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IMPROVING THE EFFICIENCY OF GRAIN PRODUCTION BY IMPROVING MANAGEMENT PROCESSES

Abstract. Historical trends in the development of social production are an increase in its effectiveness. It penetrates deeply into production and turnover, reduces production and turnover time, and leads to a reduction in public spending. Improving basic management processes in the organization and increasing the role of their economic efficiency as the basis for solving social problems and ensuring the competitiveness of the country's economy in market conditions.

A critical analysis of the work of domestic and foreign scientists and practitioners shows some gaps of a theoretical-methodological and methodological-instrumental nature associated with insufficient elaboration of the composition and specifics of the problems of domestic production, insufficient attention to the optimal content of the complex of elements of diagnostics of production processes, as well as the difficulties of their application in real conditions. There was a need to create a simple and understandable, effective and at the same time understandable, capable of increasing shop management tools, adequate conditions, and efficiency without significant additional costs.

The purpose of the study is to develop scientific provisions, develop methodological materials, and improve practical recommendations for improving basic management processes in an organization and improving

their economic efficiency based on the assessment and modeling of its indicators and factors at industrial enterprises.

The scientific novelty of the study is the improvement of basic management processes in the organization and assessment of their economic efficiency based on the assessment and modeling of the most important factors affecting the indicators of its level at industrial enterprises.

In the production management system, an initial approach to determining the problem field is proposed, which is distinguished by the distinction and systematization of specific problems of production activities and their symptoms, the separation of groups of symptoms (economic efficiency; Duration/Time; quality/reliability) and blocks of problems (informational; organizational; resource), which allows establishing obvious causal relationships and developing reasonable management decisions.

Key words: production, economic efficiency, grain production, management processes, management improvement.

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БАСҚАРУ ПРОЦЕСТЕРІН ЖЕТІЛДІРУ АРҚЫЛЫ АСТЫҚ ӨНДІРУДІҢ ТИІМДІЛІГІН АРТТЫРУ

Аннотация. Қоғамдық өндіріс дамуының тарихи үрдістері - оның тиімділігінің артуы. Ол өндіріс пен айналымға терең енеді, өндіріс пен айналым уақытын азайтады, қоғамдық шығындардың төмендеуіне алып келеді. Нарық жағдайында әлеуметтік міндеттерді шешу мен ел экономикасының бәсекеге қабілеттілігін қамтамасыз етудің негізі ретінде ұйымдағы базалық басқару процестерін жетілдіру және олардың экономикалық тиімділігінің рөлі артады.

Отандық және шетелдік ғалымдар мен практиктердің жұмыстарын сыни талдау отандық өндіріс проблемаларының құрамы мен ерекшелігін жеткіліксіз пысықтаумен, өндіріс процестерін диагностикалау элементтері кешенінің оңтайлы мазмұнына, сондай-ақ оларды нақты жағдайларда қолдану қиындықтарына жеткіліксіз көңіл бөлумен байланысты теориялық-әдіснамалық және әдістемелік-аспаптық сипаттағы кейбір

олқылықтарды көрсетеді. Цехтық басқару құралдарын, барабар жағдайды, тиімділікті айтарлықтай қосымша шығындарсыз арттыруға қабілетті қарапайым және түсінікті, пәрменді және бір уақытта түсінікті, құру қажеттілігі туындады.

Зерттеу мақсаты өнеркәсіптік кәсіпорындарда оның көрсеткіштері мен факторларын бағалау мен молдельдеу негізінде ұйымдағы базалық басқару процестерін жетілдіру және олардың экономикалық тиімділігінің арттыру жөніндегі ғылыми ережелерді әзірлеу, әдістемелік материалдарды жасау, сонымен қатар практикалық ұсыныстарды жетілдіру болып табылады.

Зерттеудің ғылыми жаңалығы өнеркәсіптік кәсіпорындарда оның деңгейінің көрсеткіштеріне ықпал ететін маңызды факторларын бағалау мен молдельдеу негізінде ұйымдағы базалық басқару процестерін жетілдіру және олардың экономикалық тиімділігін бағалау.

Өндірісті басқару жүйесінде проблемалық өрісті анықтаудың бастапқы тәсілі ұсынылды, ол өндірістік қызметтің және олардың симптомдарының өзіндік проблемаларын ажырату мен жүйелеумен, симптомдар топтарын бөлумен (экономикалық тиімділік; ұзақтығы/уақыты; сапасы/сенімділігі) және проблемалар блоктары (ақпараттық; ұйымдастырушылық; ресурстық) ерекшеленеді, бұл айқын себеп-салдарлық байланыстарды орнатуға және негізделген басқару шешімдерін әзірлеуге мүмкіндік береді.

Түйін сөздер: өндіріс, экономикалық тиімділік, астық өндірісі, басқару процестері, басқаруды жетілдіру.

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ПОВЫШЕНИЕ ЭФФЕКТИВНОСТИ ПРОИЗВОДСТВА ЗЕРНА ЧЕРЕЗ СОВЕРШЕНСТВОВАНИЕ ПРОЦЕССОВ УПРАВЛЕНИЯ

Аннотация. Исторические тенденции развития общественного производства - повышение его эффективности. Он глубоко проникает в производство и оборот, сокращает время производства и оборота,

приводит к снижению общественных издержек. Повышается роль совершенствования базовых управленческих процессов в организации и их экономической эффективности как основы решения социальных задач и обеспечения конкурентоспособности экономики страны в условиях рынка.

Критический анализ работ отечественных и зарубежных ученых и практиков показывает некоторые пробелы теоретико-методологического и методико-инструментального характера, связанные с недостаточной проработкой состава и специфики проблем отечественного производства, недостаточным вниманием к оптимальному содержанию комплекса элементов диагностики производственных процессов, а также трудностям их применения в конкретных условиях. Возникла необходимость создания простых и понятных, действенных и одновременно понятных средств цехового управления, адекватных условий, способных повысить эффективность без существенных дополнительных затрат.

Целью исследования является разработка научных положений по совершенствованию базовых управленческих процессов в организации и повышению их экономической эффективности на основе оценки ее показателей и факторов на промышленных предприятиях, разработка методических материалов, а также совершенствование практических рекомендаций.

Научная новизна исследования заключается в совершенствовании базовых управленческих процессов в организации и оценке их экономической эффективности на основе оценки важнейших факторов, влияющих на показатели ее уровня на промышленных предприятиях.

В системе управления производством предложен исходный подход к определению проблемного поля, отличающийся разграничением и систематизацией специфических проблем производственной деятельности и их симптомов, выделением групп симптомов (экономическая эффективность; продолжительность/время; качество/надежность) и блоков проблем (информационная; организационная; ресурсная), что позволяет устанавливать четкие причинно-следственные связи и разрабатывать обоснованные управленческие решения.

Ключевые слова: производство, экономическая эффективность, зерновое производство, процессы управления, совершенствование управления.

Introduction. One of the main reasons for the low profitability of grain production in a market economy is the high cost of products, often combined with the use of outdated technologies and energy – intensive technical means. In this regard, the issue of introducing new technologies for growing grain

crops that provide low resource consumption is becoming urgent. Current price inequality, environmental degradation, constant increase in the cost of production resources, and the use of multifunctional seeding and seeding systems reduce labor costs, fuel consumption, and help preserve moisture in the soil. At the same time, since such complexes perform seven operations in one pass (pre-sowing sowing of crops, cutting and burning weeds, leveling, leveling and leveling the soil, fertilizing crops with fertilizers), the number of passes across the site of machine-tractor units that increase resistance to soil erosion is significantly reduced (Eremeeva, 2018).

Methods. Theoretical and methodological foundations of research in the field of production process management representatives of science: Afitov E.A., Bukhalkov M.I., Wernikov G., Vinokurov S.G., Vlasov M.P., Gavrilov D.A., Gadzhinsky A.M., Vumek D.P., grisly E., Debazea Zh., Jones D., Kofman A., Liker J. Littlefield M., McComas M.J., Stevenson. W.J. In the works of these authors, the problems of production efficiency, labor distribution, optimization of production processes were comprehensively studied, the main problems of production activity, the reasons for their occurrence were identified, and ways to solve them were proposed. The results of these studies have laid a scientific foundation on which modern science of production organization is largely based. At the same time, the current stage of development presupposes the emergence of new, progressive management concepts, methods and tools. The direction of «New training» and cost-effective production, quality management system, procedures and software shells of production automation, etc. will be further developed.

Methodological tools for diagnosing production processes based on critical assessments of existing methods and tools of analysis and author's generalizations are proposed, which implies the connection of methods and tools with the logic and regularity of analysis of the production system in the context of stages: assessment of production opportunities; Analysis of the structure of work from the point of view of time costs.

Results and discussion. Today, 17% of the acreage in the United States, 30% in Canada, 45% in Brazil, 50% in Argentina and 60% in Paraguay is processed using zero technology.

The achievements of the agro-industrial sector of the leading countries in the production and export of grain (USA, Canada, Brazil, Argentina) are based on continuous improvement of technologies, with the help of which production efficiency and soil erosion are controlled. Based on the growing pace of introduction of resource-saving technologies in Western countries, Kazakhstan uses resource-saving technologies that lead to soil degradation (Rosenblat, 2018).

More than half of agricultural producers produce products using traditional technologies, and do not use the achievements of domestic and advanced foreign experience, the component of which consists in intensification. With traditional technologies, as a rule, crop treatment with plant protection products and the use of mineral fertilizers are carried out in very low doses. This is complicated by the use of outdated machines with low technological parameters. Therefore, the total yield largely depends on weather conditions and natural soil fertility. As a result of the combination and mutual influence of all these factors, the profitability of organizations developing along this path will be low or at a loss.

Today, the following main types of technologies are found in the world in terms of production intensity:

1. Simple (normal, traditional) technologies are used in farms with a low level of profitability and low staffing. The potential capabilities of the technology reach up to 20 c / ha. The equipment for the introduction of simple technologies is poorly oriented to tillage and is mainly low-cost aggregates of older generations of machines (Volkova et.al, 2020).

2. Intensive technologies are based on in-depth knowledge, as well as the operation of units in technological operations, which require differential introduction of drugs at different stages of plant development, the use of plant protection products from pests and weeds, the use of mineral fertilizers in the production of agricultural products. Their grain yield is 30-40 c / ha.

3. High-intensity technologies are the most modern and contribute to the strategic prospects of competitive agriculture in Kazakhstan. With their help, you can actually get 50-60 c/ha of grain crops. These technologies allow the equipment to provide economical use of land, precise control over the processes of cultivation, harvesting and storage of crops. As a rule, it monitors the quality of all technological operations performed, taking into account that this method optimizes the use of landscape conditions and all types of resources.

Basic principles of traditional soil plowing and tillage systems:

- mandatory deep soil treatment;
- plant waste - production waste processed by soil processing equipment;
- the land under the Steam will remain for several weeks and months;
- emphasis is placed on chemical processes occurring in the soil;
- chemical methods of pest control are considered as the main method;
- soil erosion is perceived as an unavoidable process associated with agriculture (Kabdullina et.al, 2020).

These approaches lead to the use of soil resources, and from the point of view of proponents of intensive technologies, it is impossible to use land

from an ecological, ecological, social and economic point of view with such a system. These principles give rise to new approaches in crop production, which are best expressed in the following phenomena:

- tillage is not required for growing grain crops;
- waste of plant crops is a valuable product and therefore leaves on the surface of the soil in the form of a coating; its installation is prohibited;
- there must be a stable soil cover;
- special attention is paid to biological processes in the soil;
- biological methods are used as the main pest control option;
- soil erosion caused by water and wind is a sign that incorrect farming methods are being applied to a particular region and ecosystem. This system ensures safety in the use of land resources in the environment (Fedorenko, 2016).

In modern domestic and world practice, promising methods of soil protection and resource saving include minimum tillage and zero tillage methods. In South America, the first no-Till method began in Brazil in 1971. Currently, 45% of the acreage is processed in this country using the «zero processing» method, in Argentina-50%, in Paraguay - 60%. In the United States, 82% of acreage is used with saving technologies, in Canada-more than 90%, of which no-Till technologies use 45% and 30%, respectively.

Minimum tillage (Mini-Till) is considered a transition period to No-Till, as it provides a reduction in the mechanical impact of tillage machines on the soil by reducing the number of passes of aggregates in the field.

Based on the experience gained, it is proved that minimal tillage under appropriate conditions provides the same cost of grain crops compared to traditional technology, and the consumption of fuel and lubricants per 1 hectare of acreage is reduced by 12-17 kg, and its energy intensity is 2 times less. A special feature of the use of saving technologies for winter crops is a constant increase in productivity in dry years by an average yield of 3.2 c/ha, which provides a plowing of 20-22 cm compared to the traditional method used in wet years. Limited use of minimal processing for spring grain crops and annual grasses does not reduce their yield, but does not increase it (Gaisin et.al, 2017).

The main principle of zero tillage is the use of natural processes occurring in the soil. In untreated soil, most entomophages are found, that is, insects that destroy pests, as well as rainworms - natural soil scavengers. Therefore, proponents of NoTill consider traditional plowing not only unnecessary, but also harmful. The unpaired field penetrates deep into billions of capillaries left over from the roots of annual plants or formed as a result of the vital activity of earthworms and other organisms. Moisture saturates the soil through these

natural channels, and in winter freezes and destroys the channels. This process is called the natural «breathing» of the Earth. The No-Till method is based on soil protection: crops are sown on plant residues with minimal destruction of its structure, without mechanical impact on humus. This waste forms a coating layer, and during traditional processing, the straw is plowed to great depths. With resource-saving technologies, after harvesting, the soil part of the remaining plants is cut off with a washer, crushing them and covering the soil with a protective layer. It retains moisture, protects the field from the sun, water, wind erosion and dust storms, and the top layer of the earth does not crumble. Plant waste allows you to control the carbon content of the soil, as it is considered the basis of humus and a catalyst for processes that inhibit soil erosion.

The main disadvantage of minimal and zero tillage is a significant increase in the number of weeds in the field, pests from the soil, increases with an increase in the service life and, accordingly, increases the cost of chemical plant protection products. According to average estimates, with systematic use of minimal tillage, weeds increase by 30% for the first crop, twice for the second and third crops, and in general for crop rotation by 3 times. The experiments showed that resource-saving technology should be used depending on the previous culture, phytosanitary conditions and physical and mechanical state of the soil of each site during crop rotation. In the first years of the transition from traditional processing to no-Till, it is not only necessary to use a herbicide, but also to leave the productivity at the same level or at a lower level compared to classical technology. However, when processing using the zero method, the number of losses decreases and profits begin to grow.

Since the beginning of the 80s of the last century and the beginning of this century, other variants of soil protection technologies have been studied and implemented in Kazakhstan, such as minimum and zero technologies.

Minimal technology involves reducing the number of soil preparation operations. It is not marked by any abbreviated list of operations. In different zones and different operators are implemented independently. The reduction of operations is carried out mainly during the preparation of steam: some of the mechanical operations are replaced by the use of chemical means of weed control. Deep tillage in the soil is transferred to small areas (Taizhanov et.al, 2019).

Positive elements of minimal technology include: a decrease in production costs, as a rule, by 25-30%, a decrease in the intensity of exposure to the soil by chemical and mechanical means, which leads to soil degradation and adverse environmental conditions.

Disadvantages of the technology include:

- small tillage on the arable land necessary for growing plants does not create an optimal structure;

- can not provide water absorption in deep arable areas, especially when heavy snow falls;

- can not withstand the destruction of Root and root weeds.

Zero tillage is a method of tillage of the soil structure with minimal destruction. This is a type of tillage intended for sowing in untreated soil after pre-treatment of acreage without violating the soil structure, with the exception of narrow-band tillage for the formation of seed crops. Chemical weed control is an integral part of this system.

In the world practice, notill processing technology is used on more than 72 million hectares: about 47% of arable land in Latin America, 18.7% in the United States, 15% in Canada, 12.5% in Australia and about 3.3% in Europe, Africa and Asia (Kokenova et.al, 2020).

Positive elements of zero technology include:

a) reduction in the number and nomenclature of machines used;

b) reducing the need for Labor;

c) increasing labor productivity;

d) reducing the cost of production per unit of production.

Negative elements of zero technology include:

1. compaction of arable soil horizontally with long-term use.

2. high chemical pressure on the soil, creating an unfavorable environmental situation.

3. appearance of new weed species during long-term use.

4. the need for additional application of nitrogen fertilizers.

5. reduced grain quality.

6. spread of plant diseases.

The disadvantage of known technologies is that when using each of them for a long period of time, negative elements prevail over positive ones, which worsen the general condition of the soil, ecology and opportunities for growing grain crops.

It includes the following main elements:

- grain-steam crop rotation and grain-crop-steam crop rotation;

- energy and resource saving systems for tillage (combined, minimum and zero);

- agricultural aggregates, technical means that are combined tillage;

- highly effective use of fertilizers using biological means in order to increase soil fertility;

- environmentally safe plant protection system from weeds, pests and diseases;

- varieties with guaranteed high grain quality;
- soil and climatic conditions.

The transition to resource-saving technologies requires consistency, so all of the above elements are interconnected.

In domestic practice, there is a good practice of using small farms of intensive type technologies (about 10-15%), which ensure the optimal level of mineral nutrition of plants and the competent use of chemical means of protection against pests, diseases, weeds and residential premises. The existing varieties of plants used, the standard use of fertilizers (primarily during the growing season), a set of protective measures, the use of high-tech combined and energy-saturated equipment allow farms to provide their own economic activity due to increased productivity.

The technology of cultivation largely depends on its first sowing. Even the best varieties can not form a high-quality crop and high yield without creating the necessary conditions for the realization of hereditary abilities. In order to justify the principles of drawing up schemes for specific conditions of the agricultural landscape and creating an appropriate structure of the acreage for creating crop rotation, it is necessary to select the best pre-sowing for the main crops and determine the optimal period of their return to their former place.

Taking into account that in Kazakhstan grain crops occupy 69.56% of the acreage, the annual renewal of perennial grasses is only 9%, the main crop of grain crops is cereals. Currently, a detailed sample of the crop rotation «sowing cycle» is as follows: pure steam / empty steam: 50/50; winter cereals; spring cereals; spring cereals.

When using resource-saving technologies, it is necessary to introduce them into crop rotations that increase soil fertility. For example, the use of peas allows you to reduce the amount of nitrogen fertilizers, and a crop with a highly developed root system improves the structure of the soil without mechanical processing. In general, the crop rotation solves the problems of diseases and pests that harm plants, as well as their damage by weeds.

The choice of grain varieties for resource-saving technologies is determined by the soil and climatic conditions of the regions and the financial capabilities of producers. Of course, the most rational option is the first class of the sowing standard, which is used for sowing seeds of the intensive type of high reproductions. With the use of high-quality sowing technology, which allows you to evenly sow seeds in the soil, it is possible to slightly reduce the sowing rates, while increasing the seed germination rate.

The use of fertilizers is one of the indispensable links in the organization of watering plants for the purpose of obtaining a crop. A set of quantitative

properties that determine the nutrient needs of a plant can be expressed by eliminating it by plants. To obtain the appropriate amount of by-product from one hundredweight of grain crops, plants must absorb 3 kg of nitrogen, 3 kg of potassium and about 1 kg of phosphorus. At the same time, the plant does not care where these elements come from: from the soil, mineral or organic fertilizers.

When calculating the total need for fertilizers, many conditions are taken into account: the size of the planned product and the full release of nutrients by crop, the presence of a specific field with this element, the rate of use of soil reserves by certain types of plants, the physiological needs of plants and the biological characteristics of the crop (type of root system, depth of rooting). the possibility of using foliar fertilization , etc.), technical capabilities of the economy (the presence of fertilizer dispensers, installations for adding fertilizers to the soil, installations for filling liquid fertilizers, etc.), as well as the possibility of obtaining a combined fertilizer.

Summary and Conclusion. When switching to storage technologies for agricultural products, it should be taken into account that direct and coating seeding increases the release of nitrogen from the soil and the decomposition of organic matter. Therefore, it is necessary to apply more nitrogen fertilizers compared to traditional technologies. To increase the moisture content of post-harvest waste, it is necessary to apply 8-10 kg of nitrogen per 1 ton of straw. Two or three years after leaving straw on the surface of the soil, the need for additional application of fertilizers disappears. Taking into account all these conditions when applying fertilizers, it significantly increases the yield of high-quality grain crops, while maintaining soil fertility.

Resource - saving technologies require special attention to measures to protect grain crops from diseases, weeds and pests, among which chemical plant protection products occupy a leading position. The main role belongs to agrotechnical measures: crop rotation, intermediate crops, refined seeds, a system of tillage in the care of the crop, the use of chemicals should be limited, modern methods and preparations are used to prevent negative impact on the environment and products. Numerous studies have shown that in the development of saving technologies, herbicides that interact continuously in weed control will be effective, and in 3-5 years, with the correct Organization of all the elements that make up the essence of the technology, the use of herbicides will be reduced.

Disease control measures are not fundamentally different from those used in traditional technologies. Therefore, during the growing season, seed treatment and treatment with fungicides should be included in the plant protection system. It is very important to observe agricultural crops, because

with an increase in the number of pests, it is necessary to treat plants with insecticides.

One of the reasons for the decrease in soil content is excessive mineralization (biological erosion), i.e. intensive processing and deprivation of nutrients from the nutrients of grain crops. Recalling the law of return discovered by the German scientist J. Liebig in 1840, K. A. Timiryazev demonstrated, which, according to him, is one of the greatest achievements of science. According to this law, in order to ensure a balance without a shortage of all the nutrients of plants, it is necessary to return to the land at least the amount of nutrients that are separated from the crop, and for extended production - to create a certain supply of them. Any violation of the law of return leads to a loss of soil fertility, a decrease in productivity and deterioration of product quality. Unfortunately, at present, the removal of nutrients from the soil significantly exceeds their productivity. As a result, the depletion of the soil cover continues from year to year, and the centuries-old property, fertility, is destroyed. In order to prevent a further decrease in the natural fertility of the soil, increase labor productivity, reliably protect it from wind and water erosion, significantly increase the yield of grain crops, ensure overcoming the devastating consequences of drought, and finally, water-saving technologies help to bring agricultural production to the world level. This is confirmed by world experience.

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