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AN ECONOMIC EVALUATION OF THE EFFICIENCY OF OPERATING AGRICULTURAL MACHINES IN PRODUCTION OF WHEAT

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ABSTRACT

Agricultural sector is considered to be one of the most important sectors in the Egyptian economy that contributes greatly in the national income. Therefore, the state pays great intention to the agricultural sector concerning all developmental aspects either vertical or horizontal. That is achieved through developing used and already existing agricultural resources which is called vertical agricultural development, or through adding new agricultural materials which is called horizontal agricultural development. In all of the abovementioned fields, agricultural machines play an important and direct role in achieving both vertical and horizontal agricultural development, as it is well- known that vertical and horizontal agricultural expand depends totally on agricultural machines in general and the developed modern machines in particular. As for vertical agricultural expand, agricultural machines play vital and effective role in increasing production, lowering production costs and the possibility of making use of the advantages and jumps of expansion through expanding in use and application of modern technical methods in agriculture as laser leveling, planting by seed drill, automatic seedling and automatic harvest.

In addition to the abovementioned, there is the gab in the cereals, decrease of the net profit of farmers as well as their use of farming traditional methods that do not coop the agricultural development. Considering the importance of the technical standard as an important factor of agricultural production, the use of modern technology comes among the most important methods that may increase the production of Feddans by the optimal economic use of limited resources.

The thesis aimed to introduce the best technical standards in agricultural machines applied in the farming rice, wheat and maize in order to yield the highest production with lowest costs and to gain the highest amount of net profit of Feddan. Moreover, the thesis aimed to study the production and economic indicators of the crops studied by the thesis and their development nationwide as well as comparing the effect of the technical processes on the productivity of the Feddan of the crops studied by the thesis and their effect from the economic feasibility point of view.

This part of the thesis deals with the economic evaluation of using agricultural machines in order to farm to wheat in Egypt., as it was shown that the average Feddan productivity of wheat was estimated of about 3.7 ton/ Feddan as a result of using technical methods, whereas productivity by using traditional systems was about 2.8 ton/Feddan. This shows that as a result of using technological systems, Feddan productivity overcomes using the traditional systems as that increase was estimated to be about 0.9 ton/ Feddan with a percentage of about 32% from traditional systems. This increase in the average Feddan productivity for land unit reflects to new items, laser leveling, deep ploughing and adding land plaster with the relatively stability of varied production costs and the extent of technical and economic

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efficiency on favor of using technological systems. The thesis showed that the total proceeds of wheat farmed by using technological systems reached in average about 12440 pound/ Feddan, against 9560 pound/ Feddan for wheat farmed by using traditional systems. It was shown that the total proceeds of wheat farmed by using technological systems increase with a percentage of 30% from the same crop farmed by traditional systems. The study shows that the total varied costs of wheat for technological systems distributed on the production elements is estimated in average of about 3915 pound/ Feddan against 6390 pound/ Feddan for transitional methods with an increase of 39% when using agricultural machines. Moreover, the study pointed out that the total costs were estimated in average of about 5915 pound/ Feddan of wheat farmed by using technological systems against 8390 pound/ Feddan for traditional systems with an increase of about 29%. This illustrates the efficiency of suing technological systems. The study considered the net Feddan proceeds of wheat farmed by technological systems. It was estimated of about 6525 pound/Feddan against 1170 pound/ Feddan for traditional systems. This means that technological systems' net profit exceeds the same profits of traditional systems with an increase of about 5355 pounds. The study showed that the proceeds above the varied costs of wheat farmed by technological systems are estimated with about 8525 pound/ Feddan in average against 3170 pound/ Feddan for traditional systems. This means that technological systems are superior with about 169%. This increase is attributed to the increase in the total proceeds of technological systems comparing to traditional systems. The study shows that the cost of ton of wheat farmed by technological systems is estimated of about 3362 pound/ Feddan in average against 3414 pound/ Feddan for traditional systems. This means that technological systems exceed traditional systems with about 2%. This decrease is attributed to the increase of the Feddan productivity using technological system comparing to traditional systems. Considering the profit on the invested pound, it reached about 1.10 pounds for the use of technological systems against 0.14 pounds for the use of traditional systems. This shows that the technological systems used in farming wheat is better from both technical and economic point of view which means that the new technological systems used in production covers the total costs and realizing a surpass. This shows the efficiency of resource usage in producing wheat farmed by technological systems. Every pound being spent or invested in farming using technological systems achieves an income of about 10 pounds against one pound for traditional system.