Consequently, the best situation is observed at PJSC «IFAZ» that in year 2012 achieved «desired level» of infrastructural management efficiency level. Above average or a «good» mark earned PJSC «Armaprom» as well as PJSC «KCDBV» with the exception of year 2011. «Acceptable» level is typical for PJSC «NVP «Bilshovyk»«. The lowest rating achieved PJSC «KAZ» that although had slightly improved its infrastructural efficiency from «highly adverse» to «acceptable» level in year 2013. As we able to witness all the five companies are far from having stable and efficient infrastructural management system. Thus, a new managerial concept has to be developed to transform existing infrastructural departments into efficient supporting and servicing business units.

Conclusions

Modern scientific researchers are mostly focused on analyzing efficiency of the core business operations while non value adding activities are left without proper attention. So in order to define which criteria evidence efficiency of the infrastructural management, what quantative factors characterize adequate level of supportive and servicing activities, we needed to conduct an interview among top managers of machine buildings plants and use factor analysis to design infrastructure evaluation methodology. This evaluation scheme let us see separate infrastructural departments' efficiency indexes and also cumulative index for the whole infrastructural system. The normalization process also helped to use efficiency indexes to compare different companies among each other. That enables us to draw up conclusions on how well the infrastructure is run at different companies that could be a starting point for development of the improved managerial models.

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EFFECTIVE FORMS OF INSURANCE OF RISKS OF FARMER ECONOMIES

Summury
Grounded expedience of introduction of interregional agricultural fund associations in Ukraine as an effective form of management of farmer economies risks. Application of method of mathematical imitation design is offered for the optimum selection of participants of such societies.
Keywords: *risks of farmer economies, міжрегіональні agricultural fund associations, imitation mathematical design.**Ключові слова:** ризики фермерських господарств, міжрегіональні сільськогосподарські товариства взаємного страхування, імітаційне математичне моделювання.*

I. Introduction

Agriculture belongs to strategic industries of domestic economy and, at the same time, characterized high dependence on natural climatic risks which most threaten continuity and stability of production of agricultural goods. After the prognoses of specialists influence of the noted risks on agriculture in course of time will increase and small farmer economies which do not own sufficient financial resources for their overcoming will test his especially negative consequences. Taking into account it, a question of search of effective forms of management of farmer economies risks is actual, one of which there is insurance which provides continuity of development of agricultural production and stable functioning of agrarian market.

Domestic research workers and practices devoted the labours the question of insurance of agricultural risks, in particular F. Boye, I. Borisova, M. Dem'yanenko, R. Kolibaba, C. Navrockiy, A. Sholoyko, V. Yakubovich et al, which made substantial suggestions in the decision of problems of development of agrarian insurance. However on a present tense needs scientific ground of question of necessity of introduction of effective forms of insurance defence of farmer economies as important constituent agrarian the sector of domestic economy.

II. Raising of of task

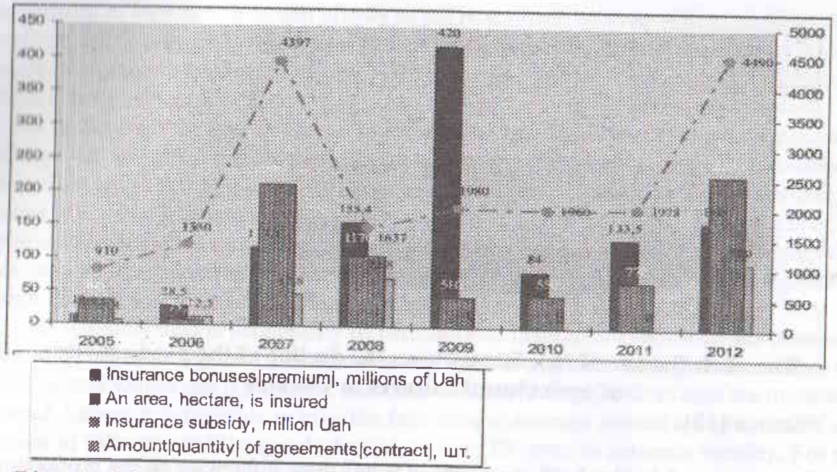
The purpose of the article is consideration of theoretical and methodical principles of creation of interregional agricultural fund associations as an effective form of management of farmer economies risks in Ukraine.

Research is conducted on the basis of study of world and domestic experience of insurance of agrarian risks.

III. Results

Researches of world experience are conducted in industry of insurance of risks of agricultural commodity producers testify to functioning in many countries of the national systems of insurance of agrarian risks. In particular, in such countries as Spain, France, Great Britain, Germany, Austria, Italy, Canada, the USA is widely presented agricultural fund associations, the purpose of activity of which maximal satisfaction of interests of insure-participants of society, but not receipt of income, is, above all things. The profits of such society at first head for addition to him reserve facilities, and remain – can be up-diffused in form income between shareholders or in form diminishing of size of insurance bonus, necessary for an attendant to pay participants-shareholders. Taking into account it, creation of fund associations is the advantageous association of small proprietors, for example, of farmer economies [1-4].

Coming from the conducted researches of development of agrarian insurance, it costs to draw a conclusion, that the existing in Ukraine system of insurance of agricultural risks with state support, namely is indemnification 50% insurance bonus to the agricultural producers, is uneffective, as agricultural producers are not interested in entering into the contracts of insurance, but the state – in feasible parts of indemnification of insurance bonus [5-6]. At what, from data of Ministry of agrarian policy of Ukraine payment of insurance bonus is legislatively certain to the agricultural producers in the period of 2009-2011 in general absented in Ukraine and only since an entry in an action of Law of Ukraine «About the features of insurance of agricultural product with state support» there was proceeding in payment of state subsidies of insurance bonuses, however much their particle was insignificant in an amount the celled contracts of insurance [7] (rice. 1).

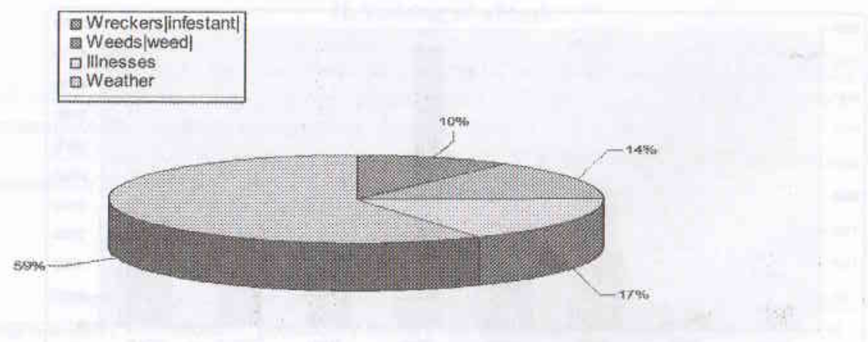


Rice. 1. A dynamics of volumes of insurance bonuses, insurance subsidies and amount of contracts of agricultural insurance, is after 2005–2012.*

*Source [8].

The existing in Ukraine system of insurance state support is not advantageous especially farmer economies, which, as a rule, do not own the large volumes of free facilities. At payment of insurance bonus which takes a place the insurers of, during a sowing campaign, they are forced from an economic appeal to select the particle of facilities part of which really will be compensated the state not at the conclusion of insurance treaty, but already after a harvest. And that is why the proprietors of farmer economies examine the necessity of payment of insurance bonus as additional tax loading, what statistical information in accordance with which in Ukraine an amount of the insured sowing areas of farmer economies in regions is insignificant testify to (4%). In addition, domestic insurers are not interested in the grant of insurance services in insurance of agricultural risks through their considerable unprofitableness. In particular, in 2012 in Ukraine an association was created the «Agrarian insurance pool», the participants of which must were be insurers which carry out agrarian insurance with state support. But on a present tense to this organization four insurers entered only Insurance Company of «Brokbiznes», Insurance Company of «Insurance guarantees», Insurance Company of «Ukrainian agrarian-insurance company» and Insurance Company of «Dominanta» [9].

Taking into account afore-mentioned, there is a requirement in the improvement of forms of organization of insurance of risks of farmer economies in Ukraine. Namely, expedient is creation of agricultural fund associations organization of which is certain a current domestic legislation [10,11]. At creation of such society it follows to take into account in a separate region, that accidents insured at agrarian insurance, related, mainly, with unfavorable weather terms. To what information testify the Ministries of agrarian policy of Ukraine, presented on rice. 2., got on the basis of information.



Rice. 2. Influence of risk factors is on the decline of the productivity of agricultural cultures in Ukraine*

*Source [12].

From to rice. 2 evidently, that a weather factor most influences on the productivity of agricultural cultures, and consequently exactly him, above all things, it follows to take into account at creation of agricultural fund associations. Thus, important is that the participants of society, created in one region, can not to a full degree get an insurance compensation, in fact all of them simultaneously carry losses in the case of offensive of natural calamity in this region. And consequently, dollar adjustment of the borne losses will make only a particle from general insurance reserve, created participants.

It is suggested to settle this problem by creation in Ukraine interregional agricultural fund associations, plugging in their composition farmer economies from a few regions. For the effective functioning of such societies a necessity is a careful selection of their participants, as from a general insurance fund they will get complete reimbursement of losses in the case of offensive of accidents insured, which took a place not simultaneously in a few regions. Because of it, expedient is a selection of participants of these societies taking into account probability of offensive and periodicity of natural calamity in separate regions. In fact for farmer economies which are specialized on growing of agricultural cultures, an accident insured, more frequent all, receiving less of harvest is as a result of natural calamity (light frosts, floods, drought but other). In addition, it is necessary, that farmer economies were similar after specialization, volumes of sowing areas, quality of soil, technical rigging and presence of facilities, for the leadthrough of measures on prevention or diminishing of consequences of accidents insured. Such approach will provide possibility of determination of basic factor for the selection of participants of interregional agricultural fund association, namely – frequency and probability of offensive of natural calamity in regions representatives of which are his participants [13].

Coming from that a factor is marked defining is impossible exactly, it is expedient to take advantage of methods of mathematical design on the basis of law of large numbers, in particular, by a method of imitation for the approximate recreation of the real

phenomena of Monte Carlo, that allows to get best result in cases, where a basic mathematical task consists in research of casual process. This method enables to build a model, minimizing information, and also максимізувати the value of information which is utilized in a model.

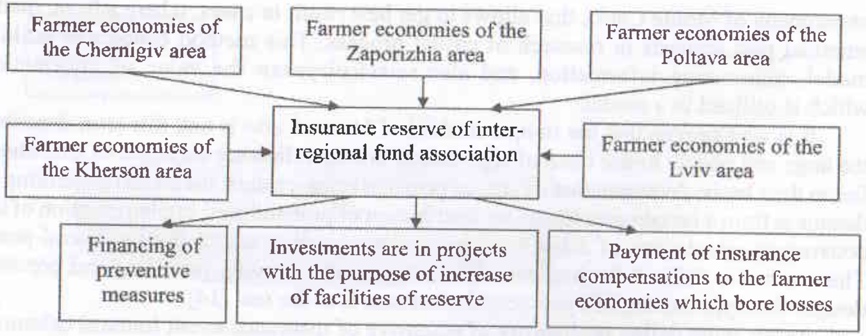
It is well-proven that the unique method of Monte Carlo is not, this term describes the large and widely in-use class of approaches, but the following sequence of executions lies in their basis: determination of area of possible entrance data; the casual generuting of datains is from a certain area by the set distribution of probabilities; implementation of the determined calculations of datains; a report of intermediate calculations is in end-point. This method is difficult for implementation and needs computer providing and previous design, that approaching of hypothetical situations is to the real [14].

As we must define probability of offensive of insurance event (natural calamity) in locality, where a separate farmer economy functions,, different legitimate values are given factors which can it promote, and then results are examined (events are imitated). To such factors it is possible to take the followings: average annual temperature of air, amount of fallouts, middle speed of wind, in next 10 years in concrete locality. For the leadthrough of analysis of design of probability of offensive of natural calamity it follows by the computer program at random to choose a value for each of these factors. It needs to unite the got values and expect probability of offensive of natural calamity in separate locality. Farther other set of entrance data is like taken away and the proper value of probability of offensive of accident insured settles accounts [13].

This process must be repeated as many as possible times (n) for the receipt of plenty of variants of probabilities of offensive of insurance event. It is a difficult method which has computer realization exceptionally. If with the random sequence of numbers ({chi} *it is* X) by law of distribution of probabilities (fi $_{(x)}$ to conduct functional transformations on the basis of methods of theory of chances, can get the algorithm of method of Monte Carlo. There is treatment and interpretation of the got results on the eventual stage of application of the indicated method.

Consequently, application of mathematical simulation of Monte Carlo technique will give possibility to get the size of probability of offensive of natural calamity in the separate regions of Ukraine and gather additionally the list of entries of interregional agricultural fund associations with the purpose of their effective activity.

The analysis of domestic insurance legislation is conducted foresees creation of mutual insurance of general insurance reserve participants, by the way of payment by them insurance payments [10, 11]. Taking into account the specific of conduct of insurance, facilities of such backlogs are temporally free and can be utillized society with the purpose of investing from the consent of his participants. The feature of such fund association seasonal character of payment of insurance compensation is, mainly, to his participants which bore losses. Thus, part temporally free facilities of insurance backlogs society can send to financing of preventive measures on an assistance prevention or diminishing of consequences of natural calamities. Taking into account foregoing, can give the approximate chart of creation of fund of risks of farmer economies association (rice. 4).



Rice. 4. Chart of functioning of interregional fund of risks of farmer economies of different regions of Ukraine association*

*It is developed authors

As the current Ukrainian legislation does not forbid fund associations to be the participants of investment process, temporally free facilities on the consent of all of participants of society, can be sent in investment projects with the purpose of their increase.

IV. Conclusions

1. The results of analysis of development of agricultural insurance in Ukraine testify to the insignificant participating of farmer economies in the system of insurance of agrarian risks with state support which predetermines expedience of creation of agricultural fund associations. Organization of such societies at interregional level will provide possibility of the optimum distributing of losses between their participants.

2. The selection of participants of interregional agricultural fund associations with the use of mathematical simulation of Monte Carlo technique on the basis of probability of offensive of natural calamities in the separate regions of Ukraine will be instrumental in efficiency of their functioning.

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