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Editorial

Philosophy of Research: Way to Conquer Challenges

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The globe has undergone continuous changes over thousands of years. Certain alterations bear a 'cause' and 'effect' relationship whereas the others follow a particular 'trend relationship'. Through 'research', we investigate these areas of alterations. Research is evolving. This is the case even in case of a simple experiment. The researcher starts off with one particular idea of investigation. During the process, it may take a different pathway in contrast to what was intended or planned at the beginning.

On the whole, what is practiced in science is applying logical reasoning to the particular observations obtained in individual research, and developing general statements on the way the nature works. This is essentially what happens in the research undertaken despite the fact that every research discipline accompanies its own flavour. There is always a philosophy in science. It develops through testing hypothesis and attempts to falsify the same. What is achieved in research is explained by using different philosophical approaches such as 'Mills Canons' or 'Principles of Parsimony'. A researcher starts off with a single hypothesis and tries to falsify it through experimentation. He discloses the outcome and draws the attention of fellow scientists on possible avenues for further studies to enhance the knowledge on that theme. Thus, the end point of one research is the beginning of another investigation. As such, attempts to falsify a set of related hypothesis on a particular research question over a period pave the way for the emergence of 'Law', 'Theory' and 'Paradigm'. At this point, the scientists can make aware of the general public how the things function in common on a broader perspective.

Continuation of such work set the stage for

enhanced understanding of the concepts, betterment of living status and comfort the life.

We are currently undergoing a critical period in terms of many aspects of life: health, nutrition, economy and sustainability. These issues have urged us to seek solutions for enormous issues in different fields. In agriculture and food security, protection of limited agricultural produce following harvest also needs a special attention in addition to the attempts on increasing agricultural productivity in the cultivated field. This requirement, however, has to be accomplished in solidarity with the safety of the environment and its inhabitants where the existence of human and other living organisms claims a high priority. Out of so many factors contribute to the deterioration of agricultural produce with the span of time, the significance of tiny hexapod creatures known as insects have projected the importance of their unique status throughout the world. The humid tropics represent the 'hotspots' for the survival of insects due to the overlapping of ambient temperature with that of the favourable range for insects. Accordingly, insect abundance and their damage occurred in tropical countries including Sri Lanka are high. Therefore, the challenges encountered by the farming community in these areas for crop protection are higher than in the rest of the world.

Having comprehended the demerits imposed by conventional neurotoxic and respiratory toxic insecticides over the years, the biorational pest management methods are now emphasized. Starting from 1950s when Carol Williams first introduced the concept of utilizing the properties of insect body against them in the management programs, that branch of science has undergone great development over the past few decades. Chemicals analogous to insect pheromones and hormones; others which negatively affect their metabolism; microbes such as bacteria, virus, fungi as well as nematodes are a few categories of biorational pest management agents. Further, the alteration of micro environment in which the insects inhabit negatively affects the survival of harmful insects. The professional pest management consults the possible harm to the beneficial insects such as bees and pollinators prior to the deployment of a particular treatment as otherwise the

destruction of such ‘friends’ would lead to aggravate the food crisis with time.

As reported above, entomologists have a great role to play in this critical period of food crisis hand in hand with the scientists of other disciplines. Advancement of knowledge through research and practical application of the developed technology are both important to overcome this global issue. Given the circumstances, it is the responsibility of all scientists to target their work in this direction. The collective performance of scientists in research, extension and developmental activities would ensure a better tomorrow with prosperity.