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# Insects Associated with Sugar Beets In Southeast Missouri in 1969 and 1970

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### **Acknowledgements**

The authors wish to acknowledge the assistance of Ron Sheeley, Jan Colbert, and Shirley Kephart in the identification of insect specimens and preparation of the manuscript. The support of the Great Western Sugar Company of Denver, Colorado for conducting this survey is also appreciated.

## SUMMARY

A survey of the insects associated with sugar beets being grown experimentally in the three southeastern Missouri counties of Dunklin, New Madrid, and Pemiscot was conducted in 1969-1970. The objectives of the survey were to collect and identify the insects in the sugar beet fields and to compare the species complex and its possible significance. Eight fields were sampled on ten dates in 1969, and six fields on four dates in 1970.

The sampling procedure involved three approaches:

- 1) In 1969 ten plants in the seedling stage were selected at random at three sites within each sugar beet field on April 30, May 5, and May 27. The plants were sealed in paper bags and examined in the laboratory for thrips, aphids, and other insects. Beginning June 11, 25 leaves were randomly selected at three different sites in the field and examined. Two medium-sized succulent leaves were usually taken from near the crown of each plant sampled. The leaves were examined primarily for the numbers of thrips, aphids, and garden fleahoppers. The percentage of leaves damaged by chewing insects and the number of insect feeding holes in the damaged leaves were determined.
- 2) A D-VAC® machine was used for the collection of insects which were not normally picked up in leaf samples. D-VAC machine samples were initiated June 11 and continued about every two weeks until September 16. The D-VAC machine samples were taken at three different sites per field. Each site consisted of 33 feet, which approximated 100 feet of row per field.
- 3) In addition to the above sampling methods, several insect species such as grasshoppers and moths and other insects were collected along the margin of the field or while making observations over the entire field.

In 1970 collections were made in the same manner but were collected on only four dates, July 7, July 27, August 17, and September 10. The specimens from both years were preserved in 70 percent alcohol until identified during the period of 1975-1980 by Dr. Wilfred Craig, Department of Entomology, University of Missouri. Representative specimens were pinned and are in the W. R. Enns Entomology Museum, University of Missouri, and the UMC Delta Research Center at Portageville.

In 1969 the leaf damage by chewing insects was 42 percent on June 11 but declined to 17 percent for the June 25 observation. From June 25 the percentage of leaf damage increased for each two-week observation period until September 16 (Table 1). Foliage feeding pests of importance were grasshoppers, blister beetles,

and webworms. Only one field required an insecticide treatment for chewing insects. A pest of major significance was the garden flea-hopper, Halticus bractatus (Say) (Hemiptera: Miridae). Nymphs and adults of this species were found in substantial numbers beginning on August 15. The highest population, approximately 13.3 percent per leaf, was observed September 16 in one field, and a second field was found to have approximately 3.4 per leaf. Leaves yellowed in both these fields, and insecticides were applied. Thrips and aphids were only present in appreciable numbers during the first three observation periods.

A summary of thrips, aphid, and garden flea-hopper populations and damage by chewing insects in 1970 from July 7 to September 10 is presented in Table 2. In general, insect populations for this period were similar to those found in 1969. Webworms and blister beetles were responsible for isolated spots of heavy leaf feeding in two fields in New Madrid and Pemiscot counties in September but were not considered of sufficient economic importance to warrant application of control measures to the entire field. Garden flea-hoppers were most abundant on August 17.

The identified specimens collected during 1969 and 1970 totaled 12 orders, 98 families, 206 genera, and 193 species. The family Chrysomelidae (Coleoptera) comprised approximately seven percent of the genera and 13 percent of the species determined. The family Cicadellidae (Homoptera) totaled 11 percent of the genera and 11 percent of the species. In addition there were numerous undetermined specimens included in the more than 14,000 insects collected. Most of the undetermined specimens were in the immature stage and could not be identified to genera and species.

The following list is a compilation of 1969 and 1970 collections and contains the identifications, the first and last dates of collection, the number of collections in which the species were taken, county distribution, and the total number of individuals collected.

SUGAR BEET INSECTS

1969-70 COLLECTIONS

CLASS-INSECTA

Order-ODONATA

Family-Coenagrionidae

Ischnura sp. July 27th; 1; Dunklin. (1).

Lestes unguiculatus Hagen. Aug. 17th; 1; Pemiscot. (1).

Order-ORTHOPTERA

Family-Tetrigidae

Tetrigidae lateralis (Say). Aug. 18th-Sept. 10th; 4; Dunklin, Pemiscot. (12).

Undetermined. Aug. 18th; 1; Dunklin. (1).

Family-Acrididae

Campylacantha olivacea (Scudder). Sept. 16th; 1; Dunklin. (2).

Dissosteira carolina (Linnaeus). Sept. 16th; 2; Dunklin, New Madrid. (3).

Melanoplus differentialis (Thomas). July 2nd-Sept. 16th; 4; Dunklin, New Madrid, Pemiscot. (8).

Melanoplus sanguinipes (Fabricius). June 11th-Sept. 16th; 2; Dunklin. (7).

Melanoplus sp. June 11th-Sept. 16th; 17; Dunklin, New Madrid, Pemiscot. (30).

Undetermined. July 2nd-Sept. 16th; 4; Dunklin, New Madrid. (4).

Family-Tettigoniidae

Conocephalus fasciatus (De Geer). July 2nd; 2; Dunklin, New Madrid. (2).

Conocephalus sp. June 25th-Sept. 16th; 5; Dunklin, New Madrid, Pemiscot. (7).

Orchelimum sp. June 25th-Aug. 15th; 4; New Madrid, Pemiscot. (5).

Undetermined. Aug. 19th; 1; New Madrid. (1).

Family-Gryllidae

Allonemobius fasciatus (De Geer). Sept. 10th-Sept. 16th; 4; Dunklin, Pemiscot. (Many).

Allonemobius sp. Aug. 18th-Sept. 10th; 5; Dunklin, Pemiscot. (31).

Oecanthus angustipennis Fitch. Sept. 10th; 1; Dunklin. (1).

Oecanthus nigricornis Walker. Sept. 10th; 1; Dunklin. (1)

Order-PSOCOPTERA

Family-Psocidae

Undetermined. July 27th-Aug. 28th; 5; Dunklin, New Madrid, Pemiscot. (7).

Order-THYSANOPTERA

Family-Aeolothripidae

Aeolothrips bicolor Hinds. May 27th-July 2nd; 2; New Madrid, Pemiscot. (2).

Family-Thripidae

Frankliniella fusca (Hinds). May 27th-July 29th; 27; Dunklin, New Madrid, Pemiscot. (587).

Frankliniella tritici (Fitch). May 13th-July 29th; 20; Dunklin, New Madrid, Pemiscot. (48).

Sericothrips variabilis (Beach). May 27th-Aug. 15th; Dunklin, New Madrid, Pemiscot. (4).

Order-HEMIPTERA

Family-Corixidae

Sigara sp. July 2nd; 1; Dunklin. (1).

Family-Saldidae

Micracanthia humilis (Say). July 27th-Sept. 10th; 8; Dunklin, New Madrid, Pemiscot. (17).

Saldula pallipes (Fabricius). Aug 28th; 3; Dunklin, New Madrid, Pemiscot. (4).

Family-Anthocoridae

Orius incidiosus (Say). June 11th-Sept. 10th; 12; Dunklin, New Madrid, Pemiscot. (24).

Family-Miridae

Adelphocoris rapidus (Say). July 14th-Aug. 28th; 4; Dunklin, New Madrid, Pemiscot. (5).

Halticus bractatus (Say). June 11th-Sept. 16th; 50; Dunklin, New Madrid, Pemiscot. (1813).

Ilnacora stalii Reuter. Aug. 15th-Aug. 28th; 2; New Madrid, Pemiscot. (6).

Ilnacora sp. Aug. 19th; 1; Dunklin. (1).

Lopidae sp. June 11th; 1; Dunklin. (1).

Lygus lineolaris (Palisot de Beauvois). June 11th-Sept. 16th; 67; Dunklin, New Madrid, Pemiscot. (651).

Lygus sp. May 27th-Sept. 10th; 13; Dunklin, New Madrid, Pemiscot. (26).

Neurocolpus nibilus (Say). Aug. 15th; 1; Dunklin. (1).

Stenodema trispinosus Reuter. June 11th; 1; New Madrid. (1).

Trigonotylus ruficornis (Geoffroy). July 29th; 1; Pemiscot. (1).

Undetermined. July 2nd-Sept. 16th; 27; Dunklin, New Madrid, Pemiscot. (56).

Family-Nabidae

Nabis alternatus Parshley. June 11th-Sept. 16th; 22; Dunklin, New Madrid, Pemiscot. (71).

Nabis roseipennis Reuter. June 11th-Sept. 16th; 34; Dunklin, New Madrid, Pemiscot. (76).

Nabis sp. June 25th-Sept. 16th; 20; Dunklin, New Madrid, Pemiscot. (62).

Undetermined. Sept. 10th; 1; Pemiscot. (1).

Family-Reduviidae

Sinea sp. July 27th-Aug. 18th; 2; Dunklin, Pemiscot. (2).

Undetermined. July 27th-Sept. 10th; 2; New Madrid, Pemiscot. (2).

Family-Piesmatidae

Piesma cinerea (Say). May 27th-July 27th; 7; New Madrin, Pemiscot. (10).

Family-Lygaeidae

Geocoris bullatus (Say). July 2nd-Sept. 16th; Dunklin, New Madrid, Pemiscot. (82).

Geocoris piceus (Say). Aug. 17th-Sept. 10th; 2; Dunklin, Pemiscot. (2).

Geocoris punctipes (Say). July 14th-Sept. 16th; 4; Dunklin, New Madrid, Pemiscot. (10).

Geocoris sp. Aug. 18th-Sept. 16th; 6; Dunklin, New Madrid, Pemiscot. (44).

Mydocha serripes Olivier. Aug. 18th-Sept. 10th; 2; Pemiscot. (3).

Orthaea basalis (Dallas). July 2nd; 1; Dunklin. (1).

Ortholomus scolopax (Say). Aug. 28th; 1; Simcoke. (1).

Family-Berytidae

Jalysus wickhami Van Duzee. July 2nd-Sept. 16th; 13; Dunklin, New Madrid, Pemiscot. (35).

Family-Rhopalidae

Corizus hyalinus (Fabricius). Aug. 15th-Aug. 28th; 2; Pemiscot. (2).

Corizus lateralis (Say). Aug. 28th-Sept. 10th; 3; Dunklin, Pemiscot. (3).



Corizus sp. Sept. 10th-Sept. 16th; 2; Dunklin, New Madrid. (3).

Family-Pentatomidae

Acrosternum sp. Aug. 28th; 1; Pemiscot. (1).

Euschistus euschistoides (Vollenhoven). Sept. 16th; 1; Pemiscot. (1).

Euschistus servus (Say). Sept. 10th; 2; New Madrid, Pemiscot. (2).

Euschistus variolaris (Palisot de Beauvois). July 27th; 1; New Madrid. (1).

Euschistus sp. July 27th-Sept. 16th; 5; Dunklin, New Madrid, Pemiscot. (2).

Mormidea lugens Fabricius. Aug. 15th; 1; Dunklin. (1).

Oebalus pugnax (Fabricius). July 29th-Sept. 10th; 3; Dunklin, New Madrid, Pemiscot. (3).

Peribalus limbolaris (Stål). Aug. 28; 1; Pemiscot. (1).

Podisus maculiventris (Say). July 29th-Sept. 16th; 2; Dunklin, New Madrid. (2).

Thyanta custator (Fabricius). July 14th; 1; New Madrid. (1).

Undetermined. Aug. 15th-Sept. 16th; 8; Dunklin, New Madrid, Pemiscot. (11).

Family-Cydnidae

Sehirus cinctus (Palisot de Beauvois). July 2nd-Aug. 15th; 4; Dunklin, New Madrid, Pemiscot. (4).

Family-Corimelaenidae

Corimelaena pulicaria (Germar). July 2nd; 1; Pemiscot. (1).

Order-HOMOPTERA

Family-Membracidae

Micrutalis calva (Say). June 11th-Aug. 19th; 7; Dunklin, New Madrid, Pemiscot. (10).

Family-Cicadellidae

Aceratagallia sanguinolenta (Provancher). June 11th-Sept. 16th; 29; Dunklin, New Madrid, Pemiscot. (345).

Aceratagallia sp. July 14th-Sept. 16th; 8; Dunklin, New Madrid; Pemiscot. (29).

Agallia constricta Van Duzee. July 2nd-Sept. 10th; 7; Dunklin, New Madrid, Pemiscot. (21).

Agallia sp. Sept. 10th; 1; Pemiscot. (1).

Agalliopsis novella (Say). July 29th; 1; New Madrid. (1).

Aulacizes nigripennis (Fabricius). Sept. 16th; 1 Dunklin. (1).

Chlorotettix sp. July 11th-Sept. 10th; 3; Dunklin, New Madrid, Pemiscot. (4).

Cloanthanus frontalis (Van Duzee). June 11th-Aug. 28th; 11; Dunklin, New Madrid, Pemiscot. (16).

Deltocephalus flavicosta (Stål). July 27th-Sept. 10th; 4; Dunklin; New Madrid, Pemiscot. (11).

Deltocephalus sp. Sept. 16th; 1; Dunklin. (1).

Draeculacephala mollipes (Say). June 25th-July 29th; 2; New Madrid, Pemiscot. (3).

Draeculacephala sp. July 2nd-Sept. 16th; 25; Dunklin, New Madrid, Pemiscot. (121).

Empoasca fabae (Harris). July 11th-Sept. 10th; 15; Dunklin, New Madrid, Pemiscot. (219).

Endria inimica (Say). June 11th-Sept. 16th; 13; Dunklin, New Madrid, Pemiscot. (59).

Exitianus exitiosus (Uhler). July 2nd-Sept. 16th; 15; Dunklin; New Madrid, Pemiscot. (90).

Exitianus sp. Aug. 29th-Sept. 16th; 2; Dunklin. (3).

Graminella nigrifrons (Forbes). July 2nd-Sept. 16th; 30; Dunklin, New Madrid, Pemiscot. (532).

Graphocephala versuta (Say). July 2-Sept. 16th; 41; Dunklin, New Madrid, Pemiscot. (685).

Graphocephala sp. Sept. 16th; 1; New Madrid. (1).

Gyponana sp. June 25th; 1; New Madrid. (1).

Keonolla dolobrata (Ball). June 11th; 1; New Madrid. (1).

Macrosteles fascifrons (Stål). June 11th-Sept. 16th; 12; Dunklin, New Madrid, Pemiscot (69).

Norvellina seminuda (Say). June 11th-Sept. 10th; 28; New Madrid, Pemiscot. (63).

Oncometopia orbona (Fabricius). July 2nd-Sept. 10th; 13; Dunklin, New Madrid, Pemiscot. (563).

Oncometopia nigricans Walker. June 25th-Sept. 16th; 25; Dunklin, New Madrid, Pemiscot. (120).

Oncometopia sp. Aug. 17th-Sept. 10th; 2; New Madrid, Pemiscot. (Many).

Paraphlepsius irroratus (Say). June 25th-Aug. 28th; 4; New Madrid, Pemiscot. (14).

Paraphlepsius sp. June 11th-Sept. 16th; 13; Dunklin, New Madrid, Pemiscot. (29).

Scaphoideus sp. June 11; 1; New Madrid. (1).

Stirellus bicolor (Van Duzee). July 2nd-Sept. 10th; 3; Dunklin, New Madrid, Pemiscot. (3).

Stirellus obtutus (Van Duzee). Sept. 10th; 1; Dunklin. (2).

Texananus decorus (Osborn & Ball). Aug. 19th-Sept. 16th; 2. Dunklin, New Madrid. (2).

Undetermined. June 11th-Sept. 16th; 24; Dunklin, New Madrid, Pemiscot. (243).

#### Family-Delphacidae

Liburniella ornata (Stål). June 25th-Sept. 10th; 3; New Madrid, Pemiscot. (10).

Undetermined. June 25th-Sept. 10th; 26; Dunklin, New Madrid, Pemiscot. (170).

#### Family-Psyllidae

Undetermined. June 11th; 1; Pemiscot. (1).

Family-Aphididae

Acyrtosiphon pisum (Harris). Aug. 19th; 2; Dunklin, Pemiscot. (2).

Aphis sp. Aug. 28th; 1; New Madrid. (1).

Macrosiphum sp. May 27th-Aug. 19th; 7; Dunklin, New Madrid, Pemiscot. (17).

Myzus persicae (Sulzer). May 27th; 3; New Madrid, Pemiscot. (4).

Procophilus sp. June 25th; 1; New Madrid. (1).

Undetermined. Aug. 19th-Aug. 28th; Dunklin, New Madrid. (4).

Order-NEUROPTERA

Family-Hemerobiidae

Hemerobius humulinus Linnaeus. July 14th-July 29th; 2; New Madrid, Pemiscot. (3).

Hemerobius sp. July 29th; 1; Pemiscot. (1).

Micromus posticus (Walker). July 29th; 1; Pemiscot. (1).

Micromus subanticus (Walker). Sept. 10th; 2; Dunklin, New Madrid. (2).

Family-Chrysopidae

Chrysopa harrisii Fitch. July 2nd; 1; Dunklin. (2).

Chrysopa oculata Say. July 2nd; 1; Dunklin. (1).

Chrysopa plorabunda Fitch. July 2nd-Sept. 10th; 9; Dunklin, New Madrid, Pemiscot. (17).

Chrysopa sp. June 11th-Sept. 16th; 27; Dunklin, New Madrid, Pemiscot. (116).

Order-COLEOPTERA

Family-Carabidae

Callida punctata LeConte. Aug. 18th; 1; Dunklin. (1).

Calliuris pennsylvanica Linnaeus. Aug. 19th-Sept. 16th; 4; Dunklin, New Madrid, Pemiscot. (4).

Lebia analis Dejean. June 25th-Sept. 16th; 15; Dunklin, New Madrid, Pemiscot. (19).

Lebia viridis (Say). July 29th-Aug. 28th; 3; Dunklin, New Madrid, Pemiscot. (3).

Leptotrachelus dorsalis (Fabricius). Sept. 16th; 1; New Madrid. (1).

Pentagonica flavipes (LeConte). Aug. 18th; 1; Pemiscot. (1).

Undetermined. July 27th-Sept. 10th; 5; Dunklin, New Madrid, Pemiscot. (6).

#### Family-Staphylinidae

Gastrolobium bicolor Gravenhorst. Sept. 10th; 1; Pierce. (1).

Paederus littorarius Gravenhorst. July 27th-Sept. 10th; 3; New Madrid, Pemiscot. (5).

Philopterus sp. July 27th; 1; Pemiscot. (2).

Philonthus sp. May 27th; 1; Dunklin. (1).

Stenus humilis Erichson. Sept. 10th; 1; Pemiscot. (2).

Undetermined. Aug. 18th; 1; Pemiscot. (1).

#### Family-Scarabaeidae

Ataenius cognatus LeConte. July 2nd; 1; Dunklin. (1).

Ataenius sp. July 27th-Sept. 10th; 5; Dunklin; Pemiscot. (27).

#### Family-Elateridae

Aeolus mellillus (Say). Aug. 18th-Sept. 10th; 4; New Madrid, Pemiscot. (4).

Conoderus bellus (Say). July 27th-Sept. 10th; 4; Dunklin, New Madrid, Pemiscot. (4).

Conoderus vespertinus (Fabricius). June 25th-Sept. 16th; 17; Dunklin, New Madrid, Pemiscot. (25).

Glyphonyx recticollis (Say). July 2nd-July 27th; 2 Pemiscot. (2).

Heteroderes suburalis LeConte. Aug 19th; 1; New Madrid. (2).

Melanotus sp. July 2nd; 1; New Madrid. (1).

Family-Lampyridae

Pyropyga decipiens (Harris). Aug. 18th-Sept. 10th; 5; Dunklin, New Madrid, Pemiscot. (7).

Pyropyga sp. Sept. 16th; 1; Pemiscot. (1).

Family-Cantharidae

Chauliognathus marginatus (Fabricius). July 14th; 1; Dunklin. (1).

Undetermined. Aug. 18th; 1; Dunklin. (5).

Family-Dermestidae

Trogoderma sp. June 11th; 1; New Madrid. (1).

Family-Melyridae

Collops quadrimaculatus (Fabricius). July 14th-Aug. 28th; 10; Dunklin, New Madrid, Pemiscot. (17).

Family-Nitidulidae

Meligethes sp. June 11th; 3; New Madrid, Pemiscot. (5).

Family-Cucujidae

Telephanus velox Haldeman. July 2nd-Sept. 10th; 7; Dunklin, New Madrid, Pemiscot. (29).

Family-Cryptophagidae

Anchicera ephippiata Zimmerman. July 27th-Sept. 10th; 2; Dunklin, Pemiscot. (3).

Undetermined. July 2nd-Sept. 10th; 4; Dunklin, New Madrid, Pemiscot. (12).

Family-Phalacridae

Phalacrus pollitus Melsheimer. May 27th; 1; Pemiscot. (1).

Phalacrus sp. July 2nd; 1; New Madrid. (1).

Stilbus apicalis (Melsheimer). June 25th-Aug. 28th; 3; New Madrid. (9).

Stilbus nitidulus (Melsheimer). July 2nd-Sept. 10th; 14; Dunklin, New Madrid, Pemiscot. (86).

Stilbus sp. July 29th; 1; Dunklin. (1).

Family-Coccinellidae

Coleomegilla maculata lengi Timberlake. June 11th-Sept. 16th; 64; Dunklin, New Madrid, Pemiscot. (398).

Cycloneda munda (Say). July 2nd-Aug. 18th; 3; Dunklin, Pemiscot. (3).

Hippodamia convergens Guerin. June 11th-Sept. 10th; 21; Dunklin, New Madrid, Pemiscot. (47).

Hippodamia sp. May 27th-Sept. 16th; 14; Dunklin, New Madrid, Pemiscot. (49).

Scymnus (Diomus) terminatus Say. June 11th; 1; Dunklin. (1).

Scymnus (Pullus) punctatus Melsheimer. July 2nd; 1; Pemiscot. (1).

Scymnus (Pullus) rubricauda Casey. July 2nd-July 27th; 2; Pemiscot. (3).

Scymnus sp. June 25th-July 29th; 4; New Madrid, Pemiscot. (6).

Undetermined. Aug. 15th-Sept. 10th; 3; Dunklin, New Madrid. (27).

Family-Lathridiidae

Melanophthalma distinguenda (Comolli). May 27th; 3; Dunklin, New Madrid. (5).

Undetermined. July 2nd-Aug. 19th; 3; Dunklin, New Madrid, Pemiscot. (5).

Family-Mycetophagidae

Undetermined. Sept. 10th; 2; Dunklin, New Madrid. (3).

Family-Mordellidae

Mordela atrata Melsheimer. June 11th; 1; Dunklin (1).

Family-Meloidae

Epicauta lemniscata (Fabricius). Aug. 15th-Aug. 28th; 3; Dunklin, Pemiscot. (4).

Epicauta pestifera Werner. Sept. 16th; 1; Dunklin. (1).

Family-Anthricidae

Anthicus cervinus LaFerte'. July 27th-Sept. 10th; 4; Dunklin, Pemiscot. (11).

Anthicus ephippium LaFerte'. Sept. 10th; 1; Pemiscot. (1).

Notoxus monodon Fabricius. June 25th-Sept. 16th; 5; Dunklin, New Madrid. (11).

Family-Euglenidae

Zonantes subfasciatus LeConte. ?; 1; Dunklin. (1).

Family-Chrysomelidae

Cerotoma trifurcata (Forster). July 27th-Sept. 16th; 8; Dunklin, New Madrid, Pemiscot. (22).

Colaspis brunnea (Fabricius). July 2; 1; Dunklin. (2).

Colaspis flavida (Say). July 14th-July 27th; 3; Dunklin, New Madrid. (4).

Diabrotica longicornis (Say). July 29th; 1; Pemiscot. (1).

Diabrotica undecimpunctata howardi Barber. June 11th-Sept. 16th; 44; Dunklin, New Madrid, Pemiscot. (178).

Paria canella (Fabricius). July 14th; 1; Pemiscot. (1).

Kuschelina vians (Illiger). July 27th; 1; New Madrid. (1).

Phyllotreta zimmermanni (Crotch). June 11th; 1; Pemiscot. (1).

Psylliodes punctulata Melsheimer. July 2nd; 1; New Madrid. (1).

Systema blanda (Melsheimer). June 25th-Sept. 16th; 8; Dunklin, Pemiscot. (27).

Systema frontalis (Fabricius). July 29-Aug. 17th; 2; New Madrid, Pemiscot. (2).

Systema hudsonias (Forster). Sept. 10th; 1; Pemiscot. (1).

Systema pallicornia Schaeffer. June 25th-July 14th; 3; New Madrid, Pemiscot. (6).



- Disonycha glabrata (Fabricius). July 29th; 1; New Madrid. (2).
- Disonycha xanthomelas (Dalman). July 2nd-Sept. 10th; 6; Dunklin, Pemiscot. (9).
- Altica chalybea Illiger. July 14; 1; New Madrid. (1).
- Altica ignita (Illiger). Aug. 17th; 1; Pemiscot. (1).
- Epitrix fuscata Crotch. Aug. 15th-Aug. 28th; 2; New Madrid. (2).
- Epitrix hirtipennis (Melsheimer). Sept. 10th; 1; Pemiscot. (1).
- Chaetocnema denticulata (Illiger). July 27th-Sept. 10th; 5; Dunklin, New Madrid, Pemiscot. (8).
- Chaetocnema pulicaria (Melsheimer). July 2nd-Sept. 10th; 13; Dunklin, New Madrid, Pemiscot. (206).
- Chaetocnema confinis Crotch. May 27th-Aug. 28th; 10; Dunklin; New Madrid, Pemiscot. (35).
- Agroiconota bivittata Say. July 27th-Sept. 10th; 2; Dunklin. (2).
- Deloyala guttata (Olivier). Sept. 10th; 1; Dunklin. (1).
- Metriona bicolor (Fabricius). Aug. 15th-Sept. 10th; 2; Dunklin. (2)

Family-Anthribidae

- Brachytarsus stricticus Boheman. Aug. 18th-Sept. 10th; 2; Dunklin, New Madrid. (2).

Family-Curculionidae

- Anacentarius deplanata (Casey). Aug. 19th; 1; Dunklin. (1).
- Ceutorhynchus medialis LeConte. June 11th; 1; Pemiscot. (1).
- Conotrachelus hispidus LeConte. Aug. 19th-Sept. 10th; 2; Dunklin. (4).
- Conotrachelus seniculus Linnaeus. Sept. 10th; 1; Dunklin. (1).
- Geraeus penicellus (Herbst). July 2nd; 1; New Madrid. (1).
- Perigaster cretura Herbst. July 2nd; 1; Pemiscot. (1).
- Ryssematus lineaticollis Say. July 27th; 1; Dunklin. (1).

Order-TRICHOPTERA

Family-Hydropsychidae

Hydropsyche sp. July 27th; 1; Pemiscot. (1).

Order-LEPIDOPTERA

Family-Pyralidae

Loxostege sticticalis (Linnaeus). Aug. 15th; 1; Pemiscot. (3).

Ostrinia nubilalis (Hubner). Aug. 15th; 1; Pemiscot. (7).

Family-Arctiidae

Diacrisia virginica (Fabricius). June 11th; 1; Dunklin. (1).

Family-Noctuidae

Caenurgina erechtea (Cramer). Sept. 16th; 1; New Madrid. (4).

Heliothis zea (Boddie). Sept. 16th; 1; Pemiscot. (1).

Plathypena scabra (Fabricius). Sept. 16th; 2; Pemiscot. (9).

Spodoptera exigua (Hubner). Aug. 15th; 1; Pemiscot. (5).

Undetermined. July 27th-Sept. 16th; 7; Dunklin, New Madrid, Pemiscot. (16).

Family-Pieridae

Pieris rapae (Linnaeus). Aug. 28th; 1; Pemiscot. (1).

Order-DIPTERA

Family-Tipulidae

Tipula sp. July 2nd-Sept. 16th; 14; Dunklin, New Madrid, Pemiscot. (36).

Undetermined. July 2nd-Aug. 18th; 2; Pemiscot. (5).

Family-Dixidae

Undetermined. Sept. 10th; 1; Dunklin. (1).

Family-Culicidae

Aedes sp. July 2nd-Sept. 10th; 7; Dunklin, New Madrid, Pemiscot. (17).

Culex sp. Sept. 16th; 1; New Madrid. (3).

Psorophora confinis (Lynch-Arribalzaga). Sept. 10th; 1; Boyd. (2).

Psorophora sp. Sept. 10th; 1; New Madrid. (1).

Undetermined. July 2nd-Sept. 16th; 10; Dunklin, New Madrid, Pemiscot. (16).

Family-Stratiomyidae

Hermetia illucens (Linnaeus). Sept. 16th; 1; Dunklin. (1).

Family-Asilidae

Atomosia puella (Wiedemann). July 27th-Aug. 18th; 2; Dunklin, New Madrid. (4).

Family-Empididae

Undetermined. July 2nd-Sept. 10th; 6; Dunklin, New Madrid, Pemiscot. (12).

Family-Dolichopodidae

Undetermined. June 11th-Sept. 16th; 46; Dunklin, New Madrid, Pemiscot. (273).

Family-Phoridae

Undetermined. July 2nd-Sept. 10th; 16; Dunklin, New Madrid, Pemiscot. (40).

Family-Syrphidae

Allograpta obliqua (Say). June 11th; 1; New Madrid. (1).

Mesograpta marginata (Say). July 2nd-Sept. 10th; 7; Dunklin, New Madrid, Pemiscot. (21).

Mesograpta polita (Say). June 25th-Sept. 10th; 4; Dunklin, New Madrid, Pemiscot. (5).

Mesograpta sp. Aug. 15th-Aug. 28th; 4; Dunklin, New Madrid, Pemiscot. (6).

Toxomerus geminatus (Say). June 11th-Sept. 10th; 4; Dunklin, New Madrid. (8).

Undetermined. July 29th-Sept. 16th; 7; Dunklin, New Madrid, Pemiscot. (8).

#### Family-Micropezidae

Taeniptera trivittata Macquart. July 2nd-Sept. 16th; 10; Dunklin, New Madrid, Pemiscot. (28).

#### Family-Otitidae

Chaetopsis aenea (Wiedemann). June 11th-Sept. 16th; 28; Dunklin, New Madrid, Pemiscot. (133).

Chaetopsis fulvifrons (Macquart). July 2nd-Sept. 10th; 14; Dunklin, New Madrid, Pemiscot. (79).

Delphinia picta (Fabricius). Aug. 18; 1; Dunklin. (1).

Euxesta sp. June 11th-Aug. 18th; 3; Dunklin. (5).

Seioptera colon Loew. Aug. 15th-Sept. 16th; 5; Dunklin, New Madrid. (10).

Tetanops sp. July 29th-Sept. 16th; 3; New Madrid, Pemiscot. (5).

Undetermined. July 27th; 1; Pemiscot. (1).

#### Family-Platystomatidae

Rivellia sp. June 11th-Sept. 16th; 22; Dunklin, New Madrid, Pemiscot. (50).

#### Family-Tephritidae

Euaresta aequalis (Loew). Aug. 19th-Sept. 10th; 2; Dunklin. (8).

Undetermined. June 11th; 1; New Madrid. (1).

#### Family-Sciomyzidae

Dictya sp. June 11th-Sept. 16th; 3; Dunklin, New Madrid, Pemiscot. (3).

Family-Lauxaniidae

Camptoprosopella sp. June 11th-Sept. 16th; 47; Dunklin, New Madrid, Pemiscot. (402).

Family-Lonchaeidae

Lonchaea polita Say. Aug. 17th; 1; Pemiscot. (3).

Undetermined. Aug. 18th-Sept. 10th; 4; Dunklin, New Madrid, Pemiscot. (23).

Family-Ephydriidae

Leptopsilopa sp. June 25th; 1; New Madrid. (1).

Undetermined. July 27th; 1; New Madrid. (1).

Family-Drosophilidae

Drosophila sp. July 2nd-Sept. 10th; 3; Pemiscot. (5).

Scaptomyza sp. June 11th; 1; New Madrid. (2).

Undetermined. June 11th-Sept. 16th; 35; Dunklin, New Madrid, Pemiscot. (519).

Family-Chloropidae

Chlorops cinerapennis Adams. July 2nd; 1; New Madrid. (1).

Oscinella sp. June 11th-Aug. 19th; 9; Dunklin, New Madrid, Pemiscot. (152).

Thaumatomyia glabra (Meigen). June 11th-June 25th; 3; New Madrid, Pemiscot. (18).

Undetermined. June 11th-Sept. 16th; 59; Dunklin, New Madrid, Pemiscot. (2745).

Family-Agromyzidae

Cerodontha dorsalis (Loew). June 11th-July 27th; 6; Dunklin, New Madrid, Pemiscot. (22).

Undetermined. June 11th-Sept 16th; 26; Dunklin, New Madrid, Pemiscot. (381).

Family-Anthomyiidae

Hylemya platura (Meigen). July 2nd; 1; New Madrid. (11).

Hylemya sp. June 11th-July 2nd; 12; Dunklin, New Madrid, Pemiscot. (56).

Undetermined. July 2nd-Aug. 28th; 11; Dunklin, New Madrid, Pemiscot. (31).

Family-Muscidae

Musca domestica Linnaeus. July 27th-Aug. 19th; 2; Dunklin, New Madrid. (2).

Family-Calliphoridae

Cynomyopsis cadavernia (Robineau-Desvoidy). Sept. 16th; 1; Pemiscot. (1).

Family-Sarcophagidae

Sarcophaga sp. July 2nd-Sept. 16th; 7; Dunklin, New Madrid. (14).

Undetermined. July 2nd-July 27th; 2; Dunklin, Pemiscot. (3).

Family-Tachinidae

Copecrypta ruficauda (Wulp). June 11th-Sept. 16th; 4; New Madrid, Pemiscot. (6).

Euphorocera sp. Sept. 16th; 1; Pemiscot. (1).

Nemorilla sp. Aug. 19th; 1; New Madrid. (1).

Winthemia sp. June 11th-Sept. 16th; 3; Dunklin, New Madrid, Pemiscot. (4).

Undetermined. June 11th-Sept. 16th; 25; Dunklin, New Madrid, Pemiscot. (47).

Order-HYMENOPTERA

Family-Tenthredinidae

Undetermined. June 11th-Sept. 16th; 6; Dunklin, New Madrid, Pemiscot. (6).

Family-Braconidae

Apanteles sp. June 11th-Sept. 16th; 15; Dunklin, New Madrid, Pemiscot. (38).

Chelonus texanus Cresson. Sept. 10th; 1; Pemiscot. (1).

Meteorus sp. June 11th-Sept. 16th; 4; New Madrid, Pemiscot. (4).

Rogas terminalis Cresson. June 11th; 1; Pemiscot. (1).

Vipio rugator (Say). Aug. 18th; 1; Dunklin. (1).

Undetermined. June 11th-Sept. 16th; 32; Dunklin, New Madrid, Pemiscot. (83).

Family-Ichneumonidae

Dusona brachiator (Say). Aug. 18th; 1; Dunklin. (3).

Dusona sp. Sept. 10th; 1; Dunklin. (7).

Itopectis conquistor (Say). Sept. 10th; 1; Pemiscot. (1).

Gelis sp. Sept. 10th; 1; Dunklin. (1).

Mesostenus longicaudus Cresson. Sept. 10th; 2; Pemiscot. (2).

Undetermined. July 2nd-Sept. 16th; 12; Dunklin, New Madrid, Pemiscot. (25).

Family-Eulophidae

Tetrastichus sp. July 27th; 1; New Madrid. (1).

Undetermined. July 27th; 1; New Madrid. (1).

Family-Encyrtidae

Undetermined. July 14th; 1; New Madrid. (11).

Family-Pteromalidae

Neocatolaccus sp. July 27th; 1; Dunklin. (1).

Undetermined. June 11th-Sept. 10th; 6; Dunklin, New Madrid, Pemiscot. (8).

Family-Eurytomidae

Eurytoma sp. June 11th-Sept. 10th; 3; Dunklin, New Madrid. (4).

Undetermined. July 27th-Sept. 10th; 4; Dunklin, New Madrid. (5).

Family-Chalcidae

Brachymeria ovata (Say). Sept. 10th; 1; Pemiscot. (3).

Spilochalcis side (Walker). June 11th; 1; New Madrid. (1).

Family-Cynipidae

Undetermined. June 25th-Sept. 16th; 16; Dunklin, New Madrid,  
Pemiscot. (23).

Family-Diapriidae

Undetermined. Aug. 19th; 1; Dunklin. (1).

Family-Scelionidae

Trissolcus sp. June 11th; 1; New Madrid. (1).

Undetermined. July 2nd-Aug. 19th; 3; Dunklin, New Madrid. (11).

Family-Chrysididae

Elampus sp. Aug. 15th; 1; Pemiscot. (1).

Family-Bethylidae

Perisierola cellularis (Say). Aug. 15th; 1; Dunklin. (1).

Undetermined. July 27th; 1; Hunter. (1).

Family-Formicidae

Dorymyrmex pyramicus (Roger). Aug. 15th; 1; Pemiscot. (1).

Formica sp. June 25th; 1; Pemiscot. (1).

Lasius niger neoniger Emery. July 2nd-Aug. 19th; 2; New Madrid.  
(3).

Lasius sp. June 11th-Sept. 10th; 2; New Madrid, Pemiscot. (5).



Pheidole sp. July 2nd; 1; New Madrid. (1).

Prenolepis imparis (Say). Aug. 28th; 1; Pemiscot. (3).

Undetermined. June 25th-Aug. 19th; 6; New Madrid, Pemiscot. (9).

Family-Pompilidae

Undetermined. Aug. 18th-Sept. 10th; 3; Dunklin. (5).

Family-Sphecidae

Didineis texana (Cresson). Aug. 18th; 1; Pemiscot. (1).

Larropsis sp. July 29th; 1; Pemiscot. (1).

Undetermined. Aug. 18th; 1; Dunklin. (1).

Family Halictidae

Agapostemon sp. July 14th; 1; Dunklin. (1).

Halictus sp. July 27th-Sept. 10th; 2; Dunklin, New Madrid. (3).

Undetermined. July 2nd-Sept. 10th; 2; Dunklin, New Madrid. (2).

Family-Megachilidae

Megachile sp. Aug. 15th; 1; Pemiscot. (1).

Family-Apidae

Melissodes bimaculata (Lepeletier). July 2nd; 1; Dunklin. (1).

Undetermined. Aug. 15th; 2; Dunklin, Pemiscot. (3).

TABLE 1

SUMMARY OF THRIPS, APHID, AND GARDEN FLEAHOPPER POPULATIONS AND DAMAGE BY CHEWING INSECTS TO SUGAR BEET PLANT SAMPLES TAKEN ON 10 SAMPLING DATES IN SOUTHEAST MISSOURI - 1969

OBSERVATION	FIELD							
	I	II	III	IV	V	VI	VII	VIII
			<u>April 30, 1969</u>					
Thrips/plant		0.07	0.07	0	0.40	0.30	0.13	0.30
Aphids/plant		0	0	0	0.03	0.07	0.03	0
			<u>May 5, 1969</u>					
Thrips/plant	0.43	0.03	0.37	0.47	0.53	0.83	0.33	1.10
Aphids/plant	0.03	0.03	0.07	0	0	0.10	0.10	0.03
			<u>May 27, 1969</u>					
Thrips/plant	0.47	0.70	1.03	0.93	1.77	1.37	0.57	0.73
Aphids/plant	0	0.03	0	0	0.10	0.03	0	0.03
			<u>June 11, 1969</u>					
Thrips/leaf	1.10	0.43	0.40	0.51	0.28	0.21	0.37	0.59
Garden Fleahopper/leaf	0	0	0	0	0	0	0	0
Aphids/leaf	0	0	0	0	0	0	0	0
% Leaves damaged	61	47	41	45	39	24	45	31
# Feeding holes/leaf	1.32	0.83	0.68	0.69	0.65	0.49	0.68	0.47
			<u>June 25, 1969</u>					
Thrips/leaf	0	0	0	0.03	0	0	0	0.03
Garden Fleahopper/leaf	0	0	0	0	0	0	0	0
Aphids/leaf	0	0	0	0	0	0	0	0
% Leaves damaged	17	31	20	27	19	7	12	5
# Feeding holes/leaf	0.31	0.12	0.27	0.39	0.40	0.15	0.39	0.05

Table 1 continued

OBSERVATION	FIELD								
	I	II	III	IV	V	VI	VII	VIII	
			<u>July 14, 1969</u>						
Thrips/leaf	0	0	0	0	0	0	0	0.07	
Aphids/leaf	0	0	0	0	0	0	0	0	
% Leaves damaged	31	24	36	21	39	12	25	17	
# Feeding holes/leaf	1.04	0.44	0.91	0.44	0.40	0.21	0.65	0.33	
			<u>July 29, 1969</u>						
Thrips/leaf	0	0	0	0.01	0.01	0.01	0.07	0	
Aphids/leaf	0.03	0	0	0	0	0.01	0.01	0	
% Leaves damaged	61	32	36	19	17	37	61	23	
# Feeding holes/leaf	3.60	1.17	1.12	0.72	0.47	2.29	1.73	0.43	
			<u>August 15, 1969</u>						
Thrips/leaf	0.01	0	0	0.04	0	0	0	0.05	
Garden Fleahoppers/leaf	1.84	0.01	0.04	0.04	0.23	0.59	0	0.47	
Aphids/leaf	0	0	0	0	0	0	0	0	
% Leaves damaged	40	37	83	64	61	65	53	33	
# Feeding holes/leaf	1.19	0.65	4.08	1.60	1.57	1.96	1.69	0.77	
			<u>August 28, 1969</u>						
Thrips/leaf	0.05	0	0.01	0	0	0	0	0	
Garden Fleahoppers/leaf	0.07	0.05	0.21	0.67	0.35	0.24	0.65	2.19	
Aphids/leaf	0	0	0	0	0	0	0	0	
% Leaves damaged	51	57	84	79	76	92	75	52	
# Feeding holes/leaf	1.15	0.97	2.44	2.05	1.72	2.05	2.33	1.08	

Table 1 continued

OBSERVATION	FIELD							
	I	II	III	IV	V	VI	VII	VIII
	<u>September 16, 1969</u>							
Thrips/leaf	0	0	0	0	0.04	0	0	0
Garden Fleahoppers/leaf	0.07	0.11	0.04	0.08	3.40	0.11	0.41	13.33
Aphids/leaf	0	0	0	0	0	0	0	0
% Leaves damaged	44	48	77	55	45	31	85	85
# Feeding holes/leaf	1.39	12	2.68	1.32	1.53	0.85	2.91	5.20

OBSERVATION	AVERAGES FOR ALL FIELDS									
	Date of Observation									
	4/30	5/5	5/27	6/11	6/25	7/14	7/29	8/15	8/28	9/16
Thrips/plant or leaf	0.18	0.51	0.94	0.49	0	0.01	0.01	0.01	0.01	0
Garden Fleahoppers/leaf	-	-	-	0	0	0	0	0.40	0.55	2.19
Aphids/plant or leaf	0.02	0.05	0.03	0	0	0	0.01	0	0	0
Percent leaves damaged	-	-	-	42	17	26	36	55	71	59
Number feeding holes	-	-	-	0.72	0.26	0.55	1.44	1.69	1.72	2.14

TABLE 2

SUMMARY OF THRIPS, APHID, AND GARDEN FLEAHOPPER POPULATIONS AND DAMAGE BY CHEWING INSECTS TO SUGAR BEET PLANT SAMPLES TAKEN ON 4 SAMPLING DATES IN SOUTHEAST MISSOURI 1970

OBSERVATION	FIELD					
	I	II	III	IV	V	VI
	<u>July 7, 1970</u>					
Thrips/leaf	0.01	0	0	-	0.01	0
Aphids/leaf	0	0	0	-	0	0
Garden Fleahoppers/leaf	0	0	0	-	0	0
% Leaves damaged	12	29	47	-	36	17
# Feeding holes/leaf	0.27	0.52	0.89	-	0.68	0.37
	<u>July 27, 1970</u>					
Thrips/leaf	0	0	.04	.07	0	0
Aphids/leaf	0	0	.03	0	.01	.04
Garden Fleahoppers/leaf	0	0	0	0	0	0
% Leaves damaged	64	39	51	43	37	31
# Feeding holes/leaf	1.63	.85	1.19	.91	.71	.59
	<u>August 17, 1970</u>					
Thrips/leaf	.04	0	.01	0	0	-
Aphids/leaf	0	0	0	0	0	-
Garden Fleahoppers/leaf	.64	.48	.15	.41	.35	-
% Leaves damaged	31	21	25	15	17	-
# Feeding holes/leaf	.40	.25	.43	.23	.27	-

Table 2 continued

OBSERVATION	FIELD					
	I	II	III	IV	V	VI
	<u>September 10, 1970</u>					
Thrips/leaf	0	.03	.04	0	0	-
Aphids/leaf	0	0	0	0	0	-
Garden Fleahoppers/leaf	.19	.07	.53	.21	.59	-
% Leaves damaged	68	44	40	40	63	-
# Feeding holes/leaf	1.89	.85	.69	.83	2.00	-

## AVERAGES FOR ALL FIELDS

OBSERVATION	Date of Observation			
	7/7	7/27	8/17	9/10
Thrips/leaf	0.01	0.02	0.01	0.01
Aphids/leaf	0	0.01	0	0
Garden Fleahoppers/leaf	0	0	.41	.32
% Leaves damaged	28	44	22	50
# Feeding holes/leaf	.55	.98	.32	1.25



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