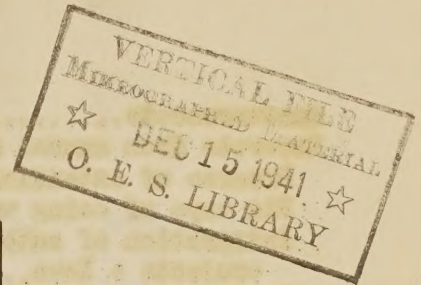


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The EXTENSION ENTOMOLOGIST



The Secretary of Agriculture, Claude R. Wickard, has recently announced a farm production campaign for 1942 providing a complete mobilization of American agriculture to adjust production to domestic needs for National Defense, and to the needs of the nations resisting aggression. Production goals for all essential farm commodities have been established for the first time in the history of agriculture in this country.

The Secretary states: "The adjustment machinery of the National Farm Program will be applied to the whole range of agricultural commodities to assure plenty of the commodities for which there is increased need, while continuing to hold in check the production of commodities of which we already have large reserves"; and, "The future of the entire civilized world is bound up in the success of our effort to produce more of the vital foods ..."

Every American has a definite part to play. Aside from weather, there is possibly no other natural factor which can interfere more with crop production than destructive insects. This fact places in the laps of entomologists a very important part of the total defense program. During the last war, a number of men were employed at different times under the Foods Production Program in a capacity somewhat similar to that of the present extension entomologists. At the present time there are 35 extension entomologists in 24 States. Because of this situation, we and other entomologists doing similar work will have to study our plans carefully so as to make the best possible use of all other agencies in the furtherance of insect-control information.

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE AND
EXTENSION SERVICE, COOPERATING

557-41

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UNITED STATES DEPARTMENT OF AGRICULTURE

Washington, D. C.

THE EXTENSION ENTOMOLOGIST

Issued by the Extension Service and the Bureau of Entomology and Plant Quarantine cooperating with other Federal and State agencies in the furtherance of extension work in entomology

M. P. Jones
Senior Extension Entomologist

ANNOUNCEMENTS

November 13-14, 1941. Eastern Branch, American Association of Economic Entomologists. Baltimore, Md.

November 21-22, 1941. Cumberland-Shenandoah Valley Fruit Conference. Winchester, Va.

December 29, 1941-January 1, 1942. American Association of Economic Entomologists. San Francisco, Calif.

February 4-6, 1942. Cotton States Branch, American Association of Economic Entomologists. Memphis, Tenn.

Program of Section of Extension, A. A. E. E.
(San Francisco, Calif., 8:00 p.m., December 30, 1941.)

Round Table Discussions of Following Topics:

1. The Extension Entomologists' place in the National Defense Program.
2. Cooperation of Extension Entomologists with other agencies and coordination methods.
3. Educational methods in Extension Entomology.
4. Brief review of insecticide supply outlook for 1942.

PERSONNEL

Dr. P. N. Annand, chief of the U. S. Department of Agriculture's Bureau of Entomology and Plant Quarantine, on November 8 announced the appointment of Dr. Fred C. Bishopp as assistant chief of the Bureau in charge of research work. Dr. Bishopp plans to give especial attention to the coordination of entomological research by Federal, State, and other official agencies, and to the bridging of the gap between research and extension activities. Mr. Emory C. Cushing, former assistant leader of the Division of Insects Affecting Man and Animals, has been appointed chief of that division to succeed Dr. Bishopp. Dr. Annand also announced the appointment of Mr. Frank H. Spencer as assistant chief in charge of business administration. Mr. Avery S. Hoyt will continue as associate chief, and Mr. S. A. Rohwer as assistant chief.

Dr. Bishopp was born at Virginia Dale, Colo., on Jan. 14, 1884. He received his B. S. degree in 1902 from Colorado Agricultural College, and his M. S. in 1903 from the same school. He received his Ph. D. degree from Ohio State University in 1932. From 1904 to 1905 he was assistant Professor of Entomology and assistant State entomologist in Maryland. He then joined the Federal Bureau of Entomology to work on cotton bollworm and cotton boll weevil investigations until 1910. The following 2 years he worked on tick investigations. He spent the next 15 years studying insects that affect the health of animals. Dr. Bishopp was made chief of the Division of Insects Affecting Man and Animals in 1927, and has continued in this capacity up to the present appointment.

Dr. Bishopp is a Fellow of the American Association for the Advancement of Science and the Entomological Society of America. He is a member of the American Association of Economic Entomologists and was president in 1937; a member of the Washington Entomological Society, president in 1932; member of the Washington Academy of Science; the Biological Society of Washington; the American Society of Parasitologists, president in 1938; the American Society of Tropical Medicine; the Texas Academy of Science; the National Malaria Committee; and the honorary societies Phi Kappa Phi and Sigma Xi.

Mr. Spencer was born in Burlington, N. J., January 2, 1899. He attended the Washington School of Accountancy, and graduated from LaSalle Extension University, and Alexander Hamilton Institute. He joined the Government in the Bureau of Animal Industry in 1917, as a personnel clerk. He served in the Bureau of markets and the division of publications of the Department of Agriculture from 1919 to 1921. He then became secretary to the Director of the War Finance Corporation, 1921-22. In 1922 he became Administrative Assistant and secretary to the Secretary of Agriculture, which position he held until 1931, when he became business manager of the Bureau of Entomology, transferring in the same capacity when the present Bureau of Entomology and Plant Quarantine was formed in 1934.

CAUTION IN FUMIGATING STORED GRAIN

With more grain being held in storage on farms, the fumigation of farm-stored grain undoubtedly is becoming increasingly necessary and general; hence, more farmers and others who have had little or no experience with fumigants may now be attempting to use them. Some entomologists are experienced in handling fumigants and do not realize that the layman is not so well acquainted as they are with the necessary precautions. Other entomologists are inexperienced in their use and thus do not realize the necessity of calling attention to these precautions. Considering the circumstances just described, it is felt that both State and Federal entomologists should emphasize more specifically and emphatically in recommendations and publications than has been done in many instances in the past, the precautions to be observed in the use of fumigants.

In view of a recent fatality and a number of cases of illness which have occurred in connection with the use of fumigants in the Ever-normal Granary, a memorandum entitled "Safety Precautions Necessary in Handling and Applying Grain Fumigants" has been prepared in the Department. A few copies of this memorandum are available in the Bureau of Entomology and Plant Quarantine for those persons particularly interested in the promotion of grain fumigation.

--- P. M. Annand,
Chief, Bureau of Entomology
and Plant Quarantine.

Film strip contract.

The new contract for film strips is being awarded to Photo Lab, Inc., 3825 Georgia Avenue, NW., Washington, D. C. Complete details will be made available when the formal contract is signed. Prices in which you are particularly interested are quoted below.

Single frame positives:	
Not exceeding 50 frames.....	\$0.40
50-65 frames.....	.45
Each additional 16 frames over 65.....	.05
Double frame positives:	
Not exceeding 50 frames.....	1.00
50-65 frames.....	1.25
Each additional 16 frames over 65.....	.25

The prices apply to positives made from Department negatives.

The portion of the contract applying to State and county material is as follows:

Photographing:	
Single frame negatives, per frame.....	\$0.10
Double frame negatives, per frame.....	.15
Single frame positives:	
Not exceeding 50 frames.....	.50
50-65 frames.....	.55
Each additional 16 frames over 65.....	.05
Double frame positives:	
Not exceeding 50 frames.....	1.00
50-65 frames.....	1.25
Each additional 16 frames over 65.....	.25

The detailed prices for titles, legends, mounting, graphs, etc., and also the prices for Department film strips can be obtained by writing to the Visual Instruction and Editorial Section, Extension Service, U. S. Department of Agriculture, Washington, D. C.

EXCERPTS FROM ANNUAL REPORTS

PROGRAM OF EXTENSION ENTOMOLOGIST

Factors Which Determine Inclusion of Insect Control Methods in Program

Recommendations made by the program planning committee of each county, concerning the control of insects have determined some of the problems worked on the past year. These recommendations were developed in each county by farm people. The procedure may be briefly summarized as follows:

The county extension agent called together a number of farm leaders representing the various communities within the county. The farm leaders selected a county program-planning committee. This committee then named four subcommittees on which were representatives of the various communities:

- a. Home interests and rural life.
- b. Plant industries or crop committee.
- c. Animal industries or livestock committee.
- d. Land-use committee.

Each subcommittee then studied the agricultural problems of the county coming under its jurisdiction and, after discussion in the various communities, prepared a list of recommendations.

The recommendations of each of the four subcommittees were read and discussed before the county committee. The county committee then approved them and prepared the county report on program planning.

The agent and assistants, including the home demonstration agent, then brought the county report to the State college, where it was presented to the extension specialists, experiment station representatives, and representatives of other governmental agencies, such as the Soil Conservation Service, and the Agricultural Adjustment Administration.

Following the presentation of the report, the recommendations of each of the four committees were considered at separate meetings with various interested workers present.

---Annual Report, Washington Extension
Entomologist, 1940.

SIX WAYS OF DOING WORK IN EXTENSION ENTOMOLOGY

First importance is given to training county extension agents to be county leaders in entomology. This job has received major attention this season by:

1. Direct correspondence with individual agents.
2. News letters to all county agents.
3. Preparing circular letter material for agents.
4. Presenting subject matter at district meetings with county agents.
5. Holding leader-training or educational meetings with farmers.
6. Preparing insect exhibit boxes for agents.

---Annual Report, Colorado Extension
Entomologist, 1940.

INTEGRATION OF ENTOMOLOGY SUBJECT MATTER WITH OTHER PROJECTS

The entomology project deals with control of insects attacking field crops, fruit and shade trees, vegetables, flowers, livestock, and humans. Therefore, entomology subject matter must be included in projects such as agronomy, horticulture, forestry, animal husbandry, and home management. Since many of the insects which attack field crops and trees are of extreme importance from the standpoint of soil erosion resulting from destruction of crops and trees, entomology subject matter must be included in the soil-conservation project.

In cooperation with home management, the subject of household and garden insect control was presented to the home project groups of 18 counties at 33 meetings. The total attendance was 818.

---Annual Report, Iowa Extension
Entomologists, 1940.

COOPERATING AGENCIES

Cooperation with the following organizations, agricultural and commercial agencies, was enjoyed during the year:

United States Department of Agriculture
Ohio State Department of Agriculture
Ohio Agricultural Experiment Station
Farm Security Administration
Federal Agricultural Conservation Program
Ohio State Horticultural Society
Ohio State Vegetable Growers' Association
Cuyahoga County Vegetable Growers' Association
Lorain County Vegetable Growers' Association
County Fruit Growers' Association
Ohio State Beekeepers' Association
County Beekeepers' Association
Ohio State Farm Bureau
Ohio State Grange
Columbus Better Business Bureau
Radio Stations: WTAM, WLW, WOSU and WHKC
Mutual Broadcasting System
Ohio Horticultural Sales Services, Inc.
Standard Oil Company of Ohio
General Chemical Company
California Spray Chemical Company
Extermital Chemical Company of Dayton
Retail Insecticide Dealers
Ohio Farmer Publishing Company
Market Growers' Journal
American Bee Journal
Gleanings in Bee Culture
Beekeepers' Item
Farm and Dairy Publishing Company
Associated Press News Service
United Press News Service

---Annual Report, Ohio Extension
Entomologist, 1940.

SUMMARY OF GOALS AND ATTAINMENTS, 1940

Subject: Field crop insects.

Goal:

1. Conduct special meetings in 20 counties.

Meetings were conducted or attended in 38 counties.

2. Surveys, spring and fall, for grasshoppers. Adult and egg surveys in 55 counties.

Spring and fall surveys were made in the 55 counties.

3. Make allocations of grasshopper bait and arrange delivery to designated shipping points in the various counties in the organized control areas.

Bait was allocated and organized control was conducted in 30 counties.

Induce 10,000 farmers to protect 400,000 acres with bait.

As reported from the counties, 4,321 farmers used bait to protect 163,000 acres.

4. Make spring appraisal of chinch-bug situation for 10 counties.

This appraisal was made and no problem found.

5. Conduct cutworm survey in spring and fall in 20 counties. (Induce 1,000 farmers to protect 10,000 acres.)

Cutworms reported less troublesome but no doubt over 1,000 farmers used bait.

6. Give cutworm-control demonstrations or directions to county agents or community leaders in 80 counties.

No demonstrations were requested. All county agents were supplied with formulas.

7. Appraise corn-borer situation for 20 counties.

This appraisal was made and an increase in population and damage predicted.

8. Prepare 20 bug-flash releases on pertinent subjects for card mailing to county agricultural agents, insecticide dealers, and other interested parties.

These releases were sent out on the following subjects: Cankerworms, Currant worms, asparagus beetles, flea beetles, raspberry-sawfly, cabbageworms, squash vine borers, armyworms, chinch bugs, corn earworm, plant lice, ants, aster beetles, termites, potato beetles, tomato worm, peach-tree borers, grain-bin fumigation, European corn borer, oats for cover crop, arsenate of lead on lawns.

9. Prepare circular letters, arrange for news articles for all county agents on 20 pertinent subjects.

Several circular letters were sent to the county agents, and 27 subjects were covered by news releases.

10. Appraise cabbage maggot situation in 10 counties.

Calls were made in Monroe County only.

11. Encourage the use of tar-paper discs for cabbage maggot control work on early cabbage, with 10 growers if needed.

Used by some commercial growers.

12. Prepare a film strip on "Grasshoppers and Soil Erosion in Michigan."

This was prepared with about 50 frames of Michigan pictures.

--Annual Report, Michigan Extension Entomologist, 1940.

CLUBWOMEN ENROLL IN ENTOMOLOGY

Seventy-six home demonstration club women in Pushmataha County Okla., enrolled in entomology because they sought a means to control or kill insects that infested or destroyed their vegetable gardens.

The demonstrations by the home agent in 1939 showed how effective dusting and spraying are, and the women decided that it was well worth their time to continue the insect-control work, because it would prevent the great losses they had been suffering previously.

They insisted that the home agent give more demonstrations to them this year. As a guide, the bulletin, Vegetable Spray Calendar, was used, and large white cards with black letters were used to show the kinds of poisons to use.

For the cabbage-leaf worms, derris dust, containing 1 percent rotenone, is becoming well known. Each demonstrator and many cooperators

have reported that they are going to fight insects harder in the year 1941 as there has been such an infestation this year.

---Annual Report, Oklahoma Extension
Entomologist, 1940.

MISCELLANEOUS ACTIVITIES

Leader training.

The extension entomologist gave subject-matter training at:

- (a) Two district conferences of county agents.
- (b) One field day and insecticide demonstration for county agents and vocational agriculture teachers.
- (c) Two district conferences of Farm Bureau service managers.
- (d) Fifteen insecticide dealers' meetings.

---Annual Report, Ohio Extension
Entomologist, 1940.

SERVING THE SERVER

The specialist, upon invitation, prepared a talk which was mimeographed and presented to all the district operators of an exterminating company operating in five States, including Ohio. This information is thus placed directly in the hands of those who are engaged in termite control work.

---Annual Report, Ohio Extension
Entomologist, 1940.

"INFORMATION PLEASE" TYPE OF DISCUSSION

A somewhat active part was taken during the annual Farm and Home Week of the State colleges. Several talks were made. During a 1-hour period which seemed to be particularly interesting to the audience, three specialists representing three departments made no formal talks but answered questions pertaining to vegetable culture, insects, and diseases. The questions and discussion and the interest manifested by the audience indicated definitely that this "information please" method of conducting an hour is more effective than a stereotyped talk.

---Annual Report, New York Extension
Entomologists, 1940.

PEA-WEEVIL SCHOOL FOR FIELD MEN

Increased requests for pea-weevil control information by field and warehouse men employed by pea-processing and shipping concerns resulted in establishment of a cooperative school for these men and the field men for insecticide-distributing firms. This school was conducted through the cooperation of the Extension Service of the University of Idaho, the Washington State College, and the United States Department of Agriculture Bureau of Entomology and Plant Quarantine, Pea-Weevil Laboratory.

Representatives of all the pea processing and shipping firms of Washington and Idaho were in attendance at this school, as well as men from some of the insecticide firms of the two States. The number of calls for service work in connection with pea-weevil control was greatly reduced in 1940 over 1939 as a result of this school.

--Annual Report, Idaho Extension
Entomologists, 1940.

COUNTY AGENT GROUP DISCUSSIONS

Meetings were held with all agents in districts 4, 5, 7, 8, 9, 10, and 12, and in five counties in district 6, to discuss the control of truck and fruit insects. At each meeting, the use of various insecticides and small dusting equipment was demonstrated. Emphasis in each meeting was placed on protecting vegetables and fruit grown for home consumption. These group discussions were for the primary purpose of acquainting the agents with the new insecticides which have been developed in the past few years; namely, those classified as nonpoisonous, such as, rotenone and pyrethrum.

--Annual Report, Texas Extension
Entomologist, 1940.

BEDBUG CONTROL DEMONSTRATIONS

Mr. Stiles visited our farm women's county council meeting on October 15 and gave an opportune demonstration on the control of bedbugs. We say "opportune" because of the country's first mattress program in which 1,162 mattresses were made. These mattresses might prove to be places in which bedbugs are liable to breed. The women were also assisted in the control of other household pests, such as rats and mice.

--Annual Report, Oklahoma Extension
Entomologist, 1940.

FOOD HANDLERS' SCHOOLS

An opportunity to cooperate with the State Health Department and the Bacteriology Department of the College broadened the scope of the community health project somewhat. Series of food handler's schools were

conducted by the above agencies. These schools were intended to acquaint restaurant workers with better food-handling practices. The Department of Entomology was invited to provide part of the program of one series of meetings. The insect-control specialist met three of five groups in Ingham County. Cockroaches, flies, mosquitoes, and ants were discussed.

--Annual Report, Michigan Extension
Entomologist, 1940.

4-H CLUB ENTOMOLOGY ACTIVITIES

4-H Club work in entomology has been under way in this State for 4 years. Throughout this time, interest in this phase of extension has steadily increased. 4-H Club participation has now become an important part of the extension entomology specialist's program of work in an endeavor to stimulate a greater interest and better understanding of insect life and insect control on the part of the 4-H Club member. I have endeavored to develop five phases of participation in 4-H Club entomology. These phases will be discussed separately.

Entomology practice demonstrations.

Entomology practice demonstrations are demonstrations conducted by county agents, home agents, the extension entomologist, or some other qualified person, at meetings of 4-H Club members in the county and at 4-H Club camps. Some entomological process is demonstrated, as, for example, the preparation of home-made fly spray, preparation for ant poison, treatment of poultry for lice control, dusting for cockroach control, making ethylene dichloride emulsion, and many others. In like manner, entomology practice demonstrations may be conducted on the construction of insect-control devices, such as fly traps, fly swatters, or on the construction of an insect net, killing bottle, or collecting box. With only a few items of equipment, a different entomology practice demonstration can be given at meetings of 4-H Club groups whenever desired. Only a few minutes are required for each demonstration.

Through such entomology practice demonstrations, it is believed that much interest in insect control can be stimulated on the part of 4-H Club members. Numerous entomology practice demonstrations were conducted by the extension entomologist, county agents, and home agents during the past year. Further assistance to 4-H Club leaders in connection with conducting entomology practice demonstrations is now being offered through the office of the extension entomologist. Mimeographed circulars giving instructions for conducting specific entomology practice demonstrations have been prepared by the extension entomologist and are available to county agents and home agents for use in connection with their 4-H Club work.

Entomology projects.

There are two kinds of 4-H Club entomology projects - the part-time and the full-time entomology project. In the part-time project

insect control measures are employed merely as a part of the requirements for the major project which the boy or girl is conducting. For example, poultry-lice control is a part-time entomology project in connection with poultry production for a member who has such activities as his major project. Part-time projects for 4-H Club members have been included in the county plans of work in many counties of the State.

The full-time 4-H Club entomology project has not yet been encouraged.

County camps.

During the spring and summer, I attended the county 4-H Club camps held by the following counties: Person, Granville, Franklin, Hoke, Scotland, Sampson, Iredell, Ashe, Burke, Forsyth, Richmond, Beaufort, and Yadkin. At these camps, informal classes were conducted in insect study and insect collecting. The 4-H Club members were taken on field trips. Through informal talks, I gave to the members instructions in economic and esthetic entomology. During 1 or 2 days at each camp the club members were taught to prepare and care for insect collections; and each member was given an opportunity to start a collection, using the home-made box or cigar-box containers. Film strips on entomological subjects were prepared and explained, and questions regarding insect control were answered. Entomology practice demonstrations were conducted by the extension entomologist, county agent, home agent, or by group leaders.

Wildlife-conservation camp.

For the past several years, the extension entomologist has had a part on the program of the 4-H Club wildlife-conservation camp. Instruction of much the same type as that offered at the county 4-H Club camps is given at the wildlife-conservation camp. At the wildlife-conservation camp, more detailed discussions are presented relative to the economic importance of insects and insect control. This year I was privileged to present my nature-study course in entomology at the wildlife-conservation conference at Swannanoa and at the Negro wildlife-conservation camp at Camp Whispering Pines.

Annual short course and older youth conference.

Each year the extension entomologist takes an active part on the programs of the 4-H Club annual short course and the older youth conference. I prepared an elaborate 4-H Club entomology exhibit for the 1940 annual short course.

---Annual Report, North Carolina Extension Entomologist, 1940.

4-H ENTOMOLOGY CONTESTS

4-H Club entomology is built around an annual contest held at the short course at College Station. Briefly, the contest is divided into two

parts. First, each team, comprising three boys, must make a collection of 45 species of insects of economic importance and common to the State. The specimens must be pinned and labeled correctly. The common name and host must be given. Second, each team selects 10 insects from a list of more than a hundred common pests of the State and learns the following about each: Common name, host, injurious stage or stages, type of mouth parts of injurious stage or stages, nature of damage, and recommended control measures. In the contest, the judges arbitrarily select 3 insects from the 10 studied. Each boy gives the above information orally. Team mates are not questioned on the same insects. Ricker mounts of insects are used at the contest. The two parts of the contest are of equal value.

The Division of Entomology and the Department of Entomology of the A. and M. College have cooperated whole-heartedly in this contest, and members of both the Division and the Department served as judges. Awards were presented to the winners.

Thus through 4-H entomology club work carried on in 28 counties in 1940, 269 boys were trained by their agents to recognize and control some of the more common pests of their respective counties.

--Annual Report, Texas Extension
Entomologist, 1940.

4-H ENTOMOLOGY EXHIBIT AT STATE FAIR

West Pottawattamie County.

One 4-H Boy's Club in this county built a demonstration booth and insect display cases, collected and mounted nearly a thousand insects, and gave demonstrations on garden-insect control at the West Pottawattamie Achievement Show and at the Iowa State Fair where it won third prize. Gene Burke and Roy Napier constituted the demonstration team. A great deal of credit must go to the county agent, Reuben Bergquist, for his ability to help these boys.

--Annual Report, Iowa Extension
Entomologists, 1940.

INSECT MOUNTS FOR COUNTY AGENTS' FILES

For a number of years, county agricultural agents have been requesting mounts of insects which could be left in their offices and which would demonstrate the injurious insects of their county. To comply with this request would entail a great deal of collecting in the field, as well as a great deal of work in the laboratory in preparing the mounts.

During the 1940 season, one man has collected insects in the field preparatory to the making of mounts for the requested purpose. The mounts are being prepared in the laboratory and should be available for distribution to the county agents before the 1941 season.

--Annual Report, Idaho Extension
Entomologists, 1940.

GENERAL ENTOMOLOGICAL SITUATION

During 1940, much interest has been manifested in insect problems in the State. The following table is used as a yardstick for measuring this interest. This table sets forth the amount of publicity of an entomological nature published in the State during 1940.

<u>Subject</u>	<u>No. Stories</u>	<u>Column inches</u>
Cotton insects.....	261	5,990
Vegetable insects.....	29	385
Insects affecting livestock.....	19	281
Insects affecting poultry.....	32	443
Fruit insects.....	16	207
Miscellaneous.....	7	90
Totals.....	364	7,396

--Annual Report, Texas Extension
Entomologist, 1940.

GRAPHIC PRESENTATION OF TIME DEVOTED TO SUBPROJECTS

Phases of insect control arranged according to relative amount of time devoted to each by county extension agents from December 1, 1938, to November 30, 1939

Vegetable insects	:	:	778
	:	:	Points*
Stored grain insects	:	:	621
	:	:	Points
Field-crop insects	:	:	585
	:	:	Points
Fruit insects	:	:	510
	:	:	Points
Animal and poultry parasites	:	:	475
	:	:	Points
Termites	:	:	429
	:	:	Points
Household insects	:	:	398
	:	:	Points
Shade tree and shrub insects	:	:	368
	:	:	Points
Flower-garden insects	:	:	295
	:	:	Points
Entomology and bee club work	:	:	196
	:	:	Points

* Points computed on the basis of 10 for phase upon which most time was spent, 9 for second largest amount of time spent, and so forth.

--Annual Report, Indiana Extension
Entomologist, 1940.

EVALUATING POTATO SPRAYING

Since the value of vegetables and potatoes in 1939 was \$12,000,000 on 200,000 farms, the average value was \$60 per farm. This figure, of course, includes large numbers of farms devoted largely to the commercial production of potatoes and vegetables. Had no insects been present, the value would have been \$75.

According to results of the extension entomology survey, control measures were applied to these crops on an average of 52 percent of the farms, or 104,000. Had these measures been 100-percent effective, the saving would have been \$1,560,000; however, only 50 percent of the materials were effective, which difference reduces the saving to \$780,000.

If it can be assumed that those who did apply reliable materials reduced their damage 75 percent, then actual losses of \$585,000 were prevented.

Thirty-three percent of all adopted practices were credited to extension influences, and these influences proved to be 93 percent reliable on the basis of adopted practices. Extension influence, therefore, can be credited with preventing a loss of \$195,000.

No estimate can be made of the cost of labor and materials, which must, of course, be deducted from the above disclosed figures. These figures are also complicated by the fact that commercial growers applied not only more insecticides, but also more reliable materials.

---Annual Report, Indiana Extension
Entomologist, 1940.

OUTLOOK

The spirit of cooperation on the part of the growers, in general, is excellent. They are usually aware of the fact that something must be done to reduce the tremendous losses being caused by insect pests, and in most cases are willing to try almost anything that offers any promise of success. In fact, they often go too far in that direction. There is a very definite need among the growers for a better understanding of the basic factors concerning insect habits as well as development upon which control methods are based. Most growers do not appreciate the importance of proper timing and thoroughness as essential factors in insect control. Also, it is not generally recognized that cultural practices must be considered the basis of economical insect control.

---Annual Report, Arizona Extension
Entomologist, 1940.

TIMELY TOPICS

REPORT ON VISUAL AIDS

Agents and Specialists Questioned On
Use Made of Them During Past Year

On May 22, 1941, questionnaires on the use of visual aids in extension work were mailed to all extension specialists. A summary of the returns received by June 12 follows:

Forty-two specialists answered.

During the past year, 26 of the 42 specialists used 2- by 2-inch slides. One person used 1,500 slides.

Fourteen specialists made their own slides, 12 got someone to make them, and 11 borrowed slides from good friends or neighbors.

Only one-third of the information-givers have cameras with which to take film slides.

At least one of those with a camera took 500 slide films during the past year. All told, the 42 specialists reported 1,842 slides made during the year.

Of the 42 specialists reporting, 30 of them used visual aids other than slides; and 17 said that slides were satisfactory to show charts, graphs, and tables.

--Ohio Extension Service News, Vol.
24, No. 11, June 1941.

RADIO TAKES YOU INTO HOMES

How do I know that anyone listens to me when I speak into the microphone?

That question has been put to those arranging radio programs hundreds of times. Here is one answer.

T. H. Parks, extension entomologist, on April 15, 1941, talked over WLW on the subject of termites. At the end of his talk he offered to send a bulletin on The Control of Termites in Buildings to anyone who would write to "this station." The station received 481 requests. Most of them were dated April 15 and came from about three-fourths of the Ohio counties, and from Indiana, Kentucky, West Virginia, Michigan, Illinois, Tennessee, and Missouri.

--Ohio Extension Service News, Vol.
24, No. 1, June 1941.

USES HONEY TO MAKE GRASS SILAGE FOR POULTRY

Poultry Digest, August 15, 1941, summarizes an article from New Jersey Farm and Garden: Last year, Paul Holcombe, Mountairy, N. J., made a barrel of lawn clippings into silage for his chickens, but used honey in place of molasses. Holcombe is a honey producer, and by using a home product he was able to save the purchasing of molasses for this purpose. Results proved satisfactory.

METHYL BROMIDE HARMLESS AS USED ON FOODSTUFFS

Reporting studies on foodstuffs fumigated with methyl bromide, four members of the Public Health Service, in Pests, July 1941, say, "It seems unlikely that the small amount of methyl bromide or bromide residues on commercially fumigated fresh vegetables and fruits, or dried fruits, is harmful to the consumer." The Public Health Service men say they had the cooperation of L. A. Hawkins, chief of the division of control investigations, Bureau of Entomology and Plant Quarantine, in the studies, which have been described in an issue of Public Health Reports.

PHENOTHIAZINE MAY ENDANGER LIVESTOCK

Phenothiazine, the new drug which has been found effective in treating livestock parasites, must be used carefully to avoid overdosing, animal pathologists of the Illinois College of Agriculture caution in an article appearing in the Chester White Journal for August 1941. If too much phenothiazine is given, or if the recommended dose is given to sensitive animals, alarming effects may result.

IMPROVED REMEDY FOR SCREW WORMS

The Bureau of Entomology and Plant Quarantine has developed a new remedy for both preventing and treating screwworm infestations in livestock. The remedy, known as formula or smear 62, consists of a mixture of diphenylamine, benzol, turkey red oil, and lamp black. Former screwworm remedies recommended by the Department involve the use of one material to kill the screwworm maggots and of a second to prevent reinfestation. Formula 62 is relatively inexpensive, costing about \$1.50 a gallon - enough to treat 200 to 250 livestock wounds. Directions for preparing and applying it are given in a new bureau circular, E-540, A New Remedy for the Prevention and Treatment of Screwworm Infestation.

TESTS TO DETERMINE DISTANCE OF FLIGHT OF STABLE FLIES

Colored stable flies were released by W. E. Dove and S. W. Simmons, of the Panama City, Fla., laboratory, Bureau of Entomology and Plant Quarantine, in six localities ranging from 20 to 40 miles from coastal bays and paralleling the shoreline of northwest Florida for about 100 miles. Two marked flies were recovered on February 6 and 13, respectively, about 52 miles from the point of release. These individuals had been "colored" on January 3, or before, which was 33 and 40 days, respectively, prior to their recovery.

FOWL TICKS MAY TRANSMIT PARALYSIS

Ticks are under indictment for carrying fowl paralysis, says Science News Letter, July 5, 1941. Research by J. C. Brown and J. C. Cross, of Texas College of Arts and Industries, suggests that the carrier is the fowl tick, or "blue bug." It was noticed that chickens in pens infested with fowl ticks were dying of paralysis at an appalling rate. Thorough clean-up and disinfection of some of the pens resulted in a high survival rate. In the infested pens, 111 birds out of 120 developed paralysis. In the cleaned-up control pens, only 1 bird out of 126 was stricken. Further research is in progress.

DIPPING OF DOGS AS A CONTROL FOR AMERICAN DOG TICK

C. N. Smith, of the Vineyard Haven, Mass., laboratory, Bureau of Entomology and Plant Quarantine, reports that ". . . in the Edgartown area, where dogs have been dipped since 1938, adults of the American dog tick were less abundant than ever before."

SULFUR DUST AS A TICK REPELLENT

C. N. Smith, of the Vineyard Haven, Mass., laboratory, Bureau of Entomology and Plant Quarantine, reports that sulfur dust was entirely ineffective in preventing ticks from catching on a dog, attaching to a dog, or crawling on a person's clothing.

NEW BEAN RESISTS CURLY TOP

The Western Farm Life, February 15, says that the first Great Northern bean ever to be resistant to curly-top disease, (a serious problem in most sections where sugar beets are grown) has been developed at the Idaho Experiment Station by Donald M. Murphy of the plant pathology department.

CURLY-TOP DAMAGE TO TOMATOES DECREASED BY USE OF CHEESECLOTH COVERS

H. E. Dorst, of the Logan, Utah, laboratory, Bureau of Entomology and Plant Quarantine, reports the results of an experiment conducted during the summer of 1940 on replicated small plots of tomatoes to determine the protection afforded early and late transplanted tomatoes from curly top, a virus disease transmitted by the beet leafhopper [Eutettix tenellus (Bak.)], by covering the plants with cheesecloth protectors during the early part of the season to prevent the incoming leafhoppers from feeding on them. He found that this protection materially reduced the percentage of tomato plants infected with curly top at the close of the season on September 17, and it also increased the yield of tomatoes.

DISEASE CHECKS EUROPEAN SAWFLY

The Journal of Forestry, December 1940, says that an insect disease this year checked the inroads of the European spruce sawfly, an insect immigrant from northern and central Europe that has been defoliating spruce forests in New England for the past 5 years. Entomologists of the U. S. D. A. report that an unnamed infection has almost wiped out the needle-eating worms in southern Vermont and southern New Hampshire. Maine is one of the places where adult sawflies may not come out from their cocoons for 2 or 3 or even 4 years, therefore hold-over cocoons remain a potential threat in Maine.

CONTROL OF RED LEAF ON GRAPES

Discovery of the cause of a severe type of red leaf which has attacked black grapes in California for more than 40 years was reported recently to the American Phytopathological Society by scientists of the University of California, says California Cultivator, June 28, 1941. Jacob, Hewitt, and Proebsting said experiments had shown the disease to be closely associated with mite injury and could be prevented by controlling the mites before the leaves of the vines turn red. The red leaf disease has occurred periodically in California since 1900 and has caused almost complete loss of the crop in some areas.

RED SCALE PARASITE

A red scale parasite (Comperiella bifasciata) has recently been successfully brought by airplane from China to California, says Compere, Flanders, and Smith, of the Riverside Citrus Experiment Station, in the California Citrograph, August 1941. The parasites are now being propagated in the insectary at Riverside. The next step is to determine the economic value of the parasite in the scale-infested orchards of California. Judging from past experience, they say, this will require from 2 to 4 years of colonization and observation.

ORIENTAL FRUIT-MOTH INFESTATION OF PEACHES UNUSUALLY LOW IN NEW JERSEY

Fewer worms of the oriental fruit moth, Grapholitha molesta Busck, have been found in peaches in the orchards of southern New Jersey this year than in many years. This conclusion is reported by H. W. Allen of the oriental fruit-moth project of the Bureau of Entomology and Plant Quarantine at Mocrestown, N. J., who has been working with fruit moths for a number of years.

In a survey of Elberta peaches at harvesttime in Burlington, Camden, and Gloucester Counties, it was found that injury due to the fruit moth was less than in any other year since 1930, and less than a third of the injury caused in 1940. In one orchard, the fruit-moth injury was only one-half of 1 percent. No orchards were found in which the fruit-moth injury was higher than 15 percent. The fine quality of the peaches marketed from that section recently has been due, in a large degree, to their freedom from fruit-moth worminess.

Weather conditions during the season of 1941 have been highly favorable for a rapid increase in fruit-moth population. The fact that no increase occurred is without doubt due principally to the unusually high parasitism of the second brood of twig-infesting larvae of the fruit moth, which averaged 81 percent as compared with 67 percent in 1940.

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A dangerous neighbor for wheat, oats, barley, and rye. U.S. Dept. Agr. M. P. 131M, rev., folder (6 pp.) illus. 1941.

The biology and control of the sorghum midge. E. V. Walter. U.S. Dept. Agr. Tech. Bul. 778T, 27 pp., illus. 1941.

Introduction

The purpose of this study is to investigate the effects of various factors on the growth and development of the human body. The study is based on a series of experiments conducted over a period of several years.

Methodology

The methodology employed in this study involves the use of a controlled environment to measure the growth and development of the human body. The subjects of the study are a group of young adults who are selected based on specific criteria.

The data collected during the study is analyzed using statistical methods to determine the significance of the results. The findings of the study are presented in the following sections.

Results

The results of the study show that there is a significant correlation between the factors studied and the growth and development of the human body. The data indicates that the effects of these factors are both positive and negative.

Discussion

The findings of this study have important implications for the understanding of human growth and development. The results suggest that the factors studied play a crucial role in determining the overall health and well-being of the individual.

Further research is needed to explore the underlying mechanisms of these effects and to identify potential interventions that can optimize human growth and development.

The study also highlights the need for a more comprehensive understanding of the factors that influence human growth and development, and the importance of continued research in this field.

Conclusion

In conclusion, the study has demonstrated the significant impact of the factors studied on human growth and development. The results provide valuable insights into the complex processes that govern the human body and offer a foundation for further research and clinical applications.

References

The following references were consulted during the course of this study:

Appendix A: List of Subjects

The subjects of this study were selected from a pool of young adults who met the following criteria:

1. Age: 18 to 25 years old

2. Health: No history of chronic illness or injury

3. Education: High school or college level