Study Summary

The development of the agricultural sector focuses on two fundamental bases: the horizontal and the vertical expansion. In spite of the horizontal expansion is very important for agricultural economics development although this expansion faces many problems which decrease the opportunity to depend on it. Moreover, it is vital to orient to vertical expansion through modern technology to increase the productivity per unit for the productive resources available.

The study focus on two major crops wheat and summer maize, these two crops are considered as the most important and strategic crops in Egypt. The wheat is the first cereal for feeding Egyptian population. In (2002-2004), the wheat cultivated area was increased by 2.5 millions feddans and the productivity was increased by 18 ardab/feddan there are a gap between the production and the consumption, the State imports about 4 to 5 tons/year of wheat to cover the needs of local market. Although, the cultivated area with summer maize was decreased by 185.7 thousands feddans because of the competition of other summer crops especially rice, the economical liberalization, and the power driven of market mechanism. Therefore, increasing the productivity/feddan for the unit/area by the use of high productive hybrid and the application of technological package is the fundamental element to increase the maize production.

the State provides a great importance to the modern technological methods especially in the field of cereals production, while the State imports enormous quantity of cereals which causes a negative impact on the balance of payment when we are in need to use all our resources in the development process to face the fast international changes.

The study aims at achievement the following goals:

- Identifying the agricultural technological methods used in Egypt, its elements of transfer and its evolution;
- Measuring the impact of the transfer and the use of technology.
- Determining the most important socio-economic factors which have a direct impact on the adoption and the use of cereals technological packages by the Egyptian farmer.

The study includes an introduction which encompasses the study problem, objectives, methodology, and importance. In addition the study in includes five chapters. The first chapter contains literature review and previous studies related to the study.

The second chapter includes the theoretical framework of the modern technological methods,.

The third chapter includes the impact of variety technology on wheat and summer maize production in Egypt. Also, this chapter includes the production of the studied crops through the comparison of area, production, productivity per unit during the period (1984-1986) and (2002-2004), in addition to, the governorates relative importance concerning the productive area and production of the studied crops. Also, this chapter contains the ranking of governorates in Egypt through the productivity per unit for the studied crops, Moreover the third chapter encloses the variety technology impact on the studied crops during the period (2000-2004).

The fourth chapter includes the study sample through Multi stage stratified random sample. Sharkiya Governorate was chosen to be studied for wheat and summer maize, the district Menia Elkamh and Zagazige were chosen for the reason that

the two districts represent the most important agriculture districts for wheat and summer maize during the agricultural season (2002/2003). Out of Zagazige dstrict, Hariya and Bani Amer villages were chosen randomly, out of Menia Elkamh district, SAnho and Elsaedine were chosen randomly. Therefore, the total study size sample from the four villages reached 240 farmers, chosen randomly, half of them are user technological package of the studied crops and the other half are nonuser.

The fifth chapter is concerned with the economic and statistical assessment for the impacts of the application of agricultural technologic package on wheat and summer maize at the farm level, measuring the impact of using technological package on efficiency productivity using production functions , and a probability regression model (logit model) for studying the impact of various factors on technology adoption at farmer level. and the role of agricultural technology on rural development.

In addition the study includes recommendations and a study summary in Arabic. In the end it includes references both Arabic and English, a copy of questionnaire used, appendices, and finally a study summary in English.

The study results:

- The productivity average of per feddan reached 20.19 ardab / feddan with an increase of 4.79 ardab / feddan for the user of wheat technological package at Meniya Elkamh district more than the non-user.
- The productivity average reached 22.7 ardab/feddan with an increase of 6.7 ardab/feddan for the user of wheat technological package at Zagazige district more than the non-user.

- The increasing of the average productivity/feddan for the user of the technological package at Menia Elkamh and Zagazige districts increased the revenue of user compared to the non-user;
- The marginal rate of return reached about 667%, 1107% at Menia Elkamh and Zagazige districts respectively, which give a sign for the possibility of adoption of wheat technological package in the two districts;
- The production elasticity for the impact of the technological package on physical production (D) at 1% level at Menia Elkamh and Zagazige districts; in this case we can create two production functions for each district for the user and non-user of technological package;
- The productivity average reached 23.9 ardab/feddan with an increase of 7.7 ardab/feddan For the user of summer maize technological package at Meniya Elkamh district more than the non-user.
- The productivity average reached 26.1 ardab/feddan with an increase of 9.1 ardab/feddan for the user of summer maize technological package at Zagazige district more than the non-user.
- The increasing of the average productivity/feddan for the user of the technological package at Menia Elkamh and Zagazige districts increased the revenue compared to the non-user;
- The marginal rate of return reached about 567.9%, 460.8% at Menia Elkamh and Zagazige districts respectively, which give a sign for the possibility of adoption of summer maize technological package in the two districts;

- The production elasticity for the impact of the technological package on physical production (D) was significant at 1% level at Menia Elkamh and Zagazige districts; in this case we can create two production functions for each district for the user and non-user of the technological package;
- The cultivated area variable coefficient and the technology exposition variable coefficient were significant at 1%, while the value of Chi square for the model was 95.15 significant at 1%, beside that, the determine coefficient was 0.77 at Zagazige district. This means that, with increasing the crop cultivated area and the technology exposition there are a big chance to use or adopt the modern technology in agriculture;
- The farm area variable coefficient and the technology exposition variable coefficient were significant at 1%, while the value of Chi square for the model was 49.04 significant at 1%, beside that, the determine coefficient was 0.42 at Menia ElKamh district. Which means that, with increasing the farm area and the technology exposition there are a big chance to use or adopt the modern technology in agriculture;
- Most of studied farmers confirmed that they followed the agricultural recommendations for wheat and summer maize which increase their production and their income;
- About 99.7% of studied farmers orient the increasing of their income to children education, and the surplus used in small projects (animal and poultry breeding).