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## **AGRICULTURAL INSURANCE AS POSSIBLE COMPULSORY INSURANCE IN SERBIA**

REVIEW ARTICLE

### **Abstract**

Agricultural insurance should have the same position in Serbia as in contemporary market economy. Modern, market-oriented agriculture is inconceivable without well organised and developed insurance. The development of agricultural insurance in domestic conditions should involve a more active role of the government. The role of the government could also be reflected in the introduction of partly compulsory agricultural insurance and the provision of funds from the agrarian budget for higher insurance premium subsidies. At the same time, insurance companies should have a key role in domestic market of agricultural insurance by developing both offer and demand, as well as in informing and educating farmers on the importance of economic protection of their production. The aim of the paper is to present the need for the introduction of partly compulsory agricultural insurance in Serbia. The suggested model of partly compulsory agricultural insurance is based on a public-private partnership, and its implementation would not only enable the development of agricultural insurance, but would ensure funds necessary for current and investment financing of this significant economic activity.

***Key words:*** *compulsory insurance, agricultural insurance, agriculture funding, Serbia*

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## I Introduction

Agriculture is characterised by biological idiosyncracies, or more precisely, high production risks, which make it, from the aspect of insurance, a more complex and demanding industry than many others. The importance of agricultural insurance lies in the fact that it provides economic protection to insureds – farmers, from harmful effects and disturbances that arise from occurrences of insured events, that is, from occurrences of covered risks. According to Mishra, 1995, “agricultural insurance, and crop insurance in particular, exists in many countries as an institutional response to current risks characteristic of agricultural production”<sup>2</sup>.

According to the widespread opinion in the literature, crop production insurance is one of the riskiest insurance protections, which means that the economic protection in the market is available just for a limited number of risks.<sup>3</sup> According to Toscano, 2011, “weather is the main factor of uncertainty in agricultural production, and in times of global climate change, the management of this risk is necessary so as to “compensate to some extent the consequences of the elements”<sup>4</sup>. Žarković *et al*, 2016, point to the risk of drought as a global issue in agricultural production and state that this risk is included in the insurance protection in a proportionally small number of countries, and only where the government is directly included in the subsidising of catastrophic losses and the insurance i.e. reinsurance thereof.<sup>5</sup>

According to Iturrioz, 2009, on a global level, crop production insurance makes 90 percent of the overall agricultural insurance premium nowadays.<sup>6</sup> In recent years, due to the occurrence of new animal diseases, there is a growing need for livestock insurance. According to Marković and Jovanović, 2010, in view of full economic protection “a firmer link between farmers, insurers and the government is necessary in order to create an integrated risk management system in livestock industry”<sup>7</sup>.

Numerous authors claim that costs related to agricultural insurance are negligible compared to benefits it offers to the insureds – farmers. However, despite this opinion, agricultural insurance is in practice underdeveloped in many countries. It is the same case in Serbia, where agricultural insurance is “insufficient

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<sup>2</sup> Pramod K. Mishra, *Is Rainfall Insurance a New Idea? Pioneering Work Revisited*, Published by: *Economic and Political Weekly*, Vol. 30, No. 25, 1995, p. A86.

<sup>3</sup> Miroslava Petrevska, Bruno Toscano, Dragiša Milošev, *Osiguranje biljne proizvodnje*, Belgrade, 2010, p. 1.

<sup>4</sup> Bruno Toscano, *Upravljanje klimatskim rizicima u biljnoj proizvodnji*, Belgrade, 2011, p. 1.

<sup>5</sup> Nebojša Žarković, Jova Miloradić, Slobodan Samardžić, “The Risk of Drought in Crop Production Insurance”, *Economics of Agriculture*, 63 (4) 2016, 2016, p. 1301.

<sup>6</sup> Ramiro Iturrioz, *Agricultural Insurance*, Example Series on Insurance, Washington, DC, 2009, p. 11.

<sup>7</sup> Todor Marković, Milenko Jovanović, “Livestock Insurance as a Factor of Economic Stability in the Agriculture”, *Contemporary Agriculture*, Vol. 59, No. 3-4, 2010, p. 292.

both in terms of volume and the type of protection (covered risks)".<sup>8</sup> Also, according to Kočović and Trifunović, 2013, the potential of insurance market in Serbia exceeds its current level of development.<sup>9</sup> This is in line with the opinion of Manić, 2012, who states that the development of agricultural insurance in Serbia is "on an extremely low level" despite the introduction of insurance premium subsidies. The cited author concludes that it indicates that "the premium subsidy on its own is not enough for the larger expansion of insurance in agriculture in our market."<sup>10</sup>

Insurance is necessary for agricultural development, as well as for the overall rural development of the state and the provision of food security. This is particularly important in domestic conditions since rural areas make 85% of the territory, and since agriculture has a significant share in gross domestic product, export and the overall employment rate of the working-age population. Also, according to the last census of agriculture from 2012, there are 631.552 agricultural households in Serbia, of which as much as 99,5% account for family agricultural households that are also bearers of food security.

The objective need for insurance in the Republic of Serbia is very pronounced since both crop and livestock production are exposed to numerous risks which have a growing tendency, especially in the conditions of climate changes. However, the subjective need for agricultural insurance in domestic conditions is insufficiently developed due to low ability to pay, that is, due to economic underdevelopment of farmers, as well as due to low awareness of the importance of insurance. The underdevelopment of agricultural insurance on a microlevel conditions its underdevelopment on a macrolevel, as a result of the underdevelopment of agriculture as an industry of national importance.

The aim of the paper is to present the need for the introduction of partly compulsory agricultural insurance in the Republic of Serbia. According to Mahul and Stutley, 2010, one of the most important issues relating to the implementation of agricultural insurance policy is its voluntary, i.e. compulsory nature.<sup>11</sup> We think agricultural insurance in the Republic of Serbia should be compulsory rather than voluntary as it has been the case till now.<sup>12</sup> However, it should be remembered that agricultural insurance in domestic conditions, in the period from its occurrence in 1896 until 1967 was in some way compulsory.<sup>13</sup> Also, various authors highlight the

<sup>8</sup> Nebojša Žarković, "Značaj osiguranja za poljoprivredno preduzeće", *Agroekonomika*, no. 29, 2000, p. 140.

<sup>9</sup> Jelena Kočović, Dejan Trifunović, "Understanding the Essence of Insurance Product as the Condition for the Development of Insurance Market in Serbia", in: Kočović J., Jovanović Gavrilović B. and Radović Marković M. (eds.) *Product Specifics on the Market of Insurance and Reinsurance*, Belgrade, 2013, p. 15.

<sup>10</sup> Vladimir Manić, "Osiguranje u poljoprivredi: Uloga javnog sektora, industrije osiguranja i pravci razvoja", Presentation, 2012.

<sup>11</sup> Olivier Mahul and Charles J. Stutley, *Government Support to Agricultural Insurance Challenges and Options for Developing Countries*, Washington, USA, 2010, p. 244.

<sup>12</sup> Gordana Radović, *Finansiranje poljoprivrede u Republici Srbiji*, Belgrade, 2014, p. 17.

<sup>13</sup> Gordana Radović, "Osiguranje u funkciji razvoja poljoprivrede u Srbiji", 2016 (*paper is in the publication process*).

need for the introduction of compulsory agricultural insurance in Serbia. According to Kočović *et al*, 2016, compulsory agricultural insurance should be introduced in Serbia as a short-term solution due to high budget deficit.

The suggested model envisages the formation of a pool of insurers with one of the shareholders being the government.<sup>14</sup> Also, Manić says that the agricultural insurance market in Serbia could be developed if “the obligation to conclude an insurance contract would be introduced as a precondition for receiving agricultural subsidies from the government”.<sup>15</sup>

## II Initial Assumptions

In this chapter, the most significant parameters for determining the level of development were analysed, as well as the prospects for agricultural insurance development in Serbia.

### 2. Characteristics of Agricultural Insurance in Serbia

There are two forms of agricultural insurance in the insurance market in the Republic of Serbia. These are: crop production insurance, i.e. crops and fruit insurance and animal insurance. Crop production insurance includes: (a) insurance of crops (subcrops, catch crops and stubble crops); (b) insurance of perennial plantations; (c) insurance of fruit, grapevine and forest propagating material; (d) insurance of flowers and ornamental plants; (e) insurance of nursery plants of vegetables and other cultures; (f) insurance of some of the forest cultures, wickerwork willow, trembling aspen and reed. Animal insurance includes insurance of all types of domestic and some types of wild animals.

#### 2.1. Agricultural Insurance Potential

Crop insurance potential can be established based on the data from the Strategy for agriculture and rural development of the Republic of Serbia for the period 2014-2024, and the data of the Statistical Office of the Republic of Serbia. According to these sources, the Republic of Serbia disposes of 5,06 million ha of agricultural land,<sup>16</sup> 74,3% of which were intensively used in 2014 (as field plots,

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<sup>14</sup> Jelena Kočović, Tatjana Rakonjac Antić, Marija Jovović, Kočović, J., “Mogućnosti razvoja osiguranja poljoprivrede u Srbiji”, Conference Proceedings, Scientific Conference “Stanje i perspektive agropoprivrede i sela u Srbiji”, Belgrade, 2016, p. 205.

<sup>15</sup> Vladimir Manić, “Osiguranje u poljoprivredi: Uloga javnog sektora, industrije osiguranja i pravci razvoja”, Presentation, 2012.

<sup>16</sup> Strategija poljoprivrede i ruralnog razvoja 2014–2024, Belgrade, 2015, p. 15.

orchards and vineyards), and 20,3% account for natural grassland (meadows and pastures).<sup>17</sup> In the structure of overall arable agricultural land, field plots and gardens dominate with 74%, followed by orchards with 5%, vineyards with 0,6% and nurseries with only 0,04% (Table 1).

*Table 1: Scope and structure of agricultural areas in 2014*

<b>Overall agricultural land:</b>	5.069.000 ha
<b>Arable agricultural land:</b>	3.506.830 ha
<b>- field plots and gardens</b>	2.606.073 ha
<b>- perennial plantations:</b>	187.515 ha
<b>- orchards</b>	163.310 ha
<b>- vineyards</b>	22.150 ha
<b>- nurseries</b>	1.531 ha
<b>- other perennial plantations</b>	524 ha

Source: Statistical Office of the Republic of Serbia (2015): Statistical Yearbook, Belgrade, p. 230–231.

The potential of animal insurance i.e. livestock production in the Republic of Serbia is presented in Table 2.

*Table 2: Livestock count in 2014*

<b>Types of domestic animals</b>	<b>Number of head</b>
cattle	920.000
pigs	3.236.000
sheep	1.748.000
goats	219.000
horses	16.000
poultry	17.167.000
beehives	677.000

Source: Statistical Office of the Republic of Serbia (2015): Statistical Yearbook, Belgrade, p. 235.

According to the statistical data, the number of cattle in the Republic of Serbia has been significantly decreased in the last five years. For example, in the period from 2008 to 2013 number of cattle went down by 14%, cows by 22%, cows in-milk by 21%, whereas the number of pigs dropped by 13%. In the same period, the number of sheep increased by 0,7% and the number of poultry went up by 36%. Based on the presented data, it can be concluded that the animal insurance potential in the Republic of Serbia has been recording a decrease for several years now, especially in case of cattle and pigs insurance.

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<sup>17</sup> Statistical Yearbook, Belgrade, 2015, p. 229.

## 2.2. Risks Covered by Insurance

Offer in domestic agricultural insurance market, that is, crops and fruit insurance and insurance of animals is presented in Table 3.

*Table 3: Insurable risks of agricultural production in the insurance market of the RS*

Crop production risks		Livestock production risks	
General conditions	Special conditions	General conditions	Special conditions
– hail	– spring frost	– death due to illness	– loss of breeding capacity of heifers and cows
– fire	– flood	– death due to accident	– loss of calf or colt during labour
– lightning	– storm	– forced slaughter out of necessity	– loss of breeding capacity of male breeding animals
	– drought		– insurance of animals intended for slaughter
	– excessive precipitation		– insurance of animals in commercial warehouses
	– loss of revenue		– insurance of animals at exhibitions
	– winter frost		– insurance of animals during quarantine
	– production in glass houses or plastic covered greenhouses		– insurance of animals against the risk of castration and ovariectomy
	– loss of seed quality		– insurance against the drop in milk production
	– insurance after harvest or crop		– insurance against death and forced slaughter as a consequence of labour
	– loss of quantity and quality		– insurance of sheep relating to merinisation
	– insurance of plants when bearing fruit		
	– insurance of newly planted plantations		

*Source: General and special terms and conditions for crops and fruit insurance and animal insurance of "Dunav insurance", DDOR "Novi Sad", "Triglav insurance" and "Generali insurance".*

Beside insurance against basic perils, the offers of the four insurance companies which we analysed and which cover almost entire agricultural insurance market in the Republic of Serbia include a number of special conditions for insurance of crops, fruit and animals.

As regards special conditions for insurance of crops and fruit, the insurers also offer the insurance of seed maize against the loss of seed quality due to autumn

frost, insurance of table grape against the loss of quality and quantity, insurance of fruit trees and vine plants – young plants before bearing fruit as well as when bearing fruit. The offer also includes experimental insurance of oil seed rape against winter killing. Beside these insurable risks stated in Table 3, the offer also includes insurance against risk related to breeding specific types of domestic animals, as well as special conditions for insurance of animals with periodic determination of sum insured and premium calculation.

The analysis of the agricultural insurance offer in domestic market points to the conclusion that the most significant risks in crop and livestock production are covered under the terms and conditions of agricultural insurance by the insurers conducting business within the Republic of Serbia. The only shortcoming relates to the insurance against drought and loss of revenue which currently only one insurer has on offer.

### **2.3. Normative Framework of Agricultural Insurance**

Current regulations governing agricultural insurance in the Republic of Serbia are the following: Insurance Law,<sup>18</sup> Law on Subsidies in Agriculture and Rural Development,<sup>19</sup> Law on Amendment to the Law on Subsidies in Agriculture and Rural Development,<sup>20</sup> Regulation on conditions and manner of using subsidies for insurance of animals, crops and fruit,<sup>21</sup> as well as Regulation on conditions and manner of using subsidies for insurance of animals, crops, fruit, nurseries and young perennial plantations in 2012.<sup>22</sup>

The Insurance Law belongs to the part of legal regulations domestic legislation is getting in line with, i.e. adjusting with the EU legislation. With the aim of promoting rural development, the Law on Subsidies in Agriculture and Rural Development and its amendments prescribe incentives as a support to premium subsidy programs for crops, fruit, perennial plantations, nurseries and animals, that are paid in minimum total amount of 40% of the paid insurance premium for registered areas of appropriate culture not bigger than 20 ha.

The Regulation on conditions and manner of using subsidies for insurance of animals, crops, fruit, nurseries and perennial plantations prescribes an opportunity for physical persons – landowners, registered in the Registry of agricultural farms,

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<sup>18</sup> Insurance Law, *Official Gazette of the RS*, no 139/2014.

<sup>19</sup> Law on Subsidies in Agriculture and Rural Development, *Official Gazette of the RS*, no 10/2013, 142/2014.

<sup>20</sup> Law on Amendment to the Law on Subsidies in Agriculture and Rural Development, *Official Gazette of the RS*, no 103/2015.

<sup>21</sup> Regulation on conditions and manner of using subsidies for insurance of animals, crops and fruit, *Official Gazette of the RS*, no 106/2005.

<sup>22</sup> Regulation on conditions and manner of using subsidies for insurance of animals, crops, fruit, nurseries and young perennial plantations in 2012, *Official Gazette of the RS*, no 38/2012.

to be subsidised for a part of insurance premiums paid to insurance companies. Pursuant to this Regulation, agricultural insurance premium subsidies were first introduced in 2006 and they amounted to 30%. The government provided the same amount of subsidy in 2007, to increase it to 40% from 2008 onward.

Pursuant to the Regulation amendments in 2012, agricultural farms are entitled to insurance premium subsidies for: (a) animals against the risks stipulated in the insurers' conditions; (b) crops and fruit against the risk of reduced yield; (c) nurseries and young perennial plantations before bearing fruit, against risks prescribed in the insurers' conditions.

Apart from the agrarian budget subsidies, the farmers from Serbia are also given other subsidies, such as the ones from local governments' budgets. Thus, according to present regulations, the government subsidises up to 50% of agricultural insurance premiums as a way to promote its development.

### **III Study Results**

The subject of the analysis in this chapter are the most significant indicators of the current level of development of agricultural insurance in Serbia.

#### **3. Level of Development of Agricultural Insurance in Serbia**

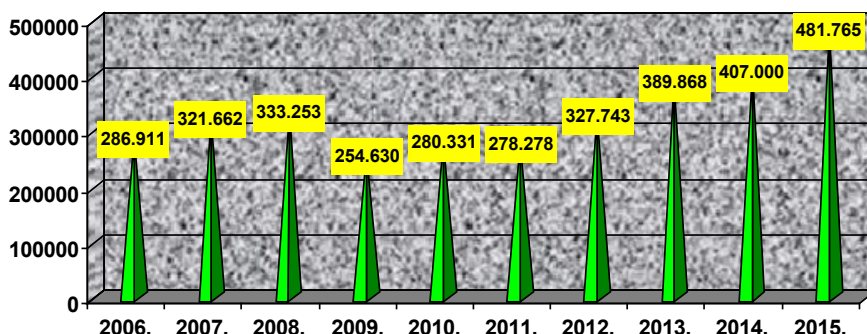
In order to estimate the current level of development of agricultural insurance in Serbia, overall insured areas, number of policies and the amount of agricultural insurance premiums need to be analysed along with the number of agricultural farms which exercise the right to insurance premium subsidies. Considering the fact that there is no Registry of insured agricultural farms in the Republic of Serbia, the number of farms that exercise the right to premium subsidies can be taken as an indicator of the total number of insured agricultural farms.

##### **3.1. Insured Areas**

Figure 1 shows data on total insured agricultural areas in Serbia. The data are an estimation that the author made based on the data gathered from the four leading insurers for this type of insurance in domestic market.



Figure 1: Overall insured area (ha)



Source: Estimation based on the data gathered from four leading insurance companies for this type of insurance in the RS

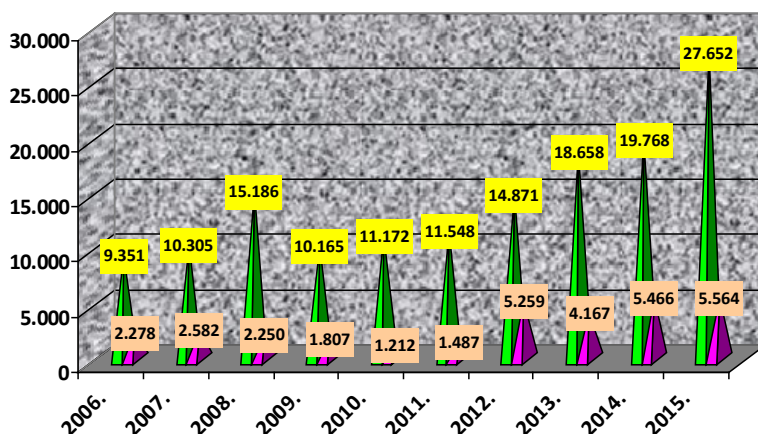
The analysed data presented in Figure 1 point to the conclusion that insured areas have been recording a rising tendency since 2011. The largest insured area was recorded in 2015, when 481.765 ha were insured according to the author's estimate. It makes 9,5% of the total agricultural area, i.e. 13,74% of the overall arable agricultural area in the Republic of Serbia.

### 3.2. Number of Agricultural Insurance Policies

Data on the total number of agricultural policies and movement thereof per years are available on the website of the National Bank of Serbia. Figure 2 shows data on the movement of the number of crop production and animal insurance policies in the Republic of Serbia in the period from 2006 to 2015.

The analysis of data presented in Figure 2 indicates that the smallest number of crop production insurance policies was recorded in 2006, which is the first one observed and the year when the Republic of Serbia started subsidising agricultural insurance premiums. The highest number of policies concluded for crop production insurance was recorded in 2015, i.e. in the last observed year. It can be concluded that crop production insurance has been recording a rising tendency since 2009.

Figure 2: Number of agricultural insurance policies



Source: [http://www.nbs.rs/export/download/osg-izv-y/god\\_T1\\_2006-2015.pdf](http://www.nbs.rs/export/download/osg-izv-y/god_T1_2006-2015.pdf)

Based on the data presented in Figure 2, it can be concluded that the number of policies concluded for animal insurance in Serbia is much lower than the number of policies concluded for crop production, which means that animal insurance records a considerably smaller market share. In the observed period, the smallest number of animal insurance policies was recorded in 2010, since when, with minor oscillations, it has been recording a rising trend. The largest number of animal insurance policies was recorded in 2015, but it is still insufficient if we take into consideration the significance of this insurance line and current diversified offer in domestic agricultural insurance market.

### 3.3. Agricultural Insurance Premiums

Comparative survey of premium movements in crop production and animal insurance in the Republic of Serbia, in the period from 2006 to 2015 is shown in Table 4. Based on the analysis of the presented data in the observed period, it can be concluded that premiums in crop production insurance recorded a significant increase. More precisely, crop production insurance premium in 2006 amounted to 611,7 million RSD, whereas in 2015 it amounted to 1.672,8 million RSD. However, even beside this increase, it is thought that it is still insufficient, i.e. that farmers, despite low insurance price, underinsure their production.

An illustrative example of low insurance price is given by Žarković, who says that “in one of our insurers annual insurance premium of wheat, per one

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hectare, per average yield of 5 tons and 20 RSD per kilo, amounts to 2.860 RSD, whereas in case of plum, it amounts to 1.310 RSD per yield of 1.000 kg.<sup>23</sup>

*Table 4: Agricultural insurance premiums*

<b>Year</b>	<b>Crop production insurance premiums (in 000 RSD)</b>	<b>Animal insurance premiums (in 000 RSD)</b>
<b>2006</b>	611.691	409.737
<b>2007</b>	751.461	516.619
<b>2008</b>	1.105.208	511.247
<b>2009</b>	746.736	377.500
<b>2010</b>	793.873	283.180
<b>2011</b>	968.926	269.200
<b>2012</b>	1.126.363	438.397
<b>2013</b>	1.503.919	405.255
<b>2014</b>	1.603.900	440.739
<b>2015</b>	1.672.794	522.067

Source: [http://www.nbs.rs/export/download/osg-izv-y/god\\_T1\\_2006-2015.pdf](http://www.nbs.rs/export/download/osg-izv-y/god_T1_2006-2015.pdf)

Data presented in Table 4 indicate that animal insurance premium significantly oscillated in the observed period, but that its value increased by not more than 27% in 2015 compared to the first observed year of 2006.

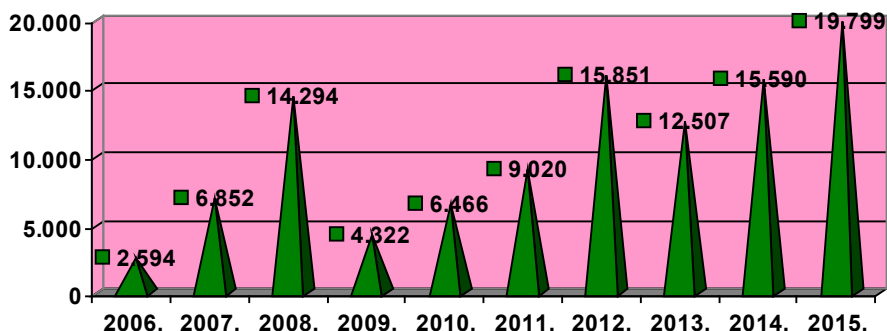
### **3.4. Agricultural Insurance Premium Subsidies**

The Ministry of Agriculture, as previously mentioned, has subsidised agricultural insurance premium since 2006. Number of agricultural farms that exercised the right to these subsidies in the period from 2006 to 2015 is shown in Figure 3. Based on the data shown in this figure, we may conclude that the number of agricultural farms that exercised the right to these subsidies in the observed period was oscillating. In the year 2015, the last one observed, the right to agricultural premium subsidy was exercised by 19.799 agricultural farms, of which 18.268 received subsidies for crop production insurance and 1.531 received subsidies for animal insurance.

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<sup>23</sup> Nebojša Žarković, "Osiguranje u poljoprivredi – nedovoljno razvijeno, a još manje korišćeno", *Poljoprivrednikov poljoprivredni kalendar 2016*, Novi Sad, 2016, p. 73–74.

Figure 3. Number of agricultural farms that exercised the right to agricultural insurance premium subsidies in the period 2006–2015



Source: Ministry of Agriculture and Environmental Protection

Since there is no Registry of insured agricultural farms in Serbia, we can use data shown in Figure 3 to establish changes in the total number of registered insured agricultural farms in the observed period. Thus, we can conclude that 19,799 agricultural farms were insured in 2015, which is just 3,13% of the total number of agricultural farms in the Republic of Serbia. The total number of agricultural farms in the Republic of Serbia was established in the last agricultural census conducted in 2012 and it counted 631,552 farms.

#### **4. Factors that Affected (Under)Development of Agricultural Insurance**

The underdevelopment of agriculture is the most significant factor that affects the underdevelopment of agricultural insurance in the Republic of Serbia. Our first and well-known insurance theorist Antonije Tasić states in his analyses that “underdevelopment of agricultural insurance in Serbia shows utter backwardness of our agriculture”.<sup>24</sup> According to Tasić, main cause of underdeveloped agriculture and its economic protection are disparities between prices of agricultural and industrial products in Yugoslav market.

According to our opinion, apart from disparity in prices, other factors also contributed to an unfavourable position of agriculture in domestic economic system in pre-transitional and transitional period. These factors include unresolved issue of agriculture funding, inconsistent agrarian policy, insufficient government

<sup>24</sup> Antonije Tasić, “Zaostalost poljoprivrednog osiguranja u osiromašenoj poljoprivredi”, in: *Zbirka rasprava i članaka iz osiguranja*, Novi Sad, 1994, p. 121.

and strategic support to agriculture as one of the most important industries in Serbia, as well as inadequate conditions in the banking market for financial needs of farmers. In addition to this, the unfavourable position of agriculture in domestic economic system was affected by adverse economic characteristics of agricultural production. Agricultural production in Serbia is mainly extensive, so in the period from 2000 to 2016 a growth was recorded in just four years. However, one of the ways for intensifying agricultural production is investment in preventive economic protection by constructing hydroregulation system, anti-hail nets, glass houses, plastic covered greenhouses and so on.

Unfavourable economic position of agriculture is also affected by underdeveloped and unregulated market of agricultural products and commodity exchanges. In addition to this, there are other adverse factors such as insufficient pooling of agricultural producers and unfavourable demographic structure with dominant elderly agricultural households. Negative economic characteristics of domestic agriculture also include a small size of estates, an average estate being not bigger than 4,5 ha, as well as characteristics of property relations where private property has a dominant share, which altogether disables merging of estates and consequently the intensification of agricultural production.

All stated factors directly affect farmers' low ability to pay and insufficient demand for agricultural insurance on domestic market. However, as our previous analyses pointed to the conclusion that insurance price is not too high, we think that one of the key factors of underdevelopment of agricultural insurance in Serbia is a lack of information and education of farmers about the importance and necessity of economic protection of agricultural production.

## **5. Possible Manner of Introduction of Partly Compulsory Agricultural Insurance<sup>25</sup>**

With a view of developing agricultural insurance in Serbia, we think the introduction of partly compulsory agricultural insurance is necessary. To achieve this, this insurance line needs to be legally defined as partly compulsory and the strategy of agricultural insurance development in the Republic of Serbia needs to be adopted.

The suggested model of partly compulsory agricultural insurance is based on public-private partnership, and its implementation would not just enable the development of agricultural insurance, but would provide for the funds necessary for current and investment financing of this significant economic activity.

Partly compulsory agricultural insurance implies compulsory agricultural

<sup>25</sup> Gordana Radović, "Poljoprivredno osiguranje kao moguća vrsta obaveznog osiguranja u Republici Srbiji", Doctoral dissertation, John Naisbitt University, Belgrade, Faculty for Business Studies, Belgrade, 2016, p. 210–214.

insurance for all farmers who are beneficiaries of some type of government funds, against the most common risks in a particular area. Thus, according to the suggested model, agricultural insurance should be compulsory for:

- (a) beneficiaries of agricultural development incentives paid out from the national, regional or local government budget;
- (b) users of loans with interest rates subsidised by the government;
- (c) users of loans granted by the state financial institutions and placed with low (subsidised) interest;
- (d) lease holders of state agricultural land.

It needs to be said that, according to the current policy of commercial banks, there is only one compulsory insurance of animals, namely, if a loan user intends to use these funds for the purchase thereof.

According to the suggested model of partly compulsory agricultural insurance, when applying for state subsidies, either for loans with subsidised interest or for the lease of state agricultural land, farmers (legal entities and physical persons) should submit an insurance policy as a part of mandatory tender documentation. In any case, insurance cost is not too high, and while farmers would not significantly increase their obligations, their business would be safer. In addition, in case of natural disasters, the state would not need to use additional funds from the budget to alleviate the damage as was the case in previous years, since it would be done by insurance companies. There are examples of compulsory insurance for beneficiaries of state funds all over the world, namely in countries with developed agriculture, such as the USA and Canada.

Partly compulsory agricultural insurance would relate to the insurance against the most common risks in particular areas. For that purpose, the Agricultural Risk Map should be drawn up for Serbia, where areas would be divided according to the probability of risk occurrence, i.e. according to the risk zones. This would enable determination of risk coefficients as well as compulsory agricultural insurance for risks that are most common in particular areas. There is also the proposal for drawing up the Agricultural Risk Map in Croatia, along with the idea to introduce a unique insurance policy for the risks that are prevalent in a certain area. Undoubtedly, the above mentioned would be also applicable in domestic conditions, especially with a view to applying the suggested model of partly compulsory agricultural insurance.

In line with the suggested model, increased revenue of insurance companies should be used for financing agricultural sector. More specifically, insurance companies would have to invest 20% of the collected agricultural premiums into agriculture, without increasing the price of agricultural insurance. We think that the earmarked funds would be most rationally used in this respect if there were a specialised (development) state financial institution in Serbia for that activity, that is, a specialised agricultural bank.<sup>26</sup>

<sup>26</sup> Gordana Radović, *Finansiranje poljoprivrede u Republici Srbiji*, Belgrade, 2014, p. 92–94.

The specialised agricultural bank should primarily invest these funds in preventive economic protection of farmers, such as the construction of irrigation system, anti-hail nets etc. Loans would be granted only to subjects who fall within the system of compulsory agricultural insurance, under the most favourable conditions in the banking market. According to the suggested model, insurance companies that would conduct compulsory agricultural insurance would, together with the state, need to finance necessary education of the farmers on insurance topics. Education and training would be compulsory, and the obtained certificate would be a part of the basic documentation when applying for some government fund.

In line with the suggested model of partly compulsory agricultural insurance, insurance premium subsidies should amount to at least 50%. When signing an insurance contract, only 10% of the premium would be paid, and the remaining amount would be effected after the harvest, that is, gathering. In this way, seasonal character of the agricultural production would be followed and current solvency of farmers would not be jeopardised in the months when they have most investments. That would result in less resistance of the farmers towards this new tax. For this purpose, insurance companies would have to change insurance conditions since under the current conditions a fully paid insurance premium is a condition for the payment of indemnity in case of an occurrence. Some of the standardised collaterals, such as bill of exchange, security or encumbrance would serve as a guarantee for premium payment.

According to the suggested model, an independent government verification institution for agricultural insurance needs to be established, so as to resolve the issue of negative experiences that farmers have had with some insurers regarding loss assessment and settlement. The above mentioned would by all means contribute to improving negative attitude of farmers towards insurance. Members of the government verification institution should be independent experts in the area of agronomy and insurance, possessing a high degree of integrity.

In view of development of agricultural insurance in the Republic of Serbia, insurance companies should offer insurance against drought and loss of revenue. In order to avoid moral risk, it would be necessary to stipulate for the farmers to sow only declared seeds instead of so-called "seeds from the attic", to use mineral fertilisers as well as chemical protective agents in optimum quantity – if the insurance of revenue were to achieve its full purpose.

## **6. Conclusion**

The analysis and the presented results in this paper undoubtedly indicate that agricultural insurance in Serbia is underdeveloped. The prospects of its development in domestic conditions should also involve more active role of the

government. The government role could also be reflected in the introduction of partly compulsory agricultural insurance, as well as in providing funds from the agrarian budget for higher insurance premium subsidies. At the same time, insurance companies should have a key role in domestic market of agricultural insurance by developing both offer and demand, as well as in informing and educating farmers on the importance of economic protection of their production. The suggested model of partly compulsory agricultural insurance is based on a public-private partnership, and its implementation would not only enable the development of agricultural insurance, but would ensure funds necessary for current and investment financing of this significant economic activity.

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