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## **РЕСУРСНЫЙ МЕТОД ОЦЕНКИ РЫНОЧНОЙ СТОИМОСТИ СЕЛЬСКОХОЗЯЙСТВЕННЫХ ЗЕМЕЛЬ**

*Аннотация. В работе предложен способ оценки стоимости сельскохозяйственных земель на основе ресурсного подхода, в котором площадь сельскохозяйственных земель представляется в виде отдельного ресурса.*

*Ключевые слова: оценка стоимости, сельскохозяйственные земли, ресурсный подход.*

## **RESOURCE METHOD OF DETERMINING THE MARKET VALUE OF AGRICULTURAL LAND**

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*Summary. In work the method of valuation of agricultural land on the basis of the resource approach, in which the square of agricultural land is represented as a separate resource.*

*Keywords: the assessment of the value, agricultural land, the resource-based approach.*

**Introduction.** The market nature of the economy involves the accounting, analysis and measurement of the cost of factors of production in all sectors. The sphere of agricultural production is no exception. A specific feature of the agricultural sector in the assessment of production resources is the presence in the production turnover of agricultural land, representing one of the elements of agricultural property (real estate). The complexity of the valuation of agricultural land is explained by the impact on the cost of many factors: climatic, agro-technical, technological, structural, socio-demographic, economic. Moreover, various factors are often interconnected directly or indirectly.

**Main part.** Currently used methods of assessing the value of agricultural land, based on the comparison of sales of similar objects, on the capitalization of land rent and net operating income [1, 2], do not have economic versatility and are often limited by many conditions:

- the method of sales comparison consists in the selection of analogous objects and needs to determine the list of comparison elements to adjust sales prices (bonitet of soils and its technological properties, the structure of acreage, the availability of land reclamation facilities);
- in case of capitalization of land rent received in the form of rent, it is necessary to know the integral coefficient of capitalization, which is determined by many factors, taking into account the amendments to the risks of income from agricultural production;
- capitalization of net operating income is carried out with restrictions on the list of cash crops, the level and intensity of agricultural equipment used in typical farms on soils of similar quality and other restrictions, which narrows the possibilities of the method.

In this paper, for the evaluation of the market value of agricultural land is promising use of the resource approach, in which the area of agricultural land is taken as a separate production resource. The total amount of agricultural production resources in value terms ( $\overline{SR}$ ) is the sum of the averages in the period of time of the value of the four types of resources:

$$\overline{SR} = \overline{BT} + \overline{CA} + \overline{LR} + \overline{AL}, \quad (1)$$

where  $\overline{BT}$  – the amount of fixed assets;  $\overline{CA}$  – working capital;  $\overline{LR}$  – the cost of labor resource;  $\overline{AL}$  – the cost of agricultural land. Equation (1) can be written in the conditional

labor dimension, expressing the terms on the right side in the dimension of the number of employees (pers.):

$$\overline{BT}_l = \frac{\overline{BT}}{p}; \quad \overline{CA}_l = \frac{\overline{CA}}{p}; \quad \overline{LR}_l = \overline{L}; \quad \overline{AL}_l = \frac{l_a \overline{S}}{p} = \overline{L}, \quad (2)$$

where  $\overline{BT}_l$ ,  $\overline{CA}_l$ ,  $\overline{LR}_l$ ,  $\overline{AL}_l$  – the volume of fixed assets, working capital, labor resource and agricultural land in the labor dimension (pers.), respectively;  $\overline{L}$  – the average number of employees (pers.);  $\overline{S}$  – the average area of farmland (ha). Labor productivity  $p$ , productivity of a unit area of farmland  $l_a$  are calculated with the involvement of the value indicator of the volume of sales  $R$  according to the formulas:

$$p = \frac{R}{\overline{L}}; \quad l_a = \frac{R}{\overline{S}}. \quad (3)$$

Given the formulas (2)-(3), the total amount of resources in the labor dimension can be represented as:

$$\overline{SR}_l = \overline{BT}_l + \overline{CA}_l + \overline{LR}_l + \overline{AL}_l = \left( \frac{\overline{BT}}{R} + \frac{\overline{CA}}{R} + 1 + 1 \right) \overline{L} \quad (4)$$

By multiplying (4) by the value of labor productivity and dividing by the volume of agricultural products sold, we obtain the equation

$$s_c = \frac{\overline{SR}}{R} = \frac{\overline{SR}_l}{R} p = c_c + t_c + 1 + 1, \quad (5)$$

where  $s_c$  – the total resource intensity of the unit cost of sales;  $c_c$  and  $t_c$  – capital intensity and the coefficient of consolidation of working capital, respectively.

The total resource intensity characterizes the level of availability of resources in a certain period of time necessary to obtain a unit of the value of the sold products. According to equation (5) it is also possible to estimate the degree of participation in the production and sale of agricultural products of certain types of resources. Thus, the specific weight of certain types of resources in the volume of sales and the corresponding resources of sales volumes can be calculated by formulas:

$$d\overline{BT} = \frac{c_c}{c_c + t_c + 2}; \quad \Delta R_{BT} = \frac{c_c}{c_c + t_c + 2} R, \quad (6)$$

$$d\overline{CA} = \frac{t_c}{c_c + t_c + 2}; \quad \Delta R_{CA} = \frac{t_c}{c_c + t_c + 2} R, \quad (7)$$

$$d\overline{LR} = d\overline{AL} = \frac{1}{c_c + t_c + 2}; \quad \Delta R_{LR} = \Delta R_{AL} = \frac{1}{c_c + t_c + 2} R. \quad (8)$$

Formulas (6)-(8) allow to calculate those separate parts of the volume of sold products, which are due to the presence of specific resources used in the production-fixed assets, working capital, labor and agricultural land. Net income (or loss) is the difference between the volume of commercial agricultural products sold and the total cost of sales [3, 4]:

$$a = R - A - MC - WF, \quad (9)$$

where  $a$  – net income (or loss);  $A$  – depreciation;  $MC$  – full material costs of production and sale (including also land tax, land improvement cost, rent to the lessor);  $WF$  – payment of employees. Net income can be represented as the sum of the components, each of which relates to a particular type of resource:

$$a = a_{BT} + a_{CA} + a_{LR} + a_{AL}, \quad (10)$$

where

$$a_{BT} = \Delta R_{BT} - A; \quad a_{CA} = \Delta R_{CA} - MC; \quad a_{LR} = \Delta R_{LR} - WF; \quad (11)$$

$$a_{AL} = \Delta R_{AL}. \quad (12)$$

The net profit in equation (12) is the present value of agricultural land.

**Conclusion.** The proposed approach to assessing the value of agricultural land has a certain versatility, can be applied to certain types of agricultural land (arable land, hayfields, pastures, deposits, land of perennial plantations), and to all together. To reduce the risks of income generation, current, average over several years and projected resources and sales can be used as input data for assessing the market value of agricultural land.

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### ЭФФЕКТИВНОСТЬ ПРОИЗВОДСТВА ПОДСОЛНЕЧНИКА ПО ВОРОНЕЖСКОЙ ОБЛАСТИ

*Аннотация.* В работе была проанализирована динамика денежной выручки от реализации подсолнечника по Воронежской области. Было проведено аналитическое выравнивание и предложены меры для улучшения конечного финансового результата.

*Ключевые слова:* эффективность производства, производство подсолнечника, подсолнечник, показатели эффективности, Воронежская область.

### PRODUCTION EFFICIENCY OF SUNFLOWER ACROSS THE VORONEZH REGION

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*Summary.* In work dynamics of monetary proceeds from sales of sunflower across the Voronezh region has been analysed. Analytical alignment has been carried out and measures for improvement of end financial result are proposed.

*Keywords:* production efficiency, production of sunflower, sunflower, efficiency indicators, Voronezh region.