STUDY ABOUT THE POSSIBILITIES OF INCREASING THE RAPESEED CULTIVATED LAND POTENTIAL IN ROMANIA

STUDIU PRIVIND POSIBILITĂȚILE DE CREȘTERE A POTENȚIALULUI DE CULTIVARE A RAPIȚEI ÎN ROMÂNIA

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Abstract: *The European Directive 2003/30 EC establish the necessity to using the biofuels in transports to achieve the objectives of Kyoto Protocol, objective situated at a using a 6,3 % from totally European fuel consumption. The present paper analyzes the evolution of rapeseed crop in Romania and the difficulties in obtaining an efficient economically process. Is presented the practically results that was obtained by several agricultural companies that was used our recommended crop technology to obtained of a 2500-3600 kg/ha production.*

Rezumat: *Directiva Europeana 2003/30 EC stabileşte necesitatea utilizării biocombustibililor în domeniul transporturilor, pentru atingerea obiectivelor stipulate în cadrul Protocolului de la Kyoto, obiectiv ce prevede utilizarea a 6,3% a biocombustibililor din consumul european total de combustibili. Lucrarea prezentă analizează evoluţia şi dificultăţile tehnico-economice legate de cultura rapiţei în România. Sunt prezentate rezultate practice obţinute de câteva societăţi agricole care au implementat tehnologia specifică de cultivare a rapiţei propusă de către noi, obţinând în acest sens recolte de 2500-3600 kg/ha.*

Key words**:** *renewable energy, Rapeseed, biofuels, crop production technology, productivity.*
Cuvinte cheie: *energie regenerabilă, rapiţă, biocombustibili, tehnologie de cultivare, productivitate.*

INTRODUCTION

The importance of rapeseed crop consists of in first time in oil production (the rapeseed contained 43-48% fat) and secondary in the production of grit that is used in animal's food as protein forage. Beside the basic utilizations of rapeseed oil is used as biofuel as well sun-flower and Soya as for the diesel engines, being a renewable energy source (known also as biodiesel) [1].

The advantages of biofuels using became from the facts that they doesn't rise the level of CO_2 from atmosphere, don't contain sulphur, have a 4-5 time higher biodegradation properties than the fossil fuels, are environment friendly, permit new development possibilities of agriculture field of economy and can create new jobs. The using of biofuels also reduces the pollutant emissions with 11% of CO, 15% of particulate emission and 95% of sulphur compounds.

At the start of the new millennium the whole world is confronted with a new critical era because of the necessity of a powerful technologically development imposed by the continue growth of social demands and on other side because of the continue reducing of the raw materials and the increasing level of pollution. The using of energetic crops is impose more and more because that kind of alternative can be the right answer in assuring of renewable resources and in reducing of the pollution level.

The energetic crops as European Commission Document no.1782/2003, art.88 definition are those kind of crops that can be use to obtain biofuels, electric and thermal energy from biomass. The estimation of European Union Commission for Energy show that till 2010 year the renewable energetic resources must be approximate at 6,3 % from totally energetic European consumption and 5,75% of those must be biofuels [3].

The present paper analyzes the evolution of rapeseed crop in Romania and the difficulties in obtaining an efficient economically process. Is presented the practically results that was obtained by several agricultural companies that was used our recommended crop technology to obtained of a 2500-3600 kg/ha production. It's important to mention that in actually conditions, in Romania the rapeseed cultivation is economically efficiently from a production above of 2200 kg/ha.

MATERIALS AND METHOD

It is obvious that and the Romania must full fit this demand. The necessity of Romania in biofuels to full fit a demand of 2% of biofuels from totally fuels consumption is about 100.000 tones/year. Nowadays in Romania are only few biofuels production capacities at small capacity as AutoElite and Biolam in Maramures County, Blitz Transport in Prahova County, AnyProd and Letsol in Olt County. Today are in development a series of several large production capacities at a total production estimated to a 200.000 t/year (PrioBiocombustibil and Ultex in Ialomita County, Ulerom in Vaslui County, Climoform in Bacau County). The forecast production of plants for vegetable oil (POV) crops to cover the Romania's biofuels demand are 1,2-1,5 Mio tones sunflower oil seeds, 0,3 Mio tones of Soya and 1,0 Mio tones of Rapeseed [3]. Those demands can be achieve with growing the cultivated area with Rapeseed at 500.000 ha in immediate period of time.

The calculus of estimated oil production to cover the necessary of Rapeseed and Soya biofuel for Romania needs is:

- for Soya from 0,3 Mio tones is obtain 52.500 tones of oil (from a 17% extraction efficiency);
- for Rapeseed from 1,0 Mio tones is obtain 350.000 tones of oil (from 35% extraction efficiency).

From the future needs of 902.500 tones of vegetable oil from all POV that will be obtain in Romania, 300.000 tones will be used in food industry and for domestic consumption and the difference of 602.500 tones will be use to biofuels production.

It must be mentioned that in Romania the first complex researches about the use of biofuels was made in 80' years at University of Agriculture and Veterinary Medicine (USMAV) from Cluj-Napoca, researches that was re-launched in 1995 by a consortium formed by USMAV, Technical University of Cluj-Napoca (UTCN) and The Institute for Analytical Instrumentation (ICIA) of Cluj-Napoca. The most important realization is the practical implementation in Cluj-Napoca of the buses that are feed with biofuels and the present researches conducted to develop of a national strategy of biofuel use in Romania [2].

At a world level, the trends of the POV crops production in presented in table 1.

Table 1

The levels of world POV seeds crops production (in Mio tones)

Agricultural crop year	1999 / 2000	2005 / 2006
Soya	160,2	218,1
Sun-flower	26,7	29,4
Rapeseed	42,6	48,1
Others	72,8	89,1
Totally	302,3	384,7

For the Rapeseed crop production and Rapeseed oil the main indicators that refer to the quantity of world and European production are presented in figure 1 and figure 2.

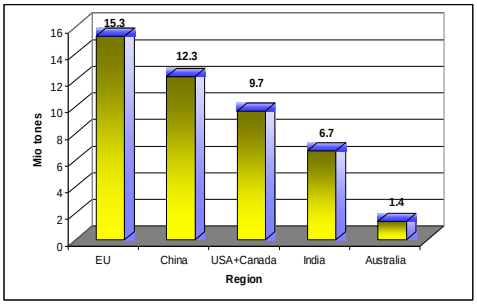

Figure. 1. The world production of Rapeseed 2005-2006

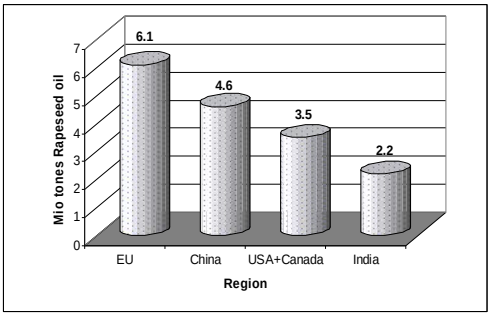

Figure.2. The world production of Rapeseed oil 2005-2006

The evolution of POV crops quantity in Romania is presented in table 2 and the evolution of Rapeseed crops quantity is presented in table 3 [4].

Table 2.

The evolution of POV crops in Romania (in Mio tones)

Agricultural year	**2004 / 2005**	**2005 / 2006**
Soya	0,3	0,3
Sun-flower	1,3	1,6
Rapeseed	0,15	0,18
Totally	1,75	2,08

Table 3.

The evolution of Rapeseed crops in Romania

Year	**2004**	**2005**	**2006**	**2007**
Cultivated area ($x10^3$ ha)	50	84	105	348
Average production quantity (kg/ha)	2090	1829	1655	998
Total production ($x10^3$ tones)	101	154	174	347

CONCLUSIONS

From the interpretation of dataset contained in table 3 is important to say that to achieve the necessary of 1.000.000 t of Rape seed (to convert into biofuel) and to respect the

recommendations of European Commission it is necessary to increase the cultivated area with Rapeseed to 368.000 ha to a minimum area of 500.000 ha.

That target can be achieving trough some specific measures as:

- Using as standard the German technology for Rapeseed cultivation, that is characterized by a 50-70 seeds density/m^2, it can be possible to obtain a average production of 2600-3600 kg/ha. Today the Romanian standards recommendation is to use 100-150 seeds density/m^2 but the average obtained production is no bigger than 2700 kg/ha;
- Continue researches to identify the right soil properties and availability for Rapeseed cultivation because it can see (table 3) that even the cultivated area is bigger yearly the average production trend is negative. It is important to mention that in 2007 the Rapeseed crop was affected by meteorological extreme conditions (drought).
- A very good preparation of plants germination bed with adequate technologies and with proper agricultural machinery system;
- To respect the optimum time interval (20 August-5 September) for seeding to assure a proper plant development before the winter;
- Obtaining of support forms and programs that will be apply at national level from agricultural year of 2007-2008 as European funds SAPS (the unique direct payment for cultivated area 45 Euro/ha), CNSP (national supplementary payment for cultivated area)
- To apply the excises exemption for biofuel (Romanian Fiscal Code, article 201);
- The dissemination of the possibilities and the necessary agricultural management to obtain the profit form a Rapeseed crop to the farmers and to the all those are interest in this specific type of crop;
- To harmonize the Romanian Legislation with European's one in this domain.

LITERATURE

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