

tomato fruit yields were not clearly defined; however, plants heavily infested with mites would produce russeted fruit.

When applied in granulated form (Table 3) phorate, Di-Syston and AC 43064 were the most effective toxicants in these tests. Infestations occurred naturally and were not introduced as they were in the tomatoes; therefore, data pertaining to the eggplant appear to be more reliable.

Applications at the high rate of the granulated phosphate insecticide AC 43064 did not effect mite populations initially, but effectively reduced infestations 88 days after the second application; it was the most effective granulated systemic, although not significantly better than phorate or Di-Syston. The remaining materials were ineffective for mite control.

Demeton was the most effective toxicant when applied as a drench at high total liquid rates per acre. Dimethoate, applied as a drench, was equal to phorate and Di-Syston. Bidrin, as a foliar spray, was effective for the control of this mite, either alone or in combination with two penetrants, as was the phosphate insecticide, CP 40294. The penetrants did not increase control of the toxicant relative to mite control.

None of the foliar sprays were phytotoxic to either seedlings or mature plants. Bidrin, applied at the high rates, reduced the stand. The 10% Di-Syston granulated formulation at the high rate affected the stand of eggplant both initially and after the first sidedress application. Zectran and Bayer 21541, used at the high rate, reduced the stand.

CHEMICAL NAMES OF PROPRIETARY COMPOUNDS

CP 40294 . . .	0-(p-nitrophenyl)0-phenyl methyl phosphorothionate
Bayer 25141 . . .	0,0-diethyl 0-p-(methyl sulfinyl) phenyl phosphorothionate
AC 18133 . . .	0,0-diethyl 0-2-pyrazinyl phosphorothioate
AC 43064 . . .	2-(Diethoxy phosphinothioylimino)-1,3-dithiolane
Zectran . . .	4-Dimethylamino-3,5-xylyl methyl carbamate
NIA 9205 . . .	N-methyl-5-(diethoxyphosphinothioylthio)-3-thiapentanimide
Dimetilan . . .	2-dimethyl carbamyl-3-methyl pyrazolyl-(5)-dimethyl-carbamate
Di-Syston . . .	0,0-diethyl S-(2-ethylthio)methyl phosphorodithioate)

LITERATURE CITED

- Schuster, Michael F. 1959. Chemical control of *Tetranychus marianae* McG. on tomatoes in the Lower Rio Grande Valley. Jour. Econ. Ent. 52(4): 763-764.

INSECTS TAKEN IN LIGHT TRAPS AT THE ARCHBOLD BIOLOGICAL STATION, HIGHLANDS COUNTY, FLORIDA¹

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Light traps are used frequently in insect surveys, and there is need for a detailed catalog of the species known to be attracted to light. No comprehensive list has been published. Slingerland, in 1902, published a paper listing approximately 200 species attracted to kerosene lanterns. Since then, the use of incandescent and ultraviolet lamps has greatly changed the picture. A report by the U. S. Department of Agriculture (1961), summarizes much of what is known concerning the attraction of insects to light traps.

The present paper lists many species not reported previously from light traps and includes new records for Florida and the United States. The occurrence of common species often extends their known distribution.

Four new species have been described wholly or in part from material taken during this study—a tipulid fly, *Limnophila frosti* Alexander; and three Lepidoptera, *Rhyacionia subtropica* Miller, *Argyrotaenia kimballi* Obratsov, and *Rhododipsa fulleri* McElvare.

Various specialists have retained a great deal of material, which promises to yield many new species and records for Florida. Among this material, eight orders are prominent: Neuroptera (Myrmelionidae), Psocoptera (Psocidae), Thysanoptera (*Hoplandrothrips*), Coleoptera (especially Staphylinidae), Homoptera (Delphacidae and Cicadellidae), Hemiptera (Miridae), Diptera (Tendipedidae, Ceratopogonidae, and Otitidae), and Hymenoptera (Braconidae, Ichneumonidae, and Tenthredinidae).

The insects were taken at standard Pennsylvania insect light traps with black light fluorescent lamps (Frost 1957). These were operated in the same location from 1 November to 1 April during the winters of 1958 to 1960 and from 1 January to 1 April during 1961 to 1963. The details of making collections and the various conditions under which the traps were operated have been published (Frost 1962, 1963). Since all the insects were taken at the same location, little detail is necessary except the dates of collections and their relative abundance. The abundance of the species is designated as follows: When less than ten specimens were collected, the months and days are given as 11/6 (Nov. 6), 12/2 (Dec. 2), etc. When more than ten specimens were collected, only the months are given as, 11, 12, 1, 2, 3 and 4. Abbreviations are also used to indicate relative abundance: SC (somewhat common), when 10 to 25 specimens were collected; (C), when 25 to 100 specimens were collected; and VC, when more than 100 specimens were collected.

The specialists who cooperated in making identifications are listed with the groups they identified. A few remarks concerning the determination of this material seem advisable. Most of the species were identified by

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Frost, 1964

- *Phytobia maculosa* (Mall.) 2,3,4
- **Phytobia malvae* (Burgess) 11,12, 1,2,3, also reared from linear mines on the leaves of *Urena lobata*.
- **Phytobia verbenae* (Hering) 2/15, 3/8
- **Phytomyza periclymeni* Headel 12/24 *de Haer*.

MILICHIIDAE

- **Desmometopa tarsalis* Loew 1/12
- **Leptomtopa latipes* (Meigen) 2/16

CHLOROPIDAE (C. W. Sabrosky, USDA)

- *Chlorops abdominalis* Coq. 11,1,2,3, SC
- *Chlorops melleus* Loew
- *Chlorops n. sp.* 3/17
- *Elachiptera angustifrons* Sabr. 2/12,2/16
- *Elachiptera formosa* (Loew) 2/23
- *Eugaurax floridensis* Mall. 3/22
- *Eugaurax sp.* 3/10 retained for study
- *Hippelates proboscideus* Will. 4/1, 4/7
- *Hippelates pusio* Loew 11,12,1,2,3, VC
- *Lasiopleura barberi* Sabr. 2/2
- *Parectecephala aristalis* (Coq.) 11/21
- *Parectecephala maculiceps* Beck 4/11
- *Parectecephala sp.* 2/24, a neotropical stray.
- *Pseudogaurax signatus* (Loew) 2/25,3/2
- *Thaumatomyia glabra* (Meig.) 3/8, 3/27
- *Thaumatomyia pulla punctum* (Beck) 3/15
- *Tricimba sp.* 2/7

EPHYDRIDAE (W. W. Wirth, USDA)

- Brachydeutera argentata* (Wlk.) 12
- Cressonomomyia hinei* (Cress.) 1/21, 1/23,1/24

- Dimecoenia austrina* (Coq.) 2/10, 2/23
- Discocerina obscurella* (Fall.) 1/2
- Gastrops nebulosus* Coq. 3/29
- Ilythea sp.* retained for study
- Lytogaster furva* Cress. 1/22
- Notiphila erythrocerata* Loew 3/6
- Ochthera sp.* 2/16,4/1
- Paralimna decipiens* Loew 11,2,3, C

Paralimna punctipennis (Wied.)

- 12/12 SC
- Psilopa dupla* Cress. 1,2,3, SC
- Psilopina sp.* 1,2,4, SC
- Scatella obscura* Will. 11,1, C
- Scatella obsoleta* Loew 3/17,3/19
- Scatella picea* (Wlk.) 4/6
- Setacera pilicornis* (Coq.) 11,12,1, 2, SC
- Zeros calverti* (Cress.) 11/24,2/11
- Zeros fenestralis* (Cress.) 1/25,3/4, 3/17,3/21

SPHAEROCERIDAE (C. W. Sabrosky, USDA)

- Leptocera angulata* (Thoms.) 1/12
- Leptocera fontinalis* (Fallén) 2,3, SC
- Leptocera spuleri* Sabr. 12,3

CHAMAEMYIIDAE

- **Leucopis bella* Loew. 2/11,2/19, 4/7

SCIOMYZIDAE (C. W. Sabrosky, USDA)

- Antichaeta sp.* 2/26
- Atrichomelina pubera* (Lw.) 12,2,3
- Dictya floridensis* Steyk. 12,4, SC

CHYROMYIDAE

- **Chyromya sp.* 3/22

TRIXOSCELIDAE (R. H. Foote, USDA)

- Spilochroa ornata* (Johns.) 3/12

MUSCIDAE (H. C. Hockett, Riverhead, L. I.)

- Atherigona orientalis* Schiner 11, 1,3

- Bithoracochaeta leucoprocta* (Wied.) 1/10,1/31,2/24
- Coenosia errans* Mall. 12,1
- Coenosia rufitibia* Stein 1/28,2/14, 3/21
- Fannia pusio* (Wied.) 1,2,3
- Graphomya maculata* (Scopoli) 12, 1,3
- Gymnodia arcuata* (Stein) 3/5
- Gymnodia cilifera* (Mall.) 3/5,3/21
- Gymnodia debilis* (Will.) 1/11, 1/18,4/8
- Hydrotaea acuta* Stein 2/20
- Limnophora narona* (Wlk.) 1,2,3, SC
- Lispe albitarsis* Stein 1,2,3,4
- Musca domestica* Linn. 11
- Muscina dorsilinea* (V. d. W.) 1/23,1/27,2/18,2/22
- Neomuscina rufoscutella* Dodge 12/24
- Orthellia caesarion* (Meig.) 1/23, 1/27,1/31
- Stomoxys calcitrans* (Linn.) 1,3

ANTHOMYIIDAE (H. C. Hockett, Riverhead, L. I.)

- Fucellia intermedia* Lundb. 2/14
- Pegomyia ruficeps* Stein 1/19,4/19

TACHINIDAE (H. J. Reinhard, TAMC; C. W. Sabrosky, USDA)

- Admontia tarsalis* Coq. 12/26
- Archytas aterrimus* (Desv.) 3/16
- Atrophopalpus angusticornis* Towns. 3/12
- Catharosia nebulosa* (Coq.) 1,2,3,4, a new record for the South
- Cenosoma signiferum* V.d.W. 3/13, 3/18
- Ceratomyiella conica* Towns. 2/24, 3/24
- Chromatocera setigena* (Coq.) 2/26,3/10
- Cistoguster sp.*
- Cryptomeigenia sp.* 1,2, SC
- Elfa sp.* 3/10
- Euantha litturata* (Oliv.) 12/2
- Eucelatoria rubentis* (Coq.) 1/16, 1/27

- Eulasiona comstocki* Towns. 3/12, 4/8,4/17
- Euphasiopteryx ochracea* (Big.) 11,12,1,2,4
- Eusisyropa virilis* (A. & W.) 1/27
- Euthera tentatrix* Loew 3/2,3/7, 3/16,3/17,4/1
- Gaediopsis flavipes* Coq. 3/23
- Heloplagia sp.* 1/28
- Leskiella brevisrostris* James 11/29, 3/2
- Lespesia scizuriae* (Towns.) 3/28
- Lespesia sp.* 3/3
- Nephoteropsis johnsoni* (Coq.) 12/25,1/23,2/18,3/8,4/26
- Oestrophasia calva* Coq. 2/6,3/17
- Paradidyma affinis* Reinh. 2/19, 3/12
- Paradidyma singularis* Towns. 3/14,4/2
- Phorocera near claripennis* Macq. 3/28
- Plectops melissipodis* Coq. 11/3, 2/18
- Prosenoides flavipes* (Coq.) 1/25, 1/26,2/4,2/25,2/26,3/12
- Ptilodexia sp.* retained by CWS for study
- Siphoclytia robertsonii* Towns. 2/7, 3/29,4/5
- Siphona geniculata* (DeG.) 3/4
- Sitophaga aurigera* (Coq.) 3/29
- Spathimeigenia spinigera* Towns. 12/24,1/29,2/26,4/4
- Spathimeigenia sp. (? spinigera* Towns.) 2/26,4/4, retained by CWS
- Stenoneura serotina* Reinh.
- Trichopoda plumipes* (F.) 12/12, 3/17,3/19
- Trichopoda spp.* retained by CWS for study
- Xanthomelanodes atripennis* (Say) 12/1,3/7

SARCOPHAGIDAE (M. T. James, WSU)

- Sarcophaga (Chaetoravinia) assidua* Wlk. 1/26,2/2,2/11,2/12
- Sarcophaga basalis* Wlk. 1/29
- Sarcophaga (Chaetoravinia) derelicta* Wlk. 12,1,2,3, C