



Organic and Nutritionally Balanced Agriculture

Organic - For Land!
Nutrients- For Plant!!



ONBA

(Organic and Nutritionally Balanced Agriculture)



Print



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Humble Submission To The Farmers Brotherhood Community.



The farming knowledge embedded in this small booklet is not something that is culled out from books. This book is a compendium of the self-inflicted losses of nearly 99 out of 100 farmers over the last 30 years due to a lack of comprehensive farming knowledge and encapsulates the practical experiences, and unique research in the farming sector over the previous 20 years.

Several important reasons which are responsible for the pathetic state of our inability to pass on farming activity as an inheritance to the forthcoming generations find a place in this booklet. While developed as well as developing nations are taking giant strides towards revolutionary changes in farming, why are farmers in our country lagging behind in this sphere? What are the minute deficiencies in the agriculture sector taken note of by the developed countries? This booklet is a collection of comprehensive knowledge of farming in one place.

Over the last 5 years, my support staff and I have conducted intense field-level research, collated and coded the results. We successfully enhanced productivity by 25 to 30%, but also achieved top-class quality of produce.

Though I am not a qualified agricultural science student, over the last 25 years I studied in detail about soil, plant, and the farmer. This ONBA farming technique is the result of my practical experiences and the outcome of field-level research studies.

If you consider this knowledge as absolute and essential, please follow it.

Share it among the people... Don't keep it up for yourself.

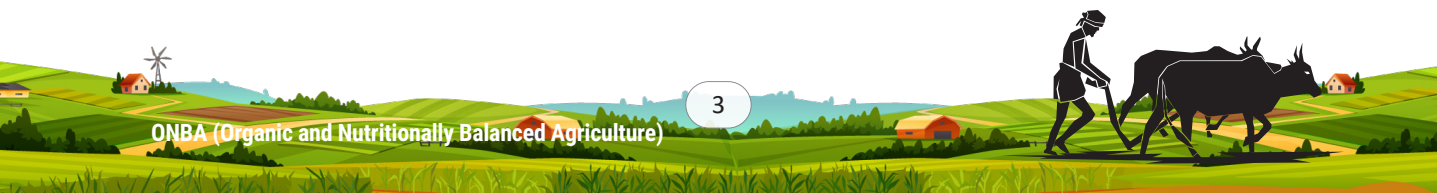
With regards...

Yours

E. Rajasekhar Reddy

Editor - Annapurna Agri Space &
Prathibha Biotech Pvt. Ltd. (M.D)

R.M. Kisan Center Pvt. Ltd. (R&D)(M.D)



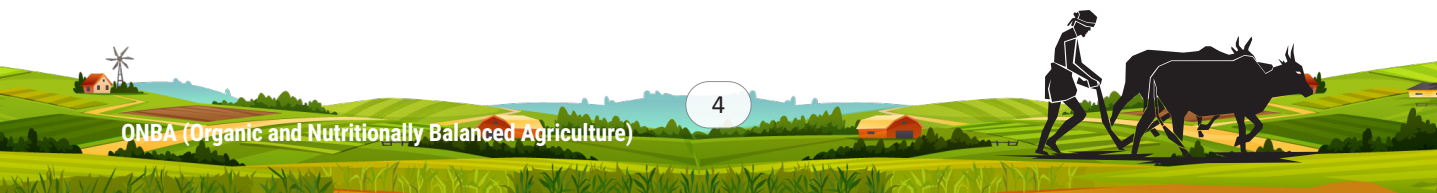
We eulogize mother, mother earth through songs. We compare the crop-yielding soil with gold. We praise land which feeds the diverse forms of life drawing sustenance from it... comparing it with mother. We equate the land with our mother but there is a catch here. Are we taking proper care of such a valuable asset? Is our present system of agriculture a correct one? Does modernization in agriculture just imply new tools, new machinery, new seeds, and high investments? Do they combine to enhance your income? You know they do not! Your expectations are not coming true!

What is the cause of this? Where does the fault lie? When you sit with your co-farmers to discuss the reasons for this, you decide among yourselves that the reasons could either be not using worthy pesticides, pesticides were inefficient, insufficient use of chemical fertilizers, the inefficiency of fertilizer, or the used seeds were inferior. No other issues crop up between you. Whether one agrees or not, this is the factual truth playing out in front of our eyes.

Have you any day thought about the land which offers life sustenance to all of us? No, right? We think of the plants after seeding the land. How much chemical fertilizers to use for the crop to grow fast, how many pesticides to use to arrest the control of weeds which normally grow uninhibitedly, how much quantity to use, and how much more are we using as compared to our neighboring farmers?... Are we not resorting to such farming methodology at present? Why is the yield not fetching a reasonable rate, why is our agricultural produce of nearly Rs. 4000 crore being rejected by the international market? Any answers?

If you want to avoid such eventuality, you must understand ONBA farming methods and follow them.

Spare your valuable one hour to read this booklet... Simultaneously try to understand the truth in this booklet. After reading this decide your course of action.



What is ONBA and what is its necessity?

Due to the advancement in technology and competitive spirit in the world, farmers in the agricultural sector, with a desire to get better yields than their neighbours, have over the last 30 years started using chemical fertilizers, chemical pesticides, and weedicides in excess resulting in water, air and food pollution, which in turn have adversely affected life cycle balance leading to the big question mark on farming and the lives of the farmers. Even in less advanced countries than India, farmers are respected, unlike farmers in India. No farmer in India is inclined to suggest agriculture as an occupation to his own children and consider it a waste of life and an avoidable fate.

The spectre of organic inputs has dawned on the Indian scene at this very juncture. Though the term Organic is in itself not a bad one, I am constrained to refer to it as a spectre since several so-called intellectuals who are ignorant of the very meaning of this term have been delivering repetitive lectures about organic agriculture and organic produce through agriculture forums and other media. Believing their words, many agriculturists have incurred losses and have consequently developed an aversion to organic farming. The market is flooded with organic vegetables, organic fruits and organic grains. The farmers have been taking the end-user on a ride by using the term organic on milk packets and even on clothes. Farming has been divided into two, organic farming and chemical farming, because of such people. But neither of them are appropriate methods of farming because both are incomplete methods of farming.

This is the reason why farmers depending on either of the methods are incurring losses. What is Organic Compound? By using this term (Organic), how are the farmers and end users being deceived? What is an organic compound or organic substance? It is a compound in which other elements bond with carbon and hydrogen elements. The resultant substance is called an organic compound or organic substance. Science categorizes all as organic compounds even if they contain other elements along with Carbon and Hydrogen. Can any scientist or intellectual deny this? Every atom in this world is a chemical product. These products have been divided into two categories-Organic compounds and Inorganic compounds.

The top 4 most toxic or poisonous elements in the world are Organic compounds. They are Sodium Cyanide, Digoxin, Ethyl Glycol, and Strychnine. The reason for naming them organic compounds is just because of the existence of Carbon and Hydrogen in them. The seeds of Pongamia contain a poisonous element called Kerajin, while the seeds of



Custard Apple contain a poisonous element called Annonyn. However, these are organic products. From these we need to understand that organic compounds too contain dangerously toxic elements as also elements which are useful for various life forms. Similarly, inorganic compounds too contain both poisonous as well as non-poisonous elements, which are useful for the life sustenance. Similarly for plants too. One thing we all should note is that every part of a plant is an organic compound because on testing we find that every part contains Carbon and Hydrogen compulsorily. There is no plant without these elements. That being so, how can a plant or its produce be called Organic products! On test it shows that the leaves, branches, roots, flowers, fruits certainly contain Carbon and Hydrogen. It clearly implies that any plant is organic by birth. All we need is leaves, fruits and seeds devoid of poisonous pesticides, weedicides, and residues of harmful medicines. Irrespective of having or not having these elements, plant is an Organic material. No one needs to rename it as organic. But produce obtained through organic farming are being touted as Organic food and those products obtained by using chemicals are being marketed as Inorganic food in the world of money making.

The strange part is... Plant does not absorb the organic elements from the organic fertilizers that we use. It ingresses only the inherently present nutrients in the fertilizer. The plant absorbs 16 types of necessary nutrients in the form of IONS. Out of these, 8 are in the form of positive cation nutrients, and 8 are in the form of negative anion nutrients, which are absorbed by the plant to complete the biochemical activity within itself.

8 Cations ⁺	8 Anions ⁻
Hydrogen : H ⁺	Carbon : Co ²⁻
Potassium : K ⁺	Oxygen : O ₂ ⁻
Calcium : Ca ²⁺	Nitrogen : NO ₃ ⁻
Magnesium : M _g ²⁺	Phosphorus : H ₂ PO ₄ ⁻
Zinc : Zn ²⁺	Sulphur : So ₄ ⁻
Iron : Fe ²⁺	Boron : H ₂ Bo ₃ ⁻
Copper : Cu ²⁺	Molybdenum : HMoO ₄ ²⁻
Manganese : Mn ²⁺	Chloride : Cl ⁻



None of the 16 ionic nutrients shown in the above table is Organic. This implies that Science tells us that the plant has no direct connection with the Organic products that we provide the plant with. The plant absorbs the 16 elements in the form of inorganic elements and completes the biochemical process in itself. Can any scientist deny this? Can he prove it wrong? This implies that the plant does not ingress any organic elements. The plant is by itself a Self Organic Compound. To transform and grow as an organic compound, the plant gains the necessary Carbon from inhaling Carbon Dioxide (CO₂) and Hydrogen through a different process from water. Surely not from the fertilizers we spray on the plants or apply in to the soil . Can any scientist deny this fact? This is a fact of life. It is ridiculous to say that you or I are converting plant produce into organic compounds!

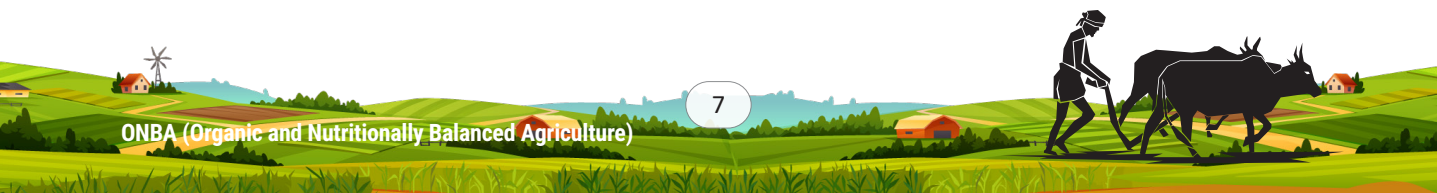
More ridiculous is to call them so! The word Organic has been forcibly injected into peoples' minds with an eye on profits. We need agricultural produce which is devoid of poisonous pesticides, weedicides, and residues of harmful chemical materials. These can be called safety products. As indicated to you in the beginning the first four highly poisonous compounds are organic in nature. Can we disqualify them from the category of organic compounds on the ground that they contain poisonous elements? Science does not categorize products without poisonous elements as Organic and those with poison as Inorganic. Compounds that contain Carbon and Hydrogen are called Organic and those which do not contain Carbon and Hydrogen are called Inorganic.

With the intention of discharging farmer and agriculture from the vicious circle named "Organic", I introduced and am propagating the new and purely nature based **Organic and Nutritionally Balanced Agriculture (ONBA)**. **The word Organic used by me here is not in reference to plant, in fact it is in reference to soil. Nutrients are for the plant.** Only ONBA follows this concept of organic for soil and nutrients for plant. From now on, we refer to all agricultural produce as Safe Products and Unsafe Products. We will sing a farewell tune to the word Organic Products.

Let us start to know about Organic for soil- the first part of ONBA.

What is our guiding factor in cultivation? Have you ever introspected about this anytime!

Till now we are just cultivating following the neighbour or his crop. Have we ever examined the soil that cultivates the crop before starting agriculture?



What is the meaning of soil that yields crops? What is a fertile soil, in the first place?

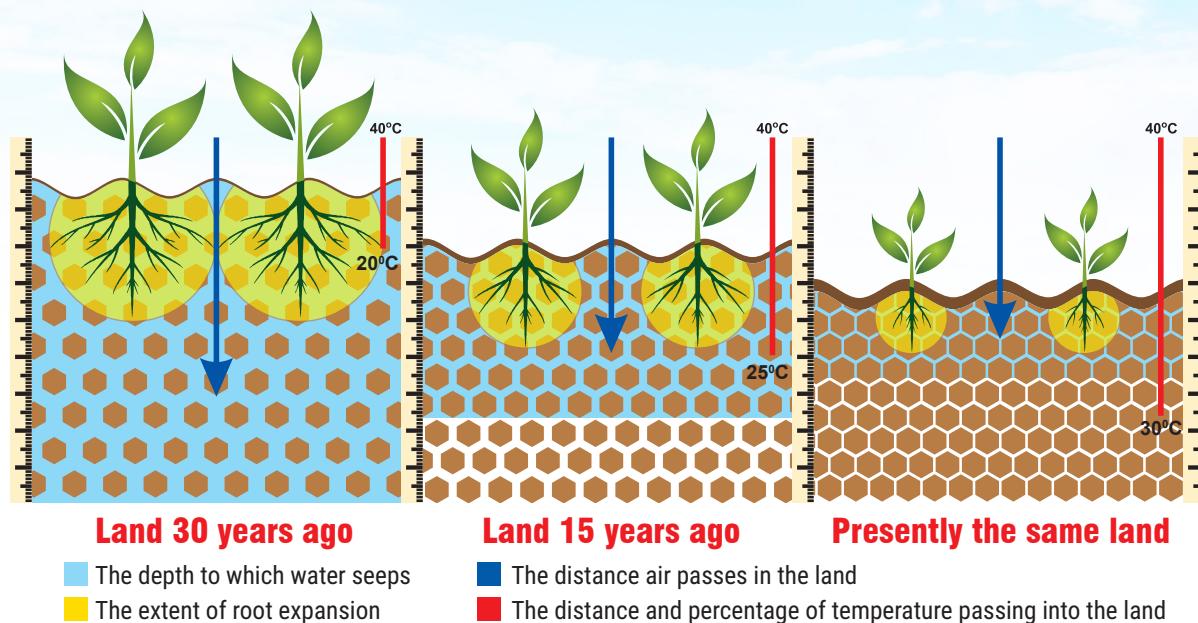
My inference is only that soil which contains highest nutrients is suitable for agriculture. Not only that, a fertile soil is one which contains several good qualities in it. Let us know what these good qualities are!

1. Your soil/land was damp and wholesome about 30 years ago. The same land is now dry and parched.
2. 30 years ago a good rain used to ensure the crop stays fresh and not wither away for 25 to 30 days. Presently the crop withers away in 10 to 15 days, despite good rainfall.
3. It was an effort to uproot a fully grown plant 30 years ago, but now it is so easy to pluck out such plants from the land.
4. 30 years ago crops grew even without so many varieties of pesticides, weedicides which were costly, but in the present situation it is of no use despite using these resources abundantly. Reason for this?.. Is there a deficiency in the quality of pesticides or deficiency in our agricultural methods?
5. 30 years ago people who consumed agricultural produce were hale and healthy. Even the livestock were healthy which consumed such grass. But in the present scenario, the health of humans and livestock who consume the agricultural produce and grass is mediocre, even their energy levels are not up to the mark.

Several changes have crept in during these thirty years which are not discernible to us. All these changes are leading agricultural activity towards doom. Do you know the end result of the agricultural methods being adopted by us? Contaminated food items, contaminated air, polluted water, contaminated livestock feed, ill health, weakness, short span of life, financial losses, suicides... these are what we achieved. What is the reason for this kind of calamity in the present advanced state of the world? How did all the above enumerated changes occur in land? This is what we should get to know.



Please observe the 3 pictures related to land and keenly observe the changes in them.



Note: Our eye cannot discern all the changes taking place in the land. This is the reason the changes have been presented before you in the form of picture.

The important issues that we should keenly observe:

1. Level of land from a distinct state
2. Thickness of layer on land
3. Distance between soil particles
4. Capacity of absorbing water.
5. Method of air passing into land
6. Method of absorbing temperature by land
7. Method of expansion of plant root system

1. **Height of Land:** If we observe, the height of land from a distinct level 30 years ago was higher and has been constantly reducing over the years.
2. **Layer thickness on Land:** The thickness of layer on land has been thin 30 years ago, and is gradually increasing over the period.
3. **Distance between soil particles:** The distance between soil particles 30 years ago was longer and has been on a decline ever since.



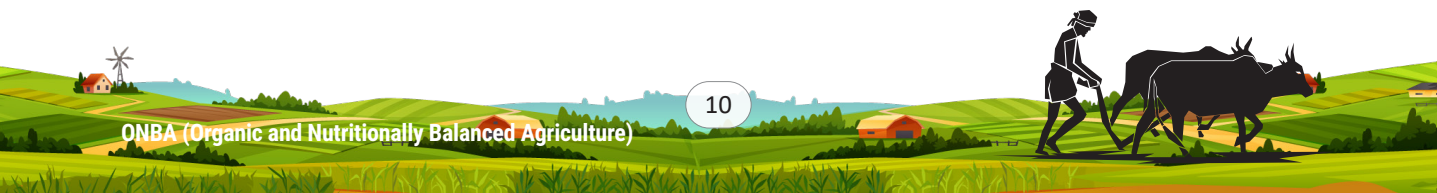
4. On observation, we find that land had higher capacity to absorb water 30 years ago. But it has been on a decline over the last 30 years.
5. 30 years ago, air used to seep deeper and in larger quantities into the land but the same air is penetrating into the land and its quantity has declined remarkably.
6. 30 years ago, the depth of penetration of temperature and its percentage into land was on the lesser side. However, now the depth and percentage figures have increased.
7. 30 years ago, the plant root system was strong and extended over a larger area in the land. But due to the various changes in the land quality the plant root system's strength and extent have depleted.

We never contemplate about these changes nor do we recognize the damage these bring about. If we fail to recognize these lapses and take corrective action, that day will not be far for us to quit agriculture activities.

In early days we had copious livestock reserves. In those days, to enhance fertility of soil we used to exclusively use livestock fertilizers only. Progressively the livestock quantity depleted. The number of farmers using livestock fertilizer has gone down. In the present, nearly 80% farmers have completely ignored using livestock fertilizer for their agricultural activities. Even the remaining 20% are using very little livestock fertilizer, Castor cake, Neem cake. 95% of our farmers are totally ignorant of what a fertile land implies. Most are aware that those lands with higher quantities of nutrients are called fertile lands. But they are ignorant of how these nutrients grow in soil and will be protected.

Every farmer should know that “Agricultural land does not mean just soil, but it is made up of a unique composition of thousands of varieties of bacteria, fungus and viruses.”

We are committing blunders without realizing this. We have totally ignored the necessity of these bacteria and fungus (bio fertilizers, bio control agents). Nearly half of the biochemical activity that occurs during a crop cycle takes place through the root system of the plant. Thousands of varieties of bacteria and fungus are responsible for the various types of bio chemical activity that takes place in the soil. Their role is extremely important in the crop we get, but their content in the present agricultural lands has drastically gone

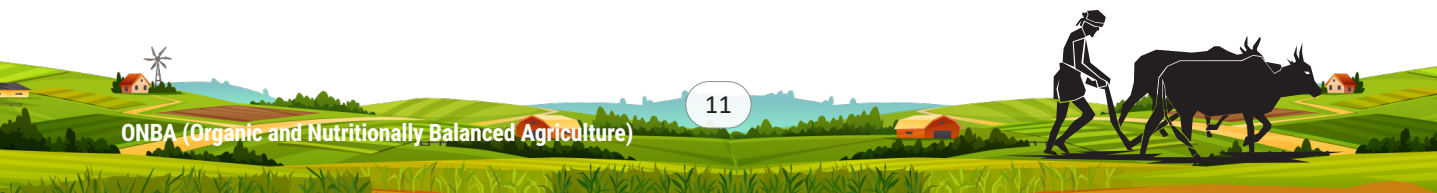


down. They face existential threat. Why did the percentage content of these bacteria and fungus drop down? What is the use of these? Let us get to know about them.

Organic Carbon must be available in sufficient quantity for these bacteria and fungus which help in the life cycle of plants to exist and grow in soil. This is so because it absorbs organic carbon and lets it putrefy. But over the period we have reduced the use of organic fertilizers. Currently we have almost ignored their usage. We have replaced their place with chemical fertilizers and are constantly increasing their quantities too. Consequently, the bacteria and fungus are losing their food particles and we are heading towards their total extinction in 10 years from now. Not only that, the uninhibited usage of chemical fertilizers, pesticides and weedicides is resulting in leaving their residues in the land and making the land poisonous. Finally, the very agricultural activity is becoming a big question mark.

How do the microbial flora (bio fertilizers, organic produce) help the plants?

1. These bio fertilizers and bio control agents soften the soil. Consequently the distance between soil particles increases. This helps the air to penetrate better into the layers of soil. When the land possesses such a quality, the plant root system develops well and the area of absorption of nutrients increases. On the other hand if the land is dry and parched, the root system does not develop well and the area of absorption of nutrients decreases.
2. When the soil is soft, it not only absorbs water in larger quantity but also retains dampness percentage for longer time when it rains or when we flood water to the land. Due to this the plants will be able to withstand longer periods of drought. Presently, the lands have lost the ability to absorb larger quantities of water and are unable to retain dampness for longer periods of time.
3. When the soil becomes soft, air penetrates into the layers of soil easily thereby leading to better supply of oxygen to the plant root system. The bacteria and fungus in the land too get better oxygen supplies.
4. Since the soil is soft and the distance between soil particles is more, the temperature

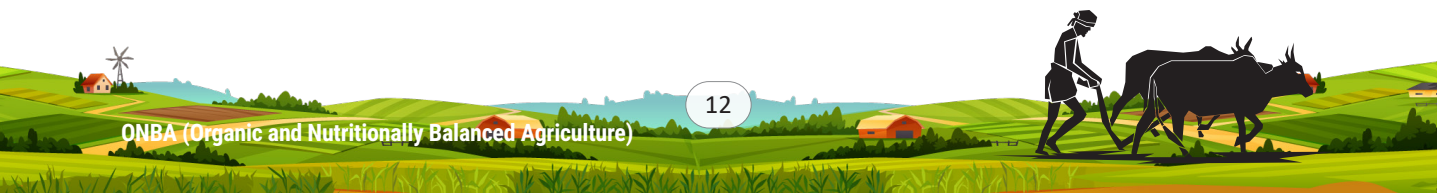


from external environment enters the soil in low quantity and to lesser levels. Due to this very reason, dampness is retained for longer periods. But since the distance between soil particles in present day lands has reduced because the lands have become dry and parched, temperature seeps in more quantity and to more depths into the soil. Due to this, the dampness percentage depletes fast and plants wither soon.

5. These bio fertilizers and bio regulators help in decaying the waste material in the land. Apart from that, they absorb Nitrogen from air and water and deliver it to the plant. They solubilise the waste Sulphur present in the soil and provide it to the plant. Even if we use little amount of chemical fertilizers, they convert them into totally natural form and supply to the plant so that when we use these materials they are fully utilized by us.
6. They form as a protective shield to the plant root system and ensure to prevent the spread of diseases. The plant immunity power gets enhanced due to ingress of hormones secreted by these bio fertilizers and bio control agents.
7. By traveling through various parts of the land on a continuous basis, these bacteria ensure to prevent diseases and strive to protect the balance of nutrients in the soil.
8. They ensure the agricultural produce is of superior quality with high shelf life, thereby reducing losses.

These bio fertilizers and bio control agents must be present in sufficient percentage to ensure the above mentioned bio chemical activities take place perfectly in the soil. If these bacteria and fungus are to thrive in the soil, we must use organic fertilizers in sufficient quantity. At the same time, we should reduce usage of chemical fertilizers or pesticides.

When the power of these bio fertilizers and bio control agents depletes in the soil, then the plants lose immunity, lose the strength to withstand ups and downs of temperature, leading to crop loss. When the percentage of bacteria in soil reduces the land becomes dry and parched and thereby the root system does not grow healthily. In such circumstances,



the plant fails to get enough nutrients during the crop bearing time and consequently the plant faces pressure leading to the shrinkage of leaves and fruits. The name that you have given to this change in plants is virus. Based on these conclusions, usage of various types of costly remedies has only resulted in the failure of preventing it, leading to uprooting the crops. The reason for this is ignorance about the actual cause of shrinkage in the plants.

Hence what we should comprehend is not about the good seeds, good chemical fertilizers, and good pesticides available in the market, but we should ponder about our land in the first place. We should take care.

Let us begin this very day. Let us increase the usage of organic fertilizers, bio fertilisers and bio control agents in our agricultural activity. Let us cut down the usage of chemical fertilizers and chemical pesticides.

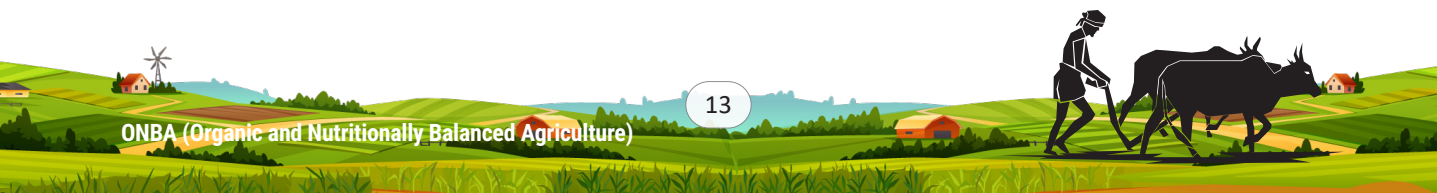
In the concept of organic for land, the most important element is the method of enrich the soil. Let us learn about it now.

Every farmer must enrich the soil before sowing the agriculture land. For this 10 Kg of **Trichoderma Viride (Trichorich)**, 10 Kg of **Psuedomonas Flourescens (Flick)** and mixture of bio fertilizers (2 Bags of **Avani**) must be thoroughly mixed in 500 kg of putrefied animal fertilizer. This compound must be developed over a period of 10 to 15 days and must be applied to the soil when the land is damp. For full details, please follow the 22nd episode of **Annapurna Agri Space** .

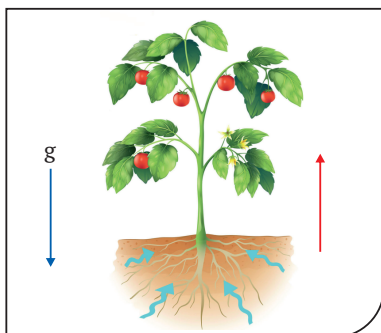
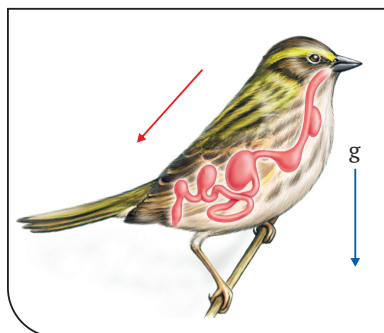
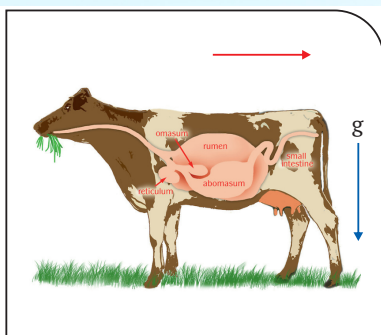
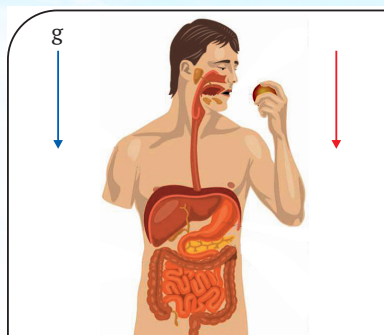
Let us now fill the land which has become dry and parched due to the presence of huge quantity of chemical wastage, and has consequently become unusable for agricultural activity with life.

Now we will learn about the second concept of ONBA - “Nutrients for Plants”.

The life cycle and digestive processes of the human beings, animals, birds and plants living on the land are designed to be under the control of gravity. This is one issue we seldom understand or notice. But we are working against creation.



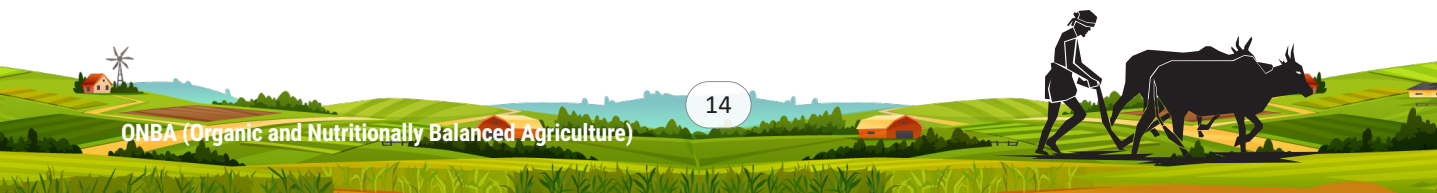
Please see the pictures on this page.



Humans consume from top end and the waste excrete comes from bottom end. The human digestive system and the various stages in digestion are inclined downwards in tune with the gravity(g), excreting the waste particles from below. That is the reason why Doctors advise not to rest immediately after a meal. They advise to sleep at least two or three hours after

consuming food. As against the normal, can we ingest food from below? When we fall sick, we take saline drip through nerves on the side parts of the body and get better, but we cannot forego consuming food with mouth for a long time depending exclusively on saline drip. While we consume food through mouth we chew it well. The chewed food gets mingled with the saliva and passes to the throat area and moves to digestive part and after reacting with digestive juices for two hours, the digested part passes on to the small intestines and after some more digestive process, it then moves on into large intestines to complete the cycle of digestion. Later, the waste material passes out from the lower end of the system. Our body is ingesting various nutrients at different stages of digestion process and our body is getting energized. When it comes to us, we strictly adhere to this. Don't we?

Food consumed by animals enters through mouth and travels to various body organs by traveling at 90 degrees to gravitational force or parallel to the earth and gets digested in various organs of their body before the waste material gets out from the rear end.



Similarly the digestive process of birds is at 45° to 50° to the gravitational force. The digestive process doesn't occur in the opposite way in these three forms of life, isn't it? Except in emergency circumstances when saline is injected through the nerves of side organs of the body!

Coming to plants, the life process occurs completely in the opposite direction to gravitational power(g). The nutrients enter the plant through its root system and spreads to branches and then leaves. This too is a part of creation, isn't it? But are we adopting proper method in this case? Humans and animals chew and swallow their food while birds swallow without chewing. What about plants? They suck through roots and supply to the upper parts. While the capacity of the roots to absorb nutrients is 90%, the combined capacity of other organs of the plant is 10%. This is a fact. Though we recognize the fact, we are failing to implement appropriate method in farming. From the initial stages itself we spray nutrients on the upper parts of the plant. This is the biggest mistake in the farming methodology being adopted by us presently. As far as spraying chemicals, the method of spraying is full of lapses.

We keep regretting that despite progressively increasing the quantity of fertilizers and pesticides that we spray on the crops we are failing to get adequate yields. We take up cudgels with manufacturers or dealers in this regard. Though am not completely ruling out the possibility of inferior quality, the results would be just satisfactory even if the products are used in large quantities. Reason..? Currently, the method of spraying fertilizers and pesticides on crops is with the nozzle of the spray machine right on top of the plant by us or the labour. Because of this method of spraying nearly 50% of fertilizers, pesticides or nutrients are going to waste. That is why we are unable to reap good yields despite farming on a large scale. Let us know the underlying reason for this. The number of holes in the upper surface of the leaves of the plant is only half of those in the lower surface of the leaves. Apart from this, the size of the hole in the lower surface of the leaves is bigger than those in the upper surface of the leaves. Moreover, the holes in the lower surface of the leaves are wide open as compared to the holes in the upper surface of the leaves.

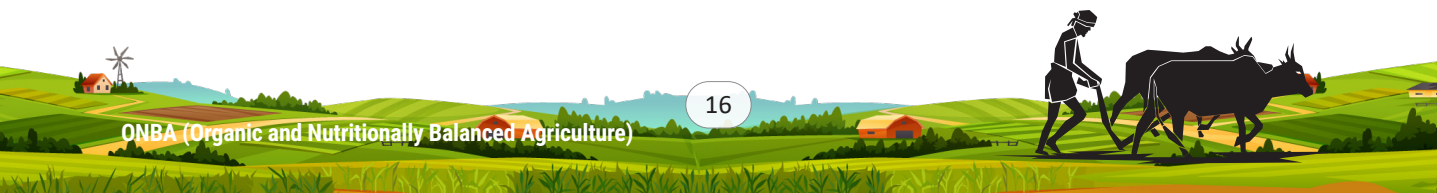


The holes in the lower part of the leaf possess more absorbing power and less excreting power while the upper holes of the leaf have less absorbing power and more excreting power. Without considering these facts we are spraying in an opposing method. The nozzle of the spray must be inclined at least 45 degrees from the ground while spraying. If the crop is too short in length the farmer as to choose scissors spray method which will allow larger quantity of the sprayed substance will reach the lower end of the leaf. This will reduce wastage and yield better results. Not only that, pests that infest crops or the fungus that eat away at the roots of the plant stay in the lower side of the leaf and cause damage to the crop.

The results will be achieved when the spray directly touches them. Any material that we spray in the lower side of the leaf holes will spread to all parts of the plant. The material that enters through the upper side of the leaf holes does not spread to the upper parts of the plant. The protective layer of the upper surface of the leaf does not let it absorb what we sprayed on the plant as well. As such, the farmers must remember these points and spray in such a way that the lower side of the leaf is well sprayed.

Now we will understand about the nutrients necessary for the plant as well as its management procedure.

All vitamins and minerals required for human beings are available in tablet form. Doctors advise us to take these when we are unwell and to recover our health quickly. However, can we live by only depending on them? When it comes to plants, we are only using chemical fertilizers and have indirectly stopped using organic fertilizers. By doing so, how will the bacteria in the soil which aids in the life cycle of the plant exist and grow in the soil? It being the case, how can the plants grow up healthy? According to Vedic Science, all forms of life have similarity in their life cycle. Human beings, animals, birds are not the only form of life. isn't it! If we don't understand their life process and act, the very existence of human life is at stake. That is why if we do not follow proper agricultural procedures, the future is going to be bleak. Your grandfather has damaged agricultural land to some extent. Your father did more damage to it before handing it over to you. Will you further damage it and pass on a yield-less agricultural land to your posterity? Don't do it! It should not happen. Pass on fertile agricultural land to your inheritor. At least now let us



do farming in a proper way and infuse interest in agriculture in the future generations.

Normally farmers have knowledge only of primary nutrients (Nitrogen, Phosphorous, Potassium), little bit about secondary nutrients (Calcium, Magnesium, Sulphur) micro elements (Zinc, Ferrous, Manganese, Copper, Boron, Malibdinam). Many are ignorant that there are three more elements which are more necessary and valuable for farming. Even though they are aware of them, they do not care about them. Let us know get to know what and which we are ignoring and carrying on farming activities. Before that, let us examine a small example.

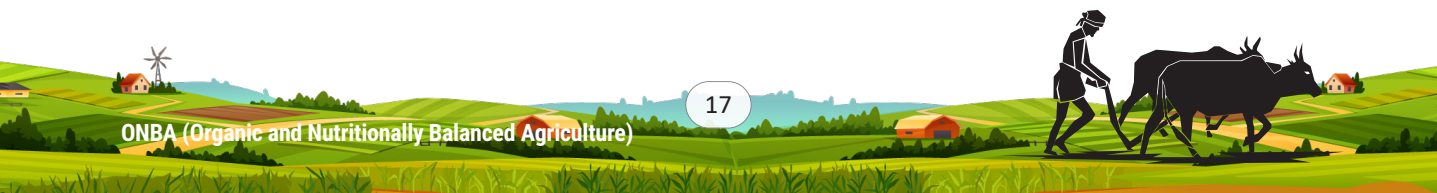
As a rough estimate, it is expected that a human being needs 99.9% of Oxygen (O_2), 0.075% H_2O , and 0.025% of food to exist the percentages are given according to priority and importance to sustain human life.

Human being dies in a few seconds if deprived of Oxygen, in 2 or 3 days if deprived of water and in 50 to 60 days if food is not made available. This implies that Oxygen is most vital for the existence of human being. Next is water and then food... isn't it? Is there any doubt in this fact? Can a human being live without Oxygen even if he gets to eat food and drink water..? No! The plant also has a life! Why did we fail to recognize its priorities? Are we behaving like this out of ignorance..? Or did we fail to recognize it because plants cannot express?

Now let us come to the actual point...

Similar kind of respiration process takes place in human beings, animals and birds. They all inhale Oxygen and exhale Carbon dioxide. But two types of respiration process occur in plants. With reference to this process, a plant can be divided into two parts. The root system under the soil as one part and the trunk, branches and leaves which are above the ground as second part. While the part of the plant which is above the ground inhales Carbon Dioxide and exhales Oxygen, the roots lying underground inhale only Oxygen and exhale Carbon Dioxide. This implies that the root system which is vital for the life cycle of the plant needs Oxygen. Is that happening or not? Why it is not happening? because of the unavailability of sufficient Oxygen in the soil, Let us get to know all these..!

16 elements are necessary for the plant for its healthy life and to give higher yields.

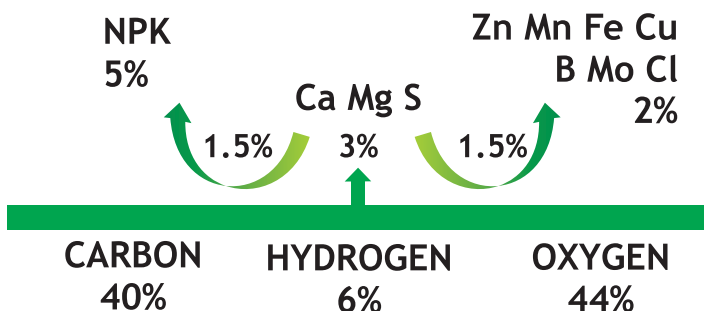


Depending on the role they play in the plant life cycle, these 16 elements have been divided into 4 categories.

They are (1) Life Based Elements (2) Primary Nutrients (3) Secondary Nutrients (4) Micro Nutrients

1. The three elements which play a vital role in the bio life cycle of a plant- Carbon (C:40%), Hydrogen (H:6%) and Oxygen (O_2 :44%) are collectively called vital elements or Life providing elements.
2. Nitrogen (N), Phosphorous (P) and Potassium (K) which play an equal 5% role in the life cycle of a plant are collectively called primary nutrients.
3. Calcium (Ca), Magnesium (Mg), Sulphur (S) which play 3% role in the life cycle of a plant are collectively called secondary nutrients.
4. Zinc (Zn), Manganese (Mn), Ferrous (Fe), Copper (Cu), Boron (B), Malibdinum (Mo) and Chlorine (Cl) are collectively called Micro elements, having a role of 2% in the life cycle of a plant.

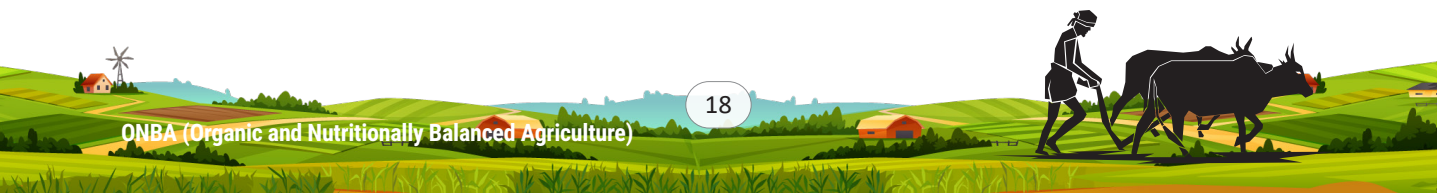
Yield = Quantity+ Quality



To claim that we have achieved a high yield, the crop should possess the following characteristics: 1. High weight 2. Size 3. Shape 4. Color 5. Taste 6. Smell/Aroma 7. Storage capacity (shelf life)

Now we will learn about each of these elements, their role in the bio life cycle of a plant and when and how much they need to be used.

Life Providing Elements: Since the life of a plant depends on the three vital elements, namely, Carbon, Oxygen and Hydrogen, these are called life providing elements. These



three elements must be available in sufficient quantity for the plant to be alive. Their role in the life cycle of a plant is 90%. We are carrying on agricultural activities, ignoring such vital elements.

(1) CARBON (C): We have learn about the organic Carbon in the first part of ONBA. It is necessary for soil and for the bacteria present in the soil which aid the growth and health of plants. But Carbon, the vital life providing element of the second division of ONBA, is for the plant and the vital photosynthesis that takes place in the plant. This Carbon is available to plants in abundance. How it happens is: the plant through respiration process retains Carbon Dioxide (CO_2) and breaks it down to Carbon (C) and exhales Oxygen (O_2). This Carbon plays a vital role in photosynthesis process in the leaves and plays a key role in the formation of greenness in leaves. This is supplied to all parts of the plant and helps in the growth of all parts effectively. That is why all the parts of the plant are full of Carbon. But the plant does not absorb the organic fertilizer that we broadcast in the soil as everyone is opining and imagining, which is a big lie. Plant does not absorb any organic materials from the external world. It absorbs Carbon from air, Hydrogen from water and other elements from soil, and develops Organic materials by itself. Neither the plant, its parts nor its yield ever turn into organic materials. Everyone should note this. Carbon has a role of 40% in the life cycle of a plant. In the absence of CO_2 in environment, plant cannot sustain. Humans and live stock can't live without O_2 . That is the wonder of creation.

Organic Carbon is necessary for the bacteria and fungus to exist and procreate in the soil which help in the life cycle of plant. Organic Carbon is essential for the plant's root system to develop well. Soil should contain at least 2% Organic Carbon for the right amount of yields. But now, its content has slipped down to 0.5 to 0.2%. This indicates how and to what extent we have ignored the well being of soil. The soil will not only absorb more water but also enhance the capacity to retain dampness for a longer period if only it contains sufficient quantity of Organic Carbon. It softens the soil, reduces its density and enables better availability of Oxygen to the soil. This will lead to healthy growth of the root system.



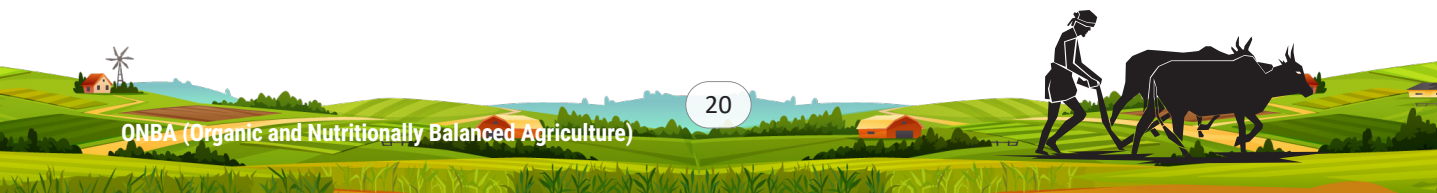
We remain mute spectators even as the percentage of Organic Carbon in our agricultural lands has fallen to such low levels. We are continuing our agriculture activities with scant regard to Organic Carbon- the backbone for crops. Let us at least change now and ensure to introduce Organic Carbon in our agriculture lands and get bountiful yields. Materials to be used to enhance fertility in soil are putrefied animal fertilizer, Vermi compost, Castor cake, and apart from high percentage Organic Carbon materials like Fulvic Acid, Humic Acid, Amino Acid too are available now. The percentage of Carbon in soil will increase even if we use one among these. All these years, we have ignored the importance of Organic Carbon which plays 40% role in the life cycle of a plant and have started using higher quantities of Nitrogen, Phosphorous, and Potassium. But it not only failed to yield better results, it also led to the increase in the density of soil which in turn reduced the availability of Oxygen in the soil, resulting in higher investments in agriculture and consequent lower returns leading to the downfall of agriculture as a whole.

Hence we should at least try now to recognize the importance of Organic Carbon and take steps to increase its presence in our agricultural fields.

2. HYDROGEN (H): We have seen earlier that the percentage importance of Hydrogen in plant's life cycle is 6%. Plant absorbs Hydrogen from the water we supply to the soil and from the air around. It plays a role in the photosynthesis that takes place in leaves and helps in developing several nutrients. Every part of the plant is called Organic because of the unification of Carbon and Hydrogen. From this, everyone should note that a plant is an organic material right from its birth. The products it yields are naturally organic. It is not true, as propagated by few, that the plant turns into an organic material and yield organic produce only on using organic fertilizers.

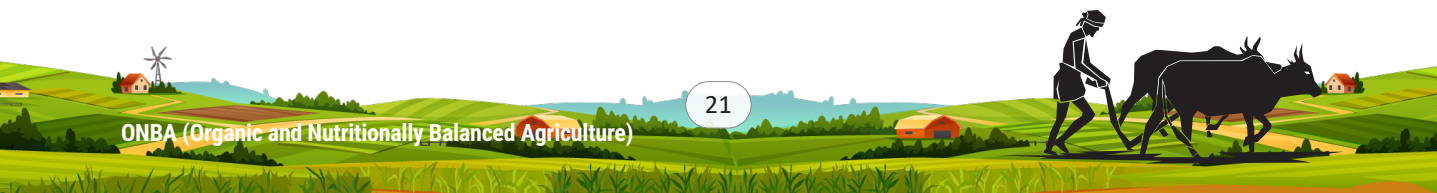
However, there is a most important point to know about Hydrogen. It is the Hydrogen level. It is called pH (Potential of Hydrogen). This pH level plays a key role in every chemical reaction that takes place in every being in the external world. For a comprehensive chemical reaction to be complete, the pH level of the compound must be 7. Normally pH level is measured in the range of 1 to 14.

If the pH level is 7 then it is called Neutral, if it is less than 7 it is Acidic, and called Basic if it is more than 7.



When the level of Hydrogen in soil is between 6.5 and 7.5 then the soil is considered to be ideal for agriculture and higher yields. Soils with less than 6.5 pH are called Acidic soils and those with more than 7.5 pH are called Basic soils. Plants cannot absorb nutrients from the soil if the pH of the soil is less than 6.5 or more than 7.5. Most importantly, the Iron (Ferrous) which is vital for the photosynthetic activity in leaves cannot be used optimally for this purpose. Due to this, the growth of plant will be reduced. Normally the pH of rainwater should be 5.6, but due to environmental pollution it has slid down between 3 and 4. If we observe keenly, the plants in the rain logged area of our fields, turn sooner into light yellow color. The reason for this is the fall in the pH level of soil in that area. Besides, because of more than necessary usage of chemical fertilizers and pesticides, the pH level of soil shoots up beyond 7.5 thereby preventing the plant from absorbing nutrients from soil and consequently yields dwindle in quantity. Moreover, if the pH level of soil is not between 6.5 and 7.5, and the existence of bacteria and fungus -useful for the crop- too becomes difficult. Currently the pH level in our land has reached 8. Excessive usage of chemical fertilizers and pesticides is the reason for this state. If we continue increasing their usage year after year the pH level of soil will exceed 9.5. Then, not even a seed will germinate in our lands. We should wake up before such a situation dawns and reduce the usage of chemical fertilizers. Only PAS (Polymeric Acidic Substances) have the power to equalise the pH level of your land if it is at less than 6.5 level or more than 7.5 level. Research revealed that this PAS is available in abundance in snails. Presently the only fertilizer with PAS is Cocoly, supplied by Prathibha Biotech. As such, it is imperative to ensure that the pH of our land is in between 6.5 and 7.5 level before sowing crops.

3. OXYGEN (O₂): The one and only element that plays a vital role (44%) in the life cycle of a plant is Oxygen (O₂). The root system of the plant which lies underground always inhales Oxygen and exhales Carbon Dioxide. How can the life giving root system sustain if the soil does not contain enough quantity of Oxygen in it? Generally plants used to die due to different types of diseases in the past. We used to use medicines for these diseases to protect the plant from dying. And we were successful too! But now despite several efforts we are unable to prevent the plants from dying. We are unaware



of the reason for this. In several areas, farmers are uprooting the chilli crop after 45 days of sowing on the ground that the crop is infested with virus and they were not successful in arresting the growth of the virus. The factual reason for this is not disease, the unavailability of sufficient quantity of Oxygen to the plant in its growing stage. How many of us have noted this sad phenomenon? How many of us are aware that this sad state of affairs is due to the change in soil conditions, rise in density of soil and fall in availability of Oxygen? Our agriculture is in such a sad state since we have failed to notice this.

Pratibha Biotech is marketing a product named O_2 , to eliminate poisonous gasses and material in soil and thereby increase Oxygen availability.

Density of Soil:

The density of cultivable soil must be 1.1 to 1.6 grams/cm³. The method to find out the density of soil is to check whether the weight of soil is between 1100 grams and 1600 grams when added in a 1000 ml container. It is not advisable if the weight is above 2000 grams. But the density of soil is between 2.5 to 3.5 grams/cm³ since we have been using only chemical fertilizers over the last 25 years. This is causing Oxygen to penetrate the soil since the distance between soil particles has considerably narrowed. Apart from this, the Carbon Dioxide exhaled by the root system is getting trapped in the soil itself. The residues left by bacteria and fungus which cause harm to the plants too are getting stored in the soil. None of these are visible to our naked eyes but cause extensive damage to agriculture activity. Hence rise in soil density is not a good sign.

Hence the farming community must wake up and limit the use of chemical fertilizers to the extent needed and enhance the use of organic fertilizers. We will incur heavy losses if the density of the soil increases which leads to death or stunted growth of plants due to non availability of Oxygen in dense soils.

The farming community must protect their crops by enhancing the Oxygen availability in their farm land by adopting suitable steps.



Primary Nutrients :

Now let us get to know about the primary nutrients of agriculture- Nitrogen, Phosphorous, and Potassium. The astonishing fact is that when the role of Nitrogen, Phosphorous and Potassium is only 5% in the life cycle of a plant, we are attributing 90% importance to them and ruining our agriculture. We are using chemical fertilizers in excess, just to stay ahead of our farming neighbour. When it comes to us, we ensure to take proper steps like to consume balanced diet and in right quantities. But when it comes to crops, we are sidelining the needs of the crop and are using excessive amounts of chemical fertilizers as per our whims. Not only are we wasting financial resources but are also poisoning the soil.

The role of Nitrogen, Phosphorous and Potassium is immense in the life cycle of a plant. However, the results would be excellent only when these are used in right quantities and at right time. Alternatively, if they are used in excess or at inappropriate times, they become poison and leave huge losses to the farmer.

Firstly, let us know the role of primary nutrients in the life cycle of a plant, harm of using them in excess, losses when they are in shortfall.

NITROGEN (N): Nitrogen plays a prominent role in the growth of a plant. It participates in photosynthesis and thereby helps in forming new leaves and branches. Plants will grow too tall if Nitrogen is supplied in excess. Pests infest the leaf if the leaf greenness is over and above the desired levels. Excessive use of Nitrogen disables the plant from its reproduction capacity forcing it to focus only on growth. Most farmers feel elated on seeing this lush growth. Unwanted Growth, increase in number of leaves and their greenness in excess, leads to losses. Hence farmers must be wary of competing in growth of the size of the plants and will do better in competing on higher yields. Plant loses the ability to absorb several elements if Nitrogen is used in excess quantities.

The activity of photosynthesis will slow down and the growth too slows down if Nitrogen is not supplied in sufficient quantity to the crop during growing stage. New leaves turn into light yellow colour. As soon as this is noticed Nitrogen must be supplied in sufficient quantity to the crop. Nitrogen must be applied in larger



quantities during the growing stage of the crop and in lesser quantity during the flowering and fruiting stage.

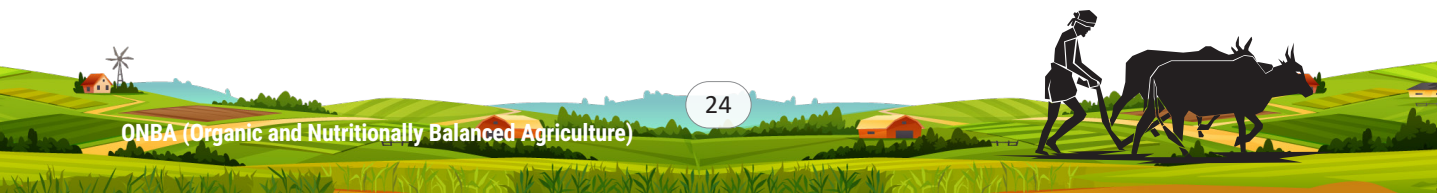
We can make Nitrogen biologically available to the plants. Along with the organic fertilizers that we use, we can also use Nitrogen producing bio fertilizers like Rhizobium, Azotobacter, Acetobacter, Nitrogomonos by mixing them in soil which restrain Nitrogen in the air and supply it to the plant. However, bio fertilizers are useful and exist only as long as the environment is suitable. Their usage in the hot weather of India is subject to limitations. When the temperatures are high, these bio fertilizers get decayed. Hence there is a pressing need for farmers to mix these bio fertilizers in organic fertilizers and ingest in soil every year.

PHOSPHOROUS (P): Phosphorous is essential for the growth of plant's root system, for budding, for the bud to flower, and for retaining a strong bonding between the flower and branch. Apart from this, plant gains the power of transferring its self made food to other parts of the plant from Phosphorous.

This makes it clear for us that Phosphorous is needed more during flowering stage than in the growing stage. Being ignorant of this fact, people are dumping D.A.P in the crop pits. But, DAP turns into salty substance within 15 days of it being applied to soil. After 15 days, it is no longer available in the form of D.A.P but is available as a salt to the plant. Without knowing this, over the past 30 years we have been dumping D.A.P in the soil which transformed into salt and has been enhancing the poisonous nature in soil. We should desist from dumping D.A.P in the land pit or emptying out bags of it in soil. Phosphorous must be used in bigger quantities during budding stage and in lesser quantities during growing and fruiting stage.

Root system stops developing and flowering withers away excessively when Phosphorous is in short supply to the crop. Leaves turn to ochre colour and their ends curl up when plants lack Phosphorous content in them.

The Phosphorous, which is lying crystallized as salt in the soil, can be solubilized and brought to use in an biological method. To achieve this, every year we should mix PSB (Phosphorous Solubilizing Bacteria) in farm yard manure and ingest in the soil.



POTASSIUM (K): Potassium has a key role in supplying water and carbohydrates to all parts of the plant. Potassium helps in supplying food material to the root system from the upper parts of the plant. Potassium is intensely helpful in flowers to turn into buds, buds to fruits as well as enhancing the size and weight of fruit to maximum level. By this, we can infer that while Potassium is needed for the plant at every stage, it must be used more during fruit stage and in lesser quantity during growth and flowering stages.

When the plant is deficient of Potassium, the flower does not effectively grow into fruit stage, as also the fruit does not grow to its full size and weight.

When Potassium is deficient in plant, light yellow dots appear on leaves, and progressively leaves turn into yellow colour. The ends of the leaves appear burnt.

The Potassium which is lying as waste in the soil can be solubilized and brought to use in an biological method. To achieve this, we should mix KMB (Potassium Mobilising Bacteria) in farm yard manure and ingest in the soil.

It may be noted that the calendar for using these primary nutrients at various stages of crop in the last pages.

SECONDARY NUTRIENTS:

Now let us know the method of using and the importance of secondary nutrients- Calcium (Ca), Magnesium (Mg) Sulphur (S).

These secondary nutrients play a primary role in protecting the soft nature of soil. Apart from this, by using these secondary nutrients, they act as interlocutors between primary nutrients Nitrogen, Phosphorous, Potassium and Micro elements such as Zinc, Manganese, Ferrous, Copper, Boron, Molybdenum, and help the plants utilize them to the full.

We must use secondary nutrients to the tune of half the quantity of primary nutrients (NPK). The role of these secondary elements in the complete life cycle of a plant is 3%. Now let us learn about the role of secondary nutrients in plant.



CALCIUM (Ca): Calcium plays a vital role in formation of leafage, side young shoots, healthy growth of branches, formation of new roots, flower turning to bud, in maximizing the size and weight of fruit, in the building of cell walls in the leaf green. Calcium plays a prominent role in ensuring the supply of Carbohydrates to all parts of the plant. It helps in formation of skin layer on raw fruit and tender fruit, and helps in enhancing its storage life. When present in soil in sufficient quantities, Calcium keeps up the gravitation power between soil particles and prevents land erosion. Calcium plays a key role in enhancing the immunity levels in plants.

If plants are deficient in Calcium, tender fruits drop off and the size and weight of fruits get reduced. Calcium deficiency in plants leads to tender leaves crumbling while wheat colour spots appear sporadically on fruits. These spots progress into bigger spots and the fruit putrefies. Flowers wither away in large numbers and fail to grow into small tender fruits. Plant loses its reproductive power.

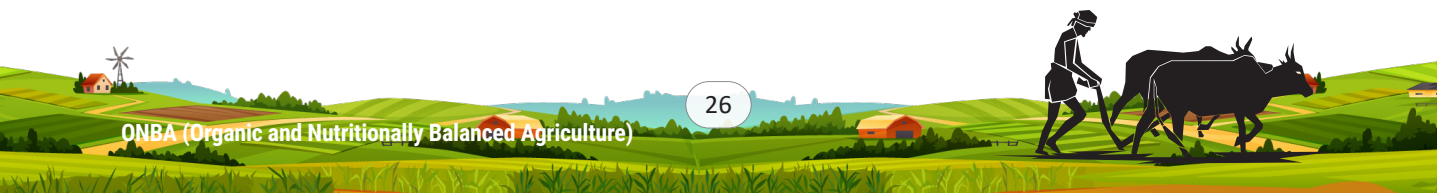
Just as Potassium, Calcium too plays a vital role during the fruitingstage of the plant. Calcium must be supplied in good quantity during fruiting and less during flowering stage of the plant.

MAGNESIUM (Mg): Magnesium is part of leaf's greenness. It helps greatly in transporting carbohydrates. It acts a catalyst to the plant in utilizing the Nitrogen it receives.

Magnesium aids in the plant absorbing the solar power from Sun and in speeding up the photosynthesis activity and greening of the leaves. It encourages the enzymes that participate in the respiration process of plant. It helps in transporting Phosphorous to all parts of the plant. Through this, we can infer that Magnesium plays a prominent part in several of the chemical functions taking place in the plant.

Magnesium must be used in more quantity during crop growth stage and less during flowering stage. Magnesium deficiency in plants leads to decolouring of dark green colour leaves into light yellow colour. The stalks however remain in green colour. The middle rib of stalks turn yellow.

SULPHUR (S): Sulphur aids in the development of proteins in plants. It helps



fibre roots as well as female flowers to grow in large numbers. It participates in photosynthesis. It helps the plant in absorbing Nitrogen. Sulphur has a major role in the formation of protein, vitamins and amino acids in plant. By its presence in plants, Sulphur enhances the immunity of the plant in countering disease. It creates a strong bonding between bud and branch. Sulphur must be supplied to the crop in lesser quantities during flowering stage and in greater quantities during fruit stage.

The upper tender leaves turn to light green in colour while the ripe leaves turn to yellow in colour when there is Sulphur deficiency in the plant.

Refer to the crop calendar for the details of at what crop stage these secondary nutrients- Calcium, Magnesium, Sulphur- to be used.

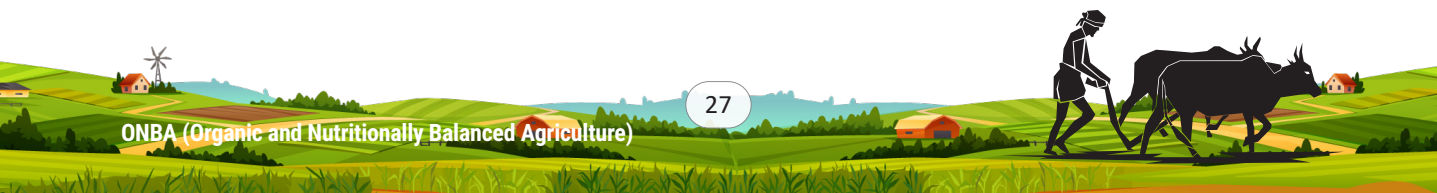
TRACE ELEMENTS (Micronutrients):

Finally, let us get to know about micro nutrients, their usage and utility. Their role in the plant life cycle is about 2%.

At present, 7 elements have been recognized which play prominent part in the life cycle of a plant. They are: Zinc (Zn), Maganese (Mn), Copper (Cu), Ferrous (Fe), Boron (B), Molybdenum (Mo) and Chlorine (Cl). The mixture of these Micro Nutrients must be used in the proportion of 10% to Secondary Nutrients (CMS). We get good results by using these Micro nutrients in relation to their deficiency in the soil. Every micro nutrient has a prominent role to play in the life of a plant. Hence, the farmer community must use these micro nutrients mixture in soil as follows: 10 kg in crops with duration of 90-120 days, 15-20 kg in crops with duration of 150-180 days. If micro nutrients deficiency persists even after mixing in the soil, they can be overcome by spraying micro elements.

Let us get to know the utility of each Micro Nutrient.

ZINC (Zn): Zinc is very important in the life cycle of a plant. Fibrous root develops well because of it. It prevents the flower and small raw fruits from falling down. It helps in good growth of newly formed flowers. It aids in production of enzymes in plant. It controls the Plant Growth Regulator - Indol Acetic Acid. The utility of Zinc is high for crops like Grapes, Neem, Pomegranate, Apple, Beans, Tomato, Onion and Rice.



When plants lack sufficient quantity of Zinc, small leaves drop off, ends of the leaves turn into light green colour due to lack of leaf greenness and wheat colour spots appear on the older leaves.

FERROUS (Fe): Ferrous aids as a facilitator in the formation of greenness in leaves as part of the photosynthesis process in plants. It helps in the supply of Oxygen in the plant. Ferrous helps in production of Sugar and the release of energy from Carbohydrates. Crop withers if the quantity of Ferrous is excess. The leaves of plant will turn into light yellow colour if the plant is deficient in ferrous content. Quality lacks in fruits.

COPPER (Cu): Copper helps in the formation of a strong bond between flower and branch as well as in flower turning to fruit stage. Because of the presence of Copper in soil, the percentage of shoots is better as it is in itself a destroyer of Fungus. It helps fruits achieve good colour. It prods the growth of Vitamin A in plants. It turns poisonous if its content exceeds in the plant. Rust like spots appear in between leaves if Copper is in insufficient quantity in plant. The end part of the leaf too looks burnt out.

MANGANESE (Mn): Manganese plays a prominent part in stirring up the enzymes in plant. As a result it helps in the growth the plant. It helps in the usage of Ferrous. We get good results by using a mixture of Zinc, Iron, Manganese. The middle part of the stalk of leaves fade into yellow color and progressively change to wheat colour before withering away if the plant has low level of Manganese content in it.

MOLYBDENUM (Mo): Plants absorb Nitrogen in the form of Nitrate. Only Molybdenum converts them into Nitrites (Amino Acids). Plants must contain Molybdenum if the Nitrogen that we use on plants is to be fully utilized by the plant. It converts Phosphorous too into natural form and aids the plants in its usage. It collaborates with Boron and Potassium to convert acid to Carbohydrates in unripe fruits and makes them tastier. We can use 50 to 100 grams of Molybdenum per acre to get best results. Growth in plants stunts and saplings wither away if the plants lack in Molybdenum.

BORON (B): Boron helps in preventing the breakage in fruits. It helps in reducing the brittleness in leaves and makes them soft. It plays a prominent role in equally distributing the carbohydrates produced in the leaf to all parts of the plant.



It aids in converting carbohydrates into acids in the raw fruits. Boron helps in establishing a strong bond between bud and branch.

Leaves turn brittle if plants lack Boron. Tender leaves shrink. Cracks appear in raw and ripe fruits.

CHLORINE (Cl): Chlorine helps plants in photosynthesis. Most importantly, it helps in absorbing and exhaling Carbon Dioxide and Oxygen. There is no need to supply Chlorine specially to crops. It is naturally available in water and soil.

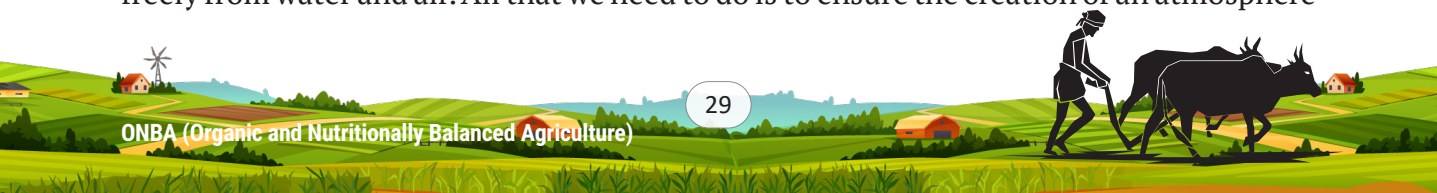
Please refer the calendar in the last page to know the details of Chlorine use for crops.

The farming community may take a special note of the fact that the above mentioned 16 elements are vital, but good results will come only when they are used in right dosage and at right time. Bad outcomes might befall you if you disregard the dosage and time specifications for their usage.

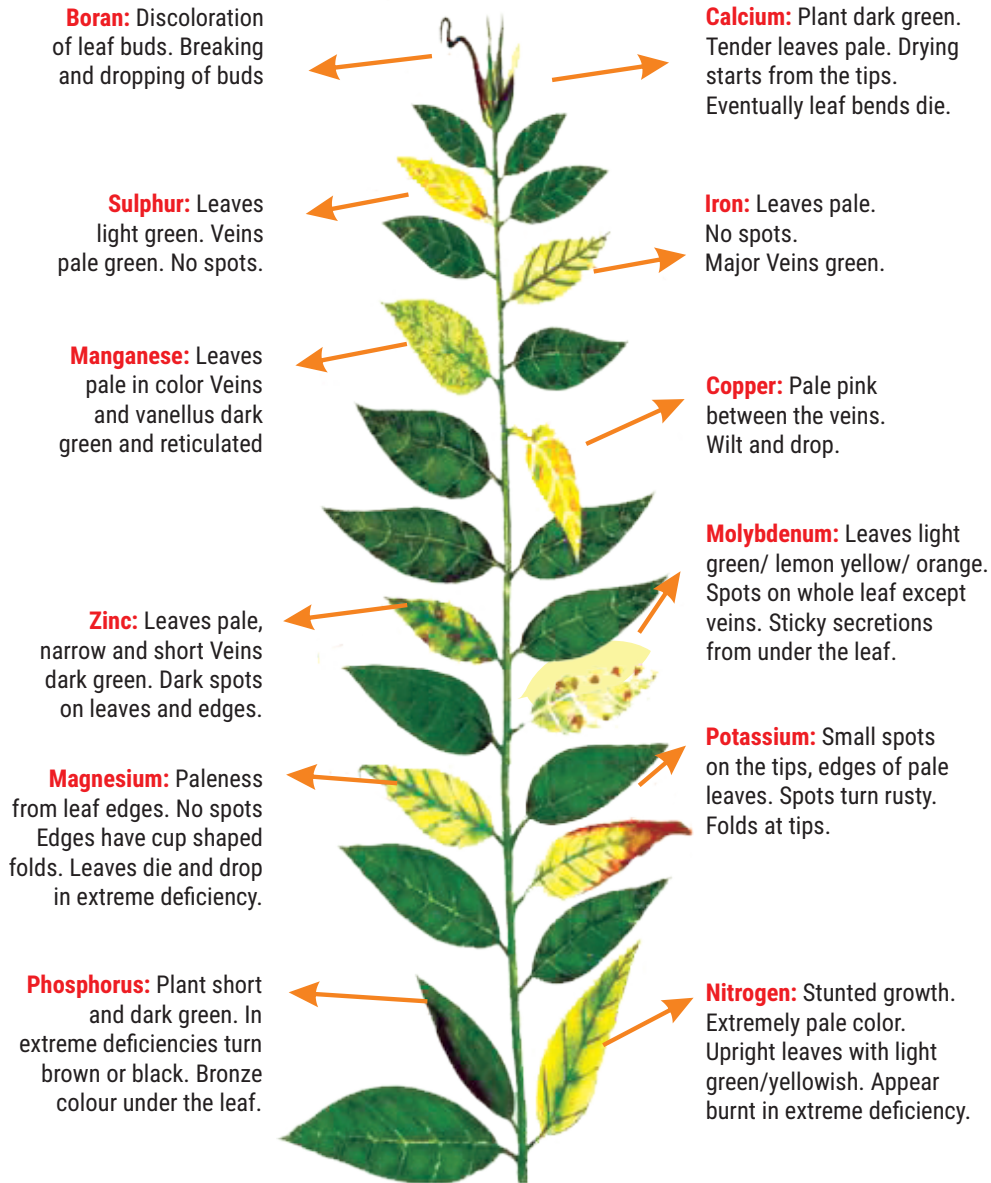
So far the farming community has been responsible for ignoring key elements such as Carbon (C), Hydrogen (H) and Oxygen(O_2) and using Primary Nutrients such as Nitrogen(N), Phosphorous(P) and Potassium (K) in excess of need, hence destroying the fertility of our own lands thereby causing loss to our own crops and losing financially. Additionally, we have not been using the Secondary Nutrients of Calcium (Ca), Magnesium (Mg) and Sulphur(S) as well as Micro nutrients like Zinc (Zn), Manganese(Mn), Copper (Cu), Ferrous (Fe), Molybdenum (Mo), Boron (B), and Chlorine (Cl) in appropriate dosage. However, if we use these nutrients in right dosage and at right time apart from applying organic fertilizers once a year, the fertility of the land will get enhanced which in turn leads to enhanced immunity for soil which helps in growing any crop on this land and obtaining healthy and abundant yields.

Hence, by cleansing up the land which is home for 90% of pests and diseases, no financial or crop loss will result and yields will improve. In the recent past, scientists have recognized certain elements like Nickel, Chromium and Silicone under the category of essential elements. These can be used judiciously in consultation with technical persons and earn good profits. Let us know in what stages of crop and in which crops these elements must be used.

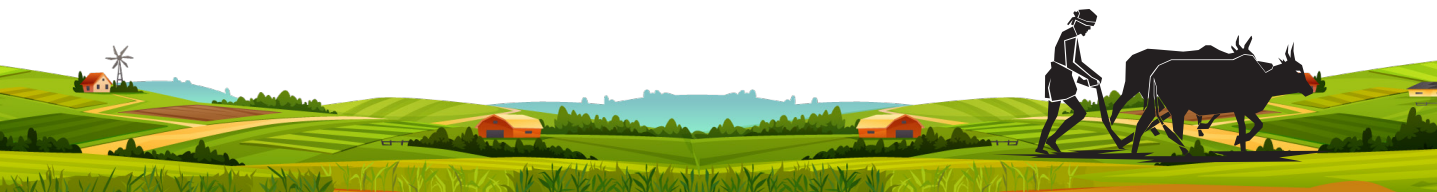
The three life giving elements of Oxygen (O_2), Carbon (C) and Hydrogen (H) are available freely from water and air. All that we need to do is to ensure the creation of an atmosphere



Deficiency Chart of Micro Nutrients



The colour represented are indicative.
They may vary from plant to plant



and land for the plant to easily absorb these elements.

Before appropriately using the primary nutrients- Nitrogen (N), Phosphorous (P), Potassium (K)- secondary nutrients- Calcium (Ca), Magnesium (Mg), and Sulphur (S) along with micro elements of Zinc (Zn), Ferrous (Fe), Copper (Cu), Manganese (Mn), Boron (B) and Molybdenum (Mo) we should divide field into four different stages of farming.

Each field has three stages. They are

(1) Growth Stage: The time period between sapling of seeds and blooming of bud is termed as Growth Stage.

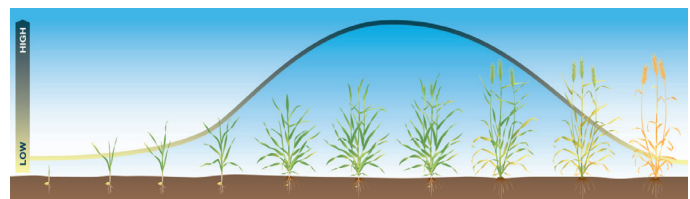
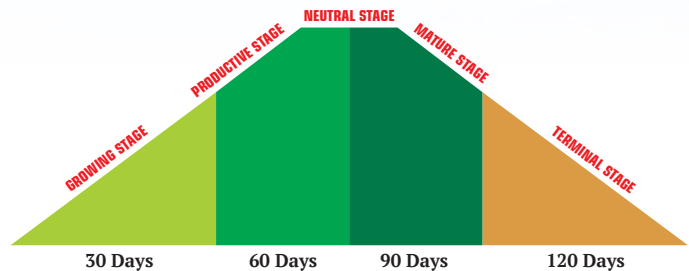
(2) Flowering Stage: The time period between the bud blossoming into flower and change to small unripe fruit is called Flowering Stage.

3) Fruiting Stage: The time period between the formation of small unripe fruit to fruit is called Fruiting Stage.

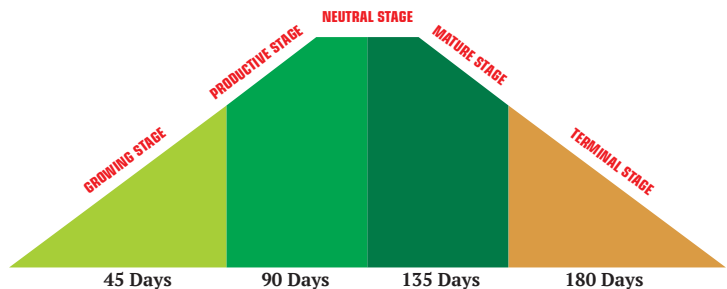
Agriculture is the game that is played out with these 3 numbers of field stages and the 16 nutrients. Whoever plays this 3+16 game successfully they are the ones who get higher yields and sail in the path of profits.

To play this game (Agriculture) the ground (agricultural land) must be prepared correctly. Just as no player can play well on an ill prepared ground, so also when the agricultural field is not proper the player (Farmer) cannot get high yield despite spending heavily on agriculture.

Graph of field between 90-120 days



Graph of field between 150-180 days



That is the reason why the farmer should begin agricultural activities only after examining the land. The agricultural land must be subject to examination at least once in 3 years. Please ensure to get the soil tested for primary, secondary nutrients along with the percentage of Carbon and its pH level when you give the soil for testing in a laboratory.

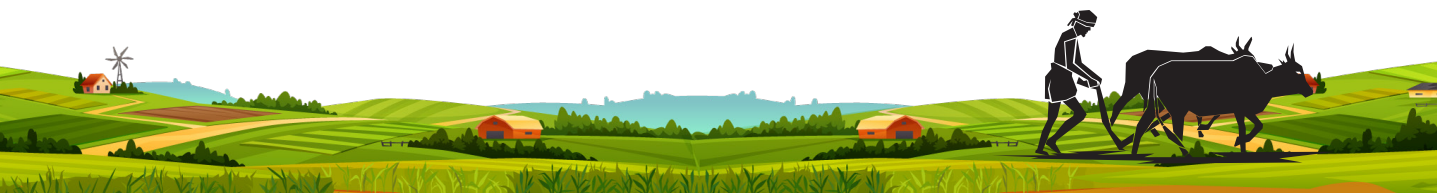
To achieve the objective of “Organic for Land” (the first part of ONBA), we should grow green manure between every crop for 40 to 50 days. Also, bio fertilizers (Rhizobium, Azotobacter, PSP, KMB) as also bio control agents (Tricoderma viridi, Pseudomonas fluorescens, Bacillus subtilis) must be mixed in putrefied farm yard manure and broadcast in the soil when it is damp before starting cultivation.

Every farmer following ONBA must ensure to perform this act before cultivation. Then only you will get satisfactory yields/results through ONBA even if you use kilos of chemical fertilizers.

Let us get to know a small mathematical trick. **Stages of Crop: Growth Stage (1), Flowering Stage (2), Fruiting Stage (3). Primary Nutrients:** Nitrogen(1), Phosphorous (2), Potassium (3) If we number them like this, we will learn through this puzzle, at which stage which component has to be used more and at which stage which component has to be use less.

Stage of Crop:	1	2	3
Primary Nutrients	1 +2+3	1+ 2 +3	1+2+ 3

In the above table, the numbers denoting primary nutrients have been written in bold, indicating that the fertilizer allotted to the crop stage to be used in larger quantity and the rest two elements in lesser quantity. Now let us know in calendar form as to how much of chemical fertilizer, organic fertilizer, bio fertilizer and Cocoly (the product that stabilizes pH level in soil and water) is to be used under ONBA method.



IMPORTANT NOTICE TO FARMERS: If any farmer is unable to use chemical fertilizers in kilograms as per crop stage, at least he must form an understanding as to at what respective stages of crops, fertilizers have to be used in large quantity, and medium and low quantities. Relevant information is inserted in below-mentioned table. At least with whatever understanding he possesses - If chemical fertilizers are used as per crop stage to the extent of need only which will result in cutting down investment in turn protecting the land health, more quality yield can be achieved.

Crop Stage	Primary Nutrients			Secondary Nutrients			Micro Nutrients					
	Nitrogen	Phosphorus	Potash	Magnesium	Sulphur	Calcium	Zinc	Manganese	Ferrous	Copper	Boron	Molybdenum
Growth stage	High	Medium	Medium	High	Low	Low	High	High	High	-	-	Low
Flowering stage	Medium	ఎక్కువ	Low	Low	High	-	Low	Low	Low	High	High	Low
Fruiting stage	Low	Low	High	-	-	High	-	-	-	Low	High	Low

Now let us know how we have to use these 16 very important elements mixing them with Pratibha Biotech high quality products using ONBA method. These should be used for **Maize, Pulses, Castor Oil Seeds, Groundnut and Cotton, and Rice** of 90-120 days in 1 acre land.

Method of using fertilizers in the soil: During crop period, in an interval of 15 to 20 days 3 times fertilizers have to be used.

First stage 1st dose: 15 days after Germination (Growing Stage)		Second stage 2nd dosage: At the time of bud formation		Third Stage – 3rd Dosage: Since the first appearance of small berries till the stage of appearance of berries and fruit.	
Urea	: 25 Kgs	Urea	: 15 Kgs	Urea	: 10 Kgs
D.A.P.	: 20 Kgs	D.A.P	: 25 Kgs	D.A.P	: 5 Kgs
Potash	: 15 Kgs	Potash	: 10 Kgs	Potash	: 25 Kgs
Cocoly	: 20 Kgs	Cocoly	: 10 Kgs	Cocoly	: 10 Kgs
Avani	: 40 Kgs	Pudami Ultra	: 10 Kgs	Calcium Nitrate	: 15 Kgs (Topcin)
Pudami Ultra	: 10 Kgs	Magnesium Sulphate	: 10 Kgs (Magnet)		
Magnesium Sulphate	: 15 Kgs (Magnet)	Calcium Nitrat	: 10 Kgs (Topcin)		
Micro Nutrients	: 5 Kgs (Stufl1Gr)	Sulphur (90%)	: 3 Kgs		
V.A.M.	: 4 Kgs (V.Guard)	Micro Nutrients	: 5 Kgs (Stufl1Gr)		

CAUTION/NOTICE: Cotton and rice, when the farmer feels that the above-mentioned fertilizers are insufficient, they may use “third dose” fertilizers once again,

Vegetables like **Chilli, Tomato, Brinjal, Ladyfingers, Bitterguard** which have a time interval of 150 to 180 days - have to be divided into 6 parts and then if we use all the bio-substances will undergo proper use and one can achieve high yields.

Method of using fertilizers in 1 acre soil:

During the crop period we have to use 6 times in an interval of 15 to 20 days.

First Stage 1st Dose: 15 days After Germination (Growing Stage)		Second Stage 3rd Dosage: At the time of bud formation	Third Stage – 5th Dosage: Since the first appearance of small berries till the stage of appearance of berries and fruit.
Urea : 25 Kgs D.A.P. : 20 Kgs Potash : 15 Kgs Cocoly : 20 Kgs Avani : 40 Kgs Pudami Ultra : 10 Kgs Magnesium Sulphate : 15 Kgs (Magnet) Micro Nutrients : 5 Kgs (Stuff 11Gr) V.A.M. : 4 Kgs (V.Guard)	Urea : 15 Kgs D.A.P. : 25 Kgs Potash : 10 Kgs Cocoly : 10 Kgs Pudami Ultra : 10 Kgs Magnesium Sulphate : 10 Kgs (Magnet) Sulphur (90%) : 3 Kgs Micro Nutrients : 5 Kgs (Stuff 11Gr) V.A.M. : 4 Kgs (V.Guard)	Urea : 10 Kgs D.A.P. : 5 Kgs Potash : 25 Kgs Cocoly : 10 Kgs Calcium Nitrate : 15 Kgs (Topcin)	
First Stage 2nd Dose:		Second Stage 4th Dosage:	Third Stage 6th Dosage:
Urea : 25 Kgs D.A.P. : 20 Kgs Potash : 15 Kgs Cocoly : 10 Kgs Avani : 40 Kgs Pudami Ultra : 10 Kgs Magnesium Sulphate : 15 Kgs (Magnet)	Urea : 15 Kgs D.A.P. : 25 Kgs Potash : 10 Kgs Cocoly : 10 Kgs Pudami Ultra : 10 Kgs Magnesium Sulphate : 10 Kgs (Magnet) Calcium Nitrate : 10 Kgs (Stuff 11Gr) Sulphur (90%) : 3 Kgs	Urea : 10 Kgs D.A.P. : 5 Kgs Potash : 25 Kgs Cocoly : 10 Kgs Calcium Nitrate : 25 Kgs (Topcin)	

Drip Method: 15 days after transplanted we should start administering fertilizer through drip. We have to consider first 40 days as growing stage, subsequent 40 days flowering stage and subsequent 40 days berry stage. WE have to administer fertilizer through depending upon the stage of crop. There should be a gap of 5 to 7 days for each dosage.

Drip: Method of administering at the time of 1st stage.

1	2	3	4	5	6	7	8
Vita: 3 Kgs	Vita: 2 Kgs	Vita: 3 Kgs	Vita: 2 Kgs	Vita: 3 Kgs	Vita: 2 Kgs	Vita: 2 Kgs	Vita: 2 Kgs
Gama: 3 Kgs	Gama: 3 Kgs	Gama: 3 Kgs	Gama: 3 Kgs	Tera: 3 Kgs	Tera: 3 Kgs	Tera: 3 Kgs	Tera: 3 Kgs
Magnet: 2 Kgs	Magnet: 3 Kgs	Magnet: 3 Kgs	Magnet: 3 Kgs	Magnet: 3 Kgs	Magnet: 3 Kgs	Magnet: 3 Kgs	Magnet: 3 Kgs
Carbon: 2 Kgs	Peri Peri: 2 Kgs	Carbon: 2 Kgs	Peri Peri: 2 Kgs	Carbon: 1 Kgs		Peri Peri: 1 Kgs	

Drip: Method of administering at the time of 2nd stage.

9	10	11	12	13	14	15	16
Vita : 3 Kgs	Vita : 3 Kgs	Vitay : 3 Kgs	Vita : 3 Kgs	Vita : 3 Kgs	Vita : 3 Kgs	Vita : 3 Kgs	Vita : 3 Kgs
Pep : 3 Kgs	Pep : 3 Kgs	Pep : 3 Kgs	Pep : 3 Kgs	Flora : 3 Kgs	Flora : 3 Kgs	Flora : 3 Kgs	Zuca : 3 Kgs
Sulphur : 2 Kgs	Carbon: 1 Kgs	Sulphur : 2 Kgs	Zen-x: 1 Kgs	Sulphur : 2 Kgs	Carbon: 2 Kgs	Sulphur : 2 Kgs	Topcin : 2 Kgs

Drip: Method of administering at the time of 3rd stage.

17	18	19	20	21	22	23	24
Vita : 3 Kgs	Vita : 3 Kgs	Vita : 3 Kgs	Vita : 3 Kgs	Vita : 3 Kgs	Vita : 3 Kgs	Vita : 3 Kgs	Vita : 3 Kgs
Zuca : 3 Kgs	Zuca : 3 Kgs	Zuca : 3 Kgs	Zuca : 3 Kgs	Laura : 3 Kgs	Laura : 3 Kgs	Laura : 3 Kgs	Laura : 3 Kgs
Topcin : 5 Kgs	Topcin : 5 Kgs	Topcin : 5 Kgs	Topcin : 5 Kgs	Topcin : 5 Kgs	Topcin : 5 Kgs	Topcin : 5 Kgs	Topcin : 5 Kgs
		Peri Peri: 1 Kgs			Peri Peri: 1 Kg		

In the above calendar,

Gama : 24-24-16 (NPK), **PEP** : 13-40-13 (NPK), **Zuca** : 15-8-35 (NPK)+4C+TE,

Carbon : Potassium Fulvic Humate, **Zen-X** : Micro Nutrient Mixture, **Magnet** : MgSO₄, **Topcin** : Calcium Nitrate

FOR EXCELLENT RESULTS IN BANANA CULTIVATION

CALENDAR OF DRIP FERTILIZERS

16 elements are essentials at every stage of Banana cultivation. One element is needed in larger quantities in each of the stages of cultivation than the other elements. Keeping this in mind a table of drip fertilizers has been designed for banana cultivation. You should start giving fertilizers in the drip from the third week of sapling. Fertilizers must compulsorily be supplied through drip after every three days.

Thus the fertilizer must necessarily be supplied in time for 8 months or 240 days. The table below pertains to the banana crop which comes to yield after 9 months of sapling. In case the crop period is more then the fertilizer must be provided through drip every 4 days instead of at an interval of 3 days. The crop period has been divided into 4 stages and the drip fertilizer feeding calendar is given in the table below.

1st Stage	2nd Stage	3rd Stage	4th Stage
60 Days	60 Days	60 Days	60 Days
1 Vita -2kg Gama - 1kg 2 Vita - 2kg Gama - 1kg Magnet - 2kg	21 Vita - 2kg Pep - 3kg 22 Vita - 2kg Pep - 3kg	41 Vita - 3kg Zuca - 3kg 42 Vita - 3kg Zuca - 3kg	61 Candy - 3kg Topcin - 3kg 62 Candy - 3kg Topcin - 3kg
3 Vita -2kg Gama - 1kg 4 Vita - 2kg Gama - 1kg Zen-x - 2kg	23 Vita - 2kg Pep - 3kg 24 Vita - 2kg Pep - 3kg	43 Vita - 3kg Zuca - 3kg 44 Vita - 3kg Zuca - 3kg	63 Candy - 3kg Topcin - 3kg 64 Candy - 3kg Topcin - 3kg
5 Vita - 2kg Gama - 2kg Magnet - 2kg 6 Vita - 2kg Gama - 2kg Magnet - 2kg	25 Vita - 2kg Pep - 3kg Zen-x - 2kg 26 Vita - 2kg Pep - 3kg Sulfur - 2kg	45 Vita - 3kg Zuca - 3kg Zen-x - 2kg 46 Vita - 3kg Zuca - 3kg	65 Candy - 3kg Topcin - 3kg 66 Candy - 3kg Topcin - 3kg Zen-x - 2kg

7	Vita Gama - 2kg Magnet - 2kg	8	Vita Gama - 2kg Magnet - 2kg
9	Vita Gama - 2kg	10	Vita Gama - 2kg Carbon - 2kg
11	Vita Tera - 2kg Magnet - 2kg	12	Vita Tera - 2kg
13	Vita Tera - 2kg Magnet - 2kg	14	Vita Tera - 2kg
15	Vita Tera - 2kg Magnet - 2kg	16	Vita Tera - 2kg Zen-x - 2kg
17	Vita Tera - 2kg Magnet - 2kg	18	Vita Tera - 2kg
19	Vita Tera - 2kg Magnet - 2kg	20	Vita Tera - 2kg Carbon - 3kg

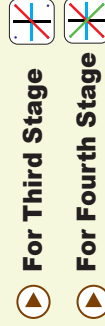
27	Vita Pep - 2kg	28	Vita Pep - 2kg
29	Vita Pep - 2kg	30	Vita Pep - 2kg Sulfur - 2kg
31	Vita Flora - 2kg	32	Vita Flora - 2kg
33	Vita Flora - 2kg	34	Vita Flora - 2kg
35	Vita Flora - 2kg Zen-x - 2kg	36	Vita Flora - 2kg
37	Vita Flora - 2kg	38	Vita Flora - 2kg
39	Vita Flora - 2kg	40	Vita Flora - 2kg Carbon - 2kg

47	Vita Zuca - 3kg	48	Vita Zuca - 3kg
49	Vita Zuca - 3kg	50	Vita Zuca - 3kg
51	Vita Laura - 3kg Boroquin - 1kg	52	Vita Laura - 3kg
53	Vita Laura - 3kg	54	Vita Laura - 3kg
55	Vita Laura - 3kg	56	Vita Laura - 3kg
57	Vita Laura - 3kg	58	Vita Laura - 3kg
59	Vita Laura - 3kg	60	Vita Laura - 3kg Boroquin - 1kg

67	Candy - 3kg Topcin - 3kg	68	Candy - 3kg Topcin - 3kg
69	Candy - 3kg Topcin - 3kg	70	Vita Zuca - 3kg Boroquin - 1kg
71	Candy - 3kg Topcin - 3kg	72	Candy - 3kg Topcin - 3kg
73	Candy - 3kg Topcin - 3kg	74	Candy - 3kg Topcin - 3kg
75	Candy - 3kg Topcin - 3kg	76	Candy - 3kg Topcin - 3kg Zen-x - 2kg
77	Candy - 3kg Topcin - 3kg	78	Candy - 3kg Topcin - 3kg
79	Candy - 3kg Topcin - 3kg	80	Candy - 3kg Topcin - 3kg

Note:

When you use this calendar for crop
the dots in the boxes draw like this



Candy :

Potassium Schoenite

Horticulture Crops

Banana, Citrus, Pomegranate, Guava, Papaya, Sapota, Custard Apple, Jack Fruit, Grape, Dragon, Avocado, Oil Farm

CALENDAR OF DRIP FERTILIZERS

16 elements are essentials at every stage of **GARDEN CROPS** cultivation. One element is needed in larger quantities in each of the stages of cultivation than the other elements. Keeping this in mind a table of drip fertilizers has been designed for banana cultivation. You should start giving fertilizers in the drip from the third week of sapling. Fertilizers must compulsorily be supplied through drip after every three days.

Thus the fertilizer must necessarily be supplied in time for 8 months or 240 days. The table below pertains to the banana crop which comes to yield after 9 months of sapling. In case the crop period is more then the fertilizer must be provided through drip every 4 days instead of at an interval of 3 days. The crop period has been divided into 4 stages and the drip fertilizer feeding calendar is given in the table below.

1st Stage	2nd Stage	3rd Stage	4th Stage
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2 Vita - 2kg Gama - 1kg Magnet - 2kg	22 Vita - 2kg Pep - 3kg	42 Vita - 3kg Zuca - 3kg	62 Candy - 3kg Topcin - 3kg
3 Vita -2kg Gama - 1kg	23 Vita - 2kg Pep - 3kg	43 Vita - 3kg Zuca - 3kg	63 Candy - 3kg Topcin - 3kg
4 Vita - 2kg Gama - 1kg Zen-x - 2kg	24 Vita - 2kg Pep - 3kg	44 Vita - 3kg Zuca - 3kg	64 Candy - 3kg Topcin - 3kg
5 Vita - 2kg Gama - 2kg Magnet - 2kg	25 Vita - 2kg Pep - 3kg Zen-x - 2kg	45 Vita - 3kg Zuca - 3kg Zen-x - 2kg	65 Candy - 3kg Topcin - 3kg
6 Vita - 2kg Gama - 2kg Magnet - 2kg	26 Vita - 2kg Pep - 3kg Sulfur - 2kg	46 Vita - 3kg Zuca - 3kg	66 Candy - 3kg Topcin - 3kg Zen-x - 2kg

7	Vita - 2kg Gama - 2kg Magnet - 2kg	8	Vita - 2kg Gama - 2kg Magnet - 2kg
9	Vita - 2kg Gama - 2kg	10	Vita - 2kg Gama - 2kg Carbon - 2kg
11	Vita - 2kg Tera - 2kg Magnet - 2kg	12	Vita - 2kg Tera - 2kg
13	Vita - 2kg Tera - 2kg Magnet - 2kg	14	Vita - 2kg Tera - 2kg
15	Vita - 2kg Tera - 2kg Magnet - 2kg	16	Vita - 2kg Tera - 2kg Zen-x - 2kg
17	Vita - 2kg Tera - 3kg Magnet - 2kg	18	Vita - 2kg Tera - 3kg
19	Vita - 2kg Tera - 3kg Magnet - 2kg	20	Vita - 2kg Tera - 3kg Carbon - 3kg

27	Vita - 2kg Pep - 3kg	28	Vita - 2kg Pep - 3kg
29	Vita - 2kg Pep - 3kg	30	Vita - 2kg Pep - 3kg Sulfur - 2kg
31	Vita - 2kg Flora - 3kg	32	Vita - 2kg Flora - 3kg
33	Vita - 2kg Flora - 3kg	34	Vita - 2kg Flora - 3kg
35	Vita - 2kg Flora - 3kg Zen-x - 2kg	36	Vita - 2kg Flora - 3kg
37	Vita - 2kg Flora - 3kg	38	Vita - 2kg Flora - 3kg
39	Vita - 2kg Flora - 3kg	40	Vita - 2kg Flora - 3kg Carbon - 2kg

47	Vita - 3kg Zuca - 3kg	48	Vita - 3kg Zuca - 3kg
49	Vita - 3kg Zuca - 3kg	50	Vita - 3kg Zuca - 3kg
51	Vita - 3kg Laura - 3kg Boroquin-1kg	52	Vita - 3kg Laura - 3kg
53	Vita - 3kg Laura - 3kg	54	Vita - 3kg Laura - 3kg
55	Vita - 3kg Laura - 3kg	56	Vita - 3kg Laura - 3kg
57	Vita - 3kg Laura - 3kg	58	Vita - 3kg Laura - 3kg
59	Vita - 3kg Laura - 3kg	60	Vita - 3kg Laura - 3kg Boroquin-1kg

67	Candy - 3kg Topcin - 3kg	68	Candy - 3kg Topcin - 3kg
69	Candy - 3kg Topcin - 3kg	70	Vita - 3kg Zuca - 3kg Boroquin-1kg
71	Candy - 3kg Topcin - 3kg	72	Candy - 3kg Topcin - 3kg
73	Candy - 3kg Topcin - 3kg	74	Candy - 3kg Topcin - 3kg
75	Candy - 3kg Topcin - 3kg	76	Candy - 3kg Topcin - 3kg Zen-x - 2kg
77	Candy - 3kg Topcin - 3kg	78	Candy - 3kg Topcin - 3kg
79	Candy - 3kg Topcin - 3kg	80	Candy - 3kg Topcin - 3kg

Note:
When you use this calendar for crop
the dots in the boxes draw like this

For First Stage

For Second Stage

For Third Stage

For Fourth Stage

Candy :
Potassium Schoenite

Finally, let us know about the pests and diseases that infest the crop.

Crops face two types of pressures. They are **(1) Biotic pressures and (2) Abiotic pressures**. Crop losses occur due to the following bio related pressures in crop.

Biotic Pressures :

1. Bacteria 2. Fungus 3. Virus 4. Nematodes 5. Sucking pests 6. Chewing Pests

Among them the first three lead to diseases. They spread to plant from soil. Hence by cleansing the soil with biological methods will help in getting rid of these pests. The next three attack the plants directly and cause loss. These have to be controlled from time to time by using the latest insecticides in the market.

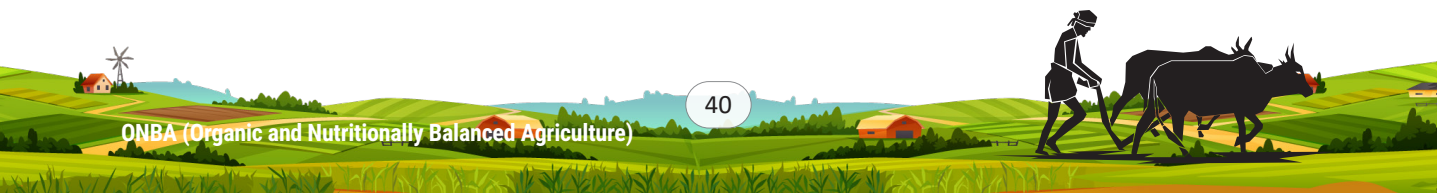
Abiotic Pressures on crop occur due to the following.

1. Air 2. Rain 3. Hailstorms 4. Water 5. Temperature 6. Cold Weather 7 Pollution 8. Pruning 9. Nutrients

While we may not be able to counter the weather related pressures, we can take preventive measures by resorting to healthy cultivation and thereby reduce losses. Water, nutrients and pruning are very much in our hands and hence by regulating them we can completely eliminate the pressures arising out of these factors.

Few Tips:

1. While spraying pesticides, spraying must be in line with the flow of wind. We should not spray against the wind. By spraying against the wind those pesticides not only enter our body through our eyes and nostrils and affect our health, but also the spray does not spread evenly on the crop. As far as possible, nozzle should be directed to the lower surface of the leaves while spraying.
2. When we want to spray a mixture of two or three liquids we should first ensure when they are compatible.
3. When spraying normal pesticide or weedicide we should ensure to not exceed 120 litres of water alongside company provided pesticide dosage per acre to get best



results. In some specific conditions like crops effected by mealy bugs, powdery and downy mildew to spray around 200ml/ acre.

4. If we spray chemical fertilizers in soil even before planting crop they will get fixed in soil and fail to spread to the plant. They remain as residue in soil and lead to crop and financial loss.
5. If D.A.P. (Phosphorous) is used before cropping or is used in excess quantity, it remains in the soil as residue and it is poisonous to the soil.
6. When the crop is facing extreme pests, Urea should not be used.
7. The phosphorous deposits in our lands has accumulated so much that D.A.P need not be used for 30 to 40 years. To put these deposits to good use, we must mix PSB (Phosphorus Solubilizing Bacteria) in organic fertilizers and use this mixture.
8. Don't buy pesticides or fertilizers every time for crop growth. Get to know which are helpful for better yield and purchase them. Unnecessary growth, unwanted greenness or thick foliage of leaves on plants do not ensure right quantity of yields.
9. To get tasty fruits formers should spray only the combination of Boron, Potassium, and molybdenum two to three times at the fruiting stage.
10. Finally the farming community must remember that if we ignore the percentage of Carbon (C), Organic fertilizers, Bio Fertilizers, Bio Control Agents (bacteria, fungus), the pH level of soil and water, availability of Oxygen in soil, soil density no one can ever gain profits from cultivation. Hence the farmer must ensure to know about the above details before starting cultivation.
11. In fruit orchards, once the fruit has grown to a good size, spraying a suitable mixture of just potassium, boron, and molybdenum at least twice causes the starches in the fruit to fully convert into sugars, making the fruits extremely tasty.



Bio control agents

Trichorich:



Mixtures:
Trichoderma Viride - 1.5% W/P

Uses:
To prevent root rot, downy mildew, leaf spot, stem rot and pod rot diseases.

Dosage:
Mix 10 kg with organic fertilizers for one acre crop and applied to the soil.
Drip: 2 kg for one acre crop

Flick



Mixtures:
Pseudomonas Fluorescens - 1% W/P

Uses:
For the control of blast, sheath blight, sheath rot, and leaf spot diseases.

Dosage:
Mix 10 kg with organic fertilizers for one acre crop and apply to the soil.
Spray: One kg for one acre crop.
Drip: 2 kg for one acre crop.

Server



Mixtures:
Antagonistic Micro organisms- 1% W/P

Uses:
To prevent root rot, downy mildew, leaf spot, stem rot and pod rot diseases. Mix 10 kg with organic fertilizers for one acre crop and applied to the soil.

Dosage:
Spray: 1 kg for one acre crop.
Drip: 2 kg for one acre crop.

V Guard



Mixtures:
Vesicular Arbuscular Mycorrhiza (VAM)

Uses:
This ensures that all nutrient values always remain available to the plants without causing harm even during severe weather conditions and delayed food supply. It loosens the soil, helps in the development of a robust and deep root system. It enhances the plants' immunity, protecting the crop from pests and diseases.

Dosage:
Use 4-8 kg for an acre when moisture is present in the soil.

Bio-Fertilizers (Bio Fertilizers)

D'Complex



Mixtures:
Different types of powerful decomposing bacteria.

Uses:
It decomposes waste matter in the soil, thereby enhancing soil fertility. It loosens the soil.

Dosage:
Mix 10 kg with organic fertilizers for one acre crop and apply to the soil.
In soil: For one acre of crop 10 to 20 kg. **In the nursery:** 1 kg for 1 ton coco peat.

Pospo



Mixtures:
Phosphorus solubilizing bacteria

Uses:
It solubilizes phosphorus present in the soil in salt form and makes it available to plants.

Dosage:
Mix with organic fertilizers with 5 kg Pospo for an acre of crop and use during the moisture in the soil.

Organic fertilizers (Organic fertilizers)

KMB



Mixtures:
Potassium-mobilizing bacteria

Uses:
It will increase the sugar percentage and quantity in the fruits. This is an environmentally friendly product.

Dosage:
Spray: Mix with organic fertilizers with 5 kg KMB for an acre of crop and use during moisture / in moist soil.

Vasudha

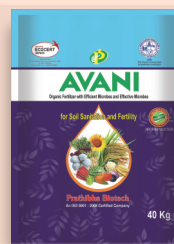


Mixtures:
Organic Fertilizer containing efficient microorganisms

Uses:
It increases the organic carbon content in the soil and helps prevent nematodes and root grubs.

Dosage:
When the moisture is present in the soil use 40-80 kg for an acre.

Avani



Mixtures:
It contains castor powder, pongamia powder, neem powder and powerful bacteria.

Uses:
To purify and fertilize the soil and to promote root system development. It increases carbon content. It increases immunity in the crop.

Dosage:
In the soil: Per stage, 40-80 kg for an acre of crop.

Pudami Ultra



Mixtures:
Humic Acid 51% Gr

Uses:
It increases carbon content in the soil, it promotes the development of a strong root system. It will increase immunity of the crop and increases the yield.

Dosage:
In the soil: For one acre of crop, use 20 kg

Carbon



Mixtures:
Humic Acid and Fulvic Acid -76%

Uses:
It increases carbon percentage in the soil, it promotes the development of a strong root system. It will increase immunity power of the crop and increases the yield.

Dosage:
Spray: For an acre of crop 250 grams. **Drip:** 2 Kg for an acre of crop. **In the Nursery:** For one ton coco peat - 500 grams.

Bharat Gold Plus



Mixtures:
Humic Acid and Fulvic Acid -10% granules

Uses:
It increases carbon content in the soil, it promotes the development of a strong root system. It will increase immunity power of the crop and increases the yield.

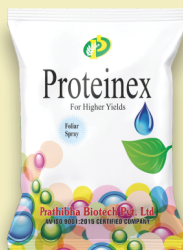
Dosage:
In the soil: For an acre of crop 5 kg

Organic fertilizers (Organic fertilizers)



Revive

Mixtures:
Protein Hydrolysate 27%.
Uses:
It helps the growth of the plants. It encourages many enzymes in the plants and promotes abundant flowering.
Dosage:
Spray: For one acre of crop 150 grams.



Proteinex

Mixtures:
Protein Hydrolysate 25%.
Uses:
It helps the growth of plants. It encourages many types of enzymes in the plants and promotes abundant flowering.
Dosage:
Spray: For one acre crop 300 grams.



Bet

Mixtures:
Humates and Fulvates 22%.
Uses:
For the natural growth of plants, and to promote abundant flowering, and fruit setting.
Dosage:
Spray: For one acre of crop 300-500 ml
Drip: For one acre of crop 1-2 litres



Bumper

Mixtures:
Humic acid and Fulvic Acid - 25.05%.
Uses:
For the natural growth of plants, and to promote abundant flowering, and fruit setting.
Dosage:
Spray: For 1 liter water 2 ml



Brassicaa

Mixtures:
Brassinolides, Lignins and natural N.P.K.
Uses:
For the natural growth of plants, and to promote abundant flowering, and fruit setting and for higher yields.
Dosage:
Spray: For one acre of crop 20 grams.

Micro Nutrients



Peri Peri

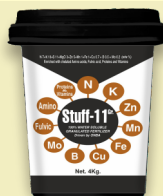
Mixtures:
Phosphorus, Potassium, Sulphur, zinc, Manganese, Ferrous, copper, Boron, Molybdenum, Chelated Amino Acids, proteins, Vitamins.
Uses:
It can be used on all crops at all stages including the flowering and fruiting phases to promote abundant flowering and fruit setting.
Dosage:
Spray: For one litre of water 2-2.5 grams.
Drip: For an acre of crop use 1-2 kg

Micro Nutrients



Zen-X

Mixtures:
Micronutrients, Amino acids and potassium, magnesium.
Uses:
For the prevention of deficiency of micronutrients and for growth.
Dosage:
Spray: 500 grams per acre of crop
Drip: 2 kg per acre of crop.



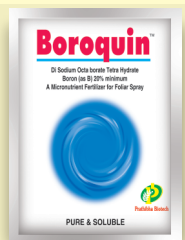
Stuff-11 GR

Mixtures:
Nitrogen, Potassium, Zinc, Ferrous, Copper, Manganese, Boron, Molybdenum, Amino Acids, Fulvic acids, proteins, Vitamins.
Uses:
To prevent the micro nutrient deficiencies and to increase fruit size and weight.
Dosage:
5 kg per acre of crop.



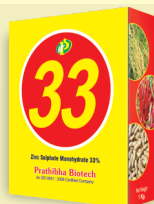
A-Z

Mixtures:
Micronutrient Mixture and Amino acids.
Uses:
To prevent of micronutrient deficiencies And for growth.
Dosage:
Spray: 500 ml per an acre of crop.



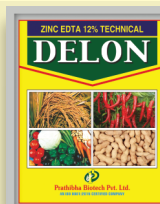
Boroquin

Mixtures:
Disodium octaborate tetrahydrate (Boron 20%)
Uses:
To prevent Boron deficiency, promote abundant flowering, prevent the shrinkage of tender leaves, and avoid cracking in pods and fruits.
Dosage:
Spray: 250-300 grams per acre of crop.
Drip: 1-2 kg per acre of crop.



33

Mixtures:
Zinc sulphate 33%.
Uses:
To prevent the deficiency of Zinc, promoting crop growth and developing the fibrous root system.
Dosage:
Spray: 100-150 grams per acre of crop.
In the soil: 1 kg per acre of crop.
Drip: 1 kg per acre of crop.

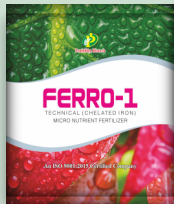


Delon

Mixtures:
EDTA zinc sulphate- 12%.
Uses:
To prevent the deficiency of zinc, promoting crop growth and developing the fibrous root system.
Dosage:
Spray: 100-150 grams per acre of crop.
Drip: 1 kg per acre of crop.

Micro Nutrients

Ferro-1

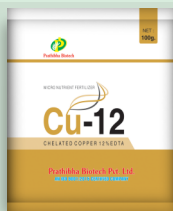


Mixtures:
EDTA Ferrous Sulphate -12%

Uses:
For the prevention of ferrous deficiency and to promote the process of photosynthesis.

Dosage:
Spray: 100 grams per acre of crop. **Drip:** 500 grams - 1 kg per acre of crop.

CU 12



Mixtures:
EDTA Copper Sulphate - 12%

Uses:
It helps prevent copper deficiency and ensures abundant flowering, preventing premature fall, and to enable pod and fruit to get right colour.

Dosage:
Spray: 100 grams per acre of crop.

New Wonder



Mixtures:
Zinc Sulphate -33% (Mono)

Uses:
To prevent the deficiency of zinc, promoting crop growth and developing the fibrous root system.

Dosage:
10 kg per acre of crop.

Land Guard



Mixtures:
Zinc Sulphate 21%

Uses:
To prevent the deficiency of zinc, promoting crop growth and developing the fibrous root system.

Dosage:
10 kilos per acre of crop.

Pro Min

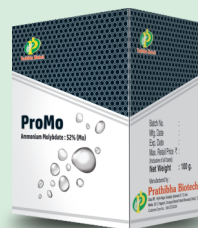


Mixtures:
Manganese Sulphate 30.5%

Uses:
For the prevention of manganese deficiency and to promote the process of photosynthesis and its growth.

Dosage:
Spray: 250 grams per acre of crop. **Drip:** 500 grams - 1 kg per acre of crop.

ProMo

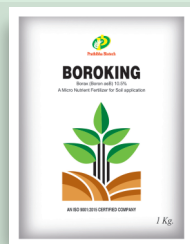


Mixtures:
Ammonium Molybdate 52%

Uses:
To prevent Molybdenum in the plants, it converts nitrates, Phosphates, potash absorbed by the plant into ions and actively participates in biochemical activities.

Dosage:
Spray: 50-100 grams per an acre of crop. **Drip:** 100-150 grams per acre of crop.

Boroking



Mixtures:
Boron 10.5%

Uses:
To prevent Boron deficiency, promote abundant flowering, prevent the shrinkage of tender leaves, and avoid cracking in pods and fruits.

Dosage:
In the soil: 5 kgs per an acre of crop.

Magnet



Mixtures:
Magnesium Sulphate 9.5%

Uses:
It helps prevent magnesium and sulphur deficiencies and promotes chlorophyll formation and growth.

Dosage:
Spray: 1 kg per acre of crop. **In the soil:** 10-25 kg per acre of crop. **In the drip:** 5 kg per acre of crop.

Micro Top



Mixtures:
Micronutrients Mixture.

Uses:
To prevent deficiencies of micronutrients.

Dosage:
Spray: 300 grams per acre of crop.

Water soluble fertilizers

Forti-cal



Mixtures:
Calcium 21%, Boron 0.1%, Zinc 1.5% W/W SC

Uses:
To prevent calcium, boron, zinc deficiency, and to ensure the pods and fruits to get a good size

Dosage:
Spray: 500 ml per acre of crop
Drip: 2 litres per acre

Zincofit



Mixtures:
Zinc: 39.5% W/W SC

Uses:
To prevent the deficiency of zinc, promoting crop growth and developing the fibrous root system.

Dosage:
Spray: Depending on the requirement
100-200 ml per acre.
Drip: Depending on the requirement, 500 ml to 1000 ml per acre of crop

Tera



Mixtures:
Nitrogen 22%, Phosphorus- 12%, Potassium- 6%, Manganese- 1%, Sulphur- 5%, Zinc- 1%, Ferrous- 1%, Molybdenum- 0.2 %, Magnesium Oxide -3%.

Uses:
During the crop growing stage, it corrects various nutrient deficiencies, helping the crop grow naturally and develop reproductive capacity.

Dosage:
Spray: For 1 litre of water use 5-7 grams.
Drip: Apply 4 to 5 kg per acre once every 5 to 7 days. Tera can be used on all crops during the growth stage.

Water soluble fertilizers

Flora



Mixtures:

Nitrogen 13%, Phosphorus- 25%, Potassium- 10%, Sulphur- 6%, Boron- 1%, Copper- 1%, Molybdenum -0.2%.

Uses:

Applying it during the flowering stage promotes abundant flowering and fruit setting, while preventing flower and fruit drop.

Dosage:

Spray: 5-7 grams for 1 litre of water
Drip: Once in 5 to 7 days duration, use 4 to 5 kg for an acre. You can use 'Flora' in all crops that are in the flowering stage.

Laura



Mixtures:

Nitrogen 6%, Phosphorus- 5%, Potassium- 31%, Sulphur- 8%, Boron- 1%, Copper- 1%, Molybdenum -0.2%, Magnesium Oxide- 3%

Uses:

Applying it during the fruit - bearing stage results in larger fruit size and greater weight, thereby increasing the yield.

Dosage:

Spray: For 1 litre of water use 5-7 grams.
Drip: Once in 5 to 7 days duration, use 4 to 5 kilos per acre of crop. Lara can be used in all crops that are in fruiting stage.

Vita



Mixtures:

Nitrogen 12%, Phosphorus- 15%, Potassium- 10%, Sulphur- 13%

Uses:

Use during flowering stage. It stabilizes soil pH, increases carbon content.

Dosage:

In soil: 10-20 kgs for an acre. **Drip:** 3-4 kg per acre

Leo



Mixtures:

Nitrogen- 20%, Potassium- 5%, Sulphur -14%.

Uses:

It should be used in the growing stage. It stabilizes soil pH, increases carbon percentage.

Dosage:

In the soil: 10-20 kgs per acre.
Drip: 3-4 kgs per acre

Sulthan



Mixtures:

Nitrogen- 12%, Potassium- 18%, Sulphur -14%.

Uses:

It should be used in fruiting stage. It stabilizes soil pH, increases carbon percentage.

Dosage:

Spray: 10-20 kgs per an acre.
Drip: 3-4 kg per an acre

Cocoly



Mixtures:

Nitrogen 15%, Potassium Oxide- 10%, Sulphur- 19%, PAS, CMS, Fulvic, Micronutrients, Glutamic acid, Bacillus cereus, Bacillus subtilis.

Uses:

It stabilizes soil pH, increases carbon percentage, it will be useful as a powerful fertilizer.

Dosage:

In the soil: 20 kg+ 10 kg+ 10 kgs= 40 kgs per acre.
In the drip: 4 kgs per 1 acre (5 times during 4 to 7 days period)
Spray: 5-10 grams per 1 litre of water.

Gama



Mixtures:

Nitrogen 24%, phosphorus- 24%, Potassium -16%.

Uses:

To supply nitrogen, phosphorus and potash abundantly during growing stage of the plants.

Dosage:

Spray: 5-7 grams per litre of water.
In the drip: 4 kgs per an acre (5 times during 4 to 7 days period).

Pep



Mixtures:

Nitrogen 13%, Phosphorus-40%, Potassium -13%.

Uses:

To prevent the deficiency of Nitrogen and phosphorus, potassium and to get flowering abundantly.

Dosage:

Spray: 1 kg per an acre of crop.
In the drip: 4 kg per acre.

Zuca



Mixtures:

Nitrogen 15%, Phosphorus- 8%, Potassium -35% + 4C + TE Carbon, EDTA micronutrients.

Uses:

Applying it during the fruit-bearing stage results in to larger fruit size and greater weight, as a result yield will increase.

Dosage:

Spray: For one litre of water 5-7 grams.
In the drip: 4 kg per acre (5 times over a period of 4 to 7 days)

Candy



Mixtures:

Potassium Schoenite.

Uses:

To prevent the deficiency of potassium and magnesium, and to get greater size and weight of pod.

Dosage:

Spray: 1 kg, per an acre of crop. **In the drip:** 4 kgs per an acre (5 times over a period of 4 to 7 days)

Topcin



Mixtures:

Calcium Nitrate

Uses:

It is useful to prevent calcium and nitrogen deficiency, promote greater pod size, weight, and to prevent cracking in pods and fruits.

Dosage:

Spray: 1 kg per acre of crop.
In the drip: 5 kgs per acre.
In the soil: 25 kgs per acre.

Dil



Mixtures:

Nitrogen 12%, Phosphorus- 11%, Potassium -18%

Uses:

To get larger pod size and greater fruit weight

Dosage:

In the soil: 20 kg per acre of crop

Water soluble fertilizers



Bhalhe Bhalhe

Mixtures:

Nitrogen 15%, Phosphorus-15%, Potassium -15%

Uses:

It can be used in all stages of the crop

Dosage:

In the soil: 20 kg per an acre of crop



PS

Mixtures:

Potassium Thioulsulphate (Potassium- 25%, Sulphur- 17%)

Uses:

To achieve larger pod size, and greater weight

Dosage:

Spray: 500 ml per an acre of crop. **In the drip:** 3-5 litres per an acre



Insecticides

Super Coma

Mixtures:

Emamectin Benzoate 1.9%

Uses:

It controls green semilooper, tobacco caterpillar, and fruit borer across all types of crops.

Dosage:

Spray: 2 ml - For 1 litre of water.

Insecticides



All new Small

Mixtures:

Emamectin Benzoate 1.5% + Fipronil 3.5% SC

Uses:

For the control of pod borers, green caterpillars, armyworms, Maruca spotted pod borer, rice stem borer, and leaf folder.

Dosage:

Spray: 0.7 ml- For 1 litre water. **In rice:** 0.4 ml- For 1 litre of water.



Zero

Mixtures:

Emamectin Benzoate 1.9%

Uses:

For the control of green caterpillar, armyworm, pod borer.

Dosage:

2 ml- For 1 litre of water.

Spray: 2 ml - For 1 litre of water.



123

Mixtures:

Emamectin Benzoate 1.5% + Fipronil 3.5% SC

Uses:

For the control of red mites, white mites, thrips, leaf miners affecting all types of crops.

Dosage:

2 ml- For 1 litre of water.



Block Buster

Mixtures:

Dinotefuran 15% + Pymetrozine 45% W.G

Uses:

For the control of green leaf hoppers, white flies, brown plant hoppers, and thrips affecting all types of crops.

Dosage:

Spray: 0.7-0.8 grams - For 1 litre of water.



Daunt Plus

Mixtures:

Bifenthrin 10% EC w/w

Uses:

For the control of pod borers, leaf folders, white flies that affect various types of crops.

Dosage:

Spray: 2 ml for 1 litre of water. (1-2ml)



Prokil

Mixtures:

Emamectin Benzoate 5% SG

Uses:

It controls green caterpillars and armyworms that affect all types of crops.

Dosage:

Spray: 100 grams for an acre of crop.



Rockstar Plus

Mixtures:

Azoxystrobin 18.2 % + Difenoconazole 11.4 % SC

Uses:

To control powdery mildew, leaf spot, blast, sheath blight, stem rot, and fruit rot in various crops.

Dosage:

Spray: 2 ml / 1 litre of water



Tip Top

Mixtures:

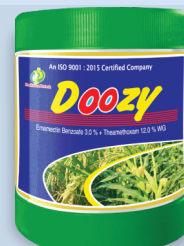
Saccharomycetes Lipase

Uses:

For the control of powdery mildew, sheath blight, gummosis, canker disease, and all types of bacterial and fungal diseases affecting the crop.

Dosage:

Spray: 150 gm per acre of crop: For the prevention of gummosis: Make a paste, clean the area where sap is oozing using a blade and apply the mixture with a brush. **Drip irrigation:** 300 grams per acre of crop.



Doozy

Mixtures:

Emamectin Benzoate 3.0% + Thiamethoxam 12.0% WG

Uses:

It can be used to control green semilooper, tobacco caterpillar, and fruit borer in all types of crops.

Dosage:

Spray: 1 ml - 1 litre of water

IMPORTANT NOTE FOR THE FARMING COMMUNITY.

1. Please view YouTube channel of **Annapurna Agri Space**  **channel** for complete information about ONBA and for any queries related to it.
2. **ONBA Free Live Coaching** to Take an appointment on a Saturday with the agriculture research center RMC (RM Kisan Center), Palagiri (V) Veerapunayuni Palli (M), Kadapa District, Andhra Pradesh for free training in ONBA.

Come.. let us join hand in hand...will follow ONBA

Let us rectify the lapses of the present agriculture methods...

Let us make cultivation a celebration....

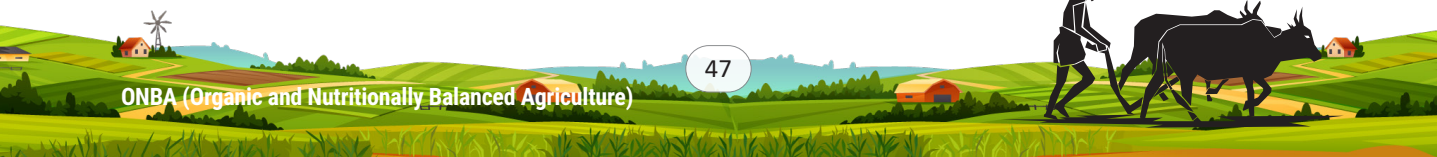
We will make agriculture attractive for the present youth..!

Let us pass on healthy land to the forthcoming generations..!!

DEDICATED

This booklet is dedicated to every progressive farmer who relentlessly committed to cultivate and providing food to the world at large.

Jai Jawan... Jai Kisan.





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