Adoption of Modernized
Agricultural Irrigational Technologies
Among Farmers In Kafr – El Sheikh Governorate

Summary

The main objective of this research were to study the farmers adoption level of modernized agricultural irrigational technologies and to study some factors associated and determined their adoption levels. Specific objectives included: (1) To determine time period of the farmers adoption to each at technologies related to: Soil improvement, plantation methods, irrigational performance, irrigational tabulization and the improved surface irrigation, (2) To determine farmers adoption rate to each practices from the studied irrigation technologies, (3) To determine farmers adoption level to each of the practices from the studies irrigational technologies, (4) To determine deference between average of degrees of farmers adoptions of each of the studied irrigational technologies, (5) To determine relationship between total degrees of the farmers adoption for the studied irrigational technologies and some independent variables, (6) To determine the independent variables that affect total degrees of farmer's adoption for the studied irrigation technologies, (7) To determine the constraints facing respondent farmers from their point of view towards the adoption of the studied irrigation technologies.

The necessary date were abtained by an elaborate designed and pretested questionnaire through interviewing (340) from operator in five village communities representing five distrects i, e kafr El – Sheikh, Desouk, Sedy – Slem, Kellen and El – Hamoul distrets in Kafr El – Sheikh Governorate important statistical methods used for research data analysis included: Percentages, Simple correlation Coefficient, multiple regression and variance analysis.

The research is composed of four chapters: the first explains the nature and dimention of the research problem; the second is a coverage of literature reviewed; the third indicates methodology and research procedures; the fourth presents the resulted and discussions. The following is a summary of important research findings;

First: Time period of farmers adoption for irrigational technologies:

1- Soil improving technologies; The average of time period between hearing and adoption was 3 years from 1986 to 1996, while this average was 5 years from 1996 to 2004.

2- Agricultural practices technologies: The average of time period between hearing and adoption was still constant at 3 years until 1998, it was reached about 6 years during the period from 1988 until 2004.

3- Irrigational performance technologies: The average of time period which spent between hearing and adoption until 1998 amounted to 3 years, while this average was 3 years from 1998 to 2004.

4- Irrigational tabulization technologies: The average of time period spent between hearing and adoption was 4 years from 1990 to 2004.

5- Improved surface irrigation technologies: The average of time period spent between hearing and adoption was about 3 years since its deffused from 1996 to 2004.

Second: farmers adoption rate of the practices irrigational technologies: The studies rates of farmers adoption of practices irrigational technologies can be ranked as will as its adoption rate as follows:

a- Planting early maturing varaits and high production with adoption rate amounted to 72.9%.

b- planting on long lines and terraces, the adoption average was 60%.

c- Using slides when doing irrigation, adoption average was 55.9%.

d- Obligation with crops rotation, adoption average was 50.9%.

e- Land settelment by L. A. S. E. R., adoption average was 47.9%.

f- Sub soil blowing with adoption average was 42.6%.

g- Developed irrigation with adoption average was 42.6%.

h- Determining irrigation time period with adoption average was 38.8%.

i- Adding agricultural gypsum with adoption average was 37.7%.

j- Nightly irrigation with adoption average was 33.8%.

k- Intercropping with adoption average was 32.7%.

L- Exchanging irrigation with adoption average was 30.3%.

m- Determining stop time irrigation processes and maturing time of crops with adoption average was 29.4%.

n- Determining time of irrigation processes, with adoption average was 28.2%.

o- Let out space without water irrigation at the of the field to suck or to absorb increasing water irrigation with adoption average was 27.4%.

p- Pulsational irrigation with an average of adoption was 25.3%.

q- plantation dry clover with adoption average was 21.2%.

r- Irrigation shiphon floom with adoption average was 19.4%.

s- Determining amount of water irrigation needed, the adoption average was 19.1%.

Third: Farmers adoption level for irrigational Technologies:

a- Adoption's level of soil improving technologies: research results showed that 37.6% of the interviewees haven't adopted soil technologies

56.2% of the interviewees have low / medium level of adoption, and 6.2% only high adoption level.

b- Adoption's level of agricultural practices technologies results, cleared that 25.3% of the interviewees haven't adoption agricultural practices technologies; 52.1% of the interviewees have low / medium level of adoption, and 22.6% only high adoption level.

c- Adoption's level irrigation performance technologies: research findings revealed that 31.5% of the interviewees haven't adopted irrigational performance technologies; 50% of the interviewees have low / medium adoption levels; and 18.5% only of the interviewees considered high adoption level.

d- Adoption's level of irrigational tabulization technologies: research results showed that 41.8% of the interviewees haven't adopted irrigational tabulization technologies; 40% have low / medium adoption level; and 17.6% only high adoption level.

e- Adoption's level of improved surface irrigation technologies: research results pointed to 46.5% of the interviewees haven't adopted improved surface irrigation technologies; 35.9% only of the interviewees have low / medium adoption level, and 17.6% only have high adoption level of improved surface irrigation.

f- total adoption level for all irrigational technologies: research results cleared that 54.9% of all interviewees were low adoption level; 27.1% were medium, and 8% only of the interviewees were high adoption level. It mean that majority of he interviewees (92%) were low / medium adoption level.

Fourth: Determining differences between average of farmers degrees of irrigational technologies: research results cleared that differences between average of farmers degrees of irrigational technologies can be arranged as follow:

1- Average of degrees of farmers adoption of agricultural practices technologies is the first one with mathematical mean 39.53 degrees, and the S. D. was 30.22 degrees.

2- Average of farmers adoption of irrigational performance technologies is the second one with mathematical mean 32.49% degrees and S. D. 27.49 degrees.

3- Average of degrees of farmers adoption of soil improving technologies is the third one with mathematical mean 29.56 degrees and S. D. 28.94 degrees.

4- Average of degrees of farmers adoption of improved surface irrigational technologies is the fourth one with mathematical mean 29.02 degree and S. D. 32 – 92 degrees.

5- Average of degrees of farmers adoption of irrigation tabulization technologies is the fifth one with mathematical mean 28.81 degrees and S. D. 30.39 degrees.

Fifth: **Correlation between independent and dependent variables:**

- There was a positive and significant relationship (at level 0.01 of significances) between 23 variables and farmer's level of adoption of irrigational technologies, these variables included: mass media expouser, utilizations from mass media, sufficiency of requirement of technologies uses, concordances between technologies, and practices & criteria, saving efforts in irrigation processes, saving time needed to irrigational processes, saving total costs for irrigation processes, net return / feddan, relative advances, landlord of agricultural land, effective by references groups, economical values, justic values, social values, economical motivaions, social motivations, psychological motivation, empathy, brain elasticaly, risk set, attitud towards rationalization of water irrigation use, existence of agricultural organizations and utilization from agricultural organizations serves.
- On the others hand results showed that there was a negative and significant relationship (at level 0.01 of significancy) between dependent and independent variables i, e, degrees of technologies compellation. There was a negative & positive and significant

relationship between the research variables i, e, degree of similarity of perception of farmers recognition for the technologies characteristics, degree of participation on irrigational extensional irrigational activities.

Sixth: variables affecting on the adoption levels:

- The results of multible regression analysis between farmers variables and their adoption's levels in indicated the following: 24 variable could explain 49.9% of variance among interviewees with regard to their levels of adoption of modernized agricultural irrigational technologies.
- Step – wise multible regression analysis showed that the variable of attitude towards rationalization of water irrigation use responsible for explianing 37.6% of total variance between farmers, mass media exposured explained 5.3% variance, technologies relative advantages explained 3.1% of varience; degrees of psychological motivation explained 1.3% of variance, and finaly degree of existence of organizations works in irrigation in the area explained 1% of total varience among the interviewees.

Seventh: Problems and Barriers:

- Ten problems and barriers faced the interviewees as follow:

1- Unsutable of technologies for the nature and charecterics of the Egyptian farmers.

2- Unhearing about the technologies.

3- Nonexistence of the technologies requerments time and with a suitable price.

4- Nonexistence of organizations working in the field of irrigation in research area.

5- High expensive for technologies implementation.

6- Charg of farmers knowledge and skills for emplemntation the technologies.

7- No – awareness of the farmers with importance of rationalization of water irrigational use.

8- Splitting agricultural land.

9- Weakness of performance levels of extensionists.

10- No – awareness of the farmers towards adoption the irrigational technologies in increasing production and raising efficiency of water irrigation use.

Eight : Recommendation :

1- To integrating efforts of orgamjations and Foundation which working the field of irrigation and securing requirements of irrigation Technologies use.

2- To concentrating enlightenment of farmers to adopting technologies as will as agroup to maximize there benefites.

3- To determinate the extensional methods to be more suitable, and to make irrigational Practices Technologies more available to adoptive.

4- Integrating to Creating Positive attitudes towards rationalization irrigation water use.

5- Increasing of Connecting Farmers with mass media Communication.

6- Doing more efforts of extension work to explain and clear the importance and benefits of modernized innovational Technologies.

7- Presenting models of adoption farmers in each of extension meetings to satisfy Psychological motives.

8- Deploying agricultural organization working in the field of fibbed irrigation between vacillates.

9- Raising efficiency of agricultural organization System, specially the extensianists in the extensional activities.