

## **CONQUER DISEASE -- THROUGH AGRICULTURAL LAW!**

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Many people, looking at the state of agriculture today realize that serious problems beset the industry at almost every turn. The headache of finance looms overall, but it is more a SYMPTOM than a CAUSE in the business of farming!

Man's animals on the other hand, are plagued with internal and external parasites in every country on earth. Many fail to conceive, others abort and lots of them bring forth weak and diseased offspring. Our plants suffer massive annual attacks by fungi, insects and a host of other pests. At the same time our soils have become lamentably deficient in fertility and available nutrients.

The end result of all these problems is that food producers have sought the costly help of those offering substitutes for healthy soil, sound pasture management and good husbandry! Some will take longer than others to finally realize that pharmaceuticals for agriculture, artificial fertilizers, hormones, weedicides, pesticides, fungicides and all the other 'CIDES are nothing more than an expensive delusion!

Both farmers and consumers are together on the wrong road. Ultimately they must both retrace the steps they have mistakenly taken in the name of PROGRESS. Imagine the soul-searching it will take to abandon an industry that presently feeds 70 million tons of chemical fertilizers per year into the soils of U.S.A. -- a globe-encircling industrial colossus that funnels double the American per acre rate of application into European farmland and double that again into the soils of Japan!

It will take some time to wean farmers from their dependence on antibiotics. In Britain for example, (as far back as 1967) they were feeding their animals 168 tons of antibiotics in a single year! (Pharm. Journal, Nov. 29, 1969).

Belfast City veterinarian, Dr. J. F. Gracey declared at the end of 1968 that -- "Northern Ireland had gone antibiotic mad." He said -- "We spend six times as much on drugs as any area of comparable size in the United Kingdom, yet Northern Ireland is losing £15 million a year through animal disease." ("Farmer and Stockbreeder", Nov. 19, 1969. p. 9).

One might also cite the problem of leaf diseases in grain production and reflect on the need for drastic change in man's attitude toward one more of his current difficulties.

According to Dr. W. C. James there is an annual £40 million loss in yield from the British barley crop, due to leaf diseases ("New Scientist", Dec. 11, 1969, p. 551). However men indulge in curious forms of self-deception. The farmer could turn to a system that will eliminate these huge and unnecessary losses. Does he? No, instead he desperately seeks the services of those who gear themselves for a profit-making multi-million pound fungicide and pesticide attack on the problem.

PROGRESS is then measured by deducting the farmer's outlay to the drug industry from the loss said to have been avoided by employing such new-found scientific tools. Thus by subtracting one LOSS, (the cost of fungicides etc.) from that even greater LOSS, (the estimated annual crop damage) -- we come up with a net GAIN!!

Surely it would be more realistic to ADD the cost of the chemical treatments to the total estimated crop damage and show a gross LOSS. After all, neither the initial damage from leaf diseases nor the costly chemical treatments should have been necessary!

This of course is NOT the way man thinks today. Sick soil, plants, animals and people have throughout history been an acceptable economic loss. You may say that mankind continues to wage a herculean struggle in treating the symptoms of these troubles, but the fact that they occur is still shrugged off as inevitable.

### **Good News!**

We however, bring you good news! Agricultural research on the Campuses of Ambassador College has revealed that man's worldwide problems in food production are far from "INEVITABLE"! We also know that they are the direct result of broken laws.

Even after admitting this, most of us still retain a little gnawing doubt as to whether the correct way does really work. What you probably need is some concrete proof -- some solid practical examples of where other people have definitely been rewarded with unquestionable success. The following quotes have been searched out and specially selected with this very purpose in view. They are also chosen because they cover for you most of the major aspects of food production.

Study them and see for yourself something of the rewarding success other people have had as they have harmonized their activities with natural law.

## PLANTS

### *Sugar Beet*

"... first let us see whether we have grounds for believing, or even hoping that manure or compost possesses any curative properties. Let us, for a start, consider that job that Dr. H. C. Young did on sugar beets in Ohio. Dr. Young is no wild-eyed fanatic. He is on the staff of the Ohio Agriculture Experiment Station, and, as reported in "Sugar" for June, 1944, he was called in by the sugar growers to tell them what was the matter with their beet fields. Dr. Young found them so infested with black root disease that yields had dropped from 18 tons per acre to 5, and some of the land was being abandoned as unworkable. What did he do? Did he spray the beets? Did he treat the seed with antiseptics? Did he fumigate the soil? No, he fed the soil organic manures. Did it work? It did. The yield of beets rose from 5 tons per acre to (in some cases) over 20 tons, and Dr. Young reported that THE CONTROL OF BLACK-ROOT DISEASE IS NOW POSSIBLE 'with the use of ample manure or other organic matter to plough under.'" ("Make Friends With Your Land", by L. Wickenden, p. 20).

But as this author said himself, -- one swallow doesn't make a summer so let's pass on to another crop.

### *Sugar Cane*

Now see what the results have been in curing outbreaks of the dreaded Mosaic Virus. This scourge came close to destroying the industry in Louisiana and it has been a plague wherever cane sugar is grown!

"The chief chemist of the South African Sugar Company, Mr. G. C. Dymond, as reported in Sir Albert Howard's "The Soil and Health", began experimenting in 1938 on the use of compost for checking the disease. He planted two plots, side by side: one was treated with compost, the other was not. In each lot virus-infected cane was planted. During the following two years, the cane in the untreated plot showed 100% infection; in the treated plot, 60%. In the third year infection in the treated plot dropped to 25%, and in the fourth year to zero."

This is a most significant result, but what follows is even

more important -- "Cuttings from the cane which had recovered from the disease were planted out in a composted lot and maintained their immunity. A row of 100% infected cane was planted adjacent to this plot but infection did not spread to the healthy cane, proving that it had become immune. Dymond, in reporting these results in 1944, wrote:

"The point to be emphasized ... is not so much that (diseased) cane can stage a comeback ... but that the fundamental principle of soil fertility ... may be applied to any suitable variety of sugar-cane. In this way only can the industry be assured of healthy seed and healthy crops in perpetuity." (ibid. p. 21).

## **SEEDS**

Dr. William Albrecht from Missouri put his finger right on the very centre of the soil fertility problem and its effects when he said: "That we are pushing crops to the fringes of soil fertility for their survival is indicated by the common farmer report when he says, as an example, 'I MUST GET SOME NEW SEED. MY OAT CROP IS RUNNING OUT.' He is merely reporting that the regular use of some of his own grain as seed for the next crop, while depleting the neglected soil fertility, has demonstrated the extinction of that species. It is showing that it can no longer survive in that soil-climate setting. If its own seed will not be its reproduction, shall we not see the advent of a failing physiology because of failing soil fertility, that was formerly protection against diseases and pests under natural survival?" ("Digest No. 3 Natural Food Associates", p. 51).

### *Ryegrass Rejuvenation*

Friend Sykes who before his death was a practical English farmer writes: "A few years ago I was approached by an eminent firm of seedsmen with the following proposition:

'One of the most valuable strains of perennial ryegrass is Aberystwyth S.24. ... seed for it has been grown for many years in the north of Ireland. The growers in that region have applied sulphate of ammonia in such heavy dressings that the seed has altered its character considerably. Whereas they used to harvest half a ton of seed to the acre, with a 97 per cent germination in fourteen days, and would add to this two tons of

hay per acre, now after several years of this forcing treatment, they have reduced the germination to about 55 per cent, and the hay yield has fallen to as low as fifteen hundredweights to the acre. With your organic methods of farming, we are wondering whether it would be possible for you to regenerate this seed, and to grow a large area, so proving the value of your theories.'

"... I agreed to try this experiment and promised to grow a hundred acres of this ryegrass for seed. ... The first year, the crop did not come at all well. We cut and dropped it. The second growth was rather more pleasing, and this was heavily grazed with cattle. Their dung and urine fell on the previously dropped crop and made a sheet of humus-forming material. During the winter, this sheet of humus decomposed, and in the second year we had the most success successful crop of ryegrass that I have ever seen. the acre and two tons of hay. ... the seed ... tested 89 per cent germination in three days, and 98 per cent in fourteen days. This startling change from low-germination seed was achieved within two years, and is unmistakable evidence of the virility which an all-organic soil can produce." ("Food, Famine and the Future", Friend Sykes, pp. 120-124).

## **HORSES**

### *Stamina and Health*

Fairfield Osborne writes that: "A dramatic example of the relationship between land health and animal health is provided by the decline and rebuilding of the fortunes of one of the great thoroughbred racing and breeding stables in America within the last fifteen years. This establishment for decades had been one of the most consistently successful in the history of the American turf.

"... Commencing with the year 1933 the fortunes of the enterprise, as to both racing and breeding results, began to dwindle. Each year fewer and fewer races were won despite training. Further, and even more alarming, breeding results began to decline, fewer mares each season came in foal, and mares began to drop stillborn or deformed colts. So bad did the situation become that during the entire year 1941, with some sixty brood mares to draw from, barely a race was won and breeding results were equally disappointing. The owner was told by various racing experts that it was apparent that the bloodlines of his stallions

and mares had 'run out' and that there was nothing for him to do but dispose of his horses for the best prices he could get and start anew.

"... It was found that the soil had in fact slowly and insidiously lost its natural fertility. ... It was observed that scarcely an earthworm was left on the entire property. A major programme of soil building was then undertaken. Cattle were introduced, manure was widely used, green crops were grown and ploughed under, and even, when the time was right, earthworms were reintroduced. Within two years the results on the track and in the breeding farm took a marked turn for the better. Improvement thereafter was consistent and rapid and by 1946 the stable was the third highest winner of races in the entire country and the breeding results had returned to their earlier excellent standard of mare fertility and sound colts." ("Our Plundered Planet", F. Osborn, p. 80-81).

## **CATTLE**

*Foot and Mouth Disease, etc.*

Sir Albert Howard related his experiences with cattle and their related diseases during his many years of practical experience in India (from 1910 to 1931):

"I was naturally intensely interested in watching the reaction of these well-chosen and well-fed oxen to diseases like rinderpest, septicaemia, and foot-and-mouth disease, which frequently devastated the countryside. None of my animals were segregated; none were inoculated; they frequently came in contact with diseased stock. As my small farm-yard at Pusa was only separated by a low hedge from one of the large cattle-sheds on the Pusa estate, in which outbreaks of foot-and-mouth disease often occurred, I have several times seen my oxen rubbing noses with foot-and-mouth cases. Nothing happened. The healthy well-fed animals reacted to this disease exactly as suitable varieties of crops, when properly grown, did to insect and fungus pests -- no infection took place." ("An Agricultural Testament", Sir Albert Howard, p. 162).

"It was soon discovered in the course of this work that the thing that matters most in crop production is a regular supply of well-made farm-yard manure and that the maintenance of soil fertility is the basis of health." (ibid, p. 165).

## *Mastitis*

Newman Turner -- another practical British farmer, writes in a way that will raise the eyebrows of many readers!

"There was a time when I followed all the correct routines in the anti-germ warfare. My cows, my staff, my milking parlour and milking machine were almost continually submerged in disinfectant! I should have thought it impossible for the most evasive germ to penetrate the armory of my germicidal front. But cows continued to go wrong in the udder with monotonous regularity. I might as well have saved my time. I decided I would save my time and stopped all the complicated procedure of germ warfare, incidentally saving myself a considerable sum of money formerly spent on disinfectants. The germ now had a free hand. My herd was completely defenseless. Maybe the germs took pity on a defenseless enemy, for though I might have expected now to find mastitis rampant in every udder in the herd, the disease went quietly on as before, just as though the disinfectants had never been there at all!

"I concluded that both the experts and I had been chasing an illusion, and I decided to experiment on a different line altogether. After the experimenting with the application of the virulent discharged from an infected quarter to the udder of a healthy cow without result, I changed my attitude to the germs completely." ("Fertility Farming", Newman Turner, p. 218).

## **HUMANS**

### *Health Under War Conditions*

"Dr. Scharff, chief officer of the Singapore Health Department, reported in 1943 that, under his supervision, a group of 500 coolies were given the use of 40 acres of vegetable allotment on which to grow their own vegetables. The preparation of compost was undertaken on a large scale, this compost being the only fertilizer used. He reported 'a surprising improvement in stamina and health' not only among the coolies themselves but among their women and children dependents; also that the health of the group was 'outstandingly better' than, that of other groups similarly placed but not enjoying the benefit of a diet of compost grown food." ("Make Friends With Your Land", L. Wickenden, p. 98).

### *Linkage Between Health and Soil Fertility*

"One authority, chairman of the Department of Soils at the University of Missouri, has reached the conclusion, ... that soil fertility on an individual farm can be so depleted through failure to return manure, crop residues and other enriching elements as to change that farm within a single human generation from a place of good health to one of deficiency diseases for the farm animals and for the families that live upon it. He further observes that the same crops, still growing after decades of farming, may have gone over from protein-producing, mineral-supplying sustenance to vegetation mainly of fuel and markedly lacking in the nutrients that are required to maintain health. The changes may occur without any diminution in the bulk of the crops or, in other words, the tonnage output of the farm." ("Our Plundered Planet", F. Osborn, p. 81-82).

### *Mexico -- A Tragic Example!*

Noted Austrian soil scientist A. France-Harrar writes: "In 1952 Mexico showed more than 40% destroyed land ("man-made desert"). Of this soil only 72% still appears capable of being irrigated and at the same time of being supplied with sufficient organic matter.

"... A general test for the deterioration of soil by loss of humus is the ripening time of maize. At the time of the conquistadors maize ripened everywhere in the country in 3 months. Now it takes 6-7 months. On a completely eroded tableland the small maize grains which thrive there are not ripe in less than 11 months." ("Humus: Bodenleben und Fruchrbarkeit", Bay. Landwirtschaftsverlag, 1957).

## **SOIL FERTILITY**

All of these examples appear to have one thing in common -- success has been achieved through the medium of fertile soil. But what is a fertile soil? Simply stated, it is one that is rich in humus. Then -- what is humus?

Selman A. Waksman, professor of Soil Microbiology, Rutgers University, is probably the world's leading authority on the subject of HUMUS. He states that: "Humus is a product of decomposition of plant and animal residues, through the agency of

micro-organisms. The chemical composition of humus is determined by the nature of the residues from which it is formed, by the conditions of its decomposition, and by the extent to which it is decomposed. Chemically, humus consists of numerous organic complexes, the major group of which consists of lignins and lignin derivatives and of proteins; a minor group contains carbohydrates, fats, organic acids, alcohols, and other carbon compounds." ("Humus", Selman A. Waksman, p. 185).

Waksman clearly and dogmatically states that: "A decrease in the organic matter content of the soil accompanies soil deterioration and is in itself a cause for further deterioration of the soil, whereas an increase of the content of organic matter and nitrogen is a symbol of soil improvement." (ibid., p. 413).

"Such physical characteristics of the soil as its structure, texture, moisture holding capacity, and temperature, are modified by the presence and abundance of humus. As a result of the various ... reactions between humus and the inorganic constituents, the acidity of the soil, its colloidal condition and its base exchange capacity nutrient availability are greatly affected." (ibid. p, 414).

### *Official Blindness!*

These numerous examples may well raise the question -- if the above individuals have an understanding of at least certain aspects of natural law, is there no such knowledge in official circles or records? Yes there is!! And the most generous view is that it lies buried, forgotten or lost in the agricultural archives of recent history!

Professor Barry Commoner, of Washington University, cites the embarrassing official example of the Sanborn Field Trials at the Agricultural Experiment Station in Missouri, U.S.A.: "Here in 1888, the director of the Station, J. W. Sunburn, established a series of long-term experimental plots to study the effect of different agricultural practices on crop yield, and on the nature of the soil. In 1942, the Station published a remarkably revealing account of 50 years of patient study of these plots.

"Proper crop rotation and the use of manure (organic) ... maintained the organic nitrogen content (humus) of the soil.

"In contrast, with no fertilizer added, the organic nitrogen, and with it soil productivity, declined drastically;

"... The Sanborn Field studies also included experiments with chemical fertilizers ... which provided nitrogen in the form

of nitrate ... it failed to maintain the organic nitrogen content of the soil." And over a period of 50 years this soil lost two-thirds of its original soil organic nitrogen.

Professor Commoner continues by saying -- "To quote the 1942 report: 'The organic matter content and the physical condition of the soil on the chemically-treated plots have declined rapidly.'" ("Soil Association Journal", April 1968) .

Haughley is another conveniently ignored experiment. Many so-called knowledgeable people in agriculture would be spared embarrassing questions if it would only lie down and fade away, or die!

Sir Albert Howard was knighted for 'fathering' the modern concepts of organic residues and their fundamental link with the health of the biotic pyramid. But his work now appears to be officially treated with studied indifference and relegated to the dusty shelves of the second-hand book shop!

The work of Sanborn, Haughley, Howard, Turner, Sykes, Wickenden and many others may be buried and pass away, but they have each helped the researches of The Agriculture Department on the Campuses of Ambassador College. We are learning how to re-plan the production of health-giving food in the world tomorrow. And if we can help you to gain further understanding in the right management of your environment, we will be pleased to do so.