



Wholistic™ Agricultural & Biological Sciences

Wholistic™ Agriculture • Nothing's Better • Nothing's Greener™

Since 1993

The CCD Solution™

Unsolicited Testimonial from Jacqueline Freeman, Friendly Haven Farm and The Equine Natural Movement School, 20309 NE 242nd Ave., Battle Ground, WA 98604

"I went into winter with five hives, all collected from swarms in spring 2007. Over the winter I lost two of them. I'd noticed decreased activity in two hives and wasn't surprised I lost them, although watching a hive decline is particularly painful. I also noticed another hive looked sluggish and I was afraid I was going to lose that one, too. I had another hive whose roof blew off in a storm in which the comb got totally soaked. In my climate, the Pacific Northwest, this is often the death knell for a hive because our constant dampness doesn't let a moisture-laden hive dry out.

"I sprayed the Wholistic™ Agriculture 'bee sequence' on all the hives about three weeks ago and yesterday we opened up the hives to have a look. ALL the hives looked strong, were building new comb and had plenty of brood. The activity level was high, just what you like to see this time of year. I believe the Wholistic™ Agriculture sprays made a significant difference in the bee's health and vitality and am truly glad I put them to use." - 4/28/08

The Honeybee-Pollinator Crisis

In the past three years, a new plague has hit honeybees. Around the globe, beekeepers are losing 50% to 90% of their honeybees, with entire hives disappearing and dying literally overnight. This disaster is called **Honeybee Colony Collapse Disorder** or CCD.

Over half of the fruit, nuts and vegetables we eat require pollination by honeybees and other insects. Without honeybees to fertilize flowers in our vegetable crops, orchards and fields, we could no longer produce such staples as almonds, apples, peaches, blueberries, cucumbers, strawberries, squash, and melons. They would simply disappear from our stores.

The problem is a worldwide crisis. In one province in China, honeybees are extinct. It is not unique to honeybees. Scientists report an 80% decline in bat populations and pollinator insects. Worldwide, 1/3 to 1/2 of all amphibians are dying. Massive numbers of jellyfish are proliferating due to loss of jellyfish predators. It is claimed that over one million sharks are indiscriminately killed every year.

While all of these die-offs are important, what makes the loss of honeybees such a huge disaster is that without bees to fertilize our crops, with the subsequent loss of food, it will cause widespread starvation.

This massive die-off of honeybees is devastating the beekeeping industry, already losing millions of dollars in the past three years. It poses a potential loss to farmers in the billions of dollars. The potential spread of this disease to other insects, animals and humans has not yet been investigated. The crisis is so severe, universities and governments all over the world are spending tens of millions on research trying to discover a disease that causes CCD and finding a cure. All have failed. What is wrong?

In many ways, modern descriptive science is inadequate and unprepared to successfully deal with this crisis. The old biological and scientific models, practices, paradigms and assumptions simply do not apply to CCD. A whole **new** science is needed to define it and cure it. This science is called Wholistic™ Agricultural Science.

The word "whole" is used since it takes into account the whole of all that is good in science, philosophy and



the world. It focuses on **why** phenomena occur in Nature. It does not simply limit itself to describing **what** phenomena occur in Nature. It is **real** science for the 21st Century. Wholistic™ Agricultural Science is the first **real** science ever created. Sixteen years and millions of dollars have been invested in this successful new science of agriculture and biology. It does not disregard the achievements and insights of conventional descriptive science. It builds on the shoulders of conventional science. It is the obvious and natural “next step” beyond conventional science. Since it describes Nature more accurately, it gives us the answers we need. A discussion of this new, real science follows below.

CCD is a complex problem, but with this new science, the Root Cause of CCD can be identified and a simple solution can easily be created.

Honeybees **can** be saved. The solution is here. Right now.

CCD

The fundamental reason that modern science has failed to find the cause and cure for CCD stems from a lack of understanding and a misunderstanding of the way Nature **really** works. This requires a much deeper understanding of Nature than conventional science can bring. Modern science assumes that a disease is the cause of CCD. It is not. It is the **end** of a **process**. A disease is one of Nature’s mechanisms for eliminating weaklings in the environment and tells us what is wrong with a hive, and if we understand the cause, how to fix it, stopping the disease.

Nature uses diseases and pests to eliminate weakling plants and animals. Diseases do not “attack” an organism. Disease organisms are in the environment all the time, mostly dormant. A disease is **activated** to perform its task by a specific cause such as environmental and genetic influences or management practices.

Killing the disease does not prevent the disease from reoccurring. Every disease has a Root Cause. Only by identifying the **Root Cause**, not the **End Cause** and fixing **that** problem, will a disease be permanently eliminated. Generally, root causes fall into three categories: environmental, managerial and genetic problems.

The scientists and researchers at MAAREC (Mid-Atlantic Apiculture Research and Extension Consortium) and universities attempting to find a cure for CCD are looking for the solution in the wrong direction. They are looking at the end of the disease process, not the beginning. They are trying to find a disease that causes CCD so they can kill it. Killing the disease solves little. They should be looking for environmental and genetic factors and bee management practices that weaken the bee’s immune system, then fixing those problems first. Fixing what caused the disease to appear in the first place provides a permanent resolution. The disease itself, if you understand why it is there, tells us what is wrong and how to fix it.

In other words, don’t kill the messenger.

Colony Collapse Disorder is not a specific disease in itself, nor is it caused by a specific disease. CCD is a **process** that begins with a Root Cause, spurred along by mismanagement practices, and ends in what is known as a **Threshold Disease**, causing the ultimate death of a colony.

A colony must be viewed as a discrete organism, one body, for the most part, made up of genetically identical bees. It acts as one organism in life, and in death. That is why the bee hives collapse at one time. The “body” collapses, not the individual bees. Interestingly, in many cases, the queen, what might be called the “head” of the colony, with the worker bees being identified as the “body”, does not die or dies last.

A **Threshold Disease** is the **last** disease an organism gets, acquires, becomes active or presents itself that ultimately is the **final** Cause Of Death or COD. It happens when a body reaches a certain threshold, beyond which it can no longer support its own life. As with the “straw that broke the camel’s back”, one more disease and the organism is kaput. Some might call it the **Tipping Point**.

To help clarify the concept of a Threshold Disease, consider this example. Some patients enter a hospital with a serious or terminal illness. In the hospital, some will get pneumonia and die. Pneumonia is listed as the Cause Of Death on the Death Certificate, not the illness they had when admitted. The



weakened immune system, caused by previous disease factors, both environmental and genetic, and insults to the body, is what actually created the environment for pneumonia to end the patient's life. In this case, pneumonia is the Threshold Disease. The **last** disease they get. The body reaches the **threshold** when it can no longer sustain life. It is the **last** disease it gets but it's not the only disease that brought about its death. It is also not what started the process in the first place. That factor is the **Root Cause**.

Honeybees and all life forms are subject to following the same process.

After bees leave a CCD hive, no other bees will come to rob the honey or take over the hive. This has a simple, though simplistic, explanation. The hive is permeated with the "smell of death". What this actually is physically must be investigated. Something physical **and** instinctive is repelling bees.

An examination of the weaknesses, activities, quality and quantity of the honey and brood, various diseases, parasites and immune system weaknesses in honeybee colonies that are present **before** CCD occurs will be of great help in diagnosing the Root Cause and etiology of CCD.

To identify a disease, the protocol begins with a collection of "anecdotal symptoms". These can be grouped together into a "disorder". Disorders are grouped into a "syndrome". A group of syndromes defines a "disease". The **Root Cause** of a disease may be simple and it may appear unrelated to the disease itself, making it difficult to identify at times. Generally speaking, diseases are grouped as genetic, degenerative, viral or bacterial and occasionally fungal. Predators, pests and parasites are not diseases although they are sometimes carriers of diseases. Considering the above, and given that no specific disease organism has yet been identified as the Threshold Disease, CCD cannot be called a "disease", yet.

By accepted scientific definition, CCD is not a "**disease**" either. Calling it a "**disorder**" is scientifically correct since at present, it is only identified as a group of anecdotal symptoms. Collectively, considering all the factors involved in the collapse of a colony, it could be viewed as a disease for working purposes, but it is more accurately described as a **process**.

If an actual disease such as the Israeli Acute Paralysis Virus (IAPV) ultimately kills a bee colony, it was first activated by environmental pollution invading the bee and the hive, plus the management or mismanagement of the bees and hives themselves, each weakening the immune system of the bees and the colony to the point where IAPV kills off the colony. Yet it is not the Root Cause of the death.

Nature and Diseases Are Guided By The Laws And Principles of Nature

Nature functions exclusively under immutable Laws just as Science functions under its immutable Laws. We begin with the Laws of Nature, the laws that precede and largely define the Laws of Physical Science. Identifying and describing the laws under which a science functions is the first step in creating a new science. Wholistic™ Agricultural Science identifies 29 Laws of Nature, as opposed to the Laws of Physical Science, the first five of which are particularly relevant to diagnosing and solving CCD.

The first Law of Nature says that everything in Nature is beneficial. All living organisms, all viruses, bacteria, fungi, pests and all other organisms on Earth exist in the environment **all** the time. They are **active** or **inactive**, alive or dormant, playing a role or waiting to play a role. From Nature's point of view, they are neither "good" nor "bad", beneficial nor pathogenic. They are all needed by Nature for the environment to stay healthy.

The Second Law of Nature is that all organisms play specific predetermined roles. Everything in Nature has a specific role or roles to play, or it would not exist. Unlike humans, each organism has no choice. They play their role, or they die. Species do not "take advantage" of a niche in Nature, they are drawn to those niches to play a role, which is to help establish balance and harmony so that Nature is sustained. Science has yet to discover all of the roles of natural life forms. This work needs to be expanded.

The Third Law of Nature is that Nature is Self-Sustaining. Nature uses mechanisms such as diseases and pests to eliminate weaklings in the environment so that the overall average level of health



is raised by their death. Nature also uses agents such as genetic diversity, genetic complexity, root, leaf, flower, fruit and seed development and genetic mutations to help organisms adapt or not adapt to a self-sustaining natural environment. This process is called “evolution”.

The Fourth Law of Nature states that any time mankind interfaces with Nature, he/she throws Nature out of Balance. Mankind is the only organism on Earth that has a choice in the role they wish to play. This is typically called Free Will. Mentally, mankind is emancipated to a large degree from acting within the Laws of Nature, but because Mankind has a physical body, he/she is always subject to these laws physically.

The Fifth Law of Nature is that whenever the environment is out of balance, Nature activates the opposite force to rebalance the environment. This, of course, applies to all ecosystems and all species. This is a law. It cannot be abridged or ignored. It provides an underlying explanation **why** there is occasional destruction and plagues, floods and droughts, proliferation of certain species, global warming and global cooling and other Natural “acts of God” that might otherwise be unexplained. It says that CCD is a natural process and an **opposite force** created by Nature to rebalance a species that is out of balance and harmony with the natural environment.

That is to say, these Laws of Nature give profound insight into the natural world, and specifically, CCD. They clearly say that since, from Nature’s point of view, if a bee colony is out of balance to the point that the entire colony is weakened, it becomes a threat to all honeybees, so it must be destroyed in order to raise the overall level of health throughout the entire species.

There are 40 Principles and Concepts that derive from the Laws of Nature, four of which present immediate insight into CCD.

The First Principle is that since Nature is Self-Sustaining, it is not “sustainable” by outside sources or influences. By means of the Laws of Nature, the Earth and all the ecosystems above it, on it and in it, are self-sustaining when they are in balance and harmony with the rest of the world. Nature corrects itself. Balance and harmony are described in biology as homeostasis, a steady state. When mankind gets involved with Nature, he/she throws it **out** of balance. Therefore, to believe that you can practice “sustainable” agriculture is a fallacy. You can get out of the way. But if you are going to eat, or have a place to live, or move around, you have to come in contact with Nature and that simple contact will degrade Nature in some way. The best solution is to do as little harm as possible and let Nature clean up the rest. The concept of “sustainable” is a great advertising gimmick, but has little to do with real science.

The Second Principle is called Biocomplexity. Biocomplexity is the science that studies the roles of everything in Nature. Everything in Nature has a role to play. When these roles are filled and fulfilled, Nature is in balance and self-sustaining. Keep in mind that balance means a dynamic balance. It is always changing, always evolving and always self-correcting in its natural state. In order for these roles to be filled and fulfilled in all the diverse ecosystems on Earth, there must be an enormous diversity of plants and animals to fill each niche. Thus we see in such plants as legumes, which provide nitrogen to the soil, a type of plant with over 200 families and over 20,000 different species. Each of these species and subspecies is precisely attuned to their individual locations and roles. Nature is highly complex and biocomplexity, the study of this amazingly complicated system, is an exciting, new branch of biology.

The Third Principle with which we are concerned is Evolution. The true meaning of Evolution is that nothing happens at random, everything is predictable except timing. Nature and the Earth, plants and animals are always changing, adapting and evolving according to their DNA.

The Fourth Principle is that natural, immutable Forces exist that define and propel growth, activities, functions, mechanisms and the perpetuation of Life. Real science, Wholistic™ Agricultural Science, identifies these Forces and finds ways to control and influence them.

By understanding these laws and principles, we can see that CCD is part of the natural, predetermined cleansing process of Nature. It is good for Nature and honeybees. Unfortunately, it is bad for beekeepers, farmers, animals and people.



Defining Diseases

Wholistic™ Science defines true infectious **diseases** as only those caused by bacteria and viruses, not fungi. Fungi are often mistakenly called “**diseases**”. Although some fungi are very aggressive and act **like** diseases, they are **not** diseases. First and foremost, fungi have a specific role to play in Nature. Fungi recycle **dead** plant and animal cells which no longer have life, becoming active **after** a body is dying or has died, not **before**. First a cell dies, then the fungi activate and grow. Not the other way around.

This is in direct contrast to bacteria and viruses. In general terms, what distinguishes fungi from viruses and bacteria is that pathogenic (organism killing) viruses and bacteria activate (from dormancy) when the organism is **alive**, while fungi activate when the organism is dying or **dead**. Diseases kill. Fungi recycle.

In order to understand CCD, we must observe this crucial distinction. Viruses and bacteria become active and can kill **before** death, not **after**. Fungi activate **after** death, not **before**. This insight leads us to better understand the **process** that is happening in the bee colony.

Fungi recycle plant and animal parts, making them available for the next generation. Some fungi are very aggressive and can contribute to the cause of death. But to **activate** a fungus, death must be present or near. This can be as simple as a few dead cells when, in the right environment, they cause the **activation** of a fungus. Notice the distinction. We did **not** say that the fungus “attacks”. Fungus has no level of consciousness other than to be somewhat aware of its surroundings. It does not “decide” to become active. It simply becomes active when the right conditions appear - dead cells and the right environment. When these are gone, the fungus disappears or becomes inactive, dormant, again.

Since fungi do not appear in bees or beehives until **after** the **death process** is well on its way, not **before**, it makes no sense to look to the fungus as the “disease” that’s killing a hive. Therefore we can state that CCD is **not** a fungal disease. Fungus may be present, but it doesn’t kill the hive. The colony was already dying. Something else activated fungus in the hive. The appearance of fungi is symptomatic of a deeper cause.

Let’s step back for a moment. Bacteria, viruses, fungi and pests do not attack a “victim” as is a commonly held truth in conventional descriptive science. This notion is a misinterpretation of the way Nature **really** works. The first Law of Nature states that everything is beneficial, there is no “good” or “bad”, no “beneficial” nor “pathogenic”. Each life form plays a role and either remains **inactive** or becomes **active** when that role is needed or not by Nature. They are part and parcel to the balancing that occurs in Nature all of the time. As you can see, the implications of this insight are considerable.

As with fungi, bacteria and viruses are also not the conventional science “cause” of CCD, although they may be the last disease attributed to the decline and collapse of the colony. Neither one is there to do the job other than what they are supposed to do. Since they appear when the resistance of a hive is low, they too are merely symptoms of the weakened immune systems, imbalances within the bees, pollution in the environment and unnatural management of the colony. As with the appearance of fungi, they are **indicators** of those weaknesses.

Nature is always evolving, constantly changing, constantly adapting. Every organism and even every mineral and element all function under the same Laws of Nature and the same Laws of Science.

Sir Jagadis Chandra Bose was India’s great physicist, botanist and the inventor of the crescograph. With this remarkable instrument, Bose could measure the growth, and the rate of growth, of a plant in as small a measurement as 1/fifteen00 millionths of an inch per second.

He used this same machine to measure stimuli to animals, metals and minerals. In purely scientific terms, he was able to demonstrate that all things, when their reactions were accurately measured, could be graphed with the same predictable response. He concluded that there is one life in everything.

Everything functions under the same laws. All life acts in unison as one life. There are very clear differences in intellect, consciousness and instinct, yet all life is subject to the same forces, influences, activities and laws.



This emanates from the **Law of Unity that states that everything exists as one, out of one**. The parts of the Earth and Nature are all interrelated and effect each other from the smallest to the largest, from within the Earth to the edges of the planet, from the planet to the solar system, from the solar system to the galaxy and from the galaxy to the Universe, and vice versa, the other way around. We can conclude from this that CCD does not occur in isolation but is part of the whole process of Nature.

Each mechanism (fungi, bacteria, viruses and pests) plays a role to keep Nature healthy and self-sustained.

A new insight **Wholistic™ Science** provides is that bacteria **push** the evolution of plants, animals and humans. The Bubonic Plague in the 1340's in Europe is the perfect example. As with CCD, the Black Death brought about the death of over half the population of Europe. **After** the plague subsided, the remaining population was genetically protected from the plague and was healthier than the general population **before** the plague. They were immune. The same might happen with honeybees.

While **bacterial** diseases push the evolution of plants and animals, for Nature, **viruses** play an entirely different role. Viruses are Nature's mechanisms that **test** the evolution of plants and animals to see if they passed the evolutionary push by bacteria or naturally evolved enough and are now sufficiently healthy to cause Nature to be self-sustaining and in balance. It is a perfect mechanism. Without viruses, Nature would not be self-sustaining. This is why viruses are so resistant to vaccines and cures. Viruses are generally beyond the ability of mankind to prevent simply because they **are** Nature's **testing** mechanisms.

Some viruses are mild, such as colds or rhinoviruses. Some are terminal for populations that are not immune, such as smallpox, measles and HIV/AIDS. It is important to note that medical research now focuses almost entirely on using the defenses of the body to fight viruses. This is tacit acknowledgement that viruses can only be offset by a more highly evolved body.

In the plant world, viruses are woefully misunderstood, or not fathomed **at all**. Furthermore, understanding **what** they do is not much help if you don't understand **why** they do it. Virtually no research has been done into the **roles** of viruses in the environment or **why** they become active in the first place.

Now let us examine pests, predators and parasites. What are commonly called pests are again, some of Nature's **mechanisms** for **actively** eliminating weaklings. Viruses and bacteria work at the cellular level. Most pests work at the macro level, eating, for example, whole leaves, boring into tree trunks or sucking the blood out of an insect or mammal. When pests such as varroa or tracheal mites appear, we are seeing Nature at work, killing off the weaker honeybees for the overall purpose of improving the health of all honeybees. We will examine **why** mites appear later.

Looking Deeper

Viewed from a **Wholistic™ Science** perspective, fungi, bacteria and viruses begin to make sense. Nature functions under immutable, irrevocable and unbending Laws. Nature is orderly, intelligent and predictable. When you understand the Root Causes, the outcome is predictable and never in doubt. Only the timing is uncertain.

We must look deeper for the **real** cause of death. While bacteria, viruses and pests can certainly kill honeybees, and at times, fungi can appear to bring about the coup de grâce, and may **appear** to be the cause of death, they are not the **fundamental** cause of the problem that made the bacteria, viruses, pests and fungi to activate themselves.

What brought the activation in the first place? What caused them to become active?

Environmental conditions can kill a colony. Chemicals, poisons, fertilizers, pesticides, herbicides, fungicides, miticides, petroleum, noxious gas, lack of oxygen, pollution, genetic malformations, genetically altered crops that carry *Bacillus thuringiensis* (Bt), transportation stress, mishandling, mismanagement, neglect, hybridizing weaklings, intense cold or heat, too much sun, too little sun, freezing, fire, lack of food, poor quality food, too much tree pollen without mitigating herbaceous plant pollen, too little water, too much water, hurricanes, tornados, irradiation or simply being run over by a truck, and so on.

When we look in this direction, we are finally getting **closer** to the Root Cause. Everything on



this list, and more, causes stress in honeybees. Stress causes **immune** disorders which lead to diseases and parasites. Honeybee subspecies and variants are very, very location specific. Honeybees often do not adapt quickly to new locales. Transporting honeybees over long distances to unfamiliar territory, not genetically to their liking, causes stress. Stress causes immune systems to break down.

As with all species, stress causes **imbalances** in honeybees. Imbalances are symptomatic of Root Causes. For example, Honeybee **diseases** and **parasites** are **activated** when the insect's digestive fluid systems and the circulatory systems are out of balance with each other and/or the immune system is weakened. But what caused the imbalance? In this case, the Root Cause is related to nutrition, artificial food and a lack of either tree pollen and/or native herbaceous perennial pollen.

Now we're getting even closer to the Root Cause of CCD.

Nature does what Nature does. There's nothing anyone can do to change the Laws of Nature or change the roles of Nature's agents and mechanisms, plants and animals. We may not like it, but it is the way it is.

In chemistry class, if you mix two elements together and they make salt, that is always predictable. They will do it every time. There is nothing anyone can do to change that other than change the elements.

It is the same with Nature. You cannot change the Laws of Nature and you cannot escape them either.

The Laws of Nature predict that if some organism is to be removed from the natural world, all we can do is delay the inevitable. Delaying it could ultimately make matters worse. It is Nature's way that if you ignore her first actions, the next one will be even stronger. And the next. And the next.

So, in the case of CCD, obvious early signs of honeybee weaknesses, precursors, if you will, to CCD, were largely ignored as a result of finding ways to control the individual symptoms. Products were developed to keep out mites, kill fungi, treat foulbrood and control wax moths. Pelleted herbicides are sold to be spread around hives to control weeds. Why don't you just pour poison directly in the hive? It will kill bees faster.

Or, we can fix the Root Cause starting a cascade effect ending in the cure of the disease.

The Root Cause of death must be identified before a cure can be affected. Eliminate the Root Cause, then the diseases or pests that are killing the weakened honeybees no longer have a role to play and they become inactive. They simply stop.

The general **Root Causes** of CCD are stress, exposure to chemicals and poisons, improper diet and unnatural management practices. These must be addressed and fixed first. Killing a disease prolongs life, but it doesn't cure the patient. Find the Root Cause and eliminate **that**, then and only then will you have the cure.

The Laws and Principles of Nature predict CCD. We are facing the probable extinction of honeybees by the year 2020, or sooner. It does not have to happen.

Root Causes of CCD

CCD has two **Root Causes**. The **first** and **major cause** of CCD comes from environmental and agricultural chemicals, poisons and pollution entering and invading honeybee DNA and the hive.

The **second** and **lesser cause** of CCD are unnatural honeybee management practices that stress honeybees and weaken their immune systems. These can include everything from poor hive box designs, unnaturally sized preformed cell foundations, plastic foundations and boxes that offgas into hives, hybridizing, transport practices, transportation vibrations, availability of seasonal herbaceous perennial native flowers, temperature, distance the hive is from the ground, geographic location, the feeding of artificial food and in general, most if not all of the unnatural practices of modern industrial bee keeping.

These practices, in concert with invasive and destructive environmental pollutants, together, weaken honeybees to the point where Nature must remove the weaklings if the honeybee is to survive.

The sources of the problems are enormous and will ultimately require a general overhaul of agriculture, industry, fishing, air, land and water management, government and military practices and in



general, the reduction and eventual elimination of all sources of pollution on the planet - if honeybees are to survive.

How are we to know which specific contaminate causes the breakdown of the honeybee immune system? We must first look to the genome and the epigenome.

CCD Genetic Science

There are two, not one, genomes in all living organisms. The first and widely understood is the DNA **genome**, the mapping of which in honeybees is complete. The second, some six times larger than the DNA genome is the **epigenome**. The prefix “epi” means “on top of” so the epigenome is attached to and “on top of” the genome. The epigenome is comprised of substances and compounds, from internal and external sources, which attach themselves to DNA genes, instructing, turning on, turning off, modifying and guiding the activities of the DNA. The epigenes are generally accumulated after the fertilization of the egg and accumulate throughout the lifetime of the organism. Epigenes can be good, bad or indifferent. But they’re always present.

Think of the DNA genome as a computer and the epigenome as the computer program.

There can be any number of viral or bacterial diseases and chemical and biological compounds that can attach to genes, so discovering the specific epigene and gene pair that will identify a physical presence of a Root Cause or Partial Root Cause of CCD is vital to protecting the honeybee population. Finding which epigene attaches to which gene sequence will open up a huge new area of genetic, environmental and biological science that must be developed.

The presence of pollutants in bees is an enormous problem. Researchers have already found 100 or more pollutants in the bodies of honeybees that can attach themselves to the DNA as an epigene. If you think this is amazing, consider the fact that in 2007, it was reported that a staggering 250+ pollutants were identified in the umbilical cord blood of just one human baby, and this is not uncommon.

The major long-term solution to CCD is to eliminate pollution and all the chemicals, poisons, genetically altered crops and other environmental factors that can cause it. This will take an enormous amount of time and money - perhaps trillions plus research, training, dedication and **time**. The cost may be high, but if we don’t do this, we may well see the extinction of the honeybee and our pollinators in the wild since all pollinators are suffering from the same problems.

On the other hand, the **short-term solution**, and possibly long-term solution, to CCD is to start by significantly improving the environment immediately around your hives to protect them from as many poisons and pollutants as best can be done, and by altering your bee management practices to more precisely reflect the natural activities of bees. See the list of bee management practices at the end of this booklet that will each improve the health of your honeybees. Add some of your own. Beekeeping should be a process that is natural to honeybees, not unnatural.

Understanding The Roles of Honeybees In Nature

As we progress in our understanding of the causes of CCD, we need to take a moment and consider the four roles of honeybees, unique in the world. This will be new to most people who read it.

The primary role of bees is the transference of pollen from plant to plant, flower to flower. While it is true the honeybees are great pollinators, it is lesser well known that the mere presence of bee colonies stimulate all plants in the surrounding area to produce **more** flowers for fertilization. Plants **love** honeybees and are very much aware of their presence. So, we can say that permanent honeybee hives in fields, gardens, vineyards, orchards and vegetable will increase yields over time as opposed to renting bees for a few weeks to fertilize crops each year.

The secondary role, and this is somewhat esoteric since it edges into quantum physics, is to provide a matrix pattern of energy for the physical world to develop within. The hexagonal pattern that is in the honeycomb is the basic building design or form for all physical creation. (See a cross section of bone.) This form is an **archetypal** pattern of the most primary kind. All matter is infused with this pattern. By its



nature and role the honeybee carries this energy pattern from plant to plant.

The third role, also a bit esoteric, that bees play is the movement of the ether and air in fields and forests. This is essential for life to exist. Ether has been defined as the ultimate energy behind all physical creation. Think of a stagnant pond. Without fish and frogs, the water becomes foul. It is the same for air. Without the movement of air by natural forces and flying animals, birds, bees, bats, butterflies and other insects, the air in a field becomes stagnant. Bees are as important to keeping the ether and air fresh and healthy as are fish, insects, animals and amphibians to keeping a pond healthy. They work in exactly the same way and play the same role in Nature. Destroy the animal life in the air, land or water and the environment begins to deteriorate in a downward spiral.

The fourth role of honeybees is to provide minute amounts of formic acid, essential for life and the formation of physical bodies, to all living things above ground. Ants provide formic acid in the ground. Physical life cannot exist without formic acid. The loss of honeybees, along with the parallel loss of all pollinators, now approaching 80%, would lead to deformities and ultimately death for most, if not all plant species, both self-fertilizing and insect fertilized.

Bees are part of what we call the “**4 B’s**” - birds, bats, bees and butterflies. Each is crucial to a healthy environment. When we create an environment safe for the 4 B’s, then we will see a massive drop in the incidence of CCD.

Some Common Bee Diseases and Pests, Their Roles and Their Root Causes

Nature is loaded with intelligence, it’s just not human intelligence. If you regard intelligence as an orderliness and activities that perpetuate itself, Nature is every bit as smart as people, and maybe a lot smarter in some ways, a LOT smarter.

Nature knows when to produce leaves, flowers and fruit. It knows how to store it’s genetic code in a seed, and then unfold it. It knows how to construct a Buckyball and a helical strand of DNA. Spiders build webs, birds build nests and migrate with the seasons, navigating by the stars. How do whales, porpoises and salmon navigate under water in an ocean that’s forever changing? Planets and moons generally don’t crash into each other. Nature grows and expands rationally, in mathematical proportions (see the Golden Mean Proportions) and repeat successful patterns over and over (see Fractal Geometry). Nature, as does science, functions under unchanging, immutable laws. When you understand Nature, it becomes predictable in every way but timing.

What we commonly call “instinct” is the intelligence of Nature. Plants and animals are born with knowledge carried by their genes and added to their learned experiences as they grow. This intelligence is more akin to a very simple, pure form of deductive reasoning rather than vastly more complex inductive reasoning which humans (and some Border Collies) use. Animals and plants react. Humans decide. Humans use both deductive and inductive reasoning and, some would say, little instinct other than the instinct for survival.

So when a virus, bacterium, fungus or insect senses conditions that are right, it simply takes action, carrying out its role. It doesn’t think, “Should I or shouldn’t I do what I do?” It is incapable of inductive reasoning. It has no self-awareness. It simply does it. Only mankind has the ability to decide if it will or will not do something. If modern science has a major fault, it is that it tends to humanize Nature and that leads to absolute confusion.

The way diseases and pests in beekeeping are normally treated is to find a way to identify and kill the disease, to kill the pest or parasite or to physically prevent a pest from entering the hive, and to a degree, we have no little objection to this. It is a short-term solution.

However, to solve disease and pest problems **permanently**, we take an entirely different approach, identifying the role that a disease or pest plays, finding the Root Cause that activates that role, then we fix the source of the problem, the Root Cause, and the disease or pest goes away or goes dormant. You will



find that they offer quite different solutions than “standard” practices.

At first, you might be tempted to reject this new science and these observations, suggestions and solutions out-of-hand. This would be a mistake.

When you read our recommendations, please keep in mind that this new approach has been extremely **successful** over the past 16 years in stopping and preventing pests, fungus and bacterial-viral diseases in farm crops and wine grapes, a particularly sensitive crop. The method works. It works quite well, and it is predictable.

Wholistic™ solutions sometimes work instantly. Sometimes, they take a longer, up to a year or two to be completely successful. We are working **with** Nature, not **against** Her. Natural cures may take longer, but the results are usually permanent and do not reoccur. It is not the solution that dictates the time it takes to fix the problem. It is the depth and breadth of the Root Cause that dictates the time it takes to effect a cure. The worse the source problem, the longer it takes to fix it.

Please also keep in mind that the traditional paradigm of “kill everything you don’t want to eat and eat the rest” hasn’t been a particularly long-term success. The long-term damage this mind-set has caused to the environment, our food, our health and in this case, our honeybees, is overwhelming the world.

The Wholistic™ approach has achieved great success since 1993 when we began it in earnest. It increases yields between 30% and 500%, dramatically improves quality, controls fungus better than any other product or system, eliminates diseases and pests, lowers costs up to 75%, decreases labor up to 25% and multiplies profits 200-300%, all without resorting to chemicals, poisons or GMOs. No other agricultural science or method is as advanced.

Let’s take a look at some sample honeybee diseases and pests, with insights and recommended methods of treatment. Be advised that our view of these disorders is quite different from conventional science. Our unique point of view is the secret to our success. We do not discount or ignore conventional science. We build on it and add to it in a way that brings new insights and new successes.

Fungi

Chalkbrood

Chalkbrood is a fungus characterized by infected brood, called “mummies,” which when removed from the comb, appear to be solid clumps, reminiscent of chalk pieces.

*Wholistic™ Science observes that **Chalkbrood** is simply Nature’s method for stopping weak bees from entering the colony. It is that simple. These bees are already dying or Chalkbrood would not be activated.*

What makes it unique is the stage at which it enters the larva. The role of Chalkbrood is to identify which eggs are weak and which are strong immediately after the fertilized egg is laid in the cell. As the egg grows from larva to pupa, so too does the fungus grow with it, eliminating the weaklings from the colony.

To control, spray the hive with Fungus Interruptus™ as recommended on the bottle. The same with Stonebrood.

Stonebrood

Stonebrood is a fungal process of *Aspergillus fumigatus*, *Aspergillus flavus* and *Aspergillus niger*. It causes mummification of the brood of a honeybee colony. These fungi are common soil inhabitants and are also pathogenic to other insects, birds and mammals.

This is an interesting fungal “disease” since it comes from three different species of fungi. Why is this so? It is not because the three are all virulent but because each plays an identical role in Nature. In this case, the fungi seek those bees which have imbalances internally, in their three fluid systems - circulatory, digestive and immune systems.

*Each of these three fungi focuses its responsibility on a particular system and on the overall balance of the systems. *Aspergillus fumigatus* focuses on the digestive system, *Aspergillus flavus* on the circulatory*



system and *Aspergillus niger* on the immune system. When any or all of these fluid systems are weak or out of balance, the fungus is activated and the bee eliminated.

To control, spray the hive with *Fungus Interruptus*™ as recommended on the bottle.

Also, feed the queen a specific tea made with non-irradiated, chemically clean chamomile flowers, honey and salt water. The tea should be more liquid, so take 4 ounces of chamomile tea and add a half teaspoon of honey and 3 drops of sea water minerals and let her drink that. It will solve her digestive and parasite problems.

Bacteria

American Foulbrood

American Foulbrood or AFB is a bacterium, *Bacillus larvae*. AFB is by far the most virulent brood disease known in honey bees. The reason for this is the causative organism forms heat and drought-resistant spores, capable of germinating in a favorable environment at any time.

AFB is a great benefit to honeybees in general. Its purpose and role is to improve bee breeding stock and to make it attuned better to the immediate surroundings. The reason that AFB is much stronger than European Foulbrood is that in the United States, the living conditions are so much more difficult for the European Honeybee. While in many ways the US may seem pristine, it is overloaded with pollutants on many levels.

The Foulbrood bacterium plays the role of pushing the American honeybees, no matter what their subspecies, to the point where they are finally compatible with the North American continent.

How do we fix it? The Wholistic™ Field Sprays are our best first line of defence since the sprays themselves push the evolution of any plant or animal. The second line of defence is to make the honeybee hives compatible with Nature. Rectangular boxes and preformed cell foundations are the first to be corrected, followed by sugar water and the feeding of high fructose corn syrup.

*This is how to stop American Foulbrood. Use round or cylindrical honeybee hive boxes, non-preformed cell frame bases and feed your bees natural honey with chamomile tea made from non-irradiated blossoms, using the following formula: take honey, preferably healthy honey from the same locale as the bees live in, to it add seawater or you can add the sea mineral water, one drop for every 10 ounces of honey. Not much is needed. To this solution, add chamomile tea at a rate of one ounce per 10 ounces of honey. This is the best treatment for preventing **American Foulbrood** if it occurs and stopping it from activating in the first place.*

European Foulbrood

European Foulbrood is a bacterium, *Streptococcus pluton*, that does not form spores so it is not as easily transmissible as American Foulbrood. European foulbrood or EFB is closely related to American foulbrood in symptomology. However, since the disease organism does not form spores, the disease is considered less problematic than American foulbrood. The bacterium generally only attacks younger larvae

*The role, Root Cause and treatment for **European Foulbrood** is the same as **American Foulbrood**.*

Viruses

Acute bee paralysis virus (ABPV) or (APV)

Acute bee paralysis virus (ABPV) or (APV) is considered to be a common infective agent of bees. It belongs to the family Dicistroviridae, as does the Israel acute paralysis virus, Kashmir bee virus, and the Black queen cell virus. It is frequently detected in apparently healthy colonies. It would appear that this virus plays a role in cases of CCD infested with the parasitic mite *Varroa destructor*. Described in 2004, the virus is named after the place where it was first identified. Its place of origin is unknown.



In September, 2007, **IAPV** was suggested as a marker associated with Colony Collapse Disorder. Researchers used an unbiased metagenomic approach to survey microflora in CCD hives, normal hives, and imported royal jelly. Candidate pathogens were screened for significance of association with CCD by the examination of samples collected from several sites over a period of 3 years. One organism, Israeli acute paralysis virus of bees, was strongly correlated with CCD. Of course, this discovery doesn't explain why honeybees all seem to die at once.

The role of this virus relates to testing for the evolutionary development of bees under stress. That is why it appears to be related to CCD. CCD is, to a large extent, stress related. When bees are under extreme stress, as are all bees who suffer from CCD, this Israeli virus becomes activated.

So the relationship is between extreme stress and the honeybee, not a testing for the evolution of the honeybee. To prevent it, look for the sources of the Root Cause and fix them. In the mean time, use the field sprays around the hives as recommended and that will prevent it in 98% of the cases where it would appear.

Pests and Parasites

Nosema

Nosema apis is a spore-forming parasite that invades the intestinal tracts of adult bees and causes nosema disease. By far the most damaging adult disease of honey bees, nosema caused by a spore-forming microsporidian, *Nosema apis*, that infects the hind gut (ventriculus) of the digestive tract. It is worldwide in distribution and always present in colonies, but at varying levels. High incidences of nosema are directly related to stress such as periods of long confinement, rapid brood buildup, nutritional imbalance and inclement weather. Nosema is conventionally treated by increasing the ventilation through the hive. Some beekeepers will treat a hive with antibiotics.

Nosema plays the role of taking that which the honeybee produces in energy and draining it away. The purpose or role of nosema is to take honeybees that are not healthy enough and remove them from the hive. Inasmuch as nosema is not a fungus but related to it, we can say that the life force in the hive has waned to the point that the colony is no longer viable.

How does this happen? When honeybees are exposed to any source that weakens their cellular structure, the pseudofungus nosema moves in, so to speak. So we can say that the cellular walls of the honeybee are what activate nosema. When they are weak, nosema appears. The "cell walls" of the honeybee includes all of the cells in the honeybee, not just in the gut where the parasite lives.

This is brought about by the presence of poisons in the environment that cause the queen to produce eggs of inferior quality. When the queen is exposed to food (royal honey and such), that is contaminated with environmental pollutants, she produces new bees that have a weak cell structure, causing the activation of nosema to remove the bees.

The solution is to improve the food fed to the queen and nosema becomes inactive.

Beekeepers say that nosema can be cured by letting the bees out to relieve themselves and that it is related to dysentery. The honeybee has to defecate as do all bees and all animals. That is true. But the direct relationship between defecation and elimination of waste by honeybees is only an environmental change that makes nosema thrive. It is not what it takes to become active.

Wax Moth

Wax Moth - Traditionally, damage by wax moths (generally the greater wax moth, *Galleria mellonella*) has accounted for large losses of stored comb. This is especially in the southeastern and southwestern United States, where warm temperatures ensure a viable wax moth population year around. The larval stage of the wax moth does damage by boring into and leaving silk-lined tunnels or galleries in the combs, in extreme cases, the comb is reduced to nothing more than a mass of web. Larvae will also bore holes in the wooden parts of the hive.



The wax moth is generally not responsible for the death of a colony. Rather this insect is a “garbage man” of sorts, moves into areas unprotected by worker bees, and can be an early warning signal that everything is not well with a colony. Strongly populated honey bee colonies always have wax moths, but are unaffected because the moth larvae are being continually sought out and then cast out of the hive. Only when a colony becomes weak in numbers because of disease, starvation or some other occurrence, does the wax moth move in to “clean up” the colony by consuming the comb.

The wax moth is there to relieve stress in the hive when it reaches the point of overpopulation. Bees tend to be self regulating but occasionally, their growth rate goes haywire. Wax moths are there to control this growth.

In order to fix it, apply the Ultra sprays directly to the hive. This will restart the regulation process. Also, be sure to surround the honeybee hives with herbs such as chamomile and rosemary. These carry with them the instructions bees need to regulate themselves.

Varroa Mites

Varroa destructor and Varroa jacobsoni are parasitic mites that feed off the bodily fluids of adult, pupal and larval bees. Varroa mites can be seen with the naked eye as a small red or brown spot on the bee’s thorax. Varroa are carriers for the Deformed Wing Virus that is particularly damaging to the bees. Bees that are infected with this virus during their development will often have visibly deformed wings.

Varroa have led to the virtual elimination of feral bee colonies in many areas and is a major problem for kept bees in apiaries. Some feral populations are now recovering as it appears that they have been naturally selected for Varroa resistance.

Varroa in combination with Deformed Wing Virus and bacteria have been theoretically implicated in Colony Collapse Disorder.

Formic acid gel packs are sold as “Mite-Away”. According to the U.S. Environmental Protection Agency, when used in beehives as directed, this kills the mites, while not substantially disrupting bee behavior or life span. It is not intended for use during production of marketable honey.

Varroa mites serve the purpose of restoring balance to the whole community of honeybees, not just the hive colony. In the larger context, the varroa mite is attracted to bees that have imbalances in their immunity systems, not their digestive and circulatory systems.

*The immunity systems, including both leukocytes (white blood cells) and phagocytes (that eat pathogens) that fight infection in the lymph system in all honeybees, is **compromised** before the varroa mite attaches itself to the honeybee, not after as science suspects, or more accurately, speculates.*

The role of the varroa mite is to limit the number of honeybees in an area that are weak and unable to bring forth the patterns necessary for the continuation of the role of imposing the hexagonal energy patterns on plants.

Honeybees must play the role of imposing this pattern of energy or the bees have no role to play. In this case, the mite removes the offending bees.

Prior to the introduction of the varroa mite in the United States, the bees had plenty of energy left in them and the mite’s work was unnecessary. When the honeybees slipped below the threshold, the mites were called into action.

So when you see varroa mites, you can assume that the hive and the community of bees has lost it’s spiritual vigor and that their immune systems are compromised.

To prevent varroa mite infestations, the honeybees must first be given a special tonic which is as follows: take honey, preferably healthy honey from the same locale as the bees live in, to it add seawater or you can add the sea mineral water, one drop for every 10 ounces of honey. Not much is needed. Take this solution and add chamomile tea to it at a rate of one ounce per 10 ounces of honey.

Take this liquid and make it available to the honeybees. In a few days, after all the broods have hatched, you will begin to see a decline in the number of mites, eventually to the point of seeing them completely disappear.



The sea minerals are the key to this solution. Two drops may be added but no more.

To prevent mites from coming in the first place, use this solution as a spray on the hive itself. Spray the front of the hive and then spray the brood chambers, one spritz each and you will see that this keeps the hive active and healthy.

When you make these solutions, apply the Ultra Field Spray™ appropriate for that time of the year to the solution before feeding it to the honeybees. Apply the sprays per The CCD Solution™™ to the hive and around the hive also and you will see a real improvement in the health of the hive and a reduction in mites and other parasites, fungi and diseases.

This would work well with the recommendation to plant more local flowering plants, not transporting the bees etc..

That is all there is to it. A compromised immune system caused by a lack of proper nutrition in the hive.

Tracheal Mites

Tracheal Mites, *Acarapis woodi*, is a small parasitic mite that infests the airways of the honeybee.

Acarine mites, formerly known as tracheal mites are believed to have entered the US in 1984, via Mexico. Mature female acarine mites leave the bee's airway and climb out on a hair of the bee, where they wait until they can transfer to a young bee. Once on the new bee, they will move into the airways and begin laying eggs.

Tracheal mites are commonly controlled with grease patties (typically made from 1 part vegetable shortening mixed with 3-4 parts powdered sugar) placed on the top bars of the hive. The bees come to eat the sugar and pick up traces of shortening, which disrupts the mite's ability to identify a young bee. Some of the mites waiting to transfer to a new host will remain on the original host. Others will transfer to a random bee - a proportion of which will die of other causes before the mite can reproduce.

Menthol, either allowed to vaporize from crystal form or mixed into the grease patties, is also often used to treat acarine mites.

The tracheal mite in honeybees serves the role of choking the life force out of the bee so that it will cease to exist. The mite does this by choking down the trachea so that the honeybee can't breath.

Life force or life force current is that underlying energy that causes all living organisms to be animated, alive. It is the opposite of death force or the absence of life.

Now, why would something so foreign as this happen? The reason is that honeybees live in the ether and in the warmth and air elements. When they are exposed to the water and earth elements, they no longer are capable of carrying the life forces in their bodies. Without these life forces being carried from flower to flower, plant to plant, the honeybees are unable to stabilize the life force in the plant world. This is a crucial role. Without this life force being carried from plant to plant, leaf to leaf, flower to flower and even in the gymnosperm of each flower, the life force begins to drain from the plants effected.

Better that they not have any life force than some bastardized form or weakened form of the life force current. So Nature has created a way to eliminate the honeybees who lack this life force energy from the environment.

Why is this important? It is important because the honeybee is so critical to the health of the world, that any unhealthy bee have such a far ranging impact on the plant world, that it is important to get rid of all those bees that do not have this.

Honeybees are crucial for the health of the planet. If any honeybee is less than perfect, it carries that "less than perfect" life current throughout the plant kingdom. Thus, it must be removed.

Why do honeybees get into this state and how? Living in the earth and water elements, in the cold, damp world, eventually drains the honeybee of all its life force. When honeybees are not placed or living in the air and warmth elements, then they become drained of the life current. At this time, tracheal mites come to parasitize the bees, forcing them to die.



As with all “pests”, tracheal mites play a specific role in Nature of elevating the overall average health of a species. In looking for a cure or a preventive, get the bees warm and in an airy location and most if not all of the tracheal mite “problems” will disappear. That is to say, on the new hives and new births. The mites will stay in the bees that are already lost. Get the hives up off the ground as far as possible. Never, never, never feed honeybees sugar as this too will cause them to lose their life force.

Never transport bees from one location to another indiscriminately. This too leads to tracheal mites as these bees must endure many changes in the climate, temperature, humidity, rain, cold, etc.

Ultimately, tracheal mites will disappear from truly healthy, full of life hives and they will not return or attack. So the key to tracheal mites is to give them the air and warmth elements the way Nature intended, do not stress them and to never feed them sugar. Then they will thrive.

We realize that these descriptions and suggestions are a bit unusual to most people. However, 16 years of working with these very same descriptions and suggestions in other fields of agriculture have always achieved success.

Working Toward A Solution

How do we begin to identify the **specific** Root Cause or Causes of CCD? Once identified, how can the Root Cause be rectified? What do we do? How long will it take? How big a job is it? What about my hives?

All good and relevant questions. The belief and consequent paradigm common everywhere today is that to survive, we must kill everything that threatens our survival (some of it clearly necessary), has led to the rationalization and justification for **widespread** and oftentimes indiscriminate use of pesticides, insecticides, herbicides, fungicides, miticides and genetically altered crops, all of which effect honeybee colonies negatively.

The proliferation of herbicide “Ready” crops such as cotton, soybeans, corn, wheat, alfalfa, sugar beets and rice have served to exacerbate the problem exponentially. None of this is good for honeybees.

We understand the past need to use pesticides and herbicides in farming. Until now, farmers had no choice. These products and methods are based on the old, descriptive agricultural science and are the consequence and the lack of understanding and insight by scientists in this field, and greed. However, faced with the extinction of honeybees resulting in large part from these agricultural practices, it is about time to research and develop new ways to grow food **without** chemicals, poisons and GMOs as we have done with Wholistic™ Agricultural Science. Organic agriculture is not it.

Among other symptoms of CCD hives, apparently bees lose their ability to navigate back to the hive. The widespread use of pesticide neurotoxins to kill insects is a major source of concern. This inability to navigate, should it exist, may also be related to bee’s eyesight and olfactory systems. There may be some evidence that the electrical grid and microwaves also contribute to general nervous system degradation. But what specifically caused the breakdown of the navigation system in the first place? How do we identify the cause and effect? On the other hand, the hive may simply have become unlivable and bees refuse to return.

One of the primary reasons for the lack of a scientific connection between pollution of all kinds and a specific disease is that generally, the disease shows up in three generations or longer, sometimes much longer, after the insult has occurred, so it can be very difficult to track a cause and effect trail. A pollutant released in 1990 may just now be manifesting itself as CCD in 2008. Cause and effect will become more clear as more thorough gene and epigene studies are done.

Agriculture is considered by many to be the single greatest source of environmental pollution. There are many “runners up” such as industrial waste and pollution, governmental indiscriminate use of herbicides, chemicals and poisons, genetically altered crops are on the list of possibilities, military waste and munitions, habitat destruction and more.

Since honeybees work in agriculture, let’s start here. First, we need to identify the environmental pollutants that cause CCD, or can cause CCD, or might cause CCD or even should cause CCD. We take that list, print it, look through it and decide the most likely candidates where something less toxic or, preferably,



nontoxic, can be substituted and still achieve the same or better results. Then we eliminate them, one by one.

The problem we all face is that as a rule, farmers, beekeepers and the public are unaware that there is a system of agriculture that does not require chemicals, poisons and genetically altered crops and gets higher yields and quality, total disease and pest controls, costs less than conventional or organic agriculture and produces higher profits. That system is Wholistic™ Agriculture.

This is a proven successful way to grow food, sans chemicals, poisons or expensive and genetically altered crops, a system that brings Life, not Death into a field. Life brings more life, death brings more death. Ignoring the Laws of Nature to make more money is not smart science.

Many people believe that organic agriculture doesn't use pesticides, etc. Of course, that's a false perception. Organic agriculture uses tons of pesticides, fungicides, miticides, herbicides and other poisons. The paradigm is the same for organic and conventional agriculture. "Kill everything we don't want to eat, and eat what's left." Agriculture should be constructive, not destructive.

Wholistic™ Agriculture uses a deeper knowledge of Nature and Nature's own forces to reestablish balance, harmony and health, where neither diseases or pests are necessary.

The first rule, as with medicine, is to do no harm. Wholistic™ Agriculture substitutes a nontoxic, non-pesticide product called Fungus Interruptus™ that stops the growth of fungi you don't want, allows the fungi you do want to continue to grow, and kills nothing. It is not a fungicide. It has been widely used in viticulture and agriculture for seven years with great success.

This is an example of one safe-for-everything product that can be substituted for the current range of fungicides that cause such enormous collateral damage.

This is one of the products we recommend for our honeybee CCD Solution to prevent fungus in bee hives without harming the bees.

We have created over 50 such products that can be substituted for just about any organic or chemical poison throughout agriculture. None are toxic. All work in harmony with Nature by guiding the **forces** that propel Nature's activities and mechanisms the way farmers want them to go.

Backing this up is a **fully integrated** crop, or in this case, bee management system.

Implementing the Wholistic™ System is the **first** step to take to protect your honeybees. They improve significantly the environment immediately around your hives. Waiting for MAAREC and the universities to find a disease, find a way to kill it and watch CCD return next year is not productive. We have a proven system. We highly recommend that you use it if you want to save your honeybees.

What You Can Do To Save Your Hives Today

It could take traditional scientists **another** three years to find something that might work. By that time, your bees could all be dead. Conventional thinking has largely been a failure. It's time to try something new. It's time to think "outside the box". Think Wholistic™ Agricultural Science.

This is our sixteenth year in business and our ninth year using these advanced products in the field. They **will** control fungi in the hive, keep it dryer, create a buffer zone for your bees, improve the general health and balance in the area around your hives and will calm your bees when you work with them.

We recommend a **Three Step Approach**. Try it. It **will** work.

First, apply the Wholistic™ Field Sprays as explained in the diagram on p.26, following the instructions on the labels on the bottles. This will give you and your hives some instant relief.

Second, implement as many of the management recommendations as you can. These suggestions have been carefully thought out. In every case, they reflect a more natural way of bee management, and will help your bees. Most importantly, do whatever you can **not** to expose your bees to chemicals and poisons. Bees have survived for 40 million years without chemicals, poisons and GMOs. These steps make perfect sense. Learn the Laws of Nature and the Principles. Take care of needs of your bees first. Then take care of your needs second rather than the other way around. When you follow this simple rule, your bees will take care of themselves and you.



Third, work with your bees. Don't try to change the whole world. Many people get very excited when they work with our systems and tell everyone who will listen how wonderful they are. Be selective. Work one-on-one with your clients, farmers, friends and associates to do what can be done to employ the field sprays more widely and clean up your environment wherever possible. It starts with your bee yard.

The life and death, success or failure of your bees is largely dependent on farmers who are generally very conservative. No one expects farmers to give up pesticides, chemicals, poisons and genetically engineered crops if they have nothing better as a substitute and even then it's a battle. Whatever system might replace their practices must not only be better, it has to be easier to use, less expensive, get better results, easy to learn and cost nothing to convert and it must be based on science. **Wholistic™ Agriculture and Wholistic™ Viticulture fit all seven of these criteria.**

The best proof is your own proof, not field trials or scientific data. Does it work for you? The more area the Wholistic™ Field Sprays cover, the better the protection for your bees and the more your farmers will benefit. Try it. You will see it's a win-win bargain for everyone.

Before embarking on the Wholistic™ CCD Solution Program, READ THIS FIRST

*Your success and the health of your bees are the most important considerations we have. The Wholistic™ Science CCD Solution works. However, **do NOT stop** what steps you are now taking to prevent fungus, mites, bacterial and viral diseases. The two systems are compatible and may even compliment each other. In time, as your hives get more and more healthy, you will want to use the CCD Solution exclusively. Let it work.*

With systems such as these, there is always a transition period when you go from the chemical approach to the natural approach. The products in the kits we make are normally 35% to 100% effective the first time you use them. However, we have learned from 16 long years of hard experience that a transition from old to new should proceed gradually or you may be disappointed with the results. Please give us a call first if you have any questions or concerns.

The Wholistic™ Science Bee Spray Management Program

Wholistic™ Agricultural Science is the most advanced science in all of agriculture, even more advanced than genetic engineering. You will find that our Wholistic™ Agricultural Products are also the most advanced technology in all of agriculture.

Our science works with nature, not against it. It's akin to sailing with the wind instead of into it, with the current instead of against it.

The Wholistic™ Agriculture Field Sprays are based largely on a system of herbal-mineral natural ingredients that have been used successfully in agriculture throughout the world for 84 years, but it is not that system. It's far more advanced and systematic. All the ingredients used in our products are listed on the labels. They contain no chemicals, poisons or GMO plant material. They are not insecticides, fungicides or biocides of any kind. They do not kill anything. They change the environment so that what should grow, thrives, and what shouldn't grow, does not thrive. They are 100% safe for you, your bees, animals and plants. They are unconditionally guaranteed to work for you.

The Wholistic™ methods and agricultural management programs produce the best results in all of agriculture. Apply these technological marvels around your hives according to the instructions and you should see an improvement in your colony very quickly. You can tell by the sound. Bee hives that have been exposed to these sprays show an improved health and vigor that you can see and hear.

Study the target drawing on p.26 for a visual representation of the spray patterns. If you have more than one hive, apply the sprays in more oval patterns.

The Ultra Field Sprays™ are applied first and come with a Big Blaster hand sprayer. Fill the Big Blaster with the Ultra spray concentrate appropriate for the time of year (see the label for instructions), replace the top, spray a full squirt (the handle is cushioned) with the sprayer set in between a stream and a



mist, one full spray every 15' either up in the air, or toward the ground. It doesn't matter. The effect can be measured up to 60 feet away. Apply all around the hive and as far as you can cover from there.

Next, apply the four other sprays in exactly this sequence - Fungus Interruptus™ on, **not in**, your hives, Field Drying Formula™ 10' from the hives to keep the area dryer, Valerian Buffer Zone™ to make the area around the hives more compatible for your honeybees and when working with your bees, use the Bee Calming Hive Spray™. Each of these bottles have a micro mist sprayer top. Apply a full squirt every 10' around the circumference of the circle of application. Apply as instructed on the labels.

The first field spray is called Fungus Interruptus™ (FI). This technological marvel is applied as 2 to 4 micro-mist sprays to the outside of a hive once a month or so. It instantly stops the growth of the fungus you do not want in your hive and promotes the growth of the fungi you do need.

This ability to stop the fungi you do not want but keep the fungi you do want was the impetus to define the science behind these products more fully. In essence, this product "turns off" only the unwanted fungi by bringing a sense of life back to the hive. It is not a fungicide. It kills nothing. It changes the environment so that the unwanted fungi no longer have a role to play.

It is so powerful, it works throughout the hive by simply spraying it on the outside of the hive. It is not necessary to open the hive or spray it through openings.

The next field spray to use in this sequence is our Field Drying Formula™. Honeybees like dry climates. They do not like wet climates. The FD Formula is applied within a radius of 10' from the hive and in a day or two (sometimes three), will completely dry out the area around the hive creating a more healthful environment for your honeybees.

Then, in a radius of 50' from the hive, apply our Valerian Formula™ within that circle, one spray every 10' (instructions are on the bottle label).

The reason for the valerian spray is to bring the flowers immediately around the hive in synchronization with the forces of Nature in that area. By dealing with the end process of each plant, you are emphasizing the flower fruit and seed forces. These are the ones, the activities, that most closely relate to the honeybee. You are creating a buffer zone around each hive to engage these forces, allowing the honeybees to live in a most comfortable zone. This, in turn, calms down the hive and makes them more productive.

Bee Calming Hive Spray is used on the hives directly when working with your bees.

Six Wholistic™ Honeybee Agricultural Field Sprays To Help Protect Against CCD

Ultra Field Sprays™ - Two Versions Appropriate For The Time Of Year

For healthier honeybee hives, better flavors, balance, growth, yield, quality, disease and pest resistance and general plant health, apply the Summer-Fall or Winter-Spring Ultra Field Spray™ in the area surrounding your hives at a rate of roughly 32 ounces or 1000 ml. per acre. 64 ounces treat about two acres. For best results, apply twice a year, once after December 22 and before June 21, the other after June 21 and before December 22.

Apply at full strength with the Big Blaster hand sprayer, one full squirt every 15' in a square pattern throughout the area, not only the perimeter as with the Field Drying Formula™ and the Valerian Buffer Zone™. Or, if you prefer a mechanical sprayer, mix only with clean, unpolluted, pesticide free, nonchlorinated or dechlorinated water in a clean spray tank. Apply at a rate of 1000 ml/acre. Safe for honeybees, humans, animals, birds, bats, butterflies, all plants and the environment.

Fungus Interruptus™

To protect honeybees from unwanted fungi, spray on the outside of the hive after applying the Winter-Spring or Summer-Fall Field Sprays to the surrounding area. It is not necessary nor is it recommended that you spray the inside of the hive. It works right through the wood. Apply any time of the day or night, 2 to 4 squirts/spritzes per hive is all that is needed. For best results, apply every 2 - 4 weeks.



Field Drying Formula™

Honeybees prefer dry areas. To help maintain a dry area around your hives, apply the Wholistic™ Field Drying Formula™ at a rate of one full spritz every 10' toward the ground in a circle with a radius of 10' from each hive. Apply as necessary, no more than once every 3-7 days. **Do not apply directly to your hives.**

Valerian Buffer Zone™

Valerian Buffer Zone™ brings the flowers immediately surrounding your hives into synchronization with the Forces of Nature in that area. By dealing with the end process of each plant, you are strengthening the flower, fruit and seed forces. These are the activities that most closely relate to the honeybee. You are creating a buffer zone around each hive to engage these forces, allowing the honeybees to live in a most comfortable zone. This will help calm down the hive and makes bees more productive. Apply Valerian Buffer Zone™ to the inner part of a circle of 50' distance/radius from each hive, one spray every 10'. Always apply the Ultra Formula first, then the other three - SSFI, FD & VB, in that precise order.

Bee Calming Hive Spray™

The Bee Calming Hive Spray™ should be applied anytime the beekeeper works around the hive and at least once a week during the summer, once every 2-3 weeks during the winter. Apply to the outside of the hive in the same manner as Fungus Interruptus™, one spray on one side and another on the other side. No more. More will make the bees excitable.

17 Bee Management Changes To Protect Against CCD

Management is the scientific application of common sense. Bees have survived 35 millions of years of evolution. It is only common sense for us to mimic what works.

The key to solving the CCD Crisis is to manage bees in keeping with the **needs** of honeybees first, and the needs of beekeepers and farmers second, instead of the other way around, standard practice for today.

Here are some suggestions for management practices that more closely imitate Nature.

1. Always use all the Wholistic™ Field Sprays™ wherever your bees are located.

The field sprays are safe for honeybees and all organisms if used as instructed. They are proven to stop the growth of unwanted fungi, bacteria and viruses without killing anything. They are made from herbs and minerals in water. Very safe. Very effective. Very much in balance with Nature and helpful in reestablishing balance and harmony in Nature. They are crucial for stopping CCD.

2. Locate Hives Permanently In Orchards, Vineyards And Vegetable Crop Farms.

Locate hives permanently in vegetable crops, orchards, vineyards and farm fields to increase crop yields. Do not transport bees long distances if that can be avoided.

Transported honeybees have the highest CCD mortality rate of all categories of beekeeping. To protect bee colonies from CCD, we recommend that as much as possible, hives should not be moved out of any state and relocated to other states. Honeybees are very localized. That is, the specific specie or sub-species of honeybee in Florida will not be healthy in California. To compensate for the loss of income from transporting bees from farm to farm, we suggest that beekeepers locate bee hives permanently in farms, orchards, and vineyards, charge the farmer a fee for the hives and colonies and charge a fee for maintaining their bees on location. You will lose far fewer beehives.

This provides several important benefits. The farmer gets a guaranteed reliable source of fertilization experts - bees - at **their** location. Local bee stocks are healthier and more disease resistant than transported bees. Farmers are less likely to use chemicals and poisons that will kill their honeybees, improving the environment. The cost of renting transported honeybees today is about equal to the cost of maintaining permanent hives. Local beekeepers could be hired to manage and monitor the hives, possibly in exchange



for honey or honey and a fee. And lastly, something like this is going to happen anyway since bee transport companies are going out of business, unable to sustain their losses from CCD.

Why vineyards? Winegrape flowers are self-fertilizing. On the other hand, honeybee activity virtually guarantees 100% fertilization of grape flowers that wind pollination does not guarantee, the presence of honeybees will increase yields over time and their cross fertilization greatly adds to the complexity of wine flavors and aromas, making better wine. Winemakers and vineyard managers who don't employ honeybee hives in their vineyards stand to make inferior wine by comparison.

To protect costly hives on site, commercial bee transporters could apply Wholistic™ Field Sprays at each farm location where their bees are active, as much as they reasonably can, and bill the farmer for the service. Of course, both will benefit.

The bottom line? If you run the numbers, the loss of income from transported bees versus the income potential from providing, maintaining, managing bees on site and harvesting bee honey from all sorts of interesting crops, permanently located on independent farms, could be the same or higher than the income from transporting and renting bees, after all expenses are deducted. The cost of fuel and the losses from CCD dictate a new vision and approach to staying in the honeybee business.

3. Elevate Your Hives Off The Ground

In their natural habitat, honeybees live and fly high above the ground where air circulates and it is relatively warm. The earth and surface/ground water are relatively cold. Wild honeybee colonies never locate their hives at ground level. Neither should the beekeeper.

Hives set on pallets or concrete blocks less than 12" off the ground are only stressing and weakening hives from cold and dampness. Bees hate cold and damp. Wherever possible, set your hives 24" - 30" off the ground where more air circulates, dampness is not generally a problem and temperatures are higher.

Set hives 24"-30", but no more than 42" above the ground, protected from north and west winds, on natural wood platforms made without poisons or chemical preservatives such as pressure treated wood.

A simple platform can be constructed such that it allows 18"-24" of space to work around each hive with permanent wind protection fencing on the north and west sides, a removable ladder and protective metal collars on the deck posts to prevent predators from getting to the hives. These should not be made of redwood or pressure treated woods potentially poisonous to honeybees. Use all natural materials only and borate solutions to protect the posts in ground. The more you can eliminate potential contact with poisons, the healthier will be your honeybees.

If this can't be done, just get them as far off the ground as possible.

4. Plant A Perennial Native Flower Garden In All Orchards, Vineyards And Farms

Provide a 500 to 1,000 sq. ft. honeybee garden of native perennial, biennial and annual herbaceous flowers and herbs for every three to five acres of fields, especially orchards, in a highly complex mix.

When bees are forced to ingest nectar from trees only, such as in orchards, it causes their digestive, circulatory and immune systems to be weakened. It is the same if we eat only one food or food type. A balanced diet is just as important for the health of honeybees as it is for other animals and people.

This is not too difficult to do. A great deal of research and recommendations are available on flowers bees prefer. Universities such as Ohio State and the University of Vermont maintain bee research gardens. Seeds and plants are readily available. It is very important to provide bees with a wide diversity of plants which include woody shrubs, herbaceous flowers and herbs. Bees also use plants medicinally. As with all wild animals, bees instinctively know which medicinal herbs and flowers will heal them and will forage for these plants. Never apply pesticides, fungicides or herbicides to these gardens.

Diseases and mites are generally brought about by weakened immune systems. For hundreds of years, beekeepers have known that bees feeding on tree nectar exclusively makes them more susceptible to diseases and mites. Providing a small area with a wide diversity of permanent, local, native nectar and pollen producing plants will reestablish a healthy balance in the bee diet. Orchards and vineyards with



permanent cover crops of only one or two species, as is the common practice, is insufficient for honeybees to stay healthy. These cover crops should have a minimum of 20 different species.

5. Provide 20% preformed cells, 80% flat foundations in the brood chambers, in supers, 100% preformed foundations for ease of honey extraction.

In your brood chambers, use preformed cell foundations in two frames to help new colonies start reproducing, and flat, beeswax base foundations in the other eight to let bees build their combs the way they want to build them. Because this more closely mimics Nature, you will find that the bees in these hives are more productive and healthier since your bees then have the ability to construct the dimensions and variety of cells to fit their own needs. Fulfilling the needs of your honeybees is your first priority.

On the other hand, in supers, as a practical matter for harvesting honey, preformed cells do best, especially since queens are restricted from the supers and no brood will be produced there. So there is no need to use flat foundations.

6. Hive construction and design should mimic Nature.

The shape of the hive should approximate Nature as closely as possible. It is our opinion that rectangular hives have contributed to the massive deterioration of honey bees.

The 16” by 20” rectangular Langstroth bee hive is the standard beehive used in many parts of the world for bee keeping. The advantage of the Langstroth hive over hives previous to its invention is that the bees build honeycomb into frames, which can be moved with little trouble because the frames are designed so that the bees do not build wax honeycomb attached to the inside of the hive, and do not cement the frames to the side of the box. This ability to move the frames allows the beekeeper to manage the bees in a way that had previously been impossible.

A few beekeepers prefer an alternative to the Langstroth box hive, the ancient top-bar hive. These allow bees to make combs naturally but practically speaking, are impossible to transport, limiting in size and it is difficult to extract honey from them. Recently, someone designed a hive in a hexagonal form that is supposed to mimic the hexagonal patterns of comb cells.

The standard hive design, while about as far away from what bees do naturally as can be, might be improved to reflect something more natural. One possible experimental design could be a cylindrical form, made of laminated wood, using the same standard woodworking technology used to make musical drums, with each brood chamber and super having rectangular frames of varying lengths inside.

A standard hive has about 275 sq. inches of interior horizontal area. A cylinder 28” in outside diameter has about twice the internal horizontal area, about 550 sq. inches. They could be made smaller. A hive of 22” in outside diameter would approximate the standard hive in interior space.

The advantages would be that without any corner joints, not only would they be stronger and last longer than box hives, they more closely mimic a tree and the flow of air, without any hot or cold corners inside, would be more stable and uniform as would be the temperature. Mostly, they would be closer to “natural”. The circle, after the sphere, is the most efficient design in Nature, limiting the surface area exposed to wind, rain, hot and cold temperatures.

The design would be easy to construct, unique and rugged. They could be packed very closely on a flatbed as well and one of 28” in diameter could easily be fitted with forklift skids for transport.

It is something to consider.

7. Feed bees honey with chamomile tea and sea minerals added to help prevent CCD and mites.

Never feed bees artificial food, sucrose or high fructose corn syrup unless you want to lower their resistance to diseases and parasites and die from CCD. These may be cheap in the short run, but when you lose your colonies, are very expensive in the long run. Nothing beats natural food.

Chamomile tea, an old and all but forgotten remedy, is added to help with bee digestion and the



sea minerals from liquid sea mineral products provide bees with the trace minerals, the absence of which in animals and humans is now linked to cancer and other diseases.

Use the following formula: take natural honey, preferably healthy honey from the same locale as the bees live in, to it add seawater or you can add the sea mineral water product readily available online, one drop for every 10 ounces of honey. Not much is needed. To this solution, add chamomile tea at a rate of one ounce per 10 ounces of honey. Mix.

As a tea for queens, use this formula: make a specific tea made with non-irradiated, chemically clean chamomile flowers, honey and salt water. The tea should be more liquid, so take 4 ounces of chamomile tea and add a half teaspoon of honey and 3 drops of sea water minerals and let her drink that. It will solve her digestive and parasite problems.

Always leave your bees sufficient food to last the winter into spring.

8. If a hive is healthy, use the queens from that hive. If not, import them from local healthy hives.

This speaks for itself. Healthy bees that are adapted to local conditions resist CCD. This is a much more natural way of establishing new colonies.

Having said that, we see nothing inherently wrong with importing healthy queen bees from other parts of the country or world except for the fact that it may take several or many generations for the new bees to fully adapt to their new environment. Local bee colonies, if managed correctly, should not have CCD, disease or mite problems.

We suggest that honeybees be able to breed naturally. Nature has set it up so that the strongest drone is the one that gets to fertilize the queen. Anything less creates inferior offspring.

9. Paint hives neutral colors such as tan or off-white with nontoxic paint only.

We tend to go with neutral colors such as tan or off white. Black or other dark colors are anathema to bees and cause the hive to overheat. Bright colors such as blue, green, red and yellow are distracting to bees and tend to confuse them. Pink, while it may look good, is a particularly bad color to use since it is vibrationally the antithesis of the bee herself.

10. Use Wholistic™ compost formulas and permanent or semi-permanent cover crops on all fields.

In order to protect bees from CCD, the elimination of as many poisons and chemicals as possible should be your goal. Wholistic™ Agricultural Science has developed a system based on the Wholistic™ Field Sprays, compost and permanent or semi-permanent cover crops. It works and it will protect your bees.

The Wholistic™ compost and cover crop formulas have been in use for 16 years. They both contribute to a healthier soil biota, crops, animal life and the fruit, nuts and vegetables harvested.

The proven formula for compost is 6 parts cow manure, 2 parts horse manure (without wood chips or shavings), 1 part bird manure, 1 part leftovers from the crop and an equal volume of straw. Mix together, moisten and pile in windrows. Cover with 12" of straw to protect the contents from the weather. Apply Wholistic™ Compost Invigorator to the pile. Let sit and digest naturally for 6 to 12 months, then apply at a rate of 5 - 20 cubic yards per acre. For more information, contact GW Agriculture.

The reason manures are used is that barnyard manure compost will eliminate up to 90% of the diseases in crops of all kinds.

The cover crops are 85% legumes and 15% yellow mustard. We use 20-24 different species, up to 16 species of legumes, occasionally adding some native flowers, herbs and grasses, to get the widest possible coverage, germination and biocomplexity in the fields. Specific, compatible, cover crop formulas are being developed for crops such as corn, cotton, soybeans, peanuts, etc. that will allow those crops to be harvested without getting tangled up in the cover crop, and will allow the crop to be grown without



glyphosate, which can kill honeybees.

The use of the Wholistic™ Field Sprays generally takes care of the rest of the problems in the fields.

11. Eliminate chemicals, poisons and GMOs.

The presence of pesticides, herbicides, fungicides, miticides, chemical fertilizers, poisons, genetically engineered crops and escaped GE rogue plants is the single greatest danger that must be dealt with if bee populations are to be restored.

Each contributes in some way to CCD by weakening honeybee immune systems and causing birth defects, directly or indirectly. But this is only part of the corrective regimen that must be implemented to save the honeybee from extinction. Pollution from mining, industry, ranching, electricity generation, automobiles, trucks, trains and airplanes, computer production facilities and generally everything that is harmful to honeybees from our daily lives must, sooner or later, be better controlled and cleaned up or CCD will continue to be a major problem.

No one believes that this can be done everywhere to everything. Realistically, it is impossible. But something can be done. Since farmers and apiarists have a close relationship, they should be encouraged to work together to solve these problems and still make a living.

Today, many chemical farmers are very responsible and very careful about the use of poisonous sprays. That is a significant step in the right direction. Organic agriculture is only a partial answer. The paradigm employed in organic agriculture is the same as conventional agriculture - “kill what you don’t want and eat the rest”. Only the substitution of safer alternatives, such as what Wholistic™ Agriculture provides, will produce the relief needed.

We recommend that you start with your honeybees and work with farmers to expand a program of protection for your bees in a rational and affordable way that works best for both of you.

12. Avoid microwaves and EMF’s wherever possible.

This possible problem has been espoused and ridiculed all over the world with no conclusive evidence one way or the other. Our recommendation is caution.

We know from government studies that microwaves can be dangerous, even deadly, if exposed to high levels. We know that our electricity transmission systems carry electrons all around us, all the time. We also know that practically no research exists linking low levels of exposure to high Electromagnetic Frequencies and microwaves exists.

We also know that exposure of our Wholistic™ Field Sprays to high EMF currents will destroy them.

Brain and nerve activity involves electrical currents and activities that can be seen through brain scans. It may make sense that these high levels of EMFs and microwaves do, in fact, interfere with brain and nerve functioning. Cell phones make low level microwaves just about unavoidable today.

So, why take the chance? CCD is a process of the accumulation of insults and poisons in the bodies of honeybees. Why expose honeybees to more possible harm? Locate your bee hives away from transmission lines and transformers, and microwave towers.

We recommend that for about \$300, every beekeeper purchase EMF and microwave meters to evaluate an area before setting hives or creating a bee yard. This way, you are assured of not exposing your hives to direct electrical and microwave activity.

13. Create as much biocomplexity in your fields surrounding your hives as possible.

If you have ever looked at a natural prairie, a forest or even a kelp forest, you will see enormous biodiversity and biocomplexity. As we have explained earlier in the section on the Concepts and Principles of Wholistic™ Science, the science of biocomplexity explains biodiversity.

The way you achieve this is to start by providing, within reason, your fields with as many different species, starting with legumes, which provide nitrogen to plants and soils, and work from their. Natural



grasses and local “weeds” will fill in the “holes” in the fields. Nature always brings in pioneer plants to bare ground, eventually followed by climax species as the area reaches homeostasis, a steady state.

Biocomplexity is a new science and still not well defined or understood. We have done a tremendous amount of research on the roles of plants and animals in the world. This research, some of which you have read above with regard to bee diseases and pests, is available for the asking. Just give us a call.

The reason you create **biocomplexity** is that when an area stabilizes (homeostasis), honeybees have the best chance for survival. It’s as simple as that.

14. Honeybees are pure love.

Love as sweet as the honey they produce. The relationship between honeybees and humans goes back perhaps 10’s of thousands of years. The ancients understood the essential nature of honeybees. Unfortunately, much of this wisdom has been lost in modern times. Nevertheless, it is true and bees, as most beekeepers will attest, respond to love and loving care.

Never underestimate the effect of your love for your bees and your love for Nature as key ingredients for saving the honeybee and agriculture. Without bees, there is no love. Without bees, there is no Life.

15. Encourage researchers to investigate and map the epigene of the honeybee.

The only way science will ever fully understand the CCD process is to fully map the epigenome in honeybees the same way the genome was mapped. Once understood, these discoveries have direct application to every other environmental-genetic-management disease in the world. Yes. It’s **that** important.

The money now being spent on research should be focusing on the epigene instead of a disease organism that may or may not be the threshold disease in CCD. Universities should invest their time and resources where they will do the most good.

16. Encourage farmers to engage in a partnership with beekeepers and transporters to protect honeybees.

The number one threat to honeybees comes from farm chemicals and pollution and modern methods of agriculture. Farmers share in the benefits of bee pollination, is it too much to ask them to share in protecting the same honeybees from which many of them derive their wealth?

To date, beekeepers and transporters have carried the entire burden. Each year, rental prices go up and will continue to go up unless there is a wider acceptance and responsibility for the health of bees and all pollinators, Farmers will simply have to accept the fact that if they do not reduce or stop applying poisons and planting poisonous crops, the cost of a hive rental could, and probably will, exceed \$500 each.

The Wholistic™ Field Sprays are a good first step to protecting honeybees from CCD. But far more action is needed. These sprays work around the hives. If they were applied to the entire field, orchard or vineyard, your protection would be that much greater. Although this may sound self-serving, what other alternative is there available to you today? None. In the future, there may be. In the mean time, bees are dying. Better to have some help than none at all.

17. Work politically and informatively to teach government agencies, industries and the media to do what they can to reduce those factors that kill your bees.

After agriculture, governments are the worst polluters and users of chemicals and poisons, mostly along roadsides for weed control and for lawn and landscape maintenance. Industries pollute also, most notably today the mining, transportation, energy production and chemical industries, to name a few. The wider media is almost wholly unaware of the honeybee crisis and what causes it, or more to the point, the loss of honeybees and how it is going to effect everyone. The problem here is that MAAREC and the rest of the scientific community have been unable to provide a cure for CCD, let alone describe it. So there’s no good news to report. Until now, of course.

Work through the National Honey Board, local and national beekeeping associations and your



government representatives locally, regionally and nationally to provide legislation to protect honeybees, and indeed, all our threatened pollinators. Also, to provide more money and support not just for research, money which appears to be going into a hole with no bottom, but money for implementation of new ideas - outside the box. CCD is beyond conventional science at this time.

To build public awareness, beekeepers, local beekeeping clubs and associations and professional beekeeping organizations could provide booths at state fairs, local happenings and maybe work with stores, radio and TV stations to get the word out that this is a **REAL** crisis. The list is only limited by one's imagination.

More ideas and suggestions will come from the thousands of people who keep honeybees and more from the millions of people who benefit from them. Awareness leads to action. There's been far too little action to date. Too much research and not enough development.

These are just a few ideas to help eliminate stress, exposure to chemicals and poisons and environmental pollutants and to suggest ways to manage bees more naturally which is the key to solving the CCD Crisis. The field sprays that we make and recommend have a long and successful history of being **the most technologically advanced agricultural products on the planet.**

The steps we recommend will help protect your bees and improve the quality of your honey.

We make a little testing kit that you can use to measure the improvement in your honey. Taste your honey, then apply two sprays, then taste it again. We think you'll agree, the improvement is noticeable and desirable.

Please consider the **Wholistic™ CCD Solution** for your hives whether they are at risk today, or not. You will find, in so many ways, that it will be one of the best decisions you've made for your bees.

Sixteen years "in the field" experience has taught us one thing: Our field sprays and management systems work better than just about anything on the whole Earth.

Act. Now. Today. Next year may be too late.

No doubt, you will have more questions. Please feel free to call on us anytime.

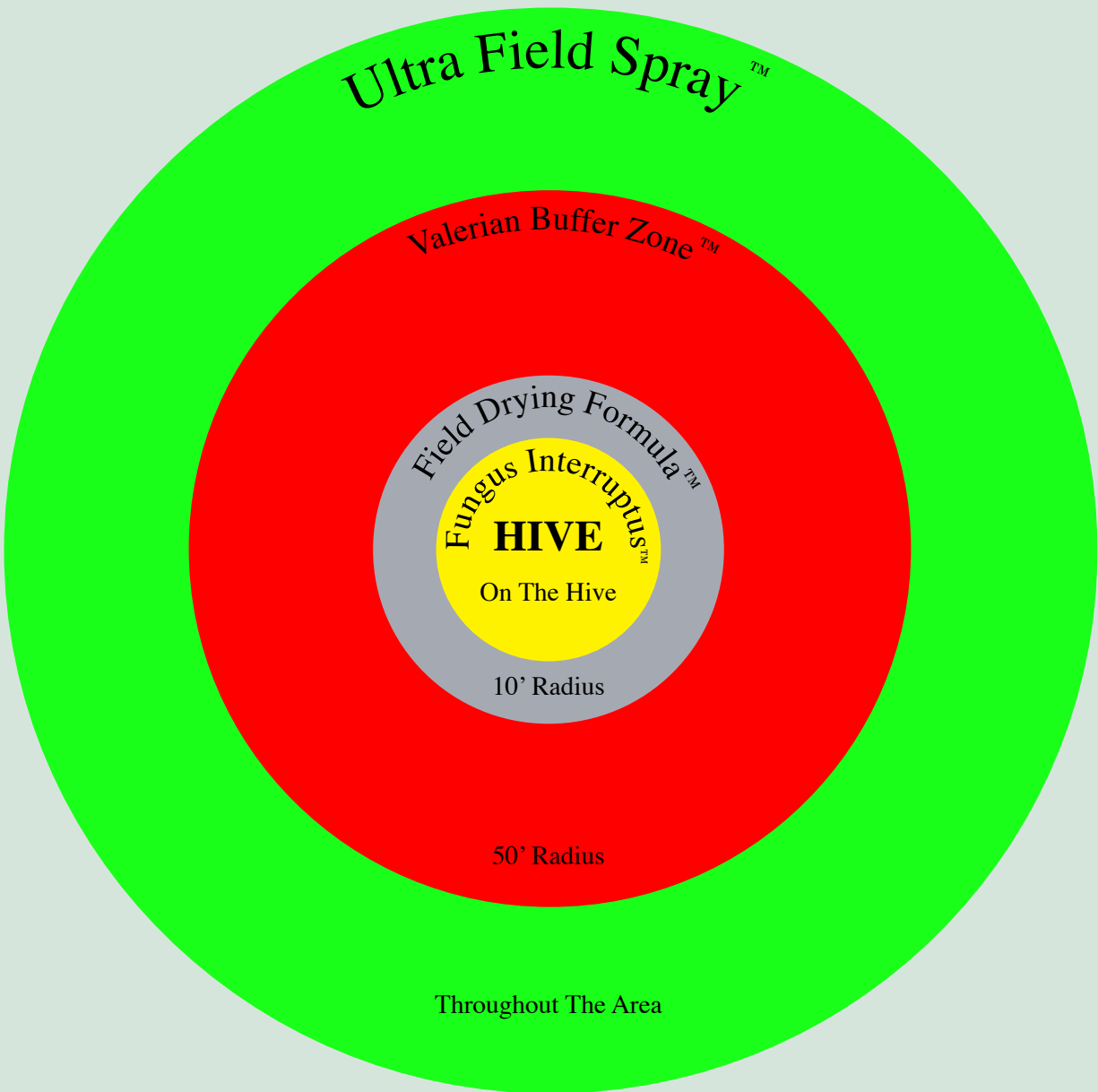
Where and How To Purchase Wholistic™ Honeybee CCD Solution Kits

The Wholistic™ CCD Solution™ Handbook is available for download in PDF format at www.theccdsolution.com. The CCD Solution™ Kit is available right now at a special **introductory price**. The **Small Beekeeper Kit** cost is \$99 for up to 50 hives and 1.5 acres. The larger **Commercial Apiary Kit** is \$199 for 100 hives and 3 acres of coverage. Larger sizes available by special order.

Individual field sprays may be purchased separately. Contact Greg Willis at 214-592-9800 or email gwagriculture@yahoo.com for ordering details. More information is available at www.theccdsolution.com.

Sincerely Yours,

Greg Willis, A.A., B.S., M.A.
 Founder and President
 GW Agriculture
 McKinney, TX 75071
 214-592-9800
www.theccdsolution.com
www.gwagriculture.com



Sequential Spray Pattern

First, apply the appropriate Winter-Spring or Summer-Fall Ultra Field Spray™ using the Big Blaster hand sprayer in the area around your hive(s), one full spray every 15', in a square pattern around the entire area including the outside of your hive(s). Next, apply 2-4 sprays of Fungus Interruptus™ directly to the outside of the hive, not inside. Then measure about 10' from the hive(s) and create a circle. Walking around the perimeter of the circle, spray the Field Drying Formula™ every 10', a total of 10 sprays. Do the same with the Valerian Buffer Zone™ with a 50' radius, a total of 31-32 sprays applied to the circumference. Many people have more than one hive. If you do, apply the sprays in a more oval pattern. Apply the Bee Calming Hive Spray™ to your bee hives whenever you are working with them or every 1-3 weeks.