

Before I go into the subject matter I feel that I should give you my practical and theoretical experiences gained to date. My name is Joseph Neubauer I graduated with a MS degree in Agronomy and Plant Cytogenetics from the U of Minnesota. After graduation I worked close to 1+ year as a Research Associate for Dr. Charles Burnham who at that time was known as the world leading corn Cytogenetics. Unfortunately Dr Burnham left this world prematurely.

Originally ARCO planned to purchase a successful plant breeding company. We learned that the offer by the owners of the plant breeding companies was too high in price and ARCO declined the offer.

Based on the above circumstance ARCO merged with a Coop fertilizer manufacturing company located in Ft Madison Iowa. With the merger ARCO adopted 34 fertilizer retail locations that were located in IA, WA, MN, and 1 retail outlets in Indiana. The fertilizer manufacturing facility was equipped with a soil test laboratory which was able to run 4,000 complete soil analyses during the testing season. My job was to train all the retail and their sales managers how to interpret the soil analysis. Their training was based on how to formulate their fertilizer mixtures based on a complete soil analysis. At that time we tested and recommended the use of micronutrients.

ARCO made its one phosphoric acid since they owned a number of rock phosphate mining facilities. After a year or so the rock-phosphate market plunged to a lowest price possible Since ARCO was not willing to absorb these losses and decided as a result ARCO sold their factory facility to a fertilizer CO-OP company in the mid-west. Thereafter ARCO acquired over 70 % ownership (560 miles of the pipeline length) a from Prudhoe Bay The pipeline corridor was 100 ft. x up to 200 ft. in width x 800 miles in length (Prudhoe Bay to Valdez).

ARCO management elected to oversee all the agronomic activities as their Chief Agronomist for the entire pipeline corridor. The management hired also 62 civil engineers whose job was to oversee & make sure that the recommended seeding and fertilizers rates were applied as originally recommended.

A promise was made by the pipeline owners to the federal & state regulatory agencies that all without revegetation or damages on the entire pipeline corridor had to be revegetated. In total we soil tested 900 to 1,000 composite soil samples in order to learn what the arctic soils had to offer. Nine hundred and eighty (980) soil samples were actually collected by utilizing 4 helicopters each carrying 3-4 soil sample collectors. Due to urgency the mission was accomplished within 3-4 weeks. All the soil samples were submitted by R&M Engineering to the University in Lincoln NE. (also known as the Harris Soils Laboratory) that ran a complete soil analysis on each of the soil samples collected.

I formulated 4 to 6 fertilizer formulations so that each contained 13 plant nutrients (primary, secondary and micronutrients) for each mile post. The total expenditure to the oil companies ran nearly 2 million dollars to formulate and apply the seed and fertilizer mixtures as originally recommended.

10 Plant Food Extraction Machines Have Been Built & Are Now Available To Be Ordered.

Based on practical experiences I was instrumental in the recommendations what the growers would be looking for and what extraction (functions) would be beneficial to the farm operator which is also based on the total acreage the farm owner has. The main functions were based on the plant food extraction media which must be fully macerated =(liquefied into micron size media (1 to 38 mills). Presently the plant food extraction machines produce very small grass particles which are mixed with grass liquid media. The grass particles are reportedly 1 to 38 microns in sizes allowing the material to percolate deeper into the topsoil and subsoil from 1 to 38 mills so that the minute small micron size particles cannot be filtered out by the wilted or dead grass vegetation and the usually dense partially dead root system. It was learned that the end product will be mixed into **homogeneous mixture** with pH corrected water which allows one to apply the plant food media very uniformly which allows the media to penetrate into a greater depth of the topsoil and subsoil profiles so that the homogeneously distributed plant food elements are made homogeneously available to a greater volume thus defeating the Law Of Minimum which was not being possible to defeat for 200 + years.

For purpose of extracting all the plant food nutrients from Kentucky Bluegrass are declared as a renewable resource plant for the extraction of all the plant nutrients that were originally absorbed and produced through the photosynthetic

process including the nutrients that were utilized by the plants. Which shows how much the bluegrass process (photosynthesise) and the elements that the plant utilize through their root system absorbs and deposits the nutrients needed into the plants and fruits production of the plant. The extracted plant nutrients are actually organics that will be converted by the soil bacteria and fungi into inorganics chemical that the growing vegetation preferably utilizes. It is a normal belief that the organics are utilized (it is a wrong assumption) that the bacteria and the fungi converted the organic formulation into an inorganic formulation .The organic chemical formulations are converted to an inorganic entity and are not taken up by the bacteria which is a wrong assumption.

Unfortunately it has been reported by the EPA that the municipal landfills are filled in general during the summer up to 20 % of the disposal area with cut lawn grasses. This means that all the grasses if they would extract the plant nutrients millions dollars/state/season on fertilizer costs/year. A rough calculation reveals that there is millions of dollars' worth of plant nutrients discarded/state every year.

We feel that millions of dollars could be saved in each state holding a variety of different plant nutrients if the plant nutrients machines would be utilized and sold at a discount price within each agricultural state and others. Earlier it was calculated that the plant nutrient extracted with the plant nutrient extraction machine could save you 60% to 70% for every dollar you have spent for the synthetic fertilizer purchase.

Due to the extreme high cost of the synthetic plant food nutrients coupled with savings new businesses could emerge by selling the processed organic plant food elements to farmers, greenhouse operators ,homeowners, vegetable garden and any others that are in need of getting more effective & less expensive organic and inorganic plant food fertilizers (bacteria) where the organic elements are converted into inorganic elements that are preferentially utilized by the growing vegetation.

It is known that the lawn owners are taking good care of their lawns by utilizing disease control practices, timely cutting, fertilization, pH correction, through application of lime (calcium) and possible timely disease control such as mildew control etc. which means that such grasses have a better quality. In general the lawn owners are producing a very good looking bluegrass stands.

We know that at the present time most of the cut grasses are either composted or dumped into the municipal landfill. Utilizing such grasses will give you a good start at a significant lower costs than purchasing synthetic fertilizer formulations. Unfortunately the use of secondary, especially the minor elements are not usually available and are also very expensive to purchase.

On the last page the following plants or other materials have been selected to carry specific micro elements as identified The suggested plants nutrients can be extracted with a small plant nutrient extraction machine such as **QM-5**. It is important to determine what plant food elements are in the soil and what plant food elements are still missing to utilize and learn what element have been recommended

The following plant sources (see table below) will identify what type of plant nutrients you will need to supply you with the missing plant food element. It is important to apply a homogeneous mixture(nutrient extraction mediw a plus plenty of water in order to eliminate the function known as the Law of the Minimum. By running a complete soil test we will be able to find the type and possibly the rate needed/acre .The application rate per acre will have to be guessed but with micros a few liters will not be toxic to the plant. Such materials do not contain salts . The following deficiencies can be eliminated if we try to circumvent the law of the minimum (which means that if we work with the soil test results that will easily show the deficiencies and the application rates based on the soils laboratory test results. These can be detected and appropriate plant types applied if we strive to eliminate the law of the minimum. In general there are insufficient plant food elements within the plant root area when the plant stops growing and interferes also with the plant quality production.

This means that we are now entering into the Law of the minimum where growth and quality are technically identified by certain bacteria (12) and over 30+ fungal strains that convert organic plant nutrients into inorganic elements that the growing plant preferably utilize. In other words the plants do not utilize organics.

In general there are at least 17 elements. IT is important to recognize that all elements are important for a healthy plant development. All are essential for the existence and a healthy plant development. Below find the type of plant that carries the missing elements. . The table below shows what type of plants carry the deficient element that should be added into the plant nutrient extraction machine to make up for the deficiency that carries the micronutrient that is reported will be in need.

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In other words please remember the plants do not utilize organics but prefer to utilize the inorganics preferentially.

THE FOLLOWING TABLE SHOWS AN ELEMENTS FOUND IN A CERTAIN PLANT(S) OR MATTER THAT A DEFICIENT ELEMENT HAS BEEN FEPORTED IN AN SOIL TEST:

Carbon Hydrogen Oxygen	All derived from Air and Water.
N	Legumes & Soy Products.
P	Pumpkin, Romaine Cheese, Salmon, Scallops, Brazil Nuts, Pork, Beef Meat, Milk, Yogurt, Tofu, Beans.
K	Avocado, Squash, Sweep Potatoes, Wild Salmon.
S	Fish, Seafood, Eggs, Yogurt, Cheese.
CA	Lime
Cu	Sunflower seeds, Asparagus.
Mg	Spinach, Swiss Chard.
Na	Beets, Spinach, Carrots, Sea Weed.
Zn	Oats, Corn Plants (grain or green), Sweet Corn (grain or green), Sudan Grass, Oats(GREEN).
Ni	Urease nitrogen.
Chloride	Table Salt.
Cobald	Vitamin B12.
Al	Do not use! (we have plenty in the soil)
Silicon	NOT essential
Vanadium	Not Needed
Selenium	Broccoli, Peas.

Professional Regards,

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