

THE PROSPECTS OF SOLVING THE ISSUES OF THE STATE POLICY ON INCREASING THE COMPETITIVENESS OF AGRICULTURE IN THE REPUBLIC OF ARMENIA

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Introduction At the current stage of the development of agriculture in the Republic of Armenia, among the many problems faced by the sector, the increase of competitiveness merges with its importance. The solution of the mentioned problem is important, especially in terms of increasing the level of food security of the country, improving the balance of external trade of agricultural products, increasing the income of farmers in agriculture, increasing production efficiency. Increasing the competitiveness of agriculture in the Republic of Armenia requires the development and implementation of an effective state policy. The effective implementation of the mentioned policy, in turn, requires clarifying the main issues of that policy and providing proper solution to them. It is advisable to separate those problems based on certain approaches, in particular: improvement of the state of use of the main resources of the sector, provision of primary seed production and genealogical work ensuring the vitality of the main branches of agriculture, introduction of technical saturation and modern technologies in the sector, sale of agricultural raw materials and products, improvement of production and service infrastructures of the sector, from the point of view of ensuring the financial stability of economic operators in agriculture, improvement of state programs implemented in agriculture and launching of new, effective programs, etc. In this context, the presentation of ways to solve the problems of the state policy of increasing the competitiveness of the agriculture of the Republic of Armenia is gaining relevance. The purpose of this article is to identify the ways of solving the problems of the state policy of increasing the competitiveness of the agriculture of the Republic of Armenia. The main tasks of the article are to clarify the above-mentioned policy problems, to highlight the reasons for their occurrence.

Methodology The article uses dialectics, scientific abstraction, comparative analysis and logical methods. The application of the dialectic method is clearly seen in the interconnected study of the problems of the state policy of increasing the competitiveness of agriculture in the Republic of Armenia.

The application of the method of scientific abstraction is demonstrated in the fact that the ways of increasing the competitiveness of the agriculture of the Republic of Armenia were considered within the framework of state support.

The application of the comparative analysis method found its expression in the comparative analysis of a number of indicators characterizing the competitiveness of agriculture in individual countries, as well as in the comparisons of different types of drones and weather stations used in agriculture.

Logical methods are manifested in the subdivision of the problems of the state policy of increasing the competitiveness of agriculture of the Republic of Armenia with a certain logic.

Scientific novelty The ways of solving the problems of the state policy of increasing the competitiveness of the agriculture of the Republic of Armenia have been revealed.

Literature review The characteristics of the competitiveness of agriculture, the factors determining it, the problems of its increase have been recognized by a number of economists, including A. Borel [Borel, 2014, 4], T. Lenskaya [Lenskaya, 2013, 87], K. Saubanov [Saubanov, 2010, 38-53], V. Bespyatnykh [Bespyatnykh, 2000, 200], O Koryakina [Koryakina, 2017, 25], A. Voskanyan, A. Kartashyan [Oskanyan, et al., 2021, 73-87], S. Avetisyan [Avetisyan, 2002, 232-238] and others. However, certain problems related to the state policy of increasing the competitiveness of agriculture of the Republic of Armenia have not been studied in the necessary depth.

The problems of the state policy of increasing the competitiveness of the agriculture of the Republic of Armenia were also discussed in the corresponding programs of the state support of that branch, but the proposed ways of solving them are limited by general judgments and need additional study. Moreover, not all problems are addressed in the mentioned programs. It is especially related to policy problems of the best use of the biological possibilities of the main branches of agriculture: plant breeding and livestock breeding. The proposed approaches are aimed at solving the issues related to the state policy of increasing the competitiveness of the agriculture of the Republic of Armenia. The main problems of the policy of increasing the competitiveness of agriculture divided by a certain logic are considered the following:

- main problems of the policy of improving the state of use of the main resources of agriculture;
- policy problems of the best use of the biological possibilities of the main branches of agriculture: plant breeding and livestock breeding;
- policy problems of technical saturation and introduction of modern technologies in the agricultural sector of the Republic;

- problems of policy for the sale of agricultural raw materials and products, improvement of production and service infrastructures of the sector;
- problems of the policy of ensuring the financial stability of economic operators in the field of agriculture;
- policy issues of improving state programs implemented in agriculture and launching new, effective programs.

We tend to consider the solution of the above-mentioned problems of the state policy of increasing the competitiveness of agriculture from the point of view of the methods and approaches for improving the factors that condition them. First, the problem of improving the state of use of basic agricultural resources refers to the low efficiency of land use, the main resource of agriculture, and more specifically, to the insufficient condition of targeted use of arable land. Considering the importance of this problem, the RA government has adopted a number of resolutions, the implementation of which should contribute to the improvement of the use of land resources. In particular, the "concept of increasing the efficiency of the use of agricultural lands" stipulates the following: "There are many reasons for the non-cultivation of agricultural lands. Difficulty in conducting profitable activities on small and fragmented plots of land, unavailability or insufficient supply of irrigation water, unavailability of agricultural machinery, low level of soil fertility, lack of land user or land owner, as well as the lack of necessary working capital"¹. In the said legal document, the main reasons for the non-cultivation of agricultural land are mentioned. In fact, the reasons are more diverse, and each of them has its own impact. According to the observations carried out by the former Ministry of Agriculture of the Republic of Armenia, 27 reasons for the non-use of agricultural land were identified, 8 of which were the most influential. Those causes and effect sizes are:

- low yield: 13.6%,
- lack of working capital: 12.0%,
- the inaccessibility of the use of agricultural machinery: 11.4%,
- unavailability or insufficient supply of irrigation water: 8.5%,
- low level of soil fertility: 7.4%,
- the unavailability and/or high price of quality seed and planting material - 7.2%,
- the high price of fertilizer: 6.4%,
- absence of the owner of the land user from the Republic of Armenia: 4.6%.

The total percentage of the mentioned reasons was 71.1%. 28.9% accounted for the remaining 19 reasons. In other words, according to the studies, the last reasons did not have a significant impact. It is logical that the policy of improving the condition of agricultural land use should be aimed at alleviating the reasons listed above as much as

¹ Resolution of the RA Government on Jan. 23, 2020 "On approving the concept of increasing the efficiency of the use of agricultural lands and the plan of measures" N68-L

possible, as a result, increasing the competitiveness of agriculture. Therefore, according to the presented reasons, significant improvement of the state policy may require additional steps. One of the main steps to eliminate the cause of low yield is to reduce the specific cost of cultivation of agricultural crops, in particular, the fulfillment of agrotechnical requirements, as well as the use of resource-saving technologies.

It is particularly important to fulfill the agrotechnical requirements starting from the preparation of the land for the cultivation of agricultural crops, observing the norms of time and required resources, starting from sowing, then fertilizing, plant protection, irrigation, timely and proper harvesting, etc. Taking steps to increase the mentioned profitability requires both knowledge and provision of necessary resources and execution of works. Arranging consultation and public-private cooperation measures to increase the availability of resources used in plant breeding should play a major role here.

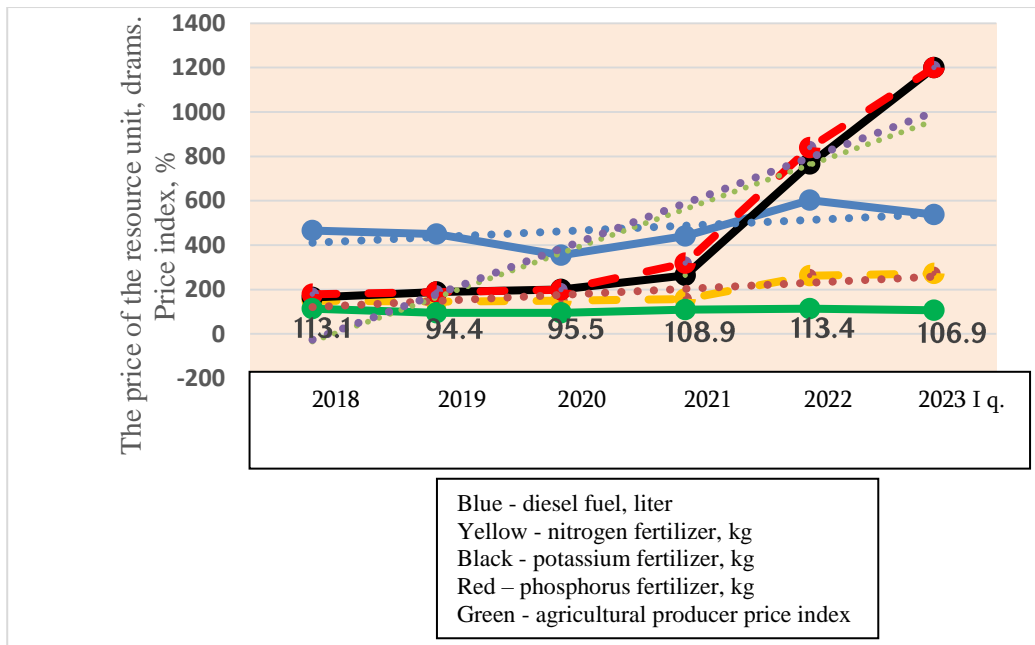


Figure 1. Changes in the prices of basic resources used in agriculture and the price index of agricultural producers in 2018-2022. and in 2023 in the first quarter. The following source was used as a basis for the construction of the chart: RA Ministry of Agriculture, Food Security and Poverty in 2023. January-March. 2023, 23; 27; 30.

It is justified that the subsidy of resource prices should be implemented in the amount of the difference between the price change of basic resources used in agriculture and the price index of agricultural producers. Among the steps to mitigate the so-called cause of the unavailability of agricultural machinery for the next reason can be the following:

- the introduction of affordable mechanisms for leasing agricultural equipment, in particular, it refers to the reduction of the advance payment of leasing, bringing it up to 10%, as well as the extension of the repayment period, up to 10 years for combines, up to 8 years for tractors, and up to 4 years for agricultural machines;

- promoting the formation of cooperatives providing production and technical services and supplies in agriculture, applying justified tariffs for production and technical services;

- the formation of structures to carry out production and technical services and supplies in rural communities with public-private cooperation, the definition and application of reasonable tariffs within the framework of the latter. Establishing contractual relations with agricultural producers is important.

Possible steps to mitigate the problem of unavailability or insufficient supply of irrigation water are:

- supplying irrigation water to water users and collecting rents based on accurate data from water meters;

- taking measures to implement modern irrigation technologies in the agricultural economy: support mechanisms with public-private partnership, in this process special-scientific advice to water users, reduction of losses in inter-economic and intra-economic networks, paying more attention to the repair and improvement of water pipes and junctions before the start of the irrigation season, are particularly important;

- it is necessary to pay attention to the possibilities of using polymer and other materials that retain moisture in the soil.

Among the important measures for improving soil fertility are:

- increasing the availability of the most important resources determining fertility, in which the expansion of the use of biological fertilizers is especially important;

- the organization of fertilization based on the results of agrochemical soil research and relevant advice;

- the possible application of crop rotation, the implementation of which can be effective under the conditions of providing professional advice.

We see the solution to the problem of unavailability and (or) high price of quality seed and planting material by applying the following steps:

- the primary seed breeding of agricultural crops should be a matter of state coordination and care, increasing the role and support of the state, expanding the capacities of the scientific research system in this field, using available mechanisms of state-private partnership;

- strengthening the system of subsidies and control in the reproduction of high reproduction seeds by state and private structures, the expansion of the scope of the programs implemented in this field;

- in addition to the primary seed production of grain crops, state coordination and care should also be directed to the seed production and seed production of other crops, in particular, fodder crops, applying existing public-private partnership tools here as well;

- introduction of a clear system of certification of seeds and planting material. The most important prerequisite for the latter is the adoption of the RA Law "On Seeds and Planting Material" [Law, 2022], the RA Law (HO-345-H) "On Seeds and Planting Material" will enter into force one year after its adoption.]. The adoption of legal acts ensuring the implementation of the given law is also emphasized.

One of the main obstacles in this field is high level of prices of fertilizers. The absence of a land user from the Republic of Armenia, the owner, is one of the current highlighted problems, we consider possible steps to alleviate it:

- by making additions and amendments to the land legislation and other legal acts, to legally reserve the right to the local self-government bodies to take measures to organize the use of the land in the event of the absence of the owner of the agricultural plot for more than two years and the purposeful non-use of the land;

- in case of non-cultivation of the land by the owner for more than two years, the local self-government bodies shall be empowered to obtain consent for the use of the land on lease through negotiations;

- in the absence of an agreement with the owner, in case of non-establishment of contact, to manage it with the use of communally owned land,

- in order to increase the attractiveness of renting such lands, to set the rent payment as land tax (in the amount of property tax).

The most important way to increase the level of targeted use of agricultural land can be the application of targeted state policy to promote the use of arable land. The latter can be implemented through state programs, applying a targeted subsidy policy according to zones. The application of the mechanism of providing subsidies for the purposeful use of agricultural land, particularly arable land, along with increasing the level of use of land resources, also aims to ensure the following results:

- promotion of local production of agricultural products, resulting in import substitution,

- promotion of local production and export of agricultural products with absolute advantages,

- improvement of the economic conditions of economic entities carrying out agricultural activities in border and high mountain settlements,

- implementation of the policy of preferred agricultural specialization,

- increasing the competitiveness of small farms.

According to our assessments, we propose to set the amount of subsidy for grain and leguminous crops and fodder crops at AMD 60-70 thousand per hectare of cultivated land. The latter will enable full reimbursement of diesel fuel costs and some reimbursement of agricultural investment costs.

One of the most significant measures to increase the efficiency of the use of labor resources in agriculture, should be the implementation of a state policy aimed at ensuring the following conditions:

- creating opportunities for expansion of non-agricultural activities in rural areas, in particular, processing of agricultural products, production technical services and supplies, etc.;
- creating opportunities to mitigate seasonality in agriculture, in particular, expanding animal husbandry branches (poultry farming, fish farming, beekeeping, animal husbandry), development of greenhouse economy;
- creating opportunities for processing agricultural products in farms, in particular organization of production of dried fruits, packaging, aging, etc.

Taking the mentioned steps will contribute to the growth of employment in other sectors, which will absorb part of the underworked labor force in agriculture and as a result, the efficiency of the use of labor force will increase.

Another policy issue for increasing the competitiveness of agriculture is the greater use of the biological possibilities of its main branches: plant breeding and livestock breeding. The most important issue of the policy of making the most of the biological possibilities of the plant breeding branch of agriculture is the provision of high-quality and conditioned seeds. The solution of the problem to provide seeds may consider the following directions:

- organization of production and reproduction of high reproduction seeds, super elite and elite seeds in the scientific organizations engaged in seed breeding in the country, including the latter in the process also specialized organizations and agricultural farms;
- increasing the specific weight of conditioned seeds in the medium term for planting agricultural crops, increasing it to 70-75% of the used seeds. For the latter, first of all, it is necessary to provide the necessary volumes of seeds of high reproduction. It mainly refers to wheat, spring, legumes, various types of vegetable and vegetable crops, potatoes. According to our assessment, the demand for different types of seeds in our country for wheat is 19-22 thousand. tons, for barley 12-13 thousand. tons, for potatoes - 81-85 thousand. tons, for vegetables 0.9-1.0 thousand tons, etc.;

- along with the production and reproduction of locally produced seeds, importing varieties and quantities of seeds that meet the demand is important. The latter is important for varietal renewal.

The scientific center of "Agriculture" and the breeding station of "Gyumri" are engaged in seed breeding of grain and leguminous crops in the republic. Some production units, such as the Seed Breeders' Association operating in the Sisian region deal with seed reproduction. Some specialized farms operating in Shirak marz are also engaged in seed reproduction. The scientific center of "Vegetable and Technical Crops" deals with the selection and seed breeding of vegetable and vegetable crops. The center currently supplies around 10-15% of the country's demand for vegetable seeds and has opportunities to expand it. The center is equipped with modern seed preparation and packaging equipment. There are no specialized structures dealing with the selection and seed breeding of potatoes. Specialized farms only reproduce imported seeds. In this regard, we see certain perspectives in the branch of the "Agrobiotechnology" Scientific Center of the National Agrarian University of Armenia in obtaining virus-free potato planting material and implementing their further stages of reproduction. For the latter, it is necessary to build a new greenhouse and expand the land areas for propagation and reproduction of potato seedlings.

Considering the fact that obtaining high reproduction seeds is a relatively complicated process and requires relatively high costs, therefore, the use of high reproduction seeds in this case requires the application of a certain support element for either the producer or the consumer. Such state programs for the seeds of cereal crops have been implemented in the republic, but increasing the amount of support can provide a greater result. Such an approach was used in the "2022 state support program for the promotion of winter wheat production in the Republic of Armenia" adopted on August 11, 2022 by the RA government. It is possible to revise the program, apply mechanisms for subsidizing the price of high-reproduction seed, setting a subsidy of 50% of the seed price. The latter will justify the investment of additional costs as a result of the increase in yield and the increase in the sown area with a certain increase in the budget burden.

Ensuring seed certification and control is an important issue in this field. One of the most important prerequisites for the latter is the application of the RA Law "On Seeds and Planting Material", which regulates relations related to the registration of plant varieties and hybrids with permission for use, the production, reproduction, certification, transportation, storage, sale and use of seeds and planting material. The policy of making the most of the biological possibilities of the livestock breeding branch of agriculture should be directed mainly to:

- improving the foraging and pedigree characteristics of agricultural animals, herd structure,

- improving animal behavior and feeding conditions.

In this direction, certain works were carried out within the framework of the "2019-2024 beef breeding development program in the Republic of Armenia". In 2022, 334 heads of animals were purchased at a cost of 328.0 million drams, the subsidy amount was around 143.8 million drams. 2019. The animals acquired in 2020 and 2021 are 319, respectively; Chapters 391 and 750. The mentioned program has a certain positive effect on animal husbandry, but this effect is not significant. In general, the most important index for the characterization of animal husbandry, the milk yield of cows increased by barely 3% during the considered period, 2019-2021. Of course, the increase in milk yield is also the result of other factors, not only the above-mentioned program. The actual increase in grain yield, which is 1.4-1.5% per year, is too small and it will not have a significant impact on the development of animal husbandry. It proves that the implementation of the project with such volumes cannot provide tangible results for the entire republic. While comparing, for example, the number of heads included in the program in 2022 with the number of cattle in the republic, it is obvious that it cannot give tangible results. In 2022, the number of animals included in the state support program is almost 0.06% of the number of animals mentioned at the beginning of the same year. The latter testifies that the implementation of the project with such volumes cannot provide tangible results for the entire republic.

In the direction of improving pedigree and foraging characteristics of small cattle, it is important in the Republic of Armenia in 2019-2023. the implementation of the sheep breeding and goat breeding development support program. The purpose of this program is "to create favorable conditions for the development of sheep breeding and goat breeding branches in the republic through the use of state support mechanisms, in particular, affordable lending conditions and cost compensation, encouraging the acquisition (import) of high-value pedigree sheep and goats and the formation of high-yielding herds, the improvement of breeding breeds, the development of pedigree work, the increase in the number of purebred animals with valuable production and economic characteristics obtained through crossbreeding, as well as the increase in the production and export volumes of sheep and goat products" [Ministry of Economy, 2022]. The goal of the project is quite comprehensive, but the results of the implementation of the project are not very promising. With the support of the project, 331 head of animals were purchased in 2022, the amount of the compensation loan was AMD 76.8 million. In 2020 and 2021, the number of small cattle obtained with the support of the program was 203, respectively; 668 and 125 chapters [Ministry of Economy, 2022].

The replenishment of tribal population with such volumes cannot provide tangible results either. For example, the number of animals added in 2022 is 0.05% of the number of animals at the beginning of the given year. In other words, the implementation of

programs at such rates cannot significantly increase the competitiveness of livestock farming. Of course, agricultural commercial organizations carry out some steps to replenish the pedigree herd, but their specific weight is extremely small. Thus, the latter account for 0.8% of the number of large cattle, and 2.4% of the small cattle [HK VK, Statistical Yearbook of Armenia 2022, 364]. Currently, the most effective use of the biological possibilities of animal husbandry requires the use of radical approaches. In particular, it is necessary to:

- to increase the volume of pedigree livestock acquisition in beef and small cattle breeding with state programs, as well as to establish a certain stable part of support, at least in the amount of 40-45% of the value of pedigree animals, in addition to affordable credit. Here, the introduction of project control mechanisms, the control of the targeted use of resources is extremely important. Under these conditions, the budget burden will increase, but real opportunities will be created for improving the structure of the herd of agricultural animals and increasing competitiveness;

- organize the process of artificial insemination. Currently, according to observations, about 30 thousand head of cattle are included in the process of artificial insemination in the republic. The latter is much smaller than the justified demand. The minimum amount of insemination, according to experts, should be at least ½ of the number of cows, that is, the current volumes should be increased 4-4.5 times. Here, the quality of the semen used is of particular importance, it must be obtained from animals with high pedigree characteristics and must meet the specified storage conditions. AMD 1.25 billion will be required for artificial insemination of such a population. In the case of a maximum subsidy of 50% per head, a real opportunity will be created to ensure the recommended volumes of artificial insemination;

- apply the method of embryo transplantation, which is considered progressive for the republic (in particular, it is necessary to apply it at the initial stage in cattle breeding). At present, this method is not used in the republic (it had some use in the past). Its implementation requires both well-founded and consistent training and education of specialists, as well as provision of necessary equipment. Their implementation will also be one of the important measures for expanding the biological capabilities of agricultural animals and increasing their competitiveness;

- the implementation of the mentioned program steps requires a lot of organizational work and consistent observations, taking timely mitigation approaches to the faced problems. It is not possible to organize the implementation of the mentioned by the current body of the state administration of the sector, the policy-making units. Therefore, it is necessary to create a separate animal husbandry program coordination unit in the structure of the state administration body, the main function of which will be the organization of the process of implementation of state programs in the area of animal husbandry, provision of advice and organization of process control.

There are various directions for solving the political problems of technical saturation and introduction of modern technologies in the agricultural sector of Armenia. First of all, it is necessary to review the terms of leasing agricultural equipment. We suggest to using a different approach for the advance payment of leasing of agricultural equipment, particularly, to reduce the advance payment of leasing, to apply it to 10% instead of 20% or to apply a subsidy of a certain part of the advance payment. In this case, of course, the budgetary costs will increase, but it will have a positive effect on technical saturation, the pace of technical re-equipment will increase. This is one of the measures that require an increase in the financial burden, but it can be an effective measure from the point of view of technical saturation. One of the important ways of technical saturation in agriculture can be the implementation of technical saturation programs with community components of previously implemented credit programs, which can become a prerequisite for the creation of machine-tractor stations. Such programs are currently suspended, but it is necessary to take measures by the state agricultural management bodies for their implementation.

One of the preferred directions for the technical saturation of agriculture can also be the implementation of the program for the formation of agricultural production and technical service cooperatives with public-private cooperation, for which the element of support and provision of advice should be a guarantee.

Digitalization of agriculture and the use of digital technologies in production processes are among the most important directions of the technical saturation of agriculture. Consulting firm Spherical Insights & Consulting has estimated the digital agriculture market at \$12.18 billion in 2021, which will grow to \$34.13 billion by 2030, with an annual growth rate of 12.8%. The digital agriculture market should grow due to technological advances, waste reduction and efficient use of resources, strategic government policies, awareness raising and implementation of digital agriculture. Thus, the development of the digital agriculture market in the world is predicted to be quite fast. In order to have its share in such a market, it is necessary to take certain steps, which can be one of the important components of increasing the competitiveness of agriculture. According to our observations, the steps for the transition to digital agriculture should be as follows:

- training of personnel in the direction of digital agriculture. In the direction of the latter, a separate specialty - *digital agriculture* - was established at the National Agrarian University of Armenia, and a separate material and technical base - *laboratory capabilities* - was formed. Here there is still a problem in the direction of increasing the attractiveness of the profession;

- taking steps to increase the level of awareness of businessmen about digital agriculture, especially developing knowledge about the results of its application;

- implementation of state programs for the import of equipment for the development of digital agriculture to the republic, including relevant grants;
- taking into account the complexities of implementation and application of digital agriculture equipment by economic operators in individual agriculture, both in terms of financial support and professional application, it is necessary to form a separate organizational unit for the provision of digital agriculture services, which will provide services on a regional, regional or national scale.

Digital agriculture is the use of advanced technologies in an integrated system enabling farmers and other stakeholders in the agricultural value chain to increase food production. Global digital agriculture is segmented into crop monitoring, weather tracking, field mapping, crop tracking, and others. One of the main obstacles to the development of digital agriculture is the high price of precision agriculture equipment. Precision agriculture uses advanced technologies and high value equipment such as drones, smart sensors, navigation satellite system, guidance equipment and receivers.

Drones (unmanned aerial vehicles) are considered realistic for investment in the digital agriculture equipment in Armenia, with the main activities of plant protection measures, high-quality and efficient use of working fluid, field research and other activities. We consider the use of weather stations in the areas of agricultural crops to be important, which, along with the recording and reporting of temperature, its changes, is important in terms of providing information about soil moisture, the amount of water given to the plant. Various models of drones are used in agriculture in the world, including: JT10L-404QC, JT16L-404QC, JT30L-606, AGRAS T-40. The mentioned models have different sizes of reservoirs, namely: 10; 16; 30 and 40 liters, flight duration (10-15 minutes), flight radius (0-1000 m), flight height (0-30 m), flight speed (0-12 m/s), injection coverage, productivity and other indicators, which characterize the features of their work. The use of agricultural drones certainly affects the competitiveness of agricultural products, but currently more advanced drones are used in agricultural work.

For use, we recommend the DJI AGRAS T-50 drone, which is a new generation device and has the following characteristics. DJI Agras T50 is one of the leading, most productive agricultural drone models, which differ from other T series drones in high productivity and efficiency. The equipment is oriented to work on large areas, it is capable of lifting up for spraying a 40-liter tank for spraying plants or 50 liters of bulk, granulated material for adding soil from above (from the air), processing a layer of 11 meters in one pass [Dji-agras-t50]. A photo of the DJI Agras T50 drone is shown below. As we can see, compared to other drones, this drone has a large mass of used material and a large coverage of the processed layer. This equipment also has other advantages related to the efficiency of the measurement system, increased productivity and safety.



Photo 1. The DJI Agras T50 drone in action

In order to increase the competitiveness of agriculture, particularly horticulture, as is known, it is important to increase the productivity of production processes, specifically spraying, fertilizing, in particular, this new generation drone has high productivity, which is one of its important advantages. The one presented above is one of the improved equipment of the last generation, with the description of which we aimed to emphasize the importance of the given system from the point of view of increasing competitiveness. According to our observations, the price of drones of this brand is 13999 USD, shipping costs are 540 USD. Taking into account VAT and other unforeseen costs, the purchase price of this equipment for an agricultural producer can be 18,000 USD.

Our observations show that such equipment in the republic can be used by large farms that have the ability to invest and include specialists. However, the number of such farms in the republic is extremely small, according to estimates, they can make up 0.15% of the total number of farms. Taking into account the fact that the use of these digital equipment is difficult to access for the agricultural farms, both in terms of technological complexity and finance, therefore, an effective mechanism for using such equipment can be the creation of separate service centers on the basis of public-private cooperation, which will provide services on a contractual basis. farmers in agriculture.

The weather station for measuring temperature is also one of the most important equipment of digital agriculture. Let's talk specifically about the iMETOS 3.3 weather station, because it has certain advantages. The weather station serves the complex solution of environmental monitoring, modeling of diseases, water resources and other issues.

The iMETOS 3.3 weather station is a reliable and flexible data logger for any climate, powered by pre-charged batteries or solar panels. It is universal, with configuration possibilities and many connected sensors, 600 sensors are given for selection. iMETOS 3.3 is used to solve a wide range of problems:

- accurate weather forecast taking into account local weather conditions,
- SMS alerts about expected frosts, heavy rains, high temperature,
- modeling of the possible development of diseases of agricultural crops,
- continuous meteorological monitoring,
- monitoring the operation of irrigation systems and soil moisture,
- analysis of the growth of crops and their condition,
- monitoring of hydrological factors and timely warning of possible floods

[www.geomir.ru/catalog/monitoring-pogody/imetos-3-3/].



Photo 2. iMETOS 3.3 weather station

iMETOS 3.3 has a number of advantages, the main ones being:

- own built-in memory,
- Internet connection function and direct connection via Wi-Fi channel,
- compact size and low weight,
- LED notification of the working status of the device,
- possibility to choose the interval of data registration,

- built-in battery, rechargeable from a solar panel, which works in a wide temperature range,
- support for up to 600 types of sensors with their automatic detection, ease of installation of the device and sensors [Geomir, 2022, 3]. The price of the device is 3,600 Euros, with shipping costs and VAT, it will be around 4,800 Euros.

The use of digital agriculture equipment can significantly contribute to increasing the competitiveness of agriculture, but the large investments required for the acquisition of such equipment and the professional complexity of their use require the creation of a certain organizational unit in terms of regions or enlarged communities that can ensure the use of such equipment. That organizational unit should include the structure that manages the digital agriculture equipment, which should work in public-private partnership, local self-government and regional government bodies, structures that train and provide advice in the field of digital agriculture, economic operators in agriculture, companies that supply digital agriculture equipment, etc. The organization scheme of the structure using digital agricultural equipment is presented in figure 2.

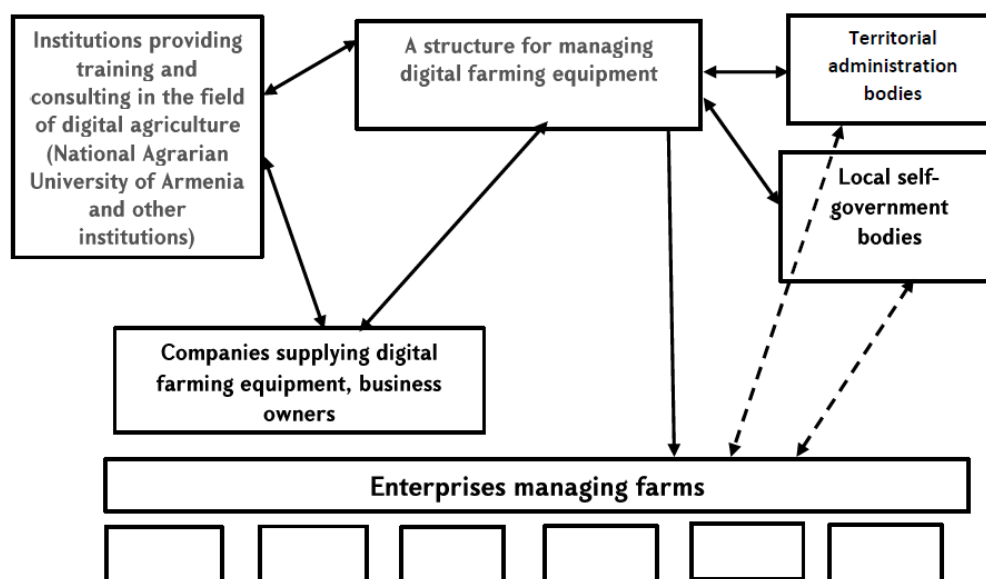


Figure 2. Organizational chart of a structure using digital agriculture equipment in RA

When considering the main directions of solving the problems of the policy of the sale of agricultural raw materials and products, the improvement of the production and service infrastructures of the sector, we will first stop at the organization of the mentioned sale process.

An important role belongs to the organization of the realization process in the links of the chain of agricultural raw materials and food from the producer to consumption.

The process of sale of agricultural products in the republic is mostly unregulated. A significant part of the sale of agricultural products is done through unregulated middlemen who dictate their prices to producers and the contractual relationship is not clear, which is especially important between producers and processors of agricultural products. The regulated organization of the process of sale of agricultural products requires the formation of certain infrastructures, the main function of which should be the reception of agricultural products, their sorting, as necessary, packaging, aging and delivery according to purpose, which can be carried out when selling these products directly to consumers in agricultural markets, supermarkets and stores. through the network, when providing to exporting structures and when selling to processing companies. We need to consider the assortment, quantities and directions of further sale of the products to be stored. It is proposed to jointly form collection points in rural settlements or for several settlements or communities, which should operate in the system of contractual relations with the economic operators in agriculture. Those collection points must have storage areas, including refrigeration, containers and packaging materials and equipment, appropriate means of transport, and certain staff. Such structures can be created based on cooperation or economic operators are united by a contract of joint activity.

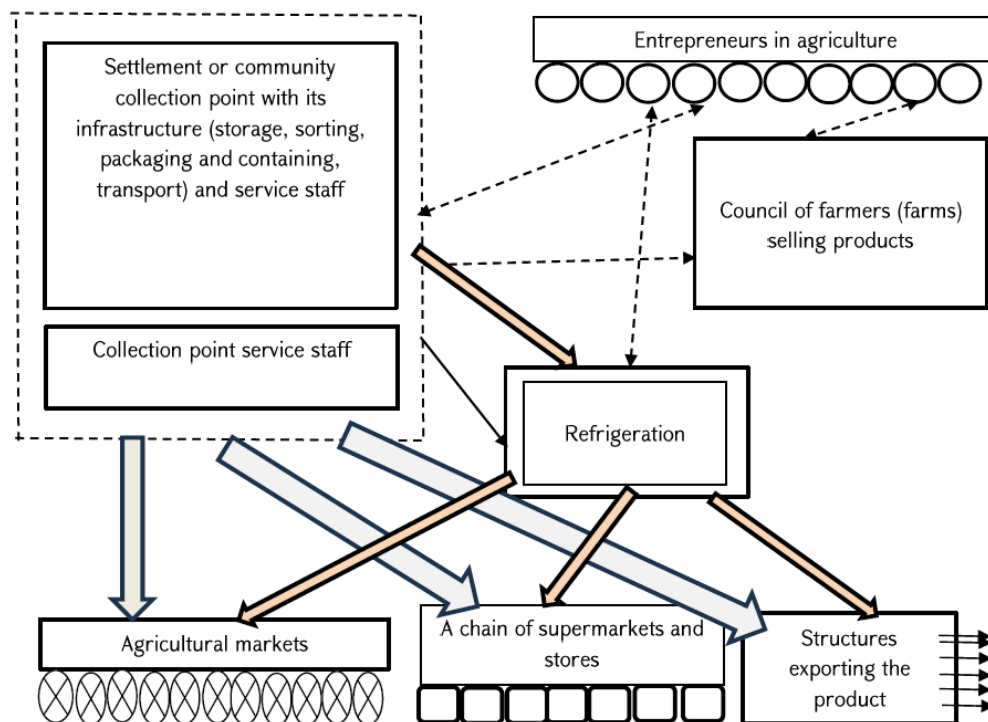


Figure 3. Organizational scheme of the agricultural product and raw material sales department

The costs of the process of collection and delivery of agricultural products must be compensated through certain deductions from the proceeds from the sale of products, the share of which must be determined based on the calculations of specific costs. It is important to establish contractual relations with processors of agricultural products, as well as exporting structures, supermarkets and chain stores. It is advisable to form the refrigerator economy on the principle of share-ownership or cooperation, the activity of which will serve the needs of the shareholders, or a service will be provided by the owner of the refrigerator for a certain fee.

Our observations show that one of the important directions for improving production and service infrastructures in the agricultural sector should be the creation of production-technical service and supply structures in rural areas. The formation of these structures is considered realistic on the basis of a certain support program with public-private partnership. The state should have its share with a share close to 50%. The possibility of repurchase by other owners of the state share should be created. The service center should work with farmers in agriculture on the basis of contractual relations, applying justified, realistic tariffs. In order to encourage the formation of such structures, we propose to apply agricultural equipment leasing program privilege options, both for the down payment, the leasing interest rate, and the leasing period. One of the preferred options used in the past is the creation of car-tractor assembly stations next to the municipal halls within the framework of community projects. In the last two cases, it is considered important to provide advice to these structures in the field of production and technical services and to carry out periodic monitoring of the production process by relevant competent authorities (structures of state administration bodies coordinating the sector, territorial administration and local self-government bodies).

The main directions of solving the problems of the policy of ensuring the financial stability of economic operators in the field of agriculture are:

- one of the instruments for ensuring the financial stability of economic operators in the agriculture of the republic was the agricultural loan interest rate subsidy program, but as we mentioned, the program was stopped starting from 2023 and no other equivalent program was started to replace it. Therefore, it is proposed to resume the interest rate subsidy program for agricultural loans, it is possible to revise the principal amount and repayment terms depending on the sub-sectors to be loaned;
- increasing the level of purposefulness of the loan interest rate subsidy program through the use of other mechanisms for proper monitoring and control;
- providing advice to borrowers in the direction of targeted use of financial resources.

The main directions of solving the policy problems of improving the state programs implemented in agriculture and launching new effective programs are:

- restoration of loan interest rate subsidy program;
- in case of problems in the implementation of almost all state agricultural support programs with the planned volumes, the implementation of the programs with the specified volumes can be facilitated by the expansion of the support element of the state support programs, by increasing the shares of subsidy and support components provided by the programs by about 25-30%;
- a new program is proposed, according to which, for a number of agricultural crops, according to the zones, it is appropriate to establish a payment for ensuring the sowing area of a unit area and for its proper cultivation;
- it is not necessary to implement programs aimed at the production and reproduction of high-yielding seeds of grain and leguminous crops, fodder crops;
- the implementation of state programs for the development of thoroughbred livestock breeding and improvement of the pedigree and food-producing characteristics of agricultural animals by increasing their volumes and the support component.

The proposed revision and expansion of state support programs requires a significant increase in budget investments, but our observations show that they will be compensated many times over due to increased production volumes and increased competitiveness of the sector.

Conclusions As a result of the research, the following conclusions were made:

The policy of improving the state of agricultural land use should be aimed at alleviating the causes of its inefficient use as much as possible, as a result, increasing the competitiveness of agriculture. The most important way to increase the level of targeted use of agricultural land can be the application of targeted state policy to promote the use of arable land. The latter can be implemented through state programs, applying a targeted subsidy policy according to zones. Increasing the efficiency of the use of labor resources, the other most important resource in agriculture, requires the implementation of a state policy aimed at expanding non-agricultural activities in rural areas, mitigating seasonality in agriculture, and creating opportunities for processing agricultural products in farms. The policy of making the most of the biological opportunities of the plant breeding branch of agriculture should be aimed at providing high-quality and conditioned seeds, and the policy of making the most of the biological opportunities of animal husbandry should be aimed mainly at improving the nutritional and pedigree characteristics of agricultural animals, herd structure, animal behavior and feeding conditions. The regulated organization of the process of sale of agricultural products requires the formation of certain infrastructures, the main function of which should be the reception of agricultural products, their sorting, as necessary, packaging, aging and delivery according to purpose, which can be carried out when selling these products directly to consu-

mers in agricultural markets, supermarkets and through a network of stores, when providing to exporting structures and when selling to processing companies.

One of the important directions of improving the production and service infrastructures of the agriculture sector should be the creation of production and technical service and supply structures in rural areas. The formation of these structures is considered realistic on the basis of a certain support program with public-private partnership. Taking into account the complexities of implementation and application of digital agriculture equipment by economic operators in individual agriculture, both in terms of financial support and professional application, it is necessary to form a separate organizational unit for the provision of digital agriculture services, which will provide services on a regional, regional or national scale. In the event of problems in the implementation of almost all state support programs for agriculture in the planned volumes, the implementation of the programs in the specified volumes can be facilitated by the expansion of the support element of the state support programs, by increasing the shares of the subsidy and support components provided by the programs by about 25-30%. Although the proposed revision and expansion of state support programs requires a significant increase in budgetary investments, they will be compensated in multiple volumes as a result of increasing production volumes and increasing the competitiveness of the sector.

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The prospects of solving the issues of the state policy on increasing the competitiveness of agriculture in the Republic of Armenia

Key words: agriculture, competitiveness, efficiency, productivity, indicators, factors, problems, gross output, agricultural commoditization, subsidy, loans, leasing, producer price

The implementation of an effective state policy of increasing the competitiveness of agriculture of the Republic of Armenia requires clarifying the main problems of this policy and providing a solution to them. It is advisable to separate the problems based on certain approaches, in particular: improvement of the state of use of the main resources of the sector, provision of primary seed production and genealogical work ensuring the vitality of the main branches of agriculture, introduction of technical saturation and modern technologies in the sector, sale of agricultural raw materials and products, improvement of production and service infrastructures of the sector, from the point of view of ensuring the financial stability of farmers in agriculture, improving the state programs implemented in agriculture and launching new, effective programs. In this case, a number of problems is presented in the article and the ways of their solution were identified.

- Main problems of the policy of improving the state of use of the main resources of agriculture.
- Policy problems of the best use of the biological possibilities of the main branches of agriculture: plant breeding and livestock breeding.
- Policy issues of technical saturation and introduction of modern technologies in the agricultural sector of the Republic.
- Problems of policy for the sale of agricultural raw materials and products, improvement of production and service infrastructures of the sector.
- Problems of the policy of ensuring the financial stability of economic operators in the field of agriculture.
- Policy issues of improving state programs implemented in agriculture and launching new, effective programs.