FIREFLY

NOTES

PROCEEDINGS OF THE FOURTEENTH AND FIFTEENTH ANNUAL MEETINGS OF THE

TENNESSEE ENTOMOLOGICAL SOCIETY

October 23 – 24, 1986
Music City Rodeway Inn
Nashville, Tennessee

October 22 – 23, 1987
Music City Rodeway Inn
Nashville, Tennessee

Volume Two

THIS VOLUME OF THE FIREFLY NOTES IS DEDICATED

TO THE MEMORY OF

Dr. Oliver Elmo Shipp

1928 - 1987

Oliver Elmo Shipp, Field Development Representative for Mobay Corporation in Tennessee and Mississippi, died 12 May 1987 in Memphis, Tennessee after a brief illness.

Dr. Shipp was born 13 June 1928 at Big Creek, Mississippi and graduated from Belzoni High School. Upon receiving the B.S. degree from Mississippi State College in 1952, Elmo was commissioned and served in the U. S. Army. He returned to Mississippi State and earned a M.S. degree in 1958. He was awarded a Ph.D. from Texas A&M in 1963 where he was also an Assistant Professor.

Dr. Shipp joined MOBAY corporation (formerly CHEMAGRO) in 1964 as a Research Biologist located at the Stanley Research Center, Stanley, Kansas. In 1968 he relocated to the Memphis, TN area to serve as Field Research Representative for Alabama, Kansas Louisiana, Mississippi and Tennessee. He was Field Development Representative for Mississippi and Tennessee from 1982-87. During his professional career, Dr. Shipp played a vital role in the development of several agricultural chemicals. He was active in state and regional organizations and most recently served as President of Tennessee Agricultural Chemical Association. At the time of his death, he was President of the Tennessee Entomological Society.

He had numerous interests and hobbies, enjoyed the challenge of reading and studying, and developed a deep interest in astrology.

He is survived by his wife Joe Ann Shipp, their son Joseph and two daughters Gale and Valerie.

TABLE OF CONTENTS

ABSTRACTS OF THE FOURTEENTH ANNUAL MEETING
October 23 - 24, 1986

MUSIC CITY RODEWAY INN

Seasonal Emergence of Some Soil-breeding Culicoides spp. - Reid R. Gerhardt, University of Tennessee, Knoxville, Tennessee

Larval habitats were classified according to the duration of time each site was inundated with water during the study. The Culicoides spp. collected in order of abundance were C. spinosus Root and Hoffman, C. stellifer (Coquillett), C. baueri Hoffman, C. biguttatus Coquillett, C. venustus Hoffman, C. haematopotus Malloch and C. bickleyi Wirth and Hubert. Small numbers of C. obsoletus (Meigen), C. crepuscularis Malloch and C. variipennis (Coquillett) were also collected. Culicoides baueri, C. bickleyi and C. venustus were collected from sites that contained surface water throughout the study. Culicoides spinosus and C. stellifer were collected from sites of intermediate wetness, while C. haematopotus and C. biguttatus were collected from sites that were wet for less than 3 months each year. Culicoides haematopotus, C. biguttatus and C. bickleyi were present only in the spring while the rest emerged throughout the spring and summer.

Potential use of Edovum putterli as a Biocontrol Agent of Colorado Potato Beetle - Nadar El Kassabany, University of Tennessee, Knoxville, TN

In the laboratory, fecundity of Edovum puttleri Grissell (Hymenoptera: Eulophidae), were determined. Longevity was tested under two temperatures and three different diets. The tested groups were mated females, virgin females, and males. A combination of 18 treatments were tested. The longevity mean was 17.9± 2.2 days, and the parasite survival rate was the highest under a combination of 24±1 C. and 50% water:50% honey food resource. In fecundity tests, each female laid a mean of 1.9±0.2 eggs / 24 hr. and 40.8±4.8 eggs in 21 days. In the summer of 1986, field releases were made in Knoxville and Crossville to determine the effectiveness of the parasite as a biocontrol agent. Counts of Colorado potato beetle (CPB) eggs were made to determine percent parasitized, and potato yields were recorded to determine the effectiveness of the field treatments. At the rate of 12 female parasites / 1 female CPB, there was no significant difference between the mass release treatment and the control. The release rate was too low to effectively suppress Colorado potato beetle populations compared to that obtained by using Ambush (112.5g ai/h).

Role of the Extension Entomologist, - Dr. Richard E. Caron, University of Tennessee, Extension Service, Jackson, Tennessee

The Extension Entomologist is employed by the Agricultural Service and his/her primary duty is to advise the County Agent on insect problems. The County Agent in turn advises the commercial producers or homeowners in his/her county.

The Extension Entomologist relies on communication and cooperation with County Agents, professionals in related disciplines, other entomologists, and others concerned with insect identification and control. The Extension Entomologist serves as an educator, taking information from relevant research results and his/her field observations to the people. Information is delivered through meetings, publications, mass media, field days, demonstrations, etc.

It is necessary that the Extension Entomologist have a good educational background in insect taxonomy and biology in addition to modern entomological sampling and control methods. A knowledge of insecticide safety, efficacy, and phytotoxicity is necessary. An assessment of the pest situation, pest identification, pest damage, and the value of the commodity to be protected enables the Extension Entomologist to avoid "overkill" of a pest problem.

Insecticide overuse is costly. The Extension Entomologist should have a background in or a knowledge of the principles of Integrated Pest Management (IPM). With the IPM philosophy, the correct insecticide or miticide and rate can be chosen and the insecticide application (where and when needed) can be properly timed. IPM can reduce costs and environmental contamination and can lead to a delay in resistance of pests to pesticides.

Susceptibility of PVY Resistant Burley Tobacco Breeding Lines and Cultivars to Colonization by the Green Peach Aphid Myzus persicae (Sulzer) - Jay P. Avery, University of Tennessee, Knoxville, Tennessee

Two burley tobacco breeding lines (GR 115 and GR 131) and two cultivars [TN '86'(previously GR 136) and a standard, 'VA 509'] were evaluated for colonization by the green peach aphid (gpa) Myzus persicae (Sulzer). GR 115 and TN 86 were further evaluated for lack of colonization by gpa due to predation by other insects. GR 115 has nonsecreting trichomes and GR 131, TN 86, and VA 509 have secreting trichomes. Without control methods, or in the absence of predators, all plants became heavily colonized by the gpa. When predators, such as convergent lady beetles, Hypodamia convergens, were present, gpa populations were suppressed on GR 115 but not on GR 131, TN 86, or VA 509. Convergent lady beetles were repelled by lines and cultivars with secreting trichomes; whereas, the resistance exhibited by GR 115 was due to lack of repellency to predaceous insects.

Epidemiology of Lyme Disease in the United States - Daniel S. Root, University of Tennessee, Knoxville, Tennessee

Since 1985 Lyme disease, caused by the spirochete Borrelia burgdorferi, is the most reported tick-borne human disease in the United States. The majority of cases occur in the northwest, Great Lakes Region, and Oregon and California. A small number of widely scattered cases have been recorded in 24 states. The nymphal stage of the tick Ixodes dammini is considered the primary vector, although adult ticks apparently have caused some cases. Small mammals, such as the white-footed mouse and birds are important hosts of the immature stages of the tick. Deer are almost

exclusive hosts for the adult. In foci of the disease, antibodies and spirochete are found in many different species of mammals with the greatest prevalence in primary hosts of the tick. Humans acquire infection when active away from the house in perturbed habitats or areas of transitional vegetation. Lyme disease affects people independent of age, sex or occupation. Clinical manifestations such as skin lesions, cardiac, neurologic, or arthritic complications can be treated effectively with antibiotics. More research is required to determine factors involved in the expansion of the range of I. dammini, especially the role of birds.

The Use of Pupal Exuvise Collections to Characterize Chironomid Communities in Aquatic Habitats (Diptera: Chironomidae) - Charles N. Watson, Jr., East Tennessee State University, Johnson City, Tennessee

Chironomid pupal exuviae were collected from the shore line of Bays Mountain Lake (Sullivan County, Tennessee) and the nearby Ecology Pond every two weeks from late March through mid June. One sampling site was located along the eastern shore of the pond, and two others at the eastern and western ends of the lake, respectively. Exuviae were sampled by dipping an enamel pan into the water and allowing it to fill partially. Floating exuviae drawn into the pan were removed with forceps and stored in alcohol. Three such samples were taken at each locality and pooled. Exuviae were later measured and identified to genus. Samples from the two lake localities did not differ significantly from each other in taxonomic composition or mean length. Lake samples contained a significantly lower proportion of large chironomini species and a higher proportion of small orthocladinae and tanytarsini species than the pond samples. Size selective predation on large chironomini by red ear sunfish that are present in the lake but not in the pond may have been responsible for these differences.

Pesticides and the Development of Podisus maculiventris (Say) - Jane B. Horton, University of Tennessee, Knoxville, Tennessee

Integrated pest management (IPM) programs seek to mitigate primary arthropod pest resurgence, secondary pest outbreaks and the development of resistance in primary pests caused by recurrent use of insecticides. Implicit in the implementation of IPM is the reduced use of insecticides coupled with greater reliance on beneficial arthropods. The development of such programs must consider the effects of selective insecticides on beneficial insects. Laboratory studies were conducted to determine the effects of carbaryl (1.498g/a.i. / L, 7.49g/a.i. / L) and acephate (.593g/a.i. / L, 2.290/a.i. / L) on the spined soldier bug, Podisus maculiventris (Say) through topical contact and ingestion via feeding on treated Mexican bean beetle, Epilachna varivestis (Mulsant), larvae. Topical applications (2 microliters) of the insecticides applied to the dorsum of third instars and adults resulted in significantly greater mortality in treatment versus control groups (2 microliters of distilled water). Ingestion of treated Mexican bean beetles resulted in significantly greater

mortality, increased duration of developmental instars, and significantly smaller size of individuals surviving through eclosion to adult.

Morphology and Life History of the Parasite Coccophagus lycimnia (Hymenoptera: Aphelinidae) on Soft Brown Scale - Mark Muegge, University of Tennessee, Knoxville, TN

Coccophagus lycimnia (Walker), a cosmopolitan hymenopterous parasitoid in the family Aphelinidae, is a primary parasitoid of the brown soft scale, Coccus hesperidum L. (Gordh 1979). The brown soft scale is a perennial pest of ornamentals and commercial citrus, causing damage by extraction of sap, which may eventually kill the host. Additionally, accumulation of honeydew on the substrate, which leads to the growth of sooty mold, renders the host and fruit commercially unacceptable.

Although C. lycimnia has been reported as a major parasitoid attacking brown soft scale in citrus groves in Texas and as a major parasitoid of other coccid scales, little of its biology is known (Reed et. al. 1968,Gordh 1979, Ruben and Beirne 1975). Because C. lycimnia is a potential biological control agent, my objectives were to determine longevity, fecundity, and larval developement of C. lycimnia reared on brown soft scale.

The brown soft scale, Coccus hesperidum L., was used as hosts for rearing the aphelinid parasitoid Coccophagus lycimnia. Male and female C. lycimnia lived the longest under controlled conditions of 17^{o}C. and dietary supplements of honey and water supplied separately. Females lived longer than males at all temperatures and dietary supplements. Mated females oviposited an average of 5.6 eggs/day and lived ca. 12.6 days. Female C. lycimnia completed their developement from egg to adult in ca. 21 days. Larval instars were characterized by mandible length and width, head capsule width, tracheal system, and absence or presence of spiracles.

Cotton Bollworm Control with Selected New Insecticides - Gary Lentz, University of Tennessee, Jackson, Tennessee

Eleven new insecticides were evaluated for bollworm-tobacco budworm control on cotton. Seven applications were made on 5 - 10-day intervals from July 16 to August 28. Damaged square evaluations were made July 25, August 4, 19, and 26. No significant differences were noted among treatments on July 25, August 4, or August 26. The number of damaged squares was reduced by treatment on all dates but July 25. The seasonal mean number of damaged squares was significantly lower in Asana-, Baythroid-, and Karate- treated plots compared to the Lorsban + Ambush-treated plot. First harvest yields were significantly higher in all treated plots compared to the untreated check. Highest yields were produced by Capture and Karate.

Preliminary Report on Coreoidea of Arkansas - Harvey Barton, Arkansas State University, Jonesboro, AR

Cancelled

Distribution and Impact of Hessian Fly on Wheat in Tennessee - Jerome Grant, University of Tennessee, Knoxville, TN

The Hessian fly Mayetiola destructor (Diptera: Cecidomyiidae), has become a serious threat to wheat production in many areas of the Southeast. A survey was initiated during 1986 to monitor distribution and infestation levels of hessian fly on wheat in Tennessee to obtain a better understanding of this pest.

The survey involved separating the state into three areas: eastern, middle, and western Tennessee. Five counties were selected within each area, and five wheat fields were sampled in each county. Fifty wheat plants were randomly selected from each field and taken to the laboratory, where each tiller was examined for Hessian fly. Each field was sampled twice - during February-March and May-June.

Spring-infested wheat was found in each county surveyed, as far east as Greene Co. and as far west as Dyer Co. (a distance of ca. 400 miles). Spring-infested wheat was found in 88% of the sampled fields, with an average tiller infestation of ca. 15%. Hessian fly infestation levels were highest in wheat fields in eastern Tennessee, where the average tiller infestation levels/field within a county ranged from 14 to 38%.

Earlier-planted wheat fields in this study had slightly higher infestation levels during the fall than those later-planted wheat fields. Later-planted wheat fields, however, had very high infestation levels during the spring. The highest infestation levels were found on Coker 947 and Coker 916. Low to moderate infestation levels were found on Caldwell, Magnum and Fillmore.

Minutes of the Fourteenth Annual Meeting

October 23-24, 1986

Board of Directors Meeting
(10:30 A.M., October 23)

Present: Mike Cooper, Charles Pless, Elmo Shipp, Rich Caron

President Mike Cooper called the meeting to order at the Music City Rodeway Inn, Nashville, TN.

1. A judging team was chosen to judge the 1986 Graduate Student Contest. The proposed team consisted of Elmo Shipp, Harold Bancroft, Paris Lambdin, Jim Bogard, Joe Dunn, Gary Lentz, and Jaime Yanes, Jr.

2. To attract new T.E.S. members, the need for a general list of Tennessee Universities and Colleges was discussed.

3. The need for more responses to the T.E.S. "call for papers" was discussed.

4. The Board approved the fees for the Fourteenth Annual Meeting - $5.00 Dues, $10.50 Registration, $12.50 Banquet, and $1.00 Student Dues.

The Board Meeting was adjourned at 11:35 A.M.

Sessions of the Annual Meeting

The Fourteenth Annual Meeting of the Tennessee Entomological Society was called to order by President Michael Cooper at 1:00 P.M., October 23rd. President Cooper's comments began an afternoon of ten papers scheduled to be presented (Sessions I and II). Session II adjourned at 5 P.M.

The T.E.S. banquet was held from 7:00 to 9:00 P.M. on October 23rd. Dr. Hugh S. McCampbell was guest speaker during the banquet.

T.E.S. Business Meeting was held on the morning of October 24, followed by one paper during Session III. The Fourteenth Annual Meeting was adjourned at 11:00 A.M.. A Board of Directors meeting was held shortly thereafter.

Business Meeting
(8:15 A.M., October 24)

President Cooper called the Business meeting of the Fourteenth Annual Meeting of T.E.S. to order at 8:15 A.M., October 24. President Cooper thanked Elmo Shipp and the Program Committee for their efforts with the program and the banquet proceedings and the Local Arrangements Committee for their work with the hotel. Thanks are also extended to Loretta Johnson and Carolyn Schmidt for their assistance in registration.

The minutes of the Thirteenth Annual Meeting as printed in the "Firefly Notes - Proceedings of the Twelfth and Thirteenth Annual Meetings of the Tennessee Entomological Society" were accepted by the membership.

It was brought to the membership's attention that two members of T.E.S. had recently passed away. These were Carl Teasley, Apiary Inspector of the Tennessee Department of Agriculture (Div. Plant Industries) and Harold Glass, former U.T. graduate student and T.E.S. Howard Bruer award winner.

Committee Reports

Auditing - James Keener - Books are in order.
Constitution - Gary Lentz - No report.
Prediction and Evaluation - Jaime Yanes, Jr. - Prediction and Evaluation report was distributed.
Publicity - Harry Williams - No report.

Membership - Charles Pless - As part of an effort to enlarge T.E.S. membership and meeting participation, a new brochure advertising T.E.S. was proposed. It is intended that the brochure be sent to organizations and institutions in a publicity effort for T.E.S. President Cooper cited a need for increased Sustaining Membership.

Program - Elmo Shipp - All graduate students who participated in the student award contest presented good papers. The 1986 student award contest winner was Jay Avery. Jay was presented a jacket, a plaque, a check for $50.00, and a letter of congratulations.

Local arrangements - Mike Cooper (for Sylvester Davis) - A "per plate" banquet was recommended for future annual meetings to off-set the future possibility of less-than-minimum banquet attendance and resulting financial loss.

There is need for a preregistration indication at future meetings. Joe Dunn suggested a card mail-out for a meeting and banquet attendance estimate.

The membership voted to hold the 1987 Annual T.E.S. Meeting again at the Music City Rodeway Inn, Nashville, TN.

The meeting will be held on October 15-16 or October 22-23.

Awards - Paris Lambdin - Matthew Fumich, Munford, TN, State 4 H winner in Entomology won the 1986 Bruer Award Plaque. A plaque was awarded to Jay Avery for his efforts in the Student award contest. A plaque was obtained for Mike Cooper's recognition as President.

Nomination - Carl Brown - Bill Shamiyeh was nominated for President- Elect and was elected.

Publication and Editorial - Mike Cooper - "Firefly Notes" was accepted by the membership. Plans are to publish "Firefly Notes" every 2 years. Prediction and Evaluation Committee Report, Committee guidelines, T.E.S. history, officers and Past Presidents lists may be included in future proceedings. Abstracts of papers presented at the 1986 Annual Meeting are needed for the next "Firefly Notes."

Ad Hoc (State Invertebrate Collection) - Mike Cooper (for Neil Woodiel) -dropped as a committee from T.E.S.

Treasurer's Report

Rich Caron, Secretary/Treasurer, presented the financial status of T.E.S. up to October 17, 1986. The report was accepted by the membership.

Old Business

1) T.E.S. pins - The membership had a lengthy discussion about the Society's lapel-type pin with T.E.S. logo. Difficulty was expressed in locating the original die used to produce the pins. Pursuit of the original die will continue while the cost of new alternative means of pin production also will be considered. At present, T.E.S. has no more pins for members to purchase.

2) Plant Pathologist Joint Sessions - There is nothing new of the issue of state plant pathologists having joint sessions with the annual T.E.S. meeting.

New Business

1) Members in arrears - The Constitution committee will look into clarifying the Constitution concerning members in arrears (for dues) one or two years and how that pertains to "member" status and "member-in-good-standing" status.

2) Dues - The membership voted "no" to a dues increase.

3) Board of Directors change - Two new Directors were proposed to be added to existing Board of Directors: an At-large Board member and a student Board member. The Constitution Committee will look into constitutional changes to accommodate the new positions.

4) Awards Committee Change - It was proposed that the guidelines of the Awards Committee be reestablished to fine tune the functions of committee members.

5) Student Contest Judging - It was proposed that the Awards Committee develop guidelines for student contest judging in the T.E.S. Also, guidelines need to be established in choosing judges.

Passing of the Gravel

Elmo Shipp, the Incoming President, was escorted to the podium by Past President Mendell Snodgrass, Gary Lentz, Carl Brown, Gene Burgess, Reid Gerhardt, Charles Pless, and Joe Dunn.

President Elmo Shipp presiding

- Paris Lambdin presented award to Mike Cooper as outgoing President
- President Elmo Shipp appointed Jim Bogard, Carl Brown, and Gene Burgess to the 1986-87 T.E.S. Nominating Committee, Gene Burgess, Chairman.

- The Business Meeting of the Thirteenth Annual Meeting of the Tennessee Entomological Society was adjourned at 9:39 A.M.

Board of Directors Meeting
(10:58 A.M., October 24)

Present: Elmo Shipp, Mike Cooper, Bill Shamiyeh, Joe Dunn, Rich Caron

President Elmo Shipp called the meeting to order at the Music City Rodeway Inn, Nashville, TN.

1. All new members were approved. These were Jerome Grant, Laura Rogers, Keith Watson, Ronald Bolin, and Mark Fuzek.

2. The Music City Rodeway Inn was approved as the meeting site of the 1987 Meeting to be held in Mid or Late October. Dates to be decided are October 15-16, or 22-23, 1987.

3. Past President Mike Cooper was to send a letter of thanks to the hotel.

4. Expense reimbursement to the banquet guest speaker, Dr. Hugh McCampbell, was approved.

5. The banquet should be expanded to include award presentations. Dropping breakfast as a T.E.S. function and omitting the cost of breakfast as part of fees were recommended.

6. The Graduate Student Award should consist of a letter of commendation and a check for $50.00. The Graduate Student Contest should become an annual event if at least two students are present for each contest.

7. Awards Committee is responsible to develop its guidelines including criteria for judging student contests. The Awards Committee chairman is responsible to appoint T.E.S. members to judge students. Judgeships should go to those members who do not have graduate students giving papers.

The Board of Directors meeting was adjourned at 11:29 A.M.

T.E.S. Treasurer's Report
3/31/86 to 10/15/87

Balance (3/31/86)			
Transfer of funds from N. B. Shamiyeh to R. E. Caron			[$2,180.10]
Income 1986 (Pre-meeting)			
Dues	$ 10.00		
Pins	16.50		
Total	$ 26.50		$2,206.60
Expenses 1986 (Pre-meeting)			
New checks	$ 5.95		
Stamps, envelopes	51.56		
"FireFly Notes"	337.26		
Cash for meeting	100.00		
Total	$ 494.77		$1,711.83
Balance 10/23/86 Audit			[$1,711.83]
Income 1986 Meeting			
Dues	$ 192.00		
Pins	0.00		
Registration	294.00		
Banquet	300.00		
Total	$ 786.00		$2,497.83
Expenses 1986 Meeting (Music City Rodeway Inn)			
Banquet	$ 579.48		
Coffee Break	22.30		
Award Plaques	78.00		
Student Award	50.00		
Banquet Speaker	50.00		
Total	$ 779.78		$ 1,718.05
Income 1986-87 (Post meeting)			
Cash for meeting		$ 100.00	
Dues		30.00	
Bank charge reimbursement		1.86	
Total		$ 131.86	$ 1,849.91
Expenses 1986-87 (Post meeting)			
Stamps	$ 38.63		
Flowers (Elmo Shipp)	42.80		
Bank charge	1.86		
Total	$ 83.29		$ 1,766.62 (as of 9/30/87)

COMMITTEE ASSIGNMENTS - 1986-87

NOMINATING COMMITTEE

Gene Burgess, Chairman
Jim Bogard
Carl Brown

MEMBERSHIP COMMITTEE

Charles Watson, Chairman
M. E. Snodgrass
Mike Cooper
Harry Williams
Paris Lambdin
Charles Pless
Martin Knight

AWARDS COMMITTEE

Reid Gerhardt, Chairman
Harvey Barton
Harry Williams
Bruce Kauffman
Harold Bancroft

CONSTITUTION COMMITTEE

Charles Pless
Joe Dunn
M. E. Snodgrass
John Hammett

AUDITING COMMITTEE

James Keener, Chairman
Jerome Grant
C. J. Southards

PROGRAM COMMITTEE

Bill Shamiyeh, Chairman
Joe Dunn
Laura Rogers
Reid Gerhardt
Harvey Barton
Harold Bancroft
Russ Patrick
Paris Lambdin
Gary Lentz

PREDICTION & EVALUATION COMMITTEE

Jaime Yanes
Jerome Grant
Russ Patrick
Rich Caron
Rich Caron

PUBLICATION COMMITTEE

Harry Williams, Chairman
Mike Cooper
Gene Burgess
Rich Caron

PUBLICATION & EDITORIAL COMMITTEE

Mike Cooper, Chairman
Gene Burgess
Rich Caron

LOCAL ARRANGEMENTS COMMITTEE

Sylvester Davis, Chairman
Joe Dunn

Attendance Roster of the 1986 Annual Meeting of the Tennessee Entomological Society

Member	Affiliation	Location
Avery, Jay P.	U-T Student	Knoxville, TN
Bogard, James B.	TN Dept. of Agric.	Nashville, TN
Bolin, Ronald E.	TN Dept. of Agric.	McMinnville, TN
Brown, Carl D.	Memphis State University	Memphis, TN
Bruer, Howard L.	Retired-TN Dept. of Agric.	Nashville, TN
Burgess, Edward E.	University of Tennessee	Knoxville, TN
Cagle, Jimmy L.	TN Dept. of Agric.	Winchester, TN
Caron, Richard E.	University of Tennessee	Jackson, TN
Cole, Bruce A.	TN Dept. of Agric.	McMinnville, TN
Cooper, Michael E.	TN Dept. of Agric.	Nashville, TN
Dunn, Joe C.	American Cyanamid	Nashville, TN
Eisler, James I.	TN Dept. of Agric.	McMinnville, TN
Elkassabany, Nader	UT Student	Knoxville, TN
Gerhardt, Reid R.	University of Tennessee	Knoxville, TN
Grant, Jerome F.	University of Tennessee	Knoxville, TN
Hadden, Charles H.	University of Tennessee	Knoxville, TN
Horton, Jane B.	UT Student	Knoxville, TN
Kauffman, Bruce W	TN Dept. of Agric.	Nashville, TN
Keener, James A.	TN Dept. of Agric.	Maryville, TN
Lambdin, Paris L.	University of Tennessee	Knoxville, TN
Lentz, Gary L.	University of Tennessee	Jackson, TN
Muegge, Mark A.	UT Student	Knoxville, TN
Pless, Charles D.	University of Tennessee	Knoxville, TN
Rogers, Laura E.	UT Student	Knoxville, TN
Root, Daniel S.	UT Student	Knoxville, TN
Shamiyeh, N. B.	University of Tennessee	Knoxville, TN
Shipp, O. Elmo	Mobay	Collierville, TN
Snodderly, Lynn J.	TN Dept. of Agric.	Strawberry Plains, TN
Snodgrass, Mendell E.	Retired - USDA	Concord, TN
Snodgrass, Myrtice L.		Concord, TN
Southards, Carroll J.	University of Tennessee	Knoxville, TN
Watson, Charles N. Jr.	East TN State Univ.	Johnson City, TN
Watson, Ernest B.	USDA	Nashville, TN
Watson J. Keith	UT Student	Knoxville, TN
Williams, Harry E.	University of Tennessee	Knoxville, TN
Wilson, Dalton L.	USDA-APHIS-PPQ	Brentwood, TN
Yanes, Jaime Jr.	University of Tennessee	Nashville, TN

TENNESSEE ENTOMOLOGICAL SOCIETY

PREDICTION AND EVALUATION COMMITTEE REPORT

October 23 - 24, 1986

Jaime Yanes, Jr., Chairman

Committee Members

Rich Caron
Gene Miles
Bruce Kauffman

Insect Problems 1986 - Charles R. Patrick

Small Grains - Wheat, oats, barley

Spring - Cereal leaf beetle 3 counties reported this pest was causing damage in wheat and barley. Several wheat fields were treated.

True armyworm - minor infestations in wheat in 1986.

Hessian fly - Survey indicated that most counties in Tennessee experienced some problems in wheat. All planted varieties had some level of Hessian fly infestation.

Grain Sorghum - Sorghum midge reported damaging late planted grain.

Sorghum webworm, Fall armyworm & corn earworm reported damaging late planted grain. Grain planted in late June is considered to be a late planting.

Corn - Sugar cane beetle reported in several fields across the state causing some damage to small corn. Early spring plantings. No treatments after planting are recommended.

Corn Flea Beetles - Early spring plantings reported having damage by corn flea beetles. Several fields had to be treated with insecticides.

Black Cutworm - Several fields in West Tennessee reported cutworm damage - above economic threshold.

Fall Armyworm - Several counties across the state had infested corn in late plantings.

HESSIAN FLY ON WHEAT

Jerome Grant

The Hessian fly, Mayetiola destructor, is one of the most destructive pests of wheat in the midwestern United States, and has recently caused extensive wheat losses in South Carolina, Georgia, Alabama and North Carolina. A study was conducted during 1986 to gain insight into the occurrence, distribution and level of infestation of Hessian fly in Tennessee.

Fifteen counties in Tennessee were surveyed for Hessian fly during early spring (to assess densities of the overwintering generation) and late spring (to assess densities of the spring generation). Five counties were surveyed in the eastern (Bledsoe, Bradley, Greene, Jefferson, and Monroe Counties), middle (Franklin, Maury, Robertson, Rutherford, and Warren Counties), and western (Dyer, Hardeman, Haywood, Madison, and Obion Counties) areas of the state. Five wheat fields were sampled in each county with a total of 75 wheat fields sampled across the state.

The fall generation of the Hessian fly was well distributed in Tennessee and was found as far west as Obion County and as far east as Greene County. Fall-infested wheat was found in 11 (ca. 73%) of the 15 counties surveyed in Tennessee and was found in 25% of all the fields sampled across the state.

The spring generation of the Hessian fly was found in every county surveyed in our study. In fact, 80, 84, and 100% of the sampled fields in western, middle and eastern Tennessee were infested, to some degree, by Hessian fly. Eighty-eight percent of the sampled fields were infested during the spring (an average of 15.29% tiller infestation) while only 25% of the same fields had been infested during the fall (an average of 0.26% tiller infestation). Although infestation levels of the fall generation of the Hessian fly were low, populations did increase dramatically during the spring. These numbers illustrate the tremendous egg-laying potential and activity of the Hessian fly during the spring. The spring generation is responsible for most damage in many areas of the southeastern United States.

The Hessian fly was found to be well distributed throughout Tennesee; however, infestation levels varied widely across the state. Economic losses were heaviest in eastern (14 of 25 fields) Tennessee, while middle (2 of 25 fields) and western (7 of 25 fields) Tennessee had light to moderate infestations. Planting date had little effect on reducing Hessian fly infestation levels because of unusually warm temperatures during late fall 1985.

Heliothis Report (1986)

Wes Jenkins, Jerome Grant and Charles Pless

Four Heliothis traps were placed at the UT Plant Science Farm on April 11 (Knoxville) and four at the UT Tobacco Experiment Station on April 15 (Greeneville). At both locations, H. zea pheromone lure was placed in two traps and H. virescens lure was placed in the other two traps. Pheromone was changed every 2 to 4 weeks. The traps were checked every 2 to 7 days and the average number of moths caught per trap day was calculated.

At Knoxville, April 11th to September 29th, 851 H. zea and 451 H. virescens moths were caught. The highest $\bar{x}$ no. H. zea caught/trap day was 25.3 on July 14th. The highest $\bar{x}$ no. H. virescens caught/trap day was 23.0 on July 11th. Trap catches indicate that H. zea had four major population peaks at Knoxville: May 27th (12.0/trap day), July 14th (25.3/trap day), August 12th (21.8/trap day), and September 19th (11.0/trap day). These population peaks probably show a relationship with the emergence of new moth generations. H. virescens had four major population peaks at Knoxville: May 8th (4.0/trap day), July 11th (23.0/trap day), August 12th (21.8/trap day) and September 19th (11.0/trap day).

At Greeneville, from April 15th and to September 26th, 5,294 H. zea and 1,147 H. virescens moths were caught. The highest $\bar{x}$ no. H. zea caught/trap day was 115.4 on August 25th. The highest $\bar{x}$ no. H. virescens caught/trap day was 60.6, also on August 25th. H. zea also had four major population peaks at Greeneville: June 13th (24.6/trap day), July 16th (59.9/trap day), August 25th (115.4/trap day), and Sept. 26th (106.7/trap day). Compared to Knoxville data, H. virescens only had three population peaks at Greeneville. These occurred May 22 (1.3/trap day), July 22nd (18.5/trap day) and August 25th (60.6/trap day).

Studies were conducted at Greeneville to determine larval densities of H. zea on corn and H. virescens on tobacco. H. virescens data were taken from July 25th until September 26th at 2 to 10 day intervals. H. zea data were taken from July 20th to September 26th, also on 2 to 10 day intervals.

The highest $\bar{x}$ no. H. virescens larvae/plant was recorded September 8th (0.739 larvae/plant) (Some tobacco plants were in the flowering stage stage and had not been topped). The lowest larval density was recorded August 6th (0.0091 larvae/plant). Fifty percent of the sample days produced larval densities of H. virescens above economic threshold levels (0.10 larvae/plant).

The highest H. zea density recorded on corn was on July 25th (6.06 larvae/ear). The lowest H. zea density recorded was on September 23rd (0.24 larvae/ear).

1986 PESTS OF CORN, TOBACCO, ALFALFA & VEGETABLES

Bill Shamiyeh
Entomology and Plant Pathology

ALFALFA - Due to the dry weather conditions this year, alfalfa weevil caused heavy infestations and damage in Middle Tennessee. Populations were lower in East Tennessee.

CORN - Corn in East Tennessee had a 78% infestation level of European corn borer (ECB). The first flight of ECB in Middle Tennessee was heavy and resulted in 40% infestation.

On late-corn, fall armyworm infestation levels reached 18% in East Tennessee and 90-100% in Middle Tennessee.

TOBACCO - This year's drought resulted in heavy infestations of the pink form of green peach aphids. In East TN, late-season populations were lower.

Flea beetles reached threshold early season (3/plant) and mid-season (15/plant).

Hornworms reached threshold in Middle and East TN.

SNAP BEANS - On the Cumberland Plateau, all species of snap bean pests were low.

BROCCOLI - On the Cumberland Plateau, flea beetles were active early-season. Low populations of cabbageworm and an average of 10 cabbage loopers/ 15 ft. of row were seen.

JAPANESE BEETLE - Populations have advanced to within 20 miles of Nashville. Lower populations were seen across East TN except for Greene County.

1986 LIVESTOCK nad FORAGE INSECT PROBLEMS

Gene Burgess
Extension Entomology and Plant Pathology

Livestock - Horn fly, stable fly and house fly populations were all at moderate levels. Low levels of face flies were seen in 1986.

Forage - Several alfalfa fields were treated this year for alfalfa weevils.

Heavy populations of potato leafhopper occured in several counties, resulting in a good percentage of hopper burn.

Green Peach Aphid on Tobacco

Charles Pless and Jay Avery

Green peach aphids were monitored on TN 86 burley tobacco throughout the 1986 growing season at two East Tennessee locations. They began to colonize plants at both Mountain City and Greeneville in early July. By July 8 at Greeneville, there was an average of 2 aphids per plant. By August 14 at that location, the average number was 644 per plant. At Mountain City the average population size was 4 aphids per plant on July 15. By the end of July the number had reached only 57 aphids per plant. The tobacco was topped soon afterwards.

Pest Problems In Soybeans and Cotton in 1986 R. E. Caron

Soybeans

Bean leaf beetles were heavy on newly emerged soybeans in some fields. Much of the damage showed up as delayed maturity of the crop since the beans were able to grow out of attack by these beetles.

Up until July 11, 0-5% foliage loss was reported by soybean scouts and others observing soybean fields. That is, very few problems were caused by insects.

The crop in general was hurting due to diseases and, in many areas, dry weather by July 18.

By July 25, a few fields in western West Tennessee were showing signs of plant lodging (greater than 50% lodging in a field or two). Closer examination revealed previous stem girdling by three-cornered alfalfa hoppers. Defoliation of plants remained light.

By August 8, grasshoppers became more numerous in soybeans, especially in field edges. Defoliation continued to increase by August 15, due to bean leaf beetles, grasshoppers and worms, especially corn earworms, green cloverworms, and yellowstriped armyworms.

Blister beetle (striped and margined) damage to soybean foliage began to show up in various fields by August 22.

By August 29, green cloverworm populations increased sharply, with impending problems from corn earworms and stinkbugs on soybean pods.

During middle to late September, corn earworm and green cloverworm populations were at treatable levels in many fields. Corn earworms were causing damage to pods, while green cloverworms were injuring foliage.

Cotton

Boll weevil emergence was heaviest from overwintering sites in Fayette, McNairy, and Hardin Counties based upon Spring 1986 pheromone trapping. In 1985, these counties contained the highest potentially overwintering populations based upon late season scouting and fall pheromone trap monitoring. Over all of Tennessee's 1986 cotton acreage, boll weevil damage was virtually nil. But farmers in southern Fayette, McNairy and Hardin Counties battled the boll weevil for much of the growing season. Light weevil damage began to show up in other scattered counties during mid-late season. These included Shelby, Tipton, Chester, Henderson, and Hardeman Counties. This fall, pheromone traps will be monitored to detect dispersal and overwintering potential of the weevils.

The 1986 growing season began with thrips problems (as usual) on emerging cotton. Thrips pressure was heavy in some fields but populations never attained the overall heavy and sustained pressure that occurred in 1984.

Tarnished plant bug problems were extremely light in pinhead-stage cotton. Higher than normal populations of predatory big-eyed bugs were present at that time.

Green stinkbug populations were damaging in relatively few fields. Insecticide applications were made for stink bugs, but populations fell far short of the devastating numbers in cotton in 1985. In 1985, much yield loss and reduced lint quality occurred due to stink bug feeding on bolls.

Bollworm/tobacco budworm pressure in cotton has been the worst since perhaps the mid 1970's. Worms were present in subeconomic levels through the mid-season. By late July, a major egg-laying period began to occur with the majority of cotton fields requiring insecticide applications for worms one to three weeks later.

Spider mites, aphids, and whiteflies were present in most fields but very seldom did fields show a need for control of these pests.

G. L. Lentz

Insect Damage 1986

Tennessee Estimate

Cotton

Boll Weevil	15% x 3000 A ÷ 290,000 A =	.16%
Heliothis zea	4% x 290,000 A =	4.%
H. virescens	2% x 290,000	2. %
Mites	1% x 100,000 ÷ 290,000 =	.34%
Aphids	2% x 75,000 ÷ 290,000	.5%
Thrips	2% x 290,000	2.%
Plant Bug	1% x 290,000	1.%
Stink Bug	3% x 5000 ÷ 290,000	.05%
	Σ =	10.05%
Drought!		.15%

Soybean

Heliothis zea	2% x 10,000 A ÷ 1.5 million A = .00013	.01%
Green cloverworm		1.5%
Stink Bug		< .2%
Bean leaf beetle		1%
Mexican bean beetle		< .1%
	Σ =	2.8%
Drought!		20%

COTTON INSECTS AND MITES -- 1986

From Bill Wyatt
Associate Extension Agent

Thrips and Plant Bugs were at treatable levels in most cotton fields.

HELIOTHIS--Infestations were at or above economic threshold levels in most areas at some point during July - August. Populations were generally higher than in the previous 6 or 8 years.

STINK BUGS--were no problem.

SPIDER MITE and APHID--populations were rarely above threshold levels.

BOLL WEEVIL--populations in Southern half of Fayette County reached 10% or higher square damage in many fields during August.

EARLY FALL BOLL WEEVIL trap results show boll weevils are moving into at least the Southern half of Madison and Haywood counties.

This information has been from observations in Fayette, Hardeman, Haywood, Madison and Gibson counties.

Agricultural Extension Service
University of Tennessee Institute of Agriculture

P. O. Box 1071
Knoxville, Tennessee 37901-1071

October 2, 1986

Dr. Jaime Yanes, Jr.
Assistant Professor
Agricultural Extension Service
P. O. Box 110019
Nashville, TN 37222-0019

Dear Jaime:

This is a report for the TEA on the homeowner vegetables, fruits, ornamentals and household structural pest situation for 1986.

Two new pest species, blackvine weevil and Japanese weevil, have been reported. Information listed in paragraphs below..

The white fringed beetle made a delayed appearance and adults continued to be active into early October.

The European hornet has advanced west in Tennessee to Shelby County. The boxelder bug has been very common, occurring in large infestations from April until October.

Three colonies of the dry wood termite were reported in Knox County in 1985-86.

No accurate data has been compiled on structural or household pests in Tennessee that would provide accurate estimates of the damage or cost of control for these pests. (In excess of $52,910,550 dollars, HEW)

NEW PEST RECORDS FOR TENNESSEE
JAPANESE WEEVIL AND BLACK VINE WEEVIL

The Japanese weevil (Pseudocneorhinus bifasiatus (Roelots)), varies in size from 4.5 to 7.0 mm. It is light or dark brown with a short, blunt snout. The wing covers are striped with indistinct

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THE UNIVERSITY OF TENNESSEE, THE U.S. DEPARTMENT OF AGRICULTURE, AND COUNTY GOVERNMENTS COOPERATING

white lines in the grooves, white spots on the apical half and a dark brown or black transverse band. This pest was first found near Philadelphia, PA in 1914 and is now established in New England, the midAtlantic states, Kentucky and Indiana. Host plants include ash, azalea, barberry, burr marigold, camellia, dogwood, elm, fern, hemlock, holly, lilac, mountain laurel, privet, rhododendron, rose, spirea, strawberry and weigela. This pest feeds on roots, leaves and shoots. The insect is parthenogenic. Infestation detected in Anderson County.

The oblong blackvine weevil (Otiorhynous sulcatus (Fabricius)), is 10 to 11 mm long and has a short snout. The elytra possess many rounded tubercules, each with a short setae. The body is blackish-brown; the antennae are black and slightly pudescent and the head is smoother than the thorax. This insect was found in Connecticut in 1910, and has spread to the midwest and southeastern states. Some of the preferred host plants are hemlock, rhododendron and yew. An infestation was detected in Washington County in 1986.

Sincerely,

Harry E. Williams
Professor

HEW/sg

Pest Problems in Commercial Horticultural Crops and Dark Tobacco in 1986

Jaime Yanes, Jr.
Extension Entomologist

1. **Woody Ornamentals** - White pine aphids and pine bark adelgids were most active in late-April on Eastern white pines in nurseries and Christmas tree farms. Euonymus scale was a problem in May, primarily in landscape situations. Spider mites became a problem early-season due to the severe populations from 1985. Maple petiole borer pressure was somewhat lighter this year on maples. Maples were hardest hit by leaf-hoppers this year. Woolly apple aphids remained a problem on roots of crabapples and apple trees. Nan-tucket pine tip moth was a severe pest more in West Tennessee Virginia pines. Flat headed apple tree borers cause about 10% damage to maple liners in nurseries.

2. **Commercial Fruit**- The spotted tentiform leafminer was found for the first time on apples in East Tennessee. European red mites were the biggest problem this year in apples. Miticide sprayings for this insect began earlier than usual. About 1% of total apples sampled had tarnished plant bug damage. Peach tree borers were a problem in some peach orchards. Grape phylloxora

pressure was heavy in certain vineyards in Tennessee. Strawberry fields were attacked by root weevils, crown borers and clippers. Up to 15% of some fields were destroyed by these insects.

3. **Commercial Vegetables**- Imported cabbageworms were a problem early-spring in crucifers. In mid-April, cutworms were observed "cutting" tomato seedlings. Thrips were a major problem in tomatoes this year. This insect vectored tomato spotted wilt virus which spread from West to Middle Tennessee in a matter of a few weeks. Sweet corn was damaged mostly by European corn borers in mid-June and corn earworm (after July 1). May and August were the months where bean leaf beetle hit southern peas and snap beans the hardest. In the fall, cabbage loopers were a problem on cabbage.
4. **Greenhouses**- Aphids and spider mites were a problem earlier this year, as early as late-March. Fungus gnats and thrips were occasional pests on greenhouse plants.
5. **Turf**- Japanese beetles were a problem in East Tennessee turf. May beetles and green June beetles were heavy this year. Sod webworm moth flights were seen in mid-May and early-September. Golf course turf was damaged mainly by grubs.
6. **Dark Tobacco**- Early season, the thrips moved in mainly on burley tobacco, vectoring tomato spotted wilt virus. The biggest pest problem was with green peach aphids.

INSECT CONDITIONS REPORT - 1986

Bruce Kauffman

Forest Insects

More loblolly pines have been defoliated this year by the loblolly pine sawfly (Neodiprion taedae linearis Ross.) in the southern half of West Tennessee and western portion of Middle Tennessee than in 1985. Although a greater percentage of pines were infested, the majority were defoliated less than 50 percent except for scattered smaller plantings.

Southern pine beetle (Dendroctonus frontalis Zimmermann) infestations have intensified in Fayette, Hardeman, Chester, Hardin and Wayne Counties. To date, the majority of the more than 500 spots recorded in the state have been in these counties. Other counties with a lesser number of infestations include Hamilton, Marion, McMinn and McNairy. Rainfall shortages in some counties have increased the number of Ips spp. and black turpentine beetle (Dendroctonus terebrans (Olivier)) - infested trees. Some Ips spp. spots have ranged up to 20 trees in size. Southern pine beetle spots should increase in number and size statewide next year which could threaten more pines in East Tennessee. Last year, only four spots were reported involving the southern pine beetle.

Winter browning of loblolly pine in northern Middle Tennessee was much reduced from last year's symptoms. Most loblolly pines were unaffected by the milder winter temperatures except scattered stands on the northern Cumberland Plateau and in northeastern Tennessee where less than 50 percent needle browning was reported.

Frost killed the leaves of hardwoods in Middle and East Tennessee. Hackberry, black walnut, black locust, and sycamore were the most affected in Middle Tennessee. Some hackberries in low-lying areas suffered 100 percent defoliation. In East Tennessee, leaves of yellow poplar, sycamore, black walnut, and some of the red oak group were killed. Leaf browning of black locust by the locust leaf miner (Odontota dorsalis (Thunberg)) was reduced in most counties in the state. Scattered heavy infestations (over 50 percent defoliation) were present in Middle and East Tennessee, but the majority of the stands were not defoliated as severely as last year. Eastern tent catepillar (Malacosoma americanum (Fabricius)) populations increased this year. The majority of the black cherries statewide suffered less than 50 percent defoliation, although scattered areas of heavier defoliation were reported.

Various species of inchworms and caterpillars lightly fed (under 30 percent defoliation) on hardwoods of the oak-hickory and hackberry-elm types in some areas of Middle and East Tennessee. The more common species include the green fruitworm (Lithophane antennata (Walker)), hackberry butterfly (Asterocampa celtis (Boisduval & LeConte)), spring cankerworm (Palecrita vernata (Peck)), fall cankerworm (Alsophila pometaria (Harris)), linden looper (Erannis tiliara (Harris)).

Yellow poplar weevil (Odontopus calceatus (Say)) feeding spread to Pickett and Clay Counties but was non-existent in Knox County. As last year, yellow poplar scattered over 40,000 acres suffered more than 50 percent defoliation of their crowns. Weevil feeding continued in Anderson, Overton, and Union Counties. Frost damage to some yellow poplar leaves may have reduced the weevil population. White pine cone beetle (Conophthorus coniperda (Schwarz)) infestations in state seed orchards in Morgan, Scott, and Pickett Counties caused the loss of most all of the second year cones for the second year in a row. Only the Knox County orchard had any cones left to harvest for seed.

Gypsy moth (Lymantria dispar (L)) trapping yielded 22 moths caught in five counties. This catch total was the lowest since 1981. Over 4,400 traps were placed in Johnson, Sullivan, and Carter Counties with no positive catches. The breakdown of moth catches by county was as follows: Davidson County, 10 moths with one multiple trap catch; Greene County, 2 moths; Sevier County 7 moths with one multiple catch; Sumner County, 1 moth and a new county record; Wilson County, 2 moths.

Fall webworms (Hyphantria cunea (Drury)) caused generally light defoliation of elm, black walnut, boxelder, hickory, persimmon, redbud and black cherry statewide. White pine weevil (Pissodes strobi (Peck)) damage has increased over last year in Christmas tree and seed orchard plantings in the northern half of the Cumberland Plateau and East Tennessee.

Hickory decline combined with infestations by the hickory bark beetle (Scolytus quadrispinosus Say) have caused scattered tree mortality in Middle and East Tennessee. On the same sites in Middle Tennessee, the two-lined chestnut borer (Agrilus bilineatus (Weber)) has attacked declining oaks.

Shade Tree Insects

The cottony maple scale (Pulvinaria innumerablis (Rathuon)) showed up in larger numbers on silver and red maple this year in northern Middle Tennessee and Cumberland Plateau. Bagworm (Thyridopteryx ephemeraeformis (Haworth)) populations in Middle Tennessee are slowly building up on eastern red cedar. Most all defoliation remains under 50 percent. Generally light infestations of the mimosa webworm (Homadaula anisocentra Meyrick) were present on honey locust and mimosa in Middle and West Tennessee.

Reports of aphid damage to leaves of yellow poplar, red oak, and maple in Middle and West Tennessee may signal a population buildup next year. Phylloxeras on hickory and adelgids on eastern white pine may cause more damage next spring.

TENNESSEE DEPARTMENT OF AGRICULTURE
Division of Plant Industries
Ellington Agricultural Center
Box 40627, Melrose Station
Nashville, Tennessee 37204

TO: Dr. Jamie Yanes, IDEP Committee Chairman

FROM: Michael E. Cooper, Entomologist III MEC

SUBJECT: Tennessee Entomological Society
Prediction and Evaluation Report

DATE: October 20, 1986

The first pest of the season to make an impact was the Alfalfa weevil. By the end of April, populations were the heaviest they had been in several years. Early cutting and post-harvest treatments were made in many areas.

Boll weevil activity has increased over previous years, especially in the southern tier of cotton growing counties. Bollworm activity on cotton started earlier than usual (mid-July) and continued through August at higher levels than in previous years. The western flower thrips was a problem through most of early summer causing problems for greenhouse operators, and along with other thrips species, may have been responsible for an outbreak of Tobacco Spotted Wilt Virus on tomatoes, peppers, and tobacco.

The cereal leaf beetle reached economic levels in Montgomery, Robertson, and Sumner Counties for the second year in a row. Spider mites were a problem on a number of crops for the entire growing season. The soybean stem borer (Dectes texanus texanus LeConte) was found infesting a field in Lake County. This was the first report of this pest in several years.

In regulatory work, approximately 9,000-10,000 gypsy moth traps were placed throughout the state and only 22 moths were caught. Most of these moths were caught at campgrounds associated with the states heavily traveled tourist areas such as Nashville and Gatlinburg. No moths were caught in the Johnson County area. There had been an infestation located there. Two instances of honeybee tracheal mites were found in two swarms of honeybees left behind by migratory beekeepers at separate truck stops. The swarms were both destroyed. Detection of red imported fire

ants continues. Four spots in Nashville were found during 1985-86 and several more spots have been located in Shelby County. Survey and eradication efforts are continuing.

Brood X of the 17 year periodical cicada is due to make an appearance in East Tennessee during the 1987 season, with scattered emergences in Middle and West Tennessee. Brood XXI of the 13 year periodical cicada is projected to emerge in Kentucky in 1987, but there are no distribution records for this cicada in Tennessee. If the mild, dry winters continue, problems with spidermites, alfalfa weevils, bollworms, boll weevils, southern pine beetles and others will get worse.

ABSTRACTS OF THE FIFTEENTH ANNUAL METING
October 22 - 23, 1987

MUSIC CITY RODEWAY INN

A Preliminary Report on the Coreoidea (Hemiptera: Heteroptera) of Northeastern Arkansas, with Notes on the Biology of Selected Species - Robin M. Smith and Harvey E. Barton, Arkansas State University, Jonesboro, Arkansas

Twenty-two species of Coreoidea (Coreidae, Alydidae, Rhopalidae) are reported for northeastern Arkansas. Coreidae is represented by 11 species, Acanthocephala terminalis being the most common species. There are three species of Alydidae with Alydus pilosulus reported as most common. Harmostes reflexulus is the most commonly collected rhopalid with eight species of this family reported in northeastern Arkansas. Geographic distribution, seasonal occurrence as well as host plant preferences, where known, are discussed for representative species of each family.

Liorhyssus hyalinus was laboratory reared from field collected eggs to the adult stage on Euphorbia maculata (Euphorbiaceae). The eggs occur on leaves of the host plant in single-layered clusters of 12-40. First through fifth nymphal instars averaged 12.6, 6, 4, 2.3, and 4.3 days respectively.

Scale Insects of the Great Smoky Mountains - Keith Watson and Paris Lambdin, University of Tennessee, Knoxville, TN

The first comprehensive study on the scale insects (Homoptera: Coccidea) of the Great Smoky Mountains National Park (GSMNP) resulted in the collection of fifty-three species representing six families from which seven new collection records for Tennessee were obtained. In addition, six specimens were discovered that possibly represent new species.

A higher number of species were collected at lower elevational vegetative types and decreased inversely with elevation. One exception was the occurence of a higher number of species recorded and total number of collections made on the balds at higher elevations.

Species distribution of scale insects was positively correlated to host diversity. The hemlock-hardwood and the oak-chestnut cover types supported more scale species than any other forest cover type. Several species were polyphagus and cosmoplitan while others had restricted hosts and a limited distribution. More scale insects were collected in previously cutover and cultivated areas than any other type of vegetative habitat.

Fifty-six host plants in 27 families and 40 genera were recorded as hosts for scale insects in the GSMNP. More species of Pinaceae and Rosaceae were recorded as hosts for coccoids, and trees in the family Betulaceae supported more species than other hosts families.

Based on the Shannon-Weaver diversity index value, 33 species were considered rare and two species Parthenolecanium corni (Brouche) and Abgrallaspis ithacae (Ferris), were abundantly collected. P. corni was collected from 25 hosts from a variety of

elevational zones and represented the greatest potential to damage hosts in the GSMNP.

Monitoring Clearwing Moth Populations using Pheromone Traps - Laura Rogers, Jerome F. Grant, and Charles D. Pless, University of Tennessee, Knoxville, TN

Pheromone traps were placed in commercial, urban, and forest systems in Tennessee and monitored weekly to determine the seasonal incidence of clearwing moth populations. Six species of clearwing moths were collected: dogwood borer, Synanthedon scitula: rhododendron borer, Synanthedon rhododendri; peachtree borer, Synanthedon exitiosa; lilac borer, Podosesia syringae; oak borer, Paranthrene simulans var. "palmi"; and a viburnum borer, Synanthedon fatifera.

Activity of adult dogwood borers, a serious pest of dogwoods, was bimodal, with one peak occurring in mid-May and a second peak occurring in early August. The lilac borer exhibited a high spring adult emergence, peaking at the end of May and tapering off to low numbers by the end of July. Adult peachtree borer activity began in mid-May and continued through the second week of September, peaking during mid-August.

These borer species cause considerable damage to many woody shrubs and trees in Tennessee and are difficult to control. With the use of pheromone traps, insecticide treatments can be better timed with adult activity to provide maximum control of the damaging stage of these pests.

Notes on the Biology of Thyanta calceata (Hemiptera: Pentatomidae) on Tephrosia virginiana (Leguminosae): A New Host - Phoebe A. Harp and Harvey E. Barton, Arkansas State University, Jonesboro, Arkansas

The insect taxa found on Tephrosia virginiana were monitored weekly during 28 April - 7 August 1987. Of the 82 taxa found on this plant, nine were consistently more abundant. Aphididae, the most abundant taxon, occurred more often during prebloom and postbloom stages of T. virginiana; Apioninae, second in abundance, was present in greatest numbers during flowering season. Lepidoptera larvae, third in frequency, were collected most often during postbloom; while the fourth taxon, Formicidae, occurred most often during flowering. The remaining taxa, Cicadellidae, Pentatomidae, Miridae, Orthoptera nymphs and Lygaeidae, were present during the flowering and postbloom seasons of this plant.

During this study, T. virginiana was definitely identified as a host plant, previously unreported, for T. calceata. This pentatomid was collected from its host in the adult as well as 2nd - 5th nymphal instar stages.

Heliothis Populations on Tobacco In Eastern Tennessee - Doug Bidlack, Jerome F. Grant, and Charles D. Pless, University of Tennessee, Knoxville, TN

The influence of 37 breeding lines and 3 standard cultivars on densities of Heliothis and selected predator populations on tobacco was monitored weekly at two locations in eastern Tennessee. Presence or absence of leaf trichome exudates was determined for

all breeding lines. Four lines were free of sticky exudates. Prior to blooming of the plants, tobacco budworm, stilt bug, and lady beetle populations were positively correlated with presence of leaf exudates. Adult predator populations were present on exudate-free and exudate-producing plants, but immature stages of predators were found only on exudate-producing plants. An exudate-producing standard cultivar, TN-86, and an exudate-free breeding line, TI 1112, both supported low populations of all stages of these predators; however, exudate-producing progeny produced by a cross of these two lines supported large populations of adult and immature predators.

Ectoparasites of Indonesia - Lance Durden (Invitational)

No Abstract Submitted

Scale Insects: Application of SAS Procedures for Morphometric Evaluations - Paris Lambdin, University of Tennessee, Knoxville, TN

A problem often encountered when there are several species in a taxon is trying to retain all the many numeric values necessary to make comparisons of the various characteristics. Entry of the data in the computer files significantly reduces the potential of error from overlooking traits or even species in addition to providing a format for data analysis. It is a useful time saving device for handling large amounts of data for simultaneous comparisons. The Statistical Analysis System (SAS) was selected to provide a means for morphometric evaluation of scale insect taxa. The major advantage of the SAS system is it's flexibility. Once a data file has been developed, the system offers a wide range of options for data analysis.

Data values (both alpha and numeric) for 97 variables were entered for each of 55 species of Cerococcidae using SAS in the non-interactive mode. The conservational monitor system (CMS) was used to create edit, copy and modify the file. In the input statement, each variable consisted of 4 - 8 characters with each variable seperated by two blank spaces for recognition. Once the variable size is designated it is important that all spaces be filled to obtain consistancy for comparison of the variables. Selected variables were subjected to: analysis of variance for mean seperation. Correlation matrices were obtained for comparable variables. By using SAS graphics, means of selected variables may be plotted to illustrate simple linear regressions, arranged in frequency bar charts, distribution frequency maps to evaluate relationships.

The data were entered using SAS in the non-interactive mode to creat a CMS disk file (fixed-length of 80 characters) containing the SAS statements desired to compare the data.

Culicoides spp. in Small Tree Holes - Reid Gerhardt, University of Tennessee, Knoxville, Tennessee

Emergence traps were placed over the exit holes of 100 small treeholes in hardwood trees. Culicoides that emerged were: C. guttipennis, C. paraensis, C. footei, and C. hinmani.

Effect of Conservation Tillage Systems on Fate and Persistence of Fenvalerate and Impact on Soil and Foliar Arthropods - Gary L. Lentz, University of Tennessee, Jackson, Tennessee

Early and late season applications of fenvalerate (Pydrin) were studied in two soybean tillage systems for their impact on soil and foliar arthropods and for their persistence on the foliage and in the soil. In the two-year study, no significant differences in Pydrin plant residues were noted between tillage systems for either the early or late spray program. Plant-associated residues declined to lower levels in the early spray program than in the late spray program. Soil residues in the early spray program were significantly higher than in the late spray program. Soil residues were significantly higher in the no-till system only in the early spray program at the time of application. The amount of Pydrin reaching the soil during the late spray program was ca. one-tenth that found in the early spray program. In general, soil and foliar arthropods were not affected by either treatment or tillage system.

The Butterflies of Northeast Tennessee - Charles N. Watson and John A. Hyatt

Here we give the results of a ten year survey of the butterflies found in a seven-county, 2700 sq. mi. area of Northeast Tennessee. Ninety-one species are listed and their seasonal occurrence tabulated on a ten-day basis. Twenty-seven species are judged to be univoltine, twenty-nine are considered bivoltine, and twenty-one are multivoltine. The remainder are judged to be migrants or strays that do not overwinter in Northeast Tennessee. A comparison of our species list with that of Southwest Virginia and North Georgia indicates that the local butterfly fauna lacks a number of lowland species that occur in North Georgia, and some typically northern species found in Southwest Virginia. A number of species known to occur in both Southwest Virginia and North Georgia, but not recorded from Northeast Tennessee, will probably be found there in the future.

Insects in Tennessee Soybeans - Dr. Richard E. Caron, University of Tennessee, Extension Service, Jackson, Tennessee

For most of its growing season, the soybean plant attracts a variety of arthropod species. Pest species can be responsible for upward of 5-10% yield loss in some years.

Soybean seedlings are susceptible to attack from the three-cornered alfalfa hopper and the bean leaf beetle. Three-cornered alfalfa hoppers injure the young plant stem resulting in plant lodging later in the season. Bean leaf beetles attack newly

emerging soybeans and chew holes in leaves for the remainder of the growing season.

Other soybean defoliator pest species include blister beetles (striped and margined) and several grasshopper species. In eastern Tennessee, the Mexican bean beetle and Japanese beetle cause leaf injury to soybeans. Green cloverworms and a few looper species add to leaf damage across the state.

The major pod feeders include stink bug (green and brown) adults and immatures. Corn earworms and fall armyworms attack pods, blooms, and leaves.

Spider mites may cause leaf injury under persistent hot and dry conditions.

Various predator, parasite and disease organisms tend to keep arthropod pest populations in check. Routine soybean scouting is essential for arthropod pest detection and control. Scouting enables the grower to use insecticides in a judicious manner.

Checklist of Fossil Insects in Tar Pits - Omar E. Smith, Ph.D., Memphis State University, Memphis, Tennessee

Very little has been reported as to the identification of insects in tar pits and tar seeps. Most research has been centered around the collecting of fossilized mammals with some predaceous living beetles.

Samples were collected and sent to Pink Palace Field Station and identified by the author. Four orders representing 12 families of Insects were noted. Two separate classes were also found and identified. Over 200 insects have been collected and hopefully some can be identified to the species level.

Most of these fossil insects still have living relatives. These fossil forms have been dated to the Pleistocena era, 25,000 years ago.

Dursban Resistance in the German Cockroach: A Comparative Study - Harold Bancroft and Bobby R. Jones, Memphis State University, Memphis, TN

A local strain (MSU) of the German cockroach and a strain obtained from Texas A&M University (A&M) were compared with the susceptible strain (Hazard) for resistance to Dursban LO. The experiment was designed to give a liberal or sensitive measurement of resistance. We hoped to select for populations which would be good candidates for study of the genetics of resistance in this species. To this purpose roaches were subjected to tarsal contact with Dursban on glass for an hour, removed from treatment and held for mortality count at 48 hours post treatment. Six dosages were applied to each sex of each strain.

Mortality percent data was converted to probit for regression analysis. LD_{50} and LD_{90} values were calculated from the regression line. Comparison of resistant strains to the susceptible Hazard strain revealed a resistant/susceptible ratio of 3.56 and 7.56 respectively for the males of A&M and MSU strains. A lower ratio of resistance was recorded in females of both strains at 1.89 and 5.93 respectively for A&M and MSU strains.

Some Trends in Agriculture and in Industry which will Impact Entomology - Carroll J. Southards, University of Tennessee, Knoxville, TN

Agricultural Productivity has grown the last half of this century at 1.5 to 3.0% per year, which is tree times that of the industrial sector. Productivity must continue to grow at 1.5%/year to meet population projections. Without the use of pesticides, it is estimated that crop productivity would drop by 30% and the cost of food would increase by up to 50%. Since chemicals became the primary arsenal of combating pests in the forties and fifties, the trend has been toward the development of compounds which are tremendously more active, therefore, requiring much less active ingredients. This has reduced the amount of pesticide going into our environment and results in less problems with degradation and effects on non-target organisms. Also, there has been a trend toward higher registration costs, greater specificity, and a systems approach to integrated pest management.

Biotechnology offers greater opportunities for improvement of crop production through such means as microbial manipulation for biocontrol, improved disease resistance, herbicide resistance, and photosynthesis or nitrogen fixation.

Several innovative things are now being researched which may have great potential as alternative controls to pesticides. For example certain sticky traps are visual mimies of appealing vegetative or fruit parts which attract more specific insect species and trap them. Also, artificial pheromones are being sprayed on apple trees to signal apple maggot adults that eggs have already been layed on the apple fruits, thus preventing the maggots from laying eggs. Some small experimental orchards have been able to reduce to less than one-third the number of sprays required by using these or similar techniques. This trend will likely continue with more commodities and different kinds of insect.

In order to continue achieving high productivity in agriculture, especially from the standpoint of entomologists, we must expand our efforts in interdisciplinary research, especially on IPM and alternative controls. More public awareness of problems associated with food production is needed, and more support for research from the public and industry is needed. There should be sufficient incentives to discover and develop new solutions to old problems.

Incidence of Hessian Fly and Cereal Leaf Beetle on Wheat: An Update - Jerome F. Grant, University of Tennessee, Knoxville, TN

A two-year study was conducted during 1986 and 1987 to assess distribution and infestation levels of Hessian fly, Mayetiola destructor (Diptera: Cecidomyiidae), on wheat in Tennessee. Research was initiated during 1987 to evaluate the influence of wheat varieties and planting dates on Hessian fly infestations. Studies were also begun to investigate the life history (seasonal incidence, biotypes, number of generations/yr, natural enemies, etc.) of Hessian fly in the state. Cereal leaf beetle, Oulema melanopus (Coleoptera: Chrysomelidae), populations were abundant during 1987 and research was directed towards obtaining a better understanding of their population dynamics.

Hessian fly was distributed across the state during both years of this study. Spring-infested wheat was found in 88 and 97% of the sampled fields during 1986 and 1987, respectively. The average % tiller infestations/field were 15.3 and 10.1% during 1986 and 1987, respectively. The average number of Hessian flies/tiller were 0.26 and 0.16 during 1986 and 1987, respectively. Hessian fly densities (larvae + flaxseed) in one wheat field at the Highland Rim Experiment Station, Springfield, TN, peaked on May 21, reaching a maximum of ca.1.1/tiller. Larvae were present in the field from April 23 to May 14. Data suggest that there are only two generations/year in Tennessee.

Damage to wheat by cereal leaf beetle was reported in Robertson Co. In one wheat field at Springfield, TN, larval densities peaked at 1.2/tiller on May 14. Larvae were present in this field from April 23 to May 14. No larval parasitoids or entomopathogens of cereal leaf beetle were recovered.

The Black Imported Fire Ant, Solenopsis richteri Forel: A New State Record - Michael E. Cooper, Plant Industries Division, Tennessee Department of Agriculture, Nashville, TN

The Black Imported Fire Ant (BIFA) was found infesting a pine plantation during May of 1987 in Hardin County, Tennessee, Just north of the Tennessee River. While this species has been endemic in Northern Mississippi for some time this is the first instance of it having been reported in Tennessee. Subsequent surveys of the surround area found several more infestations including several on, Pickwick State Park property. During June an infestation was found in Wayne County.

Update on the Varroa Mite - Harry Williams, University of Tennessee, Knoxville, TN

No Abstract Submitted

Tennessee Entomological Society
Minutes of the 1987 Annual Meeting

October 22-23, 1987

Board of Directors Meeting
(10:52 A.M., October 22)

Present: Bill Shamiyeh, Joe Dunn, Russ Patrick, Mike Cooper, John Hammett, Rich Caron.

President-Elect Bill Shamiyeh called the meeting to order at the Music City Rodeway Inn, Nashville, TN.

1. Banquet menu was discussed and the banquet and menu were passed by the Board. No guest speaker for banquet.

2. The only new member to be accepted was Larry Thead, Pennwalt.

3. Sustaining membership dues were discussed. A $25.00 sustaining membership was agreed upon, plus $5.00 membership dues for company representative. Sustaining membership is an option for the company in addition to T.E.S. individual membership.

4. There are no honorary members to approve.

   John A. Hammett was selectedby the Board for honorary member.

   Existing honorary members are Jimmy White, Myron Smith, Myrtice and M. E. Snodgrass, Carl Brown, and Howard Bruer.

5. Two additional papers were added to the program: Omar Smith: "Checklist of fossil insects in tarpits" and Harry Williams. "Update on the Varroa mite: a parasite in honeybee colonies."

6. T.E.S. Pins: The original die for our T.E.S. pins was located in Memphis at Josten's by Harold Bancroft. Fifty pins were purchased at $9.25 each plus tax plus shipping for a total of $497.26. The Board approved the sale of each pin at $10.00.

7. Dues, Registration and Banquet (1987):
   $ 5.00 dues (approved by membership last year)
   12.00 registration (approved by Board)
   11.00 banquet (approved by Board)
   $28.00 total

8. Honorary members do not have to pay registration dues, just the banquet. Students (presenting papers) pay $1.00 dues, no registration, no banquet. Students (not presenting papers) pay $1.00 dues, no registration, pay for banquet.

9. Board discussed Constitutional changes in Article 6, Section 2 and Article 9, Section 1.

   The Board Meeting was adjourned at 11:32 A.M.

Sessions of the Annual Meeting

The 1987 Annual Meeting of the Tennessee Entomological Society was called to order by Harvey Barton at 1:00 P.M., October 22nd. Joe Dunn's commemoration of the late President Elmo Shipp was followed by Reid Gerhardt's presentation of Elmo's presidential plaque to Mrs. Joe Ann Shipp.

Harvey Barton then chaired Session I, beginning an afternoon of twelve papers scheduled to be presented. Session I adjourned at approx. 5 P.M.

The T.E.S. banquet was held from 7:00 to 9:00 P.M. on October 22nd.

The T.E.S. Business Meeting was held on the morning of October 23, followed by five papers during Session II. The 1987 Meeting was adjourned at 11:15 A.M. A Board of Directors meeting was held shortly thereafter.

Business Meeting
(8:15 A.M., October 23)

President-Elect Bill Shamiyeh (assuming responsibilities of deceased President Elmo Shipp) called the Business meeting of the 1987 Meeting of the T.E.S. to order at 8:15 A.M., October 24. President-Elect Shamiyeh thanked all Committee Chairmen, and especially the Local Arrangements Committee for the facilities.

Thanks are also extended to Loretta Johnson for her assistance in registration.

The minutes of the 1986 Meeting (handed out during registration on October 22nd) were accepted by the membership.

Treasurer's Report

Rich Caron, Secretary/Treasurer presented the financial status of T.E.S. up to October 22, 1987 (just prior to registration). The report was accepted by the membership.

Pins are available to anyone who would like to buy one at $10.00 a piece.

Committee Reports

Constitution - M. E. Snodgrass (for Charles Pless, Chairman) - Proposed amendment to the Constitution.

1. Delete sentence number 4 in Article 6, Section 2 that states: "If a member fails to attend an annual meeting and also does not pay dues that year, such member shall be required to pay back dues for the year missed in addition to the current year's dues in order to be in good standing"

2. Delete portion of sentence number 5 in Article 6, Section 2 that states: "If a member fails to pay dues two (2) years in a row, such members shall be dropped from the rolls [and shall have no further rights, title or interest in the Society]

[ ] = deleted.

Accepted for the Constitution as is by the membership.

3. Add to sentence number 1 in Article 9, Section 1 to state: "The Board of Directors shall consist of the immediate past-President, the President, President-Elect, Secretary-Treasurer, and Historian of the Society (and two members-at-large, one of whom shall be a graduate student. The members-at-large shall be elected at the Annual Meeting of the Society and shall serve a term of one year)."

( ) = added

This proposal was discussed at length. It was further proposed by the membership that "one of whom shall be a graduate student" be deleted from the proposed change. Therefore anyone who is a member, graduate student or otherwise can be elected to a Member-at-large. This was a motion and seconded. This was accepted by the membership.

4. Add the word "not" between "shall" and "become" in sentence number 2 in Article 8, Section 6 as printed in "Firefly Notes" (for 1984 and 1985 proceedings). This is a misprint.

Membership Committee - Charles Watson, Chairman-

The T.E.S. Brochure is in progress. There is a question as to how much money we are willing to spend for the brochure. The purpose is to increase membership in T.E.S. It was suggested that 100-200 copies be printed. The mechanics of the brochure was discussed. The geographical dispersal of the brochure was discussed-instate, out of state institutions.

Dr. Gary Lentz recommended that more than 200 brochures be printed.

It is up to the Board of Directors to decide how much money to spend on the brochures.

Program Committee - Bill Shamiyeh, Chairman - Had a full schedule this year. We had five student papers, all were excellent papers. Students were judged for the best paper.

Auditing Committee - James Keener, Chairman - Books are in order.

Publicity Committee - Harry Williams, Chairman - In August on September, the meeting was advertised in the newspapers and on the radio.

Prediction and Evaluation - Jaime Yanes, Chairman - thanked all who contributed, hoped to get more response. Passed out copies of the report.

Publication and Editorial - Mike Cooper, Chairman - Proceedings came out last year. Will need abstracts for next Proceedings. "Firefly Notes" was sent to college and university libraries.

Local Arrangements - Joe Dunn (for Sylvester Davis, Chairman) - Sylvester did a good job on local arrangements.

Awards Committee - Reid Gerhardt, Chairman - Christie Greer, Greene Co., TN placed high in 4-H entomology competition and won the 1987 Bruer Award plaque.

There were five student award papers presented. Members of the Awards Committee judged the students. The winner was Laura Rogers, University of Tennessee. All papers were very good and all students who participated are to be commended. Ms. Rogers will be presented with a check for $50.00 and a letter of commendation.

John A. Hammett received the Entomologist of the Year Award for showing long and distinguished service to the Society and Entomology in Tennessee.

Nominating Committee - Jim Bogard (for Gene Burgess, Chairman)

Russ Patrick was re-elected Historian by acclimation.

Three persons were nominated for President-Elect for 1987-88. These were Harvey Barton, Jaime Yanes, Jr., and Cheryl Wallinder. Harvey Barton was elected President-Elect.

Nominations from the floor were made for Board of Directors Members-at-large. Gary Lentz was nominated and elected Member-at-large. Blake Bevill was nominated and elected Student Member-at-large.

Old Business

Plant Pathologists having joint sessions with the annual T.E.S. meeting was again discussed. Nothing new to report.

New Business

1. It was proposed that the Local Arrangements Committee come up with an alternate plan for the traditional banquet so that we do not lose money.

   Students who give papers should have a free banquet.

   Local Arrangements Committee needs to get back to Board of Directors on alternative measures.

2. Board needs to meet before the next annual meeting (in the summer).

3. Members in arrears issue - Constitution Committee - no progress.

4. Members voted "no" to increase in dues. Kept at $5.00.

5. Awards Committee propose guidelines to judge students and to function. These were established. Judges shall be members of Awards Committee except those who have students in the competition. The number of judges will vary from year to year. There should be at least three judges.

Passing of the Gavel - not formally done this year.

The Business Meeting was adjourned at 9:30 A.M.

Board of Directors Meeting
(11:25 A.M., October 24)

Present: Bill Shamiyeh, Blake Bevill, Harvey Barton, Russ Patrick, Gary Lentz, Mike Cooper and Rich Caron.

President Bill Shamiyeh called the meeting to order at the Music City Rodeway Inn, Nashville, TN.

1. All new members were approved. These were Doug Bidlack, Ruth Barber, Cheryl Wallinder, Phoebe Harp, John Fortino, Larry Thead, Blake Bevill, Robin Smith, and Lee Greer.

2. The Music City Rodeway Inn was approved as the meeting site of the 1988 meeting to be held October 20-21, 1988.

3. Banquet is not a prerequisite for the meeting room. It is imperative that we come up with at least 20 rooms upstairs. People who call in for rooms should say they are with the T.E.S.

4. Board approves dinner at the Music City Rodeway Inn restaurant or elsewhere. Board approved dropping a structured banquet.

5. Past-President Mike Cooper was to send a letter of thanks to the hotel.

6. Board approved to send 1 T.E.S. pin to Loretta Johnson for her extended service during T.E.S. registrations.

7. Board agreed to meet sometime before the next annual meeting in Jackson or Nashville sometime in late summer.

8. A mailing of the program to the membership prior to the meeting was discussed.

The Board of Directors meeting was adjourned at 11:40 A.M.

T.E.S. Treasurer's Report
10/15/87 to 8/17/88

Balance: $1,766.62
(as of 9/30/87)

Expenses 1986-87 (Post Meeting)

UPS Mailing of 20 "Firefly Notes" to Mike Cooper		1.90	
50 T.E.S. Pins		497.26	
2 Cassette Tapes		3.72	
Total		$502.88	
			$1,263.74
			(as of 10/22/87- audited by Auditing Committee, Jim Keener, Chairman)

To Be Audited: New Balance: $1,263.74

Expenses 1987 Meeting

Laura Rogers (Student Winner)		50.00	1,213.74
Brandon's (Plaques)		49.82	1,163.92
Music City Rodeway Inn:			
Coffeebreaks	$44.60		
Overhead Projector	32.33		
Banquet	365.97		
Total	$442.90		721.02

Income 1987 Meeting

Regular dues	$187.00		
Sustaining dues	100.00		
Registration	456.00		
Banquet	297.00		
	$1,040.00		$1,761.02
Pin	10.00		1,771.02

Income 1987-88 (Post-meeting)

Dues	$10.00	1,781.02

Expenses 1987-88 (Post-meeting)

Stamps	$4.40	$1,776.62

COMMITTEE ASSIGNMENTS

NOMINATING

GENE BURGESS-CHAIRMAN
JOE DUNN
OMAR SMITH
JIM BOGARD
JAY AVERY
KEITH WATSON

MEMBERSHIP

CHARLES WATSON JR.-CHAIRMAN
CHARLES PLESS
HAROLD BANCROFT
PARIS LAMBDIN
M. E. SNODGRASS
DOUG BIDLACK
LARRY THEAD
JAY AVERY

AWARDS

GARY LENTZ-CHAIRMAN
JAIME YANES JR.
REID GERHARDT
HARVEY BARTON
DALTON WILSON

CONSTITUTION

M. E. SNODGRASS
JOHN FORTINO
C. J. SOUTHARDS
CHARLES PLESS

AUDITING

C. J. SOUTHARDS-CHAIRMAN
JACKY PAYNE
GARY LENTZ

PROGRAM

HARVEY BARTON-CHAIRMAN
RUSS PATRICK
MIKE COOPER
PARIS LAMBDIN
REID GERHARDT
CHARLES WATSON JR.
HAROLD BANCROFT
JOE DUNN
LARRY THEAD

PREDICTION & EVALUATION

JAMIE YANES-CHAIRMAN
RICHARD CARON
LEE GREER
RUSS PATRICK
BRUCE KAUFFMAN
CHARLES PLESS

PUBLICATION & EDITORIAL

MIKE COOPER-CHAIRMAN
BRUCE KAUFFMAN
JAIME YANES JR.
JIMMY CAGLE

LOCAL ARRANGEMENTS

SYLVESTER DAVIS-CHAIRMAN
JIM BOGARD
CHERYL WALLINDER

PUBLICITY

HARRY WILLIAMS-CHAIRMAN
LYNN SNODDERLY
SYLVESTER DAVIS

ATTENDANCE ROSTER OF THE 1987 15th ANNUAL MEETING
OF THE TENNESSEE ENTOMOLOGICAL SOCIETY

Member	Affiliation	Location
Avery, Jay P.	University of Tennessee	Trenton, TN
Bancroft, Harold R.	Memphis State University	Memphis, TN
Barber, Ruth A.	TN Dept. of Ag.	Knoxville, TN
Barton, Harvey	Arkansas State University	State Univ., AR
Bevill, Blake A.	Univ. of AR-Graduate Student	Dell, AR
Bidlack, Douglas S.	University of Tennessee	Knoxville, TN
Bogard, James B.	TN Dept. of Ag.	Nashville, TN
Bolin, Ronald E.	TN Dept. of Ag.	McMinnville, TN
Cagle, Jimmy L.	TN Dept. of Ag.	Winchester, TN
Caron, Richard E.	University of Tennessee	Jackson, TN
Cooper, Michael E.	TN Dept of Ag.	Nashville, TN
Davis, Sylvester	TN Dept. of Ag.	Nashville, TN
Dunn, Joe C.	American Cyanamid	Nashville, TN
Durden, Lance A.	Smithsonian Institute	Washington, D.C.
Eisler, James I.	TN Dept. of Ag.	McMinnville, TN
Fortino, John	Mobay Corporation	Memphis, TN
Gerhardt, Reid R.	University of Tennessee	Knoxville, TN
Grant, Jerome F.	University of Tennessee	Knoxville, TN
Greer, Lee	Chevron Chemical Co.	Dunlap, TN
Hadden, Charles H.	University of Tennessee	Knoxville, TN
Hammett, John A.	TN Dept. of Ag.-Retired	Nashville, TN
Harp, Phoebe A.	Arkansas State University	State Univ., AR
Kauffman, Bruce W.	TN Dept. of Ag.	Nashville, TN
Keener, James A.	TN Dept. of Ag.	Maryville, TN
Lambdin, Paris L.	University of Tennessee	Knoxville, TN
Lentz, Gary L.	University of Tennessee	Jackson, TN
Nabors, Ray A.	University of Missouri	Portageville, MO
Patrick, Charles R.	University of Tennessee	Jackson, TN
Payne, Jack R.	Sandoz Crop Protection	Jonesboro, AR
Rogers, Laura E.	University of Tennessee	Knoxville, TN
Shamiyeh, N. B.	University of Tennessee	Knoxville, TN
Smith, Omar E.	Memphis State University	Memphis, TN
Smith, Robin M.	Arkansas State University	State Univ., AR
Snodderly, Lynn	TN Dept. of Ag.	Knoxville, TN
Snodgrass, Earl M.		Tazewell, TN
Snodgrass, Helen M.		Tazewell, TN
Snodgrass, Mendell	U.S.D.A. Retired	Knoxville, TN
Snodgrass, Myrtice L.		Concord, TN
Southards, Carroll J.	University of Tennessee	Knoxville, TN
Thead, Larry G.	Pennwalt Corporation	Horn Lake, MS
Wallinder, C. J.	FMC Corporation	Murfreesboro, TN
Watson, Charles N., Jr.	Clemson University	Clemson, SC
Watson, Ernest B.	U.S.D.A.	Nashville, TN
Watson, Keith J.	University of Tennessee	Knoxville, TN
Williams, Harry E.	University of Tennessee	Knoxville, TN
Wilson, Dalton L.	U.S.D.A.	Brentwood, TN
Yanes, Jaime	University of Tennessee	Nashville, TN

Tennessee Entomological Society
Minutes of the Board of Directors
and Committee Chairmen Meeting

August 17, 1988

(This meeting was held as an organizational meeting prior to the annual meeting, October 20-21, 1988)

Present: Mike Cooper, Russ Patrick, Bill Shamiyeh, Gene Burgess, Harry Williams, Harvey Barton, Jaime Yanes, Gary Lentz, and Rich Caron.

President Bill Shamiyeh called the meeting to order (11:20 A.M.) at the Extension District II auditorium, Ellington Agricultural Center, Nashville, TN.

Committee Reports

Publication and Editorial Committee - Mike Cooper, Chairman -

A Volume II draft of "Firefly Notes" will be sent shortly to committee members for review. This issue will be dedicated to Elmo Shipp and will cover the 1986 and 1987 T.E.S. meetings.

Nominating Committee - Gene Burgess, Chairman -

The nominating committee will review who has been president in past years to determine who will be selected for nomination as President-Elect. No suggestions for President-Elect were made at this meeting.

Membership Committee - Rich Caron and Harvey Barton (for Charles N. Watson, Jr., Chairman) -

Charles Watson Sent a committee report by mail to Rich Caron prior to the Board Meeting.

- A flyer for T.E.S. was developed containing information on T.E.S.' purpose, membership, dues (on the front) and application for membership (on the reverse). The flyer would cost $29.00 to produce and mail 2 flyers to each of 50 addresses (100 flyers total). Joyce's Print Shop, Clemson, SC can print the flyer for $0.15 each.

- A brochure for T.E.S. is being developed that would describe T.E.S.' activities including the annual meeting, Firefly Notes, Prediction and Evaluation Committee reports, and an application blank. A sample copy should be prepared for discussion at the 1988 meeting. The costs of the brochure (Joyce's print shop) in the form of a simple black ink brochure advertising T.E.S. and has our logo plus 2 black and white photos are as follows:

Number	Typeset	Camera ready copy
500	$127.80	$ 95.80
1,000	162.00	120.00

The flyer and brochure were discussed. The brochure should be in color. The Board felt that a colored brochure may not be much more expensive.

Harry Williams will send the flyer to news media. The Board voted to go with the flyer as presented. The flyer should be printed by Joyce's print shop.

The format of the brochure should be presented at the 1988 meeting. A colored brochure is desirable. More brochures should be ordered initially than flyers, since flyers would change with changes in Secretary/Treasurer (every 3 years), assuming that information on the brochure does not change much.

- A list of Tennessee Colleges and Universities is being prepared and should be available at the 1988 meeting.

Local Arrangements Committee - Mike Cooper (for Sylvester Davis, Chairman) -

Local Arrangements Committee was to report to the Board on alternatives to a structured banquet. Sylvester will report to the Board at a later date. The Board discussed meeting for dinner at a local restaurant or the motel restaurant.

Awards Committee - Gary Lentz, Chairman -

Several 4-H award winners will be considered for the Bruer Award. Nothing else to report at this time.

Constitution Committee - Rich Caron (for M. E. Snodgrass, Chairman) -

M. E. Snodgrass send a committee report by mail to Rich Caron prior to the Board meeting.

The two proposed amendments to the constitution which were submitted to members last year (portions of Article 6, Section 2 and Article 9, Section 1) have now been incorporated into a newly rewritten constitution. Copies should be available to members at the 1988 meeting.

Auditing Committee - Rich Caron (for Carroll Southards, Chairman)

There will be no report until October.

Program Committee - Harvey Barton, Chairman -

Committee members have been contacted for any suggestions on invited speakers. Call for papers are to be sent this week.

Prediction and Evaluation Committee - Jaime Yanes, Chairman -

No formal report. In the next couple of days a letter will be mailed to members requesting reports. These will be compiled and presented at the 1988 meeting.

Publicity Committee - Harry Williams, Chairman -

A meeting announcement will be sent to the media through the Information Office at UT Knoxville. Radio, TV, and newspapers should cover the meeting. Harry will send our new flyer to colleges and universities.

The Board discussed the need for a new T.E.S. newsletter. This should be brought up for discussion with the membership at the 1988 meeting. The Board discussed the need for an Editor position created for a T.E.S. newsletter.

Other Business:

1. Registration fee: A motion was made to charge a $15.00 registration fee (there will be no banquet fee). The Board approved this fee. The new registration fee will be in addition to $5.00 dues ($1.00 for students).

2. Treasurer's Report: Rich Caron, Secretary/Treasurer presented the financial status of T.E.S. up to August 17, 1988. Our bank balance is $1,776.62.

3. An invited speaker, Dan Barber from Dow, will be on the 1988 program.

4. Dues: The Board discussed Sustaining and Member dues. No change since October 22, 1987 Board meeting.

5. Certification Program: Changes in this program, based upon a point system for recertification, will be explained to the T.E.S. membership at the 1988 meeting. Points may be obtained by attending certain meetings, such as the T.E.S. meeting. Gene Burgess led the discussion on this.

6. T.E.S. Receipts: Rich Caron proposed that old and meaningless purchase receipts be purged from the Secretary/Treasurer's records and that this be done only if other Board members agree to discard specific receipts. The Board agreed.

7. Which meeting is the 1988 annual meeting, anyhow?: The contention of the Board is that the first (1973) meeting of T.E.S. was held with the intent of annual meetings to follow in the future. Therefore, the 1988 meeting should be called the 16th Annual Meeting. (This point was discussed during the 1987 Business meeting).

The Board Meeting was adjourned at 12:40 P.M.

Respectfully submitted,

Richard E. Caron

Richard E. Caron
Secretary/Treasurer, T.E.S.

TENNESSEE ENTOMOLOGICAL SOCIETY

PREDICTION AND EVALUATION COMMITTEE REPORT

October 22 - 23, 1987

Jaime Yanes, Jr., Chairman

Committee Members

Rich Caron
Jerome Grant
Russ Patrick

University of Tennessee
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Pest Problems in Cotton in 1987

R. E. Caron

Spring boll weevil pheromone trap catches (April-June) indicated that the vast majority of overwintered weevils were located along the southern tier of counties of West Tennessee. These included Shelby, Fayette, Hardeman, McNairy, and Hardin Counties. Relatively few boll weevils were captured north of this line of counties.

Thrips injury was observed in a few fields especially where preventative granular insecticides or overtop curative insecticide applications were not made. Thrips injury to seedling cotton this year was the lightest it has been in the past six years (1984 was particularly bad).

Cotton was squaring by mid to late June. Some blooms were observed in June indicating an early crop. Boll weevil control on pinhead squares was needed by mid June in many fields in weevil - infested-counties. Tarnished plant bug populations were very light in general.

By late June, bollworm/tobacco budworm eggs and larvae were more numerous than usual. Green stink bugs and grasshoppers were beginning to show up as well. Coincident with pest insects were greater-than-normal populations of the beneficial insects: Pink spotted lady beetles and big-eyed bugs.

By early July, cotton was looking great in general and fruiting up well in particular. Bollworm/tobacco budworm infestations continued to plague cotton through July as did the worm and egg feeders: lady beetles and big-eyed bugs. Growers in weevil-infested counties began the battle against F-1 generation boll weevils.

Bollworm egg-laying and larval occurrence intensified in late July and early August. At the same time boll weevil adults dispersed north from the Southern tier of counties. Bollworm moths, eggs and larvae continued to be a problem through August. Larvae were found in cotton into September. Stink bug populations were peppered throughout the cotton acreage. In many cases, bollworms and stink bugs required control.

Boll weevils dispersed quite extensively in West Tennessee. By last August and early September, weevil adults and larvae were found as far north as Lake county. Secondary pests (e.g. aphids) became injurious in some fields treated for boll weevils in Fayette County.

Boll weevil overwintering populations will be monitored this fall (September to November) with pheromone traps.

In general, boll weevils and bollworms/tobacco budworms were the most damaging they have been in the past ten years. Thrips and plant bug populations were extremely low. Beneficial insect populations were very high for most of the growing season.

Pest Problems in Soybeans in 1987
- R. E. Caron

No insect pest problems were observed or reported in soybeans until early July. Prior to early July bean leaf beetles are usually the main concern on seedling soybeans. Other pest species and perhaps of less concern on soybeans early in the growing season are grasshoppers and three cornered alfalfa hoppers.

By early July some defoliation (holes in leaves) began to occur due to chewing-type insects. The main pests the damage was attributed to were bean leaf beetles, grasshoppers and green cloverworms.

As pods developed in late July, growers were advised to watch closely for corn earworm egg-laying activity and for stink bugs (especially the green stink bug). Corn earworm (bollworm) egg-laying activity had already begun in cotton and soybeans were also attractive to ovipositing moths.

By early August, very little corn earworm activity was observed but stink bug populations were beginning to build up. Green cloverworms and blister beetles were becoming more numerous. Some fields contained plants whose stems swelled near the base due to seedling stage damage by three cornered alfalfa hoppers.

Blister beetles caused foliar damage in some fields and whiteflies were increasing in numbers during mid August. Apparently, no economic damage occurred.

Conditions remained relatively quiet through mid September with the exception of a few fields containing economic populations of corn earworms, fall armyworms, and stink bugs. Blister beetles (striped and margined) appeared to be particularly abundant this year.

In short, insect pest problems in the 1987 soybean crop were relatively light. The latter is welcomed considering the current depressed soybean market.

Harry E. Williams
University of Tennessee
Extension Entomology & Pl. Pathology

MAJOR HOUSEHOLD, STRUCTURAL AND NUISANCE INSECTS

Termites - Five or more species have been identified in Tennessee infestations. Subterranean species: Reticulitermes flavipes, Reticulitermes hageni, Reticulitermes virginicus and Coptoternes formosanus.

Drywood Termites (Cryptotermes brevis) - infest plywood, hardwood or softwood. Termite control in structures will become more expensive following the cancellation of the chlordane label. Dursban TC, will give 20 years residual, it is more expensive, and will be widely used in termite control. Other insecticides, including Torpedo and Dragnet, will bid for a share of this market.

Wood Boring Beetles - Log structures are becoming poplar with Tennessee builders. There are several beetle problems that owners of these structures may encounter soon after occupancy.

Cerambycid - Old House Borer (Hylotrupes bajulus) - This beetle develops in the sapwood in two to 10 years.

Anobiids - Death Watch or Furniture Beetles (Anobium punctatum, Xyletinus peltatus) - Larvae develop in two to three years. Moist wood most favorable. Infest hardwoods and softwoods.

Lyctid Powder Post Beetles (Lyctus planicollis) - Infest hardwoods. Southern lyctus beetle larvae develop in four to nine months if temperature, moisture and starch content of wood is favorable. Builders do not ventilate structures adequately resulting in condensation, decay and favorable conditions for insect pests.

Carpenter Bees (Xylocopa virginica) - Infest walls, fences and lawn furniture. Contract data for WDO pest control has not been published in Tennessee. Cost of these pests can only be estimated.

Pest Control Gadgets - Hucksters are constantly selling Tennessee homemakers the Ultrasonic Sound and Electromagnetic Pest Control Gadgets. These gadgets are very ineffective. Bug Zappers and other electric grid traps are effective and are being widely used.

Rocky Mountain Spotted Fever - In 1986 physicians reported 47 cases of RMSF with no deaths. Thirty eight (38) cases had been reported by August 1987 with two (2) deaths. Most cases occur between April and October.

INSECT CONDITIONS REPORT - 1987

Bruce Kauffman
Tennessee Dept. of Agriculture
Plant Industries Division

Forest Insects

The greatest amount of defoliation by the loblolly pine sawfly (Neodiprion taedae linearis Ross.) in over 15 years was reported in the southern half of West Tennessee and the western half of Middle Tennessee. A greater percentage of forest stands and urban pines were infested with many being completely defoliated. Some ornamental loblolly pines were stripped of needles for the third year in a row in Fayette and McNairy Counties. Red-headed pine sawfly (Neodiprion lecontei (Fitch)) infestations occurred with more frequency this summer in young pine plantations and in Christmas trees in scattered locations in Middle and East Tennessee.

Southern pine beetle (Dendroctonus frontalis Zimmermann) infestations have intensified in eight counties including Bradley, Chester, Fayette, Hamilton, Hardeman, Hardin, McNairy, and Wayne. The number of spots per county has increased 20 to 40 percent, and the average spot size has doubled with 20 to 30 trees per spot. Seven other counties with a lesser number of infestations include Henderson, Hickman, Lewis, McMinn, Marion, Meigs, and Perry. Southern pine beetle spots should increase in number and size next year in East Tennessee. Rainfall shortages have increased the number of Ips spp. beetle-infested trees statewide. Some Ips spp. spots have ranged up to 20 trees in size.

Winter browning of loblolly pine needles was minimal from 0 to 20 percent. Most loblolly pines were unaffected by the milder winter temperatures except scattered stands on the northern Cumberland Plateau.

Frost killed the leaves of hardwoods in Middle Tennessee. Ash, beech, hackberry, hickory, scarlet oak, and yellow poplar were most affected. Approximately three weeks after frost damage occurred, the affected trees had leafed out.

Leaf browning of black locust by the locust leaf miner (Odontota dorsalis (Thunberg)) was reduced in most counties in the state. A few scattered heavy infestations (over 50 percent defoliation) were present in Middle and East Tennessee.

Eastern tent caterpillar (Malacosoma americanum (Fabricius)) populations increased this year. More extensive defoliation was noted from Nashville eastward. The majority of the black cherries in these counties were over 50 percent defoliated.

Various species of inchworms and caterpillars lightly fed (under 30 percent defoliation) on hardwoods of the oak-hickory and hackberry-elm types in some areas of Middle Tennessee. The more common species include the green fruitworm (Lithophane antennata (Walker)), hackberry butterfly (Asterocampa celtis (Boisduval & LeConte)), forest tent caterpillar (Malacosoma disstria Hubner), Periclista spp. and unidentified cutworms, inchworms, and leaf rollers.

Yellow poplar weevil (Odontopus calceatus (Say)) feeding reached its highest peak in 20 years in northeastern Tennessee. More than 63,000 acres of yellow poplar suffered greater than 50 percent defoliation of their crowns. Light to moderate weevil feeding was present in Anderson, Overton, Knox, Campbell and Scott Counties. The worst infestations occurred in Claiborne, Grainger, Hancock, and Union Counties.

Gypsy moth (Lymantria dispar (L.)) trapping yielded 62 moths caught in 11 counties. This total approached the 1985 level of moths. Nearly 2,700 traps were placed in Johnson County with three single trap catches from hitchhiking moths. The breakdown of catches by county was as follows: Anderson County, 1 moth; Blount County, 1 moth; Davidson County, 36 moths with six multiple trap catches; Jefferson County, 2 moths with one multiple catch; Knox County, 2 moths; Sevier County, 7 moths with two multiple catches; Shelby County, 5 moths; Smith County, 2 moths; Sumner County, 1 moth; Union County, 2 moths.

Fall webworms (Hyphantria cunea (Drury)) caused generally light defoliation of elm, black cherry, black walnut, boxelder, hickory, pecan, persimmon, redbud, and sourwood statewide. White pine weevil (Pissodes strobi (Peck)) damage continued to be a problem in Christmas tree plantings in the northern half of the Cumberland Plateau and East Tennessee.

A survey of Brood 10 of the 17 year periodical cicada (Magicicada septendecim (L.)) occurrence and damage statewide was undertaken by county. Emergence occurred in 34 counties primarily in East Tennessee with a few counties in Middle Tennessee and the Cumberland Plateau reporting the insect. Widespread damage to 50-90 percent of the tree terminal shoots was present in Blount, Greene, Jefferson, Knox, Sevier, and Washington Counties.

Three counties, Giles, Marion, and Sullivan were not previously reported as having this brood of the cicada. Twig mortality or breakage can occur on smaller branches for the next two years on less vigorous trees.

Significant grasshopper (Melanoplus. sp.) feeding continued to be reported in scattered areas of the state where the oak-hickory type predominated. - This insect defoliated white, black and post oaks, hickory, dogwood, and blackgum in Van Buren County. Similar reports came from Cumberland and Scott Counties.

An inchworm, possibly of the cherry scallop shell moth (Hydria prunivorata Ferguson) has partially to totally defoliated black cherry over 211,000 acres of McMinn, Monroe, Morgan, and Polk Counties. Light populations were also noted in other East Tennessee Counties.

Shade Tree Insects

Bagworm (Thyridopteryx ephemeraeformis (Haworth)) populations statewide were slowly building up on eastern redcedar. Most all defoliation remained under 50 percent. Infestations of the mimosa webworm (Homadaula anisocentra Meyrick) increased on honey locust in Middle Tennessee but were still below the 50 percent defoliation level.

Yellowing of leaves in the white oak group was caused by extensive feeding by the oak lace bug (Corythucha arcuata (Say)) in scattered Middle Tennessee locations. Reports of sooty mold and sugary secretions on leaves of yellow poplar, black walnut, and maple came from various sources statewide. The tuliptree scale (Toumeyella liriodendri (Gmelin)) as well as free-feeding aphids have been responsible for these problems. The oystershell scale (Lepidosaphes ulmi (L.)) on red maple was prevalent in one Coffee County location causing leaf browning and twig death.

Red oak borer (Enaphalodes rufulus (Haldeman)) adults emerged in large numbers in late summer in Fentress County. The sugar maple borer (Glycobius speciosus (Say)) damaged trees in several locations in Middle Tennessee.

INSECT PROBLEMS 1987 - - - BILL SHAMIYEH

University of Tennessee
Entomology & Plant Pathology

Small Grains - Wheat

Cereal leaf beetle: Infestation levels were moderate in Robertson averaging 2.5 larvae/stem. Aphid infestations were light.

Forage Crops - Alfalfa

Alfalfa weevil : Alfalfa weevil larvae counts waere high in plots at the Highland Rim experiment Station averaging 46.5 larvae/sweep.

Field Crops - Field Corn

European corn borer: Infestation levels reached about 70% at Springfield and Greeneville.

Fall armyworm: Infestation levels reached about 68% with-3 larvae/plant at Springfield and Greeneville. In late-planted corn, infestation levels were much higher.

Tobacco

Green peach aphid: Infestation levels of both forms of the green peach aphid were high in Greeneville and light in Springfield.

Flea beetles: All threshold levels were reached during the growing season.

Budworms : Infestation levels reached 4% in Springfield on dark tobacco and 63% in Greeneville on burley.

hornworms: Hornworm infestation reached about 40% on both burley and dark tobacco.

Vegetable Crops

Snap beans

Mexican bean beetle: Heavy leaf damage and yield loss was observed in research plots at the Plateau Experiment Station; Mexican bean beetle larvae averaged 40 larvae/ ft. row. 4% of the bean pods were damaged due to European corn borer.

Sweet corn

Corn earworm: 94% of the ears checked at Crossville had one or more corn earworm.

TENNESSEE DEPARTMENT OF AGRICULTURE
PLANT INDUSTRIES DIVISION
P.O. BOX 40627, MELROSE STATION
NASHVILLE, TENNESSEE 37204

TO: Dr. Jamie Yanes, Tennessee Entomological Society
IDEP Committee Chairman

FROM: Michael E. Cooper, Entomologist III

SUBJECT: 1987 IDEP Report

DATE: October 2, 1987

Alfalfa weevil damage was the worst seen in several years. Growers in 27 counties had to spray twice and in a few cases three times to obtain acceptable control. Damage to wheat from the cereal leaf beetle continues to grow and spread, with damage centering in Montgomery, Sumner, and Robertson Counties. Damage to young corn by adult cereal leaf beetles after wheat maturity was observed for the first time. The damage did not warrant treatment. The 17 year periodical cicada began to emerge during mid-May, and A summary of that emergence is attached to this report. Pheromone trap catches of boll weevils were the highest in the past decade. Boll weevil problems were present all season long for growers in the southern tier of West Tennessee Counties. By the end of the season boll weevils were found as far north as Lake County, but not at economic levels. Bollworm/Budworm populations in cotton began to reach treatable levels in early July is some areas. This was almost a month earlier than normal. Tobacco bluemold did make an appearance in early July in Hawkins County. Tomato spotted wilt virus occurred in 22 counties mainly on tobacco,with some reports of it on pepper, and tomato. The red biotype of the green peach aphid was a major problem on tobacco during Mid-July. This biotype appeared to be more resistant to insecticides, and was very difficult to control, and application methods as well as the types of chemicals used had to be changed.

In the regulatory area, the black imported fire ant (Solenopsis richterii Forel) was detected in Hardin County for a new state and county record. Subsequent surveys detected a few mounds in McNairy and one mound in Wayne County. Hardin County has been found to be the most heavily infested with over a dozen sites being identified. Two of the sites approach 500 acres in size. Regulatory incidents involving the red imported fire ant continued during the year primarily on nursery stock and in plant dealer yards in Shelby and a few other counties in the state. Approximately 9,000 to 10,000 gypsy moth traps were placed in the state this year. East Tennessee was given priority and trapped on a one per four square mile basis from Johnson County to the edge of Cumberland County. A Summary of gypsy moths caught is listed below.

County	Date	#Moths	Location
Anderson	8/28/87	1	Roadside
Blount	7/20/87	1	Campground

Davidson	7/17/87	32	Campground
Davidson	7/24/87	1	Campground
Davidson	7/30/87	2	Campground
Davidson	8/31/87	1	Campground
Jefferson	7/13/87	2	Campground
Johnson	7/15/87	1	Roadside
Johnson	8/5/87	1	Roadside
Johnson	8/6/87	1	Roadside
Knox	8/28/87	1	Roadside
Knox	8/28/87	1	Roadside
Sevier	7/23/87	1	Campground
Sevier	7/23/87	1	Campground
Sevier	7/23/87	2	Campground
Sevier	8/10/87	1	Campground
Sevier	8/10/87	2	Campground
Shelby	7/21/87	1	Campground
Shelby	7/23/87	1	Campground
Shelby	8/3/87	1	Roadside
Shelby	8/6/87	1	City Park
Shelby	8/6/87	1	Roadside
Smith	8/??/87	2	Campground
Sumner	8/4/87	1	Campground
Union	7/23/87	1	Boat Dock
Union	8/4/87	1	Boatdock
Total		62	

Traps were placed and serviced by Tenn. Dept. of Agric., USDA-APHIS-PPQ, Tenn. Div. Forestry, U.S. Forest Service, U.S. Park Service, Tenn. Dept. Agric., TVA, U.S. Corps of Engineers, and State Park Service personnel. The Johnson County eradication project is being closed down and declared successful, no moths were caught in the area during the past two seasons. The three moths caught in the county this year were hitchhikers and traced to residences that had visitors from the northeast during the Fourth of July Holiday. There were three instances of sweet potato weevil infestations in storage houses in West Tennessee. The potatoes were fumigated and disposed of in all three instances and quarantines placed on the property. A newly developed synthetic sweet potato weevil sex pheromone is being employed in traps in both the field and storage houses.

PEST PROBLEMS IN COMMERCIAL HORTICULTURAL CROPS and DARK TOBACCO IN 1987

Jaime Yanes, Jr.
University of Tennessee
Extension Entomology and Plant Pathology

1. **WOODY ORNAMENTALS** - Pine bark adelgids and eriophyid mites were the major problem on eastern white pine. Bagworms caused severe injury on some nursery ornamentals (especially arborvitae). Spider mites were not much of a problem this year on ornamentals except for silver maple. A new type of borer was identified attacking maple across the state. Proteoteras aesculana was the major destructive borer on maples this year. Flatheaded apple tree borers continued to be a problem on maples.

2. **COMMERCIAL FRUIT** - Severe damage by the spotted tentiform leafminer was seen in several apple orchards in east Tennessee. European red mites were the most destructive pest on apples. Late-season oriental fruit moth larvae caused considerable damage at around harvest of apples. The root weevil complex continues to be serious on strawberries. With the granting of a state label for Furadan 4F on strawberries, our problems with this complex should decrease.

3. **COMMERCIAL VEGETABLES** - Pydrin-resistant diamondback moth larvae, suspected to have come out of Florida on cabbage transplants were a problem this year. Tomato pinworm populations were uncommonly high in Grainger county this year resulting in serious damage to several tomato fields. Squash bugs were particularly damaging on watermelon. Corn earworms continued to be a problem on sweet corn silking after July 4.

4. **GREENHOUSES** - The most serious pests in the greenhouse were fungus gnats, aphids and spider mites.

5. **TURF** - White grubs caused the majority of the damage in turf this year.

6. **DARK TOBACCO** - Tobacco budworm populations started up early this year, catching many growers off guard. The red form of the green peach aphid increased in numbers and caused much damage. This was the insect that was the hardest to control by producers.

HISTORICAL NOTES

Presidents of the Tennessee Entomological Society (1973-1988)

President	Term	Affiliation
Mendell Snodgrass	'73 - '74	USDA
Omar Smith	'74 - '75	Memphis State
Don Clements	'75 - '76	Cook's Pest Control
Gary Lentz	'76 - '77	Univ. Tennessee
Chester Gordon	'77 - '78	Tenn. Dept of Agric.
Gene Burgess	'78 - '79	Univ. Tennessee
Reid Gerhardt	'79 - '80	Memphis State
Harold Bancroft	'80 - '81	Memphis State
Joe Dunn	'81 - '82	American Cyanamid
Bill VanLandingham	'82 - '83	Tenn. Dept of Agric.
Carl Brown	'83 - '84	Memphis State
Charles Pless	'84 - '85	Univ. of Tennessee
Mike Cooper	'85 - '86	Tenn. Dept of Agric.
Elmo Shipp	'86 - '87	Mobay
Bill Shamiyeh	'87 - '88	Univ. Tennessee

Secretary-Treasurers of the Tennessee Entomological Society (1973-1988)

Secretary-Treasurer	Term	Affiliation
Jimmy White	'73 - '76	Tenn. Dept of Agric.
Harold Bancroft	'76 - '79	Memphis State
Lyle Klostermeyer	'79 - '82	Univ. Tennessee
Bill Shamiyeh	'82 - '85	Univ. Tennessee
Richard Caron	'85 - '88	Univ. Tennessee

Historians of the Tennessee Entomological Society (1973-1988)

Historian	Term	Affiliation
Charles Pless	'73 - '76	Univ. Tennessee
Herb Morgan	'76 - '79	USDA
Mendell Snodgrass	'79 - '82	USDA
Russ Patrick	'82 - '87	Univ. Tennessee
Russ Patrick	'87 - '92	Univ. Tennessee

Honorary Members of the Tennessee Entomological Society (1982-present)

Honorary Member	Year	Affiliation
Myron Smith	1982	Hill-Smith Pest Control
Jimmy White	1982	Tenn. Dept of Agric.

Howard Bruer	1983	Tenn. Dept of Agric.
Mendell Snodgrass	1983	USDA
Carl Brown	1985	Memphis State
Myrtice Snodgrass	1985	
John A. Hammett	1987	Tenn. Dept. Agric.

Howard Bruer Award (est. 1975) Recipients of the Tennessee Entomological Society (1975-present)

Recipient	Year	Location
Whitney Eckler	1975	Memphis, TN
Joe Martin	1976	Bolivar, TN
Bryan Peters	1977	College Grove, TN
Tidus Pollard	1978	Huron, TN
John Bentley	1979	??
Melissa Hart	1980	Watertown, TN
Gary Miller	1981	Knoxville, TN
Harold Glass	1982	Knoxville, TN
----	1983	(No award given)
----	1984	(No award given)
Penny Thompson	1985	Davidson County
Matthew Fumich	1986	Munford, TN
Christie Greer	1987	Greene Co.

Outstanding Entomologist (Tennessee Entomologist of the Year) Award (est. 1981) Recipients of the Tennessee Entomological Society (1981-present)

Recipient	Year	Affiliation
Myron Smith	1981	Hill Smith Pest Control
Harry Williams	1985	Univ. Tennessee
John A. Hammett	1987	Tenn. Dept. Agric.

Graduate Student Award (est. 1986) Recipients of the Tennessee Entomological Society (1986-present)

Recipient	Year	Location
Jay Avery	1986	Knoxville, TN
Laura Rogers	1987	Knoxville, TN

CONSTITUTION

of the

TENNESSEE ENTOMOLOGICAL SOCIETY

Article 1. Name

This Society is formed in the name and style of the "Tennessee Entomological Society", as an educational institution, not contemplating financial gain or profit. It is herein and after called the Society.

Article 2. Purpose

The purpose and object of the Society is to foster entomological accomplishment among its members and to promote the welfare of all the State of Tennessee through the encouragement of: (1) the preparation, reading, and/or publication of papers, (2) association and free discussion among all members, (3) the dissemination of entomological information to the general public, and (4) cooperative efforts in statewide insect surveys.

Article 3. Membership

Section 1. Original Members: Any person designated at the organizational meeting of the Society to occupy the status of "Member" shall be considered as and be a Charter Member. Thereafter, the organizational membership shall have no authority to name or appoint members of the Society.

Section 2. Membership: Membership shall be open to all persons interested in Entomology.

Section 3. Sustaining Membership: Sustaining Membership is open to commercial or industrial organizations upon meeting approval and requirements of the Board of Directors.

Section 4. Honorary Membership: Honorary Members may be selected from time to time by a majority vote of the Board of Directors.

Section 5. Student Membership: Student Membership is open to students enrolled in any education institution and meeting the requirements of the Board of Directors.

Section 6. Procedure to Obtain Membership: Any person desiring to become a member of the Society shall do so by application and payment of dues to the Secretary-Treasurer. After approval of the majority of the Board of Directors, said applicant shall become a duly constituted member.

Section 7. Members in Good Standing: A member who is current in payment of dues.

Article 4. Membership Rights

Section 1. Voting: Each member in good standing shall be entitled to one vote at any regular or special meeting or by mail. Voting by proxy shall not be allowed.

Section 2. Privileges: All members in good standing shall have equal privileges in the presentation of papers and discussions at meetings.

Article 5. Membership Certificates

Section 1. Certificates: The Board of Directors shall decide upon what evidence of membership each member in good standing shall be entitled to receive.

Section 2. Transfer: Evidence of membership in the Society will not be transferable or assignable.

Article 6. Dues

Section 1. Annual Dues: The amount of the annual dues for membeship in the Society will be established by the Board of Directors from time to time. The use or uses of dues collected shall also be determined by the Board.

Section 2. Time of Payment: The Board of Directors shall set such times during each year as it deems advisable for the payment of annual dues by members. Generally, annual dues shall be paid during registration at the annual meetings. However, a member may mail dues to the Secretary-Treasurer of the Society if the member cannot attend a given annual meeting. If a member fails to pay dues two (2) years in a row, such member shall be dropped from the rolls.

Section 3. Honorary Members: There shall be no dues required for Honorary Members or others specially designated by the Board of Directors.

Article 7. Meetings of the Society

Section 1. Annual Meetings: The Society shall hold annual meetings at such times and places as may be designated by the Board of Directors and specified in the notice thereof, for the election of officers and any other business as may be properly brought before the meeting.

Section 2. Registration Fee: A registration fee, in the amount to be determined by the Board of Directors, shall be paid at each annual meeting by all members and non-members who attend. The Board of Directors will determine the use of these fees.

Section 3. Special Meetings: Special meetings of the Society shall be held at any time and place as specified in the notice thereof whenever called by the President or any two (2) or more members of the Board of Directors.

Section 4. Notice: Notice of all meetings of the Society, annual or special, stating time, place, and agenda shall be mailed to each member by the President, Secretary-Treasurer, or Directors calling the meeting not less than seven (7) days prior to the meeting.

Article 8. Officers

Section 1. Officers: The officers of the Society shall consist of a President, President-elect, Secretary-Treasurer, and Historian, all of whom, except the President, shall be elected by and from the membership by a majority vote of members or by mail.The first President of the Society shall be elected by and from the membership at the organizational meeting for a term extending to the beginning of the first annual meeting. Thenceforth, the President-Elect shall automatically accede to the Office of President at each annual meeting, or when the President is unable or unwilling to act for any reason. Nominees for each elective office of the Society shall be selected by a nominating committee of three (3) members appointed at the annual meeting by the President. Nominations may also be presented from the floor. The President and President-Elect shall hold office from the date of election at the annual meeting until the election of their successors at the next annual meeting, and shall not be eligible for re-election to the same office for a successive term. The Secretary-Treasurer shall hold office from the date of election at the annual meeting until the election of a successor at the third following annual meeting and shall be eligible for re-election. The Historian shall hold office from the date of election at the annual meeting until the election of a successor at the fifth following annual meeting and shall be eligible for re-election. No member shall occupy more than one office at any one time.

Section 2. Duties and Powers of the President: The President shall be the Chief Executive Officer of the Society and shall preside at all meetings of the Society and the Board of Directors, have and exercise general and active management of the Society, execute and enforce all orders and resolutions and regulations duly adopted by the Board of Directors, execute all contracts in the name of the Society, and perform such other duties as assigned by the Board of Directors.

Section 3. Duties and Powers of the President-Elect: In the absence of the President, or in the case of failure to act, the President-Elect shall have all the powers of the President and shall perform such other duties as shall be imposed by the Board of Directors from time to time.

Section 4. Duties and Powers of the Secretary-Treasurer: The Secretary-Treasurer shall attend and keep the minutes of all meetings of the Board of Directors and the Society, shall have

charge of the records and seal of the Society, and shall, in general, perform all the duties incident to the office of Secretary-Treasurer of the Society. The Secretary-Treasurer shall keep full and accurate accounts of the books of the Society and shall deposit all monies and the valuable properties and effects in the name of and to the credit of the Society in such depository or depositories as may be designated by the Board of Directors. The Secretary-Treasurer shall disperse funds as may be ordered by the Board, getting proper receipts for such disbursements; and shall render to the Board of Directors whenever required by it, an accounting of all transactions as Secretary-Treasurer. During each annual meeting, the Secretary-Treasurer shall give a report on the annual financial condition of the Society.

Section 5. Duties and Powers of the Historian: The Historian shall maintain and be responsible for keeping a complete and accurate history of the activities of the Society from year to year.

Section 6. Vacancies in Office: Any vacancy in the office of President-Elect, Secretary-Treasurer, or Historian, however occasioned, may be filled, pending the election of a successor by the Society, by a majority vote of the remaining Directors. Should an office be filled by vote of the Board of Directors, the person so elected shall not become the officer upon the next annual meeting unless elected as such by the Society according to the procedures set forth for the election of officers of the Society in Article 8, Section 1, of this Constitution.

Article 9. Board of Directors

Section 1. Makeup and Responsibilities: The Board of Directors shall consist of the immediate past-President, the President, President-Elect, Secretary-Treasurer, and Historian of the Society and two members-at-large. The members-at-large shall be elected at the Annual Meeting of the Society and shall serve a term of one year. Any three (3) Directors shall constitute a quorum for the transaction of business. All properties, property rights, objects and purposes of the Society shall be managed, promoted, and regulated generally by the Board of Directors.

Section 2. Installation and Term of Office: The members of the Board of Directors shall be installed after their election as officers of the Society as set forth in Article 8, Section 1, of this Constitution, at the annual meeting of the Society, or at any adjourned meeting, or at any special meeting called for that purpose. All installed Directors shall serve for a term corresponding to that of the office in the Society to which each was elected by the members and thereafter until their successors are elected, accept office, and are installed.

Section 3. Annual Meetings: The Board of Directors shall meet immediately after the adjournment of the annual meeting of the members for the transaction of such business as may come before the Board. No notice of such meeting shall be required, and

should a majority of the newly-elected Directors fail to be present, those present may adjourn, without further notice to a specified future time.

Section 4. Other Meetings: The Board of Directors shall not be required by this Constitution to hold regular meetings but may, by resolution or otherwise, establish such order of meetings as it deems desirable. Special meetings of the Board shall be held at any time at such places as may be specified in the notice thereof, whenever called by the President or any two (2) or more Directors.

Section 5. Notice: Notice of all meetings of the Board of Directors, other than the annual meeting, starting time, place, and agenda for which the meeting was called, shall be given to each Director by the President or Directors calling the meeting not less than three (3) days prior to the meeting.

Section 6. Vacancies in Board of Directors: Any vacancy in the office of any Director, however occasioned, may be filled, pending the election of a successor by the Society, by a majority vote of the remaining Directors.

Article 10. Miscellaneous Provisions

Section 1. All checks and drafts shall be signed in such manner as the Board of Directors may from time to time determine.

Section 2. At all duly constituted meetings of the Society or Board of Directors of the Society, 10% of the eligible members, or 3 Directors, respectively, present shall constitute a quorum for the transaction of any business presented at such meetings.

Section 3. All notices required to be given by this Constitution relative to any regular or special meeting of the Society or the Board of Directors may be waived by the Directors or members entitled to such notice, either before or on the date of the meeting and shall be deemed equivalent thereto. Attendance at any meeting of the Society of the Board of Directors shall be deemed a waiver of notice thereof.

Section 4. General Prohibitions: Nothwithstanding any provision of this Constitution and By-Laws which might be susceptible to a contrary construction. A. No part of the activities of the Society shall consist of carrying on propoganda, or otherwise attempting to influence legislation. B. This Society shall not participate in, or intervene in, (including the publishing or distribution of statements), any political campaign on behalf of a candidate for public office.

Article 11. Amendments

Section 1. This Constitution may be altered or amended or By-Laws adopted by a majority vote of the quorum present at any annual or special meeting of the Society membership, provided that notice of such proposed amendment or By-Laws shall have been given to the membership prior to the meeting.

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Application for Membership in the

TENNESSEE ENTOMOLOGICAL SOCIETY

I (we), herewith, submit this application for membership in the Tennessee Entomological Society. Society pins are available to members for $8.00.

PLEASE PRINT

Name of Prospective Member _____

Affiliation _____

Address _____ ZIP Code _____

Phone Number Area Code ( )_____

Occupation _____

Please check

☐ Annual Dues $5.00 ☐ Annual Due for Students $1.00

☐ Society Pin $8.00 ☐ Sustaining Member Dues $25.00

Amount Enclosed _____

Please remit to: Dr. Richard Caron
U.T. Agric. Ext. Serv.
605 Airways Blvd.
Jackson, TN 38301