Algorithm of forming the operating budget of integrated agro-formations in the south of Russia

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Abstract. The peculiarities of ensuring sustainable development of integrated agroformations were determined: soil and climate, biological, environmental, technological, organization of agricultural territories. The form of the annual operating budget of agroholding, which includes monthly information on the allocated items of expenditure, was developed. The forms of working documents (applications for the contribution of funds to the operating budget) are proposed and the indicators disclosed in them, acting as an information field for the effective implementation of managerial competencies, are defined. The practical implementation of the proposed measures will act as a tool in the management of financial resources of the agricultural holding and will increase the competitiveness of agricultural products and services, the quality of management (managerial, operational, support), assortment and intellectual potential that will ensure sustainable development of integrated agroforming.

1. Introduction

1.1. Formulation of the problem

Integrated agribusinesses, as the main actors of financial globalization, face risks in their activities more often than companies operating only in national markets, and these risks are both common to all areas of business and specific, characteristic only of international operations [1]. Currently, in the Russian Federation, the agrarian business is recognized as one of the most promising areas of activity, and less affected by the pandemic. Moreover, in 2020 Russia became for the first time a net exporter of agrarian products [2]. These facts confirm that the Russian agro-industrial complex has shifted from an import-substituting model to an export-oriented one [3]. Modern trends in the development of agro-industrial complex caused by economic and political processes necessitate the formation of a qualitative and relevant information set about the costs, acting as the basis for the implementation of managerial competencies aimed at ensuring the sustainable development of integrated agro-formations. As a result of the analysis of economic, production and technological peculiarities of agroholdings we identified the features of ensuring sustainable development of agro-structures: soil and climate, biological, environmental, technological, organization of agricultural territories [4].

The difficulty of forming this information space within an agricultural holding is caused by industry specifics, dynamic changes in the external environment, increasing interconnections and
interdependencies of management decisions between different areas of the subject, insufficient efficiency of management personnel, lack of an innovative approach in the implementation of management competencies, etc. Under such conditions, the need of managerial personnel for reliable discrete information, which includes financial indicators on the costs of production of products (works, services) of agro-industry, increases. This information is formed in a single accounting and analytical space of agroholding and is disclosed in the operating budget. The economic literature widely discusses the features and prospects of agrarian business [5 - 7], the concept, role, opportunities and problems of implementing the budgeting system [8 - 10], the issues of determining the nomenclature of cost items and the order of their accounting, the choice of indicators and the preparation of operating budgets [11, 12]. Despite the continuing relevance, active discussions and increasing needs of practice, there is still no unified form of operating budget for agricultural holdings, which is explained by the diversity and specificity of activities and sectoral focus of each integrated agricultural formation, as well as the variability of costs incurred. There are no unified norms and rules for budgeting activities, determining key indicators, drawing up working documents and require further research in this direction.

1.2. Aim and objectives of the study

Aims. To develop forms of the annual operating budget and working documents (applications for the contribution of funds to the operating budget) and to determine the indicators disclosed in them in order to ensure the sustainable development of integrated agro-formations.

Objectives. To identify the features of sustainable development of integrated agroformations. To substantiate the necessity of budgeting the activities of agricultural holdings. To develop a form of annual operating budget of agroholding, including monthly information on cost items. To propose forms of working documents, acting as an information field for the effective implementation of managerial competencies.

2. Main part

2.1. Research methodology

In the process of research we used general scientific methods of information processing - analysis, grouping, synthesis, tabular.

2.2. Research results

As a result of the study, we developed a form of annual operating budget (table 1), which includes monthly information on our allocated cost items, such as: purchase of fertilizers, purchase of plant protection products, purchase of seeds, costs of fuel and lubricants, purchase of spare parts for repairs, labor costs, costs of taxes, costs of current repairs, costs of services, costs of household needs, costs of electricity, costs of water, costs of gas, communication costs, land lease costs, equipment lease costs, personnel training costs, labor protection costs, property insurance costs, other (state duty, business trip costs), integrated administrative and business services, charity, private security company services, etc.

| № Item | Cost item | January | February | March | April | … | Decembe | Total |
|--------|-----------|---------|----------|-------|-------|---|---------|-------|
| 1.     | Fertilizer purchase | 3 370 | - | - | 10 280 | 13 190 | 13 190 | 79 780 |
| 2.     | Purchase of plant protection products | - | - | 430 | 4 200 | 4 107 | 6 667 | 34 558 |
| 3.     | Seed purchase | - | - | - | - | 14 257 | - | 14 957 |
|   | Description                                      | 2019   | 2020   | 2021   | 2022   | 2023   | 2024   | Total   |
|---|-------------------------------------------------|--------|--------|--------|--------|--------|--------|---------|
| 4.| Costs of fuel and lubricants                    | 462    | 809    | 1 109  | 1 220  | 883    | 530    | 20 012  |
| 5.| Purchase of spare parts for repairs             | 400    | 2 480  | 2 600  | 1 730  | 430    | 430    | 13 620  |
| 6.| Payroll costs                                   | 2 104  | 3 433  | 2 421  | 2 867  | 4 783  | 2 913  | 47 439  |
| 7.| Costs of tax payments                           | 1 147  | 1 534  | 1 204  | 1 652  | 2 670  | 3 118  | 27 602  |
| 8.| Costs of current repairs                        | 50     | 50     | 90     | 90     | 90     | 90     | 1 000   |
| 9.| Costs of services                               | 215    | 275    | 302    | 358    | 271    | 217    | 3 588   |
| 10.| Expenditures for household needs                | 137    | 176    | 259    | 429    | 159    | 139    | 2 689   |
| 11.| Electricity costs                               | 300    | 300    | 300    | 274    | 200    | 470    | 2 832   |
| 12.| Costs of water supply                           | 100    | 100    | 100    | 100    | 150    | 100    | 1 400   |
| 13.| Costs of gas supply                             | 100    | 100    | 105    | 80     | 105    | 105    | 654     |
| 14.| Communication costs                             | 60     | 60     | 69     | 69     | 69     | 60     | 801     |
| 15.| Land lease costs                                | -      | 100    | 2 127  | -      | 2 557  | 440    | 27 042  |
| 16.| Costs of renting equipment                      | 591    | 591    | 591    | 591    | 591    | 591    | 7 095   |
| 17.| Costs of livestock production                   | 1 891  | 2 099  | 1 658  | 1 777  | 1 645  | 1 630  | 21 395  |
| 18.| Training costs                                  | -      | 160    | 10     | -      | -      | -      | 200     |
| 19.| Labor protection costs                          | 90     | 180    | 190    | 90     | -      | -      | 1 065   |
| 20.| Property insurance costs                        | 50     | -      | 10     | 250    | -      | -      | 480     |
| 21.| Other (state fees, travel expenses)             | 5      | 10     | 10     | 20     | 20     | 15     | 200     |
| 22.| Comprehensive services of administrative and household services | 2 000  | 2 000  | 2 000  | 2 000  | 2 000  | 2 000  | 24 000  |
| 23.| Charity                                        | 52     | 434    | 108    | 76     | 361    | 79     | 1 653   |
| 24.| Services of a private security company         | 305    | 350    | 325    | 390    | 412    | 410    | 4 939   |
| 25.| Horticulture services                           | -      | -      | -      | 5      | -      | -      | 110     |
| Total |                                          | 13 124 | 14 891 | 15 693 | 28 153 | 48 539 | 32 784 | 339 112 |

Source: compiled by the authors.
To form qualitative information presented in the operating budget it is necessary to organize an effective and operational system of collecting and processing financial and economic data covering all areas of activity of an agricultural entity. The main difficulty is the lack of uniform standards for collecting and aggregating information, i.e. the lack of unified forms of working documents and indicators disclosed in them. To solve this problem we have developed forms of working documents (applications for the contribution of funds to the operating budget) and defined the indicators disclosed in them. Application for funds to the operating budget includes the following information: to whom the document is sent, from whom, the name of the cost items, the monthly accounting data on them, the total amount (total). Depending on the item of expenses the information reflected in the application is supplemented by the specific data peculiar only to this group of expenses.

Table 2 shows the form of the application form for the purchase of fertilizers in the operating budget (form RP 01), formed by the chief agronomist. This cost item is one of the most important costs of an agricultural enterprise, because the volume and quality of yields directly depends on the timeliness and sufficient quantity of fertilizers applied during the critical and maximum periods of their application.

Table 2. Application for funds for the purchase of fertilizers in the operating budget (form RP 01), thousand rubles.

| №  | Item | Name of costs | January | February | March | April | … | December | Total |
|----|------|---------------|---------|----------|-------|-------|---|----------|-------|
| 1  | Fertilizer | 3 370 | 10 280 | 13 280 | 13 280 | 13 190 | 13 190 | 79 780 |
| 2  | Ammophos | 3 590 | 3 590 | 3 590 | - | 9 469 | 9 469 | 39 177 |
| 3  | CAS-32 | - | - | - | - | - | - | 1 685 |
| 4  | KZF-2 | - | - | - | - | - | - | 1 685 |
| 5  | Ammonium nitrate | 6 690 | 9 690 | 9 690 | - | 3 721 | 3 721 | 37 233 |
| Total | 3 370 | 10 280 | 13 280 | 13 280 | 13 190 | 13 190 | 79 780 |

Source: compiled by the authors.

In this regard, there is a need for a clear monthly planning of money for the purchase of fertilizers. Based on the soil test, the chief agronomist determines the set of fertilizers needed to be applied to the soil. This application specifies the need for such fertilizers as Ammophos, UAN-32, ammonium nitrate, KZF-2. Next, the optimum value (dose) of the selected fertilizers is calculated by one of the following methods: normative, balance-calculated method of calculation of doses of fertilizers for the planned yields taking into account the coefficients of plant nutrients from soil and fertilizers, the definition of fertilizer doses for the planned increase in yields, etc. This information serves as the basis for optimal management decisions on determining the set of purchased fertilizers, the optimal amount and timing of each type of fertilizer in the soil, as well as the choice of the best price category, which generally increases the efficiency of fertilizer use, and hence the crop yield of integrated agro.

Table 3 presents the application form for the purchase of plant protection products to the operating budget (form RP 02).".

The presented application form contains the list of pesticides belonging to the following categories: protectants, herbicides, fungicides, insecticides, fumigants, etc. Volume, period of purchase and directly purchased preparation are defined by the chief agronomist on the basis of the plan of application of plant protection means for the enterprise, which contains the following information: name of pesticide, norm per 1 ha, area treated, total need in pesticide, residue from the previous reporting period, price per unit, and calculation of the amount of monthly purchase of preparations.

The data of this cost item allows you to determine the main measures of plant protection, develop a clear plan for application of plant protection products, the amount of material and technical costs, which will ensure maximum efficiency from the use of preparations and improve the quality of the planned yield.
Table 3. Application for funds for the purchase of plant protection products in the operational budget (form RP 02) (excerpt).

| № Item | Name of costs | January | February | March | April | … | December | Total |
|--------|---------------|---------|----------|-------|-------|---|----------|-------|
| Pesticides | DVD Chance | 430 | 88 | 200 | 13 351 | 5 803 | 4 107 | 6 667 | 34 558 |
| 1. | Imidashans-S | 660 | - | - | 283 | - | - | 943 |
| 2. | Chansil Trio | 511 | - | - | 219 | - | - | 730 |
| 3. | Shansil-Ultra | 2 457 | - | - | 1 053 | - | - | 3 510 |
| 4. | Agroshans | 1 285 | - | - | - | - | - | 1 837 |
| 5. | Betashans | - | - | 217 | - | - | 93 | 310 |
| 6. | Propisans | - | - | 182 | - | - | 78 | 260 |
| 7. | Chancil | - | - | 2 520 | - | - | 1 080 | 3 600 |
| 8. | Fasshans | - | - | 1 260 | - | - | 552 | 1 792 |
| 9. | Dishans | - | - | 1 624 | - | - | 484 | 2 108 |
| 10. | Tanoshans | - | 1 368 | - | - | - | 1 368 |
| 11. | Karatoshans | - | 2 150 | - | - | - | 2 150 |
| 12. | Brodishans | - | 632 | - | - | - | 632 |
| 13. | Chance universal | - | 4 200 | - | - | 2 000 | 4 400 | 14 800 |
| 14. | Energoshans | 45 | - | - | - | - | - | 45 |
| 15. | Boroshans | 34 | - | - | - | - | - | 34 |
| 16. | Macrochance | 85 | - | - | - | - | - | 85 |
| 17. | Ромбишанс | 266 | - | - | - | - | - | 266 |
| Total | - | 430 | 13 351 | 5 803 | 4 107 | 6 667 | 34 558 |

Source: compiled by the authors.

Table 4 shows the form of the application for the contribution of funds for the purchase of seeds in the operating budget (form RP 03).

Table 4. "Application form for the contribution of funds for the purchase of seeds to the operating budget (form RP 03), thousand rubles" (fragment).

| № Item | Name of costs | January | February | March | April | … | December | Total |
|--------|---------------|---------|----------|-------|-------|---|----------|-------|
| Seeds | Sunflower | 700 | - | - | - | 14 257 | - | 14 957 |
| 1 | Corn | 400 | - | - | - | - | 400 | 400 |
| 2 | Winter wheat | 300 | - | - | - | - | 300 | 300 |
| 3 | Winter rye | - | - | - | - | 6 813 | 6 813 | 6 813 |
| 4 | Total | - | 700 | - | - | 14 257 | - | 14 957 |

Source: compiled by the authors.

The application contains a list of seed acquisition of the following crops and plants: sunflower, corn, winter wheat, winter rye-flax. This application is formed by the chief agronomist on the basis of the Seed Demand Form, which aggregates information about crop, hybrid, variety, sown area, seed demand, insecticide-fungicide treatment, etc. The information of this form is fundamental for planning the production activities of the integrated agricultural formation, because it is the type and volume of crops that determine the name, amount and method of application of fertilizers and plant protection products, as well as the development of the optimal strategy of interaction with seed suppliers. The presented order of collecting information on the costs of production, forms of operational budget, working documents and indicators disclosed in them, as well as fixation of responsible persons should be
prescribed and fixed in the local normative acts - standards of economic entity. Internal standardization will allow to provide uniform accounting of expenses for all participants of holding, formation of the information on uniform norms and rules [14].

3. Conclusion
Thus, as a result of the study we have developed a form of the annual operating budget of the agricultural holding, which includes monthly information on the cost items we have allocated, such as: the purchase of fertilizers, the purchase of plant protection products, the purchase of seeds, etc. The forms of working documents (applications for the funds to the operating budget) are proposed and the indicators that are disclosed in them are defined, acting as the information field within the specified item of costs that affect the solution of specific administrative tasks. The formation of this management information is aimed at optimizing financial flows on the basis of the rationalization of the use of labor and material and technical resources. The practical implementation of the proposed measures will be an effective tool in the management of financial resources of the agricultural holding and will increase the competitiveness of agricultural products and services, the quality of the management system (managerial, operational, support), assortment and intellectual potential, which will ensure the sustainable development of integrated agro-forming.

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