Summary

Rice is a major food and export crop Being a cash crop , the state is keen to enhance rice exports through contriving new high yielding varieties under the existing water constrant . After the elimintation of compulsory procurement , rice has become more profitable . The study has the objectives of identifying : production constraints , level of production factors efficiency and the significance of producing high yielding varieties .

The study contains four main chapters . The first chapter includes the introduction , problem of the study and review of previous relevant studies on the crop . The second chapter highlights the rice crop indicating that it is a summer crop concentrated in six governorates in lower Egypt . Reviewing the governorates of concentration reveals that in trems of rice average . Dakahlia comes on top 782.4 thousand feddans as an annual average over 1980 - 1994 (equivalent 27.9 % of total rice area) . With respect to production . the governorate achieved 298.26 thousand tons (28 .48 % total rice area) at a yield rate of 2.55 ton / f.

Kafr El Sheikh comes in the second place as rice area was 229.47 thousand f . (21.92 % of total rice area) at yield / of 2.75 ton / f .

Behaira occupies the third place with an area averaged at173thousand feddans

The study covers the period prior and post economic liberalization programs . After the implementation of economic reforms . rice area increased by

80.91 thousand f. a year and productivity increased by 11 ton / f. .Before the application of reform packages , production declined by 110.23 thousand tons . Rice area of Dakahlia , for example , decreased by 3.20 thousand f. before reforms and increased by 25.54 thousand f. aftar reforms . Over 1980 - 1988 , Productivity decreased at a rate of 0.02 ton / f. ,but it increased at 0.15 ton / f . over 1989 - 1994 .

Likewise , production increased by 127.63 thousand tons after reforms and decreased by 10.73 thousand tons before reforms .

Kafr El Sheikh also was influenced by reforms as area , productivity and production have increased by 6 thousand f. 0.18 ton / f . and 62.69 thousand tons respectively , compared with 2.23 thousand f. ,0.003 ton / f and 0.18 thousand tons respectively prior refrom packages application . Behaira 's rice area decreaed at 1.7 thousand f. before reforms . Productivity in Behaira has been increasing before and after reforms . But the rate of increase after reforms is obviously higher (0.03 ton / f .) than that of before reforms (0.007 ton / f.)

The trend of productivity in Behaira applies also on production as it increased at 2.26 thousand tons annually before reforms and 35.83 thousand tons annually after reforms .

Area , productivity and production of Sharkia rice were also affected positively by reforms. Area rose to about 18.09 thousand f . annually .

Productivity rate of increase moved up from 0.02 ton/ f . a year to 0.09 ton / f. a year . Production was an exception as it decreased from70.23 thousand tons a year to 8.05 thousand tons a year . Gharbia also has been positively affected by reforms . Before reforms, area decreased by 2.42 thousand f . a year compared with an increase of 10.46 thousand f. a year after reforms , production increased by 37.14 thousand tons a year . Sharkia occupied the fourth place , with an area averaging 163 thousand f. and average production 44.46 thousand tons . But Gharbia took the fifth place as its area reached 95.07 thousand f. a year and average production 290.04 thousand tons and yield 3.02 ton / f. . Damietta came in the last place as its area was 54.53 thousand f. , average production 45.94 thousand tons and yield 2.64 ton/f . . Time trend equation of the rice crop at national level and governorates of concentration for area , productivity and production was studied . The time span of the study was divided into two terms . Prior reforms term refers to 1980 - 1988 and post reforms term refers to 1989 - 1994 .

With respct to Daimetta , area was found to be relatively unchangeable . However , area after reforms increased at a higher rate 0.83 thousand f. a years compared with 0.55 before roform application . Production also incresed at a rate of 7.63 thousand tons a year . Trend evolution of some varieties (Giza 171 . Gaza 172) was studied . Also . Giza 176 as a new high yield variety was also put under study .

Eventually , chapter two reached a conclusion that economic liberalization is the major reason behind increased production , as farmer is no longer restricted with respect to production decision making .

Chapter three gave the description of examined sample in Dakahlia and definied methodology of statistical data collection and sample selection .

The chapter also studied production of common varities amd handled relationships between inputs & outputs . Production functions of Giza 172 & Giza 176 were also estimated . By means of simple stratifeed randum sampling , selected holders belonged to Mansoura & Belkas distrids. 27 holders from Meet Garrah , 15 from Meet fatek , 50 from Nashra village and 40 from East Balkas constituted the examined sample .

Rice acreage was divided into four categories in terms of size .

Category were less than a feddan,1 - 3 feddans , 3 - 5 f., and over 5 feddans . Holding was also classified by 172 & 176 varieties This chapter has also focussed on economic efficiency topic . Results show that all rice holding categories have responded differently to changes in production factors namely seed , Pesticide , azotic fertilizer , phosphate fertilizer , mechanized labour hours , draft & human labour . Amount of seed , pesticides , mechanized labour hours , phosphetous fertitizer were of positive response .

Increasing the units of four factors led to increasing the crop by 0.67 % , 0.076 % , 0.004 and 0.090 ton / f . respectively . The seed factor proved to

be statistically significant (0.67 %) . With regard to category (1 to 3f.), more effective factors were amount of phosphatous fertitizer and labour hours . An increase of one unit in the two factors yielded an increase of 0.044 and 0.011 ton respectively . Major affecting factors on holding category (3 to 5f. 0 were phosphatous fertilizer and draft labour . Each unit increased in the two factors led to an increase of 0.016 and 0.24 ton respectively . Major production factors affecting the last holding category (over 5 f.) was phosphatous fertilizer , which yielded 40 kg , against each phosphate unit added . Results also concluded that Giza 176 is more efficient than 172, from the production factors efficiency perspective . Average of production for the variety 176 was 3.13 ton/f. compared with 2.75 ton/f. for variety 172 .

Therefore , high yielding varieties are strongly recommended to get more production from the Same area .

The fourth chapter tackled cost of production of total sample and Giza 172 & Giza 176 . It indicated that the lowest cost level of sample amounted to L.E. 697.83 for less than a feddan category .

The highest cost was the category of over than 5 feddans as it amounted to L.E. 825 . Total cost for total sample reached approximately L.E. 705 .02 . The category (over 5 f.) achieved the highst rate of returns per feddan L.E. 795 .86 But the lowest return / f. amounting to L. E. 577 .56 was belonging

to the category (1 - 3 f.). Likewise,estimation of cost /f . for each holding category revealed that the lowest level L . E 288.8 belonged to the holding category (Less than one feddan) . Whereas , the highst cost per ton L . E 267.85 belonged to the holding category (1 to less 3 f.) .

Stydying cost of production of Gize 172 & Giza 176 revealed that total cost per feddan amounted to L . e 735.76 and 670 .39 respectively . Likewise , total cost for holding category (over 5 Feddans) reached L . E. 825.18 and 811.76 for Giza 172 & Giza 176 respectively Total cost for total sample of the two varieties Giza 172 & Giza 176 amounted to L.E. 222.39 & 654.6 respectively ,assuring that new varieties are less costly . It was also found out that Giza 176 was pest resistant and it needs less cost for control purposes . Consequently , giza 176 has given higher net return than Giza 172 . Net return of the first holding category reached L.E. 406.19 for Giza 172 and L.E. 445.80 for Giza 172 and L.E. 471.79 for 176 . Net return of the second holding category was L.E. 445.80 for Giza 172 and L.E 687.68 for Giza 176 . Net return of Giza 172 was L.E. 908.46 per feddan for the category over 5 feddan.

The study also revealed that the holding capacity is directly proportional with returns . Based on cost of production estimates of the sample as well as of Giza 172 & Giza 176 . The optimum size that gives the highest returns and needs lowest cost has been identified . The highest return of sample yielded

from Giza 176 assuring that new varieties usually give higher productivity .

Profitability per feddan and return per L.E of total sample were also investigated . Return per L.E . of total costs for various holding categories reached an average of L.E 0.68 . Categories of less than one feddan , 1 - 3 feddans , 3 - 5 f. and over 5.00 feddans achieved L.E. 0.77 , 0.98 and 0.96 L.E. respectively as return per L.E . .

Return per L.E of Giza 172 for total cost amounted to L.E. 0.58 for less than a feddan . L.E. 0.44 for 1 - 3 feddans and L.E. 0.85 for the holding category over 5 feddans . As per Giza 176, it achieved L.E. 0.70 , L.E. 0.93 , 1.13 and L.E. 1.12 for the four holding categories respectively .

The major conclusion reached by this study is that rice crop is one of the major crops that gives high returns . Achievement of more efficiency in functionning factors of production and contrivance of new varieties as well as adoption of efficient extension service can collectively raise rice returns as a cash crop .