NACHURS products offer a variety of starters and foliars. For row crops, NACHURS starters are meant to be complimentary products in a complete fertility program; they may not replace a broadcast fertility program. For specialty crops utilizing drip irrigation, NACHURS products can provide for all fertility needs in many circumstances.

Your crop has a **Maximum Yield Potential**. Every decision you make impacts whether you maintain that maximum yield or lose it. Your yield potential can drop dramatically. That is why getting your crop off to a fast and uniform start with starter fertilizer is so beneficial. Maintain your crop’s Maximum Yield Potential.

The NACHURS team includes sales managers, agronomists, and a full support staff.

**PH:** 1 800-622-4877
international@nachurs.com

**WELCOME.**

**A LITTLE HISTORY ABOUT US.**

Built on quality, integrity, and innovation, we pioneered liquid fertilizer in 1946 — formulated to meet the nutritional demands of crops and growing conditions on both sides of the border.


Today, an ever-increasing number of farmers in every state and province rely on our in-furrow fertilizer starters, fertigation products, foliar nutrition, and micronutrients on nearly every row crop, fruits, and vegetables.

With more than 70 years of experience and knowledge — combined with the continental reach of our six manufacturing plants, extensive transportation network, widespread product depots, and expanding sales force — we provide our customers and business partners with unlimited opportunities for growth and success.

NACHURS® liquid fertilizers are manufactured by Nachurs Alpine Solutions®. Our manufacturing facilities are located in:

- Marion, Ohio USA - Corporate Office
- Belle Plaine, Saskatchewan Canada
- Corydon, Indiana USA
- Garretson, South Dakota USA
- New Hamburg, Ontario Canada
- Red Oak, Iowa USA
- St. Gabriel, Louisiana USA
WE ARE A 4R PARTNER.

According to The Nutrient Stewardship Initiative:

Agriculture is being challenged to maintain profitable farm economics, while meeting the increased product demands of a growing population and responding to increased scrutiny of land and resource management. Agricultural sustainability means addressing economic, environmental and social goals. 4R nutrient stewardship is an innovative approach to fertilizer best management practices (BMPs) to help achieve agricultural sustainability. The 4Rs imply that there are four aspects to every fertilizer application and it provides an effective framework to assess whether a given crop has access to the necessary nutrients. The four aspects of fertilizer management are interconnected, and none of the four can be right when any one of them is wrong.

RIGHT SOURCE.  
NACHURS liquid fertilizers use high quality raw materials and are tailored to meet the needs of specific crops.

RIGHT RATE.  
Seed safe at recommended rates, NACHURS products have a low salt index and are non-corrosive. Each drop has the same ratio or percentage of nutrients.

RIGHT TIME.  
NACHURS fertilizers can be “spoon fed” to crops, allowing for fertilization exactly when required by the plant.

RIGHT PLACE.  
NACHURS liquid starter fertilizers are safe placed directly on the seed and will not harm germination. PROVEN PERFORMER.

4Rs OF NUTRIENT STEWARDSHIP  
Economically, Environmentally & Socially Sustainable Crop Nutrition

The 4Rs promote best management practices (BMPs) to achieve cropping system goals while minimizing field nutrient loss and maximizing crop uptake.

4R Principles of Nutrient Stewardship

RIGHT SOURCE  
Matches fertilizer type to crop needs.

RIGHT RATE  
Matches amount of fertilizer to crop needs.

RIGHT TIME  
Makes nutrients available when crops need them.

RIGHT PLACE  
Keeps nutrients where crops can use them.

$7,000,000 COMMITMENT  
The Research Fund is an industry-funded effort committing $7 million to 4R research. A portion of this money has already been raised and implemented in initial research projects.

The 4Rs—Guided by Science, Proven by Research

The 4R Research Fund was established by contributions from fertilizer industry members and stakeholders.

IMPLEMENTING 4Rs ON THE FARM

STEP 1:  
Identify farm-specific economic, social and environmental goals that the cropping system objectives should address.

STEP 2:  
Select BMPs that are specific to the grower’s goals, soil, climate and cropping system.

STEP 3:  
Integrate BMPs for all goals and adjust as needed.

STEP 4:  
Document the 4R nutrient stewardship plan.


The NACHURS® Guide  •  Page 3
Growers across several countries are reaping the benefits of NACHURS liquid starter and foliar fertilizers on a variety of crops: corn, potatoes, tobacco, peanuts, vegetables... Most crops have a critical need for Phosphorus and Potassium from germination through reproductive stages, where maximum yield potential is determined. The NACHURS Advantage ensures that the crop has adequate available nutrients when the plant needs it most for maximum yield potential.
NACHURS P-Focus and NACHURS PK-Focus can be placed directly with the seed at planting time. Placement with the seed enables the phosphate to be taken up at the earliest stages of growth.

This is the stage at which the young crop’s requirement for phosphate is most critical.

Starter fertilizer:

- Provides the emerging seedlings with essential nutrients which are accessible near the young roots just as the sugars and starches are being depleted from the germinated seed even when planted in cold moist soils.
- Increases early growth and uniform germination establishing a higher plant population.
- Early robust seedlings can also better resist insect and disease attacks as well as compete more effectively with early weed pressures.
- Provides earlier flowering and maturity leading to a quicker dry down.

The greatest yield potential you’re going to have with a crop is the day the seed germinates; it’s downhill from here. The weakest time in a plant’s life is from germination to emergence, the faster the emergence the better. When you lose yield, it will be either in the early development stage when yield is being established or the late development stage when yield is being preserved.

Why use NACHURS Starter fertilizers?
Phosphate is a key nutrient for the establishment of a healthy crop and it is during this early stage that phosphate is the lead contributor to increasing root mass. Once the root mass has been established, the plant is able to take advantage of the nutrients from a base nutrition program.

Other starter fertilizers require time for the dry granular fertilizer to dissolve or for the polyphosphate liquid fertilizers to break down into the plant available orthophosphate form. NACHURS P-Focus and NACHURS PK-Focus seed-placed starter are already in a liquid soluble form and 100% of the phosphate is in the orthophosphate form. NACHURS P-Focus and PK-Focus are very efficient in supplying phosphate for plant uptake.

Using NACHURS P-Focus and NACHURS PK-Focus starter to provide the first ten pounds of plant available phosphate is a proven method to maximize phosphate efficiency and thus yields.

STARTER PRODUCTS:

NACHURS P-Focus

Micronutrients are essential to plant life but normally our soils contain enough to provide sufficient nutrition to the plant. Most growers are well aware of Liebig’s Law of the Minimum which states that any deficiency in a nutrient, no matter how small, will hold back the yield potential. As growers have evolved their crop nutrition programs to provide the maximum micronutrients to achieve optimum yields, it is often a micronutrient deficiency that is restricting the plant from reaching its genetic potential.

Growers must take into account the interactions of nutrients with each other. Any over supply on one nutrient can cause another nutrient to become the limiting factor.

The EDTA Difference
Unlike other micronutrient sources such as complexes, partial chelates, and natural organic complexes, NACHURS EDTA chelated micronutrients are 100% available to the crop by reducing soil immobilization by remaining water soluble. Other micro sources contain too little complexing agent and undergo major chemical changes, delivering significantly less micronutrient in a form available for plant uptake. While these sources of micronutrients may offer cost savings at first, they can actually create deficiencies for lack of availability.

What is a chelate?
A chelate is a complex organic molecule that surrounds the nutrient ion. Chelates are used as carriers for micronutrients, to keep them in solution and protect them from reactions that cause the micronutrient to become insoluble and unavailable to the plant.

- Chelation allows a nutrient to “maintain its own identity” with no tie up.
- Chelates are organic molecules that trap highly reactive metal cations (+).
- Chelation removes the positive charge from the metals.
- A neutral or slightly negatively charged chelated molecule enters the plant more rapidly.
Zinc (Zn) - 100% EDTA Chelated
Zinc is necessary for starch formation and proper root development. It is also essential for seed formation and maturity. The most common Zn nutrient deficiency symptoms include interveinal chlorosis on older leaves with shortening of the internodal area. This shortening often results in a short compressed plant with a rosetted appearance. NACHURS P-Focus is formulated with Zinc.

Manganese (Mn) - 100% EDTA Chelated
Manganese is essential to plants but too much is toxic. Manganese functions in chlorophyll development and serves as a catalyst in several enzyme systems in the oxidation-reduction process. Manganese deficiency symptoms are very similar to iron deficiencies and appear in the younger leaves of the plant first. Color may be pale between the veins of broadleaf plants. NACHURS N-Focus and K-Focus are formulated with Manganese.

Copper (Cu) - 100% EDTA Chelated
Copper is important as a co-enzyme. It is needed to activate several plant enzymes, including building and converting amino acids to proteins. Since Copper is an immobile nutrient in the plant, deficiency symptoms usually occur on new growth. Copper deficient plants will become chlorotic and take on a bleached appearance. New growth may die.

Magnesium (Mg) - 100% EDTA Chelated
Magnesium is important for ATP formation in chloroplast, as a structural part of chlorophyll, and activates numerous enzymes; most important being ribulose-1,5-biphosphate carboxylase for photosynthetic carbon dioxide fixation. The typical deficiency symptom is interveinal chlorosis on older leaves.

Calcium (Ca) - 100% EDTA Chelated
A secondary element in plant nutrition, calcium is needed in the plant to promote early root formation and growth. Improves general plant vigor and stiffness of stalk. With Calcium deficiencies, leaves have a wrinkled or crinkled appearance and, in some instances, young leaves may never unfold. Roots are also short and are very bunched.

Boron (B)
Boron is vital to the growth & development of the plant. Without adequate Boron, new growth ceases. It is necessary in the pollination and seed production stages. Boron is essential for maintaining a balance between sugars and starches. A small amount of Boron is beneficial to plants but too much can be toxic to plants. NACHURS N-Focus, K-Focus, and S-Focus are formulated with Boric acid.

All micronutrients are also available for purchase as standalone products.

*Taken from: Western Fertilizers Handbook

---

**Comparing Chelates**

<table>
<thead>
<tr>
<th>Strength</th>
<th>Stability Constant</th>
<th>Relative</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDTA</td>
<td>16.5</td>
<td>Strong</td>
</tr>
<tr>
<td>Phosphate</td>
<td>8.7</td>
<td>Medium</td>
</tr>
<tr>
<td>Citrate</td>
<td>4.5</td>
<td>Weak</td>
</tr>
<tr>
<td>Glucoheptonate</td>
<td>2.3</td>
<td>Weak</td>
</tr>
<tr>
<td>Lignosulfonate</td>
<td>2.3</td>
<td>Weak</td>
</tr>
</tbody>
</table>

---

**NACHURS Micro+**

- **Calcium (Ca)** 0.1%
- **Cobalt (Co)** 0.005%
- **Copper (Cu)** 0.5%
- **Iron (Fe)** 0.5%
- **Manganese (Mn)** 2.0%
- **Molybdenum (Mo)** 0.005%
- **Zinc (Zn)** 3.0%

**NACHURS Micro+**

- **Boron (B)** 0.1%
- **Calcium (Ca)** 0.005%
- **Cobalt (Co)** 0.5%
- **Iron (Fe)** 0.5%
- **Manganese (Mn)** 2.0%
- **Molybdenum (Mo)** 0.005%
- **Zinc (Zn)** 3.0%

---

**Foliar**

NACHURS foliars are manufactured with the highest quality raw materials on the market today. They include only chelated micronutrients to maximize foliar absorption. NACHURS products offer a variety of foliar options as crops need different nutrients at different times.

NACHURS foliar micronutrients have proven to translocate quickly from the young leaves to the root system. This translocation promotes a healthier plant and healthier root system. A healthier root system takes up more nutrients from the soil. In general, a healthier plant is a more profitable plant!

---

**FOLIAR PRODUCTS:**

- **NACHURS P-Focus**
- **PK-Focus**
- **K-Focus**
- **KA-Focus**
- **S-Focus**
- **PS-Focus**
- **N-Focus**
- **SRN-Focus**

---

**Foliar sprays should contain:**

- Nitrogen to act as an electrolyte to carry nutrients
- Phosphate for internal circulation

**The most critical times to apply:**

- Periods of great growth activity
- Transition from vegetative to reproductive state
- Presence of deficiency/damage

**Timing is crucial. Untimely applications are not effective.**
The rate of absorption is just one of many benefits of foliar feeding:

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Time For 50% Absorption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen (As Urea)</td>
<td>1/2 - 2 hours</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>5 - 10 days</td>
</tr>
<tr>
<td>Potassium</td>
<td>10 - 24 hours</td>
</tr>
<tr>
<td>Calcium</td>
<td>10 - 94 hours</td>
</tr>
<tr>
<td>Magnesium</td>
<td>10 - 24 hours</td>
</tr>
</tbody>
</table>

- Source: Michigan State University

**SYNERGISTIC EFFECT OF N, P, AND K**

<table>
<thead>
<tr>
<th>Treatment</th>
<th>% P Absorbed From Fertilizer</th>
</tr>
</thead>
<tbody>
<tr>
<td>P alone</td>
<td>12.1%</td>
</tr>
<tr>
<td>N + P</td>
<td>20.3%</td>
</tr>
<tr>
<td>P + K</td>
<td>13.1%</td>
</tr>
<tr>
<td>N + P + K</td>
<td>22.3%</td>
</tr>
</tbody>
</table>

- Source: Dr. John L. Strauss, Director of Agronomy Services, Tulsa Oklahoma

**NACHURS SLOW RELEASE NITROGEN ADVANTAGES <<**

- Safe and efficient way to supply nitrogen to a growing plant
- Can react rapidly to deficiency symptoms or tissue analysis
- Rapid plant response for correcting deficiency
- Only requires small amounts of fertilizer
- Relatively low cost
- No foliar burn
- Improved yield

**Foliar Nitrogen Absorption**

<table>
<thead>
<tr>
<th>Source</th>
<th>mgN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triazone (NACHURS SRN)</td>
<td>9.60</td>
</tr>
<tr>
<td>Nitrate</td>
<td>7.40</td>
</tr>
<tr>
<td>Urea</td>
<td>7.31</td>
</tr>
<tr>
<td>Ammonium</td>
<td>6.75</td>
</tr>
</tbody>
</table>

31% more Nitrogen was absorbed from Triazone than from Urea

- Source: Widders, Michigan State

**Translocation & Remobilization**

<table>
<thead>
<tr>
<th>Source</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triazone (NACHURS SRN)</td>
<td>62.2</td>
</tr>
<tr>
<td>Ammonium</td>
<td>28.5 (2 ¼)</td>
</tr>
<tr>
<td>Urea</td>
<td>24.7 (2 ½)</td>
</tr>
<tr>
<td>Nitrate</td>
<td>18.1 (3 ½)</td>
</tr>
</tbody>
</table>

Comparison of movement of N sources throughout plant from treated to untreated leaves

- Source: Widders, Michigan State
Shopping around for fertilizers? In such tough economic times, farmers have a lot of factors to consider when planning for a successful growing season. We would like to help make those decisions easier. For over 70 years, the leader in top quality fertilizers has been NACHURS. We will not compromise fertilizer quality for a cheaper price. But you don’t need to take our word for that; the proof is in the product.
EASE OF USE (TIME EFFICIENCY) <<

Less stopping
For starter applications you can size your tank to run out when seed runs out. With dry fertilizer you have to stop more often. For foliar application, our rates are often less than other products.

One pass
For starter applications, product is placed when the seed is planted on the same pass. For foliar applications our products are compatible with many other products (pesticides, fungicides, herbicides, insecticides) and can be applied when you are already going into the field to make a pass.

Cleaning
Unlike dry fertilizer and high salt liquid fertilizers, our products are non-corrosive, low salt, and have a neutral pH. No extensive equipment cleaning is necessary.

SPOON FEEDING / RISK MANAGEMENT (STAGED NUTRITION) <<

We recommend adding nutrients throughout the growing cycle:
- Starter nutrition at the time of planting
- Staged (early to late season) foliar nutrition at key points

NACHURS starter allows the plants to be continuously fed efficiently during its growing cycle versus putting everything down at once and risking the chance that it won’t be available to the crop.

By spoon feeding the crop, it allows the grower to decide how much fertilizer to add to the crop during the season (and in essence how much money to spend on it as the season goes on) versus putting it all out before the season starts and hoping to get a good year. It also allows for the grower to add required trace elements to the foliar application if needed.

GAIN TIME <<

Our starter products get the crop off to a fast start which shortens the amount of time for the crop to grow to maturity.

The crop will have a quicker and consistent emergence
- This gives the crop a better chance of surviving a late spring frost
- If planted late, this will help catch the crop up
- Faster emergence allows for earlier pesticide application

The crop will also develop a better canopy coverage
- This will shade ground conserving moisture
- Weed growth will be reduced

Getting off to a fast start also means an earlier maturity
- Better chance of avoiding an early autumn frost due to earlier harvesting
- Decreased moisture content, resulting in drier corn at harvest

EFFICIENCY <<

Nitrogen moves quickly throughout the soil moisture profile.

Phosphate moves very little in the soil. The majority of P in most soils is essentially in insoluble forms.

Potassium is slow to move and usually becomes stratified in soil layers.

- If the plant does not get the nutrients then nutrients did not do any good
- Most of the nutrients applied are lost or tied up. It is estimated that the following percentages of nutrients are either lost or tied up when placed in the soil:
  - N-50%
  - P-95%
  - K-85%
- When nutrients are applied efficiently, less is needed and money is saved
- Further healthy plants can process water and nutrients more efficiently
- NACHURS fertilizers can be placed on the seed at planting which greatly improves nutrient efficiency.

QUALITY <<

Safety (low impurities, low salt, neutral pH)
- Plant/seed safe at recommended rates
- Non-corrosive on equipment

Storability
Year round storability in any temperature environment

Compatibility
Compatible for tank mixing with trace elements, herbicides, pesticides, fungicides, insecticides to help:
- Correct deficiencies
- Decrease plant stress

We always recommend a jar test first and mixing the product right before application.

YIELDS <<

Decades of trials have shown yield advantages using NACHURS products vs. dry starter, 10-34-0 and no starter.

“Fuller-season hybrids, in general, are higher-yield hybrids. And the right starter fertilizer stimulates early growth—in essence, enabling the hybrid to mature to its full yield potential in less time. To “cram” if you will, a 115-day hybrid season into fewer calendar days.”

- Source: PCS Group
SPECIALTY VS. COMMODITY  

NACHURS P-Focus (10-18-4)  

1.28 kg/liter x 18% = 0.231 kg \(P\_2O\_5\)/liter times 50 liters/HA  
equals 11.56 kg of \(P\_2O\_5\)/HA  

\textbf{100\% orthophosphate} means all 11.56 kg/HA  
is available to the plants  

10-34-0  

11.6 kg/liter x 34% = 0.474 kg \(P\_2O\_5\)/liter times 50 liters/HA  
equals 23.68 kg of \(P\_2O\_5\)/HA  

\textbf{30\% orthophosphate} is the average which means only 7.10 kg/HA  
is available to the plants  

NACHURS P-Focus has 62\% more available P than standard 10-34-0  

OTHER DIFFERENCES:  

- Low impurities  
- Low salt – seed safe at recommended rates  
- Non-corrosive  
- Storable  
- Micronutrients included  

- High impurities  
- High salt  
- Potentially corrosive  
- Less storable  
- No micronutrients  

TRUE SOLUTION VS. SUSPENSION  

Suspension fertilizer is NOT a true solution:  

- There is a high possibility of settling due to insufficient agitation; this settling is then prone to plug application equipment  
- Constant agitation is needed in all phases of handling and application  
- Settling contaminates successive products and requires adequate cleaning between products  
- Variable viscosity causes inconsistent flow and application rates  
- High salt content eliminates suspension fertilizer as a highly efficient in-furrow or foliar application  
- High salt content is very corrosive to equipment  
- Suspension fertilizer contains high levels of impurities from the manufacturing process  
- Many times suspension fertilizers contain clay to help keep materials in suspension  

NACHURS liquid fertilizer is a true solution
Yield potential will vary from farm to farm due to a variety of factors. The key is to provide a balanced fertility program that will allow you to achieve the total benefit from your crop production acres. In the early growth stages of the corn plant there is a definite need for a combination of Nitrogen, Phosphorus and Potassium to set the potential for maximum yields. NACHURS starter fertilizers supply nutrients to the plant during critical stages of development.

Early root development is critical to maximizing yields.
**HOW DO WE DO IT?**

**Precision Placement** – Liquid vs. Dry

**Solubility** – Will Not Settle Out & Available

**Low Salt** – Seed Safe

**Neutral pH** – Non Corrosive

**Quality** – Raw Materials

**Orthophosphate vs. Polyphosphate**

**Specialty vs. Commodity**

**Suspension vs. True Solution**

---

**PRECISION PLACEMENT <<**

Placing exact amounts of the proper plant mineral nutrients on the plant at the times they are needed. Support early root development, which is critical to maximizing yields.

---

**Precision Placement**

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BROADCAST</strong></td>
<td>No Efficiency. Leaves plant potentially short of P at a critical growth stage. Crop roots likely will not come in contact with the fertilizer.</td>
</tr>
<tr>
<td><strong>BANDED 2”x 2”</strong></td>
<td>Inefficient. Leaves plant potentially short of P at a critical growth stage. Roots may or may not come in contact with fertilizer during growth period.</td>
</tr>
<tr>
<td><strong>IN-FURROW</strong></td>
<td>Efficient. Fulfills needs of the young plant in regard to P requirements. Phosphorus placed for maximum plant efficiency. Roots are in immediate contact with fertilizer.</td>
</tr>
</tbody>
</table>

**RESEARCH UNIVERSITY OF GUELPH**

Study: 12 lbs. P$_2$O$_5$ seed-placed out-yielded 60 lbs. P$_2$O$_5$ banded

---

**Broadcast**

400 lbs. P$_2$O$_5$

**2 x 2**

40 lbs. P$_2$O$_5$

**Seed Placed**

10 lbs. P$_2$O$_5$
**SOLUBILITY < <**

Nutrients must be in solution and on the plant to be available.

If the nutrient is not in solution or not on the plant, it is not available.

**Our products are a true solution liquid fertilizer:**
- Each drop has the same ratio of nutrients
- Nutrients will not settle out
- Our fertilizers allow greater flexibility in mixing with other products

**NEUTRAL PH < <**

In addition to a low salt level our products also have a neutral pH. This combination means our products are non-corrosive to equipment and seed safe at recommended rates. Further due to the neutral pH the product is safe to handle.

*Low Salt + Neutral pH = Non-Corrosive*

*Low Salt + Neutral pH = Seed Safe*

**QUALITY < <**

Quality of raw materials must always be considered. One problem with the fertilizer industry, as a whole, is the NPK analysis is the only thing that needs to be guaranteed. The level of impurities and the raw materials used to make the product are not always disclosed. Dry phosphate can even have as much as 10,000 ppm of aluminum, while NACHURS' will run closer to 5 ppm.

We have defined specifications with all of our vendors of our raw materials which are much higher than typically found in the fertilizer industry.

We choose the highest quality raw materials to make our product with:

**P** – We use Purified Phosphoric Acid (PPA). This is the best P source available and is 100% orthophosphate. It is a clear color because it has very minimal impurities compared to other acid sources which have colors caused by impurities.

**K** – We use KOH which is low salt and a very friendly K source. It is made from the more commonly used KCL which is a high salt source of potassium.

**N** – We use a higher level of Urea than Ag grade and it has a very low level of biuret (which is toxic). Our Ammonia comes from cleaner sources and is at least NSF60 grade (which is used in drinking water).

**S** – The form of Sulphur we use is Thio Sulfate. This is a higher quality and more soluble sulphur source than other available options.

**Trace Elements** – We chelate our micronutrients which keeps them soluble in both the fertilizer and the soil.

We test all of our finished goods when they are made and retain samples for 5 years. We make all of our finished goods in small batches to ensure quality.

All of the products we sell internationally are tested for cold and hot storage for 12 months.

**LOW SALT < <**

Plants germinate through the process of osmosis. Water enters the seed from the soil.

In a high-salt environment the seed is challenged to get enough H,0 through the seed membrane to germinate.

*SALT INDEX*

The table shows the amount of pounds of dry fertilizer that will dissolve in 1 gal of water at 72° F.

<table>
<thead>
<tr>
<th>Product</th>
<th>Solubility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium Phosphate</td>
<td>14.1</td>
</tr>
<tr>
<td>Potassium Carbonate</td>
<td>12.5</td>
</tr>
<tr>
<td>Ammonium Phosphate</td>
<td>5.7</td>
</tr>
<tr>
<td>Potassium Chloride</td>
<td>3.2</td>
</tr>
<tr>
<td>Ammonium Sulfate</td>
<td>0.6</td>
</tr>
</tbody>
</table>

*All of the products we sell internationally are make all of our finished goods in small batches and we test all of our finished goods when they are made and retain samples for 5 years. We make all of our finished goods in small batches to ensure quality.*
**ORTHO VS POLY <<**

Polyphosphates are similar to a chain of molecules, and are too large for the plant to uptake. Plants cannot absorb and metabolize phosphates in this form. Polyphosphates have to break down into single chain links (orthophosphates) in order to become available to the plant. Generally, if liquid fertilizer is green in color, it has polyphosphates.

Orthophosphates are in the form of a single chain link. Plants can only absorb and metabolize phosphates in this form. ‘P’ must be in the ortho form. Plants absorb P as Orthophosphate ions $\text{H}_2\text{PO}_4^-$ and $\text{HPO}_4^{2-}$.

Our products only contain 100% orthophosphate.

“Phosphorus in the soil solution will be almost exclusively orthophosphate.”

“If polyphosphates are added to the soil solution in the form of fertilizers, they must hydrolyze to orthophosphate in order to be absorbed by the plant root.”

“Therefore, for practical purposes, orthophosphate is the form that is most important.”

- Source: Foth & Ellis, Michigan State University
# NACHURS General Nutrient Programs by Crop

<table>
<thead>
<tr>
<th>CROP</th>
<th>ROW SPACING</th>
<th>STARTER</th>
<th>Y SPLITTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn</td>
<td>75 cm</td>
<td>NACHURS P-Focus – 50 Liters/Hectare</td>
<td></td>
</tr>
<tr>
<td>Soybeans</td>
<td>75 cm</td>
<td>NACHURS PK-Focus – 25 Liters/Hectare</td>
<td>Yes</td>
</tr>
<tr>
<td>Wheat</td>
<td>18.75 cm</td>
<td>NACHURS P-Focus – 60 Liters/Hectare</td>
<td></td>
</tr>
<tr>
<td>Oats</td>
<td>18.75 cm</td>
<td>NACHURS P-Focus – 60 Liters/Hectare</td>
<td></td>
</tr>
<tr>
<td>Rye</td>
<td>18.75 cm</td>
<td>NACHURS P-Focus – 60 Liters/Hectare</td>
<td></td>
</tr>
<tr>
<td>Barley</td>
<td>18.75 cm</td>
<td>NACHURS P-Focus – 60 Liters/Hectare</td>
<td></td>
</tr>
<tr>
<td>Canola</td>
<td>18.75 cm</td>
<td>NACHURS P-Focus – 40 Liters/Hectare</td>
<td></td>
</tr>
<tr>
<td>Sorghum</td>
<td></td>
<td>NACHURS P-Focus – 40 Liters/Hectare</td>
<td></td>
</tr>
<tr>
<td>Alalfa</td>
<td></td>
<td>N/A – multiyear crop</td>
<td></td>
</tr>
<tr>
<td>Cotton</td>
<td>90 cm</td>
<td>NACHURS P-Focus – 25 Liters/Hectare</td>
<td>Yes</td>
</tr>
<tr>
<td>Sugar Cane</td>
<td></td>
<td>NACHURS PK-Focus – 60 Liters/Hectare-lay out shoots</td>
<td></td>
</tr>
<tr>
<td>Sunflower</td>
<td>75 cm</td>
<td>NACHURS PK-Focus – 40 Liters/Hectare</td>
<td></td>
</tr>
<tr>
<td>Rice</td>
<td>18.75 cm</td>
<td>If direct planting – NACHURS P-Focus – 30 Liters/Hectare</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>If transplanting – NACHURS P-Focus – Ratio to Water 1:100</td>
<td></td>
</tr>
<tr>
<td>Potato</td>
<td>90 cm</td>
<td>NACHURS P-Focus – 50 Liters/Hectare</td>
<td></td>
</tr>
<tr>
<td>Sugar Beets</td>
<td>55 cm</td>
<td>NACHURS PK-Focus – 30 Liters/Hectare</td>
<td></td>
</tr>
<tr>
<td>Tobacco</td>
<td></td>
<td>If direct planting – NACHURS SRN-Focus – 15 Liters/Hectare</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>If transplanting – NACHURS SRN-Focus – Ratio to Water 1:100</td>
<td></td>
</tr>
<tr>
<td>Lentils</td>
<td>75 cm</td>
<td>NACHURS PK-Focus –25 Liters/Hectare</td>
<td>Yes</td>
</tr>
<tr>
<td>Edible Beans</td>
<td>75 cm</td>
<td>NACHURS PK-Focus – 25 Liters/Hectare</td>
<td>Yes</td>
</tr>
<tr>
<td>Cole Crops (Broccoli, Cabbage, Cauliflower)</td>
<td>If transplanting NACHURS PK-Focus – 15 Liters/Hectare</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cucurbits (Cucumbers, Pumpkins, Squash, Melons)</td>
<td>125 cm</td>
<td>NACHURS PK-Focus – 20 Liters/Hectare</td>
<td></td>
</tr>
<tr>
<td>Onions</td>
<td></td>
<td>If direct planting – NACHURS PK-Focus – 20 Liters/Hectare</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>If transplanting – NACHURS PK-Focus – Ratio to Water 1:100</td>
<td></td>
</tr>
<tr>
<td>Tomatoes</td>
<td></td>
<td>If direct planting – NACHURS P-Focus – 20 Liters/Hectare</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>If transplanting – NACHURS P-Focus – Ratio to Water 1:100</td>
<td></td>
</tr>
<tr>
<td>Vegetables (Carrots, Lettuce, Peppers, Celery)</td>
<td>Direct and transplant NACHURS P-Focus – 15 Liters/Hectare</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peanuts</td>
<td>90 cm</td>
<td>NACHURS PK-Focus – 25 Liters/Hectare</td>
<td>Yes</td>
</tr>
<tr>
<td>Sesame</td>
<td>90 cm</td>
<td>NACHURS P-Focus – 20 Liters/Hectare</td>
<td></td>
</tr>
<tr>
<td>Safflower</td>
<td>90 cm</td>
<td>NACHURS PK-Focus – 30 Liters/Hectare</td>
<td></td>
</tr>
<tr>
<td>Grapes (Concord)</td>
<td></td>
<td>N/A – multiyear crop</td>
<td></td>
</tr>
<tr>
<td>Pasture/Grasses</td>
<td></td>
<td>N/A – multiyear crop</td>
<td></td>
</tr>
<tr>
<td>Fruit Trees– General</td>
<td></td>
<td>N/A – multiyear crop</td>
<td></td>
</tr>
<tr>
<td>Nut Trees– General</td>
<td></td>
<td>N/A – multiyear crop</td>
<td></td>
</tr>
</tbody>
</table>

- All starter rates need to be adjusted according to row spacing and soil conditions (CEC, OM%, Moisture).
- Some crops require a Y splitter to be used for application because the seed is sensitive. Y splitters are put on the end of the hose so that the liquid goes on each side of the seed instead of directly on it. Make sure it is lined up correctly so you are not getting two streams on the seed and they are in fact going on each side of the seed.
- Foliar applications can be applied when other chemicals are being applied. Our products mix well although we always recommend a jar test and to mix right before application. If multiple applications are possible then the amount recommend...
FOLIAR OPTION 1

<table>
<thead>
<tr>
<th>NACHURS SRN-Focus</th>
<th>30 Liters/Hectare</th>
</tr>
</thead>
<tbody>
<tr>
<td>NACHURS SRN-Focus</td>
<td>20 Liters/Hectare</td>
</tr>
<tr>
<td>NACHURS K-Focus</td>
<td>30 Liters/Hectare</td>
</tr>
<tr>
<td>NACHURS K-Focus</td>
<td>20 Liters/Hectare</td>
</tr>
<tr>
<td>NACHURS K-Focus</td>
<td>20 Liters/Hectare</td>
</tr>
<tr>
<td>NACHURS K-Focus</td>
<td>20 Liters/Hectare</td>
</tr>
<tr>
<td>NACHURS K-Focus</td>
<td>20 Liters/Hectare</td>
</tr>
<tr>
<td>NACHURS PK-Focus</td>
<td>50 Liters/Hectare</td>
</tr>
</tbody>
</table>

FOLIAR OPTION 2

<table>
<thead>
<tr>
<th>NACHURS SRN-Focus</th>
<th>30 Liters/Hectare</th>
</tr>
</thead>
<tbody>
<tr>
<td>NACHURS SRN-Focus</td>
<td>20 Liters/Hectare</td>
</tr>
<tr>
<td>NACHURS SRN-Focus</td>
<td>30 Liters/Hectare</td>
</tr>
<tr>
<td>NACHURS SRN-Focus</td>
<td>20 Liters/Hectare</td>
</tr>
<tr>
<td>NACHURS SRN-Focus</td>
<td>30 Liters/Hectare</td>
</tr>
<tr>
<td>NACHURS SRN-Focus</td>
<td>20 Liters/Hectare</td>
</tr>
<tr>
<td>NACHURS SRN-Focus</td>
<td>20 Liters/Hectare</td>
</tr>
<tr>
<td>NACHURS SRN-Focus</td>
<td>20 Liters/Hectare</td>
</tr>
</tbody>
</table>

- These are general recommendations. In some markets, different products may be used due to soil differences and growing conditions. In some markets it may not be common to apply both starter and foliar to the crop. In this case it is fine to apply just one, although applying the full program will yield best results.

Adequate coverage in all instances. Micronutrients may be added to the foliar applications to correct any deficiencies that exist. The best time to apply any foliar product is in the morning or the evening. If it is extremely dry, cut back the application rates.

As a general rule, foliar applications can be split over these applications although make sure there is enough water to ensure complete coverage. Unless specifically noted the foliar application may all be made at once if that is easiest. Make sure you add enough water to get good coverage in all instances. Micronutrients may be added to the foliar applications to correct any deficiencies that exist. The best time to apply any foliar product is in the morning or the evening. If it is extremely dry, cut back the application rates.

Consult for application rates and timing.