SUMMARY

5. SUMMARY

In this study the two pesticides of ethoprophos nematocide and fluazifop-P-butyl herbicide were used in potato field in winter of 2007 season at Kafr El-Sharakoa, Mansoura district, Dakahlia Governorate. There were 3 treatments ① without any treatment and considered as a control, ② spreading of granules of 10% ethoprophos at the rate of 30 kg per feddan, ③ spraying of Fluazifop-P-butyl super 12.5% at the rate of 2 liters per feddan (applied in a volume of water of 400 L per feddan). 30 days after cultivation.

Ethoprophos:

- Persistence of ethoprophos in soil:

Ethoprophos residue in clay soil at 10 cm depth reached its maximum level after 2 days post application then gradually decreased till completely undetectable after 51 days. The pesticide half life was 3.52 days with a line slope of -0.3576.

Ethoprophos residue at depth 30 cm was undetectable after two hours from application and reached 0.11 mg/kg after 1 day and reached a maximum of (0.4 mg/kg) after 7 days, then decreased gradually to become undetectable after 51 days. The half life was 13.3 day with a line slope of-0.091. The ethoprophos residue line crossed the depletion line at day 13.62.

Residues of nematocide in potato root was undetectable after two hours of application, then reached maximum after 1 day (0.215

mg/kg), then declined progressively till becoming undetectable 44 days after cultivation. Half life was 9.926 days mathematically with a slope of -2.846. Graphically, the half-life was 9.51 days. The depletion line and the residue line crossed at 4.42 days.

The relation between studied soils and potato showed that residue of nematoicide at 10 cm soil depth was higher and appeared more rapidly than at 30 cm depth. Also, there are a significant regression between residues in soils and potato root as well as significant positive correlation between residues at 10 cm and 30 cm depths and potato roots.

Fluazifop-p-butyl:

Fluazifop-p-butyl herbicide residues in soil at a depth of 10 cm after its application began at 2 hours after application (1.08 mg/kg), reaching maximum level one day after application, then gradually decreased till becoming undetectable 51 days after application. The half life of the herbicide in soil at 10 cm depth was 3.78 days, and was graphically after 3.71 days and crossing of the depletion line with the residue line occurred at 3.1 day following application.

Fluazifop-P-butyl herbicide at depth 30 cm was undetectable after 2 hours from application, then gradually increased till a maximum of 0.19 mg/kg after 4 days then continuously disappearing from soil till becoming undetectable after 51 days from application. The half life was 19.89 day from zero time and 15.89 day from

maximum day time (4 day). Graphically it was 19.2 day. The depletion line crossed the residue line at 9.35 day.

Fluazifop-P-butyl herbicide residue was negligible 2 hours after application then reached maximum one day after application (3.17 mg/kg), then gradually decreased till complete clearance after 51 days. The half life was calculated to be 9.32 day and graphically it was 9.3 day, while, residue and depletion levels lines crossed at 11.5 day.

The relationship between residues in soil and plant showed that the mean residue level of fluazifop-P-butyl herbicide at 10 cm soil depth was higher and appeared earlier than at 30 cm depth. Significant curve regression between residues in soils and potato root have been calculated. While, there was no - significant correlation between residues at 10 cm and those at 30 cm depth, there were significant correlations between residues at 10 cm and soil at 30 cm at with residues in potato roots.