Summary

Since many years ago, Agriculture was the main source of prosperity and development of Egypt. It's considered one of the main source of its life and development. Therefore, the development of the Egyptian agriculture sector can be considered one of the main strategic and important goal in order to increase the productivity of this sector to achieve the balance with the increase of the demand for its product. This in order to satisfy the needs of the increase of population and for exporting, specially in the current economical changes that happened all over the world. The agricultural development depends on two essential domains. They are: the horizontal development and the vertical development. As there are many obstacles facing horizontal development, there must be an increase concentration on the vertical development. Consequently, the application of the modern technological techniques in the agriculture sector became vital, as this will achieve the expectation of the country plan regarding increasing the productivity of the cultivated land unit, In addition, increasing the productivity of the utilized unit water in the agriculture. Therefore, the study subject can be considered one of the essential element for evaluated the used technology in the agriculture sector for increasing the productivity in order to achieve the vertical development in the agriculture sector, in general, and in the crops (the study subject) specially, as there is scarcity in the productivity resources required for the horizontal development. The Egyptian agriculture sector development became one of the major issue, as the comprehensive and continuous development depends on it. One

of the main problem that faces this sector, the decrease in the economical and efficiency of utilizing the agricultural economical resources which affect the performance level of this sector. This in turn leads to the inability of the rate of growth in the agriculture production to cope with the increase of domestic consumption and exporting. Within the limited land, water and financial resources required for the horizontal expansion process, it was necessary to benefit from the technology development and from any scientific and human knowledge related to the agriculture. The first of them is the improved seeds or what called "the biological technology". The technology development also needs best utilization for the available natural resources, increasing the human skills and technological knowledge, producing goods and services that can contribute in increasing the people's standard of living. As, there are many agricultural areas has many technological changes that require evaluation and study, in order to determined its impact on the farmer and the agriculture sector. Thus, the current study problem can be specified in the following : evaluating the extend of the efficiently and economically current usage of the agricultural resources in producing crops which can achieved the best possible agriculture return for the producer and country. The importance of the current study stems from :

1) It will provides many information and empirical data that can be considered a scientific guide line for those responsible for sitting the agricultural polices.
2) It will help in supporting and encouraging the adoptation of technology and get ride of all the factors against the use of it.
3) Determining the appropriate technological techniques that can be used in producing the crops and its impact on increasing

the productivity of them. In addition, it aimed at the economical evaluation of these technological techniques and its role in saving the water and the land resources.

This study concentrated on three main crops grapes, rice, potato. The application areas for the study were the Nubaria district for grapes and potato, Kafr El-Shiehk province for the rice. The study depends on a multiple stage random sample. Among the most important obtained results of the study are:

1) Regarding the grapes :

(a) the study showed that the King Ruby was superior than Thompson and Sopirior, as the productivity in the first was 12.4 ton/feddan, while the productivity for the second and the third were less than it by 21% up to 28.8% respectively.

b) It also showed that the Flame was the second higher productivity after the Ruby, and the difference between them was not significant in the productivity.

c) It was found that treillage staking method was better than the Gable and (Y-shape) methods, as the productivity in the first one was 12 ton/feddan, and the productivity of the Gable and (Y-shape) were less than it by 10.1% up to 20.8% respectively.

d) Regarding the net return per feddan, the study indicated that, the achieved amount from Flame was significant than Thompson, as the average net return per feddan for Flame was 10.2 thousands L.E., while the average for Thompson was less than it by 37.9%.

e) Regarding the net return per feddan, The treillage method was significant than (Y-shape) method, as its average net return per feddan was 10.3 thousands L.E., while the average for The (Y-shape) method decreased than it by 34.7%.

f) Regarding the used amount of water, by different kinds of Grapes, the study showed that Thompson was greater than Flame and Ruby by 3.5% and 2.8% respectively.

g) According to The productivity index in cubic meter of the irrigating water, the study showed that Ruby was more significantly than Soperior and Thompson, while the average for Them was less than it by 31% and 23% respectively.

h) Also the data indicated that, the Flame type achieves a net economical return per feddan more than any other type used in the study, as it achieves 92.5 thousands L.E per feddan, while Soperior achieves 87.4 thousands L.E per feddan and Thompson achieves 70.4 thousands L.E per feddan.

i) Regarding the economical profitability of the spending pound, it was found that, the Flame was more significant than the others, as it achieves 10.7 L.E, while Soperior and Thompson achieve less than it by 3% up to 18.6% respectively.

j) In addition, the study indicated that Flame was more significant regarding the economical return of the used water than Sopirior and Thompson, while the average for Them were less than it by 7.9% and 25% respectively. It also found that, the treillage method was more significant than Gable and (Y-shape) methods, while the average for Them were less than it by 0.8% , 5.1% respectively.

2) Regarding the Potato:

a) The study showed that, the cultivation by mechanical way was superior significantly than the manual way, as the productivity in the first was 12.5 ton/feddan, while the productivity for the second was less than it by 15.4%.

b) It is also found that, Spunta type was significantly more than Diamant and Nicola types, as the productivity for the second and the third were less than it by 5.4% up to 8.2% respectively.

c) Regarding the net return per feddan the study indicated that, the achieved amount from Nicola was significantly more than Spunta, as the average net return per feddan for Nicola was increased by 32% than Spunta. It was found that, Diamant was significantly more than Spunta as the average net return per feddan for Diamant was icreased by 20.8% than Spunta

d) Regarding the net return per feddan the mechanical way was significantly more than the manual way, by 59.7%.

e) According to the difference kinds of Potato on the productivity of meter cubic of irrigated water, the study showed that Spunta was more significantly than Diamant and Nicola by 11.8% and 12.6% respectively.

f) The productivity index in cubic meter of the irrigating water, the study showed that the mechanical way was significantly more than the manual way, while the average for the manual way was less than it by 17.4%.

g) Also the data indicated that the Nicola type achieves a net economical return per feddan more than any other types used in the study, as it achieves 29.4 thousands L.E per feddan, while Diamant achieves 27.3 thousands L.E per feddan, and Spunta achieves 24.2 thousands L.E per feddan. It also found that, the mechanical way was significantly more than the manual way, by 42.6%.

h) Regarding the economical profitability of the spending pound, it found that the Nicola was more significant than the other ones in the sample, as it achieves 4.4 L.E, while Diamant and Spunta

achieve less than it by 6.8% up to 25% respectively. It also found that, the mechanical way was significantly more than the manual way, by 56%.

i) In addition, the study indicated that Nicola was more significant regarding the economical return of the used water than Spunta and Diamant, while Spunta and Diamant achieve less than it by 8.3% and 10.6% respectively. It also found that, the mechanical way was significantly more than the manual way, by 33.1%.

3)Regarding the Rice: a) the study showed that, Sahka 104 type was significantly more than Giza 177, Giza 178, Sahka 102, and Sahka 101 types, as the productivity per feddan for these types were less than Sahka 104 by 21.7%, 12.9%, 8.2%, 6.9% respectively.

b) It is also found that, the productivity per feddan for the gathering by the half mechanical way and the manual way were less than the mechanical way by 9.7%, 14.8% respectively.

c) According to the net return per feddan the study indicated that the achieved amount from Sahka 104 was significantly more than Giza 177, Giza 178, Sahka 101, and Sahka 102 types by 66.4% , 39.1% , 15.1%, 14.3% respectively .

d) Regarding the net return per feddan the gathering by the mechanical way was significantly more than the half mechanical way and the manual way by 19.4%, 56.6% respectively.

e) According to the difference kinds of Rice on the productivity of meter cubic of irrigated water, the study showed that Sahka 104 was more significantly than Giza 177, Giza 178, Sahka 102, and Sahka 101, by 24.2%, 13.9%, 10.8% and 9.3% respectively.

f) The productivity index in cubic meter of the irrigating water, the study showed that the gathering by the mechanical way was significantly more than the half mechanical way and the manual way by 12.4%, 21.3% respectively.

g) Also the data indicated that Sahka 104 type achieves a net economical return per feddan more than any other types used in the study, as it achieves 12.1 thousands L.E per feddan, while Giza 177, Giza 178, Sahka 102, and Sahka 101 types were less by 24.7%, 14.9%, 8.5%, 7.95% respectively. It also found that, the gathering by the half mechanical way and the manual way were less than the mechanical way by 10.8%, 22.4% respectively.

h) Regarding the economical profitability of the spending pound, it found that Sahka 104 was more significant than the other ones in the sample, as it achieves 4.96 L.E, while Giza 177, Giza 178, Sahka 101, and Sahka 102 types achieved less than it by 19.2%, 12.3% , 6.3%, 1.95% respectively. It also found that, the gathering by the half mechanical way and the manual way were significantly less than the mechanical way by 7.3%, 22.2% respectively.

i) In addition, regarding the economical return of the used water, the study indicated that Sahka 104 was more significant, than Giza 177, Giza 178, Sahka 102, and Sahka 101 types by 19.3%, 12%, 8.8%, 8.4% respectively. It also found that, the gathering by the mechanical way was significantly more than the half mechanical way and the manual way by 11%, 21% respectively.