

Special Issue Reprint

Focus on Insect Rearing Methodology to Promote Scientific Research and Mass Production

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The ability to produce insects has a broad impact on human lives in a wide array of areas including insect pest and weed management, human and veterinary medicine, insect production for food and nutrient supplements, as well as research and education. Insect rearing began as a simple desire, yet never a simple task, has continued to expand, both in methodology and application. A desire to learn about and understand insects grew into a desire to control and manipulate insects, both to suppress and to preserve. Rearing individual life stages extended to continuous rearing and maintaining evolved into production. Ultimately, this results in insects physically and behaviorally similar to those from nature. New multi-omics technologies (transcriptomics, nutrigenomics, metabolomics, etc.) recently increased knowledge of microbiomes, and the manipulation of nutrigenomic analysis and statistical optimization modeling have enabled advances in insect nutrition. These advances have resulted in a better understanding of the effects of the food stream ingredients and rearing conditions on the insect's physiological and biochemical functions, in addition to promoting the production of high-quality insects. The production has application in research, insect control, and most recently, specialized food niche. Before one application has been fully realized, a new application has emerged, often supported with the application of new technologies. Given this pattern of advancement followed by benefits, there is every reason to anticipate more to come in the field of insect rearing.

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