

## PERFORMANCE OF STRATEGIC INSTALLATIONS IN THE SYSTEM OF PRODUCTION CONTROLLING

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**Abstract:** The article presents the formation of a normative dynamic model of a production controlling system at an enterprise by justifying the choice of indicators as tools for a production controlling system at an enterprise. The formed normative dynamic model is the basis for assessing and quantitative analysis of the integrated strategy of an enterprise aimed at making effective management decisions, as well as agreeing on key strategies and interests in the course of its implementation. Since such a model is a measure, in form representing a convolution of indicators, the formation of a normative dynamic model should be based on a system of principles adequate to the unstable conditions of the enterprise.

**Keywords:** production controlling, production controlling system, normative dynamic model of production controlling system, strategic settings.

### 1 Introduction

The logic of the formation of the methodological approach within the output elements of the production controlling system is presented in Figure 1.

The output - the last of the structural elements of the SEC considered by us - is the result of the transformation of the input that implements the impact of the system on the environment. The output of the SEC is analytical information: normative and actual values of indicator indicators, which allow to evaluate and make decisions aimed at improving the efficiency of the enterprise's production activities. It is also in a certain way an organized system of indicators, volumetric and structural, graphs and other forms of visual presentation of information (Daile, 2001; Mann, 1995).

| OUTPUT   |  |                              |
|--|--|------------------------------|
| Abstraction levels (strata) production process   | Methodology for assessing the effectiveness of the production controlling system   |                              |
| 1. Breeding herd, breeding bird, progenitor herd, parent herd and incubation   | Formation of normative dynamics of indicators-indicators of the content of the breeding herd, breeding bird, ancestral herd, parent herd and incubation  |                              |
| 2. Maintenance of young animals  | Formation of normative dynamics of indicators-indicators of maintenance of young animals   | Problems, factors, solutions |
| 3. Cultivation of poultry for meat (feeding, drinking, providing a microclimate, sanitation of premises and equipment)           | Development of normative dynamics of indicators-indicators of poultry rearing for meat   |                              |
| 4. Poultry processing (pre-slaughter aging, poultry catching and transportation for slaughter, slaughter and poultry processing) | Development of normative dynamics of indicators-indicators of poultry processing (pre-slaughter aging, poultry capture and its transportation for slaughter, slaughter and poultry processing) |                              |
| 5. Production of poultry meat products   | Development of normative dynamics of indicators-indicators of poultry meat production  |                              |

Fig. 1: Formation of normative and actual dynamics of indicators-indicators of the production controlling system

As a methodology for assessing the effectiveness of the production controlling system, we use normative dynamics. Analytical information captures the actual values of indicator indicators, ascertains the fact of their compliance (inconsistency) with the normative dynamics, thereby ensuring the identification of problems and the proposal of measures to increase the efficiency of the enterprise's production activities.

Consideration of the normative dynamics of indicator indicators in terms of growth is not something completely new. In economic practice and literature, normative ratios of growth rates of indicators were considered. The most famous is the requirement that the growth rate of labor productivity exceeds the growth rate of the average wage (Zlobina, 2006).

The normative content of indicators-indicators of the activity of economic objects was noted by a number of authors. So, I.I. Mayevsky and V.I. Mayevsky wrote: "As an indicator of the efficiency of social production, built on the principle of comparing costs and results, only the economic ratio between them can be accepted, provided that this ratio really represents a pronounced tendency to increase the efficiency of social production" (Yakupova et al., 2017). In their work, they analyze in detail the necessary (normative) ratio of the rates of national income and the total social product.

Streamlining indicators in I.M. Syroezhina is carried out in terms of the expenditure of creative efforts to obtain and implement appropriate decisions and results, reflected in the creative

profile. The resulting ordering of indicators is called the normative system of indicators (Shishkova & Antonov, 2008).

The methodology of dynamic analysis based on the development of a "differentiated dynamic scale" M.S. Abryutina, which includes 75 dynamic situations of financial and economic stability and their classification. In the description of the scale 6 indicators are used, and business situations are ranked on the basis of establishing the relationships between their growths. However, here, in a single ordering, no more than three indicators are considered.

The development of the production controlling system is based on the approach described in (Pogostinsky & Pogostinsky, 1999), which presents models with a large number of indicators that allow evaluating the effectiveness and financial stability. Thus, the established methodology for assessing the effectiveness of the SEC should serve as the basis for the formation of the normative dynamics of indicator indicators and a quantitative analysis of the strategy for managing the production and economic activities of the enterprise, as well as the coordination of key strategies and interests during its implementation.

### 2 Methods

The formed normative dynamics of indicators-indicators sets the limits within which the strategy should be implemented. At the same time, benchmark goals turn into control goals precisely as a result of building normative dynamics of indicators-indicators

of the production process. Despite the variety of strategic attitudes, the normative dynamics of indicator indicators must correspond to one general line for increasing the efficiency of the enterprise's production activities.

For strategic settings, the coefficients are decomposed into simpler indicators, the values of which are presented in table 1.

Table 1: Performance indicators of Ak Bars Poultry Complex LLC in thousand rubles

| Indicators         | Designations | Years   |         |         |         |         | Rates of Growth, % |                   |                   |                   |
|--------------------|--------------|---------|---------|---------|---------|---------|--------------------|-------------------|-------------------|-------------------|
|                    |              | 2015    | 2016    | 2017    | 2018    | 2019    | 2016 г. к 2015 г.  | 2017 г. к 2016 г. | 2018 г. к 2017 г. | 2019 г. к 2018 г. |
| Revenue            | B            | 522520  | 504799  | 544103  | 727488  | 638625  | 96,61              | 107,79            | 133,70            | 87,78             |
| Fixed assets       | BOA          | 693613  | 408765  | 579322  | 687677  | 666340  | 58,93              | 141,72            | 118,70            | 96,90             |
| Current assets     | OA           | 383886  | 384820  | 1377133 | 609867  | 642897  | 100,24             | 357,86            | 44,29             | 105,42            |
| Stocks             | З            | 150768  | 158920  | 213930  | 230846  | 166528  | 105,41             | 134,61            | 107,91            | 72,14             |
| Depreciation       | A            | 52300   | 37890   | 40724   | 50104   | 52890   | 72,45              | 107,48            | 123,03            | 105,56            |
| Fixed assets       | OC           | 485964  | 634453  | 533773  | 504672  | 483123  | 130,56             | 84,13             | 94,55             | 95,73             |
| Total assets       | CA           | 1077499 | 793585  | 1956455 | 1297544 | 1309237 | 73,65              | 246,53            | 66,32             | 100,90            |
| Material costs     | M3           | 620895  | 439852  | 503729  | 660143  | 450616  | 70,84              | 114,52            | 131,05            | 68,26             |
| Profit             | П            | 51431   | 1187    | 123     | 71717   | 1246    | 2,31               | 10,36             | 58306,50          | 1,74              |
| Cost price         | C            | 471089  | 503612  | 543717  | 794794  | 633461  | 106,90             | 107,96            | 146,18            | 79,70             |
| Feed costs         | K3           | 309620  | 458720  | 407243  | 413463  | 208240  | 148,16             | 88,78             | 101,53            | 50,36             |
| Energy consumption | ЭЗ           | 19400   | 20186   | 24092   | 19398   | 16193   | 104,05             | 119,35            | 80,52             | 83,48             |
| Equity             | CK           | 42761   | 33849   | 11326   | 83043   | 108996  | 79,16              | 33,46             | 733,21            | 131,25            |
| Working capital    | COC          | -650852 | -374916 | -567996 | -604634 | -557344 | 57,60              | 151,50            | 106,45            | 92,18             |
| Payroll            | ФОТ          | 209636  | 189630  | 170525  | 121487  | 207728  | 90,46              | 89,93             | 71,24             | 170,99            |
| Number of staff    | Ч            | 1047    | 1121    | 1111    | 1002    | 631     | 107,07             | 99,11             | 90,19             | 62,97             |
| Meat production    | ПМ           | 74238   | 86776   | 80183   | 92285   | 101340  | 116,89             | 92,40             | 115,09            | 109,81            |
| Egg production     | ПЯ           | 12310   | 12534   | 15006   | 16848   | 17952   | 101,82             | 119,72            | 112,28            | 106,55            |
| Weight gain        | ППП          | 128530  | 143192  | 150608  | 151836  | 164185  | 111,41             | 105,18            | 100,82            | 108,13            |
| Livestock          | ПП           | 927,4   | 922,7   | 1212,6  | 1315,8  | 1420,9  | 99,49              | 131,42            | 108,51            | 107,99            |
| Gross production   | ВП           | 19785   | 25650   | 24325   | 29277   | 31131   | 129,64             | 94,83             | 120,36            | 106,33            |
| Labor costs        | T3           | 102360  | 115700  | 126000  | 136792  | 103484  | 113,03             | 108,90            | 108,57            | 75,65             |

Consider the possibility of forming the normative dynamics of indicators-indicators of increasing the efficiency of production activities of the enterprise. The formation of regulatory dynamics is as follows. An installation is formulated, for example, "increasing the return on non-current assets". This  $K_{BOA}$  indicator is formed as the ratio of revenue to the value of non-current assets:

$$K_{BOA} = \frac{B}{BOA}. \quad (1)$$

For the growth of this indicator, it is necessary that indicator B, which is in the numerator (revenue), grows faster than the indicator BOA, which is in the denominator (value of non-current assets). This strategic setting will be schematically denoted as  $B > BOA$  and  $BOA < B$  (Daile, 2001).

Another example: setting to increase the coefficient of chickens. This coefficient is calculated by the formula:

$$K_{\text{egg}} = \frac{ППП}{ПЯ}. \quad (2)$$

To increase this indicator, it is necessary that the PDP indicator, located in the numerator, grows faster than the PM indicator,

which is in the denominator (egg production). We will schematically designate this strategic setting as  $ППП > ПЯ$  и  $ПЯ < ППП$ .

In a similar way, all possible strategic objectives of the enterprise are formulated and expressed, which are presented in table 2.

Figure 2 shows the graphs of the growth rates of poultry productivity and capital productivity. The actual dynamics, which corresponds to the trend, reflects the situation at the enterprise. Based on the fact that the change in the growth rate, for example, capital productivity in 2019 compared to 2018 is 49.17% (141.41% - 91.7%) along with the change in the growth rate in 2018 compared to 2017, which amounted to 13.3% and in 2013 compared to 2016 - 54.12%, we can state a strong signal to worsen the situation at the enterprise.

### 3 Results and discussion

Based on the calculated changes in the growth rates of indicator indicators for 2015-2019, a strong signal to worsen the situation. As for the coefficient of productive use of feed, the change in growth rate amounted to 102.36% - this indicates a strong signal to improve the situation.

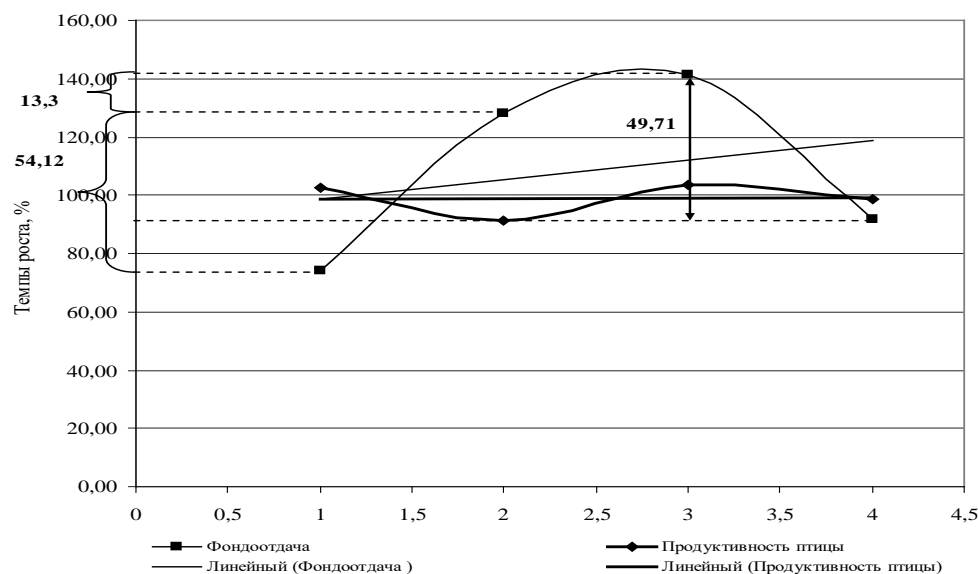


Fig. 2: Poultry productivity and capital productivity growth charts

Table 2: Strategic settings according to indicator indicators at Ak Bars Poultry Complex LLC for 2015-2019

| Indicator indicators   | Formula | Normative dynamics%/↓ | Years |       |       |       |        | Growth rate,%  |                |                |                | Actual dynamics (trend)↑/↓ | Characteristic the situation          |
|--|---------|-----------------------|-------|-------|-------|-------|--------|----------------|----------------|----------------|----------------|----------------------------|---------------------------------------|
|  |         |                       | 2015  | 2016  | 2017  | 2018  | 2019   | 2016г.к 2015г. | 2017г.к 2016г. | 2018г.к 2017г. | 2019г.к 2018г. |                            |                                       |
| Poultry productivity   | ПЯПП    | ↑                     | 13,27 | 13,58 | 12,38 | 12,80 | 12,63  | 102,3          | 91,10          | 103,47         | 98,67          | ↑                          | Weak signal to worsen the situation   |
| Profitability of production  | ПЦ      | ↑                     | 1,318 | 0,873 | 0,926 | 0,090 | 0,002  | 66,27          | 106,0          | 9,74           | 2,18           | ↓                          | Weak signal to worsen the situation   |
| Return on assets   | BOC     | ↑                     | 1,08  | 0,80  | 1,02  | 1,44  | 1,32   | 74,00          | 128,1          | 141,41         | 91,70          | ↑                          | Strong signal to worsen the situation |
| Cashioning   | B/A     | ↑                     | 9,99  | 13,32 | 13,36 | 14,52 | 12,07  | 133,3          | 100,2          | 108,67         | 83,16          | ↓                          | Strong signal to worsen the situation |
| Capital intensity  | OC/B    | ↓                     | 0,93  | 1,26  | 0,98  | 0,69  | 0,76   | 135,1          | 78,05          | 70,71          | 10,90          | ↓                          | Strong signal to worsen the situation |
| Material output  | BMB     | ↑                     | 0,84  | 1,15  | 1,08  | 1,10  | 1,42   | 136,3          | 94,12          | 102,02         | 128,6          | ↓                          | Strong signal to worsen the situation |
| Material consumption   | M3B     | ↓                     | 1,19  | 0,87  | 0,93  | 0,91  | 0,71   | 73,33          | 106,2          | 98,02          | 77,76          | ↑                          | Strong signal to worsen the situation |
| Energy efficiency  | B'Э     | ↑                     | 26,93 | 25,01 | 22,58 | 37,50 | 39,44  | 92,85          | 90,31          | 166,06         | 105,1          | ↑                          | Strong signal to worsen the situation |
| Energy intensity   | ЭББ     | ↓                     | 0,04  | 0,04  | 0,04  | 0,03  | 0,03   | 107,7          | 110,7          | 60,22          | 95,09          | ↓                          | Strong signal to worsen the situation |
| Material costs for 1 nh. gross output  | M3BП    | ↓                     | 40,33 | 20,23 | 19,00 | 22,55 | 14,47  | 50,17          | 93,88          | 118,70         | 64,20          | ↑                          | Strong signal to worsen the situation |
| The coefficient of productive use of feed in poultry   | БПКЗ    | ↑                     | 0,050 | 0,047 | 0,065 | 0,071 | 0,149  | 95,31          | 137,4          | 108,75         | 211,1          | ↑                          | Strong signal to worsen the situation |
| Feed Use Profitability   | ПКЗ     | ↑                     | 0,17  | 0,00  | 0,00  | 0,17  | 0,01   | 1,56           | 11,67          | 57429,3        | 3,45           | ↑                          | Strong signal to worsen the situation |
| Feed consumption per 1 conditional birdhead  | КЭПП    | ↓                     | 333,8 | 497,1 | 335,8 | 314,2 | 146,56 | 148,9          | 67,55          | 93,56          | 46,64          | ↓                          | Weak signal to worsen the situation   |
| Gross production per 1 employee  | БПЧ     | ↑                     | 14,70 | 19,39 | 23,87 | 29,22 | 49,34  | 131,8          | 123,0          | 122,42         | 168,8          | ↑                          | Weak signal to worsen the situation   |
| Labor productivity per living labor  | БЧ      | ↑                     | 499,0 | 450,3 | 489,7 | 726,0 | 101,2  | 90,23          | 108,7          | 148,25         | 139,4          | ↑                          | Weak signal to worsen the situation   |
| The complexity of production   | ЧБ      | ↓                     | 0,002 | 0,002 | 0,002 | 0,001 | 0,001  | 110,8          | 91,95          | 67,45          | 71,74          | ↓                          | Weak signal to worsen the situation   |
| Labor efficiency factor  | БТЗ     | ↑                     | 4,09  | 3,35  | 5,65  | 5,32  | 6,17   | 81,90          | 168,7          | 94,15          | 116,0          | ↑                          | Weak signal to worsen the situation   |
| The utilization ratio of profit and other own sources for financing investments in non-current assets of poultry farming | ПБОВА   | ↑                     | 0,074 | 0,003 | 0,000 | 0,104 | 0,002  | 3,92           | 7,31           | 49119,34       | 1,79           | ↑                          | Strong signal to worsen the situation |
| Energy Efficiency Factor   | С'Э     | ↑                     | 24,28 | 24,95 | 22,57 | 40,97 | 39,12  | 102,74         | 90,46          | 181,55         | 95,48          | ↑                          | Strong signal to worsen the situation |

#### 4 Summary

Note that the mission of the enterprise is implemented in order. Moreover, the decomposition of the development goals of the enterprise, presented in Appendix 1, determines the normative dynamics of indicators-indicators of the model for assessing the effectiveness of the SEC. The tools for implementing the goals of Ak Bars Poultry Complex LLC, proposed in Appendix 1, determine the formation of strategic settings, on the basis of which the improvement / deterioration of the situation in the enterprise is detected in the form of signals (table 2).

#### 5 Conclusions

So, as a result of the analysis of strategic objectives, the enterprise revealed a decrease in poultry productivity, profitability of production, return on assets, depreciation of returns, feed use efficiency, profit ratio and other own sources for financing investments in non-current poultry farming and increasing capital intensity.

Based on the analysis of the information presented, an information base is formed for the preparation of managerial decision-making in the SEC at the enterprise in terms of the problems identified, the reasons for the negative dynamics of the enterprise's development and possible management decisions.

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