Economics of Protected Agriculture in North Sinai Governorate

Since agriculture in Sinai depends on under ground water and rain wherever possible, hence systems of protective agriculture were found most appropriate for production of certain vegetable crops. As such, this study's objectives were principally comparison of the economics of production of certain vegetables under both plastic houses and tunnels with the open-field system. In addition, marketing economics and problems of selected products were as well investigated.Cucumber, Cantaloupe and Green Pepper were selected for the study as sharing altogether about 95% of green houses and tunnels in use in Sinai.Likewise, three study locations were selected as covering together almost all-protective agricultural practice in Sinai, i.e. Arish, Rafah and Shiekh Zoyed.Review of literature revealed the suitability of protective agriculture systems for vegetables production in Sinai, beside the relatively poor concern devoted to economic evaluation studies for such systems.With respect to production functions, the human labor input was found effective for all the three chosen crops in green houses. This was followed by Nitrogenous and potasium fertilizers and pesticides for cucumber, pesticides manure for cantaloupe, and phosphorus and nitrogenous fertilizations forpepper.Human labor remained the most effective in production of the three crops under plastic tunnels, followed by different kinds of fertilizer almost in the same order previously revealed for the plastic houses system.Although the open-field production is an entirely different system than that of protected agriculture, still human labor remained the most effective factor for all the three selected vegetables crops, followed by different kinds of fertilizers.Studying the economic efficiency of variant inputs it was revealed that, except for manure in cucumber, production undertunnels and for green pepper in open-field, use of all inputs was in levels bellow efficient applications fulfilling equity of the marginal product value and the input's price.Using quadratic forms of cost functions, the study showed percents of producers fulfilling minimum average cost production levels ranged between 84-88% for plastic houses adopters, 74-86% for users of plastic tunnels and 78-83% for producers in open-field.Regarding level of input applications, it was revealed that chemical fertilizer use was slightly higher for production under plastic houses in general, with exceptions of nitrogenous fertilizers for cantaloupe in open-field.As for yields, the study revealed the superiority of cucumber yield per feddan under plastic houses exceeding 2 and 5 times its corresponding estimates for tunnels and open- field production, respectively .As for average costs the highest occured for cantaloupe under plastic houses reaching L.E 913 / Ton, green pepper under tunnels reaching L.E 496 / Ton, and Cantaloupe also in open —fields with an average of L.E 500 /Ton.Net revenues were at maximum for production under plastic houses, while the lowest per feddan occurred for the open — field production system. Likewise the maximum benefit / cost ratio estimates reached about .92 , 1.15 and 1.31 for cucumber and cantaloupe under tunnels, and green pepper under plastic houses, respectively.The study also investigated the marketing systems of the three selected vegetables, showing that about 51.6% of production is marketed directly at whole sale markets, while only about 5.8% are exported.As for marketing problems the most important were found to be narrow markets, delayed selling, low prices, high transportation costs and lack of adequate marketing information2. And where the higher costs were revealed for picking and transportation the lowest occurred for sorting and grading .Finally, according to the study's results and conclusions certain recommendations were suggested . the most important are paying more

attention toward encouragement and maintaining of the stability of the human labor resource in north Sinai as the major effective production input for the chosen vegetable crops under the all the variant production systems .Second, production of cucumber and green pepper under plastic houses should be encouraged, as well as production of cantaloupe under plastic tunnels . Some sort of institutions specialized in marketing and exporting vegetables in the governorate of north Sinai should be established . likewise supporting producers with credit at suitable low interest rates to finance production operation is strongly advised . Moreover, the revealed high transportation costs requires governmental support is provision of cheaper transport facilities enabling the small producers in marketing of their products.