

According to the majority of eco-active farms they implement “well” (47,1%) or “completely” (29,3%) the eco-principles in agriculture (Figure 2). Nevertheless, the share of farms implementing the later principles “satisfactorily” is not small (17,4%), while those “not implementing at all” are minority (0,4%).

**Figure 2. Extent and conditions of enforcement of principles of environmentally friendly agriculture in eco-active farms of Physical Persons in Bulgaria (percent)**



*Source: survey with agricultural producers, May 2014*

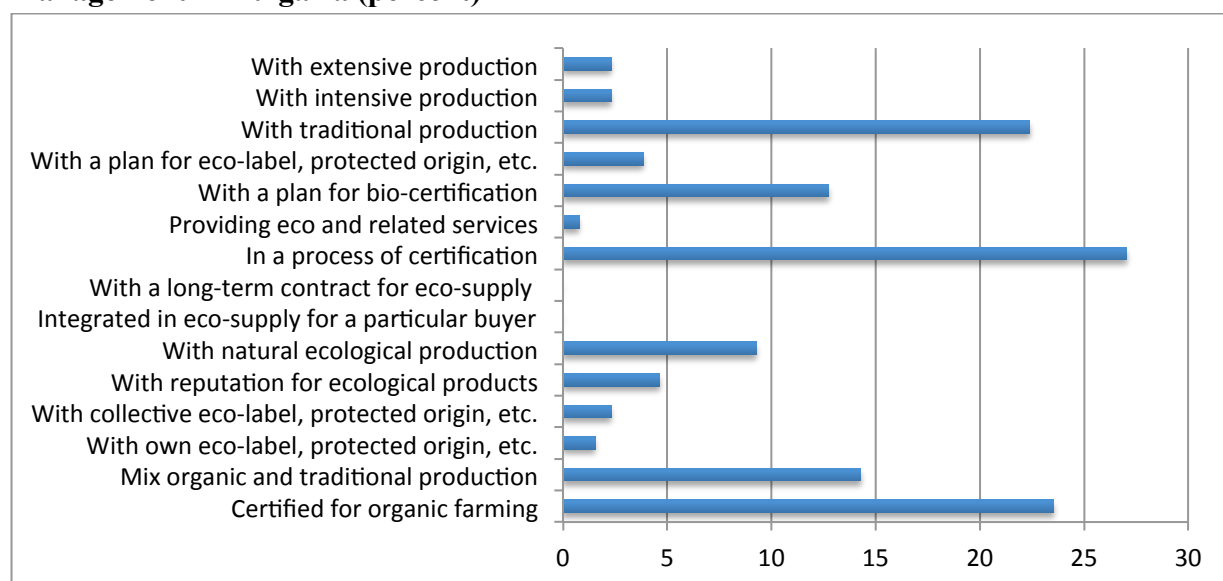
A small fraction of surveyed holdings indicates that implementation and enforcement of eco-principles in the farm depends on certain conditions such as: economic justification, importance of eco-actions, existing ecological problem in the farm, a contract with the state, or collective actions with other agents. For none of the eco-active farms “existence of a private contract” is a condition for implementation of eco-principles, which shows that this particular form is not important at the current stage of development.

Transition to officially certified organic production is a major form for eco-management in Bulgarian farms (Bachev, 2011a, 2014). Here the eco-behavior of agricultural producers is regulated and stimulated by the dynamics of market demands and the premium to market prices of certified organic products. Simultaneously, the authenticity of products and adequacy of the eco-activity with the officially set standards is controlled by independent bodies.

Our survey has confirmed that a relatively bigger portion of the eco-active farms is already “certified for organic production” (23,5%), while another good proportion (27%) is “in a process of certification” (Figure 3)<sup>4</sup>.

<sup>4</sup> Survey covered 51,2% of all farms “certified” or “in a certification process” for organic production in the country.

**Figure 3. Share of eco-active farms of Physical Persons applying different forms of eco-management in Bulgaria (percent)**



Source: survey with agricultural producers, May 2014

Furthermore, a part of the eco-active farms “experiment” with the organic agriculture along with the conventional production, as 14,3% of all surveyed inform they are “with mix organic and traditional production”.

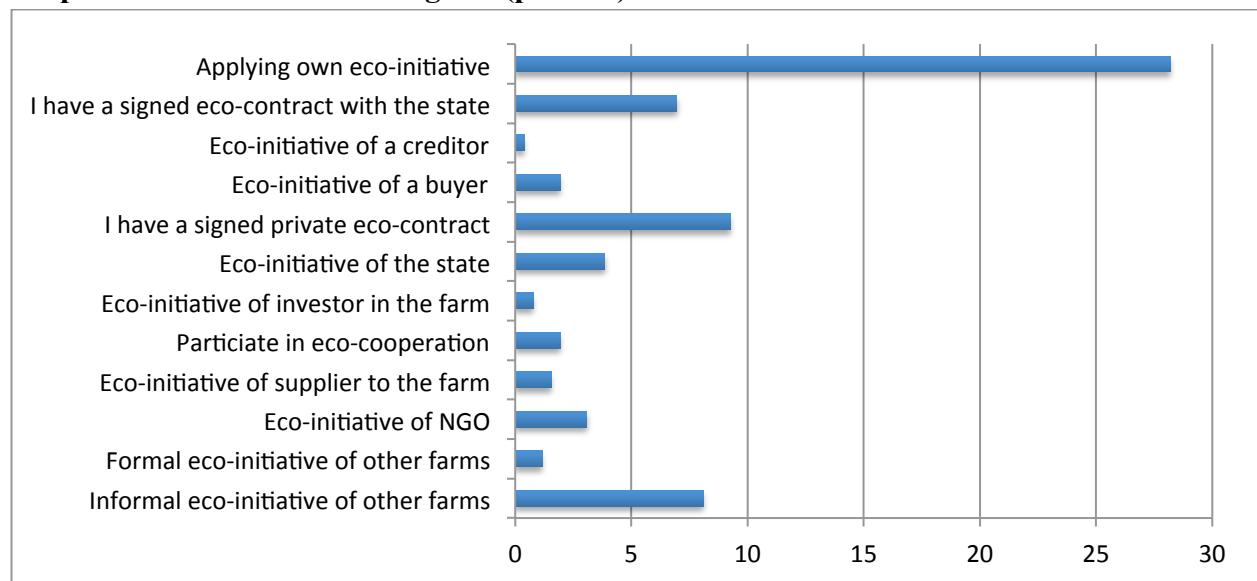
Other private and market forms for eco-management are less used in the eco-active farms – e.g. merely 1,5% of them are “with own eco-label, protected origin, etc.”, 2,3% have “collective eco-label, protected origin, etc.”, and 0,8% “provide eco and related services”. At the same time, none of the surveyed farms is “integrated for eco-supply for a particular buyer” or has a “long-term contract for eco-supply for a particular buyer”.

Nevertheless, there are widely employed informal private and market forms for eco-management as 9,3% of all surveyed holdings point out that they are “with naturally ecologically pure production”, and 4,6% having built a “reputation for ecologically pure products”. Furthermore, 22,4% of the holdings estimates that they are with “traditional production”.

In addition, a good proportion of the surveyed farms are having plans for a “bio-certification” (12,7%) or for “eco-label, protected origin, etc.” (3,9%).

A portion of the eco-active farms also has own initiative or participates in another private, collective or state initiatives for protection of nature (Figure 4). For instance, 28,2% of holdings “implement own eco-initiative”, some implement a contractual form as 9,3% report having “a signed private eco-contract”, while 6,9% “a signed eco-contract with the state”.

**Figure 4. Share of eco-active farms of Physical Persons participating in various initiatives for protection of nature in Bulgaria (percent)**



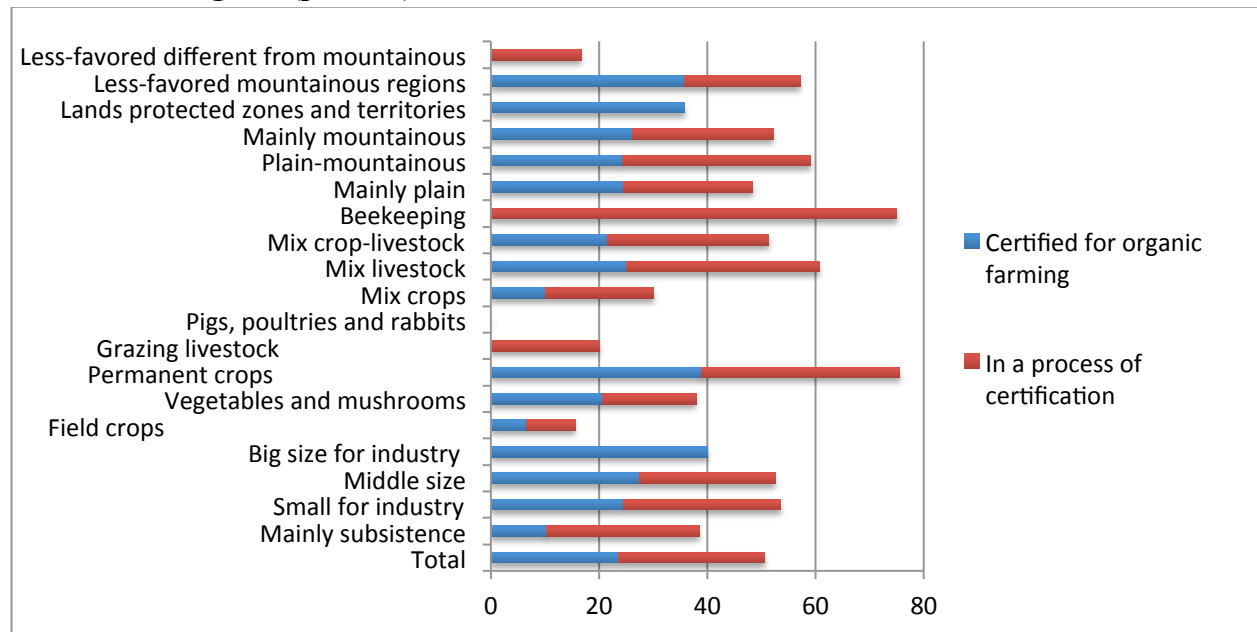
Source: survey with agricultural producers, May 2014

Furthermore, a part of the eco-active farms participate in eco-initiatives of other farms and organizations. For 8,1% of surveyed holdings that is “informal initiative of other farms“, for 3,9% “eco-initiative of the state”, and for 3,1% “eco-initiative of a non-governmental organization”. Besides, a small fraction of all farms participates in “eco-initiative of a buyer” (1,9%), “eco-initiative of the supplier to the farm” (1,5%), “formal eco-initiative of other farms” (1,2%), “eco-initiative of the investor in the farm“ (0,8%), and “eco-initiative of a creditor“ (0,4%).

A fraction of investigated farms (1,9%) also reports that they “participate in eco-cooperative“ (1,9%). The later use the cooperative form for realization of a higher (“collective”) eco-effect or as a necessary condition for participating in some public or private initiative (e.g. public support program, integration strategy of a big buyer, etc.).

“Certified for organic production”, “in a process of bio-certification” or “with a plan for bio-certification” are a good proportion of all eco-farms, where every another one applies (“officially certified” or “in transition to”) the norms of organic agriculture (Figure 5). The greatest part of the certified for organic production is among bigger farms. Nevertheless, almost a quarter of small-scale holdings and (surprisingly) more than a tenth of “semi” market farms are already bio-certified. At the same time, in a process of bio-certification (“new comers”) are mostly among the smaller scale farms. What is more, in near future every other of the “non/semi-market” eco-active farms (self-determined as “predominately for subsistence”) will apply that “market-oriented” form of eco-management.

**Figure 5. Organic production in eco-active farms of Physical Persons of different type and location in Bulgaria (percent)**



Source: survey with agricultural producers, May 2014

The greatest proportion of farms specialized in permanent crops (38,9%), vegetables and mushrooms (20,7%), mix livestock production (25%), and mix crop-livestock production (21,6%) have completed bio-certification process. At the same time, the share of farms on organic market among other groups of production specialization is small or none. The later concerns farms with “pure” livestock specialization such as grazing livestock, pigs, poultry, and rabbits, and beekeeping.

Simultaneously, in a process of organic certification are farms of all type of specialization, as the biggest share is among the groups specialized in permanent crops (36,7%), beekeeping (75%), mix livestock production (35,7%), and mix crop-livestock productions (29,7%). Therefore, the majority of eco-farms farms specialized in permanent crops (75,6%)<sup>5</sup>, beekeeping (75%), and mix livestock (60,7%) and crop-livestock productions (51,4%) practically implement (“officially” or “in a transition to”) the principles of organic agriculture.

The share of farms with bio-certification and in a process of certification, in the overall number of farms in plain-mountainous regions is in more advance stage. The same is true for the eco-active farms with lands in protected zones and territories, and those located in less-favored mountainous regions, in contrast with holdings in less-favored regions different from the mountainous (where there is still no bio-certified Physical Person).

### **Efficiency of farms’ eco-management and market inclusion**

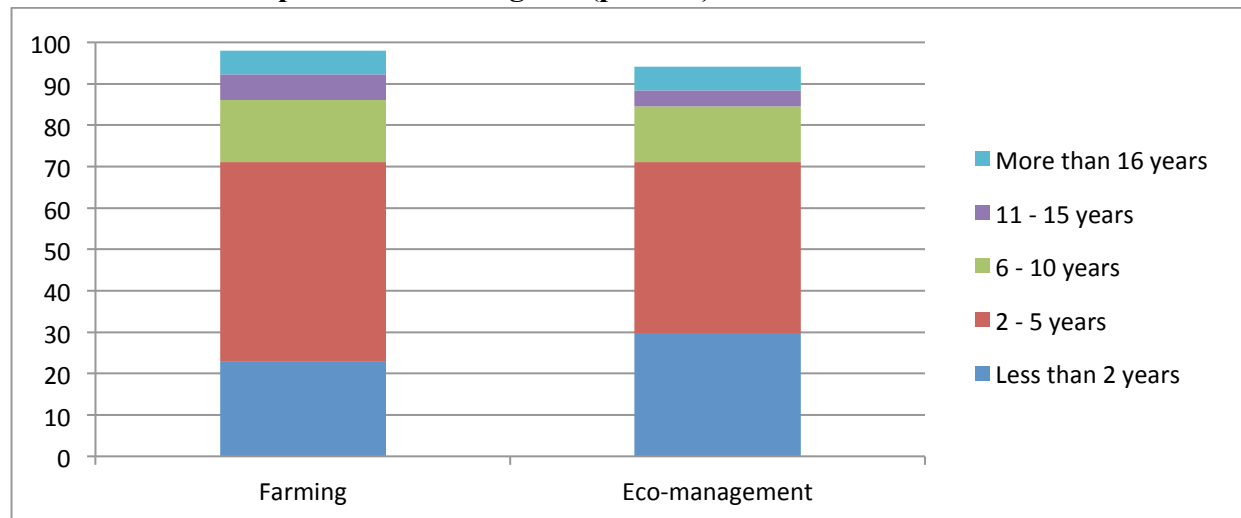
The greatest part of the surveyed eco-active farmers (71%) are with relatively little “agricultural experience” and involved in farming for a period up to 5 years, including 22,7%

<sup>5</sup> The share of eco-farms “certified” or “in a process of certification” in permanent crops (51,9%) is higher than the same proportion for the country (48,4%).



“less than 2 years” (Figure 6). The rest are with prolong farming experience, but with needs for additional information and training for the agri-environmental measures of the NPARD and/or a formal certification in that area.

**Figure 6. Period in which eco-active farms of Physical Persons are involved in farming and environmental protection in Bulgaria (percent)**



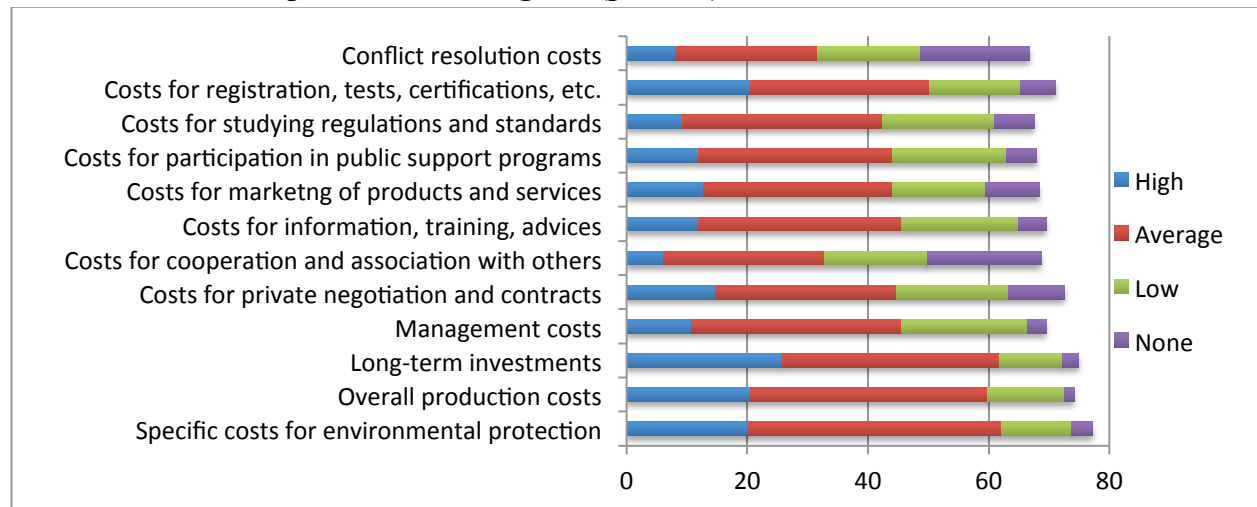
*Source: survey with agricultural producers, May 2014*

The majority of the eco-active farmers (41,3%) indicate that the period in which they take care for natural environment is between 2 to 5 years (Figure 6). More than 28% of them are with a long-term experience (6 and more years) in environmental protection. Nevertheless, for a considerable portion of all farms (29,7%), the period associated with the protection of natural environment is short (“up to 2 years”).

There is also a correlation between the period in which farmers are involved in farming activity and the period in which they are involved in environmental protection. Therefore, we can safely make some estimates about the costs, the effects and the efficiency associated with the eco-management activity of surveyed holdings.

Improved eco-management is inevitably associated with an augmentation of production and transaction costs of different type. Our survey has also found out that for a big part of the eco-active farms the environment protection activity is connected with a “high” augmentation of long-term investments (25,9%), overall production costs (20,5%), expenditures for registration, tests, certification, etc. (20,5%), and specialized costs for conservation of natural environment (20,1%) (Figure 7).

**Figure 7. Extent of augmentation of costs of eco-active farms of Physical Persons associated with environmental protection in Bulgaria (percent)**

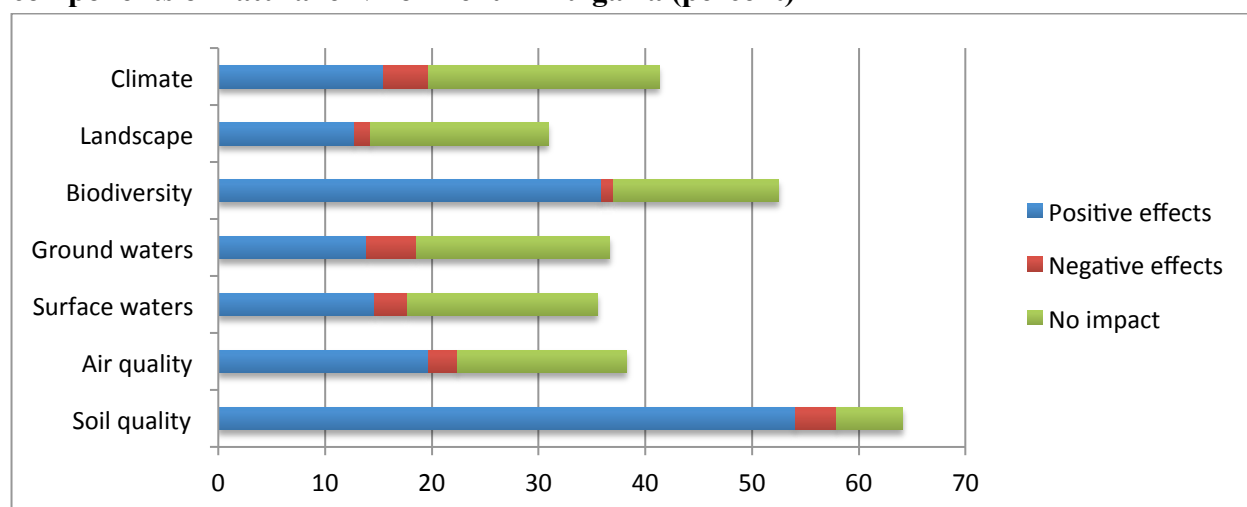


Source: survey with agricultural producers, May 2014

Majority of the eco-active farms also report that the eco-management is associated with “average” growth in the specialized costs for protection of natural environment (42,1%), overall production costs (39,4%), long-term investments (35,9%), overall management costs (34,7%), costs for acquiring information, training, and consultations (33,6%), costs for studying official regulations and standards (33,2%), costs for participation in programs for public support (32%), costs for marketing of products and services (31,3%), costs for private negotiations and contracts (30,1%), costs for registrations tests, certifications, etc. (29,7%), costs for cooperation with others (26,6%), and costs for resolutions of disputes and conflicts (23,5%).

The overall activities of eco-active farms are associated with positive, negative or neutral impacts on different components of natural environment (such as soils, waters, air, biodiversity, climate, etc.). According to a good part of the surveyed farms their activity is associated with positive effects in relation to soils quality (54%) and biodiversity (35,9%) (Figure 8). Also not so small fraction of the farmers believes their activity has positive impact on air quality (19,7%), climate (15,4%), surface (14,7%) and ground (13,9%) waters, and landscape (12,7%).

**Figure 8. Impact of overall activity of eco-active farms of Physical Persons on individual components of natural environment in Bulgaria (percent)**



Source: survey with agricultural producers, May 2014

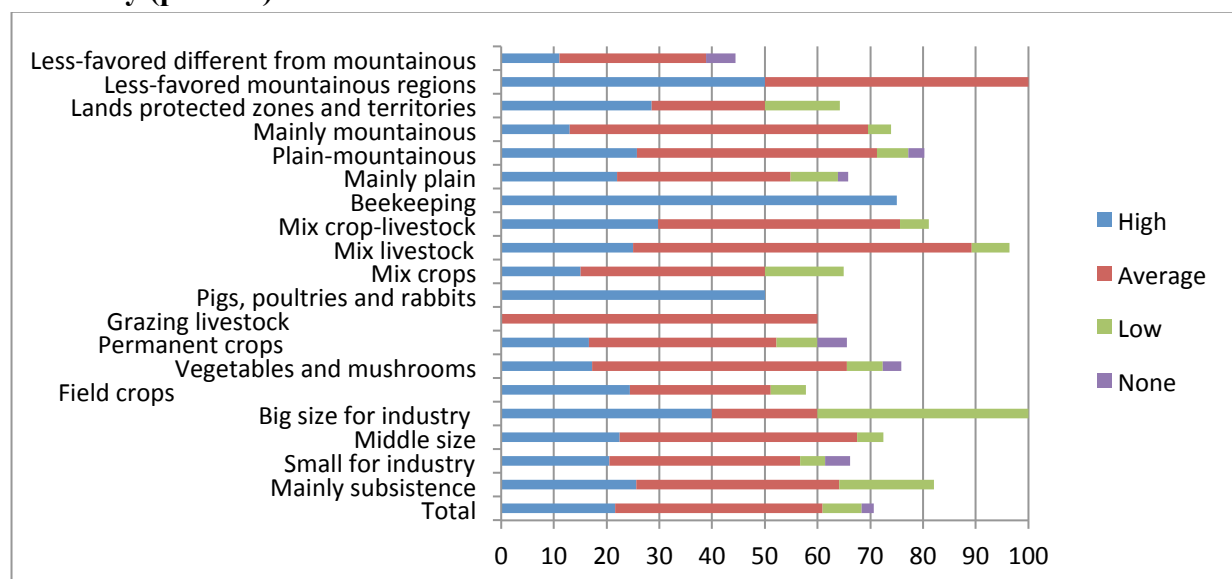
Furthermore, the majority of respondents to that question<sup>6</sup> also think that their overall activity does not affect climate, ground waters, surface waters, landscape, and air quality – accordingly 33,7%, 28,3%, 27,7%, 25,9%, and 24,9% of all questioned holdings.

Only a small fraction of the eco-active farms estimates that their overall activity is associated with negative effects related to natural environment, and that is mostly true for the negative impact on ground waters (4,6%), climate (4,2%) and soil quality (3,9%).

Furthermore, the natural environment protection activity of the majority of eco-active farms is associated with an augmentation of ecological efficiency of the farm, as for 21,6% of them that is in a “high” extent, for 39,4% in “average”, and for 7,3% in a “small” scale (Figure 9).

<sup>6</sup> 64,1% of all surveyed farms.

**Figure 9. Share of eco-active farms of Physical Persons of different type and location in Bulgaria in which environmental protection activity is associated with increased ecological efficiency (percent)**



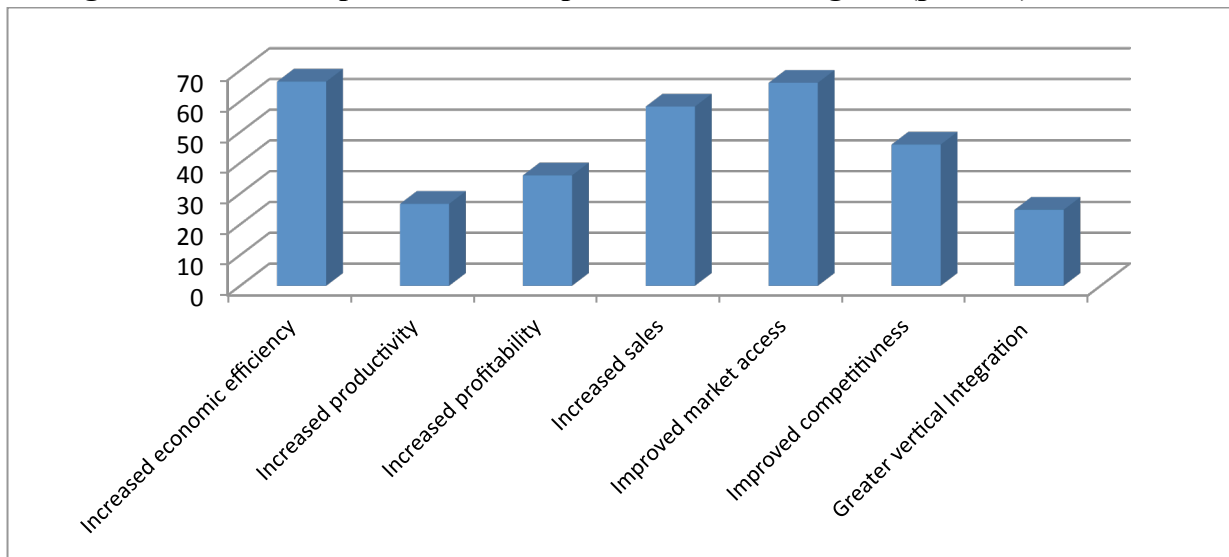
Source: survey with agricultural producers, May 2014

The eco-activity of holdings leads to a big increase in the farm ecological efficiency for a greatest portion of those specialized in beekeeping (75%), pigs, poultry and rabbits (50%), and mix crops-livestock production (29,7%), and farms located in less-favored mountainous regions (57,1%), and with lands in protected zones and territories (28,6%).

On the other hand, for a minor fraction of small-sized holdings (4,7%) and those specialized in permanent crops (5,6%), and vegetables and mushrooms (3,4%) as well as farms located in less-favored mountainous regions (5,6%), plain–mountainous (93%) and mainly plain (1,9%) regions, the eco-activity is not connected with any change in ecological efficiency.

Our survey has also found out that the enhanced environmental management of eco-active farms leads to a certain improvement in their economic performance as well as a greater market inclusion. Almost two-third of the surveyed holdings points out an “increased economic efficiency” and “improved market access”, above 58% “increased sales”, around 46% “improved competitiveness”, more than 45% “increased productivity”, almost 36% “increased profitability”, nearly 27% “increased productivity”, and almost one fifth a “greater integration” with vertical counterparts" (Figure 10).

**Figure 10. Share of eco-active farms of Physical Persons in which enhanced eco-management leads to improve economic performance in Bulgaria (percent)**

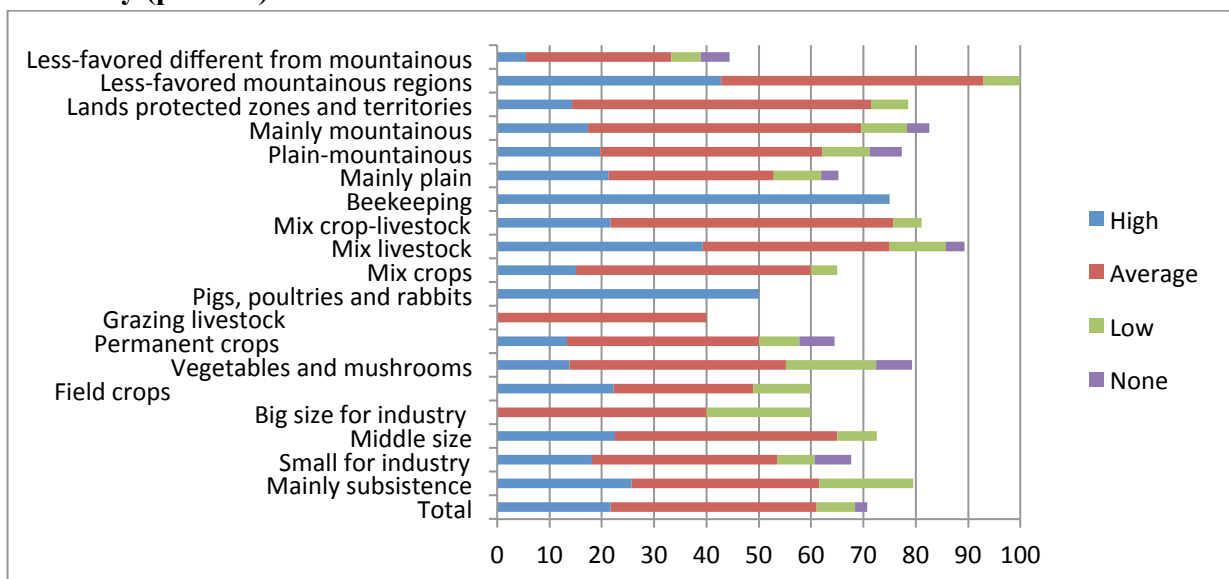


Source: survey with agricultural producers, May 2014

The economic efficiency associated with the improved eco-management reflects the effects of increased productivity, profitability, competitiveness and market inclusion.

According to the greatest portion of the eco-active farms, their environment protection activity is associated with an augmentation of farm economic efficiency, as for 21,6% of them that is to a “great” extent, for 39,4% in “average” extent, and for 7,3% “insignificantly” (Figure 11).

**Figure 11. Share of eco-active farms of Physical Persons of different type and location in Bulgaria in which environmental protection activity is associated with increased economic efficiency (percent)**



Source: survey with agricultural producers, May 2014

What is more, all holdings in the sub-group “semi-market” (mainly subsistence) farms have registered some improvement in the economic performance, while that share with a high increase in the efficiency is larger than the average one. On the other hand, merely 2,3% of the eco-active holdings do not report any change in the economic efficiency as a result of improved eco-management. Therefore, there is strong evidence that enhanced environmental management is associated with improved economic performance in studied farms.

To the greatest extent the eco-activity leads to increasing economic efficiency of farms specialized in beekeeping (75%), pigs, poultry and rabbits (50%), and mix livestock production (39,3%), and holdings located in less-favored mountainous regions (42,9%).

At the same time, for a considerable portion of farms specialized in vegetables and mushrooms (6,9%), permanent crops (6,7%), holdings with smaller size (7,1%), and those located in plain-mountainous (6,1%), less-favored different from mountainous (5,6%), and mountainous (4,3%) regions, the eco-activity is not connected with any positive change in the economic efficiency.

### **Factors for managerial choice for improved eco-management**

Diverse personal, economical, market, social, etc. factors in various magnitude stimulate or restrict activities of agricultural producers for protection of natural environment.

Our study has found out that the owners and/or managers of a significant fraction of the eco-active farms are males (69,1%). Nevertheless, the share of female owners/managers is not small (29,3%)<sup>7</sup> and much higher than the average for all farms in the country<sup>8</sup>. The later indicates gender preferences toward environmentally sound farming in the country and a stronger involvement of female entrepreneurs in that new venture.

The majority of owners and/or managers of eco-active holdings are younger than 55 (71,8%), which proportion is higher than the average for all farms in the country<sup>9</sup>. Moreover, most farm managers are “young farmers” (younger than 40) - 47,9% of all surveyed. The later indicates the importance of the group of younger entrepreneurs/producers for (interests in) ameliorating environmental efficiency.

According to the farm managers the environmental actions of most eco-active farms to the greatest extent is stimulated by the: “personal conviction and satisfaction of the farmer from eco-activity” (29%), “participation in public support programs” (23,6%), “received direct public subsidies” (22,4%), “professional eco-training of the farmer and the hired labor” (21,6%), “access to farm and eco-advice” (20,8%), “market competition” (20,5%), “possibilities to increase profit” (20,5%), “eco-benefits for the farm in longer-term” (18,5%), “EU policies” (17,4%), and “available eco-information and innovations” (16,6%) (Figure 12).

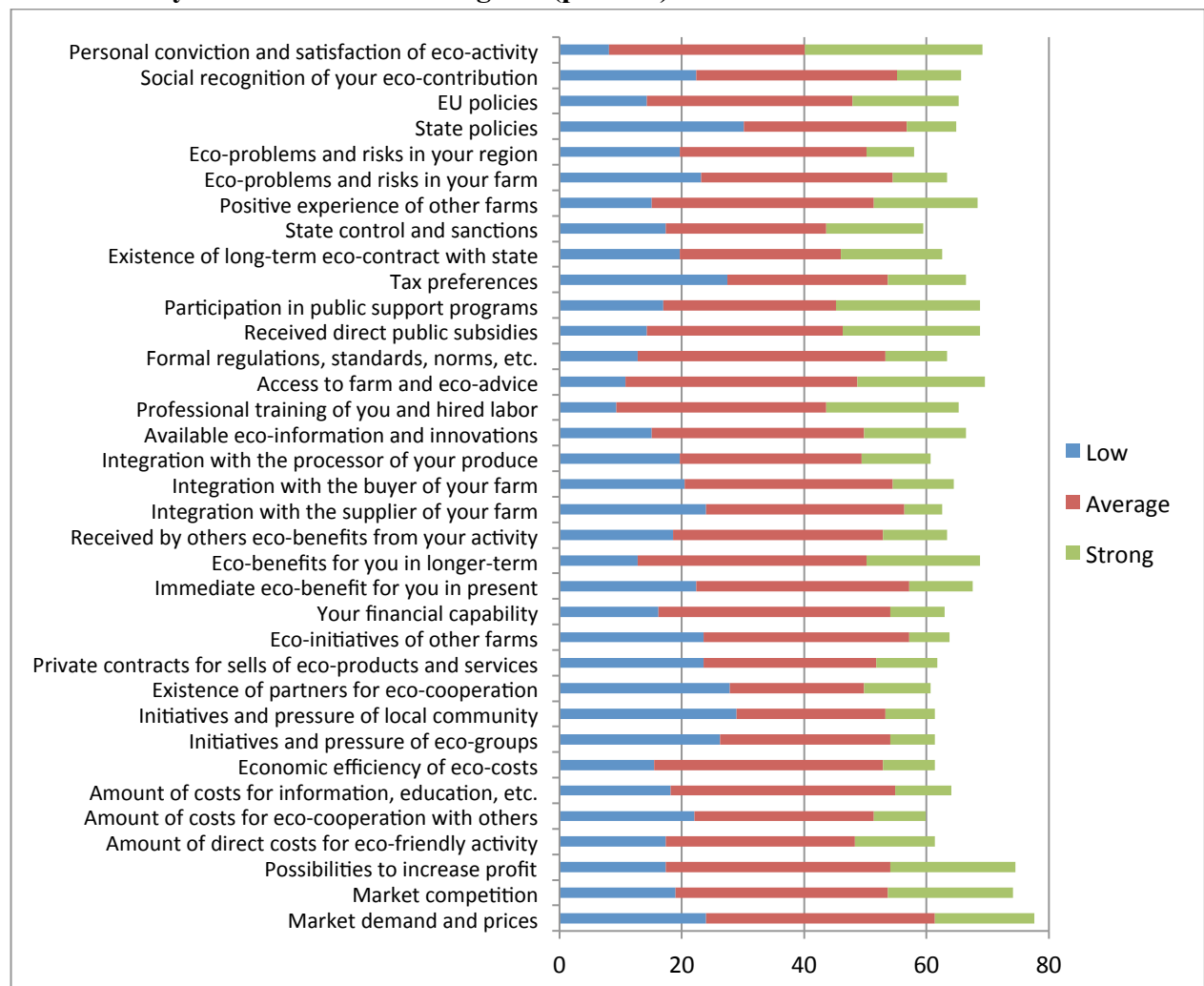
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<sup>7</sup> 0,4% of surveyed farms are partnerships.

<sup>8</sup> 77,2% of all farm managers in the country are male and 22,7% female (MAF, 2010).

<sup>9</sup> 37,3% of all farm managers in the country is below 55 (MAF, 2010).

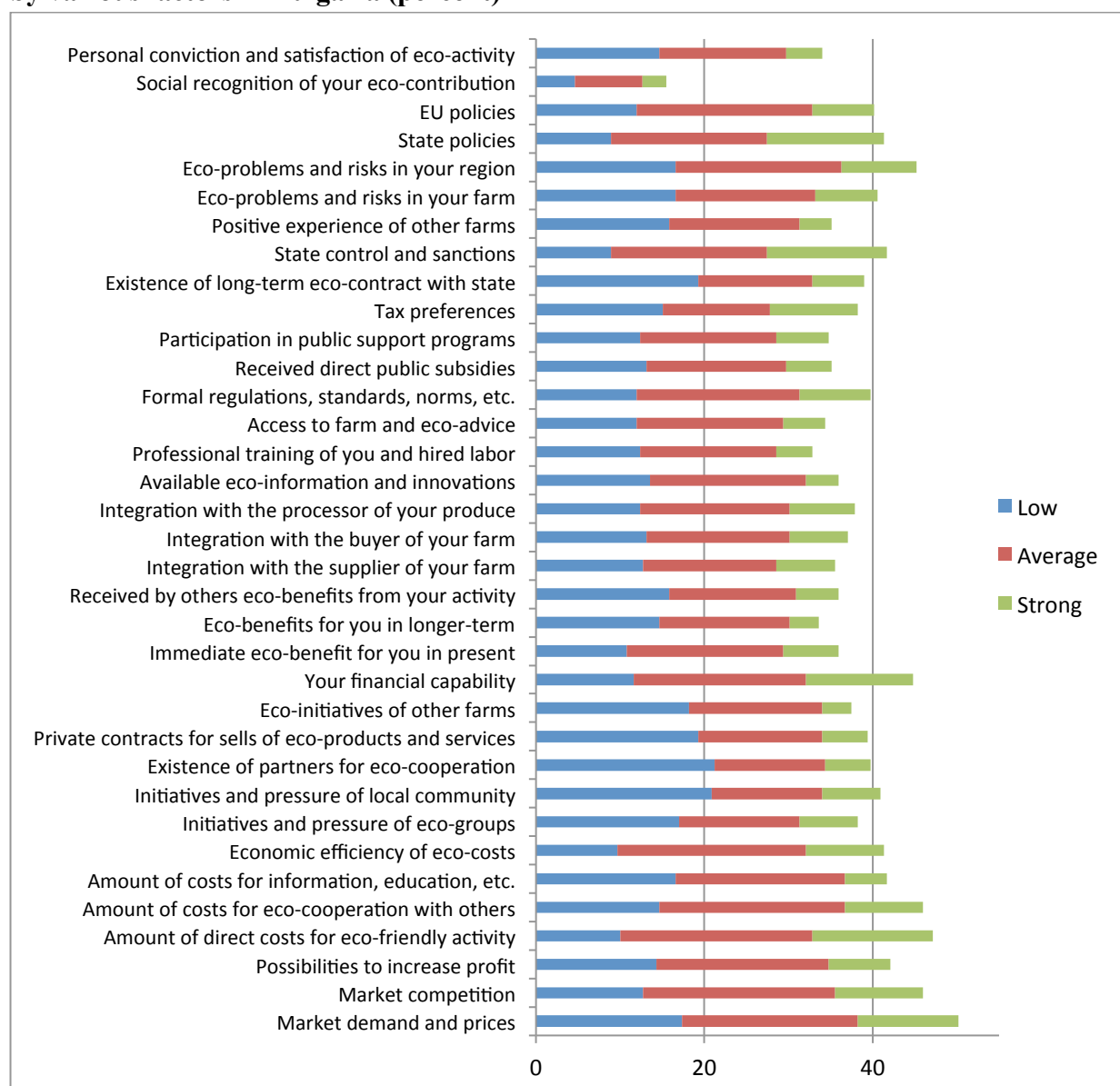
**Figure 12. Extent in which eco-activities of eco-active farms of Physical Persons is stimulated by various factors in Bulgaria (percent)**



Source: survey with agricultural producers, May 2014

According to the biggest part of all surveyed farms their eco-activities mostly is restricted by the following factors: “state control and sanctions” (14,3%), “amount of direct costs for eco-friendly activity” (14,3%), “state policies” (13,9%), “farm’s financial capability” (12,7%), and “tax preferences” (10,4%) (Figure 13).

**Figure 13. Extent in which eco-activity of eco-active farms of Physical Persons is restricted by various factors in Bulgaria (percent)**



Source: survey with agricultural producers, May 2014

Therefore, the identified above incentives and restrictions for the agricultural farms are to be taken into account in the process of improvement of public policies and programs for agro-ecology and eco-management in the country.

The public support with diverse instruments of EU CAP is an important factor for the improvement of eco-management in farms. For instance, direct Area-based payments are linked with a requirement to “keep farmland in a good agronomical and ecological state”, participation in NPARD’s measures is associated with a compliance of “good agricultural practices” (including appropriate protection of soils, waters, biodiversity, animal welfare, etc.), involvement in the NPARD “environmental measures” aims at implementation of higher eco-standards in comparison to the good agricultural practices, etc.



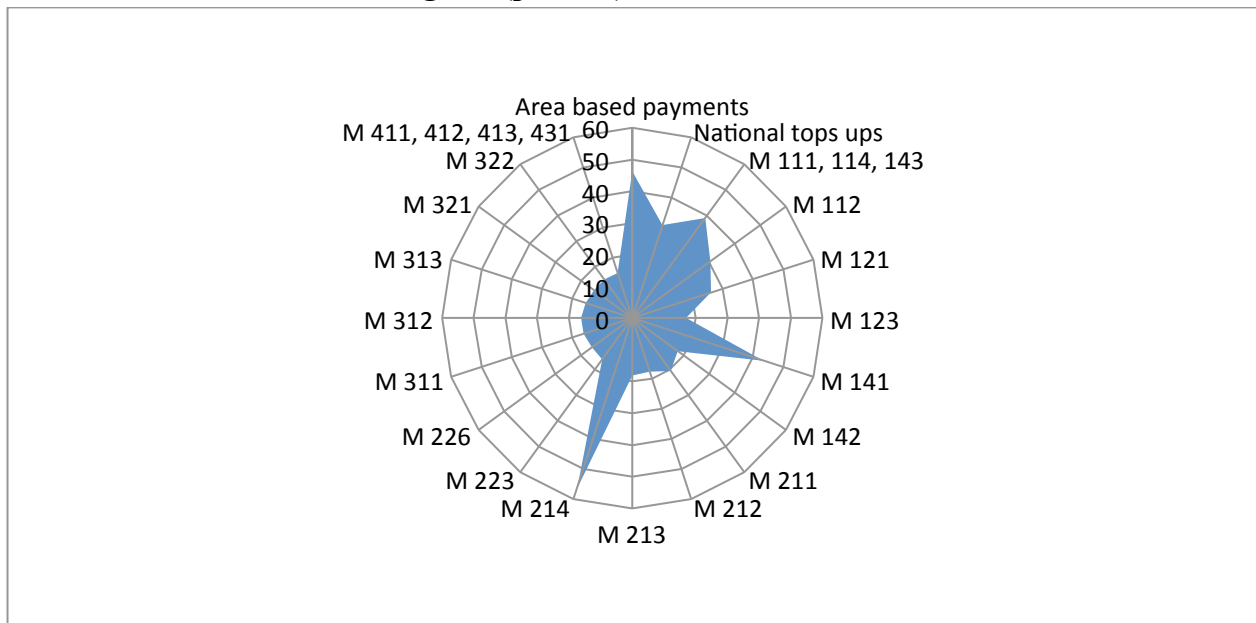
What is more, various forms of public intervention (subsidizing, zoning, mandatory eco-norms and standards, market support, etc.) leads to development of diverse bilateral, trilateral, hybrid, etc. forms of governance of agrarian sphere and for agri-eco-management (Bachev 2014). All they let improve the overall and the environmental protection capabilities of farms, and conserve, restore and/or improve natural resources through farming activity.

In particular, public subsidies make “economically possible” the agricultural activity in “less-favored” regions and in “protected zones and territories” (national parks, reserves, NATURA 2000 areas, etc.) supporting conservation of soil fertility, natural biodiversity, services of (agro)eco-systems, etc.

Received public support by the eco-active farms is relatively higher than the average in the country for farms of similar type and location<sup>10</sup>.

Most of the surveyed farms, which “received” (in the past) or “currently receiving” support are through following instruments: Measure 214 “Agro-environmental payments” (56,4%), Directs Area-based Payments (46,3%), Measure 141 “Semi-subsistence farming” (43,6%), Measures 111, 114 and 143 “Professional training and advise” (39%), National tops-ups for products, livestock, etc. (30,9%), Measure 112 “Setting up of young farmers” (30,5%), and Measure 121 “Modernization of agricultural holdings” (26,2%) (Figure 14).

**Figure 14. Share of eco-active farms of Physical Persons supported with different instruments of EU CAP in Bulgaria (percent)**



Source: survey with agricultural producers, May 2014

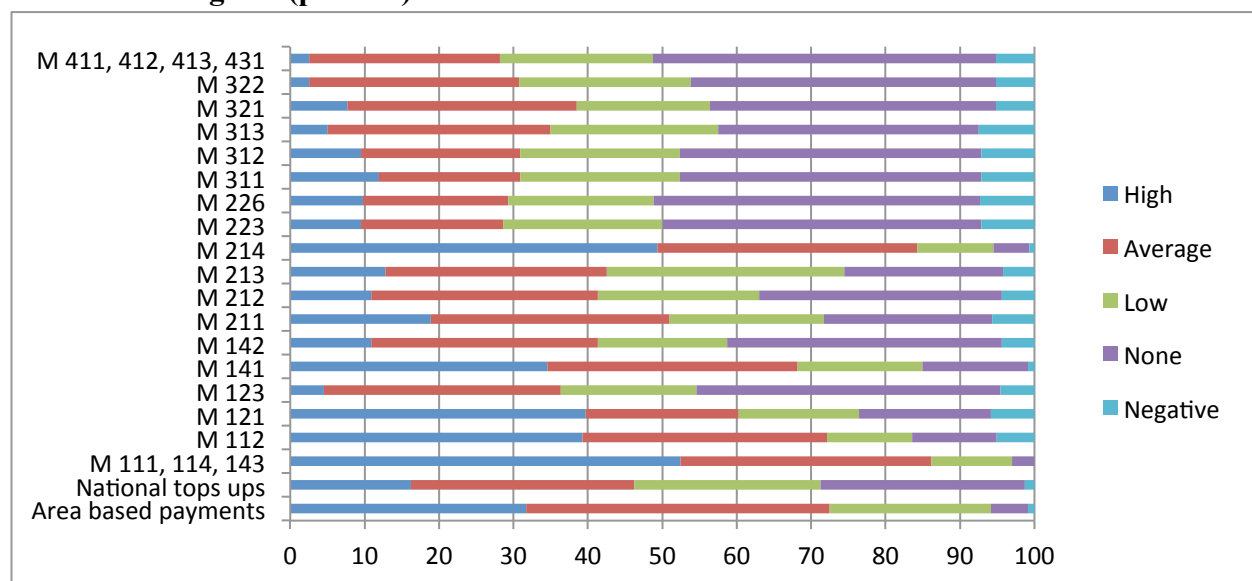
For other NPARD measures, the share of participating eco-active farms is relatively small. Nevertheless, comparing to the common level in the country, the eco-active farms take to a

<sup>10</sup>Assessment of the level and the impact of public support with individual instruments of EU CAP to agricultural farms of different type in the country are done Bachev *et al.*

greater extent advantage from the “environmental measures” of NPARD such as: Measure 214 “Agro-environmental payments”, Measure 211 “Natural handicap payments to farmers in mountain areas” (20,5%), Measure 212 “Payments to farmers in areas with handicaps, other than mountain areas” (17,8%), and Measure 213 “Payments for NATURA 2000 for farmlands” (18,1%).

Furthermore, our study has found out that the individual mechanisms for public support impact unequally the eco-farms, which received or are receiving public aid (Figure 15). According to the majority of surveyed farms, the biggest (“average” or “strong”) impact on their farms have been caused by: the Measures 111, 114 и 143 “Professional training and advices” (86,1%), Measure 214 “Agro-environmental payments” (84,2%), “Direct Area-based EU subsidies” (72,5%), Measure 112 “Setting up of young farmers” (72,2%), Measure 141 “Semi-subsistence farming” (68,1%), Measure 121 “Modernization of agricultural holdings” (60,3%), Measure 211 “Natural handicap payments to farmers in mountain areas” (50,9%), “National tops ups for products, livestock, etc.” (46,3 %), Measure 213 “Payments for NATURA 2000 for farmlands” (42,6%), Measure 212 “Payments to farmers in areas with handicaps, other than mountain areas” (41,3%), and Measure 142 "Setting up producer groups" (41,3%).

**Figure 15. Impact of EU CAP instruments on supported eco-active farms of Physical Persons in Bulgaria (percent)**



Source: survey with agricultural producers, May 2014

The impact of remaining instruments of the CAP on most eco-active beneficiaries is “low” or “none”. What is more, a part of the supported farms evaluate the impact of certain public instruments on their holdings as “negative”. The later concerns more than 7% of the beneficiaries from the Measure 223 “First afforestation of non-agricultural land”, Measure 226 “Restoring forestry potential and introducing prevention actions”, Measure 311 "Diversification into non-agricultural activities", Measure 312 "Support for the creation and development of micro-enterprises ", and Measure 313 “Encouragement of tourism activities” as well as more than 5% for the Measure 112, Measure 121, Measure 211, Measure 321, Measure 322, and Measures 411, 412, 413, 431.

Finally, there is a great variation in the level of public support and the impacts of individual instruments on farms of different type, specialization, and location (Bachev 2014).

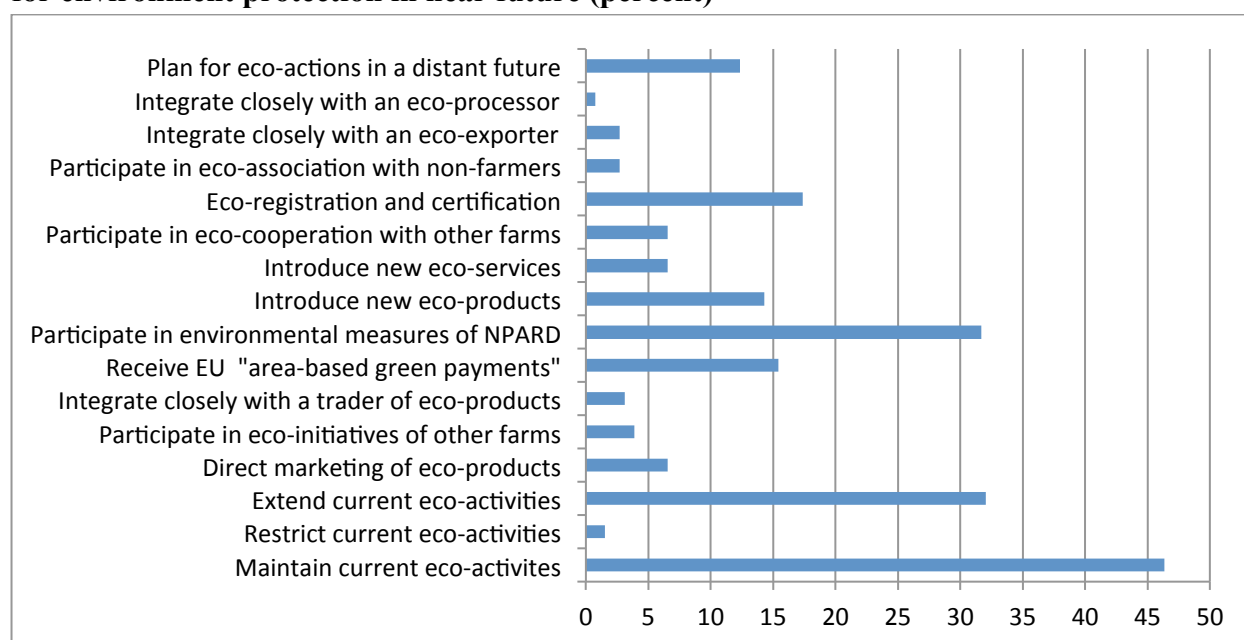
### Perspectives of eco-management in farms

There is a substantial augmentation of public support (direct payments, NPARD measures, etc.) to small-scale farms in the new programming period for CAP implementation (2014-2020). Furthermore, there is a considerable increase in the support to environmental actions (“green payments”, agri-ecology measures, etc.). There is also significant evolution in the market demands for eco-products and services internationally and increasingly domestically. Therefore, we could expect a further development and expansion of the improved eco-management as a perspective mode for a greater market inclusion in years to come.

Surveyed eco-active farms are with various plans (intentions) for the eco-management in near future.

The greatest part of the eco-active farms (46,3%) does not foresee any change in the eco-activity in near future (Figure 16). However, a considerable fraction of them (32%) are having intentions to “extend the current eco-activities”. At the same time, the share of farms, which are planning to restrict current eco-activity, is insignificant (1,5%).

**Figure 16. Share eco-active farms of Physical Persons in Bulgaria with different intentions for environment protection in near future (percent)**



Source: survey with agricultural producers, May 2014

In near future, a relatively great number of all eco-active farmers are having intentions to “participate in agro-environmental measures of the NPARD” (31,7%), “eco-registration and certification” (17,4%), “receiving “area-based green payments from EU” (15,4%), and “introduction of new eco-products” (14,3%).

Also a good portion of the farms are planning to apply new prospective modes of eco-management such as: “introduce new eco-services” (6,6%), “direct marketing of eco-products” (6,6%), and “participate in eco-cooperation with other farms” (6,6%).

Furthermore, a relatively smaller fraction of the surveyed farms also intends to “participate in eco-initiatives of other farms” (3,9%), “integrate closely with a trader of eco-products” (3,1%), “integrate closely with an eco-exporter” (2,7%), “participate in eco-association with non-farmers” (2,7%), and “integrate closely with an eco-processor” (0,8%).

Besides, a considerable share of the eco-active farms (12,4%) indicates having a “plan for eco-actions in a more distant future”.

All these plans give a good insight on the prospects of development of environmental management in the eco-active farms and to a certain extent for the agricultural holdings in general.

### **Conclusions and recommendations**

This first large-scale study on forms, factors and efficiency of “eco-active” farms in Bulgaria have proved that enhanced eco-management is an efficient way for improving market inclusion of small-scale and semi-market holdings. There has been amelioration in economic efficiency, market access, sales, competitiveness, productivity, profitability, and vertical integration in a good proportion of farms implementing active eco-management strategy. Furthermore, this mode of management has been associated with increased ecological efficiency of farming activity and ultimately leads to a higher sustainability of farm enterprises.

The study has found out that the biggest part of eco-active farmers are with small farming experiences proving that the specific issue of “eco-management” is relatively new for Bulgarian farming. Organic production is a major form for eco-management, while other market, private, and collective forms are less frequently used. Furthermore, there is a great variation in the internal capability and the forms for eco-management in farms of different size, specialization and location.

To the greatest extent the eco-activity of farms is stimulated by the personal conviction and satisfaction of the farmer, participation in the public programs, received public subsidies, professional eco-training, access to farm and eco-advice, market competition, possibilities to increase profit, eco-benefits in longer-term, EU policies, and available eco-information and innovations.

In most eco-active farms the eco-management is associated with an augmentation in specialized costs for environment protection, overall production costs, long-term investments, overall management costs, and costs for acquiring information, training, and consultations, for studying regulations and standards, for participation in public support programs, for marketing of products and services, for private negotiations and contracts, for registrations, tests, certifications, etc., for cooperation with others, and for resolutions of disputes and conflicts.

The biggest impact on farms have been caused by the public support instruments like: Direct Area-based EU subsidies and National top ups as well as NPARD’s Measures “Professional training and advice”, “Agro-environmental payments”, “Setting up of young farmers”, “Semi-subsistence farming”, “Modernization of agricultural holdings”, “Natural

handicap payments to farmers in mountain areas”, “Payments for NATURA 2000 for farmlands”, “Payments to farmers in areas with handicaps, other than mountain areas”, and "Setting up producer groups”.

Therefore, the enhanced eco-management is to be promoted as an effective strategy for increasing market inclusion of small-scale and semi-market holdings. Moreover, it is to be given a special public support (training, information, funding, partnership, preferences, etc.) to the “eco-active” farms having a higher knowledge and applying greatly the principles of environmentally friendly agriculture. The later would induce (implement, demonstrate advantages, inspire and involve others, etc.) the overall improvement of the agro-eco-management in the country.

Also more efforts are to be put to improve eco-competency of farms (particularly less capable stallholders) through education, training, consultation, advises, etc. All positive examples as well as prospective forms of eco-management, and their applicability and efficiency for different type of farms are to be widely popularized. Furthermore, special measures are to be taken to replicate the eco-active farm’s model in general holdings through appropriate public support and incentives.

What is more, specific incentives, restrictions and impacts of enhanced eco-management in small-scale producers are to be identified and taken into account in the process of improvement of public policies and programs for eco-management. Simultaneously appropriate measures are to be put in place to compensate the increased farm’s costs for producing “public and private eco-goods” (positive externalities) though direct support and/or creating favorable conditions for increased eco-spending in farming and entire agri-food supply chain.

Finally, more interdisciplinary, inter-organizational and international cooperation is needed for carrying out wider studies on eco-management as a way for market inclusion in order to better understand, identify, assess and popularized specific forms, factors and efficiency in farms of different types and countries.

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