

статистики України. URL: http://www.ukrstat.gov.ua/operativ/operativ2017/sg/pvzu/pvzu2017_xl.zip (дата звернення: 20.11.2022).

3. Садівництво півдня України / Ін-т зрош. садівн.; за ред. В.А. Рудьова. Запоріжжя: Дике Поле, 2003. 240 с.

4. Репродуктивна здатність дерев вишні та черешні в маточно-живцевих насадженнях південного степу України. URL: <https://core.ac.uk/download/pdf/270066117.pdf> (дата звернення: 10.12.2022).

5. Нінова Г.В. Результати експерименту із саджанцями черешні. Овощи и фрукты. № 2. -2019. -С. 66-68.

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CEREAL STRAW FOR ENERGY USE

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Without any doubt it can be stated that energy sector is a basis for almost every activity in modern world and plays a crucial role in economic progress of a country, moreover it provides foundation for sustainable development of a society as a whole.

Nonetheless considering the energy safety of a country (society) to be completely reliable in every socio-political situation is a great mistake. In the context of globalization (first of all under conditions of competitive development of polycentric world) positions of states being the energy donators are characterized by increased instability, unpredictability, and political selfishness.

Consequently, the countries which were and are the energy recipients must build their own systems of energy safety which become effective enough to balance dysfunctional influences (challenges, threats, dangers) which are created by international environment [1-4].

The task of reducing of energy dependence can be partially solved by developing the effective energy safety programmes and the alternative energy sector in Ukraine. According to Energy Strategy for 2030, the alternative energy share should reach 20 %. The main directions of alternative energy in Ukraine are wind power, solar power, bioenergy and hydroelectric power [5].

High and unstable oil and gas prices, the necessity in more economical consumption of fuel reserve, the necessity to protect the environment and solving the problems of climate change cause the need to find alternative energy sources, in particular, to expand the energetic use of biomass. Its main components are straw and other agricultural waste (stems, pots, husk, etc.), as well as wood waste, liquid fuels from biomass, different types of biogas and energy crops [6].

It is projected that by 2020 the EU land available for cultivating energy crops

will grow to 20.5 million ha, and by 2030 – to 26.2 million ha.

Energy crops are very important for the bioenergy sector of the European Union. European Biomass Association (AEBIOM) estimates the current potential of energy crops in the EU as 44-47 Mtoe/y. One of the EU 2020 targets is to reach 138 Mtoe of biomass in the gross final energy consumption that corresponds to 14% of GFC. The available potential of energy crops allows covering about 1/3 of the target [3].

In Ukraine, only 2.5% of the energy consumed from its total volume comes from biomass, while in Western Europe – about 12%, and in a number of Scandinavian countries – from 17% to 40% [4].

Currently, the world has accumulated enough extensive experience in the use of vegetable waste agricultural production, primarily straw, for energy purposes. When burning 1 tonne of straw, about 3 MW of thermal energy is exuded, which means replacing 333 cubic meters of gas. The recognized leader in this sector of bioenergy is Denmark, where from 6 million t of straw annually produced nearly 1.5 million t are burned down for energy production (~ 17 PJ / year) [5].

Ukraine has some experience in energy and biofuels production from straw. About 100 boilers and heat generators for straw bales are in operation in rural areas of the country. About 45 of them are the boilers manufactured by UTEM (Ukraine), 10 units are the boilers of Faust and Passat Energi (Denmark) make, the others are heat generators of Brig (Ukraine) make. Total installed capacity of the equipment is estimated as 70 MWth. The sector of solid biofuel production from straw is also developing: in 2012, 21,700 t of pellets and 2,000 t of briquettes were produced in the country. The first part of Vin-Pelleta, a new factory, started its operation in Vinnytsa oblast (Ukraine) in autumn 2012. Its productivity is 75,000 t/yr of straw pellets. In 2014 the factory reached its design productivity of 150,000 t/yr. Smart Energy, the owner of Vin-Pelleta, is planning to build 20 factories for the production of straw pellets in all Ukraine's regions. Total productivity of the factories is supposed to be 2.5-3 Mt [7]. In addition, KSG Agro (a Ukrainian agricultural holding) started the operation of a factory for straw pellets production in Dnipropetrovska oblast (Ukraine) in 2014. The agricultural holding is going to use its own feedstock for the pellets production. Further plans include construction of another two factories, in Dnipropetrovska oblast.

References

1. G. Geletukha, T. Zheliezna. Prospects for the use of agricultural residues for energy production in Ukraine. UABio Position Paper N7 (2014) <http://www.uabio.org/img/files/docs/Position-paper-UABIO-7-EN.pdf>
2. O. Kucher, N. Pokotylska, N. Pustova, Z. Pustova Organic Market Formation in Ukraine. Tourism and Regional Development. Warsaw University of Life Sciences–SGGW P. 55-66 http://sj.wne.sggw.pl/pdf/TIRR_2021_n16.pdf
3. T. Balanovska, O. Gogulya, O. Kucher The role of activation of entrepreneurship activities in the development of rural areas in Ukraine. Tourism and Regional Development. Warsaw University of Life Sciences–SGGW P. 7-20 <http://188.190.33.55:7980/jspui/handle/123456789/7719>

4. Z. Pustova, A. Rozkosz, O. Sukmaniuk, S. Glowacki, T. Hutsol, N. Kovalenko, Anatolii Tryhuba Current Trends of Biohydrogen Production from Biomass–Green Hydrogen. Monograph <http://dglib.nubip.edu.ua/handle/123456789/8103>

5. Z.V. Pustova Koreliatsiini zviazky mizh pokaznykamy morfolohii roslyn, yaki vplyvaiut na vrozhaunist prosa v umovakh pivdennoi chastyny zakhidnoho Lisostepu Ukrainy. Zbirnyk naukovykh prats PDATU. Tom 12. S. 91-94 (2004) <https://scholar.google.com/scholar?cluster=17929435833425140538&hl=en&oi=scholar>

6. O. Kucher, T. Hutsol, K. Zavalniuk, Y. Pantsyr, I. Harasymchuk, K. Mudryk, M. Jewiarz. Marketing strategies and prognoses of development of the Renewable Energy market in Ukraine. Scientific Achievements In Agricultural Engineering Agronomy And Veterinary Medicine. Traicon SC. Vol. II, No. 1, pp. 100-121 (2017) <http://188.190.33.56:7980/jspui/bitstream/123456789/905/4/SAAEAVM-100-121.pdf>

7. Z. Pustova, N. Pustova, S. Komarnitskyi, O. Tkach, S. Zamoiskyi, A. Olenyuk Influence of biopreparations on biomass yield and grain efficiency of energy corn. E3S Web of Conferences EDP Sciences. T. 154. P. 01008 https://www.e3s-conferences.org/articles/e3sconf/abs/2020/14/e3sconf_icores2020_01008/e3sconf_icores2020_01008.html

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ОПТИМІЗАЦІЯ ВИКОРИСТАННЯ ЗЕМЕЛЬ У КОМПЛЕКСНОМУ ПРОСТОРОВОМУ ПЛАНУВАННІ ТЕРИТОРІЙ ГРОМАД

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Адміністративна реформа та формування територіальних громад в Україні зумовили значні ускладнення з формування землекористування в їх межах. Оптимізація використання земель та інших природних ресурсів, забезпечення збалансованого розвитку територій утворених громад великою мірою залежить від науково обґрунтованої системи планування землекористування в умовах обігу земельних ділянок сільськогосподарського призначення та управління цим процесом.

Із-за відсутності землевпорядного зонування земель за типами (підтипами) землекористування в процесі планування його розвитку виникло чимало ускладнень, які призвели до хаосу у використанні земель, появи недоліків землеволодінь і землекористувань в межах територіальних громад, утворення землекористування сільськогосподарських підприємств