

Общий вид панели управления представлен на рисунке 2.



Рисунок 1 – Общий вид комплекта комбикормового оборудования КОКК-10 в СПК «Прогресс-Вертелишки»



Рисунок 2 - Общий вид панели управления АСУ ТП комплекта комбикормового оборудования КОКК-10

Результаты эксплуатации комплекта оборудования в СПК «Прогресс-Вертелишки» Гродненского района показывают высокую эффективность его использования. За период работы с 1.01.2018 по 1.03.2019г было произведено 6400 т комбикормов для дойного стада и 10274 т для молодняка КРС. При этом себестоимость производства составила 417 руб и 264 руб соответственно (справка от СПК «Прогресс-Вертелишки» от 26.03.2019 г.)

Годовой экономический эффект от применения использования разработки составляет 59 тыс. руб (протокол государственных приемочных испытаний ГУ «Белорусская МИС» от 25.05.2018г. № 052Д ¼ ИЦ-2018).

В целом за время работы комплекта оборудования было выпущено продукции на сумму 5,38 млн. руб. Учитывая тот факт, что на разработку комплекта автоматизированного оборудования для производства полнорационных комбикормов КОКК-10 в 2008-2011 г. было затрачено 264 тыс. руб из республиканского бюджета (в т.ч. 89,5 тыс. руб. на изготовление опытного образца) то коэффициент возврата инвестиций составил 4,07.

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FOOD SECURITY AND AGRICULTURAL INSURANCE

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The research results show that in today's economics, food security is one of the major challenges for society. However, insurance can have positive effects on agricultural and food security risk mitigation. The insurance implications for agricultural and food industry enterprises could reduce or diversify financial and other risks that will also have a positive effect in the context of increasing the enterprises competitiveness and the food security as a whole. The complexity of the food security and agricultural insurance interconnections problem justifies the performance of researches as follows [1-10]: Bogdan Mârzaa, Carmen Angelescub, Cristina Tindecheb, Omri Ben-Shahar, Elizabeth Haws Connally, Tetty Havinga, Isaboke H. N., Zhang Q., Nyarindo W.N., J.R. Skees and others. Among them, the field of insurances is to be noted by its struggles to adapt to the new world challenges [2].

According to the “Agricultural Insurance Conference” research results agricultural insurance has a big impact for food security (stabilizing farm income, smoothing consumption in times of

harvest failure). In addition, government can make a positive environment for improving agricultural insurance and food security as follows below [1]:

1) governments see agriculture as a strategic, economic and continued support to develop the sector, including agricultural insurance;

2) agricultural insurance can be positioned within a broader risk management strategy, as well as a tool for supporting rural development, which contributes food security;

3) collecting data on agricultural production are critical elements of government support to foster the development of agricultural insurance [1].

Interesting and relevant today are the scientific results by *Mârzaa et al. (2015)*, according to which the relationship between agricultural insurance and food security must also be considered from the standpoint and taking into account the particularities and consequences of climate change [2].

The factors that have impact on the agricultural production and implicitly on the development of insurances in this sector are the climate changes are follow below: firstly, CO₂ concentrations; secondly, sea level; and, finally, extreme weather events (drought; high relative humidity, frost and hail; inter-annual variability of precipitation; precipitation intensity; temperature) [2].

Altogether, the funding by *Omri Ben-Shahar (2015)* and *Cogan and Aloysius (2016)* argue that the use of insurance for food security is an important instrument of state regulation of food security, with the government taking full advantage of the combination of insurance and food security [3; 4]. The findings reveal that today agricultural industry and food safety faces a lot of issues. In these conditions agricultural insurance can use a lot of instruments and method with the aim to reduce or diversify financial and other risks. It will be positive impact on food safety and also it will stimulate the food enterprises competitiveness increasing and agricultural industry as a whole.

References

1. How can we make insurance work for food security? Conference Report. Agricultural Insurance Conference. Nov 27-28 2014, Berlin.
2. Bogdan Mârzaa, Carmen Angelescub, Cristina Tindecheb (2015). Agricultural Insurances and Food Security. The New Climate Change Challenges. *Procedia Economics and Finance* 27. P. 594–599.
3. Cogan Jr., John Aloysius (2016). The Uneasy Case for Food Safety Liability Insurance. *Faculty Articles and Papers*. 399. Available at: https://opencommons.uconn.edu/law_papers/399
4. Omri Ben-Shahar (2015). Regulation of food safety through compulsory insurance. *Law and Social Science* 47, 14(2).
5. Elizabeth Haws Connally (2009). Good Food Safety Practices: Managing Risks to Reduce or Avoid Legal Liability. *Food Safety and Technology*. Available at: www.ctahr.hawaii.edu/oc/freepubs/pdf/FST-32.pdf
6. Tetty Havinga (2012). The Influence of Liability Law on Food Safety. On Preventive Effects of Liability Claims and Liability Insurance. *SSRN Electronic Journal*. DOI: 10.2139/ssrn.2016115
7. Feast or Famine: Business and Insurance Implications of Food Safety and Security, Lloyd's, 2013. Available at: <https://www.lloyds.com/news-and-risk-insight/risk-reports/library/society-and-security/food-report>
8. Food safety in a globalised world: Keeping our food safe in the 21st century. Swiss Reinsurance Company Ltd, 2015.
9. Isaboke H. N., Zhang Q., Nyarindo W. N. (2016). The effect of weather index based micro-insurance on food security status of smallholders. *Agricultural and Resource Economics: International Scientific E-Journal*, [Online], vol. 2, no. 3, available at: www.are-journal.com
10. J.R. Skees et al. (2001). The potential for recall insurance to improve food safety. *International and Agribusiness Management Review* 4. P.99-111.