Among the principal problems facing agriculture today is the loss of crops to pests, to which the favored response is the application of insecticides and nematicides. The need for pesticides has arisen from the modern farming context in which natural plant defenses are destroyed.

Natural plant communities have developed defense systems which provide protection from their natural predators, such as herbivores. For example, in natural vegetation, most plant species occur in scattered groups or as individuals. The habitat of the plant may itself occur in patches corresponding to some underlying environmental variation, such as soil moisture, shade, or slope aspect. It is unusual to find large single-species stands in natural circumstances. Thus the plants are “hidden” from their natural enemies. Some may be found and eaten by insects, but others in the vicinity may escape serious damage. The result is an approximation of stability in the supply of a particular plant.

In addition, plants have developed numerous other means of deterring herbivores, some chemical and some mechanical. The use of plant chemicals by insects as host plant identifiers has an important ecological outcome. It makes it possible for plants to “hide,” in the sense used above. Were all plants to use the same defense, herbivores would not be selective and would be able to flourish on all plants. In some ecosystems, the diversity approach to defense is employed, but there are cases in which a common defense is used.

Agriculture as practiced today violates many of the basic principles of natural plant defense. For example, instead of small numbers of many plant species “hiding” each other or scattered over a diverse mosaic of habitats, large stands of single species are planted. Within a particular agricultural region there may be thousands of square kilometers devoted to two or three crop species each year. The only breaks in the landscape monotony may be hedgerows, roads, and villages. To an insect adapted to any one of the crops, the region is a universe of opportunity.

In essence, a pesticide is man’s attempt to restore the defenses bred out of plants or rendered useless by large-scale monoculture. Whereas natural defenses are confined to the plant, artificial ones are applied externally. Natural plant defense measures target only the plant’s natural enemies, while pesticides have a more global effect, including several undesirable side-effects. Natural defenses directly affect only herbivores, but pesticides may also kill the natural predators of the pest species. Consequently, when a pesticide is applied it kills all insects, but the pests, having higher intrinsic capacity to reproduce, recover their population size faster. Pesticide applications have also created new pests. Many insects that have been naturally controlled by predators have been released from control when the predators are destroyed by pesticides. The immediate result is that further pesticide application becomes necessary.

Repeated applications of pesticides cause evolution of insect resistance to the pesticide. In nature, the pressures of natural selection create a diverse array of species with abilities to cope with a variety of problems. Pesticide application is another type of...
selective pressure. New pesticides have to be created to circumvent the resistance evolved by pests. Since the novel detoxification pathways often have general effectiveness against a class of chemicals, new classes of pesticide may be needed. Over the past century, there has been a rapidly escalating arms race and an ever more dangerous war against crop-devouring pests. Ironically, it is the pests who are winning.

Flint & Bosch (1981) document the history of pesticide use and crop loss to pests in the United States. In spite of the great expense to farmers, crop loss has increased since the widespread use of pesticides began following World War II. Farmers are running faster than ever, but have lost ground. At the same time, crop losses have continued to increase (Vaughan, 1988; Mott & Snyder, 1987). Pimentel et al. (1978) estimate that there would be no food shortages in the U.S. if pesticide use were discontinued.

As a result of the abundant use of pesticides, consumers are becoming more concerned with the quality of food with respect to potential contamination by toxic residues. At the same time, they have come to expect picture-perfect fruits and vegetables, and producers fear the economic consequences of minor insect-caused blemishes. Thus, crop production is looking for new methods of pest control that will maintain profitable quantity and yet produce quality crops.

The malaise of pesticides is not limited to consumers. Spray drift and chronic exposure of farm labor to pesticides cause many health problems. Accidental spills and improper disposal of chemicals have poisoned land and water throughout the world. Pesticide applications often do not remain in the target area, and may poison humans, livestock, and wildlife (Pimentel & Goodman, 1978). Parkinson’s disease (Bocchetta & Corsini, 1986; Chapman, Peters, Matthews, & Levine, 1987) and other health problems (Raloff, 1988; Sun, 1988; Brown, 1988; Weir & Shapiro, 1981) have also been linked to pesticide exposure. When the cleverest chemical methods devised by highly trained scientists are inadequate to control pests, and there are serious side-effects in public health, one must conclude that there is something fundamentally wrong with the approach.

The fundamental problem of the current approach to pest reduction can be located in the reductionist approach of modern science. This approach relies on isolation of a subsystem from all other aspects of the system, manipulation of the components of the subsystem to determine how to control the subsystem, and then reintegration of the subsystem with its original context. The first two procedures give detailed knowledge of a small part of the whole, but in isolation. Difficulties arise when reintegration is attempted, because unforeseen synergistic effects often occur, or unintended consequences erupt.

A limited degree of correction in the reintegration process is possible through modeling. However, models are limited in scope and complexity by the information available to the modelers and by the computers they use. Even at its best, a model of the agroecosystem is only a crude approximation of reality.

In recognition of the dangers and ultimate ineffectiveness of pesticides, farmers are beginning to move away from their use. Numerous alternative methods, often termed “organic,” are gaining in popularity. Initially scorned, the organic ideas have been filtering into the agricultural establishment as “integrated pest management,” “biological control,” and “low-input sustainable agriculture.” It is now considered prudent and economical to investigate biologically-based pest control. Many ecological principles are
being put to use, at least experimentally. As the market for pesticide-free food grows, the incentives to work in this area will increase. Organic agriculture is one of the fastest-growing sectors of agriculture (McComber, 1989). However, although progress is being made, even the poison-free methods are still based on incomplete understanding of natural laws. Therefore the possibility remains for adverse consequences or failures.

I would like to propose that the problem of crop protection is not soluble in the terms used to date, and that continued development of control technology will fail because it is based on incomplete knowledge of natural law. The health of the agricultural ecosystem and public health make a seamless whole, and an approach is required which will take both into account. The approach that I would like to recommend is the Vedic Science and Technology of Maharishi Mahesh Yogi.

Maharishi’s Vedic Science and Technology

In his Vedic Science and Technology Maharishi has revived the ancient Vedic tradition of knowledge, and has derived solutions for the most pressing problems of the twentieth century based on this knowledge. Although Maharishi has not yet outlined a complete plan for agriculture, he has enumerated a number of principles which illustrate how his Vedic Science can eliminate its most fundamental problems.

Maharishi’s Vedic Science describes a unified field of consciousness — the simplest form of human awareness — underlying the diverse activities of human intelligence, a field of consciousness which is completely silent yet fully awake. Maharishi explains that although this simplest form of awareness maintains a completely unified structure, through its self-interaction it gives rise to the diversity of human creativity and intelligence (Maharishi Mahesh Yogi, 1986).

Central to Maharishi’s Vedic Science is the direct experience of this field of consciousness — pure consciousness — at the source of thought. The Transcendental Meditation technique provides a systematic procedure for experiencing progressively more refined levels of mental activity, culminating in the experience of the simplest state of awareness. Repeated experience enables an individual to integrate pure consciousness with his daily activity, such that its qualities of infinite creativity and intelligence become a permanent feature of daily experience.

Maharishi (1978, 1986) has described how this field not only underlies individual intelligence, but also the entire physical universe; its self-interaction produces not only all human intelligence and creativity, but also the creativity that structures the entire universe. As such, it contains within its structure all of the laws of nature in seed form. The striking similarity between the unified field of consciousness described in Maharishi’s Vedic Science and the description of the unified field by contemporary theoretical physics has led many physicists to agree with Maharishi’s explanation that the two are the same (Hagelin, 1987). (A review of the general content of Maharishi’s Vedic Science and Technology is available in Chandler, 1987).

Maharishi explains that in order to have the full value of knowledge, consciousness must be highly developed. In the process of development through Maharishi’s Vedic Science, individual awareness expands to identify with the unified field (e.g., Alexander & Boyer, 1989) and thus with all of nature. Because the knowledge in Maharishi’s
Vedic Science is gained at the most fundamental level of nature’s functioning — the underlying field of pure consciousness — thought and action from this level automatically take into consideration the whole agricultural ecosystem. Consequently, activity becomes spontaneously appropriate and incapable of causing environmental harm.

The Application of Maharishi’s Vedic Science to Agriculture

Maharishi (1978) emphasizes that the only way to be sure that agricultural production does not cause harm to the environment is to provide the opportunity for the participants in agriculture to act completely in accord with natural law. With limited awareness, it is not possible to calculate all possible consequences of an action. Narrow vision and limited insight into nature make mistakes inevitable, no matter how well-meaning one may be. However, an individual functioning from the source of natural law spontaneously acts in complete accord with all the laws of nature. Thus, farmers who establish their awareness in the unified field of all the laws of nature will spontaneously employ only life-supporting farming techniques. This ability is cultured through the technology of Maharishi’s Vedic Science — his Transcendental Meditation and TM-Sidhi program.

Maharishi describes wars among humans as arising from intolerable stress levels in the collective consciousness of nations (e.g., Wallace, 1986, pp. 256–260). This same stress creates an unbalanced relationship between man and nature which in turn generates the need for pesticides which can be viewed as a kind of “war” between humans and agricultural pests. In both cases, civilians and innocent bystanders suffer as much as the direct participants. An important feature of Maharishi’s Vedic Science and Technology in relation to environmental values is that the collective practice of the Transcendental Meditation and TM-Sidhi program has consequences beyond the practitioner and his immediate surroundings. Research has indicated that the practice produces a field effect that reduces international conflict, criminal behavior and infectious disease (e.g., Orme-Johnson, Alexander, Davies, Chandler, & Larimore, 1988; Bleick & Abrams, 1987; Orme-Johnson, 1987). It seems reasonable to suggest that the same field effects moderating human conflict could also create harmony between man and the rest of his environment.

From the perspective of Maharishi’s Vedic Science and Technology, the fundamental cause of the use of biocides in agriculture is lack of development of consciousness of the participants in agricultural activity and in society as a whole. Recently Maharishi has been meeting with agricultural specialists to discuss the details of a completely natural approach to farming. Although he has not yet published a detailed plan for the reconstruction of agriculture, he has indicated it will be a theory of agriculture whose main focus is attunement of the farmer’s consciousness with the total potential of natural law, which spontaneously preempts destructive imbalances in the environment.

If this approach were widely adopted, it could change the face of agriculture and eliminate its negative health effects. Maharishi’s Vedic Science breaks the downward spiral in which agriculture currently finds itself by radically altering the source of ideas for pest control. Instead of using isolated values of knowledge, Maharishi’s Vedic Science and Technology works from the unified source of both knower and known. Instead of chiseling at the symptoms of imbalance, the pests, it restores balance in nature. The following are a few key principles of Maharishi’s Vedic Science as applied to agriculture:
1. The predominant concern of Maharishi’s Vedic Agriculture is the development of the consciousness of every farmer.

2. Practice of the TM and TM-Sidhi program develops higher states of consciousness in a farmer by establishing his awareness in the infinite field of pure consciousness — the home of all the laws of nature. Maharishi explains that all action in higher states of consciousness is spontaneously in accord with natural law and thus produces harmony and balance in nature, resulting, for example, in predictable seasons and weather.

3. Through the regular practice of Maharishi’s TM and TM-Sidhi program, the value of infinite correlation, where all aspects of nature are coordinated with each other from the level of the unified field, becomes fully enlivened in the farmer’s awareness. When the farmer’s awareness rises to this infinite status, all of nature’s elements are organized from the level of the unified field to maximize crop quality and quantity.

4. When a sufficient percentage — Maharishi (1978) suggests around 1% — of the world’s farmers have their awareness established in the home of all the laws of nature, there will be a spontaneous balancing of agricultural resources throughout the world, in favor of all mankind.

5. The collective practice of the TM and TM-Sidhi program by the square root of 1% of the population enlivens the infinite creativity and intelligence of nature, automatically resulting in ecological balance.

When these principles are put into practice, there will be no need to use any toxic substances in agriculture. From the perspective of Maharishi’s Vedic Science and Technology, pesticides are not needed. Maharishi (1978) emphasizes that when agriculture is organized from pure consciousness, the home of all the laws of nature, balance in nature will be restored.

When this highest technology of agriculture is adopted, society will have all the benefits of agriculture without any of the risks. Wholesome, untainted food will be available to all; groundwater, lakes, and streams will be free of chemical toxins; and hazardous toxic wastes of pesticide production will be eliminated. The industrial landscape will be made safer, and the rural landscape will be better managed, more beautiful, more diverse, and a truly healthy place to live.

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References


