



Agrisolutions

N A T U R A L A N S W E R S

PESTICIDES & CHEMICAL FERTILISERS

THE ROAD NOT TAKEN

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“Two roads diverged in a yellow wood and sorry I could not travel both”. Little did Robert Frost realise that this philosophical poem would have significant meaning and relevance in regard to our strife-torn environment. Agriculture, ignoring all caution and warning signs, swiftly traversed the Synthetic (pesticides and chemical fertilisers) Road. Now agriculture has reached this mythical fork in the road. Society as a whole must now stop and make a decision that will influence the course of mankind for generations to come.

It seems that two diametrically opposed factions in agriculture are trying to sway the majority’s opinion about which “road in life to travel”. The gloom and doom soothsayers are preaching that man has irreversibly destroyed nature and that its wounds will remain infected and festering.

On the other end of the spectrum are those who insist that synthetics have strengthened agriculture with no adverse side effects. The truth must lie somewhere between these extreme radical views. Nature, with its amazing recuperative powers, can be on the road to recovery if man would stop and lend an outreached hand.

The pesticide revolution began with the discovery of DDT by Paul Muller of the Swiss company Geigy in 1939. This discovery inspired the release of new chlorinated hydrocarbon-based insecticides to the general public. At the same time organophosphate pesticide was being developed in Germany.

World War 11 catapulted the world into a new era that was fast paced, exciting and capitalistic. But it was also responsible for the birth and nourishment of a demon child - synthetic pesticides.

Pests, once considered an ecological problem, were now big business. This led to the axiom that all pests are harmful and should be annihilated. Research from the late 1920’s to the late 1950’s was focused on pesticide testing with little fundamental research on the biology of pests. The economic benefits coupled with increased yield favoured synthetic pesticides over past ecological practices. Commercial interests demanded quick results which escalated the use of pesticides. Patience was no longer a virtue but a rarity.

Agriculture, once the lifeblood of rural America, is now just a commodity, to be controlled, bought, sold or traded by corporate America. Agriculture was captured and imprisoned without a single shot fired in anger.

Farmers, as if in a hypnotic trance, were lured into increased pesticide use by promises of a new-found wealth. In reality skyrocketing pesticide use only contributed to the wealth and power of the chemical companies. With their newfound power it was an easy task to persuade the government and the universities that pesticide use was the only economical and feasible approach.

The American public was manipulated into believing that only unblemished, cosmetically pure fruits and vegetables should be consumed. These results could only be achieved by the use of synthetic pesticides and chemicals. These unnatural and unrealistic expectations resulted in the production of nutritionally deficient food. As a result human health has been compromised – many of today's maladies are the direct result of trace element deficiencies.

During the last forty years, pesticide use has increased a dramatic tenfold, accompanied by a doubling of crop losses due to insects. Despite all our synthetic pesticides and chemicals it is estimated that 32% of all crops are lost because of pests (12% insects, 12% pathogen, 8% weeds). This translates into a \$50 billion dollar per year loss. If approximately \$3 billion were spent on pesticides annually and this prevented an estimated \$12 billion dollars of crop loss then according to the above figures every dollar spent on pesticides returns \$4. Most of the potential loss however occurs because of a situation created by current agricultural practices that encourage pest outbreaks.

Thus, in one sense, the benefit claimed for pesticide use exists because we have created agricultural ecosystems that require heavy pesticide use. If chemical control has the potential to give a \$4 return per dollar invested in control various non-chemical controls such as biological control have provided returns in terms of reduced crop losses of \$30 to \$300 per dollar invested in control.

The problem lies in the belief that all insects are bad. This notion has led to the proliferation of synthetic pesticides. Chemical companies have instilled in farmers the belief that all insects must be killed. Although this pervasive attitude increased chemical sales it also accelerated the demise of our agricultural ecosystem.

Encouraging the flourishing of beneficial insects will keep the harmful ones in check. Nature had a built in a system of checks and balances that were effective until man intervened. This is substantiated by the above figures that clearly show that pesticides did not control insects but in fact made matters worse. The old cliché “A little knowledge is a dangerous thing” should still be heeded. EPA figures reveal that the overall growth of pesticides used in the USA stopped over ten years ago.

While pesticides recorded huge increases in the 1960's and the 1970's the 1980's were a period of stabilisation. This can be attributed to the following: the lower application rates of the newer pesticides, more efficient pesticide use, increased governmental regulations, reduction in farm income, and a surge in the eco-farm movement.

Farmers have increasingly adopted Integrated Pest Management as well as other sustainable practices. Also it is plausible that the increased costs of pesticides due to the increased costs of keeping pesticides registered for sale, especially for the “minor crops”, may have influenced a downward trend in pesticide use. This crisis is further heightened by increased federal regulations and laws. Increased environmental fervor has mandated that courts can hold farmers morally and financially liable for their eco-actions. Increasingly, federal and state governments are dictating what farmers can do with their land, when and how.

The rights of property owners have been seriously and permanently eroded in the last several years and this trend will continue until farmers take the initiative. By voluntarily incorporating sustainable agricultural practices farmers may avert further government regulations. It would seem that the best defense is a good offence. Forced changes merely imprison farmers placing them at the mercy of meddling bureaucrats.

Although change is inevitable the difference lies in who initiates the change. Farmers can empower themselves by initiating environmental reform. **OUR STRENGTH LIES IN THE PRODUCTIVITY OF OUR SOILS.** Chemicals have destroyed the health and fertility of our soils, plants, animals and ultimately, man.

Although it is unlikely the pendulum in agriculture will swing from excessive pesticide to no pesticide use chemical purveyors are still ducking and dodging. Reduced pesticide sales in the US have forced chemical companies to resort to “Knocking on the farmer's backdoor”.

In recent years some companies have been acquiring major seed companies. It is also these same companies that are heavily investing in agricultural biotechnology. They are transferring herbicide resistant genes into various crops. Their ultimate goal is to develop crops which are resistant to the herbicides that they sell. When a farmer decides on which seed variety to plant he is also establishing his pesticide program. His freedom to pick and choose would be eliminated.

Genetic engineering would allow chemical companies to continue their stranglehold on agriculture. Not only will our problems not be resolved but our freedom of choice will be severely restricted. Genetic engineering is a controversial field whose final outcome may only be fully realised after the fact. As past experiences have shown us Nature, when tampered with, will strive to reach equilibrium. Only time will reveal the actions and reactions of Nature to genetically altered life.

A fertile productive soil is a biologically active soil in which large microbial populations flourish. Microbes are the heart and soul of the soil. Since microbes account for one-third to one-half of the organic fraction of the soil it is important to maintain high microbial numbers in order to facilitate rapid nutrient recycling. Any inputs, such as pesticides and chemical fertilisers which adversely affect soil microbes, will ultimately lead to the demise of soil fertility.

Research has shown that microbes readily break down some pesticides but many degrade slowly even under the best soil conditions. When these synthetic pesticides are degraded what compounds will result and how will they interact with the soil's chemistry? Another concern is how long will they persist in the environment and what long term effects will they have on man and his environment?

Chemical fertilisers due in part to their high salt content detrimentally influence soil microbial populations. This reduction in microbial numbers subsequently reduces the humus fraction of the soil. Humus, (decomposed organic matter) is the nutrient storehouse of the soil and any destruction of said creates a greater demand for additional nutrients. Hence, more nutrients are added, resulting in further destruction of the humus.

The soil has become a "junkie" addicted to chemical fertilisers. This vicious cycle continues until the soil is virtually devoid of life. This is the reason why most of our soils contain less than 1.5% organic matter in many cases this number is less than 0.5%.

Our preoccupation with N.P.K. has resulted in the neglect of trace elements which are a necessary component of healthy and fertile soil. Micronutrients serve as catalysts which activate enzymes and are a part of the balance of plant nutrients regulating growth and development. It is only logical to assume that if our soils are micronutrient deficient then plants growing in them will also lack trace minerals. Man, consuming plants and animals deficient in micronutrients, will also exhibit trace mineral deficiencies. In fact many diseases are now linked to trace mineral deficiencies.

Another determining factor in trace mineral deficiencies appears to be related to hybrid corn. In the laboratory of Armut's Institute of Research in Chicago Ernest M. Halbleib compared Krug open pollinated corn with a hybrid. Spectrographic analysis revealed that the hybrid was deficient in nine minerals. Halbleib stated that the hybrid did not pick up cobalt or any other trace mineral. Both varieties were grown in nutrient enriched soil. "The reason I mentioned cobalt", said Halbleib, "Is that we found (on the sixteen farms in the test) that no hybrid picked up cobalt and in all tests the hybrids were short seven to nine minerals." Cobalt is an integral component of vitamin B-12.

According to the book, an Acres USA Primer, Adolph Steinbronn's open pollinated corn, when compared with 4,000 samples of corn tested in ten mid-west states in a single year, contained 75% more crude protein, 875% more copper, 345% more iron, and 205% more manganese. A similar trend was also observed with calcium, sodium, magnesium, and zinc. It appears that scientists have only succeeded in producing nutritionally deficient corn that is capable of growing under abnormal conditions imparted by non-sustainable farming practices.

In the 1940's Sir Albert Howard deduced that incomplete and unbalanced fertilisation deprived plants of properly balanced hormones and enzyme systems. This resulted in plants being susceptible to insect, bacterial and fungal attack. As Darwin hypothesized, "In Nature only the strong survive".

Practitioners of Remineralisation, which advocate adding glacial rock dust (high in trace minerals) to the soil, have observed that insect predation on plants was greatly reduced after the application of glacial rock dust. This same phenomenon has also been observed by seaweed (also high in trace minerals) aficionado. It has also been demonstrated that animals prefer plants that have been enriched with trace minerals. The author has observed that when seaweed was foliarly applied to pastures cows ate the grass into the ground whilst the adjacent untreated paddock had considerable forage remaining. Animals, not man, are the best judge of what they need and like.

Our society, influenced by greedy corporations, traveled down the trodden path and now must accept responsibility for its ruinous actions. This philosophy, while lining the pockets of a few, has impoverished mankind and his environment. Nature, appearing complex, has one simple rule which states that if its soils are healthy and productive, so will man and the environment be healthy. The destruction of the soil initiates an intricate chain of reactions which are so strong and outreaching that an atomic explosion, by comparison is merely a puff of smoke! Man makes Nature complex when he tries to manipulate it.

Quoting Robert Frost, "Two roads diverge in a wood and I took the one less traveled by and that has made all the difference." Governments are forcefully dragging us down the road that they have chosen for us. Agriculture should seize the initiative, forge ahead and dictate government compliance with its demands. To become masters of our own destiny each and every individual must peer into his heart and soul and decide which road to travel....

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