

FRASS NEWSLETTER



INSECT REARING GROUP

VOL. 11 No. 2 October, 1988

Help! FRASS needs your input

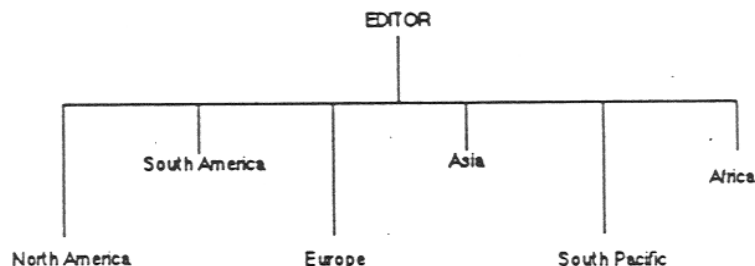
by Jay Pershing

What is the Frass newsletter? What purpose does it serve? Is it achieving it's purpose? And finally, is there still a need for Frass? These questions were asked by a number of us at the Insect Rearing Workshop, "Advances in Insect Rearing For Research and Pest Management" held during the XVIII International Congress of Entomology. I have continued to ask myself these questions, especially in the area of: "achieving it's purpose and need for Frass". The first two questions, what is it and its purpose, should be easy to answer if one has read any number of past issues. The answers go something like this ".....a cooperative effort.....to provide a vehicle for communication among scientist involved in all aspects of insect rearing..... depends on the continuous input of information from you". I have no problem with those answers, they are respectable and clearly stated. The answers to the latter two questions are somewhat less clear and subject to debate. However, in light of that, I have come to the conclusion that the answers are no and yes, respectively. "No", Frass is not achieving it's purpose, and "yes", there still is a need for Frass.

As editor I could partially blame myself for the former answer, "no", but clearly, Frass is a reflection of the input from its members. We need your input! The reason for the latter answer, "yes" was only a gut feeling. Those of us involved in insect rearing can appreciate gut feelings. So, I would like to propose a solution that would increase the level of input into the Frass Newsletter and make it a more viable publication. The solution is one that was suggested by Dr. Pritam Singh at the Insect Rearing Workshop and involves reorganizing the editorial staff.

Under the present organization of the Insect Rearing Group, there has been one editor who volunteers to compile, organize, print and distribute two issues per year of this newsletter all paid for by his/hers employer. This is not an effective way to produce an informative newsletter.

Under the proposed organization there would be six contibuting editors and one executive editor. A contributing editor would represent one of six regions shown below and would be responsible for compiling information from that region. Information obtained from each region would then be organized and distributed by the executive editor.



I hope to have the chance to discuss the above proposal and all other pressing matters concerning the Frass newsletter during the business meeting at this years Insect Rearing Formal Conference. For those of you who do not plan on attending this meeting, your written comments and suggestions will be helpful and possibly printed in the next issue of Frass.

Consulting on insect rearing, imagine that!

by Jay Pershing

Not only can I imagine it, I was fortunate enough to experience it. It being the consultation services offered by Dr. Pritam Singh in the area of mass production systems, more specifically, insect rearing. Visits with Dr. Singh as a consultant for Monsanto's Insect Biology group have been valuable experiences. His first visit involved an all day session working with the insect rearing group. Major areas covered were increasing efficiencies in production through optimizing rearing methods and quality control. A seminar, directed toward upper management, was also presented that clearly stated what insect rearing is about and how resources are utilized to obtain the desired goals. The visit was a success, and can be measured by increase in motivation of those involved in insect rearing. As important, there is a better understanding of insect rearing by those who are not directly involved in the production process.

Dr. Singh's second visit consisted of a week long mini workshop with not only the insect rearing staff, but several other groups involved in mass production systems (i.e., media prep group and primary screening). The purpose of this workshop was to implement the Insect Rearing Management (IRM) concept developed by Dr. Singh. IRM briefly stated is the efficient utilization of resources for the production of insects of standardized quality to meet program goals. It involves organizing, monitoring, forwarding research, planning, and liason with user groups. It is especially suited for multi-species insect rearing facilities. In addition to covering these topics, two seminars were presented. The first seminar was on IRM, where everyone was introduced to the concept. The second seminar, "A Perspectus On Supervising and Training Laboratory Personnel For Mass Production Systems", was beneficial to a number of different research labs at Monsanto. It ended with some very interesting discussions associated with supervisory problems.

Dr. Singh takes a genuine interest in promoting the field of insect rearing and enjoys sharing his experiences and expertise with those who are interested. For the folks in the Insect Biology group at Monsanto, his visits go beyond the experiences shared and the knowledge gained into a future of possibilities and problem solving.

Dr. Pritam Singh is recognized as a world authority on insect rearing management systems and is the project leader of the Insect Rearing Group at New Zealand's Department of Scientific and Industrial Research (DSIR), Entomology Division. Through DSIR, Dr. Singh offers a wide range of consulting and advisory services which include:

- preparation of a total management plan encompassing design of laboratory and equipment, diet formulations and product development techniques
- problem solving in established insect rearing laboratories for economical production of target insects
- organizing production and supply of laboratory reared insects to meet program goals
- staff training

For further information on consultancy, advisory, and insect production services contact:

Dr. Pritam Singh
Entomology Division
DSIR
Private Bag
Auckland, New Zealand
Phone: (09)893-660
Telex: NZ21623
Fascimile: (09)863-380

FRASS NEWSLETTER is a cooperative effort among the INSECT REARING GROUP, designed to provide a vehicle for communication among scientists involved in all aspects of insect rearing. FRASS is published bi-annually by the INSECT REARING GROUP that consists of the 300+ FRASS subscribers from 28 countries. This is your newsletter and its effectiveness as a communication tool depends on the continuous input of information from you. Your input is very important and needed to keep the INSECT REARING GROUP informed on the current state of the art and to promote its advancement.

Please give your support by sending to the FRASS Editor (Jay Pershing): Editorial comments, short papers on new rearing techniques, information requests, requests for starter colonies, your source lists for supplies, items for sale or trade, new publication citations or abstracts, announcements, appropriate meeting dates, or other related news items. But don't let these suggestions limit your input. What information would you like to publish in FRASS?.

FRASS EDITORS

1975 N. C. Leppla, USDA-ARS
1976 W. A. Dickerson, USDA-ARS
1977 T. M. Odell, USDA-ARS
1978 E. G. King, USDA-ARS
1979 J. D. Hoffman, USDA-ARS
1980 R. E. Wheeler, Chevron Chemical
1981 G. Rymeus, Zoecon Industries
1982-84 No issues, concentrated on other activities
1985 D. R. Edwards, FMC
1986 S. Burkhart, FMC
1987 R. E. Wheeler, Chevron Chemical*
1988 J. C. Pershing Monsanto Agricultural Company

Frass is available to those scientists interested in rearing. Send subscription requests to: Ron Wheeler Chevron Chemical Corp. P.O. Box 4010 Richmond, CA 94804

UPCOMING MEETINGS

**THE 1988 ANNUAL ESA MEETING IN LOUISVILLE, KENTUCKY
December 4 - 8, 1988**

For all you entomological entrepreneurs, this year's program will be, "Bugs for Bucks: Rearing In\$ect\$ for Profit". The program starts at 8:00 a.m. on Wednesday, December 7, 1988. Those in

attendance will be inspired and encouraged to examine insect rearing as a potentially profitable outlet for their talents and expertise. Dr. Norm Leppla will host discussions, considering: how to get started in the business of rearing insects for profit; identification of potential markets; the hurdles to overcome in pursuit of steady business and financial gain.

OUTLINE: FORMAL CONFERENCE: INSECT REARING

Comoderators:
Jay Pershing
Monsanto Ag. Co.
St. Louis, Mo 63198

Pete Versoi
BASF Corp.
Research Triangle Park, NC 27709

TITLE: "BUGS FOR BUCKS: REARING IN\$ECT\$ FOR PROFIT"

INTRODUCTION: (5 MINUTES)

Jay Pershing

SUBMITTED PAPERS: (12 MINUTES)

An efficient way to collect sunflower moth pupae reared in the laboratory. **Richard L. Wilson.** USDA-ARS Plant Introduction Station, ISU, Ames IA 50011

FORMAL PAPERS: (10 MINUTES EACH, QUESTIONS SAVED FOR PANEL DISCUSSION)

Insect Production in Support of Research. **Gorden Hartely.** USDA-ARS, Southern Field Crop Insect Mgm't Lab., County Rd 265, Stoneville, MS 38776

Twenty Years of Lepidopterous Rearing for Plant Resistance Research. **Frank Davis.** Crop Science Research Lab., Mississippi State, MS 39762

Insect Behavior, Biology, and Ecology: Guides to Efficient Mass Rearing. **John Mihm.** CIMMYT Organization, Mexico City, Mexico

Mass Rearing Phytoseiid Mites for Testing and Prospects for their use in Commercial Control. **James A. McMurtry.** Dept. of Biol. Cont. Citrus Res Ctr., Univ. of Calif., Riverside, CA 92521

Industrial Insecticide Research: Why Buy Insects? **Pete Versoi.** BASF Corp., P.O. Box 13528, Research Triangle Park, NC 27709

Insect Pests-R-Us. **Lee French.** French Agricultural Research Service, Lamberton, MN 56152

Rearing Insects of Public Health and Household Importance. **Gene Gerberg.** Insect Control & Research, 1330 Dillon Heights Ave., Baltimore, MD 21228

Of Mice and Moths: is there room "for profits" among the "non-profits"? **Mark Ticehurst.** National Gypsy Moth Mgt Group, Inc., RD1 Box 715, Landisburg, PA 717789-3434

PANEL DISCUSSION (ca 45 minutes)

Host: Dr. Norm Leppla
USDA ARS
Insect Attract. Basic Biol. Lab.
Gainesville, FL 32604

- What are the markets for commercial insectary?
- How are commercial insectaries established?
- What are the major problems encountered in developing this industry?
- Recommendations from the panel.

BUSINESS MEETING (ca 15 minutes)

These conferences have provided us with an excellent forum for discussing major issues relative to insect rearing. Please come with your experiences and/or questions and comments and be ready to develop and challenge the idea "Bugs for Bucks: Rearing Insect\$ for a Profit".

INTERNATIONAL VEDALIA SYMPOSIA ON BIOLOGICAL CONTROL: A CENTURY OF SUCCESS

to be held at Riverside, California March 27-30, 1989 and McAllen, Texas April 4-6, 1989. The Riverside Symposium seeks 1) to review the basis of a century of successful biological control efforts, 2) to consider the future directions of biological control, and 3) to evaluate the roles of biological control in integrated pest management. The McAllen Symposium seeks 1) to facilitate the exchange of information on the successful production and use of biological control agents, 2) to develop greater awareness and appreciation for implementation as an increasingly important part of the field of biological control, and 3) to promote national and international cooperation in the use of biological control agents in pest management. Both symposia will consist of plenary lectures, concurrent sessions, workshops and poster

sessions. For more information concerning participating or attending one or both symposia write to: International Symposia on Biological Control, Department of Entomology, University of California, Riverside, CA 92521

RECENT PUBLICATIONS ON: INSECT REARING, NUTRITION, DIETETICS AND QUALITY CONTROL

compiled by Dr. Pritam Singh

Alya, A.B., Hain, F.P. 1987. Rearing *Monochamus* species larvae on artificial diet (Coleoptera: Cerambycidae). *J ECON ENTOMOL* 80: 427-432.

Ashby, M.D., Singh, P. 1987. A glossary of insect rearing terms. *DSIR BULL* 239, 45pp.

Baker, J.E., Bry, R.E. 1987. Nutritional Ecology of Wool and Fur Feeding Insects. pp. 971-991 in Sansky, Jr. & J. G. Rodriguez (Eds.) *Nutritional Ecology of Insects, Mites, Spiders, and Related Invertebrates*. John Wiley & Sons, New York.

Baker, J.E., Loschiavo, S.r. 1987. Nutritional Ecology of Stored product Feeding Insects in Sansky, Jr. & J. G. Rodriguez (Eds.) *Nutritional Ecology of Insects, Mites, Spiders, and Related Invertebrates*. John Wiley & Sons, New York.

Bigler, F., Meyer, A., Bosshart, S. 1987. Quality assessment in *Trichogramma maidis* Pintureau et Voegelé reared from eggs of the factitious hosts *Ephesia kuehniella* Zell. and *Sitotroga cerealella* (Olivier). *J APPL ENTOMOL* 104: 340-353.

Cate, J.R. 1987. A method of rearing parasitoids of boll weevil without the host plant. *SOUTHWEST ENTOMOL* 12: 211-215.

Dickens, J.G., Agee, H. 1987. Photosensitivity and special response of boll weevils reared on natural host and artificial larval diets supplemented with carotenoid. *J APPL ENTOMOL* 103: 185-192.

Dowd, P.F. 1987. A labor-saving method for rearing the dried fruit beetle (Coleoptera: Nitidulidae) on pinto bean based diet. *J ECON ENTOMOL* 80: 1351-1353.

Eilenberg, J. 1987. The culture of *Entomophthora muscae* (C) Fres. in carrot flies (*Psila rosae* F.) and the effect of temperature on the pathology of the fungus. *ENTOMOPHAGA* 32: 425-435.

Gardiner, B.O.C. 1987. Rearing the painted lady *Cynthia Cardui* L. with particular reference to the use of semi synthetic diet. *ENTOMOL REC* 99: 205-214.

Grijpma, P., Belde, J.J.M., van der Werf, D.C. 1987. Artificial diets and rearing of the nun

- moth, Lymantria monacha. ENTOMOL EXP APPL 45: 219-225.
- Hobson, J.M., Sing, P. 1987. Laboratory colonization Planotortrix excessana.
- Kawasaki, K., Ikeuchi, M., Hidaka, T. 1987. Laboratory rearing method for Acanthoplusia agnata (Lepidoptera: Carposinidae) on an artificial diet. JPN J APPL ENTOMOL ZOOL 31:257-260.
- Kurihara, M., Tatsuki, S., Sutrisno, S., Fukami, J.I. 1987. Artificial diet for the large cabbage heart caterpillar, Crocidolomia binotalis (Zell.) (Lepidoptera: Pyralidae). J APPL ENTOMOL 22:232-234.
- Lamb, R.Y., Willey, R.B. 1987. Maintaining cave crickets (Orthoptera: Rhaphidophoridae). ENTOMOL NEWS 98: 147-149.
- Lanciani, C.A. 1987. Rearing immature Mesovelia musanti (Hemiptera: Mesoveliidae) on a substratum of duckweed. FLA ENTOMOL 70: 286-288.
- Martinez, A.J., Holler, T.C., Worley, J.N. 1987. A fructose and yeast hydrolysate diet for the irradiated Mexican fruit fly adult, Anastrepha ludens (Loew), and its effect on Male longevity. SOUTHWEST ENTOMOL 12: 317-320.
- McAvoy, T.J., Kok, L.T. 1987. Rearing Trichosirocalus horidus (Coleoptera: Curculionidae) larvae in artificial diets. J ENTOMOL SCI 22: 330-335.
- Nakamori, H. 1987. Analysis of environmental factors affecting the reproductive and flight ability of the melon fly, Dacus cucurbitae Coquillet (Diptera: Tephritidae). 1. Effect of adult food, copulation and oviposition. J APPL ENTOMOL ZOOL 31: 315-320.
- Nakamori, H. 1987. Analysis of environmental factors affecting the reproductive and flight ability of the melon fly, Dacus cucurbitae Coquillet (Diptera: Tephritidae). JPN J APPL ENTOMOL ZOOL 31:309-314.
- Nettles, W.C. Jr. 1987. Amino acid requirements for growth and development of the tachinid Eucelatoria bryani. COMP BIOCHEM PHYSIOL 86A: 349-354.
- Ochieng, R.S., Otieno, L.H., Banda, H.K. 1987. Performance of the tsetse fly Glossina pallidipes reared under simple laboratory conditions. ENTOMOL EXP APPL 45: 425-435.
- Ottens, R.J., Herzog, G.A. 1987. A greenhouse rearing technique for larvae of the whitefringed beetle, Graphognathus peregrinus (Buchanan) (Coleoptera: Curculionidae). J ENTOMOL SCI 22: 352.
- Peterson, R.D. II, Candido, A.O. 1987. Larval and pupal weight relationships of six strains of screwworm (Diptera: Calliphoridae) reared in the laboratory and in wounds. J ECON ENTOMOL 80: 1213-1217.
- Powell, J.E., Hartley, G.G. 1987. Rearing Microplitis croceipes (Hymenoptera: Braconidae) and other parasitoids of Noctuidae with multicellular host-rearing trays. J ECON ENTOMOL 80: 968-971.
- Schope, R., Hegazi, E.M., Saleh, R.S. 1987. The influence of temperature on the protein digestion of artificial diet by Spodoptera littoralis (Boisd.). J APPL ENTOMOL 104: 113-121.
- Singh, R., Raup, P. 1987. An improved alternative artificial diet for mass rearing of the maize stalk borer, Chilo partellus (Swinhoe) (Lepidoptera: Crambidae). INSECT SCI APPL 8:181-185.
- Srivastava, P.N. 1987 Nutritional Physiology. 99-121. in Minks, A.K. & P. Harrewijn Aphids their Biology, Natural Enemies and Control. Elsevier Science Publishers, Amsterdam, The Netherlands.
- Tarrant, C.A., Scholes, B., Cupp, E.W. 1987. Techniques for inducing oviposition in Simulium vittatum (Diptera: Simuliidae) and for rearing sibling cohorts of simuliids. J MED ENTOMOL 24: 694-695.
- Vargas, R.I., Mitchell, S. 1987. Two artificial diets for rearing Dacus latifrons (Diptera: Tephritidae). J ECON ENTOMOL 80 1337-1339.
- Zajonc, I. 1987. Production of house fly pupae in excrements of some house animals. POLNOHOSPODARSTVO 33: 349-353.

FRASSIFIED ADS

COCKROACHES REARED: I can rear a variety of cockroach species. Collaborative projects or contract rearing possible. Unsorted individuals or roaches sorted by age, sex or reproductive history can be supplied. I have had 25 years experience in this field. Present interests include production of behavior and learning mutants and the editing of a book on the neurobiology of cockroaches as models in biomedical research. Dr. Ivan Huber, Dept. of Biological and Allied Health Sciences, Fairleigh Dickinson Univ., Madison NJ 07940. Telephone: 201/593-8759.

Wanted: machine to dispense insect diet into a 1 1/4-ounce plastic cup and source for clear, 1 1/4-ounce plastic cups plus lids (ideally, a permeable-type lid). If able to help contact: Richard P. Kling, Commonwealth of Pennsylvania, Department of Environmental Resources, 34 Airport Dr., Middletown, Penn. 17057-5080. Ph.: (717)944-6012 or (717)787-5469.

WANTED: DEAD OR ALIVE! MANY STORED PRODUCTS PEST. *Gnathocerus cornutus, Anthrenus vervasci, A. scrophulariae, A. flavipes, Attagenus unicolor, Dermestes ater, D. maculatus, D. vorax, Gibbium aequinoctiale, Acanthoscelides obtectus, Bruchus pisorum, B. rufimanus, Callosobruchus chinensis, C. maculatus, Necrobia rufipes, N. ruficollis, Sitophilus zeamais, Araecerus fasciculatus, Caulophilus oryzae, Prostephanus truncatus, Cathartus quadricollis, Pharaxonotha kirschi Lophocateres pusillus, et al.* I am willing to purchase or exchange (culture material, microslide mounts or 2X2 drymounts). If interested or able to help contact: Dick Wilkey, Arthropod Slidemounts, P.O. Box 185, Bluffton, IN46714.

Publications Officer, Science Information Publishing Centre, DSIR, P.O. Box 9741, Wellington, New Zealand.

Frass is available to those scientists interested in rearing. Send subscription requests to: Ron Wheeler Chevron Chemical Corp. P.O. Box 4010 Richmond, CA 94804

FRASS EDITOR

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FOR SALE: A GLOSSARY OF INSECT REARING TERMS, 64 pages, M. D. Ashby and Pritam Singh. \$9.95 (US) including postage and handling. The

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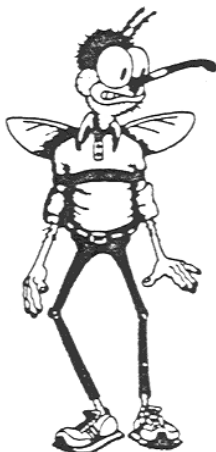
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Beware!

The next issue of Frass is due out in May and because the editor expects to be up to his thorax in Frass related issues please send your input as early as possible for printing,



The logo for 'FRASS' features a detailed illustration of a caterpillar at the top. Below the caterpillar, the word 'FRASS' is written in a large, bold, sans-serif font. Underneath 'FRASS', the words 'INSECT REARING GROUP' are written in a smaller, all-caps, sans-serif font.