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NEWSLETTER

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EDITED BY

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Please submit items of interest for newsletter to editor.

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NOTES OF INTEREST

Dr. S. B. Vinson, Chairman Section B, Entomological Society of America, has appointed a 7 member committee to examine problems of insect allergies.

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Failure of Serial Generation Production and Lowered Quality in Reared Insects

Ronald H. Goodwin
Insect Pathology Lab., USDA-SEA-FR
Beltsville, MD 20705

Although genetic problems are often the cause of rearing program failures, many apparently "sucessful" diets (proven on only 1 generation of a given species) are probably the real cause of many failures attributed to inbreeding or faulty mating systems in continuous rearing programs. Sequential generations must be included in definitive diet evaluation, and where raw products like wheat germ are used, their complete composition should be evaluated. There is a danger of failure in oligidic diets using natural nutrients since -tocopherol and other compounds degrade in storage. Also, active concentrations of components will vary between source batches.

Axenic culture of serial generations of some insects on semi-defined and defined diets using the more stable -tocopherol acetate form have shown that there is an increasing array of insects which required -tocopherol for reproductive success in serial generations. Other studies have attributed reproductive failure either to males alone, females, or possibly both sexes when active -tocopherol was lacking or decreased.

The majority of diet studies do not give serial generation data. When more such data have been generated we may see a much wider occurrence of -tocopherol requirement among insects together with nutrient interdependency data and a detailing of both reproductive and growth effects. Such sublethal growth effects may presently be compromising sterile male release programs where -tocopherol (and related factors) activity is not preserved. Serial generation performance for some reared species has appeared in two publications (Singh, P. 1974. Artificial diets for insects: A compilation of references with abstracts (1970-72). New Zealand Dept. Scientific and Industrial Research. Bull. 214, DSIR (Auckland) 96p.; and Singh, P. 1977. Artificial Diets for Insects, Mites and Spiders. IFI/Plenum (New York, London) 594p.). In the absences of hard data for a given species, the prudent insect culturist should make

certain that active -tocopherol is present in his larval diet.

Write to the author for references and further information (address above).

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PUBLICATIONS

"Arthropod Species in Culture 1978" to be published this spring by the Entomological Society of America. It includes some 1,000 colonies comprised of about 400 species representing approximately 100 taxonomic families. These colonies are maintained at 206 facilities in the U. S. and 17 other countries. The contents are organized into three sections: 1. an alphabetical list of genera and species arranged by taxonomic order and family; 2. colony information - containing diets, publications, age of culture, etc.; 3. a directory of contributors.

This catalog was compiled to support and encourage the use of economically important species for basic research. However, it also serves to facilitate cooperation and prevent duplication of effort among those who rear similar organisms. By identifying associated colonies, information may be shared about materials, techniques and related aspects of rearing operations. Reserve colonies can be made available to prevent costly delays in research that depends on uninterrupted supplies. Finally, this inventory of colonies indicates present success and future opportunities in the field of insect rearing.

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Chiang, H. C. and D. F. Palmer. 1978. Attempts to enrich the parasite fauna of the European corn borer in Minnesota. J. Minn. Acad. Sci., 44(2):15-17. (Chiang-University of Minn., St. Paul, Minn.)

Davis, F. M., T. G. Oswalt, and F. C. Boykin. 1978. Insect diet dispenser for medium-size rearing programs. U. S. Dept. Agric., Agric. Res. Serv., ARS (ser): 182:3p. (Davis-Plant Sci. Lab., USDA, Miss. State, Miss. 39762)

King, E. G., G. G. Hartley, D. F. Martin, J. W. Smith, T. E. Summers, and R. D. Jackson. 1979. Production of the tachinid Lixophaga diatraeae on its natural host, the sugar cane borer, and on an unnatural host, the greater wax moth. U. S. Dept. Agric., Sci. Educ. Admin., AAT-S-3:16p. (King-USDA, P. O. Box 225, Stoneville, Miss. 38776)

Leppla, N. C. 1979. Insect colonies: white rats or white elephants. Insecticide and Acaricide Tests 4:2-3. (USDA, P. O. Box 14565, Gainesville, Fla. 32604)

Langhans, R. W. (Ed.) 1978. A Growth Chamber Manual. Cornell University Press, Ithaca, NY.:222p.

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REQUESTS

As a prelude to organizing a section on "product" quality control for the 1980 Insect Rearing Conference we would like to determine the scope of quality control application in insect rearing.

Would you please fill out this questionnarie and return to: Thomas M. ODell, USDA Forest Service, 151 Sanford Street, Hamden, CT 06514.

Name _____

Address _____

Insect species being reared _____

Quality is determined relative to:

	Yes	No
1. microbial containments		
2. response to natural stimuli:		
temperature		
humidity		
light		
daylength		
3. response to behavioral chemicals		
4. flight dynamics:		
flight propensity		
sustained flight		
orientation flight		
5. reproductive capability:		
physiological		
longevity		
mate communication		
6. virus production		
7. other		

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We are preparing the next issue of STING and we would like to obtain the following information from you:

1. possible change of address
2. names of people interested in, or working on biocontrol in glasshouses.
3. publications of this year
4. new research projects.

Please do not delay your answer, so we can prepare the following STING fast.

Send all correspondence to:

J. Woets
Glasshouse Crops Research and Experiment Station
Postbus 8
NAALDWIJK
The Netherlands

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Insect Rearing Conference

WHEN: February-March 1980

WHERE: Atlanta, Georgia, New Orleans, Louisiana, or St. Louis, Missouri (site selection will be approached in that order)

SCHEDULE: Three days, with formal presentations during the day and discussion periods in the evening. Day three will be used for summarizing and planning.

SCOPE: Federal, state, university and commercial interests will be represented with international participants welcomed. The papers presented are planned to be compiled and published in book form.

OBJECTIVES:

a. Assemble the scientific principles of insect rearing that have been established in recent years. These would include the guidelines for establishing and maintaining colonies of insects for specific purposes.
b. Identify problem areas in insect rearing programs and develop specific recommendations for problem solving. These would include research, development, and implementation protocols.
c. Establish the scientific complexity and integrity of insect rearing as a field of scientific research.
d. Through publication of the conference proceedings, document the state

of the art of insect rearing and establish a reference for direction of the science.

PROGRAM:

Section I - Colony Establishment and Maintenance
- Topics: Genetic variability in field populations
  - Genetic processes of domestication
  - Maintenance of variability in reared insects
  - Artificial selection of desired characteristics

Section II - Diets for Insects
- Topics: Basic nutritive requirements of insects
  - Physical and non-nutritive requirements
  - Diets for colony maintenance vs. production
  - Dietary ingredients for insect production: source, bulk handling, quality problems.
  - Diet preparation - current developments and problems
  - Microbial contamination - problems and control methods
  - Containers for rearing insects

Section III - Engineering
- Topics: Environmental control for insects and personnel
  - Insect rearing facilities
  - Automating insect rearing
  - Materials handling
  - Quality control of facilities
  - Systems analysis and modeling

Section IV - Production, Utilization and Quality Testing
- Topics: Production of lepidopterous insects
  - Production of entomophagous arthropods
  - Multiple insect species production
  - Production of screwworm flies
  - Production of boll weevils
  - Production of insects for industry

Section V - Management of Insect Rearing Systems
- Topics: Production management
  - System analysis of production
  - Quality control
  - The insect rearing specialist
  - Academic training in insect rearing
  - Program politics

An estimate of the number of people who might attend the conference is needed to assist the Local Arrangements Committee. Please complete the form below and return to:

R. F. Moore
Post Office Box 271
Florence, South Caroline 29502
USA

Name _____
Institution/Company Name _____
Address _____
City and State _____ Zip Code
Country _____

_____ I definitely plan to attend.
_____ I probably will attend.
_____ I am interested in attending.