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KELEA Restoring of Nature's Allostasis as a Low-Cost Alternative to Using Chemicals in Agriculture

W John Martin*

Institute of Progressive Medicine, South Pasadena CA 91030, USA

Abstract

Synthetic chemicals are widely used in agriculture mainly as fertilizers and pesticides. These chemicals were initially considered highly beneficial for crops and relatively harmless to humans and the environment. Experience, however, has shown that many have time-limited effectiveness, yet cause persisting biological disruptions. They are also an added cost amounting to approximately $130 billion annually. Nature has a limited capacity to adapt to changed conditions, including the cultivation of large monocultures and the presence of unnatural chemicals. These adaptations are referred to as Nature's allostasis. In addition to requiring time, allostasis depends on there being sufficient life force energy. KELEA is an acronym for Kinetic Energy Limiting Electrostatic Attraction. It functions as a major life force energy, which can be conveyed in KELEA activated water. Various means are available to increase the KELEA level of groundwater and in turn that of growing crops. A low-cost approach to KELEA activation of water is provided by using pellets of volcanic rock materials that have been pulverized and heated before pelleting. Relatively few commercially available pellets, marketed as Kiko Technology, greatly increase the production of rice. Further, when used in conjunction with biochar, the pellets markedly reduce the levels of pollution in water, some of which would normally flow into land used for agriculture. The effects are attributed to KELEA Assisted Restoration of Nature's Allostasis (KARNA). Without apparent adverse effects, increasing the KELEA levels in the water and soils can provide a low-cost alternative to the use of fertilizers and pesticides in agriculture.

Keywords: Nature's allostasis, KELEA, Fertilizers, Pesticides, Water pollution, Tipping points, Ecosystems, Organic farming, Electroculture, Kiko pellets, Enerceuticals™

Abbreviations: ACE – Alternative Cellular Energy; KELEA – Kinetic Energy Limiting Electrostatic Attraction; KARNA -KELEA Assisted Restoration of Nature's Allostasis

Introduction

Food is essential for the survival of life. Yet, it is wrongly assumed that calories derived from food metabolism are the sole source of the energy expended in daily human activities. This and other reasoning support the existence of the alternative cellular energy (ACE) pathway.[1,2] Further research led to the proposal that the ACE pathway is supported by a fundamental force designated as KELEA, an acronym for Kinetic Energy Limiting Electrostatic Attraction.[1,3]

Agricultural research is primarily focused on ways of increasing crop yields, including minimizing losses due to competing weeds, insects, rodents, and infectious pathogens. This research has led to the continuing development of synthetic chemicals. Some of these chemicals are directly used to enhance the growth of plants, while others provide a competitive advantage for the plants over other forms of life. The former chemicals are called fertilizers, and the latter are pesticides. The major fertilizers provide various combinations of nitrogen (N), phosphorus (P), and potassium (K) and are referred to as NPK.

Worldwide Use of Synthetic Fertilizers and Pesticides

One premise for the annual world's usage of almost 200 million tons[4] of NPK fertilizers is that the yearly harvesting of crops creates a net loss of these minerals from the soil. If this were correct, one would seemingly need to replenish the additional minerals and other components incorporated into crops. Support for the continuing use of NPK fertilizers is also based on the dramatic fall

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*Corresponding author: W John Martin, Institute of Progressive Medicine, 1634 Spruce Street, South Pasadena CA 91030, USA

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in productivity in circumstances in which they are not available. This observation could, however, be explained if the external administration of the fertilizer markedly suppressed the intrinsic production of organic forms of these minerals by beneficial soil microbes. Coupled with these considerations is evidence of progressive environmental damage caused by the toxicity of excess fertilizers entering the world's waterways.[5] It can also have deleterious effects on the functioning of other life forms in the soil that could otherwise contribute to the quality and vitality of plant life.

Nitrogen-containing compounds are extensively used in munitions. The ending of World War II hostilities would have led to excess manufacturing capacity of organic nitrogen compounds if the producers did not promote the use of fertilizers. Without giving time for the soils to adapt, it was relatively easy to show that nitrogen compounds could increase the productivity of monocultures of crops with relatively high nitrogen content. Once the practice of using NPK fertilizers was established, it allowed for a steady increase in pricing and presumably profitability. The current approximate local cost of NPK fertilizers is $350 per ton with export prices nearing $1,000 per ton.[6] Even at the lower level, the annual cost of 200 tons of NPK fertilizers amounts to $70 billion.

Pesticides comprise another major grouping of agrochemicals that are being increasingly utilized in industrial agriculture. Indeed, the World's annual financial outlay on pesticides is around $60 billion.[7] The term pests include weeds, insects, rodents, and infectious pathogens. One approach has been to genetically modify the crops such that they can tolerate exposure to pesticides that are lethal to the competing weeds and other forms of life. This implies, however, that the pesticide will likely be present in consumable crops. Through natural selection, weed and other life form variants will arise, which have lost their susceptibility to the applied pesticide. This then entails additional research and development of newer pesticides, which require further genetic modifications and pose new exposure to those handling and consuming the crops.[8,9]

Genetic engineering can also be used to render crops resistant to certain pathogens. If not, then both the crops and pathogens are being exposed to chemicals, which typically have only a marginal degree of greater selectivity for the killing of the pathogens. Not only can the crops be partially damaged by the pesticides, but so too can those who consume the contaminated crops. As with the exposure of other competing life forms, pathogens can become resistant to each successive type of pesticide used.

The combined annual costs of both fertilizers and pesticides are $130 billion. Yet, with a more insightful view of Nature's allostasis and how it can be easily assisted, neither type of agrochemical product may be necessary. Before addressing this topic, it is worthwhile to consider other efforts to reduce the use of synthetic fertilizers and pesticides in agriculture. These are mainly occurring in smaller operations, primarily considered as horticulture.

Efforts to Avoid the Use of Synthetic Fertilizers and Pesticides in Farming

Organic farming allows for the use of compounds that occur naturally at other locations but are locally deficient. Prominent examples of added components include sea salts, humic and fulvic acids, zeolites, trace minerals, biochar, and animal manure. Microbes can be harvested from highly performing soils and greatly amplified by fermentation before being transferred to the organic farm locations. Complex mixtures of natural products are commonly used in place of synthetic pesticides to suppress the growth of microbial pathogens or to repel insects, rodents, or other crop-damaging animals. Various supply companies specialize in the marketing of products to organic farmers along with educational programs purporting the products' advantages over the uses of synthetic fertilizers and pesticides. Approximately 1% of US farmlands and 1.6% of worldwide farmlands are in organic production.[10]

Regenerative farming is even less prevalent. It tries to further minimize the need for external inputs by rotating or simultaneously cultivating mutually supportive crops that are of nutritional benefit to one another. There is also the reciprocal culturing of the desired crops with the planting of ground-cover plants that sustain and even enrich the growth-supporting and water-retaining qualities of the soil. Similarly, tilling of the soil is discouraged so that its water-containing properties are better preserved. More importantly, tilling can be disruptive to the balanced growth of beneficial life forms, including bacteria, fungi, and earth worms. Animal grazing and composting are also encouraged. The primary goal of regenerative farming is to establish a sustainable, diverse, and productive ecosystem that is less dependent than regular organic farming upon seasonal weather changes.

Biodynamic farming further emphasizes the self-contained interactions between plants, soil, farm animals, and the climate. There are added spiritual and respectful components to these complex biological interactions. Biodynamic farming also involves the use of various homeopathic formulations and the inclusion of animal-derived flesh and bone materials in composting. Each farm is considered different such that a better understanding of its unique characteristics can lead to more effective management.

Electroculture and Magnetoculture Technologies

Another approach to reducing the need for synthetic fertilizers and pesticides is by replicating certain historical farming practices that involve the use of devices that presumptively respond to electrical and/or magnetic impulses.[11] Although yet to be introduced into industrial agriculture, small gardeners commonly report better growth of plants using various antennas. Typically used are i) vertical antennas that extend from within the soil to above the ground, and ii) north-south aligned within-the-ground antennas. The above-the-ground antennas are often coiled with

some controversy as to the best direction of the coiling in the northern and southern hemispheres. The within-the-ground antennas are often magnetized in the direction of the earth's major magnetic field. Beneficial effects on the growth of plants have also been observed using precisely angled pyramids, and both full and partially opened circles of single or multiply wrapped wires. Large-scale studies on these devices have generally provided inconclusive results. As discussed later, this uncertainty will likely change in future studies in which correlations will be sought between efficacy and to capacity to activate groundwater.

KELEA Activated Water

Some farmers prize their locations as being naturally endowed with such excellent water and/or soils as not to require any synthetic or organic additives. Conversely, polluted water and soils can have deleterious effects on the growth and vitality of plants. Examples of beneficial locations are sites in which the land and water are rich in volcanic deposits. Such deposits are generally considered excellent sources of beneficial minerals. As next discussed in this article, a more likely, although still hypothetical explanation exists for why certain sources of water have superior soil penetrating and plant growth-supporting activities.

Electrical charges are viewed as attracting a fundamental force that is required to prevent the fusion and annihilation of electrostatically attracted opposing electrical charges. As noted above it is termed KELEA as an acronym for Kinetic Energy Limiting Electrostatic Attraction.[1-3] KELEA is perceived as a radiating repulsive force that can also slightly limit the strength of distant electrostatic attractions. In polar fluids such as water it can, therefore, lead to a slight loosening of the intermolecular hydrogen bonding between the water molecules.[3] It is further proposed that KELEA is utilized as a life-force energy, which is distinct from the conventional view that all biological energy arises from sunlight via photosynthesis or from the catabolism of food.

Certain dipolar compounds, probably with flexibility in the separation of their electrical charged regions, can attract and then transfer added KELEA into water.[12] The compounds, referred to as enerceuticals™, can be soluble or insoluble and can either be placed into the water or positioned near the water. Examples include certain herbal products (tinctures), crystals, various mineral oxides, perovskite chemicals, such as barium titanate, and unevenly mixed alloys. Pulverized volcanic rock materials that are heated to their partial melting temperatures (850° – 1,200° Celsius for 15-25 hours) followed by slow cooling and pelleting comprise another form of KELEA activating insoluble material.[13] One such pelleted product is marketed as Kiko Technology. Water placed in the vicinity of devices with fluctuating electrical charges can also become KELEA activated.[14,15] If sufficiently activated, the loosened water molecules can function as a continuing source of KELEA for nearby water such that the water activation process can spread both horizontally and vertically. Closed containers of KELEA activated water and other fluids can similarly initiate the activation of much larger volumes of water. As noted above, life forms can directly benefit from KELEA radiating from activated water.

Nature's Allostasis

Life has been maintained on Earth for several billion years and is adaptable to changed conditions. The capacity to maintain life functions under changed conditions is referred to as Nature's allostasis. This contrasts with homeostasis, which implies a single optimal mode of operation. While successful adaptation to changed conditions can require time and energy, the outcome is likely far preferable than trying to chemically intervene within the complex workings of Nature. Thus, it cannot be assumed that chemical interventions will not have major deleterious consequences. In any event, their effects can be short-lived because of Nature's adaptive responses. This argument applies to the use of synthetic fertilizers and pesticides. Indeed, over time the accumulated toxicity of agrochemicals has pushed Nature beyond its energy-dependent allostatic capacity to restore aspects of normal functioning. Their use should be rapidly withdrawn in favor of efforts to support Nature's allostasis. Such efforts are proving successful as reported in the following recent studies.

Enhanced Rice Production Using Kiko Pellets

In a recently reported study conducted in Vietnam, a comparison was made between rice growing in fields pretreated with thirty (30) Kiko pellets per hectare and rice growing in control fields. The benefits of the Kiko pretreatment included more effective weed and rodent control, more efficient germination, deeper roots, greener color, and more abundant tillers, panicles, and rice grains. These benefits resulted in a remarkable 29% increase in total harvested rice and nearly 40% increase in the amount of milled rice.[16] Such differences have not been reported in efficacy assessments of any chemical fertilizers or pesticides. Moreover, the benefits are expected to extend into future years with the continuing transfer of KELEA into the groundwater and beneficial soil microbes.

Reinvigorating Polluted Water Ecosystems

A few Kiko pellets mixed with small amounts of biochar were immersed in a channel of water contaminated with toxic blue-green algae (cyanobacteria). The channel connected the water from the Spirit Lake in Iowa to one of its many tidal basins, referred to as sloughs. Over the next several days, the amount of algae contamination was significantly reduced at and beyond the treated area. A person revisited the site six weeks later. To his astonishment, a beaver had constructed a dam at the site of treatment. Before this, the person had not seen beaver activity in the region for several decades. There were also clear indications of other infrequently seen wildlife, including muskrats, and bullfrogs.[17] Additional areas of the lake were treated with similar transformations. Moreover,

the return of aquatic, land, and flying wildlife has continued to progress beyond six months.[18] Adding to the apparent stepwise restoration of Spirit Lake is the die-off of zebra mussels, an invasive species.[19] Unlike the usual washed-on-shore shells, those that are now appearing in markedly increased numbers are partially disintegrated. Several other sites of heavily polluted waterways in the US have also been restored to where they now support far more wildlife. These sites include water that is directly being used in agriculture.

Increased Resistance to Infectious Diseases, Insects, and Rodents

The ACE pathway was originally characterized in humans as a non-immunological defense mechanism against stealth adapted viruses.[1,20] These viruses evade recognition by the cellular immune system. Additional clinical data support the role of the ACE pathway in the defense against human infections with conventional viruses, bacteria, and fungi. Plants growing on land treated with Kiko pellets also show heightened resistance to infections. Specific examples include infection of rice with *rice tungro bacilliform virus* (*RTBV*) and infection of sugarcane with Downy mildew (*Peronosclerospora sacchari*).[21] Pink rot disease in Palm trees caused by *Nalanthamala vermoesenii* fungus also responded to treatment with activated water that was developed using a tincture of a species of yucca plants. This treatment gave an initial boost to the number of aerobic bacteria. These bacteria continued to proliferate as they overcame the fungal organisms. Their numbers then returned to levels found in normal Palm trees.

Reduced insects and rodent infestations are also commonly reported changes in crops exposed to what can be considered as KELEA activated water. Indeed, it was once stated that rows of plants sprayed with humic acid were distinguishable at a distance from non-sprayed plants by the absence of clouds of hovering insects. Similarly, supportive observations have been made in Kiko pellets treated sugarcane fields in referring to the markedly reduced capture of rodents and the absence of rat bites on the sugarcane.

Working Hypothesis

As mentioned above, Nature's allostasis refers to Nature's ability to adjust to changing conditions to restore optimal performance. It can choose different ways of doing so depending upon the components and processes that are available. In a time and energy-dependent manner, it can work toward replacing those components and processes that are lacking and/or working around or removing those components and processes that are impairing normal function. Beneficial bacteria are considered as the primary elements in an ecosystem, possibly regulated to some extent by bacteriophages. For various theoretical reasons and supported by some data, beneficial bacteria seemingly have a survival advantage over their pathogenic counterparts when exposed to KELEA activated water. The reemerging beneficial bacteria can then create conditions for the next line of beneficial life forms to enter and thrive within the improving ecosystem. These beneficial life form can in turn progressively allow for added diversity. As the needs arise, certain life forms may temporally dominate to remove any harmful excesses. Man's efforts to chemically intervene within complex ecosystems can be disruptive of Nature's ability to retain its optimal functioning. Moreover, if the interventions are too extreme, Nature may not have sufficient available energy to fully repair the disruptions. This concept is depicted in Figure 1.

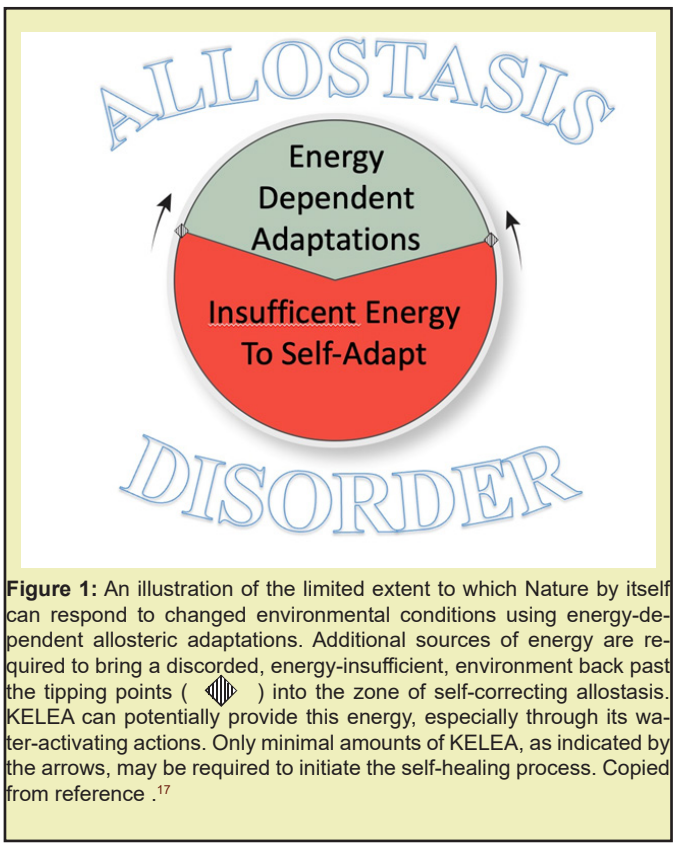

Figure 1: An illustration of the limited extent to which Nature by itself can respond to changed environmental conditions using energy-dependent allosteric adaptations. Additional sources of energy are required to bring a discorded, energy-insufficient, environment back past the tipping points ( ) into the zone of self-correcting allostasis. KELEA can potentially provide this energy, especially through its water-activating actions. Only minimal amounts of KELEA, as indicated by the arrows, may be required to initiate the self-healing process. Copied from reference .[17]

Providing a malfunctioning ecosystem with additional KELEA is a relatively easy process that does not require an understanding of the complexity of the ecosystems. The benefits may take time for the various levels of adjustments to occur. It is also wise to minimize further disruptions, especially with the continuing use of toxic chemicals.

The transition from chemically intervening within natural processes to KARNA (KELEA Assisted Restoration of Nature's Allostatsis) has many additional potential applications.[22] It can begin immediately by improving the quality of the world's waterways. Large industrial farmlands should also be treated with anticipated improvements in subsequent crop yields. A centralized reporting system would help to document progress and optimize protocols. Refinements can also be made in methods for the delivery of KELEA for agricultural and other applications.

Conclusion

Industrial agriculture has become dependent upon the continuing use of synthetic fertilizers and pesticides. Yet, the proposed agricultural benefits of these expensive and potentially toxic chemicals can be equally if not better achieved by utilizing a life force energy referred to as KELEA. This is an acronym for Kinetic Energy Limiting Electrostatic Attraction. The growing of crops comprises a complex ecosystem. Water with increased levels of KELEA can significantly enhance the quality and quantity of crops. It can do so by restoring the capacity of a disrupted agricultural ecosystem to undergo stepwise adjustments to maximize its intended functional activity. These stepwise adjustments are described as Nature's allostasis. Nature's allostasis requires energy, which if not sufficiently available, can prevent the restoration of agricultural land to allow for the optimal growth of the cultivated crops. The disrupted ecosystem is then regarded as having gone beyond its tipping point. Numerous means are available to increase the levels of KELEA in water for agricultural use. None has been as extensively field-tested or as inexpensively manufactured as Kiko pellets. Small, closed containers of previously activated water also hold promise for widespread use as do adaptations of electro-culture and magnetoculture technologies. Examples are cited of the beneficial use of Kiko pellets in the cultivation of rice and the return of wildlife to regions of previously contaminated water.

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Conflicts of Interest

Regarding the publication of this article, the author declares that he has no conflict of interest.

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