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Estimating the maximum production volume and optimal resource quantities for the fava bean crop in (Qabr Al-Abd village / Hammam Al-Alil district) for the agricultural season 2023-2024.

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ABSTRACT
The research aims to estimate the maximum production volume and the optimal resource quantity for the fava bean crop in the village of Qabr al-Abd/Hammam al-Alil district for the agricultural season 2023-2024 for a random sample of 18 farmers. The optimal quantities of labor and capital resources were extracted, where the optimal labor volume was 0.96 workers/day, the optimal capital volume was 1.77 dinars/kg, the optimal production volume was 0.194 kg/day, and the productivity per dunum was 110.911 kg, in addition to estimating the contribution of both labor and capital to the productivity of one dunum. The study concluded that the production level of the fava bean crop did not reach the optimal production level. The researcher concluded that the productivity of one dunum is good, which means that farmers have used the optimal use of resources

Keyword: *Production, beans, optimal .*

INTRODUCTION

Among all species are among the sources that can be reliable to compensate for the lack of vegetative protein, and compensation for the daily food shortage of protein that everyone needs in the range of 28 % -32 grams per day. In addition, legumes are one of the widely accepted meals that are widely accepted by all citizens regardless of individual income, and therefore the demand for them is increasing for many reasons. Of course, legumes contain between 28 % -30 % of protein and about 50 % of carbohydrates where the bean crop is one of the most important food crops, as it contains a high percentage of protein, and most of the population depends on the high nutritional value. It is a relative alternative to animal protein, especially given its low price compared to animal products. It is also important to increase the fertility of agricultural soil by its ability to repair nitrogen in the soil. Bean shell is also used as feed to feed livestockIman and Walid, 2023, also completed a research titled Macroeconomic policies and their impact on the agricultural sector and economic growth in selected Arab countries for the period 1990-2020The research aims to study and measure the impact of macro policies (monetary and financial) on the agricultural sector and economic growth in some Arab countries, namely (Saudi Arabia and Jordan), with special reference to Iraq. . This model was used in order to know the nature of the relationship shown by the macro policies (financial and monetary) in the agricultural sector and the economic growth rates of all the sample countries, as it was found that the policies followed by the sample countries were ineffective. Which contributed to the low added value of the agricultural sector and thus reduced economic growth, especially in Iraq and Saudi Arabia as they are oil countries, while in Jordan the added value increased economic growthAhmed also completed a research in 2012 entitled Economic and Standard Analysis of the Production Function of the Tomato Crop in the Hammam Al-Alil District in Nineveh Governorate for the 2011 Agricultural Season. The research aimed to study the production function of the tomato crop. The results of the research showed that the optimal quantities of labor amounted to (4) workers/day, while the optimal quantities of head The amount of money amounted to (182.56.7) and the optimal volume of production reached (3351.68) kg, while the productivity of one dunum reached (2115.67) kg. In addition, the contribution of both labor and capital suppliers to the productivity of one dunum was determinedABD ,2021 also conducted a research entitled (Economic Analysis of Grape Production Farms in Salah al-Din Governorate for the 2019 Production Season, Balad District as a Model). The research aimed to study and analyze the production reality of the grape production farms in the research sample. The results reached showed that the area variable had the greatest impact on The optimal production and volume of production was (5.01) tons/dunum in the farms of the research sample, while the production that achieved the highest profitability amounted to (96.6) tons/dunum, and that the farmers were close to the economic production area .Researcher Sultan, 2021, conducted a research entitled (Productive efficiency and determinants of the chickpea crop in Nineveh Governorate for the 2019 production season). The research aimed to estimate the productive efficiency and optimal economic determinants of chickpea crop farms using the d eap program. The results of the analysis showed that the average productive efficiency reached 74% and the minimum was 54%. The maximum limit is 100%, and the farms that achieved 100% efficiency amounted to 15% of the farms out of the total research sample. It was found that there was a gap between the economic resources used and the resources achieved for economic efficiency, and that there was a waste in the use of resources, which affected the optimal use of production .**Research hypothesis** the research is based on the hypothesis that the farmers of the grains in the Hammam Al-Alil area (the study model) did not achieve economic efficiency in the use of the available productive resources as a result of the presence of productivity problems that impede the production process, which led to the high costs of the units produced and the low profitability achieved from their cultivation. **The aim of the research**: The research aims to estimate the production function of the bean crop in order to reach the optimum quantities of work and capital and to find the contribution of each of them to the production process of producing this crop and the volume of production that maximizes the profits achieved from this production process.**Research Methodology:**Data were collected from farmers in Qobar Al- Abd village/ Nineveh governorate by way of preparing and distributing a questionnaire form on them in addition to resorting to previous studies and researches dealing with this subject.

The production function is a dependency, it reflects the relationship between inputs and outputs to maximize the output that can be obtained from a given set of production elements. (K. Hadden, 1978, 48) The production function was also defined as a technical mathematical relationship between labor, capital, and technical change on the one hand, and between it and the output achieved from a certain combination of these factors on the other hand. Klein defined it as a technical relationship between inputs and outputs, it is an engineering relationship between the factor The user and the producer. As Al-Dahri mentioned, the function cannot be technically efficient, but also economically efficient, meaning an economy with high-priced production elements in exchange for a wider use of relatively cheap elements (Al-Dahri, 1988, 61). It can be said that the production function is the relationship between Production as a dependent variable and the production elements as independent variables. The production function can also be expressed mathematically through a table that includes data about production and its elements. It can be expressed graphically by representing the data contained in the table in a graphical form. It can also be expressed mathematically by expressing the function in the form of symbols, as there are A number of mathematical functions, including: linear, quadratic, cubic, logarithmic, exponential, and others. The mathematical formula for the production function that includes the labor and capital components is $Y = f(L, K)$, where Y symbolizes production, and L and K symbolize the labor and capital elements, respectively. As for the general mathematical formula for the production function, it is $Y = f(L, K). , R, S, r, V)$, where (L) represents the labor element, (K) the capital element, (R) the raw materials, (S) the land element, (r) returns to scale, and (V) the measure of administrative efficiency. Economists focus on the ranges of production that are decreasing in their increase and positive value, that is, the ranges of production that are technically and economically efficient. There are four types of production functions. The first is the increasing production function, meaning that it has increasing marginal returns, in which production increases incrementally. The second is the constant production function, meaning that it has constant marginal returns, in which production increases in a constant manner. The third is the decreasing production function, meaning that it With diminishing marginal returns, in which production increases in a decreasing manner, and the fourth is the increasing and decreasing production function, or what is called the law of diminishing returns, or the stages of natural production, whose impact on agricultural production appears significantly. According to this law, production goes through three stages. The first is the increasing yield stage, in which it increases. Production increases, starting from the beginning of production until the average production reaches its highest level. (Abbawi 1979, 119) At which the average production curve intersects with the marginal product curve, and the marginal product and average production are increasing, the values of the marginal product are greater than the values of the average product, and the elasticity of production is greater than one. At this stage, successive additions to units of the variable production element while capital and other production elements remain constant will lead to an incremental increase in production .

The second: the stage of diminishing returns, in which production increases in a decreasing manner, and begins from the region in which average production reaches its highest level. It ends when the value of marginal product is equal to zero, and the values of marginal product and average production decrease, and the values of average production are greater thanThe values of marginal product and the elasticity of production are smaller than the correct one. At this stage, successive additions to units of the variable production element while remaining the rest of the production elements constant will lead to a decreasing increase in production. At the end of this stage, production reaches its maximum level. This stage is considered the economic stage. Rational, which assumes that the level of production for any product is located within its production range. Whether the level of production for a product is located at its beginning, in the middle, or at its end is determined by the price levels of both production and its components. The third: the stage of absolute diminishing returns, in which production decreases whenever we add additional units of the variable production element, and this stage falls outside the scope of interest of economists and businessmen**.**

Economic derivatives of production functions

There are three economic derivatives of production functions, namely marginal product, average production, and production elasticity, where marginal product is defined as the amount of change occurring in production as a result of using one additional unit of a variable production element, and average production is known as the amount of production per unit of a variable production element, and production elasticity is known It is the extent to which production responds to the change in the units used of the variable production element, and is measured by the production elasticity coefficient, which equals the relative change in production divided by the relative change in the units used of the variable production element, which is dividing the marginal product by the average production. Through the value of the elasticity coefficient, we can determine the stage through which production passes and know the type of production function. If the value of the production elasticity coefficient is greater than the correct one, this means that the stage that production passes through is the first stage that includes increasing yields and the type of function will be an increasing production function. However, if the value of the production elasticity coefficient is smaller than the correct one, then the stage that production passes through is The second stage, which includes diminishing returns and the type of function, will be a diminishing productivity function (Sherif , 1988, 58-59).

(R.G.Allen , , 1960, p.340 0)

Marginal rate of substitution

It is the ratio of substitution between the two components of production, capital (K) and labor (L). The marginal rate of substitution (MRS) is equal to (- dK / dL). This ratio represents the slope of the isoquant at any point on it. It is also called the technical substitution rate. It is also equal to the marginal product of the labor component divided by the marginal product of the capital component, and it is also equal to the price ratio of the two components of production (W/r), where (W) is the price of labor and (r) the price of capital, if I want to determine the optimal mix of the two components of production. Which maximizes the profits obtained by the producer, whether that is in the case of maximizing production under a certain cost constraint or minimizing costs and obtaining a certain amount of production, since (Koutsoyiannis , A, Op.cit , p.74) Production component density

There are two methods or methods of production: the labor-intensive method or method, and the capital-intensive method or method. The first method uses a large amount of units of the labor component and a smaller amount of units of the capital component. The second method uses a large amount of capital and a smaller amount. of work, and both methods are technically efficient, meaning they achieve the same level of production.

$$MRS_{L,K} = -\frac{dK}{\ } = \frac{MPL}{\ } = \frac{W}{\ } \cdot$$

Production efficiency

It means the optimal use of production elements that achieves the maximum possible amount of production. This depends on the method of production used, the optimal mix of the fixed and variable production elements, and the extent of the ability or ability of the fixed production element to absorb certain units of the variable production element. In other words, productive efficiency means choosing the technically efficient method of production so that it achieves the maximum possible amount of production, while economic efficiency means choosing the technically efficient method of production so that it achieves the greatest possible amount of profits, meaning that economic efficiency takes into account the price ratio of the two components of production in addition to technical efficiency (Koutsoyiannis , A, Op.cit , p.74)

Production volumes

1- The volume of production at the break-even poin

The volume of production at the break-even point refers to the production volume at which revenues are equal to costs and which enables the farmer or production facility to continue production without leaving the production ring or stopping production. It is a measure of the efficiency of farm management, as the closer the break-even point is to the production level In the primary stage, this indicates the high efficiency of farm management, as the use of the variable production element will lead to a steady increase in production. Conversely, the farther the break-even point is from the primary production level, this indicates a lower efficiency of farm management, as obtaining production at the break-even point will require To use a large amount of the variable production component, as production increases more slowly than in the previous case

2- The maximum volume of production

It means maximizing profit by achieving the maximum possible amount of production under certain production costs or the maximum optimal volume of production, also called the maximum profit volume, and this can be explained mathematically as follows:

Maximize Y = f(L, K)

Subject to: $\overline{C}$ = WL + rK   C = Constant

If the costs are given (C`), that is, fixed, and the prices of the factors of production are given, where (W) is the wage of labor and (r is the price of capital. The rice of production is given (Py), so the producer can maximize his profits by maximizing production, and this is the problem of constrained maximization. The conditions for equilibrium are: The first condition: The first partial derivatives for each of (L , K , and λ) are equal to zero, meaning that the marginal productivity of the elements of production is equal to the ratio The prices of the factors of production, and the second condition: that the second partial derivative with respect to (L , K , and λ) is less than zero, that is, the slope of the marginal product curves of the factors of production is less than zero, which is an indication of the convexity of the isoquant . (Koutsoyiannis , A, Op.cit , pp89-90) It is possible to solve the maximization problem using the Lakrange multiplier, and the solution requires following the following steps: We rewrite the cost constraint as follows:

$$\bar{C} - WL - rK = 0$$

Adding a Lacrange multiplier, which is a constant

$$\lambda (\bar{C} - WL - rK)$$

The indefinite value is used to solve the constraints of maximization or minimization of mathematical functions, and its value is determined simultaneously by the values of other things, L and K in our example, and the composite function (ϕ) is formed by combining the two functions for production and costs, as follows:

$$\varphi = Y + \lambda (\bar{C} - WL - rK)$$

By taking their partial derivatives with respect to (L , K , and λ) and setting them equal to zero, as follows:

$$\frac{\partial \varphi}{} = \frac{\partial Y}{} - \lambda W = 0 \quad ......(1)$$

$$\frac{\partial \varphi}{} = \frac{\partial Y}{} - \lambda r = 0 \quad ......(2)$$

$$\frac{\partial \varphi}{} = \bar{C} - WL - rK = 0 \quad ......(3)$$

$$\frac{\partial Y}{} = \lambda W \quad ......(4)$$

$$\frac{\partial Y}{} = \lambda r \quad ......(5)$$

Dividing equation (4) by equation (5) results in:

$$\frac{MP_L}{} = \frac{\partial Y / \partial L}{} = \frac{W}{} = MRS_{LK}$$

The second condition refers to the convexity of the isoquant curve.

It is the slope of the tangent to the equal output curve, so the product is in a state of equilibrium when the marginal productivity of the factors of production is equal to the price ratio of the factors of production, which is the first condition for equilibriumThe second condition for product balance requires that the slopes of the marginal product curves for the labor and capital components be negative, meaning that:

The second condition refers to the convexity of the isoquant curve.

$$\frac{\partial^2 Y}{\partial L^2} < 0 , \frac{\partial^2 Y}{\partial K^2} < 0 , (\frac{\partial^2 Y}{\partial L^2}) \ (\frac{\partial^2 Y}{\partial K^2}) > (\frac{\partial^2 Y}{\partial L \partial K})^2$$

It is the slope of the tangent to the equal output curve, so the product is in a state of equilibrium when the marginal productivity of the factors of production is equal to the price ratio of the factors of production, which is the first condition for equilibrium

The second condition for product balance requires that the slopes of the marginal product curves for the labor and capital components be negative, meaning that:The optimal size of civil production for costs

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It involves maximizing profits by obtaining a specific production at the lowest possible cost. If the production is given and the prices of production factors are given, then minimizing production costs is done by tangent to the least cost line from the cost lines far from the origin of the given equal output curve. This can be explained mathematically as follows:

Minimize: C = WL + rK

Subject to: $\overline{Y}$ = f(L,K)

:Then we rewrite the production function as follows

$\overline{Y}$ -f(L,K) = 0

By multiplying it by the Lacrange multiplier and forming the composite function (ϕ)then:

$$\lambda[\overline{Y} - f(L.K)]$$

$$\omega = C - \lambda [\overline{Y} - f(L.K)]$$

or

$$\omega = (WL + rk) - \lambda [\overline{Y} - f(L.K)]$$

Taking the first partial derivatives with respect to L and K and λsetting them equal to zero, then :

$$\frac{\partial\varphi}{} = r - \lambda \frac{\partial f\ (L,K)}{} = 0 \quad ......(2)$$

$$\frac{\partial\varphi}{} = [\overline{Y} - f(L.K)] = 0 \quad ......(3)$$

From equations (1) and (2), it is:

$$W = \lambda \frac{\partial Y}{} \quad ......(4)$$

$$r = \lambda \frac{\partial Y}{} \quad ......(5)$$

Dividing equation (4) by equation (5) results in:

$$\frac{W}{} = \frac{MPL}{} = MRS_{L,K} \quad ......(6)$$

Where (W/r) refers to the slope of the cost line that touches the equal output curve, and this is the first condition for equilibrium. The second condition for equilibrium requires that the second partial derivative for both (L and K) be less than zero, that is: (Koutsoyiannis, 1977, 91-92)

$$(\frac{\partial^2 Y}{\partial L^2})\ (\frac{\partial^2 Y}{\partial K^2}) > (\frac{\partial^2 Y}{\partial L.\partial K})^2, \frac{\partial^2 Y}{\partial K^2} < 0\ ,\ \frac{\partial^2 Y}{\partial L^2} < 0$$

As we mentioned previously, the second condition refers to the convexity of the isoquant.

Cobb-Douglas production function

The previous concepts can be clarified in a specific way from the production function called the Cobb-Dekel- S function , which is the familiar form in applied research, because it is the easiest to deal with mathematically. This function is considered one of the most important agricultural production functions. This function was assumed to be homogeneous of degree 1 in the labor and capital components or The stability of returns to capacity (Debertin, 1986, 167-168) takes the following formula:

$$Y = b_o\ K^{b1}\ L^{b2}$$

$$MP_L = \frac{\partial Y}{\partial L} = b_2\ (b_o K^{b1}\ L^{b2})L^{-1}\ 1:$$

$$b_2 \frac{Y}{L} = b_2 \ (AP_L) =$$

A. marginal productivity:

−For work, where (AP L) is the average labor output.

−For capital in the same way:

$$MP_K = b_1 \frac{Y}{K} = b_1 \ (AP_K)\ 2:$$

B. Rate of marginal substitution:

$$MRS_{L,K} = \frac{\partial Y/\partial L}{} = \frac{b_2 \frac{Y}{L}}{} = \frac{b_2}{} . \frac{K}{}$$

$$MRS_{K,L} = \frac{\partial Y/\partial K}{} = \frac{b_1 \frac{Y}{K}}{} = \frac{b_1}{} . \frac{L}{}$$

C. Output element density:

In this function, the intensity of the productive element is measured by a ratio . The larger this ratio $(\frac{b_2}{b_1})$, the more labor-intensive the method is, and vice versa, the smaller this ratio, the more capital-intensive the method is.

Production efficiency:

The efficiency of the system of production factors is measured by the factor (b o), and it is clear intuitively that if two companies have the same amount of L , K , b1 , and b2 and continue to produce different quantities of output, the difference will result from superior organization and management in one of the two facilities . Which are produced with different production efficiencies. The more efficient facility has a value of (b o) greater than (b o) for the facility with the least efficiency.

e. Returns to scale

The returns to scale in this function are measured by the sum of the coefficients r = (b 1 + b 2) . If their sum is greater than the correct one, then we are facing increasing returns to scale (increasing returns). If their sum is equal to the correct one, then we are facing constant returns to scale (fixed returns). Their sum is less than one, so we are facing diminishing returns to scale (diminishing returns). Debertin , 2012 , 82,)

61 f. Quantities used by production suppliers (equal output curves):

$$L^{b_2} = (Y/b_0 \ K^{b_1})$$

For the work resource

$$\therefore L = (Y/b_0 \ K^{b1})^{\frac{1}{b2}} = Y^{\frac{1}{b2}} \ b_0^{-\frac{1}{b2}} \ K^{\frac{-b1}{b2}}$$

As for the capital resource

$$K^{b1} \ (Y/b_0 \ L^{b2})$$

$$\therefore K = (Y/b_0 \ L^{b2})^{\frac{1}{b1}} = Y^{\frac{1}{b1}} \ b_0^{-\frac{1}{b1}} \ L^{\frac{-b2}{b1}}$$

g. Production flexibility

The production elasticity of the labor resource L is equal to the amount (b2) and the production elasticity of the capital resource K is equal to the amount (b1) and their sum equals the total elasticity of productionH. Maximum size of profits

Profits are maximized by equalizing the value of the marginal product of the two sources of production with their prices

$$VMP_L = (b_2 b_{\_}\ K^{b1} L^{b2-1})\, P = W$$

$$VMP_K = (b_1 b_{\_}\ K^{b2\text{-}1} L^{b1})\, P = r$$

Then the extracted values for L and K are substituted into the production function and we obtain the profit-maximizing production volume general formula for the Cobb-Duclas function is expanded to include the largest number of resources. For example, the following formula includes four:

$Y = AX1^{B1} X2^{B2} X3^{B3} X4^{B4}$

One of the characteristics of this function is that the elasticity of production with respect to the suppliers of labor and capital is constant and that the value of a and b is constant

Ranging between zero and one (Debrtin, 2012, 82)

into the production functionK are substituted andL Then the extracted values for

MATERIALS AND WORKING METHODS

Multinomial production function were adopted, also called Cobb- Douglas function which consists of the two factors of production (Labour- Capital) in its logarithmic form :

lny = lna+ blnX1 +blnX2

Which basically is an exponential function with its two As form b1 and b2

$Y = A X^{b1} X^{b2}$

is to find the optimal amounts of the factors of production (labor X1) and (capital X2) and to find the optimal size of profit maximization production through substitution of the optimal amounts for both resources in the estimated function

RESULTS AND DISCUSSION

is estimated in logarithmic form, and the results are as follows:

$$lny = 1.27 + 0.110\ lnx1 + 0,82\ lnx2$$

$$T\ =\ (-1.19) \quad (1.45) \quad (2.95) R = 0.45 \quad F = 6.70 \quad D.W = 1.14 Y = -1.27 \quad K = 0.110 \quad L = 0.82$$

$$MPK = dyldk = 0.110\ (-1027)\ K^{-0.89} \quad L^{\,0.82}$$

$$= -0.1397\, K^{-0.89} \quad L^{\,0.82} = 0$$

And by equating the value of the marginal product of the capital with the price of beans, we conclude

$$vmpx = -0.1397\ (\ X1^{-0.89}\ \ L^{\,0.82})(\ 1.841) = 225$$

$$= -0.2571\ \ (X1^{-0.89}\ \ L^{\,0.82}) \qquad = 225$$

By dividing both sides of the equation by 0.2571 you get

$$vmpx1 = \ (\ X1^{-0.89} \quad L^{\,0.82}) \quad = 875.14$$

The result of multiplying the first numerator by the second denominator = the result of multiplying the second numerator by the first denominator

$0.2571\, x2^{\,0.82} = \; x1^{\,-0.89}$

$x1^{-0.89} = 0.2571\, x2^{\,0.82}$

And by dividing the two sides by -0.89

$$x1 = (0.2571)^{1.085}\, x2^{\,0.921}$$

$$x1 = (0.2578) \quad x2^{\,0.921}$$

From equation (1) we calculate the marginal productivity as follows:

$$-1.27\, x1^{\,0.110} \quad x2^{\,0.82} mpx1 = \frac{dy}{dx2} = (\,-1.27)(0.82)x1^{\,0.110}\, x2^{\,0.82} - 1 = 0mpx2 = -1.0414\, x1^{\,0.110} \,/\, x2^{-0.18}$$

$mpx2 = -1.0414\, x1^{\,0.110} \,/\, x2^{-0.18}$=0$vmpx2 = (-1.0414\, x1^{\,0.110} \,/\, x2^{-0.18})(1.841) = 2251.917\, x1^{0.110} \,/\, x2^{-0.18} = 225$

By dividing the two sides of the equation by 225, we ge

t$0.00851\, x1^{0.110} \,/\, x2^{-0.18} = 1$

The product of both sides = the product of the two sides

$$x2^{-0.18} = 0.00851\, x1^{0.110}$$

By dividing the power of the two sides by 0.18, we get

$$x2 = 0.00852\, x1^{\,0.611}$$

So

$$x2 = 0.164 x1^{\,0.611}$$

By calculating the value of x2 we get

$$0.278\, x2^{\,0.921} = 0.164\, x1^{\,0.611}$$

By dividing both sides of the equation by 0.164 we get

$$3.107\, x1^{\,0.921} = x1^{\,0.611}$$

$$3.107 = x1^{\,(0.921 - 0.611)}$$

$$3.107 = x1^{\,0.31}$$

$$x1^{\,0.31} = 3.107$$

By dividing the power of both sides by 0.31 we get

$$x1 \; = (3.107)^{0.57}$$

The optimal amount of capital / kg-

$$x1 \; = 1.77$$

$$x2 \ = 0.64\, x1^{\ 0.611} x2 \ = 0.64\ (1.77)^{\ 0.611}$$

To obtain the optimal size of profit maximizing production, this is achieved through substituting the optimal amounts of both factors in the estimated function to get:

$$y = 1.27\, x1^{\ 0.110}\ \ x2^{\ 0.82}$$

$$y = 1.27(1.77)^{\ 0.110}\ \ (0.96)^{\ 0.82} y = 0.247\, x^{\ 0.787} y = 0.194$$

find the contribution of labor and capital to the productivity of the dunam, Taylor expansion was used, and in the case of Cobb- Douglas the first rounding would be for Taylor's formula as shown below:

$$y = B1 + \frac{Y}{L}\ \Delta L + BS\frac{Y}{K}\ \Delta K$$

Recalling:

Y= the mean productivity of the farm in the sample, L= the mean labor use in the farm

K= the mean use of capital in the farm

B1, B2= the mean productivity Elasticies of labor and capital respectively:

$$0.82\ \frac{57110}{5.11} 6.16 = 56.452$$

$$0.110\ \frac{57110}{2562926.947}(57720667) = 141.481$$

Hence, the total contribution of labor and capital is (197.933) kg in the productive process .The average productivity of one dunum was.0.828 kg/dunum, through the use of the optimum quantities of work, which amounted to 0.96 workers/day kg, and the optimum amount of capital was 1.77 dinars kg, and the optimum size of the maximum production of profits was 0.194, and the total contribution of the work and the head of work was (197.933) kg in the production process. From the above we conclude Low production quantities of the relevant crop below the optimum levels Increasing the quantities of work used in the cultivation of the bean crop than the optimal quantities in the model farms-Increasing the values of the capital used in the cultivation of the crop than the optimum value. he optimum value. **conclusion :** For the purpose of maximizing the profit of productive cities of this crop, it is necessary to use the optimal fertilizers, the cities of Al-Adel and Ras Al-Madal, and to reduce the waste in the use of these resources, as well as the use of the optimal area of the farm. and Using high-productivity varieties instead of the currently used varieties, instead of using modern techniques in agriculture in order to reduce costs and increase productivity.

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