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INVESTIGATION OF THE KIRLIAN PHENOMENON IN INSECTICIDE TREATED PLANTS

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INVESTIGATION OF THE KIRLIAN PHENOMENON IN INSECTICIDE TREATED PLANTS

INTRODUCTION

The has conducted an investigation of the Kirlian photographic technique in an attempt to detect the presence of a commercial soil insecticide brand Dyfonate) in various species of plants. Dyfonate is a 5% granular organo-phosphorus soil insectide, said to be a non-systemic agent. The insecticide solution was poured over each leaf and ultimately accumulated in the soil of the individual pot.

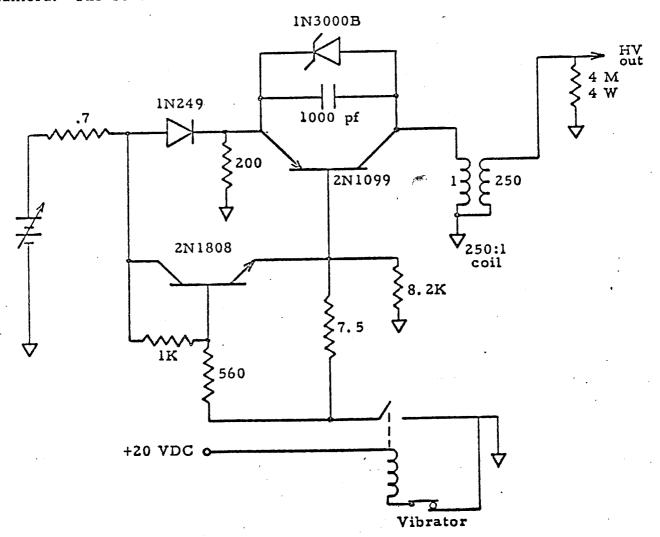
Vibrator excited, dampened high-voltage pulses were applied to radishes, pinto beans, and harvester beans in the Kirlian camera. Color pictures were taken of plants in the untreated control group, low dosage and high dosage groups at intervals of one, two and four days after exposure.

SUMMARY AND CONCLUSIONS

The photographs appear to show no gross changes from day to day or between control and the two treated groups. This result does not necessarily indicate that the Kirlian technique is incapable of detecting this organo-phosphorous insecticide since spectroscopic analysis was not carried out. Also, if the agent is truly non-systemic, large concentrations would not be expected on the leaves. Further investigation using systemic insecticides such as Di Syston or Furadan could have positive results when applied in a carefully controlled test.

Test Procedure and Results

A high voltage oscillator was designed and constructed to be used in the Kirlian camera. The schematic is as follows:



All resistances in ohms

Figure l.

The output of the Kirlian apparatus is a critically dampened pulse with peak amplitudes of about -4 KV and + 3 KV. Pulse width is about 100us and pulse repetition frequency about 100 pulses per second.

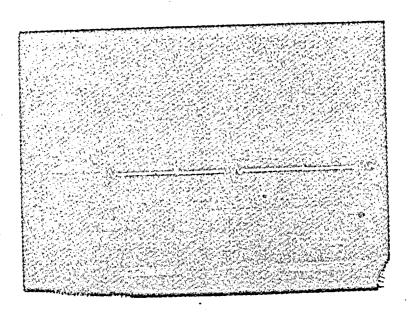


Figure 2.

Twelve randomly selected plants from an initial planting of 50 were grouped as follows:

10110 W 5 .	Control	Low Dose	High Dose
Early Radish	12*	5	6
Late Radish	48	50	49
Harvester Beans	46	23	41
Pinto Beans	36 ´	28	32

No insecticide was given the control group. Each plant in the low dose group received 2.5 cc of 5% chemical in aqueous solution. Each plant in the high

^{*} Plant identification number

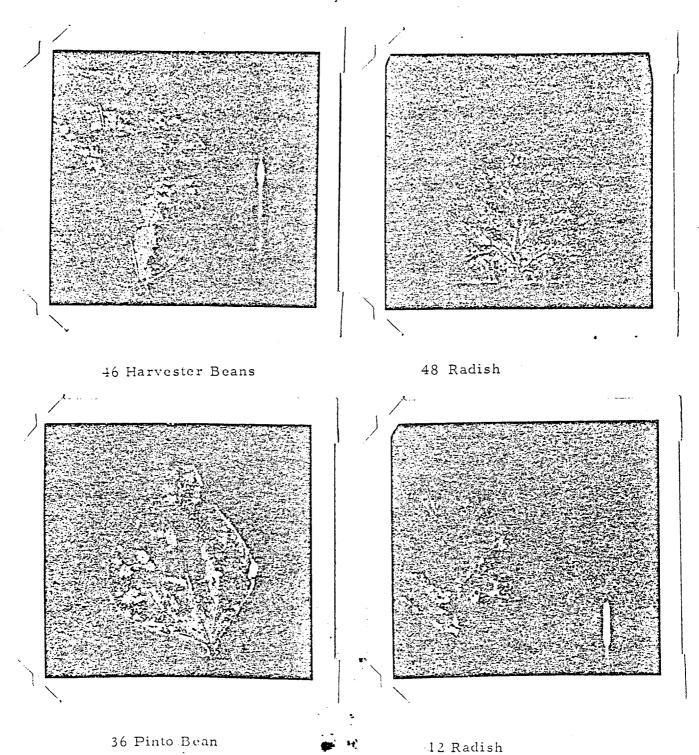
dose group received 25 cc of 5% insecticide in the same manner. The insecticide solution was poured on every leaf and on as much of the stem as possible for the two treated groups. The age of the plants at the start of the test were as follows:

Early Radish	123 days
Late Radish	109 days
Harvester Beans	123 days
Pinto Beans	119 days

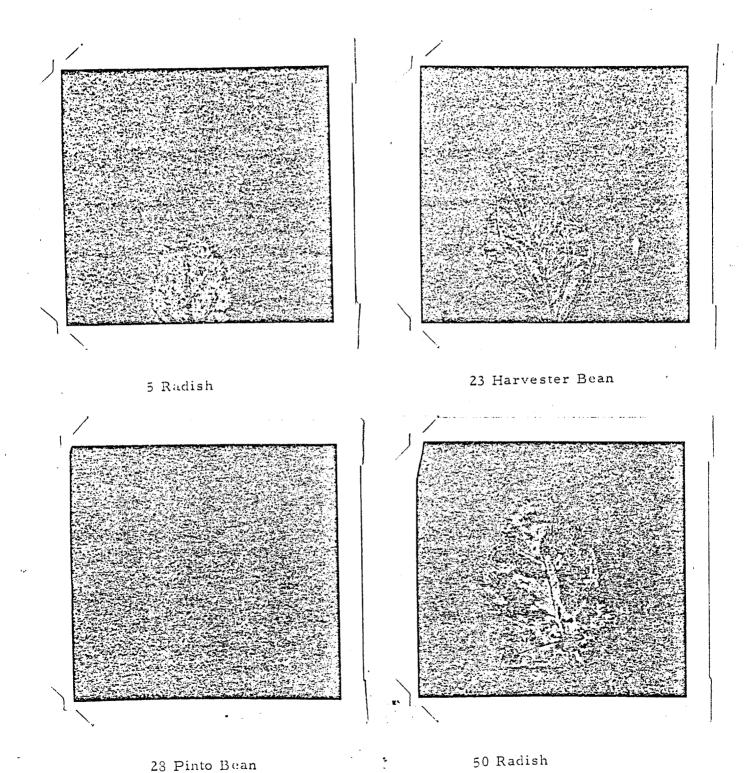
The control and treated plants were photographed on the first, second and fourth day following exposure. In addition, the control group was photographed the day the treatment group was exposed.

CONTROL GROUP

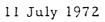
10 July 1972

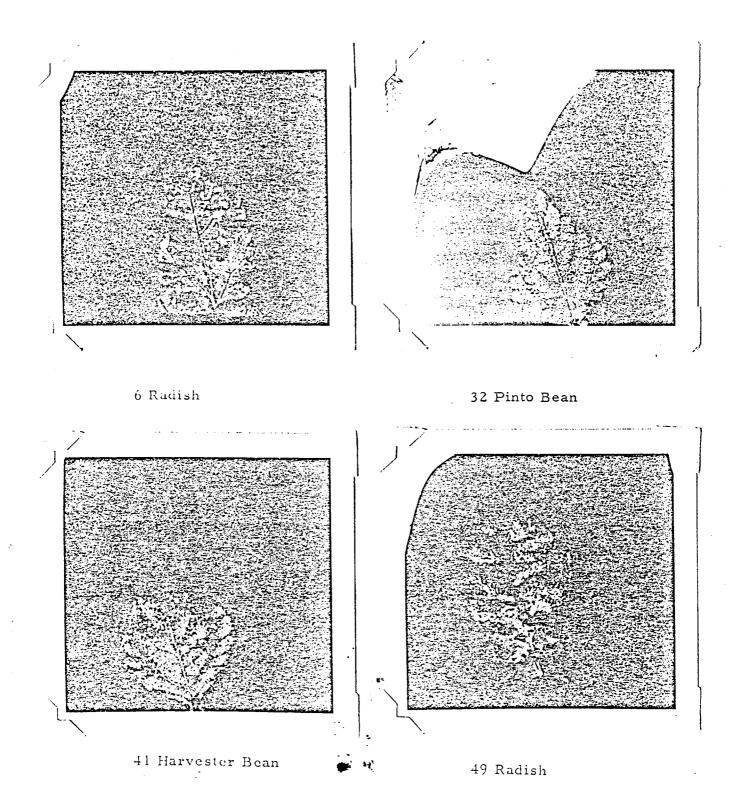


LOW DOSE GROUP 11 July 1972



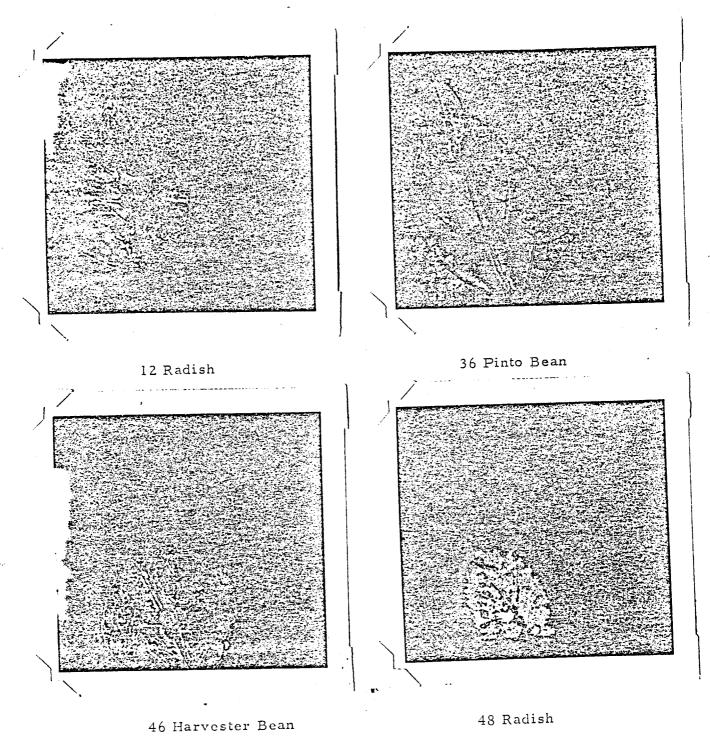
HIGH DOSE GROUP



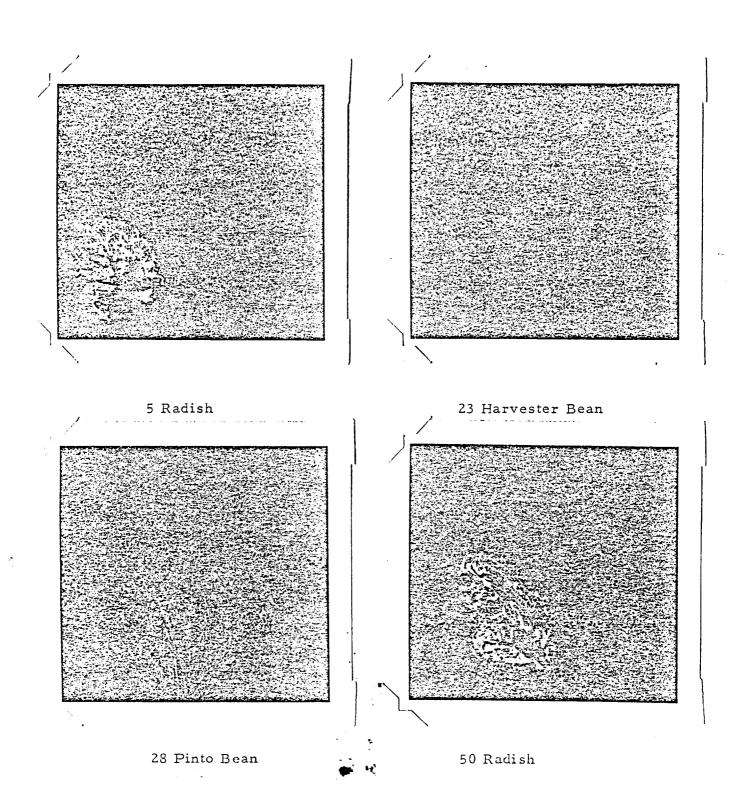


CONTROL GROUP

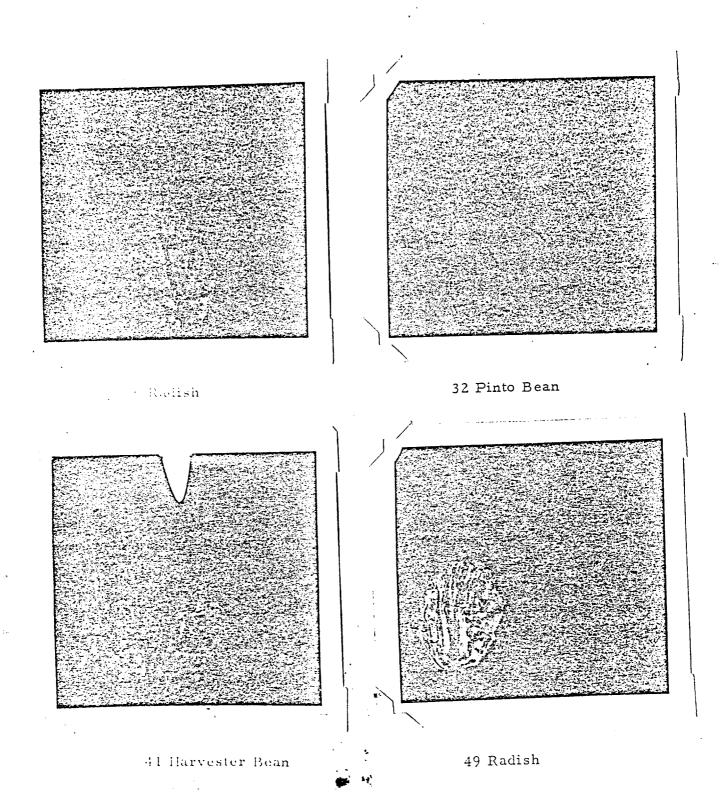
12 July 1972



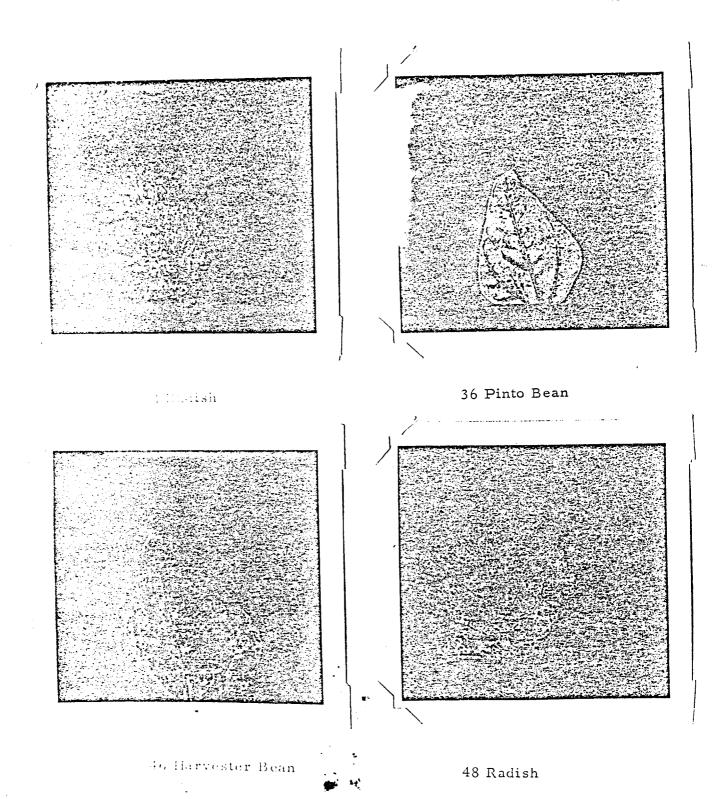
LOW DOSE GROUP 12 July 1972



HIGH DOSE GROUP 12 July 1972

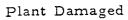


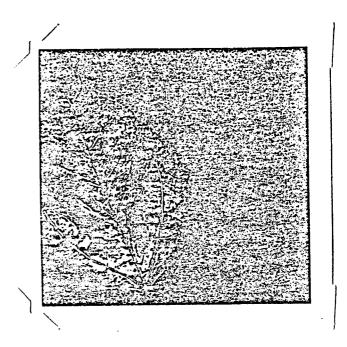
CONTROL GROUP 14 July 1972



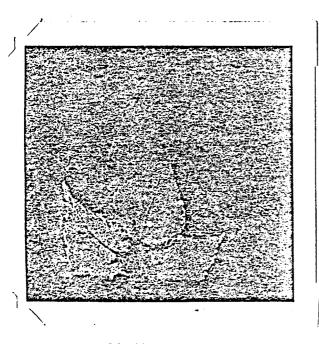
LOW DOSE GROUP

14 July 1972





5 Radish 23 Harvester Bean



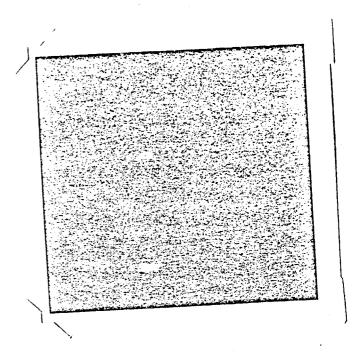
28 Pinto Bean

Plant Damaged

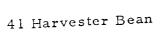
50 Radish

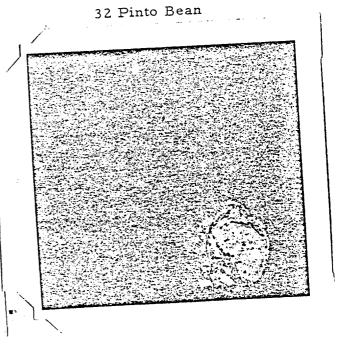
HIGH DOSE GROUP 14 July 1972

Plant Damaged



6 Radish





49 Radish