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The Modern Approach To Water and Soil Conservation

WORKING WITH NATURE FOR MANKIND
AND THE ENVIRONMENT

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Part 1 Modern Technology

Helping Agriculture and the Ecology

Over 40 years of research and thousands of trials can help agriculture production and the environment at the same time. Three major agricultural products have been designed to specifically maintain and enhance production while lowering input costs and are available in North America as **Nature's Aid Natural Products**.

The first in the series, **Soil-Aid**, is applied directly on the soil by sprayer or irrigation water. This rejuvenates the soil by stimulating the biological activity of the soil thus restoring ecological balance.

When Soil-Aid is used on irrigation land, the product is undoubtedly unique in its ability to improve the soil structure. It loosens compacted, tight soil and allows for better moisture penetration and retention. Water needs are dramatically reduced. This reduction of irrigation translates into huge energy savings, with no loss of production. Generally, there is a considerable increase in crop production and quality.

Soil-Aid improves the uptake of fertilizer by improving the availability of these elements, increases the production of the sulfur-oxidizing bacteria (thiobacilli) and much more. This allows for a reduction in fertilizer inputs. Soil analysis after harvest will show more available nutrient carryover where Soil-Aid was used.

(More information in Part 2)

The second product, **Early Riser**, is an invaluable tool in crop production. When treating your seed with this product it will stimulate quicker germination and emergence. Seeds treated with Early Riser generally have double sprouting and will produce numerous stools. This creates the potential for greatly increased yields. Treated seed has a great resistance to seed-borne diseases, lessening the need for fungicides. Also, seed treated with this full complement of trace minerals, enzymes, and micronutrients creates an environment that stimulates certain micro-organisms called mycorrhizal fungi. This fungi living in association with the plant root system transfers phosphorus and other essential elements necessary for plant growth from the soil to the plant.

Many chemicals used in agriculture today have a detrimental effect on this fungus and other beneficial organisms, so restoration is vitally important. It is easy to understand why this product not only saves money, but will make you money.

(More information in Part 3)

The third product, **Crop Booster**, is a foliar feed or top dressing which is an efficient, effective approach to crop production. Plants drink, they do not eat, and therefore foliar feeding with a modern sprayer or aircraft is a very efficient and economical method of supplying a multitude of readily available micronutrients to the plant via the leaves rather than the root. It is well documented that as little as less than one half part per million of certain elements can make a significant difference in plant growth.

Foliar feeding of crops has been an orthodox, accepted practice to boost crop production since the early 50's. Studies with florescent dyes and radio-active tracers enable researchers to determine within as little as ten minutes after application, plant nutrients have entered the sap stream of the plant. Tank-mixing this product with chemical fertilizer or herbicides will accelerate their activity and up-take by as much as 50 per cent. By using these tools of modern scientific technology, many farmers are saving thousands annually in input costs.

Part 2 Soil-Aid to Restore the Soil

Soil-Aid to Build Humus

Now, when you use Soil-Aid and green manure to restore your soil and build humus you encourage micro flora (microbes, algae, etc.) mites, beetles, spiders, slugs, snails and many other creatures such as tons and tons of earthworms.

(See Part 4 – Farmers Best Helpers)

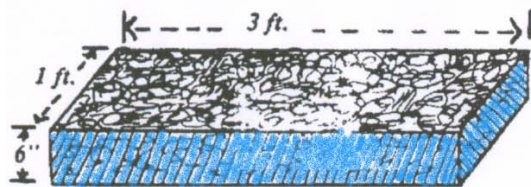


Humus is better than money in the bank

Humus has many functions; it is about 50% air, extremely porous, rich in carbon, nitrogen, oxygen and minerals. Humus is a fertilizer in itself and it improves soil tilth. Without humus, sandy soils would let the rain percolate precious nutrients away. While clay soils without humus, shed rain like cement. Humus is a marvelous sponge as it can hold several times its own weight in water (real drought insurance). Humus helps the soil maintain the correct pH, increases phosphorus availability, protects winter crops, plus a multitude of other benefits.

Unfortunately today's farmer with his quick fix chemicals has just about destroyed all the organic matter and still he attempts to produce crops with as little as 0.5 to 2.0% organic matter. In short when you have bankrupt soil, you have bankrupt farmers.

100 POUNDS OF DRY SOIL



4% to 5% organic matter can hold
165 - 195 pounds of water
equal to a 4" - 6" rain.



1½% to 2% organic matter can hold
only 35 - 45 pounds of water
equal to a ½" - 1½" rain.

Aside from moisture retention, at below 2% levels, erosion and leaching cannot be controlled. There aren't enough existing metallic trace elements to form good enzyme systems in the plant. Now, you can certainly see how important it is to test for organic matter.

"Soil Audits" do not deal in carbon or carbon / nitrogen ratios. Farmers are misled to believe that their nitrogen requirements can be knifed in as a gas or hammered in as some combination of NPK salts. They are presuming this procedure will sidestep the organic matter requirements. Forgotten in this scheme is the requirement of carbon and the carbon / nitrogen ratio. Fertilizer that contains carbon will help, but only the continuous decay of organic-matter can fulfill the plant and atmosphere's needs.

Soil-Aid, “The Rain Maker”

At this time of global warming, when less and less freshwater is available for food production, one would think the most important benefit of using Soil-Aid is the huge reduction of irrigation water and better use of natural rainfall. Numerous field trials using electronic moisture meters and also gypsum blocks have shown water consumption can be reduced 30-50 percent and dry land trials show crop yield improvements of 12-28 percent. This is only part of the big picture. Soil-Aid’s ability to improve soil structure is unbelievable. Following the very first application and each successive application you will note an improvement in the soil structure as it becomes softer, mellow, more permeable, and easier to till (fuel savings). Soil-Aid has a neutralizing effect on the soil pH which releases phosphorus and many trace minerals that were not previously available to the plants. **As proof, a soil analysis** after harvest will show a move in soil pH towards neutral and more NPK and other elements available where Soil-Aid was applied.

(See Part 6 – Soil pH)

Soil-Aid also plays an important role in soil reclamation by aerating and allowing moisture to leach dissolved salts (sodium and magnesium sulfates usually called “alkali”) below the root zone.



**Yes? I’d have to say I’ve noticed yield increases since using Soil-Aid,
Early Riser and Crop Booster**

Soil-Aid and Cover Crops for Nitrogen

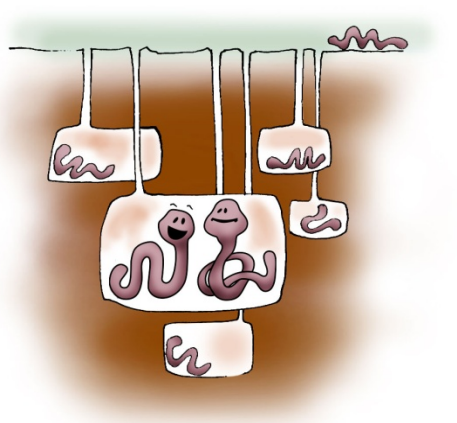
Recent research shows cover crops are capable of providing multiple benefits. These benefits include decreased chemical inputs, decreased soil erosion, increased carbon and humus, increased soil **organic matter** and also the production of up to **150 pounds of nitrogen per acre** for the next crop. To achieve these goals environmentalist encourage farmers to treat seed (such as ryegrass and others) with **Early Riser Seed Treatment**. Treated seed will produce massive root systems that lock in nitrogen. As these huge root systems decay during the next growing season, nitrogen is released slowly to feed the new crop.

This is an environmentally friendly approach to produce higher yields, lowering production costs and reducing toxic chemical residues from polluting our environment and waterways.

Part 3 Early Riser Seed Treatment

The benefits of jumpstarting your crops with Early Riser are enormous. First, it is inexpensive, no special machinery involved, very little time spent, no fuel and treatment may be done long before seeding. Generally, no fungicides are needed when using Early Riser. Quicker germination and emergence reduces wind and water erosion. Legumes treated produce much larger and more numerous nodules which restores more nitrogen to the soil. Seeds X-rayed show two germs and when treated with Early Riser generally have double sprouting and will produce numerous stools which creates the potential for increased crop yield. If you compare plants at maturity, the plants with treated seed have huge root systems which dramatically increase the uptake of nutrients and moisture from the soil. You may wonder why Early Riser can make so much difference. In simple terms, Early Riser cuts through the protective seed-coating allowing penetration of special enzymes, hormones, chelated minerals, amino acids and numerous micro-nutrients that stimulate quicker germination and rapid growth.

Part 4 Earthworms – Farmers Best Helpers



This neighborhood is really growing since they started using Soil-Aid

Rich fertile soil is almost one third organic matter and will house and feed more than $\frac{1}{2}$ a **ton of earthworms per acre**. These worms will move as much as 20 tons of earth a year. I can't imagine how many earthworms it takes to weigh one half ton; I'm sure hundreds of thousands. An earthworm is one long stomach and feeds by tunneling through the earth mouth first. Most of their time is spent in the top 6 inches of soil but they may tunnel down as deep as 6 feet. Now think of the billions of tunnels up and down each year. These tunnels aerate the soil and serve as water reservoirs. Plants send their roots down the tunnels to reach the moisture and minerals that are not available at the surface.

No man made machine can till the soil as the earthworm does and they do it all for free. While gorging their way, earthworms enrich the soil with castings. Countless tests have proven that earthworm castings are several times richer than the original soil from which they were derived (especially nitrogen).

Curiously farmers today are overlooking the fact that many chemicals destroy the creatures which help them the most. Anhydrous ammonia goes into the soil at a pH of about 11.2; this high pH can destroy up to 100% of all living matter in the upper 6 to 12 inches of soil. Earthworms, mites, ants, beetles, spiders and every other living creature including microorganisms and soil structure in general can be destroyed by anhydrous ammonia. Another widely used chemical, ammonium sulfate, is used extensively on golf greens as a worm killer. Many other chemicals cause grave damage to the environment, leaving toxic residues for future generations to deal with. These residues inhibit the natural function of the microorganisms in the soil, which also effects crop production. We must do everything possible to protect and nurture this wonderful creature, the earthworm, for the environment and Soil-Aid will help you.

Part 5 It's the Same Old Story

Unfortunately today's farmers are told by **so-called soil scientists** or **specialists** that the only way to operate is with more and more chemicals, NPK and anhydrous gas. **It is not hard to guess who feathers their nest.**

A case in point, an article in Successful Farming Oct/09; *“It's the Same Old Story; if it's too good to be true, it probably is. The bottom line is to concentrate fertilizer dollars where there is a high probability of return, like N application.”*

Among other points the author brought out of the woodwork was that of University or accredited evaluation.

Well we would like to assure you these products were formulated in close concert with Dr. T.L. Senn, former Head Professor Emeritus, Department of Horticulture; Clemson University, S.C. Dr. Senn has received numerous awards during his over 50 years of research. He has written a book and over 100 publications to his credit. (Compared to the above author's; *How many?*) We operate our own experimental farm to do our own testing before any products go to market.

Furthermore, much effort was put forward to have University or accredited tests conducted and all declined the opportunity including but not limited to the 3 Prairie Province Ag. Stations, U of C, U of A, U of A Ag Center, U of A Extension Agents, U of T and Texas Ag. Department, A.J. Clemmens at U.S. Water Conservation Lab Phoenix and the list goes on. We have given the opportunity to run tests and challenge our claims and discredit them if they are not true. They all declined when they found out where the background research came from.

Now back to the article in Successful Farming, we appreciate the author's concern that the farmer spend his dollar wisely on N but what he did not mention was the damage and destruction that can be caused to the soil. He did not mention that anhydrous gas was used to build air-strips during World War II. Anhydrous was used because it killed all the living matter in the soil including all the micro-organisms and burnt out all the organic matter making the soil like cement; perfect for an airstrip not so good for productive farmland. Now of course a farmer does not use that much at one time but use year after year has the same effect.

Now here are some questions to ask the so called “soil specialists”:

Why year-old stubble fails to decompose?

Why soil is getting harder to till every year and why you have to till more often to get a seed bed?

Why are hardpan, clodding and crusting forming?

Why harmful salts are building up and alkali is appearing where it wasn't before?

Why you are burning so much more fuel than you used too?

Why your fields turn into lakes after a normal rainfall?

Why farmers have to dig more and deeper ditches to drain their fields?

Why they feel qualified to condemn products they know nothing about, products with over 40 years of research and development behind them? These Products that have been used for more than 30 years and have given nothing but positive results.

The Big Questions Are:

Why rivers all over North America are overflowing their banks and flooding thousands of acres of farmland?

Why since 1940 Devils Lake has risen more than 50 feet, flooding hundreds of thousands of acres of fertile farmland? This trend will continue until farmers make changes.

Here are the Facts

Now this may seem like a subtle subversive attempt to undermine the chemical industries. **Not so**, we would just like to point out the dangers and pitfalls of upsetting the delicate balance of nature. Natures Aid Natural Products are in no way intended to entirely replace your fertilizer programs rather, these products are intended to be used as useful tools to restore ecological balance in your soil and increase production.

Natures Aid Natural Products is not intended to supply total nutrient needs but to supply a multitude of elements (micro-nutrients, enzymes, hormones, trace elements, etc.). These elements are not available from any ordinary fertilizer program.

(See Part 2 Soil-Aid)

Part 6 Soil pH – The Importance of pH

A chemical analysis of soil, when, done is infinitely valuable but still does not give anything resembling a complete picture of the soil's worth since chemistry deals primarily with the dead not the living.

Soil pH is very important in as much as few plants survive in soil more acidic than a pH of 4 or more alkaline than a pH of 8. This factor is generally ignored in soil testing. The pH of soil is important in a number of ways. It controls the availability of phosphorus; as soil acidity increases, phosphorus becomes insoluble and unavailable to plants. On the other hand, when soil becomes too alkaline, phosphorus combines with iron and aluminum to form another different but still insoluble compound. Thus, you can spend thousands of dollars on fertilizer compounds and do little for production. Soil pH affects many things including soil texture, creatures, microorganisms and perhaps most important, the quality and quantity of food produced. As previously mentioned in Part 2, Soil-Aid has a neutralizing effect on soil pH.

Part 7 Give Nature a Chance

Undoubtedly, Nature's Aid Natural Products are very unique in value when used as soil and plant food. The formulas and many ingredients are protected by Privacy Laws, but we disclose many of the multitudes of ingredients including: enzymes, hormones, amino acids, chelated trace and essential minerals and many other micro nutrients. Nature's Aid Natural Products are based on over 40 years of research study conducted by T.L. Senn, B.S., M.S., HMS, Ph.D., Clemson University, South Carolina and many years of testing and field trials conducted by R.K. Brace, B.S., Ph.D. at our 500 acre Experimental Farm.

Nature's Aid Natural Products are manufactured by Diamond Fertilizers Inc. and are sold under registered trademarks, any infringement of these trademarks can and will be prosecuted. All products fall within the guidelines of Canadian and US agriculture and EPA rules.

Nature's Aid Natural Products are highly concentrated and application rates of less than 1 liter (32oz.) per acre. This makes them inexpensive to use and apply. All products are available in small or container shipments all over the world.

All dealer or distributor inquiries are welcome.

Part 8 an Overview and Reducing Emissions

Everyone should have a basic understanding of the soil and appreciate the fact the soil is alive. Microorganisms are living creatures, they are fungi and bacteria and like plants, they require oxygen, food and water. We must protect and nourish these organisms because without them there would be no conversion or breakdown of organic matter to build humus. Soil-Aid with its moisture conserving ability stimulates the production of microorganisms and this causes a chain reaction that ends up with healthy soil.



Hmmm...Now that's what I call healthy soil

Reducing Emissions

We must do our part in reducing emissions to stop global warming, starting from a small city lot to a farm with thousands of acres. Just consider this, if city parks, golf courses, ball diamonds and irrigation farmers reduced their water consumption by 50% what a difference this would make. It's not just the saved water but also the energy saved by not pumping all of that water. When chemical inputs are reduced this translates to money in the bank but more important is the saving of energy to manufacture these products. Chemical fertilizers, in particular, are very energy intensive to produce.

When you have soft, mellow soil, rich in humus and earthworms you will use about one third less fuel to till your soil. Less energy, fewer chemicals, and less fuel all mean less CO₂ emissions.

As President of Diamond Fertilizers Inc, I am dedicated to making Nature's Aid Natural Products available to all who wish to use environmentally friendly products. Green House emissions are reduced considerably when one uses the products manufactured by Diamond Fertilizers Inc.

Richard H. Quintin, President and Environmentalist
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