PROEFSTATION VOOR DE GROENTEN- EN FRUITTEELT ONDER GLAS,
TE NAALDWIJK.



# Proeven met D.D.T. en gammexane op diverse plagen ( compilatie).

door:
Proefstation.

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# Proeven met D.D.T. en Gammexane op div. plagen (compilatie)

| PEST | Host | Material used (Dosage, etc.) | Degree of control obtain ed | Remarks | Source |
|---|---|---|---|---|---|
| ACARINA | | DDT | | | |
| Tetranychus telarius | Ornamentals | 1% DDT spray (emuls) | No effect | Under glass | UK |
| - do - | - | 5% Dust | Little effect | U nder glass | UK |
| - do - | - | DDT emulsified in volatile solvent | Little effect | Under glass | UK |
| - do - | Peach tree | 0.2% spray (susp) | No control | - | UK |
| Tetranychus, spp. | Apple trees | Dusts, emulsions, suspensions | Little or no control | As DDT sprays applied to apples for control of Codlingmoth were toxic to ladybird beetles, an increase of r ed spiders resulted. | US |
| Paratetranychus pilosus, C.& F. | - do - | - do - | - do - | | US |
| MOLLUSCA | | DDT | | | |
| Slugs | - | 5% Dust to soil | No apparent effect | Laboratory test | UK |
| " | - | 2% DDT in bran bait | Of little use | Garden plot trial | UK |
| SYMPHILA | | DDT | | | |
| Scutigerella immaculata | - | Soil watered with 1% emuls | Inconclusive | No damage to watered plants or tomatoes planted later. | UK |
| ISOPODA | | DDT | | | |
| Wood lice | - | 5% Dust | Readily killed | Fruit store cleared | UK |
| - do - | | 5% Dust | Complete kill | Glasshouse & pigsty cleared | UK |
| - do - | | 5% Dust to soil | Woodlice on soil died | - | UK |
| DIPTERA | | DDT | | | |
| Leatherjackets | Bowling green | 1% spray(emuls)(1 gal./sq.yd.) | Collected insects all dead in 1 week | - | UK |
| Sciarid flies | Mushrooms | 5% dust | Promising | In mushroom house | UK |
| Delia brassicae | Brassicae (seedbed) | 5% dust | No infestation at planting out (Laboratory tests) | Larvae and pupae present in calomel treated plot | UK |
| - do - | - do - | 5% dust (thrice) | 21% attack (Laboratory test) | Untreated, 29% attack | UK |
| - do - | Cauliflower | 1% spray (susp) (at planting out) | 4% loss of plants (Garden plot) | 39% loss, untreated | UK |
| - do - | - do - | 5% dust around plant (twice) | 9% loss of plants (Garden plot) | 39% loss, untreated | UK |
| - do - | - do - | 5% dust applied to dibber holes at planting out | None (two trials; Garden plot) | - | UK |
| - do - | - do - | 5% dust puddled at planting out | Almost complete (Field trials) | 30% loss, untreated | UK |
| - do - | - do - | - do - | None (Garden plot trial) | $HgCl_2$ gave little control | UK |

| PEST | HOST | Material used (dosage etc.) | Degree of control obtained | Remarks | Source |
|---|---|---|---|---|---|
| DIPTERA | | DDT | | | |
| Delia antiqua | Onion | 5% dust (twice) | None (Garden plot trial) | Onions planted out | UK |
| - do - | -do- | 0.05% spray (emuls) | None ( " " " ) | - | UK |
| -do- | -do- | 5% dust (twice) | None, two trials (Garden plot) | Sown onions | UK |
| -do- | -do- | 0.1% spray (emuls) (Once) | None (Garden plot) | | UK |
| Psila rosae | Carrot | 5% dust (twice) / 0.1% spray (emuls) | None (Garden plot) | Two trials; applied to soil | UK |
| -do- | -do- | 0.04% spray (emuls) | Considerable protection (Garden plot) | Applied to soil & foliage | UK |
| -do- | -do- | 0.5-1.0% spray (emuls) (at 4 litres/sq.metre) | Considerable protection applied mid-May and mid-July | No plant injury | Switzerland |
| -do- | -do- | 0.5% spray (emuls) | High mortality of flies on foliage; reduction of damage (Field trial) | 2⅓ acres carrots sprayed; toxic effect noted 21 days following | UK |
| Mosquitoes, Culicines, Anophelines, etc. | - | 5% spray (solution in kerosene or emulsion) as larvicide, etc. | High degree obtained | ESTABLISHED PROCEDURE, cf. Appendix III | UK & US etc. |
| Musca domestica | Houses, dairies, barns | 5% spray (sol'n or emuls) applies to surfaces against adults | High degree control for 3-4 months | ESTABLISHED PROCEDURE, cf. Appendix III | UK & US etc. |
| -do- ,larvae | - | 2-5% spray applied to breeding media | Moderately effective | Kills ovipositing females | UK & US |
| Stomoxys calcitrans, L. | Barns & stables | As against houseflies | Effective for 1 month or more | Extensive trials | US |
| Calliphora erythrocephala | - | As against houseflies | Effective for 1 month or more | ESTABLISHED PROCEDURE | US & UK |
| | | 666 | | | |
| Mosquitoes, adults (Culicines, Anophelines, etc.) | | 0.4g.crude 666/100 ml.spray | Ultimate kill, 100% (to obtain "knockdown" add pyrethrins) | Can also be used as residual spray at higher concentration | UK & US |
| Mosquitoes, larvae | | 1.25% dust at 20-lb. dust/acre, or equiv. oil solution | Very good | Extensive tests | UK & US |
| Musca domestica | | 0.4g.crude 666/100 ml.spray | Ultimate kill 100% | Extensive tests | UK & US |
| Stomoxys | | -do- | -do- | | |
| Lucillia | | -do- | -do- | | |
| Calliphora, spp. | | -do- | -do- | | |
| C.macellaria, larvae | Animal carcasses | 1-5% 666 (dissolved in benzene) (emuls) | Rapid and complete kill | Preliminary tests | US |
| HYMENOPTERA | | DDT | | | |
| Hoplocampa testudinea, Klug. | Apple | (a) 0.1% spray (susp.) / (b) 0.1% spray (susp.) / (c) 0.05% nicotine | Infestation reduced but (c) gave best control | Replicated field trials | UK |
| " | " | 1% spray (emuls) | Effective | - | Switzerland |
| Caliroa limacina | - | 0.05% spray (susp) | Killed | Laboratory tests | UK |

| PEST | HOST | Materials used (dosage etc.) | Degree of control obtained | Remarks | Source |
|---|---|---|---|---|---|
| HYMENOPTERA | | DDT | | | |
| Phymatocera aterima | - | Atomised 5% susp. | Rotenone DDT nicotine | Laboratory tests, Bioassay | UK |
| Wasps | Nests | 5% dust | Quiescent after 24 hrs. | Not all wasps killed | UK |
| -do- | -do- | 5% dust (1 tablespoon/nest) | Dug out after 24 hrs. | 5 nests treated | UK |
| -do- | -do- | 5% dust | Successful | 12 nests treated | UK |
| -do- | -do- | 5% dust | Slow action | 7-9 days before activity ceased | UK |
| Ants | - | As bait | A few ants survived in nearby nest | - | UK |
| -do- | Indoors | 5% dust | Cleared in one week | - | UK |
| -do- (black ants) | Nests | 5% dust around nest | 95% reduction | - | UK |
| -do- -do- | -do- | 5% dust " " | Many dead | Insufficient penetration | UK |
| Formica, sp. | Laboratory | 5% dust & 5% solution in acetone | Immobilised rapidly, died some hours later | Dust slower than solution | US |
| Iridomyrmex humilis, Mayr | Greenhouse | Undiluted DDT | Ants disappeared | - | US |
| Apis mellifera L. | - | 1% spray | Bees killed on contact | 0.05% DDT is also stomach poison to honeybees. | US & Switzerland |
| | | 666 | | | |
| Wasps | Nests | 20% dust | Fair success | - | UK |
| Lasius, spp. | - | 5% dust | Incomplete | - | UK |
| Iridomyrmex humilis | - | Poison bait (0.4 parts crude 666 in sweet base) | Effective | - | UK |
| COLEOPTERA | | DDT | | | |
| Fleabeetles | Brassicae | 5% dust | Adequate protection in seed bed | Garden plot trial | UK |
| -do- | Radish | 5% dust | 7-10 days protection in seed bed | Garden plot trial | UK |
| -do- | Potato | 10% dust | Excellent control (88%) | Field trials | US |
| Wireworms (Elateridae) | - | 5% dust (0.4% g./50 g.soil) | Larvae eventually killed (Lab. test) | No effect on seed germination | UK |
| Phaedon cochleariae | - | Atomised (5% susp) | Rotenone DDT nicotine | Laboratory test | UK |
| -do- | Brassicae | 5% dust | Good control & protection | Garden plot trial | UK |
| -do- | -do- | 0.2% spray (susp) | " " " | Field trial | UK |
| Byturus tomentosus | Raspberry | 0.1% spray (emuls) | As effective as derris soap | Garden plot trial | UK |
| -do- | -do- | 1% spray (emuls) (about 0.4-lb.DDT/100 U.S.gal.) | Satisfactory (3 applications in one season) | Field trials | Switzerland |
| -do- | Loganberry | 0.05% spray (susp) | Double spray excellent | Replicated Field Trial; no spray damage | UK |

| PEST | HOST | Material used (dosage etc.) | Degree of control obtained | Remarks | Source |
|---|---|---|---|---|---|
| COLEOPTERA | | DDT | | | |
| Meligethes, spp. | Brassicae in flower | 5% dust | Good (Garden plot trial) | Parisitic hymenoptera killed | UK & US |
| Phyllopertha horticola | Turf and bare soil | 5% dust (1 cwt./acre) | All beetles killed | Laboratory tests | UK & Switzerland |
| Anthonomous pomorum | Apple | 5% dust (thrice) | 90% reduction in capped blossom (Garden plot trial) | No foliage damage | UK |
| -do- | Apple | 5% dust (thrice) | 3% capped blossom; 17.8% undusted (Garden plot trials) | No foliage damage | UK |
| -do- | -do- | 5% du st (thrice) | 100% kill of dusted adults on dusted foliage; 80% kill of adults on dusted foliage (Garden plot trials) | No foliage damage | UK |
| Nemoicus (=Phyllobius) oblongus | - | 5% dust | Killed | Laboratory tests | UK & Switzerland |
| Sitona, spp. | Pea | 5% dust | Grew away well but undusted plants yield-less | Garden plot trials | UK |
| -do- | Broad beans | 5% dust | Good protection | Garden plot trials | UK |
| -do- | -do- | 0.1% spray (susp) | " " | " " " | UK |
| Lasioderma serricorne (F) | - | 5% DDT in refined kerosene (75 cc/1,000 cu.ft.) | Mortality after 5 days, 66% | Laboratory test | US |
| Rhizopertha dominica (F) | Impregnated on paper bags | 10% solution of DDT in acetone | Bags impervious to attack for 2 months | - | US |
| Bruchus pisorum | Peas | 10% DDT dust | Poor control | Laboratory test | US |
| Agrilus, sp. | Fruit trees | 1% spray(emuls) (0.4-lb. DDT/100 U.S. gal.) | All borers killed in 3 days | Preliminary " | Switzerland |
| Epitrix cucumeris (Harr.) | Potato | (3% dust (spray:4-lb.5%DDT/100 gal. (Water | 100% kill in 24 hrs.<br>100% kill in 72 hrs. | Cage tests<br>" " | US |
| Leptinotarsa decemlineata (Say.) | Potato | 3% dust | 100% kill in 48 hrs. | Lab. and field tests | US |
| -do- | -do- | spray:8-lb.5% DDT/100 gal. water | 100% kill 4-7 days | Greenhouse and many field tests | US |
| Epilachna varivestis, Muls. | Bean | 3% dust and spray:8-lb.5% DDT/100 gal. water | Ineffective | Lab. and field tests | US |
| Listroderes obliquus Klug. | Cabbage | 10% dust at 18-lb./acre | 100% kill in 3 days | Field test | US |
| Popillia japonica, Newm. | Peach, grape, plum | spray:1-lb. DDT/100 gal. single application | Excellent control and protection | Field tests | US |

| PEST | HOST | Material used (dosage etc.) | Degree of control obtained | Remarks | Source |
|---|---|---|---|---|---|
| COLEOPTERA | | DDT | | | |
| Scolytus pruni, Ratz. | Apple | 1% spray (emuls) | All dead in 2 days | Lab. test | Switzerland |
| | | 666 | | | |
| Phyllotreta, sp. | Turnip | 2% dust | Effective | Used commercially | UK |
| Phaedon cochleariae | Brassicae | 2% dust | Effective | Used commercially | UK |
| Meligethes aeneus | -do- | 2% dust | Effective | Used commercially | UK |
| Leptinotarsus decemlineata | Potato | - | Promising | Small scale trials | UK |
| Byturus tomentosus | Raspberry | - | "Difficult to control" | - | UK |
| LEPIDOPTERA | | DDT | | | |
| Outworms | - | 5% dust on soil | Satisfactory | Garden frames cleared | UK |
| Polia oleracea | Tomato | 5% dust | Complete | No spray damage | UK |
| -do- | -do- | 0.02% spray (emuls) | Complete (Field trial) | Large field trials | UK |
| Cabbage caterpillars | Cabbage | 5% dust | Apparently effective | Garden plot trial | UK |
| -do- | Mixed winter greens | 5% dust | Complete (Garden plot trial | = 0.2% rotenone dust | UK |
| Pieris brassicae | Mixed winter greens | 0.1% spray (susp) | All treated larvae killed | Laboratory test | UK & US |
| -do- | Savoys and sprouts | 5% dust | Complete (Garden plot trial) | - | UK &US |
| -do- | Sprouts | 5% dust (twice) | Complete (Field test) | - | UK |
| -do- | - | 5% dust | Very effective (Garden plot) | egg-laying not prevented | UK |
| Pieris rapae | - | 0.1% spray | All treated larvae killed | Laboratory test | UK & US |
| -do- | Savoys and sprouts | 5% dust | Complete | Garden plot trial | UK |
| -do- | Sprouts | 5% dust (twice) | Complete (Field trial) | egg-laying not prevented | UK |
| -do- | -do- | 0.2% spray (susp) | Complete ( " " ) | - | UK |
| -do- | -do- | 0.2% spray (susp) (twice) | Complete ( " " ) | 1st spray did not prevent re-infestation | UK |
| Mamestra brassicae | Savoys and sprouts | 5% dust | Complete (Garden plot trial) | - | UK |
| -do- | Sprouts | 5% dust (twice) | Complete (Field trial) | Syrphid larvae survive coccinellid adults die | UK |
| Plutella maculipennis | Sprouts | 5% dust (twice) | Complete (Field trial) | Syrphid larvae survive | UK & US |
| -do- | -do- | 0.2% spray (susp) (twice) | Complete (Field trial) | - | UK |
| Cheimatobia brumata | Hawthorn | Atomised (5% susp) | DDT nicotine (Lab. test) | Contact action only | UK & US |

| PEST | HOST | Material used (Dosage etc.) | Degree of control obtained | Remarks | Source |
|---|---|---|---|---|---|
| LEPIDOPTERA | | DDT | | | |
| Alsophila pometaria | Trees | Burlap impregnated with 5% DDT wrapped round trunks | Not effective | Field test | US |
| -do- | -do- | 50% DDT-50% pyrophyllite dust | Killed female moths | Slow action | US |
| Urbanus proteus | Beans | 3% dust and also susp (4-lb. DDT/100 gal. water) | 100% kill in 48 hrs. | Lab. and field test | US |
| Carpocapsa pomonella | Apple trees | 1-lb.DDT/100 gal. water | Excellent results | Many lab. and field tests | US & Switzerland |
| Grapholitha funebrana | Plum trees | 1% spray (susp) | 1 application reduced infestation 30-40% | Four trees treated | Switzerland |
| G. molesta | Peach trees | 1% spray (susp) | Infestation markedly reduced | Lab. and field test | US |
| Prodenia eridania | Collards | 3% dust. An 8-100 susp. of 5% DDT spray | 100% kill in 2 days | Residual effect noted for 8 days | US |
| Autographa brassicae | Collards | 3% DDT dust | Complete | - | US |
| Phalonia ambiguella | Grapevine | 1% spray (susp) | Effective | Against 2nd generation larvae | US |
| LEPIDOPTERA | | 666 | | | |
| Pieris spp. | Cabbage | 2% dust or 0.1% spray | Successful | - | UK |
| Plutella maculipennis | | 2% dust or 0 .1% spray | Successful | - | UK |
| Carpocapsa pomonella | Apple trees | sprays containing 0.1-0.4 crude 666 | Successful | - | UK |
| THYSANOPTERA | | DDT | | | |
| Heliothrips haemorrhoidalis | Ornamentals | 1% spray (emuls) | Complete (Lab. test) | No spray damage | UK |
| -do- | Greenhouse | 3% dust | Promising | Field tests | US |
| Thrips tabaci | Onion | 3% dust | Very good | - | US |
| Taeniothrips simplex Morison | Gladiolus | (Spray:7.5-lb.5%DDT(with & (without 4-lb.brown sugar); (1%DDT,4 gal.kerosene,8-lb. (soap;both in 100 gal.water) | Inferior to tartar emetic brown sugar spray | - | US |
| Thrips tabaci ) T. rigropilosus ) Hercinothrips femoralis ) | Onions, etc. in greenhouses | Aerosols containing 3% DDT | Good control | Greenhouses | US |
| HEMIPTERA | | DDT | | | |
| Aphis fabae | Broad bean | 0.05% spray (susp) | Little effect (Garden plot trial) | Poor wetting of insects | UK |
| -do- | -do- | Atomised solution | Relative potency nicotine (DDT = 1.07 ± 0.09) | Laboratory test | UK |

| PEST | HOST | Material used (Dosage etc.) | Degree of control obtained | Remarks | Source |
|---|---|---|---|---|---|
| HEMIPTERA | | DDT | | | |
| Aphis fabae | Broad bean | 5% dust (twice) and 0.1% spray, susp. (once) | None | Garden plot trial | UK |
| Empoasca fabae, Harr. | Bean, Potato | 1% DDT, 19% Bancroft clay, 80% sulphur. | Effective | Field trials | US |
| Aphis pomi | Eggs on apple | 2% emulsion | Poor (Lab. test) | Stocks dipped | UK |
| A. pruni | Plum trees | 1% spray | ? | Some repellent action | US |
| Brevicoryine brassicae | Brussels sprouts | 0.2% spray (susp) | None (Field trial) | Syrphid larvae survived but coccinellid adults killed | UK |
| -do- | -do- | 5% dusts | None (Garden & field trials) | | |
| Macrosiphum gei | | Emulsion vs. suspension | Toxicity 3:1 in favour of emuls. | Bioassay, Lab. test | UK |
| M. pisi | Peas | Aerosol con'g 5% DDT | Excellent control | Field trials in New York state | US |
| -do- | -do- | 0.08% dust | 88% mortality | Laboratory test | US |
| M. solanifolii | Potatoes | Dusts from 0.5-10% DDT tested | Good control under field condit i ons | - | US |
| Myzus persicae<br>Aphis maidis<br>Rhopalosiphum rufomaculata | Greenhouses | Aerosols containing 3%DDT | Very good control | Large scale tests | US |
| Myzus persicae | Radish | 3% dust:Spray, 4-lb. 5% DDT/100 gal. | 51 and 38% kill respectively | Greenhouse trials | US |
| -do- | Potato | Dusts from 0.5%-10% | Excellent control | Field trials in N.York state | US |
| -do- | Flax seedlings | 1% spray | Success f ul but delayed | Severe spray damage under glass | UK |
| M. cerasi | Brussels sprouts | Atomised suspension | Rotenone DDT = nidotine | Laboratory test, bioassay | UK |
| M. ornatus | Ornamentals | 1% spray (emuls) | Reinfestation rapid (under glass) | Affected females reproduce | UK |
| Trialeurodes vaporariorum | (Tomato | 0.02% spray (emuls) | Adults but not nymphs killed | Preliminary (under glass) | UK |
| | (Aubergine | 1% spray (emuls) | Adults killed | Few larvae reach pupal stage | |
| Lecanium corni | Ornamentals | 1% spray (emuls) | Complete control when wetted of lst stage larvae | No spray damage | UK |
| -do- | Flowering currants | 5% dust | None | Judged by inspection of eggs under scales | UK |
| L. hesperidum | Ornamentals | 1% spray (emuls) | Complete control of larvae; partial control of adults | Under glass | UK |
| Anasa tristis | Pumpkin | 3% dust | 100% in 2 days (lst, 4th instar) | Laboratory tests | US |
| Halticus bracteatus | Celery | 3% dust, also suspension spray | Excellent control in field | Weekly applications | US |