Economics of The Production of Some non-traditional Crops in the Arab Republic of Egypt

Mecidinal and aromatic plants represent the most important non- traditional agricultural crops in Egypt due to their many uses in different industries and fields. The target of this study is to recognize the current productive situation of these plants and the obstacles they face to find the suitable solutions and promotion of these crops to meet local and external demand.This study includes four chapters: the first one reviews the most previous important studies with achievements and results dealt with production, marketing and exporting of medicinal and aromatic plants.This second chapter consists of tow section the first includes the most important productive and economic indicators of these plants of which Germam chamomile, caraway, marjoram, where the average areas cultivated with these plants during the period (2003-2007) were about 8357.8, 3531, 4220.6 feddan respectively represent about 14.2%, 5.9%, 7.1% respectively of the total medicinal and aromatic plants area which amounted about 68.12 thousand feddan during the same pervious period.This study indicates an annual increase in the area of caraway, marjoram, reached about 13.33, 320.61 feddans respectively, meanwhile there was annual decrease in the area of German chamomile, about 74.24 feddan during the period (1988-2007). This chapter also indicates an inerease of German chamomile, caraway and marjoram Fayourn Governorate reached about 73.74, 38.18, 233.3 feddans respectively.This section indicates instability in the area of the study crops whereas instability coefficiant of the areas increased in spite of instability coefficiant of the areas in reduction of productivity which led to instability of these crops production, as the coefficrent reached about 33.8, 29.02, 41.3 respectivelyThis second section includes the most important productive and economic indicators of these plants of which spear mint, geranium and jasmine where the average areas cultivated with these plants during the period (2002-2006) were about 677, 3255.6, 341.8 feddans respectively represent about 1.13%, 5.4%, 0.57% respectively of the total medicinal and aromatic plants area which amounted about 59.22 thousand feddan during the same pervious period.This study indicates annual increase in the area of spear mint reached about 367.83 feddans reppectively and this increase was meanwhile there was annual decrease in the area ofgermanium and jasmine about 70.72, 17.96 feddans respectively during the period (1988-2006).This section also indicates an annual decrease in the area 4.86, 35.72, 46.16 feddans in spear mint and geranium in Beni-Suef Governorate and in jasmine in Al Gharbia Governorate respectively.The section indicates an instability in the area of the study crops whereas instability coefficiant of the areas increased in spite of instability coefficiant of the areas in reduction of productivity which led to instability of these crops production, as the coefficrents reached about 21.39, 22.78. 42.8 respectively.This third chapter consists of tow section the first section dealt with description of the study sample for the crops: German chamomile, caraway, marjoram, in Fayoum, Governorate and method of selection of collecting the data, selection of research sample and studying the relation between production quantities and production requisites for these crops besides calculation of double logarithmic production functions of the relation between the production of these crops and some independent variables for the sample according to the different holding categories. Stratified multi-stage sample was taken from the study crop farmers and by using the method of random

sampling, and a German chamomile samples were taken from 180 famers, Kafr Abboud and 140 farmers from Al Gelany, Ibsheway Center,Fayoum Governorate. The cultivated holding with German chamomile was divided into two categories (less than feddan) and (feddan or more) and samples from caraway crop were taken from 191 farmers, Gerdo Village and 198 farmers, Khalaf Village, Attasa Center, also marjoram samples were taken from 39 farmers Al Mazazly village and 61 farmers, Mansha'at Al Gammal, Tamieha, Fayoum Governorate), this section has also reviewed studying efficiency for production factors under prevailing production in the study sample and the results showed that holding categories varied in response of changes in the studied factors of production such as seed quantities, quantity of nitrogen fertilization, quantity of phosphatic fertilization, quantity of organic fertilization in cubic meter irrigation hours mechanic work hours and human and animal work.By studying the double logarithmic function of production for the study crops on the level of the sample, it was clear that there was direct relation between, German chamomile production quantity in ton and each of numbers of nitrogen units x2 and quantity of orgamic manure in cubic meter x4 and human work hour/ feddan x8, the marginal product of these elements amounted about 0.31, 0.9, 0.24 respectively and the total production flexibility about 2.04, this indicates to income relation in increased capacity and the production realized in the first stage. For caraway crop, it was clear that there is directrelation between caraway production quantity in ton, seeds quantity in kilogeams x 1, number of animal work X7 and number of irrigation hours x5 and the marginal product of these elements was about 1.22, 0.15, 0.6 respectively and the total production flexibility amounted about -3.23 i.e the production realized in the third production stage. The study showed that there is direct relation between marjoram production quantity in ton and each of organic manure quantity in cubic meter x4, number of human work hours S8 and the value of limitary production of these two elements was about 0.25, 0.36 respectively. The total production elasticity amounted about -1.44, i.e. the production realized in the uneconomic stage.This study showed that all functions were in quadratic form and that agree with the economic logic. The economic derivatives of the function of feddan productive costs from the study crops in Fayoum Governorate cleared that the optimum size for the product reached about 1.4 ton from German chamomile, 1.872 ton from caraway and 3.9 ton from marjoram on the level of the sample. The minimum size of the costs achieved for fewer productivity was about 0.97, 1.3, 2.11 ton respectively.This second section dealt with description of the study sample for the crops: spear mint, geranium and jasmine in Beni-Suef and Al Gharbia Governorates and method of selection ofcollecting the sample data, selection of research sample and studying the relation between production quantities and production requisites for these crops besides calculation of double logarithmic production functions of the relation between the production of these crops and some independent variables for the sample according to the different holding sizes. A random sample was taken from the study crop farmers and by using the method of random sampling. The study showed that there is direct relation between spear mint production in tons and each of seeds quantity in "thousand seedling" xl phosphatic fertilizer quantity X3, number of irrigation hours X5 and number of human work hours X8, the limitary production value of these elements about 0.07, 0.11, 97.33 respectively and the total production elasticity was about 0.81 i.e, the production realized in the second economic stage of production function.This study showed that there is direct relation between geranium crop production in tons and seeds quantity xl, number of nitrogen X2 and organic manure quantity in cubic meter x4. the value marginal production for these elements amounted about 0.62. 0.43, 0.6 respectively, i.e the production reslized in the second economic stage of production function.There was also direct relation between production quantity from jasmine in tons, phosphate fertilization X2 and human work hours X8. the value of marginal production of theseelements about 0.13, 0.77 respectively and the total production elasticity about 0.28 i.e production realized in the second economic stage. This chapter reviewed calculation of functions of productive costs for the study crops on the level of the governorates and the selected administrative centers.This study showed that all functions were in quadratic form and that agree with the economic logic except of funcions of costs in jasmine crop where they were in cubic form. The derivatives of the function of feddan productive costs from the study crops in Beni Suef Governorate, the optimum size for the profit from green mint was about 2.03 tons and from

geranium 22.6 tons and the minimum size of costs about 2 tons, 18.5 tons respectively on the level of the total sample.In Al Gharbia Governoate, the optimum maximization size of profit from jasmine amounted about 5.3 tons and the lowered size for costs and achieved for minimum productivity was about 2.7 tons.This four Chapter dealt with the marketing methods, facilities and marketing functions for the most important medicinal and aromatic plants and the local marketing problems which face these plants and external marketing as well. The chapter also dealt with evolution of quantity, value and price of exporting the crops accoding to the relative importance during the period (1988-2007) whereas quantity, value and price ofGerman chamomile exports increased about 26.34 tons with value L.E 127000.21, 3047 L.E/ton respectively Quantity, value and price of caraway exports increased about 24.27 ton with value and price of marjoram increased about 90.91 per ton with value L. E 628.58, 127.79 L.E/ ton during the same period. Quantity, value and price of spear mint increased about 80.95 ton with value L.E 57100.99, 226.875 also quantity, value and price of geranium exports about 1.97 ton with value L.E 57500.99, 1059.54 L.E/ ton meanwhile quantity of jasmine exports decreased about 0.11 ton and export value increased about L.E 10000.69 and export price decreased about 614.45 L.E/ ton. The chapter dealt with calculation of instability coefficient for thesecrops.This study showed that instability coefficient for each of quantity, value and price of German chamomile amounted about 9.1, 630.5, 67.6, for caraway about 27.1, 15.2, 17.2, for marjoram 44, 61.4, 26.2, for spear mint 30.7, 65.2, 37.3, for geranium about 5.55, 45.15, 21.88 and for jasmine 22.57, 14.03, 4.66 respectively. The chapter also referred to the external markets for the most important medicinal and aromatic plants.Quantity of medicinal and aromatic Plants exports reached about 29000 ton with value average about 30 million dollars during the period (2003-2007). This chapter dealt with the four methods to abstract volatile oils: distillation, abstractionby organic solvents, abstraction by hydrolic distillation and by abstraction by enzymic solution. Marketing efficiency for the study crops has been calculated for German chamomile 93.5%, caraway 97.7%, marjoram 76.5%, spear 98.5%, geranium 71.4% and Jasmine 99.70% respectively. According to shepherd marketing efficiency formula