Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development
Vol. 13, Issue 4, 2013
PRINT ISSN 2284-7995, E-ISSN 2285-3952

SOYBEAN PRODUCTION IN ROMANIA:STUDY CASE ON CONVENTIONAL AND FORMER HT SOYBEAN PRODUCERS

Silviu BECIU[1], Toma Adrian DINU[1], Raluca Georgiana LĂDARU[2]

[1]University of Agricultural Sciences and Veterinary Medicine, Bucharest, 59 Mărăşti, District 1, Bucharest, Romania, Phone/Fax: 0040723165907; 0040745143091;
E-mails: beciu.silviu@managusamv.ro, tomadinu@yahoo.fr
[2]The Bucharest University of Economic Studies, 6 Romana Square, District 1, Bucharest, Romania, Phone/Fax: 004/072301328, E-mail: ralucaladaru@eam.ase.ro

Corresponding author: beciu.silviu@managusamv.ro

Abstract

This paper is related with Romanian potential of soybean production and is based on idea that farmer's incomes on this culture can be significant. The paper is based on research survey conducted among farmers that produced soybean in their farms. The research area was selected in the South East part of Romania, where were recorded the largest HT soybean surfaces before 2007, the year when Romania joined the EU and the production of HT soybean was forbidden. Both HT soybean and conventional soybean farmers were interviewed. The results indicates positive attitude of soybean farmers regarding soybean production if new regulation regarding GM production are adopted at EU level, which can lead to higher cultivated areas with this culture.

Key words**:** *conventional soybean, farm level, GM production, HT soybean*

INTRODUCTION

As Bertheay said, soybean is the most important agricultural commodity traded around the world, both in terms of volumes and money, and this crop also shows the most important changes over the last decades by the predominance of genetically modified (GM) crops, dominated by herbicide tolerance traits, and its worldwide cultivation [1]. Romania started to cultivate GM crops in 1998 from technical and economical considerations. Romania cultivated for several years GM crops on areas larger than in many European countries and was ranked 11th largest GM crop growing country worldwide in 2004. Since then, soybean production in Romania has registered a continuous decline imposed by the EU interdiction to cultivate genetically modified cultivars even if soybean protein is imported in Romania, as in the other EU countries, in order to balance the diminished internal production [2]. Genetically modified HT soybean technology was attractive for Romanian farmers due weeds contribute significantly to reduced yields and to downgrading of crops sold because of the presence of weed material in deliveries to buyers and users. [3]. As Smale M. said [4], despite the fact that HT soybean is the predominant GM crop worldwide few studies analyse its social and economic impact.

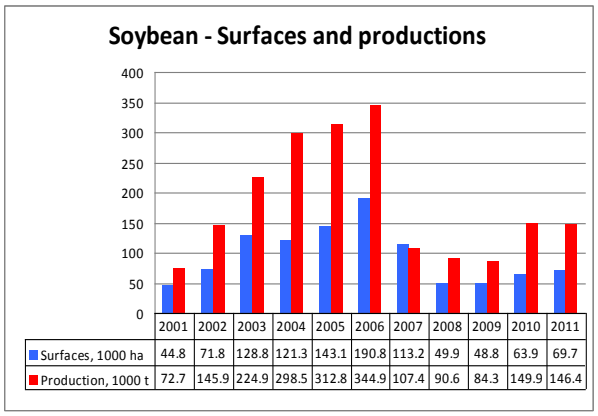
MATERIALS AND METHODS

The research method was based on face to face interview. A choice experiment regarding coexistence measures was carried out with all the farmers that accepted to answer. The soybean farmers that were interviewed during several rounds are situated in the areas of Brăila, Ialomiţa, Călăraşi, Teleorman, Giurgiu, Argeş, and Tulcea counties.

RESULTS AND DISCUSSIONS

GM soybean was the first crop cultivated in Romania. Its production was allowed until 2007, when Romania became part of the EU and adopted its regulations which not authorize GM soybean cultivation. Currently GM crop cultivation in Romania is allowed only for Bt maize, which was approved for cultivation since April 2007.

So we could get a clear image of what GM crop production means for Romanian farmers, we interviewed former GM soybean farmers, as well as their neighbors concerning their experience or point of view regarding GM cultivation and the costs of coexistence measures.It is to mention that regulations governing GMOs crops were first introduced in 2000 by Ordinance 49/30.01.2000 on obtaining, testing, utilization, and commercialization of GMOs. At the beginning of 2012 was published by the Ministry of Agriculture and Rural Development Romania an order regarding authorization and control of GM crop growers and measures to ensure coexistence of GM crops with conventional and organic crops (MADR, Ordin 61/26.03.2012). In order to establish a strict control on genetically modified crops and production resulted by cultivation of these crops, have been taken measures to ensure their traceability and labeling, in accordance with national and Community legislation in this field. The cultivation of GM soybean extended between 1998 and 2007, by each year. The official figures shows that in the last 3 years of authorized production, the GM soybean surfaces increased from 58 thousand ha in 2004 (from 121 thousand - total ha of soybean) to 87 thousand ha in 2005 (from 143 thousand - total ha of soybean) and then to 137 thousand ha in 2006 (from 190 thousand ha - total of soybean). (Fig. 1).



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Surfaces, 1000 ha	44.8	71.8	128.8	121.3	143.1	190.8	113.2	49.9	48.8	63.9	69.7
Production, 1000 t	72.7	145.9	224.9	298.5	312.8	344.9	107.4	90.6	84.3	149.9	146.4

Fig. 1. Soybean –surfaces and production in Romania

The GM soybean cultivation was attractive for Romanian farmers which faced with a high level of weeds spreading.

We selected 80 soybean farmers with a request to participate in an interview. From the initial list only 59 accepted to provide answers. Farmers were asked for their general knowledge, attitudes and perceptions towards GM crops and other new technologies, socioeconomic and farm characteristics, relation with neighbors, their experience with GM soybean, and the burden of coexistence measures.

Most of the farmers are situated in the South East part of Romania. The main farm type in our sample was arable farm (50), followed by mixed farms (9).

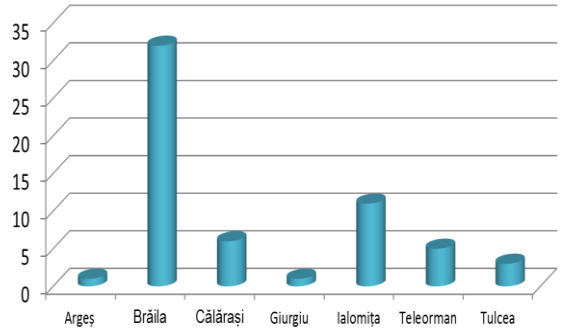


Fig. 2.The selected survey counties for soybean.

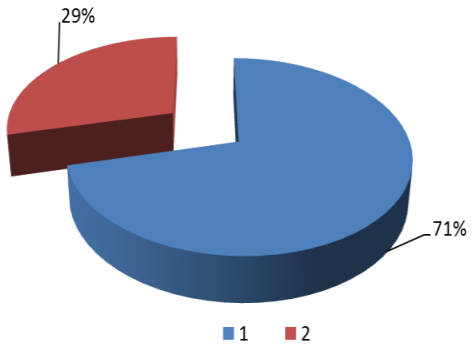


Fig. 3. Former HT and conventional soybean farmers

From the total of interviewed farmers, 42 cultivated in the past HT soybean, representing 71 % of them.

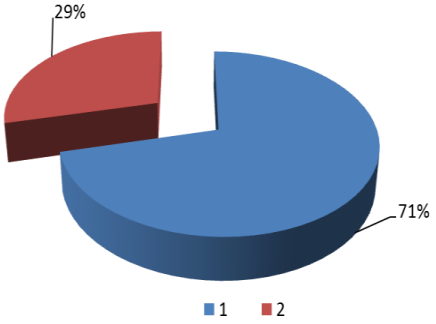


Fig. 4. The range between adopters and non adopters of HT soybean

The cereal and oilseed production provides the largest share of farm income in 48 farms. For other farms, besides the mentioned categories, large share of income are assured by vegetables and animal production. The average farm size was 820 ha, so we can conclude that our sample consisted more from large farm, compared with national average of 3.45 ha/farm (environ 3.8 millions of farms in Romania). The total area of these farms is 48.388 ha. Most part of the utilized agricultural area, of 34.882 ha (72 %, corresponding to an average of 591 ha/farm) is rented by farmers. In 2012, only 22 farmers cultivated conventional soybean. The average area cultivated by these farmers was 58 ha/farm. As regarding the constraints in reaching the highest yields, the water scarcity is considered to have the highest negative influence. The soil is appreciated to be of high quality by an important number of farmers (17, representing 28.8 % of them), while the weeds infestation is a major problem for 28 farmers (47.4 %). The pests are in the third position as a factor of low yields, while the seeds quality and the topographic factors seem not to be a problem, for most part of the farmers. It is to mention here that most of the farms are situated in the plain areas, with the most favorable conditions for agriculture from Romania. The crop losses from weed pressure (1=least significant 10= most significant) is considered very important by 45 farmers (20 of them consider this fact as the most significant factor which determinate crop losses in their field production)

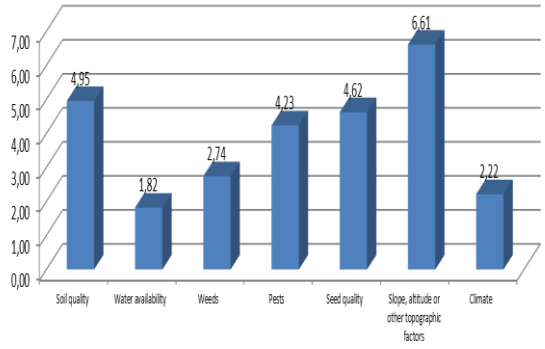


Fig. 5. The average media for each production influence factors

Table 1. Summary statistic for sample farm with soybean production

No. crt.	Characteristic	Sample statistic
1	Age	48.1 years
2.	Education	University degree in Agriculture (71.1 %)
3.	Job experience	17.3 years experience
4.	Farm size	820 ha
5.	Land rented	72 %
6.	People employed in farm	3.89
7.	Farm income/Profit	Most part bellow 20.000 Euro
8.	Area of conventional soybean per farm in 2005	1309 ha 22.1 ha/farm
9.	Area of conventional soybean per farm in 2006	275 ha (4.66 ha/farm)
10.	Area of Conventional soybean per farm in 2012	940 ha (15.9 ha/farm)
11.	Area of HT Soybean in 2005	2266 ha 38.4 ha/farm
12.	Area of HT Soybean in 2006	4661 ha 79 ha/farm

Source: Survey on soybean farmers, in the South East of Romania, 2012

The farmers were asked about the conventional soybean area harvested that they harvest in 2005, 2006 and 2012. In 2005 only one farmer harvested more than 200 ha of conventional soybean. Most part of the survey farmers that had soybean in production in 2005 have cultivated and harvested between 31 and 50 ha. In 2012, the HT soybean being prohibited, the number of farmers that cultivated and harvested soybean increased. If we compare the conventional soybean surfaces harvested by farmers in 2005, 2006 and 2012, we can see that in 2005 they harvested the largest areas of soybean.

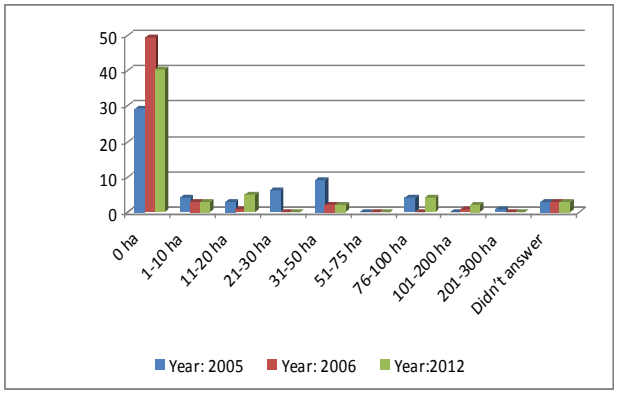


Fig. 6. Conventional soybean area harvested in 2005, 2006 and 2012

Most part of these farmers with HT production (9) cultivated between 31 and 50 ha in 2005. Also 7 farmers cultivated in the same year between 21 and 30 ha. In 2006 the surfaces of HT soybean per farm have increased. Most part of the farmers with HT production from our survey (11) cultivated between 76 and 100 ha.

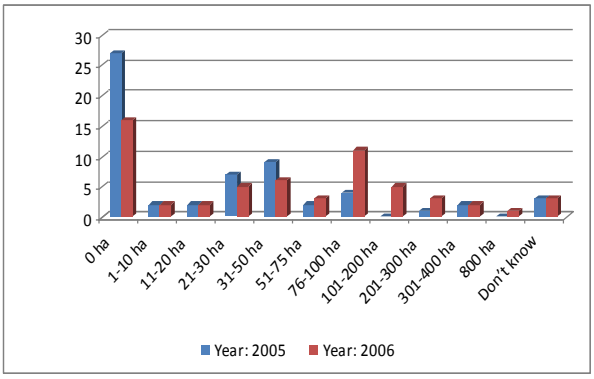


Fig. 7. HT soybean area harvested in 2005 and 2006

CONCLUSIONS

For the soybean farmers, HT soybean is considered as viable solution for their future plans of production.

Most of them consider coexistence cost to be not significant in relations with the benefit of reintroducing of this type of crop in production.

In Romania farmers had coexistence cost related with obtaining of production authorization, and which involved several visits to the different national or local institutions in charge with this aspects.

Soybean is a self pollinated plant that doesn't require special measures in production. The cost of coexistence appears for farmers at harvesting, but starting for this point, the cost are related with the others commercial partners from the market.

ACKNOWLEDGMENTS

This paper represents dissemination of the project "PRICE, Practical Implementation of Coexistence in Europe", Grant Agreement no 289157, EC Seventh Framework Programme Theme KBBE.2011.1.4.-03

REFERENCES

[1]Bertheau, Y., Davison,J.,2011, Soybean in European Union, Status and Perspective, Recent trends for Enhanching the Diversity and Quality of Soybean Products, Prof. Dora. Krezhova (Ed.)

[2]Popescu Agatha, 2012, Research regarding oil seeds crop development in Romania in the EU context, Journal of Agricultural Economics, Ekonomika Poljoprivrede No.11/2012:129-138, Belgrade, Serbia

[3]Brookes, G., 2005, The farm-level impact of herbicide-tolerant soybeans in Romania. AgBioForum, 8(4), 235-241

[4]Smale, M, Zambrano,P., Paz-Ybarnegaray,R., Montano, W.F., A case of Resistance: Herbicide-tolerant Soybeans in Bolivia.