

According to the Ministry of Agriculture statistics of 1979, the area of orchards in Egypt was 339752 feddans. Within this area citrus trees cover 189734 feddans. The area planted with oranges was 159638 feddans and that planted with navel orange was 75951 feddans.

Trees of navel orange occupy about one fourth of total acreage grown by citrus in A .R .E. They produce fruits of fine quality. Yet they are known to be shy bearers. It has shown that, the Washington navel orange tree is particularly sensitive to environmental stresses, particularly water stress, and suffer in many years excessive

drop that normally occur during May-June period. Any cultural operation that can maintain a favourable tree water balance may help in reducing the severity of fruitlet drop and may contribute to higher yields. It is believed that the development of a suitable system of soil management can be very beneficial in this respect.

Weed control in orchards has remained one of the basic and major practices in the production of fruit crops. Hand labour requirements for citrus orchard operations are very large, mainly for weed control, pest control, pruning, harvesting the crop, but the major portion of these labour requirements in Egypt is directed to weed control operations.

In the mean time herbicides and mulch may prove to be a suitable alternative.

The weed problem in orchards of young fruit trees require special attention. Weeds interfere with fruit production causing, if left without control, severe losses. although the effect caused by weeds on fruit production in Egypt is not estimated, it is expected to be an important figure due to the diversity of weed types and severe competition to the trees for nutrients, water and light. Weeds also harbour other pests such as insects, fungi, nematodes and bacteria. In addition to the direct competitive effect of weeds on the trees, weeds affect trees by the excretion of phytotoxic products; stimulate the occurrence of nematodes on trees leading to root damage. In addition to the losses in fruit yield caused by weeds during harvest, considerable amount of money and time has to be spent on their control (Kosinova, 1972).

Orchards under clean cultivation have to be disced frequently during the growing season, thus making condition favourable for erosion, while herbicides have the advantages of not injuring the shallow roots of trees which take up water and nutrients near the soil surface, enabling the tree to benefit from every light rain which does not penetrate far into the soil (Torrest, 1976). All

these together have raised the doubt about the validity of the continuous use of clean cultivation in fruit orchards.

The modern approach is to use sequential treatments and combination of herbicides..

On the other hand mulch conserves soil moisture, keeps soil temperature close or within the optimum range of root growth, reduces soil erosion and eliminates light from the surface of the soil, thus preventing the germination and growth of most kinds of weeds (Edmond et al., 1959).

This study was carried out to investigate the effect of some recommended herbicides and their combinations and mulching as compared to clean cultivation in the control of weeds in orange orchards. Besides, the effect of these systems of soil management on the vegetative growth, fruiting and fruit quality of Washington navel orange trees is compared.