S U M M A R Y

Four experiments were carried out at the Agricultural Research and Experiment Station, Faculty of Agriculture at Moshtohor, Kalubia Governorate, during 1979 and 1980 seasons to investigate the effect of some herbicides as a single or in combinations under different cultural methods of planting. In addition to study the influence of the competition of weeds on the growth and soybean yield as well as the protein and oil content. Calland cultivar was used, the soil in which the experiments were undertaken was silt clay textured, with a pH value of 7.8 and 1.58% organic matter content.

Experiment I:

This experiment included 30 treatments which were the using of 13 herbicides (single or combinations), beside the hoeing and control (un-weeded) treatments under two methods of planting (heraty and afir). These treatments arranged in split plot design with four replications. The two methods of planting arranged in the main plots, whereas the weed control treatments in the subplots. The 13 herbicides treatment were: (Rate/faddan): afalon (linuron) 1.0 kg.; amex (butralin) 2.0 L.; ronstar (oxadiazon) 2.0 L; Sencor (metribuzin) 0.5 kg.; enide (diphenamide) 1.5 kg.; tridex (trifluralin-bladex) 1.0 L.; dicotex (phenisopham) 1.0 L

and mixtures of linuron with the other herbicides by using half rate of that of the individual herbicide.

The data recorded in this experiment were as follows:

A. Weeds: The dry weight of both broad-leaved and grassy weeds per square meter at 45 and 90 days from sowing.

B. Growth of soybean plants after 40, 60 and 80 days from sowing: plant height, number of leaves per plant; dry weight of leaves per plant and dry weight of the whole plant.

C. Seed yield per plant and some of its components: number of branches per plant; number of pods per plant; weight of pods per plant, seed index and seed yield per plant. Biological yield, number of plants and seed yield per faddan.

D. Chemical contents of soybean seeds: percentages of protein and oil and protein and oil yield per faddan.

Results of this experiment may be summarized as follows:

1. The heraty method of planting was much better than the afir method in decreasing the spectrum and increased the growth and yield of soybean plants.
2. Metribuzin and its combination with linuron were considered the best treatments for controlling both of broad-leaved and grassy weeds throughout the grown season.

3. The herbicidal combinations were more effective in controlling weeds than any single herbicide and it showed good effects on most growth characters studied at the early, moderate and late stage of soybean plant.
4. Linuron, tridex, phenisopham and mixtures of linuron with butralin or tridex or phenisopham were approximately similar to hoeing in controlling broad-leaved weeds, while the worest treatments in controlling broad-leaved weeds were butralin, oxadiazon and diphenamide.
5. Metribuzin, butralin, oxadiazon and tridex as well as their combinations with linuron were the best treatments for controlling grass weeds, but the poorest in that respect was phenisopham at 1.0 L/fad. as post-emergence.
6. Plant height, number of leaves per plant, dry weight of leaves and dry weight of the whole plant at 40 and 60 days from sowing were reduced significantly by metribuzin at the rate of 0.5 kg/fad., but the mixtures of linuron with metribuzin or tridex increased these characters significantly as compared with other treatments.
7. The hand hoeing treatment gave effects similar to those of linuron, butralin, oxadiazon on the growth characters studied.
8. The results demonstrate clearly that all weed control treatments increased to different extents the number

of branches, number of pods, weight of pods and seed index as well as seed yield per plant. Diphenamide at 1.5 kg/fad. gave the lowest number of branches and pods per plant, weight of pods per plant and seed index.

9. There were no significant differences among hoeing, linuron-diphenamide mixture, diphenamide, phenisopham and linuron treatments on seed yield/fad. It increased the seed yield/fad. by 48.6, 48.9, 47.7 and 52.6% of the un-weeded treatment, respectively.
10. Results indicate that all weed control treatments increased significantly biological yield, number of plants and seed yield/fad. except metribuzin and linuron-tridex mixture, the highest seed yield/fad. was obtained by linuron-metribuzin mixture which increased it by 170% of the un-weeded treatment.
11. Mixtures of linuron with phenisopham or butralin or tridex, gave similar effects on seed yield/fad. and increased it significantly by 144.7, 141.9 and 138.2% as compared with un-weeded treatment, respectively.
12. The lowest number of plants/fad. was obtained by metribuzin at 0.5 kg/fad. and linuron-tridex mixture. These two treatments decreased significantly the number of plants/fad. by 29.4 and 6.1 of the control, respectively. While oxadiazon gave the highest number of

plants/fad. and differed significantly if compared with all other treatments, the increases in No. of plants/fad. reached to 35.8% over the control.

13. There were no significant differences among linuron and its combinations with oxadiazon or phenisopham or tridex on biological yield/fad. and their increased it by 99.1, 107.4, 99.0 and 96.3% of the un-weed treatment, respectively.

14. Linuron + butralin, phenisopham, diphenamide, butralin, tridex and linuron + phenisopham, These treatments increased protein percentage by 11.8, 11.5, 10.7, 10.6, 10.5, 8.1, 8.6, 5.3, 5.2 and 4.8% of the un-weeded treatment, respectively. While protein percentage was reduced significantly if compared with other treatments by oxadiazon and its mixture with linuron and linuron-diphenamide mixture.

15. Results demonstrated that most of weed control treatments which increased the protein percentage did not showed the same response on oil percentage.

16. All herbicidal combinations gave good or satisfactory controlling of broad-leaved weeds and did not differ significantly with the two methods of planting. Similar response were obtained with phenisopham and hoeing treatments.

17. The dry weight of grass weeds in all weed control treatments were lower in heraty than in afir method, but the degree of superiority in heraty method over afir differ from weed control treatment to another.
18. Data show that soybean plants were more relatively vigorous in heraty than afir method, this vigoosty reached the level of significance in some treatments and did not reached in the others.
19. Results reveal that the mixture of linuron-metribuzin under heraty method gave statistically increasing in seed yield/fad. if compared with all other treatments under the two methods of planting.
20. Methods of planting and weed control treatments act independently in protein and oil percentages.

Experiment II:

This study was carried out to investigate the effect of different competition periods of weeds to soybean plant on its yield and yield components as well as protein and oil percentages. This experiment included 8 treatments which were: weedy for 21, 42, 63, 84, 105 days from sowing beside weedy throughout the growing season, hoeing and weed-free throughout the grown season. These treatments were laid out in complete randomized block system with four replications (i.e. 32 plots, each plot being 1/200 faddan = 21 m^2).

Data recorded at hervest were as follows: plant height, number of branches/plant, number of pods/ plant, weight of pods/plant, seed index, seed yield/plant and seed yield/fad. as well as protein and oil percentages and their yield/fad.

Results of this study may be summarized as follows:

1. The tallest plants were obtained by weed-free throughout the grown season and hoeing treatments and these gave an increase in plant height by 23.8 and 20.4% over the control treatment. (un-weeded throughout the grown season.
2. There were no significant differences among; weedy for 63, 84, 105 days from sowing and the control on the number of branches per plant.
3. The differences between hoeing and weedy for 21 days from sowing were not significant in number of pods per plant and gave increases over the control treatment by 38.2 and 41.2% respectively.
4. Weed-free throughout the grown season gave the highest seed yield per plant and amounted to 60.6% of the control.
5. Results indicated clearly that seed yield per faddan was reduced by leaving weeds to compete soybean plants over 21 days from sowing. This depression reached

Approximately to 50% or more by weedy periods at 63 days from sowing.

6. The different weedy periods in soybean had little effect on protein and oil percentages as well as their yield per faddan.