

# An Economic Study of Technological Change in Agriculture Qalubia

**Conclusion**Introduction : The raise of grains crops qualification for plants is regarded to be an essential aim of the agricultural economical development aims in ARE, like any other developing countries. Those countries whose national economics have a relative narrow agricultural land. To achieve such an aim, there must be an extension in the two branches of development: even through advancing and increasing the real exploited agricultural resources and that is known as the vertical cultivating development, or through adding new agricultural energy sources and that is known as the horizontal agricultural development. And to release from the idea that, the technological level production function elements, ARE begins to be interesting in an increasing concern about the technological case generally and the agricultural technology specifically, our hopes today concentrate on the technological achievements to get the absolute possible production from the land, and focus on increasing the important strategic corps, especially the basic grains crops like wheat and maize crop to shorten the increase of feeding gap. The problem of study is embodied in the phenomena of decreasing in the production average of some grains crops in ARE and in Kalubeya Governorate, comparing to their similar in other countries; although the Egyptian cultivation in particular are distinguished with fertilized land resources, stable water resources, a lot of human workers, and besides the suitable climate factors to produce such crops. Because of this, we have to search for the causes behind such a phenomena (Feddani production decrease for such crops). That needs to make a lot of farmers stick to cultivate traditional kinds seeds and / or perform some agricultural processes by a traditional style which doesn't match the modern cultivation used by the advanced countries. The basic aim of research has been indicated in economic study for technology change in agricultural in Kalubeya, to recognize the economic impacts for using modern agricultural technological means in the production of feeding grains crops like wheat and maize crops in Kalubeya. The study style depends on following the discourse analysis in the economical analysis concerning the descriptive view following the derivative course in the economical analysis considering the quantity aspect and to use a lot of methods and means of measuring statistic and mathematical methods to measure multiple regression and stepwise regression in the linear picture and logarithmic one between the variables, (inputs and outputs) in the production function for different technological discrete used to produce the study crops for research samples in Kalubeya. The study includes 4 main chapters, in addition to the introduction, and a summary in English and Arabic with a list of the Arabic and English references. The first chapter discusses, the theoretical and reversible showy frame for the previous important studies through 2 parts : the first tackles the cultivating technological theoretical frame and part 2 tackles the previous studies for technological changes economy. Also chapter 2 describes the area and the sample of study in 2 basic parts : The first to describe Kalubeya to be a place area for civil study produced through the study of resources and the agricultural advancement or developing indications in the governorate. whereas, the second discusses the civil study sample description as it tackles 2 main sides : the first was interested in choosing a study sample which acts the whole community of Kalubeya and the second was interested in describing the chosen sample in the light of collecting information by the questionnaire form concerned to the study. Chapter 3 discusses the impact of technology change on agricultural corps in the farms sample. Then this chapter involves 2 main parts, the first one

discusses the impact of technology change on the important economic variables for the production of wheat and maize crops in research sample, the study findings in this part show the following:

There is an actual distinction in the Feddan production of the basic product for all used technological discredits in the production of wheat comparing to the using groups for traditional kinds or breeds as the increase percentage becomes (as an average of wheat Feddan in the essential crop) about 47.90 % , 32.68 % , 19.68 % , 13.86 % , 27.50 , 23.43 % ardabb for the technological discredit (A, B, C, D, E, F) respectively. As for the maize crop, the study results represent an objective effect of using the two technological discredits (B , F) on the Feddan production comparing to the unused groups of technology. The percentage increases in the main average of product with 72.34 % , 52.26 % ardabb for discredit (B) and the technological discredit (E) respectively. Thus the results show a decrease in the total average of the Feddan changing costs, the human cost, the animal work cost, the agricultural process performance costs, the total costs, the total cost of irrigation, the total cost of harvesting crops, the quantity of sowing seeds in kilograms and the time average used in the operation of cultivation, irrigation and harvesting. That is for the wheat crop in sample farms which use the different technological discredit compared to others which don't use technology. For the maize crop, the total average of every human and animal cost decrease beside the cultivating process performance cost, irrigation costs, and the quantity of seeds, used with the time average in irrigation system. where as the total average of Feddan change costs and Feddan total costs in sample farms using (B, E) discredits rise compared to their alike which don't use these discredits. The saving percentage in the total average of changing costs for the wheat crops reaches 4.31 % , 2.81 % , 6.47 % , 13% , 6.22 % , 0.83 % for the technological discredit (A, B, C, D, E, F) respectively. As for the maize crop, the average of changing costs rises in pounds in sample farms using (B, F) discredits more than others which don't use there one. The percentage of increase reaches in the total changing costs 12.53 % , 12.01 % for the two discredits (B , D) respectively. The percentage of saving in the total costs for Feddan to the technological different discredits for the wheat crop are approximately 2.87 % 2.025 % , 3.53 % , 0.51 % , 3.79 % , 0.27 % in pounds for the (A, B, C, D, E, F) discredits respectively. For the maize crop the total cost average increases in pounds in the sample farms which uses technology rather than farms that don't use them. The percentage reaches 8.97 % , 8.38 % this increase may be because of the raise of seeds prices in the odd and triple hybridized beside the raise of fertilizer value used in the hybridized breeds in general, in addition to the high cost of automatic work. The study findings show a moderate rise of the Feddan profit from the basic, the secondary product, the total profit average for the total of costs, the profit average on the pound in pounds, for the different technological discredits used in the production of wheat crops (A, B , C, D, E, F) and the different technological discredits used in the production of the maize crop (B, F) compared to farms that don't use technology. The increase percentage in the Feddan profit average from the main product reaches to 47.904 % , 32.68 % , 19.75 % , 13.87 % , 27.497 23.43 % in pounds for the pervious discredit respectively. For the maize crop : the increase percentage wheat to reach 57.98 % , 39.66 % for the (B , F) discredits respectively. The percentage of increase in the net profit Feddan average for the wheat crop reaches 157.08 % , 104.42 % , 59.38 % , 31.7 % , 91.94 % , 69.74 % in pound for the technological discredits (A, B , C, D, E, F) respectively. As for the maize crop, this increase reaches approximately 168.77 % , 108.21 % for the 2 technological discredits (B , F) respectively, whereas the percentage of increase in the total profit average of costs for the wheat crop is 45.88 % , 30.32 % , 18.11 % , 9.04, 27.78 % , 19.553 % for the technologic discredits (A, B , C, D, E, F) respectively. But for the maize crop, the percentage reaches about 42.77, 27.02 % the percentage of increase in the profit average of the pound spent (the profit of investments) for the wheat crop 164.77 % , 110.89 % , 64.998 % , 32.49 % , 99.67 % , 70.21 % , for the technological discredits (A, B, C, D, E, F) respectively. In the case of maize crop, the increase percentage reaches about 146.45 % , 91.99 % for the technological discredits (B, F) respectively. whereas the second part from chapter 3, tackles the application of impact of the technology change on the production function of the wheat and maize crops in research sample, as the statistics assessment results declare for wheat crop the following :-The technological variable which express the use modern kinds seeds, leveling soil by using laser units, mechanical planting by using seed drills (El — Sattara) and the automatic mower (the technological

discreet A) leads to the transmission of the productive function for the wheat crop with 8.981 arddab for Feddan in case of using multiple linear model and with 6.918 ardabb for Feddan in case of using stepwiseregression.- whereas the use of technological variables that expresses the use of modern kind seeds, leveling soil by using laser units and the automatic mower (the technological discreet B, leads to the transmission of productive function for wheat crop with 5.477 ardabb for Feddan in case of using the linear multiple model and with 5.772 arddab for Feddan in case of using the stepwise model.- As the use of technological changer which expresses the use of modern types seeds, mechanical planting by using seed drills (EI — Sattara) and the automatic mower (the technological discreet C) results in the transmission of the productive function to the wheat crop with a 2.384 arddabs for Feddan in case of using the multiple linear model and with 3.992 arddabs for Feddan in case of using the stepwise model.- whereas the use of technological variable that expresses about the use of all modern kinds seeds, mechanical planting by using seed drills (EI —Sattara) (the technological discreet D) leads to the productive function transmission of the wheat crop with 2.105 arddab for Feddan in case of using the multiple linear model and with about 3.0904 arddabs for Feddan in case of using the stepwise model.- The use of technological variable which expresses the use of improving kinds seeds and automatic mower (the technological discreet E) leads to the productive function transmission for the wheat crop with 4.105 arddab for Feddan in case of using the multiple linear model, and with about 4.231 arddab for Feddan in case of using the stepwise model.- The use of technological variable that expresses the use of improving breeds seeds (the technological discreet F) causes the productive function transmission for the wheat crop with 3.795 arddab for Feddan in case of using the multiple linear model and with 3.578 arddab for Feddan in case of using the stepwise model. As for the maize crop. It is clear that :- The use of technological variable that expresses the use of improving seeds and leveling soil by using laser units (the technological discreet B) leads to the productive function transmission for the maize crop with 9.675 ardabb for Feddan in case of using the multiple linear regression model and with 9.920 ardabb for Feddan in case of using the stepwisemodel.- whereas the use of technological variable that expresses about the use of 01 modern kinds seeds, (the technological discreet F) leads to the productive function transmission of the maize crop with 7.202 arddab for Feddan in case of using the multiple linear model and with about 8.079 arddabs for Feddan in case of using the stepwise model. Finally, the fourth' discusses the productive and economic efficiency for the technology change in farms sample during 2 main parts

fyll\_ef111?Ln is specified to evaluation and analyzes the Feddan productive function for the technological discreet used in the production of study crops as the productive function has been appreciated in linear and logarithmic image doubled by using both of the multiple linear and the stepwise regression to recognize what is the most important factor in effect on the production of wheat and maize crop in Kalubeya. whereas the second part was about the evaluation of the Feddan productive function costs for the technological discreets used in the production of the 2 crops of study concerning the sample of study as it possible to evaluate the total productive cost function for the different technological discreets. I depend on the study regression analysis in evaluating these function and there was a preference between such images to choose its best according to statistics measurements as we all know about the standard of the different technological discreets function, as the evaluation results of the productive costs function for the 2 crops wheat and maize that the educated function from the economical, statistical point of view is the second degree of function, namely the function in the second degree costs in its square image, and that was for all technological discreets used in the production of wheat and maize crop.

**Recommendations** The study recommended the following necessity

- 1- To generalize the use of the technological discreet used for the improving kinds seeds and the accurate flatting by using the laser, the EI - Sattara and the automatic mower (the full technological discreet) to prove its technical and economical under the conditions of the Egyptian cultivating sector.
- 2- The change of the traditional productive type and the decrease of using kinds (breeds) that produce low crops and substitute them with recommended breeds in cultivation.
- 3- To generalize the trowel system using laser to stop the collapse of the Egyptian lands in one side and as an effective factor or in increasing the vertical cultivating, developing average from another side.
- 4- The rise of the intellectual standard to the farmers for preparing them to understand and apply the modern technological means in one

way and to achieve development of keeping the environment in another, and this happens by being interested in the removal of illiteracy in villages of the country side.5-The government interference, especially in this period which is transmissional to encourage farmers to adopt the technological moderns biological or mechanical, this happens by providing with modern breed sows seeds and / or the procedure of some mechanical services peration with lower price or with no return to encourage farmers on using the modern technology.6-To gave all the necessary required things to finish the production process near to farmer a accommodation and his field by supplying the cultivating organization in villages with the technological requirements that every farmer needs from sowing seeds, fertilizers, machine and soon with a common price.7-The necessity of sending all the practical recommendation which is strongly related to the technological application fields for farmers, within the use of technological disereets to aim for a guarantee from the farmer to adopt it through an effective guidance set. So, we can enlarge the role of technological progress in achieving the economical advancement for farmers. Hence the global economical advancement in Egypt.8-To increase the importance of the maintenance of the cultivating machine and to increase the number of trainee. The attempt to manufacture the square parts locally.9-Developing the cultivating guidance sector by providing farmers with science and knowledge through training courses that are continuous, technical articles and helping them by guiding instructions those things which help in sending the technical recommendation from the search source to places of application and implementation (farms) in one way, and the attempt to overcome problems which hider the guard farmersto play their role perfectly in another. This happens through financial and intellectual support.10 — The necessity for working against the prejudiced separation by holding projects like the cultivating collection process which guarantees the achievement of economical capacities for the automatic work and then, it helps in minimizing the costs of the cultivating process and maximizing the profits.11-The continuity of deriving breeds with high productivity and the enlargement of its cultivation and guide the farmer telling him the appropriate productive style of them.12-To increase the importance of seeds distribution, riddle and productive stations for reaching an adequate production for the cultivating areas to make them available in the suitable time quality and quantity.