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Production of biofuel and enhancement of the mechanism of implementation of innovations

Scientific problem. The development of agrarian sector of economy is in progress under the circumstances of the formation of innovative brunches of economy that produce goods with high added value. One of such brunches is biofuel industry. And this brunch has accumulated a number of scientific problems. Nowadays the profound study of guidelines for further development of the industry as well as for enhancement of the mechanism of implementation of innovations are of paramount necessity.

The objective of this article is to study theoretical, methodological and practical aspects of the development of biofuel industry in Ukraine and to outline the conceptual patterns for enhancement of the mechanism of implementation of innovations into production of biofuel.

Analysis of recent researches and publications. The problems of functioning of mechanisms of implementation of innovations for the development of economic systems and production of biofuel are considered in studies of such researchers as O.Lapko [11], N.Krasnokutska [9], L.Deineko, I.Irtyshcheva [5], S.Volodin [15], O.Mamedov [12], L. Bilozor [1], P.Sabluk, O.Shpykuliak, L.Kurylo [6], H. Kaletnik [7], A.Shchokin, Y.Kolesnyk, S.Kudria [14], V.Dubrovin, M.Melnychuk, Y.Melnyk [2], V.Mesel-Veseliak, M.Yarchuk [13], I. Kyrylenko [10], L. Korniichuk [8] and others. The authors of scientific publications mostly study general economic aspects and the most substantial points of the development of biofuel production. We provide the analysis of this problem within the framework of the innovative nature of the brunch, particularly on subject matters of formation of the mechanism of implementation of innovations.

Statement of the main results of the study. Formation of efficient mechanism of management in economy and its brunches to great extend depends on the functional capacity of the system of implementation of innovations. Innovations are the basic factor for the scientific and technological progress of the production systems. This proves the importance of the mechanism implementation of innovations as a sum of entrepreneurial and industrial factors of competitiveness and productivity.

The innovative nature of the efficient functioning of the productive systems as well as functional capacity of the whole mechanism is provided and ensured by such features as: systemic organization of process of implementation of innovations and formation of sustainable tendencies of implementation of innovations; combination of traditional (price) competitive advantages of enterprises and innovative basis of formation of these advantages; active participation in the processes of global redistribution of innovations; competitiveness of domestic innovative researches and scientific findings; distinction of the small business as the main source for innovations with the proper institutional backing; creation of a functional system of protection of the intellectual property rights.

Ukraine is a country with tremendous unexplored and not used crop-growing potential. It can produce necessary volumes of agrarian commodities that technically can be used for processing into biofuel. It is possible to extend the biofuel production potential given guaranteeing of the national food security due to augmentation of the production volume particularly, of spicate cultures and corn. Ukraine has enormous production potential of agrarian cultures that can be used for the same purpose of production of biofuel and such reorientation

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won`t be harmful for the level of state food security.

Within recent three years (2010-2012) Ukraine had the highest harvest rates of crops for the whole history of independence of the country. In case of transfer to the innovative model crop production it can produce 80-100 mln tones of crops, given the food consumption rate of 5,8-6,5 mln tones. Hence, the biofuel brunch has good prospects for the development, in case the principles of the state food security are taken into consideration along with careful evaluation of the further dynamics the development of the global food market. As for the analysis of the problem of the efficiency of production of biofuel and the formation of the foundations for the development of this brunch in our country, we should state that the development of this segment of economy is on its primary stage. But due to the world market tensencies, this brunch of economy produces high added value in case of heavy investments and use innovations especially on the primary stage.

The consumption of huge volume of oil products for production of agrarian commodities on the agrarian enterprises constitutes the largest part of expenses. General expenses on the whole agrarian sector scale constitute approximately 15%, respectively in plant growing - 20% and in cattle breeding - 4%.This proves that agriculture is first to discover and implement new ways of energy saving, and energy alternatives.

In Ukraine, particularly in Vinnytsya region there are productions of certain types of alternative energy sources. For instance, on the basis of system “Vinnytsyaagrolis” there was created an energy matrix plantation of fast grower poplar, that vegetatively reproduces itself and does not require annual investments on planting it.

Another type of production of bioresources is growing of perennial bioenergetic plants. The team of researchers and scientists of ‘Vinoblagrolis’ have worked out the process the growing of silphium. This plant is characterized by ecological resistance and high productiveness rates of the above-land mass. Also as this monoculture is perennial it can be grown on the same land for 15-20 years, with its the potential harvest rate of 25 tones of dry substance per hectare. This herb is perfect for briquette production, and the productiveness rate of this herb ensures substitution of 8,2 thousand m^3 of gas.

Nowadays the problems of renewable and alternative energy resources are extremely acute as it is getting more and more difficult to meet the needs and demands of the world`s population. Several decades ago scientists used to consider the nuclear energy to be one of the cheapest and reliable solutions to the problem. Yet, the notorious consequences of the Chernobyl catastrophe for Ukraine and of Japanese Fukushima-1 for the whole world prove the necessity and topicality of further research of alternative energy sources, particularly biofuel. For Ukraine it also entails such side problem as attraction o investments for practical implementation of the alternative energy development programmes. The development of biofuel sector can ensure secure and full-fledged life on our planet.

Ukraine has great biomass potential that is suitable for the power and energy sphere. For instance it has vast range of biomass types such as: the waste products of agriculture (straw, corn-cobs, sunflower husk), solid waste, particularly containing lignocellulose. It is possible to use as raw materials for production of fuel ethanol such biomass types as molasses (production volume approximately 2 mln tones a year), crops and specific technical cultures, potatoes, various types of fruits.

For the process of formation of the mechanism of the development of biofuel production it is totally essential to create proper institutional environment. It is also important that the state and scientific institutions and organizations take certain actions.

There is some progress at the process of scientific formation of the mechanism of implementation of innovations. As scientific and technical potential for solving this agrarian problem is consolidated within the framework of systemic research held by such scientific institutions of the National Academy of Agrarian Sciences of Ukraine as STC ‘Biomass’, association ‘Ukrbioenergo’, The institute of food chemistry and technologies of NAS, State Agency on Energy Efficiency and Energy Saving of Ukraine.

The priority of choice of biofuel for our country is obvious, as Ukraine has considerable yet unused potential of agriculture and substantial scientific and technical management potential. However, to ensure further development of biofuel sector and active participation of agrarian commodity producers it is crucial to implement the system of innovative activity. Among the guidelines of implementation of this systems there are such steps as enhancement and extension of raw materials basis (search for new sources of bioenergy); creation of technologies adjusted to the existing domestic technologies of biofuel and biofuel raw materials production; formation of institutionally-capable market of biofuel raw materials and of biofuel itself; creation of proper legal regulation basis; redirection of part of export-oriented potential of agricultural products to provision of raw materials supply for the development of biofuel industry; working out and state governmental support for the programme of the development of biofuel industry; stimulation and promulgation of scientific researches on the mechanism of innovative production and processing of biofuel; popularization of wide-scale use of such products of bioprocessing as bioethanol, biodiesel oil, biogas.

Stimulation of the development of innovative activity within production of biofuel in Ukraine should be performed with consideration of strategic points, based on institutional premesis. For instance, it can include distinction and support for strategic lines of the innovative development within production of biofuel.

Conclusions. Enhancement of the mechanism of implementation of innovations into the production of biofuel is an essential condition for creation of institutional grounds with clear distinction of institutional regulations for competitiveness of the industry. On the macro level there are such measures of stimulation of institutional support are to be taken: state support programmes, particularly support for innovative initiatives; stimulation of efficient practical implementation of the accumulated scientific and technical potential; creation of institutional mechanism for protection of intellectual property rights within the sphere of technology and methods of industry management; support for brunch-specific HR management. On the meso-level it is necessary to take measures of stimulation and institutional support, particularly, implementation of state security objectives, which are formed on the macro-level, on the level of local state authorities. On the microlevel, as level of functioning of exact enterprising structures (producers of biofuel), it is necessary to ensure implementation of new innovative technologies of biofuel production; to form active demand for biofuel and exploration of sales market via implementation of marketing innovations; to ensure quality and safety of biofuel via implementation of the leading modern production technologies; development of interbrunch cooperation and support for cluster formation.

References

1. *Bilozor L.V.* The peculiarities of innovative agrarian development / L.V. Bilozor // Announcer of Sumy national agrarian university. – 2003. – № 2. – P. 111.
2. Bioenergy in Ukraine (creation of new innovative objects, production and use of biofuel) / V.O. Dubrovin, M.D. Melnychuk, Y.F. Melnyk and others. – K.: National university of life and environmental sciences of Ukraine, 2009. – 108 p.
3. Biofiels [Electronic source]. – Available on: http://www.alternative-energy-news.inho/technology/biofuels/. – screen title.
4. *Constanza R.* Ecological Economics: The Science and Management of Sustainability. – New-York, Columbia Press, 1991.
5. *Deineko L.V.* The mechanism of implementation of technologies into agroindustry: essence, functions, objectives and regional peculiarities/ Deineko L.V., Irtyshcheva I.O. // Mechanism of adjusting of economy. – 2009. – № 2. – P. 123-131.
6. Innovative activity in agrarian sphere: institutional aspect: monograph./ [Sabluk P.T., Shpykuliak O.H., Kurylo L.I. and others]. – K.: NSC `Institute of agrarian economy`, 2010. – 706 p.
7. *Kaletnik H.M.* Economy of production of biofuel in Ukraine and provision of food security / H.M. Kaletnik // Economika APK. – 2010 . – № 1. – P. 30-35.
8. *Korniichuk L.* Theoretical foundations of application of conception of the sustatinable devlopment / L. Korniichuk // Economika of Ukraine. – 2010. – № 2. – P. 72-79.
9. *Krasnokutska* N.V. Innovative management: studybook.– K.: KHEУ, 2003. – 504 c. [Electronic source] / N.V. Krasnokutska. – Available at: http://library.if.ua/book/4/480.html.

10. *Kyrylenko I.H.* The tendencies of the world regional grain markets and prospects for Ukraine / Kyrylenko I.H.,V.V.Demianchuk, B.V. Andrushchenko, V.S. Zhyhalo, O.V. Sikachyna // Economika APK. – 2013. – № 2. – P. 33-42.

11. *Lapko O.O.* The economy of innovation: studybook / O.O. Lapko. – Ivano-Frankivsk, 1999. – 136 p.

12. *Mamedov O.Y.* The secret of innovative economy is its innovative management! // TERRA ECONOMICUS. – 2009. – T. 7. – № 2. P. 5-8 [Elecronic sourse] /O.Y.Mamedov. –Available at: http://ecsocman.hse.ru/data/869/732/1223/journal7.2-1.pdf.

13. *Mesel-Veseliak V.Y.* Management and economic enhancement of sugarbeet production subcomplex of the economy of Ukraine / V.Y. Mesel-Veseliak, M.M. Yarchuk // Economika APK. – 2013. – № 2. – P. 3-6.

14. *Shchokin A.R.* The experience of use of alternative renewable sources of energy for the fuel-energy balance of Ukraine within the period of years 1997-2000 and strategic guidelines for the promotion of augmentation of use of these sources/ Shchokin A.R., KolesnykY.V., Kudria S.O. // International conference. "Energy security of Europe. Prospects for the XXI c.". 22-25 May 2001, Kyiv. Energy-saving and energy efficiency.– Publishing house, 2001. – P. 221-225.

15. *Volodin S.A.* Innovative model of the scientific research market of the AIC of Ukraine / S.A. Volodin // Issues of the day of economy. – 2005. – № 8. – P. 133-142.

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Новини АПК

Завдяки зростанню внутрішнього виробництва м'яса його імпорт зменшиться на 35%

Цьогоріч пропозиція іноземного м'яса на вітчизняних прилавках зменшиться на 35%. Причина − збільшення його виробництва в Україні. Завдяки державній підтримці продовжує зростати поголів'я худоби в господарствах населення. Крім того, розбудовуються нові тваринницькі комплекси. Про це повідомив Міністр аграрної політики та продовольства Микола Присяжнюк.

«Ми рухаємося в бік самозабезпечення продуктами харчування, які можемо виробити. Наприклад, цього року в Україні можна зменшити імпорт м'яса на 35%. Для цього необхідно використовувати ринкові методи. А це підвищення конкурентоздатності продукції та нарощення внутрішнього виробництва», − наголосив Міністр.

За словами Миколи Присяжнюка, завдяки державній підтримці в Україні постійно зростає поголів'я худоби та її реалізація на переробку. Так, продовжуються програми підтримки тваринництва у дрібнотоварному секторі. Держава сприяє реконструкції та будівництву нових тваринницьких комплексів. Наразі уже введено в дію 67 об'єктів.

«Держава продовжуватиме комплексно підтримувати м'ясну галузь. Але сільгоспвиробник має розуміти, що на внутрішньому ринку м'ясний сектор ще не заповнений та має хороший потенціал. І ми будемо стимулювати заповнення цього ринку високоякісною м'ясопродукцією нашого виробника», − наголосив Микола Присяжнюк.

Також Міністр поінформував, що за 8 місяців в Україні на 4,4% збільшилося поголів'я свиней, на 2,8% − великої рогатої худоби, на 3,9% − птиці. Реалізація худоби переробним підприємствам зросла на 9,4%.

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