

The Ecological Principles of the Land

How Does God Want Us to Care for the Land?

“And the Lord God formed man of the dust of the ground, and breathed into his nostrils the breath of life; and man became a living being” (Genesis 2:7).
dust = aphor, “dust, clay, earth, mud.”¹
ground = adamah “soil (from its general redness)”; from *adam*, “to show blood (in the face), i.e. blush or turn rosy.”

We as humans have all come from Adam, the son of God (Luke 3:38), who was the very image or template of Elohim (Genesis 1:27). That spiritual template which became flesh — the “*living being*” or *nephesh* (beathing creature or bodily vitality) — was *formed* by what the Hebrew terms *yatsar*, or “molded into a form, especially as a potter, through squeezing into shape.” None of us were present to observe this formation of the physical Adam, but it must have been an amazing process to behold ... taking “red clay” and molding it into 10 trillion or so cells to make the man Adam.

While we will never know just how the Creator made Adam from the dust of the ground, we can understand that this dust was comprised of the elements of the soil that are essential to human life. According to Dr. Joel Wallach, there are 60 essential elements that the human body requires for life, obtained from the “dust of the earth” through their uptake by plants that we eat.²

60 Essential Minerals

Calcium, Magnesium, Phosphorus, Potassium, Sodium, Chlorine, Sulfur, Cobalt, Copper, Aluminum, Arsenic, Barium, Beryllium, Boron, Bromine, Carbon, Iodine, Iron, Manganese, Selenium, Zinc, Cerium, Ce-

sium, Chrome, Dysprosium, Erbium, Europium, Gadolinium, Gallium, Germanium, Gold, Hafnium, Holmium, Hydrogen, Lanthanum, Lithium, Lutetium, Molybdenum, Neodymium, Nickel, Niobium, Nitrogen, Oxygen, Praseodymium, Rhenium, Rubidium, Samarium, Scandium, Silica, Silver, Strontium, Tantalum, Terbium, Thulium, Tin, Titanium, Vanadium, Ytterbium, Yttrium, Zirconium

Besides these elements, there are essential fatty acids, vitamins, and amino acids that are necessary for life that must be obtained from plants and/or animals, without which the human body cannot live; it cannot manufacture them on its own.

2 or 3 Essential Fatty Acids

Omega 3 (EPA, DHA, ALA),
Omega 6, Omega 9

16 Essential Vitamins

Vitamin A, Vitamin B1 (Thiamine), Vitamin B2 (Riboflavin), Vitamin B3 (Niacin), Vitamin B5 (pantothenic acid), Vitamin B6 (pyridoxine), Vitamin B12 (cobalamin), Vitamin C, Vitamin D, Vitamin E, Vitamin K, Biotin, Choline, Flavonoids and Bioflavonoids, Folic acid, Inositol

12 Essential Amino Acids

Valine, Lysine, Threonine, Leucine, Isoleucine, Tryptophan, Phenylalanine, Methionine, Histidine, Arginine, Taurine, Tyrosine

The array of chemicals and biochemicals that are comprised of these elements is complex beyond our imagination! The arrangement of these elements into compounds and molecules



that make up our cells, which in turn are grouped into tissues, organs, and eventually into the entire integrated human body, is controlled by DNA, which codes for cellular functions and the entire operation and organization of each individual. This DNA signature is unique for each person, giving us the qualities we identify as our own. Not to be minimized is the electrical nature of our bodies, and beyond that the spiritual aspects that give rise to our thoughts and imaginations, and inborn hunger for a relationship with our Creator (Ecclesiastes 3:11).

Enter ... the Soil

The sustenance of this “living soul” that we call man comes from the soil ... the same “red clay” from which Adam was formed. The soil is not always red of course, but is oftentimes black, brown, or yellow depending upon the location. In any case, this soil is the medium upon which plants grow, taking up the elements from the soil, and fabricating them into the food crops as the Eternal designed.

“And God said, ‘See, I have given you every herb that yields seed which is on



the face of all the earth, and every tree which fruit yields seed; to you it shall be for food” (Genesis 1:29).

herb = *eseb*, “to glisten or be green.”

fruit = *priy*, “fruit (literally or figuratively).”

Thus, it may be said that this food for mankind is “fabricated soil fertility” ... the minerals of the soil, together with carbon dioxide and oxygen from the air, and water from the mist that watered the earth before the Flood, taken in and combined within the green chlorophyll-containing leaves that produce roots, berries, leaves, fruit, and other plant parts for eating. As a soil scientist and agronomist, I work with plants all of the time, and have come to understand how important it is to optimize this soil fertility to produce the highest quality, mineral-dense food crops possible, for that high quality food will in turn produce vital, energetic bodies fit for abundant living (John 10:10).

Fertile Soil => High Quality Food => Healthy People

The science of achieving a fertile soil is not an easy one to address within today’s world of agrochemicals, for there is much deception regarding what is good soil fertility, how to achieve it, and how to maintain it. Modern agronomy in general focuses on additions of nitrogen, phosphorus, and potassium, calcium and magnesium if the pH needs adjusting, and micronutrients, if they will enhance yield, but little attention is paid to soil health — the focus of which is organic matter. There is minimal attention given to producing the highest quality food possible for the building of healthy bodies. Such considerations do not fit well into modern agronomic equations, where profit maximization based on bulk yield is accentuated. Crop quality, in particular elemental content which is so important to human health, takes a back seat. Sales of fertilizers, pesticides, herbicides, insecticides, fungicides, hybrid and GMO [genetically

modified organisms] seeds, and machinery and fuel required to make the system work for mega-operations in their hundred-acre fields, has become the idol of today's agriculture. The mantra is to feed the plant a prescription of chemicals for weak plants grown in nutrient-starved soils, much like giving drugs to a sick patient who became so by consuming nutrient-deficient foods, to keep him going, treating the symptoms, not the causes of the patient's problems. Such is the course of agriculture today.

It should be mentioned that plant genetics is a major player in the composition of crops. Open-pollinated varieties — those whose seed can be saved to plant the following crop cycle to give the same type of crop — are superior in nutritional value compared to hybrid and GMO crops. High yields of these man-altered seeds dilute levels of minerals and vitamins, and genetically modified crops further erode the nutritional value by adding toxic compounds, such as a toxin that kills earworms in corn, and introducing unnatural genes into the bodies of animals and man, with unknown consequences. I will not explore the genetic aspects of crop production here, but focus on soils, since they are the basis of growing food crops for mankind.

God's Instructions for Treating the Land

You may notice that I did not say "tilling the land," for that would fail to point to the heart of our Creator's principles of treating our valuable soils. I have thoroughly discussed these principles in my book *The Bridge to Eden*³, and will try to summarize these important issues. Let us first examine God's instructions concerning crops and soils, which brings us clear back to the beginning.

On day three of creation, the waters were gathered together "into one place," and dry land appeared, which Elohim called "Earth" (Genesis 1:9-10). Earth is translated from the Hebrew *erefs*, "to be firm." This is the soil upon which plants grew.

"Then God said, 'Let the earth bring forth grass, the herb that yields seed,

and the fruit tree that yields fruit according to its kind, whose seed is in itself, on the earth'; and it was so. And the earth brought forth *grass* [*deshe*, a 'sprout'], the *herb* [*eseb*, 'to glisten or be green; grass or any tender shoot'] that yields seed according to its kind, and the tree that yields fruit, whose seed is in itself according to its kind. And God saw that it was good" (Genesis 1:11-12).



The Garden of Eden in Genesis 2 was the perfect environment for the prosperity of mankind in body, mind, and spirit, a place of luxurious living to the glory of the Creator.

It is within this context that a particular garden in Eden, which contained the abode of Elohim, was *planted* [*nata*, "to strike in, to fix or plant"], wherein He placed Adam; in that garden Yahweh Elohim planted every tree to grow that is pleasant to the sight and good for food. This included the tree of life, as well as the tree of the knowledge of good and evil (Genesis 2:7-9). The word *Eden* connotes "pleasure and delight," an indication that before sin entered the environment there was perfect, a delightful place in this sin-free garden, and assumedly the food that grew there was perfectly suited for abundant health and agelessness ... especially fruit from the tree of life that in Genesis 3:22 is stated to impart eternal life, even if eaten after sinning.

It was in this perfect environment, on an earth and in a garden where the soils had been

prepared for abundantly producing herbs and fruit, that Adam and Eve were to *tend* [*abad*, “to work, serve”] and *keep* [*shomar*, “guard, protect, attend to”] this bucolic, pristine place (Genesis 2:15). The water had abated from the earth and was restricted to oceans, after having dropped fertile sediments over all land surfaces, preparing the earth’s surface for the formation of rich soils that would supply nutrient-dense foods from herbs and fruit trees. No rain fell that would leach nutrients or erode soil; rather, a *mist* [*ed*, “a fog or mist”] watered the soils and plants. We can also be certain that the soil teemed with an abundant array of macro and microorganisms. These organisms were, and are, essential for nutrient uptake by plant roots.

Then Sin Entered

We learn in Genesis 3:1-7 that Adam and Eve partook of the forbidden fruit of the tree of the knowledge of good and evil. Thus sin entered into the world, and consequently major changes in soils and food crops, as reported in Genesis 3:17-19.

“Then to Adam He said, ‘Because you have heeded the voice of your wife, and have eaten from the tree of which I commanded you, saying, “You shall not eat of it,” *cursed* [*arar*, “call down evil upon”] is the *ground* [*adamah*, “soil”] for your sake; in toil you shall eat of it all the days of your life. Both thorns and thistles it shall bring forth for you, and you shall eat the *herb* [*eseb*, “green, tender shoots”] of the field. In the sweat of your face you shall eat bread till you return to the ground, for out of it you were taken; for *dust* [*aphar*, “gray, pulverized earth, clay, mud”] you are, and to *dust* you shall return.”

Thereafter, Adam and Eve were thrust out of the Garden of Eden, with the commission to “... till the ground from which he [Adam] was taken” (Genesis 3:23). The Hebrew word for *till* here is *abad*, to work or serve, the same word

used to describe their responsibilities in the Garden of Eden.

Life outside the Garden of Eden was much harder than within the Garden, where trees and herbs produced food easily and consistently, not requiring the work to produce food outside the Garden, “... in the sweat of your face.” Could then one apply the laws of caring for the land the same outside the Garden as inside it? Yes, in most ways, though more effort was required. There was still a mist watering the earth, and solar radiation through the water canopy was yet optional. However, access to the tree of life was cut off, and with that restriction aging could not be averted. The physical toil and less-than-perfect nutrition from crops grown on soils outside the Garden of Eden led to lives that eventually were terminated before 1,000 years of age. “The soul that sins shall die” (Ezekiel 18:4, 20) became a reality for the sin-plagued generations that came from Adam and Eve.

We do not know precisely how crops were grown and cattle were raised before the flood, but we do know that Abel was a shepherd, and Cain was a

tiller [*abad*] of the soil (Genesis 4:2), presumably a grower of some types of fruit or grain crops. The reason for Abel’s offering from the flock being accepted by Yahweh, while Cain’s offering from the orchard or field was not accepted, had to do with their respective attitudes



Life outside the Garden of Eden was much more difficult than in the Garden, filled with weed competition and the need to work hard for one’s food.

towards offerings and God Himself, not some intrinsic error in how Cain raised his crops. There is no more revelation of land and animal husbandry before the Flood.

The Post-Flood Era

Following the Flood we find Noah and his family being told that green *herbs* [eseb] and clean animals were designated as food. The knowledge of clean versus unclean creatures was known well before the Flood, since Noah was instructed to bring aboard the ark seven



The Parable of the Sower indicates that soils differ in their ability to grow good crops, with deep, rich soil yielding bountifully.



The Parable of the Barren Fig Tree gives us insights into the value of agronomic practices that will improve productivity.

pairs — male and female — of clean animals and birds, but only one pair of all other animals and birds (Genesis 7:2-3, 8-9, 14-16). After the Flood, Noah became a *farmer* [adamah, “soil, from its redness’] and planted a vineyard, presumably using grape vine cuttings he had taken with him on the ark (Genesis 9:20).

Thereafter we have Biblical records of mostly cattle, horses, donkeys, camels, sheep, goats, and pigeons being raised by Abraham, Isaac, Jacob, and the Israelites throughout their history. They also raised grains such as wheat, spelt, flax, and barley, as did the nations with which they interfaced, such as Egypt (Genesis 41:35; Exodus 9:31-32) and Canaan (Genesis 50:10; Joshua 5:11-12). I will not take the time to examine the many instances of grains and livestock mentioned in the Pentateuch, and in the prophets and teachings; that is a subject for another day.

We can examine the teachings of Jesus Christ and discover that He spoke a bit concerning soils and crops. The word for soil translated from the Greek is usually *ground*, or *ge*, meaning soil, or by extension a region of the earth or even the whole of the land on earth. Here are some examples of Christ’s teachings about soils and crops.

(1) *The Parable of the Sower.* The sower planted seeds on soilless places, areas with thin or stony soil, weed-infested soil, and *good soil* [kalor ge, “excellent or beautiful soil”]. The good soil produced crops that multiplied the seed 100, 60, or 30-fold (Matthew 13:3-9, 18-23; see also Mark 4:3-20 and Luke 8:5-15), so different levels of soil fertility are acknowledged. Those who prosper on good soil are likened to people who hear and understand God’s words and bear spiritual fruit to differing degrees.

(2) *The Parable of the Fig Tree.* We have read that a fig tree planted in a vineyard bore no fruit for three years, and the owner wanted it cut down to avoid taking up space. However, the vineyard manager told the owner that he ought to add manure and dig around the tree, and give it a chance to bear fruit before cutting it down (Luke 13:6-9). The admonition here is to improve the fertility of the soil by adding manure — a wonderful, complete fertilizer — and improving air and water exchange in the root zone, both of which usually trigger tree vigor and fruiting potential.

(3) *The cursing of the unfruitful fig tree.* Christ came across a fig tree that bore no fruit,

and He cursed it, which caused it to wither away (Matthew 21:18-22; Mark 11:12-14, 20-24). This is not a lesson in soil fertility management, but, is symbolic of Israel, which is likened to a fruit tree that bore no spiritual fruit, although it donned abundant leaves and looked good on the outside.

(4) The Parable of the Wheat and the Tares. In this parable the tares, likened to children of the Devil, are sown in a wheat field; the wheat is likened to children of the kingdom. They are allowed to grow together, but were to be separated at harvest, whereupon the tares would be burned up while the wheat, God's saints, would shine brilliantly in the Father's kingdom (Matthew 13:24-30).

(5) The lilies of the field grow as programmed by God, without "toiling or spinning," yet are clothed more brilliantly and beautifully than Solomon in all of his glory (Matthew 6:28-29).

(6) Jesus is referred to as the True Vine, while the Father is the Vinedresser. The vine that does not bear fruit is removed, and the vine that does bear fruit is pruned so it will bear even more fruit. These are analogies to living within the vineyard of the Father, attached to the true vine (John 15:1-16).

Other references are made to crops and soils, such as in James 3:18 (the fruit of righteousness is sown in peace), Hebrews 6:7-8 (rain graces the earth to grow crops that are a blessing, but if thorns and thistles grow they are rejected), Galatians 5:22-23 (fruits of the spirit), and Galatians 6:7 (you reap what you sow). Yet, most of these Scriptures are analogies to spiri-

tual topics, not to actual management practices we can apply to soils and crops. While the Holy Scriptures form the basis for all of our activities here on earth, yet it is not a detailed treatise on caring for the environment. We need to look elsewhere ... and what better place is there to look than to the creation itself, for we read in Romans 1:20,

"For since the creation of the world His invisible attributes are clearly seen, being understood by the things that are made, even His eternal power and Godhead, so that they are without excuse."

We read here a clear statement that the invisible attributes of God are clearly seen within the created world — in the trees, flowers, ani-

mals, birds, microbes, clouds, stars, soils, indeed in all things — and these attributes are His laws of love, the commandments, fruits of the spirit, and all that comprise Him. It is there we will look to see and understand His spiritual attributes!



Jesus Christ is the True Vine, while the Father is the Keeper of the vineyard.

What the Creation Teaches Us About Treating the Land

We need to closely examine the created ecosphere to discover the ecological principles that the Creator has placed upon this earth for its well-being and long-term resilience. It takes a trained eye and plenty of thought and experience to discover them, but these principles are all around us if we will just look. In a real sense they are hiding in plain sight!

We must realize that these laws are applicable to the present age of sin, an age where

the solar radiation, air pressure and oxygen and CO₂ content, gravity, rainfall, and soil conditions are quite inferior to those that were in the Garden of Eden and the pre-Flood earth. There will be some similarities to both eras of man, but the entrance of sin into the world, and especially the huge changes in the ecosphere caused by the Great Flood, brought with it the curse on the land, as well as mankind having to produce his food by much toil and sweat (Genesis 3:17-19).

I have found no other author who has elucidated these principles of the creation better than Sir Albert Howard. Howard (1873-1947) was an English botanist who worked in India for many years, discovering principles of sustainable farming that he passed along in two books in particular: *An Agricultural Testament*⁴ and *The Soil and Health, A Study in Organic Agriculture*⁵. Here are the major principles he laid out.

1. Mixed farming is the rule. Plants are always found with animals; they live together. In the forest or grassland, every form of animal life, from mammals to the simplest invertebrates, mingles with the plant kingdom. There is never a plant monoculture, but rather mixed crops are the rule, living amongst a mixed animal population.

2. The soil is always protected from the direct action of sun, rain, and wind. Through this process nothing is lost. In a forest, light is captured by tree leaves as well as by the undergrowth. Leaves break up the impact of raindrops so a fine spray waters the forest floor, and water cannot concentrate in rills or gullies and wash away the soil. The wind is also tamed by the trees. A grassland, while not slowing the wind, binds the soil together in a root-rich layer that allows rapid rainfall percolation and zero erosion.

3. Rainfall in particular is carefully conserved. Most of the rain is preserved in the topsoil, while excesses are gently transferred through pore spaces generated by bacteria, fungi, and other microbes, as well as by earthworms that create channels for water and air exchange through the soil. There can be no water overflow that would cause erosion. This water economy tends to create perennial streams

rather than periodic streams due to rapid surface runoff.

4. The forest and prairie manure themselves, and cycle nutrients. The leaves fall to the soil surface and mix with animal residues, and are decomposed by microbes, worms, and other soil organisms. Humic substances are formed, a storehouse for nutrients and a catalyst



Sir Albert Howard is considered by many as the Father of Organic Agriculture, and was a keen observer of the natural world.

for the development of a strong soil structure. The release of nutrients correlates with temperature and plant requirements, highest during warm periods of rapid plant growth. No foul odors result from mostly aerobic oxidation.

5. The minerals required for growth are obtained from the subsoil. Roots explore the shallow topsoil for its store of nutrients preserved in organic reserves, as released through the intense activity of the rhizoplane (root surfaces). This activity on root surfaces, whereby bacteria, fungi, and other microbes, especially mycorrhizal fungi, produce available nutrients through biological reactions. In fact, plants channel considerable energy — up to 40% of photosynthetic production — into the root zone so energy-rich carbohydrates can be excreted on root surfaces, to feed a teeming garden of microbes that generate nutrients for uptake, as well as vitamins, growth regulators, antibiotics, and other compounds. Other roots penetrate into the subsoil to bring up needed nutrients to



Clear-cutting in a forest is but one example of a misunderstanding of what “dominion” over the creation means.

supplement what the topsoil provides, so that in a properly functioning soil there is no need for commercial fertilizers to sustain optimum production.

6. *The soil always carries a large fertility reserve.* The topsoil, rich in organic matter — up to 8 to 10% in some prairie soils — normally contains vast reserves of nutrients, including nitrogen, potassium, phosphorous, calcium, magnesium, iron, sulfur, and micronutrients. Besides this, there are growth-promoting compounds that further stimulate plant growth. The subsoil usually contains huge amounts of fertility reserves, which deeper roots can intercept and bring to the surface. The reality of this large storehouse of nutrients can be noted when virgin land is put into crop production, and for several years good crops can be raised, even without additions of fertilizers.

7. *Crops and livestock look out for themselves.* As Sir Albert Howard put it,

“Nature has never found it necessary to design the equivalent of the spraying machine and the poison spray for the control of insect and fungus pests. There is nothing in the nature of vaccines and serums for the protection of the livestock. It is true that all kinds of diseases are to be found here and there among the plants and animals of the

forest [or grassland], but these never assume large proportions. The principle followed is that the plants and animals can very well protect themselves even when such things as parasites are to be found in their midst. Nature’s rule in these matters is to live and let live.”⁶

These seven principles in the created world, which any of us with a trained eye can observe, can be summed up in one statement. ***The land always embraces mixed plants and animals, mixed crops rule rather than a monoculture, the soil is always protected by growing plants or organic residues to prevent erosion, vegetable and animal wastes are continually converted into humate materials to store nutrients and build a strong soil structure, no nutrients are wasted but are recycled, processes of growth and decay balance each other, ample provision is made to maintain large reserves of fertility, great care is taken to store rainfall, and plants and animals are left to protect themselves from disease.***

The Issue Is “Dominion”

These principles which operate in a natural forest or grassland ecosphere serve as a model within which mankind is to operate ... enhancing them rather than disrupting them, as does modern agriculture with its monoculture, toxic chemicals that upset the function of diseases and insect pests — which are “nature’s cleanup crew” — herbicides and heavy machinery that compact the soil and destroy critical soil structure, tillage that leaves soil bare and at the mercy of rainstorms, and concentrations of livestock in feedlots rather than distributed among every farm, as in centuries past.

The Creator’s design for the land cannot be complete without people. The command to them is clear:

“So God created man in his own image; in the image of God He created him; male and female He created them.

Then God blessed them, and God said to them, ‘Be fruitful and multiply; fill the earth and subdue it; have dominion over the fish of the sea, over the birds of the air, and over every living thing that moves on the earth’” (Genesis 1:27-28).

Genesis 1:29 states that herbs and fruit trees were given for food, so certainly their management is implied as well as man’s *dominion* over the fish, birds, and animals, and their order to *subdue* the creation. Let us carefully examine these two words for a clear understanding.

subdue = *kavash*, “as a verb, to place



Free-range chickens are an example of a proper understanding of dominion in the treatment of birds and animals.



Dominion theology can move producers to consider the most cost-effective means of production, which often contradicts animal health and comfort considerations.

your foot on the neck of your conquered enemy, signifying a submission of the enemy to the conqueror.”

Kavash figuratively means to bring a people or nation into submission, as in Numbers 32:29. The word can also mean to bring into control (Micah 7:19).

have dominion = *radah*, “rule by going down and walking among the subjects as an equal.”

Use of *kavash* and *radah* together, in the context of these verses, implies that man is to rule over the animals as his subjects, but not as a dictator ... rather, as a benevolent leader. Man is also to walk among these and have a relationship with his subjects so they can provide for man’s needs.⁷

Put in terms of mankind’s tendency to be selfish and sometimes brutal, subduing in Genesis 1:28 implies that creation will not do man’s bidding gladly or easily. However, that does not mean that mankind ought to perform this subduing with fierce and destructive delight. The subduing and enslavement implied by *kavash* applies only when the party being subdued is already hostile, so the word is used in regard to enemy armies: if an enemy army is not subdued, you will die⁸. Thus, we subdue the creatures on the earth so they will not overpower us, as might occur if the land would lie vacant, as Israel was cautioned against when invading Canaan (Deuteronomy 7:22). We do not have the problems today that ancient Israel had, since we have guns and poisons to more easily control dangerous wild beasts.

The word *radah* is used in Psalm 72:8-14 — originally a coronation Psalm for Solomon — revealing that Solomon would have *dominion* (*radah*) from sea to sea, and his enemies would “lick the dust” and “bow before him.” While this shows *radah* as meaning subjugating enemies, we also read in verses 12 to 14,

“For he will deliver the needy when he cries, the poor also, and him who has no helper. He will spare the poor and needy, and will save the souls of the needy. He will redeem their life from oppression and violence, and precious shall be their blood in his sight.”

Thus, as “kings and priests” over the creation we are not to exercise lordship and harshness over the animals, forests, and grasslands, but we are to express dominion by protecting the defenceless and give justice to the oppressed, an attitude of protection rather than rapine. As one author put it, “As a king accepts tribute or taxes from his subjects, so too we re-

ceive a bountiful sustenance from the fruits of creation. Yet, also as a king should take care of the weak and poor in his kingdom, so too we are called to guard natural beauty”⁹ We must nurture the animal and plant kingdoms with the kindness, love, patience, joy, peace, faith, and gentleness that the spirit of God has placed in us (Galatians 5:22-23), while using force only to protect and defend the creation we have been given to serve and enjoy.

To further understand this issue of dominion in Genesis 1:26-28, we must note that the Hebrew phrase *radah b-* includes a preposition that is usually not equivalent to the English preposition “over.” Rather, the translation of this verse could more accurately be,

“Let us make mankind in our image, according to our likeness, so they may exercise skilled mastery among the fish of the sea and among the birds of the air” (Genesis 1:26).¹⁰

These are the same creatures that God specifically blessed to be fruitful and multiply in Genesis 1:22. So, to fulfill mankind’s role in the created order he must recognize and practice his role in aiding these creatures’ fruitfulness.

Our Treatment of the Land

Viewing our role as servants to the creation — rulers and leaders of it but not overlords and destroyers — then it is no wonder that we have many crises upon the land such as megafarms, huge cities and a nearly deserted countryside, machines and agri-chemicals based upon finite petroleum resources, monoculture, millions of



Plowing soils is about the most destructive practice a farmer can exercise in his management systems; it destroys microbial communities and exposes the soil to rain impact.

acres of prime land covered by roads and cities, pesticides and herbicides tainting the food supply, GMOs and hybrids bereft of proper nutrients, tillage, compaction of soils, livestock feedlots, serious erosion problems ... and the list goes on. Are these the practices that complement the principles our Creator set into motion for us to

use as a template for subduing the animals and plants and soils, and exercising dominion over them?

Let’s outline some of our greatest sins in treating our land, for they are many.

1. Tillage of soils, which is like a tornado that disrupts the network of soil organisms and rapidly oxidizes organic matter, reducing soil fertility and enhancing soil compaction, and thus water loss and erosion.

2. Compaction of soils with heavy machinery and the application of herbicides, which hinder microbial building of soil structure and thus soil porosity, further increasing erosion and

speeding organic matter breakdown.

3. Concentration of cattle and other livestock in feedlots and confinement settings, rather than allowing animals to freely graze. Mixed animal-crop farming is discouraged, with valuable manure becoming a waste product in many cases, and depriving most farms of valuable animal fertilizer.

4. Use of pesticides to control insects, fungal diseases, mites, and other pathogens, thus polluting soil surface and ground water and foods.

5. Depopulation of the land and the rise of cities, removing the family from the farm setting that is superior for marital and family strength, children learning responsibility, and many other positive effects.

6. Use of row crops, with soil surfaces kept bare through cultivation or herbicides, thus enhancing erosion.

7. Permanent loss of productive land due to urban sprawl and roads, airports, and factories.

8. Replacement of native species of plants with invasive, less nutritious, and noxious species.

9. Farm debt, caused by the cost-price squeeze of low commodity prices and high input costs (machinery, land, fuel, chemicals, taxes, hired labor, etc.), which forces farmers to make decisions that maximize profit, that oftentimes conflict with a well-ordered soil ecology and the production of toxin-free food.

The list could go on, but suffice it to say that the principles that mankind should use to treat soils, crops, and the plants and animals that are sustained by them can be observed through the creation, as viewed in native, undisturbed forest and prairie environments. As a tender and keeper, a subduer and exerciser of dominion over the plants and animals, mankind is obligated to accentuate these principles, not conflict with them, in his dominion commission before God. While serving as head over the plants and animals, he must be a benevolent leader and servant to

them so they may also achieve their God-given responsibilities as sustainers of mankind's life on earth, providing him the herbs, fruit, meat, clothing, and shelter they are designed for.

Our responsibility in caring for the creation is an awesome one, and we as the elect will find that our calling conflicts with the world's treatment of soils, crops, and the creatures that are sustained by them, just like with most every issue in life. This reality should come as no surprise, as we read in Scripture,

"I have given them Your word; and the world has hated them because they are not of the world, just as I am not of the world" (John 17:14; see also John 8:23 and 15:19).

"And do not be conformed to this world, but be transformed by the renewing of your mind, that you may prove what is that good and acceptable and perfect will of God" (Romans 12:2).



Farm life, especially when practiced organically as this family is doing, forms strong core values for successful living, teaching hard work, service to others, and a love of the creation.

While the full revelation of how we must treat the soils under our feet, and the plants and animals they sustain, will not come until Jesus Christ returns with His saints, we can still con-

form to the principles of His created world in our own farms and gardens. Minimum or zero tillage, organic matter enhancement, cover crops, land use according to capability, maintenance of soil cover, use of natural plant protection agents, maximization of soil life, utilization of open-pollinated crop varieties, and other organic production techniques go a long ways towards conforming to God's laws of land treatment.

Our entire earth will someday become a veritable Garden of Eden, wherein the principles of land care will return to the pure tending and keeping that Adam practiced about 6,000 years ago (Genesis 2:15). We will all then know fully how to care for the precious land resources that feed and clothe us, and give us physical life ... a full knowledge that now escapes us. In the meantime ...

“For I consider that the sufferings of this present time are not worthy to be compared with the glory which shall be revealed in us. For the creation was subjected to futility, not willingly, but because of Him who subjected it in hope; because the creation itself also will be delivered from the bondage of *corruption* [*phthora*, ‘decay, ruin, aging’; from *phtheiro*, ‘to spoil or ruin’] into the glo-

rious liberty of the children of God” (Romans 8:18-21).

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