

## I- INTRODUCTION

Apple fruits (*Malus domestica*) have great commercial, economical and nutritional importance. The success in producing high yield with good fruit quality of Anna and Ein-Shamir apple cultivars in Egypt encouraged the unlimited demand as well as increased horizontal extension of these cultivars. Thus, total cultivated area of apple (according to the latest agriculture statistics 1997)\* reached 74004 feddans. From this area 59156 feddans are bearing trees producing 412321 metric tons. More than 72% of the total area concentrated in newly reclaimed soils in which agricultural labors were rarely available.

In addition, the calculated net return from apple growing is very high in relation to other fruit crops. For instance, net return from Anna apple orchard under Egyptian conditions for 8 successive years reached 10.34, while peach was 6.42 and 2.16 Egyptian pounds for Navel orange (Stino, 1987).

In this concern, different soil management systems could be practiced in apple orchards for controlling weeds. Clean cultivation is one of these systems, which is commonly used but has a detrimental effect on hairy roots and soil organic matter content beside its expenses. Thus, herbicides application were used as alternative tool but the residual effect and high costs of these materials forced apple growers to use another practice i.e. mulch treatments without any health hazard. Indeed, mulch has many advantages since it increases soil organic matter content

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\* Agricultural economic reports (1997) Ministry of Agriculture, Dokki, Giza.

and allow roots to penetrate in the soil (Marks, 1993) . Moreover, it eliminate the residual effect of the herbicides . On this concern, different sources of mulch are used. Rice straw is one of these sources commonly used in the orchard and field crop residual beside rice straw as mulch materials (Fatemah. 1999) .

Anyhow, the aims of this investigation are to study the effect of different soil management systems: without weed control (control), hand hoeing, different herbicides and mulching by black ploy- ethylene on weed control in apple grown up in new reclaimed soil beside cenopy response regarding Anna apple trees. Also, to determine the residual effect of applied herbicides in the fruits and calculation the costs of the different soil management system. Are assesed.