ALPINE®

2026-2027

Product Catalog

A Handbook to Balanced Crop Nutrition

www.AlpinePFL.com

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PRODUCTION & DISTRIBUTION
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ALPINE® LIQUID PLANT FOOD

ALPINE® PLANT FOOD

ALPINE®

ALPINE® Maximizing Fertilizer Efficiency since 1973

About ALPINE®

Founded in 1973 with the goal to revolutionize farming practices in Canada, ALPINE began by only importing liquid starter fertilizers into Ontario from the US. However, it did not take long to realize that manufacturing its own product would be the key to success in Canada. By 1975, ALPINE developed its first flagship product, 6-24-6, known today as ALPINE G24.

In 1998, ALPINE Liquid Fertilizers was acquired by Na-Churs Plant Food and became part of the Nachurs Alpine Solutions® *(NAS)* family. Since 1946, NAS has been the leading manufacturer of liquid fertilizers in North America. Today, ALPINE Liquid Fertilizers is well positioned to serve the agricultural marketplace in Canada. Locally manufactured products and global operational experience make our company among the most efficient producers of premium quality products.

With over 50 years in business, our goal remains the same: To provide seed-safe, high quality and precision-placed liquid fertilizer. All while being the innovator in the industry by providing the latest technologies to *Maximize Fertilizer Efficiency*.

ALPINE is excited for the next 50 years!

About ALPINE® Technologies

ALPINE® is a liquid fertilizer brand that has revolutionized farming practices since 1973. Offering high quality precision-placed, seed-safe liquid starters and the latest technologies for maximum and sustainable yield potential.

With seven manufacturing locations across North America, ALPINE® is well positioned to service the growing market and help growers maximize their crop's potential.

Patented Technology Overview

bio-K®

Premium source of potassium fertilizer combined with a natural plant metabolite; the most effective and efficient source of potassium. Leading to quicker germination, improved root development, and an elevated abiotic stress tolerance.

ALPINE® Aqua-Tech® is a unique polyamine technology that allows for greater plant productivity through fertigation systems, delivering highly available low-salt nutrients safely and precisely.

aqua-TECH®

ENDURO SHIELD BY ALPINE®

ALPINE® Enduro-Shield technology is a purified high quality, marine ShIeBY Id macroalgae extract product obtained from Ascophyllum nodosum with gene expression, growth promotant, and stress mitigation properties.

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ALPINE® GENERAL RECOMMENDATIONS

In-Furrow Applications

ALPINE liquid fertilizer placed on or near the seed at planting time is designed to stimulate early root growth, emergence and strengthen plant health. Recommended rates of ALPINE fertilizer are included in the PRS presented in this guide. Consult with your authorized ALPINE Retailer or ALPINE District Sales Manager for specific fertility recommendations.

Benefits with In-Furrow Applications

In furrow placement of micronutrients along with other crop enhancement products are greatly facilitated through the ALPINE application system. With the ever-increasing development of plant growth supplements, many can be added to the starter application, increasing efficiency and accuracy. The addition of an ALPINE Injection kit is often required to ensure product compatibilities and efficacy is maintained. All tank mixes should be tested for physical and performance compatibility before use. Consult with your ALPINE Retailer or ALPINE District Sales Manager before using such mixes.

Foliar Application

Foliar feeding is one of the most efficient methods of supplying nutrients during critical plant growth stages, while amplifying root activity. ALPINE foliar fertilizers provide a balance of N including slow-release, P in the orthophosphate form that plants require, and our Bio-K as potassium acetate. ALPINE EDTA chelated micronutrients are designed to enhance nutrient uptake, assisting plants in overcoming deficiencies while Maximizing Fertilizer Efficiency.

ALPINE foliar products are manufactured with the highest quality raw materials on the market today and includes available, chelated micronutrients to maximize foliar absorption. ALPINE foliar fertility can also be safely and conveniently mixed with most crop protection to help maximize yield potential (please follow proper mixing instructions).

.

For more specific foliar guidelines, consult with your authorized ALPINE Dealer or ALPINE District Sales Manager for fertility recommendations.

MIXING INSTRUCTIONS

ALPINE liquid fertilizers can mix with many crop production products. Some non-100% EDTA chelates may not be compatible.

- In a small container prior to full scale mixing, proportionally mix all the components to confirm compatibility.
- Thorough mixing of all blends is important.
- Temperature and storage time can influence the degree of success.
- Mix only the amount that will be immediately used.
- Long-term storage is not suggested.

MIXING PROCEDURE

- Add ½ of total water to spray tank
- Start recirculation in the tank
- Add micronutrients and or any other flowable material
- Add any soluble powder first pre-mixing with water
- Add the recommended amount of ALPINE liquid fertilizer
- Add remaining water volume and continue recirculation prior to spraying

GENERAL PRODUCT STORAGE RECOMMENDATIONS

• WHITE PRODUCTS: Storage in poly, fiberglass, stainless, or lined/coated steel tanks to prevent product discoloration. Storage in flat bottom tanks is recommended during winter months. Bubble, recirculate, and/or agitate material before usage in all instances. Material stored in cone bottom tanks (although not recommended) will require longer recirculation after winter to regain product consistency.

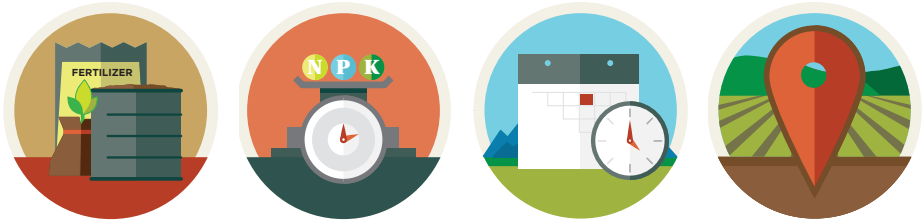
• GREEN PRODUCTS: Storage in flat bottom tanks is recommended during winter months. Bubble, recirculate, and/ or agitate material before usage in all instances. Material stored in cone bottom tanks (although not recommended) will require longer recirculation after winter to regain product consistency.

THE FOLLOWING CONDITIONS MUST BE OBSERVED IN ORDER TO APPLY ALPINE LIQUID FERTILIZER FOR FOLIAR APPLICATIONS. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN DAMAGE TO THE PLANTS.

- **DO** use ALPINE fertilizers under conditions of optimum plant growth including highest humidity, moderate temperature and adequate soil moisture.
- **DO** add, as a minimum, equal amounts of water. Do use sufficient water to provide thorough coverage.
- **DO** consult with your local ALPINE District Sales Manager to determine pesticides which are compatible with ALPINE fertilizer.
- **DO** add wettable or soluble powders, emulsifiables or flowables to water in the mix and wet, dissolve or disperse before adding ALPINE fertilizer.
- **DO** consult your local NACHURS District Sales Manager for rate and application instructions.
- **DO** use a small jar or container prior to full scale mixing to proportionally mix all the components to confirm compatibility.
- **DO NOT** use when the crop is under stress from pests, heat or inadequate soil moisture.
- **DO NOT** apply by aircraft if surface wind is greater than five miles per hour to assure adequate crop coverage and droplet disposition.
- **DO NOT** spray to run off. Do not spray to visible droplet coalescence. Do not allow concentrated spray mist to run off fruit or leaves.
- **DO NOT** apply during the heat of the day.
- **DO NOT mix** with calcium containing products unless the calcium is fully EDTA chelated.
- **DO NOT** mix fertilizers with hard water. Mixing with hard water may cause clogging of lines due to the combining of calcium, magnesium and iron in the water with phosphate in the fertilizer.

ALPINE Is A 4R Partner:
A Concept Of The International Plant Nutrient Institute (IPNI)

4R nutrient stewardship PARTNER



RIGHT SOURCE	RIGHT RATE	RIGHT TIME	RIGHT PLACE
Matches fertilizer type to crop needs.	Matches amount of fertilizer to crop needs.	Makes nutrients available when crops need them.	Keeps nutrients where crops can use them.

✔ RIGHT SOURCE
ALPINE Liquid Fertilizers are manufactured with the highest quality raw materials at six locations throughout North America since 1946.

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

✔ RIGHT TIME
ALPINE efficiently delivers nutrients to the growing crop, and mixes well with many pesticides for quicker emergence and superior control in one application.

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

THE ALPINE WAY... MORE THAN JUST A STARTER!

1. LIQUID STARTER OPPORTUNITIES
ALPINE at planting product options have a neutral pH and are lower in both salt index and impurities than traditional product options. ALPINE offers flexible product options for seed placed and banded fertility at planting.

Placement with the seed product options position readily available nutrient, initiating crop establishment, early development and plant vigor. The beside the row option provides many of the same early benefits along with greater nutrient delivery for supporting the future demand of high yielding crops.

ALPINE liquid starters contain 50%–100% of the phosphorus in the orthophosphate form which is immediately available to the plant at the onset of growth.

2. ALPINE FOLIAR OPPORTUNITIES
Foliar feeding is one of the most efficient methods of supplying nutrients during critical growing stages. ALPINE foliar fertilizers provide available N-P-K and chelated micronutrients to make a good crop even better or it can supply a deficient, stressed crop the proper nutrients for a quick recovery. ALPINE programs offer the following foliar products: micronutrients, N-P-K fertilizers, and slow release nitrogen products. These products can also be customized and combined to ensure crop success.

3. ALPINE Micronutrients
ALPINE 100% EDTA chelated micronutrients are designed to be combined with ALPINE liquid starters and foliars, allowing the product to be placed directly with the seed at planting time, or on the plant foliage. ALPINE products have a neutral pH and are low in both salt index and impurities. Placement with the seed allows the EDTA chelated micronutrients along with the available phosphorus and potassium to be taken up at the critical early stages of growth to maximize yield potential.

ALPINE EDTA chelated micronutrients are formulated to easily mix with ALPINE fertilizers for foliar feeding, allowing for fast absorption into the plant in a very short period of time. This rapid uptake at critical growth stages promotes plant health and increased yield potential.

ALPINE liquid starters and foliars when mixed with ALPINE EDTA chelated micronutrients are immediately available to the plant during the critical early stages of growth.

What is ALPINE bio-K®?

ALPINE Bio-K® products are uniquely formulated to maximize the uptake of potassium as well as increase nutrient use efficiency. The organic based carrier in ALPINE Bio-K® is a natural plant metabolite, recognized as a preferred food source for soil mycorrhizae. It is essential to the production of many plant compounds such as fatty acids, auxins and amino acids. ALPINE Bio-K® also maintains cation-anion cell balance, enhancing rapid absorption by plant roots and leaves.

bio-K® PRODUCTS

- ALPINE G241-S®
- ALPINE K19-S®
- ALPINE K20-S®
- ALPINE K24®
- ALPINE F18 Max®

ALPINE Bio-K® technology is designed with the most available source of potassium for plant uptake and plant use efficiency. Some of the benefits with incorporating ALPINE Bio-K® into your crop plan include:

- *Increase microbial activity in the seed zone to enhance germination.*
- *Amplify the early uptake of potassium to enhance water use efficiency.*
- *Early potassium uptake is key for both phosphorous and nitrogen use efficiency.*
- *Support cell wall integrity, structure and strength.*
- *Increase turgor pressure which in turn will increase root tips.*
- *Increased root tips anchor roots allowing for greater soil penetration.*
- *Greater soil penetration enhances drought tolerance through water use efficiency and nutrient uptake.*

ALPINE Bio-K® has a point of deliquescence of 23% RH and is the most effective source for soil and foliar applied K. When including ALPINE Bio-K®, you will have a synergistic effect both in-furrow as well as when blended as a foliar with your crop protection.

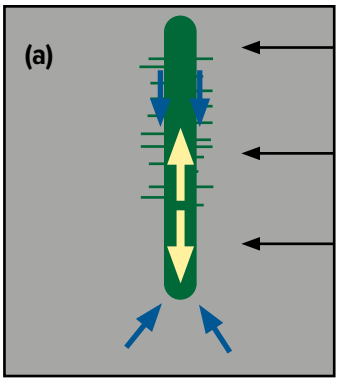
For more information on ALPINE products, please visit alpinepfl.com

Pounds of soil applied nutrients replaced by one pound of foliar applied nutrient		
NUTRIENT	FOLIAR	SOIL
N	1	4
P	1	20
K	1	6
S	1	5-7
B	1	30
Cu	1	12
Mn	1	30
Mg	1	75
Zn	1	12

Plant benefits in two manners by the foliar application of nutrients:

1. *By the rapid influx into the plant of the foliar applied nutrients*
2. *By the increased uptake of the base applied nutrients*

Root elongation in hard and drying soils



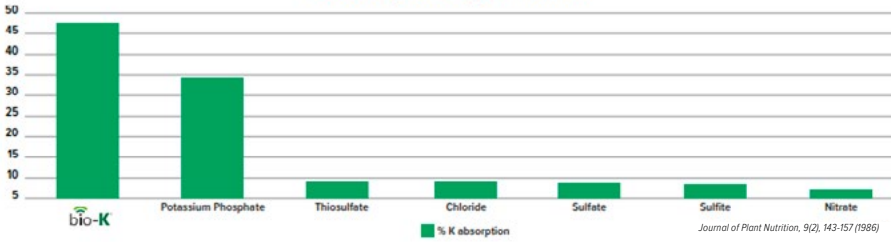
Friction resists root being pushed back

Turgor pressure forces root tip into soil

Resistance of soil to deformation resists root tip

Schematic diagram illustrating (a) forces exerted by a penetrating root tip on the soil (Bengough, G et al., 2010).

Foliar absorption of Potassium after 48 hours From Organic and Inorganic K carriers
% K absorption, Soybean leaves



Journal of Plant Nutrition, 9(2), 143-157 (1986)

The ALPINE® Bio-K® Story

THE PROBLEM

An alarming trend of declining potassium levels and lack of availability at key demand times.

THE RESULT

With the combination of higher yields, newer genetics, production practices, reduced tillage, and decreasing potassium levels in your soil, farmers are jeopardizing plant structure, plant health and stress tolerance which negatively affects yield potential, decreases harvest efficiency and profitability.

THE SOLUTION

bio-K® POWERED BY

ALPINE innovative potassium technology Bio-K will address these costly issues. ALPINE Bio-K is a proven technology that is more efficient and readily taken up by the plant better than any other potassium source in the market today.

Farmer Benefits

- Multiple application methods
- Non-corrosive to equipment
- Mixability with crop protection products
- Product flexibility

Crop Benefits

- Seed safe
- Improves nutrient use efficiency
- Improves plant health and stress
- Highest K solubility
- Reduces water loss and wilting
- Increases photosynthesis
- Balanced plant nutrition

Strategic Applied Fertilizer: Reallocation

Maximizing Return on Investment (ROI) begins with prudent use of crop nutrient; placing the most effective form of nutrient at the most impactful site.

Shifting inputs from less effective products to more efficient products positioned where the plant can make better use of the input adds value to both production and spending efficiency.

When considering reallocation, one must position first all the applications that offer the greatest impact on the crop then finish up the nutrient budget with the less effective products such as broadcast dry granule fertilizers.

High impact treatments target periods in growth when nutrient is needed most or for critical activities such as establishment, early vegetation and plant vigor, sound plant structure and reproduction and finally, crop fill and maturation.

ALPINE's Maximizing Fertilizer Efficiency programs are designed to enhance plant growth and develpoment, meeting critical stages of nutritional demand, amplifying a plants genetic potential.

Generations of Canada's farmers have used ALPINE liquid fertilizers because it is a quality brand they can trust. ALPINE Bio-K products offer the latest technology advancements farmers need to take their crops to the next level.

start finish 2®

The ALPINE Bio-K System
for Maximizing Crop Yields

Simple yet effective, profitable yet sustainable, **Start2Finish®** is a comprehensive liquid fertilizer system to maximize your crop's potential.

EASTERN CA ONLY

ALPINE G241-S®

Premium liquid starter & foliar fertilizer

ALPINE G241-S

bio-K®

Patented Potassium Technology

Guaranteed Nutritional Analysis:

lbs per litre applied

Total Nitrogen (N)	0.205
Available Phosphate ($P_2 0_5$)	0.704
Soluble Potash ($K_2 0$)	0.117
Sulphur (S)	0.029

Product Properties:

Analysis:	7-24-4 1S
Specific Gravity:	1.33 kg/L
pH:	6.0–6.4
Appearance:	Clear green liquid
Odour:	May have slight sulphur odour

General Product Information:

ALPINE G241-S starter brings you the advantages of the newest advancement in plant available potash. ALPINE G241-S contains Bio-K®; a unique natural plant metabolite that enables plants to uptake and make more efficient use of potash. You can expect quicker germination, enhanced root development and an elevated abiotic stress tolerance. All this plus still maintains the low salt, high purity, high orthophosphate content, and of course seed safe features that you have relied and expected from the trusted ALPINE line of starter fertilizers.

The newest product in ALPINE's starter line up also incorporates a source of sulphur to balance out the starter package of macronutrients. With the reduction of Sulphur emissions in the atmosphere over the last decade many crops are showing a need for additional sulphur. Availability to sulphur is often lacking in the early growth stages and cold soils due to limited activity of soil microbes to mineralize soil sources. Having an additional supply available to the plant with the ALPINE G241-S helps to bridge the requirement until the soil warms up.

DO NOT STORE OR TRANSPORT ANY PRODUCT IN ALUMINUM, GALVANIZED OR MILD STEEL TANKS.

First Aid: Please see the SDS sheet for more information, call (800) 265-2268 or visit us online at www.alpinepfl.com.

KEEP OUT OF THE REACH OF CHILDREN.

*These are general product recommendations. Please consult with your authorized ALPINE DEALER OR ALPINE DISTRICT SALES MANAGER for specific fertility recommendations.

In-Furrow Recommendations*:

Row Width	Max L/A
Corn–Grain:	
30”	15–20
Corn – Seed/Sweet:	
30”	11–16
Wheat, barley, rye, and oats:	
6–8”	22–30
Soybeans/Edible Beans:	
28–30”	8
19–21”	12
14–16”	15
6–8”	20

*On light, sandy soils with organic matter of less than 2%, reduce rate by 2 litres per acre.

**Do not apply any combination of potash and urea blend pre-plant broadcast on this type of ground in combination with seed placed starters.

***Micronutrients:** may be applied in combination with ALPINE G241-S to a maximum of 2 litres per acre total micronutrient.

ALPINE G241-S powered by Bio-K® Technology Improves Rooting

bio-K®

nutrient stewardship

bio-K®

Designed for all crops that require potassium, Bio-K® is an innovative potassium technology. Unlike other forms of potassium, Bio-K is a natural plant metabolite that provides the most efficient nutrient uptake. Using Bio-K technology results in quicker germination, improved root development and an elevated abiotic stress tolerance; leading to better plant establishment, more vigorous growth and higher yields.

Consult with your authorized ALPINE Retailer or ALPINE District Sales Manager for more specific recommendations.

ALPINE G22

ALPINE G22®

Premium liquid starter & foliar fertilizer

Guaranteed Nutritional Analysis:

lbs per litre applied

Total Nitrogen (N).....0.169

Available Phosphate (P_2O_5).....0.621

Soluble Potash (K_2O).....0.056

Product Properties:

Analysis: 6-22-2

Weight: 1.28kg/L

Specific Gravity: 1.27–1.28kg/L

pH: 6.4–6.8

Appearance: Clear green liquid

Odour: May have slight ammonia odour

General Product Information:

ALPINE G22 liquid fertilizer is manufactured by utilizing quality raw materials to provide a very agronomically efficient source of N-P-K. The quality of the raw materials used to formulate ALPINE G22 liquid fertilizer:

- Maximizes plant nutrient solubility
- Minimizes salt index
- Minimizes equipment corrosion
- Allows good cold weather storage
- Is plant safe at recommended rates

Seventy percent of the phosphate is present in the orthophosphate form that is immediately available for plant absorption and metabolism. During times of limited phosphate and potassium availability (eg: cold and wet spring soil conditions present at planting), ALPINE G22 liquid fertilizer provides a phosphate and potassium source that is positionally and nutritionally available.

First Aid: Please see the SDS sheet for more information, call (800) 265-2268 or visit us online at www.alpinepfl.com.

KEEP OUT OF THE REACH OF CHILDREN.

*These are general product recommendations. Please consult with your authorized ALPINE DEALER OR ALPINE DISTRICT SALES MANAGER for specific fertility recommendations.

In-Furrow Recommendations*:

Row Width	Max L/A
Cereals–barley, oats, rye, tricale, wheat:	
10”	13.6–24
Oilseeds–canola, flax, mustard, safflower, soybeans, sunflower:	
10”	13.6–24
Pulses–beans, chickpeas, fababeans, lentils, peas:	
10”	13.6–24
Potatoes:	
36”	22–45
Corn:	
30”	18–27
Alfalfa:	
10”	18–22
Sugarbeets:	
22”	13–15

*For other row widths, please consult with your ALPINE Dealer or ALPINE District Sales Manager.

Foliar Feeding General Guidelines:

Cereals, oilseeds, pulses, alfalfa, potatoes, sugarbeets:

- Apply 2–10 litres per acre when used alone.
- Apply 2–4 litres per acre when used with a pesticide.

Maximum rate of any combination of nutritional products without pesticide is 10 litres per acre and 5 litres per acre with a pesticide. 10 gallons per acre of water minimum when using a pesticide and nutrition together.

nutrient stewardship

Consult with your authorized ALPINE Retailer or ALPINE District Sales Manager for more specific recommendations.

ALPINE K24

bio-K®

Patented Potassium Technology

Guaranteed Nutritional Analysis:
lbs per litre applied

Soluble Potash (K_2O)..... 0.677

Product Properties:

Analysis:	0-0-24
Weight:	1.28 kg/L
pH:	9.5–10.5
Appearance:	Clear, colorless to pale yellow
Odour:	Slight sweet odour

General Product Information:
ALPINE K24 brand liquid fertilizer is a unique form of foliar potassium having superior foliar absorption over traditional forms of potassium. Unlike other liquid forms of potassium such as nitrates, hydroxides, thiosulfates or carbonates, ALPINE K24 liquid fertilizer is not caustic or corrosive, resulting in safer foliar applications and less plant stress. ALPINE K24 liquid fertilizer's small molecular size coupled with the plant's natural affinity for organic acids allows for a much higher degree of potassium absorption. For best results, apply ALPINE K24 liquid fertilizer according to recommendations based on plant tissue or soil analysis.

First Aid: Please see the SDS sheet for more information, call (800) 265-2268 or visit us online at www.alpinepfl.com.

KEEP OUT OF THE REACH OF CHILDREN.

SELLER WARRANTS THAT THE ABOVE PRODUCT CONFORMS TO ITS CHEMICAL DESCRIPTION AND IS REASONABLY FIT FOR THE PURPOSE ON THE LABEL WHEN USED IN ACCORDANCE WITH DIRECTIONS UNDER NORMAL CONDITIONS OF USE (INCLUDING NORMAL WEATHER CONDITIONS). NEITHER THIS WARRANTY NOR ANY OTHER WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, EXPRESS OR IMPLIED, EXTENDS TO THE USE OF THIS PRODUCT WHEN USED CONTRARY TO THE LABEL INSTRUCTIONS OR UNDER ABNORMAL CONDITIONS (INCLUDING ABNORMAL WEATHER CONDITIONS), AND THE BUYER ASSUMES THE RISK OF ANY SUCH USE. ALPINE STARTER OR FOLIAR APPLICATIONS ARE INTENDED TO SUPPLEMENT EXISTING SOIL FERTILITY PROGRAMS AND WILL NOT BY ITSELF PROVIDE ALL THE NUTRIENTS NORMALLY REQUIRED BY AGRICULTURAL CROPS.

*These are general product recommendations. Please consult with your authorized ALPINE DEALER OR ALPINE DISTRICT SALES MANAGER for specific fertility recommendations.

ALPINE K24®

Premium liquid fertilizer

ALPINE®

Application Instructions:
ALPINE K24 brand liquid fertilizer can be used on all field and specialty crops to aid in correcting or preventing potassium deficiencies. Potassium requirements for most crops increase greatly during periods of rapid growth and fruit development. Application of ALPINE K24 should be made based on soil and plant tissue analysis for potassium.

Foliar:
Apply by ground or air at a 2–5 litres/acre rate in 3 –10 gallons/acre of water.

Fertigation:

Center Pivot
Apply 10 to 20 litres/acre as needed according to soil and tissue test.

Sprinkler
- Trees apply 10–20 litres/acre
- Vines apply 7–15 litres/acre
- Vegetable and row crops apply 10–20 litres/acre

Soil –
Apply 2–6 litres/acre with other fertilizers at planting time. When using with seed applied starters take into consideration the total amount of salt allowed for your soil type.

For recommendations regarding specific crops or applications consult your ALPINE DSM.

Crop injury may result from unusual weather conditions, failure to follow label directions or improper application practices all of which are out of control of ALPINE.

ALPINE will assume no liability for this product if crop damage or if plugged fertigation equipment occurs from its use. ALPINE always recommends a jar test for compatibility with irrigation water when used for fertigation.

Product Benefits:
- Provides safe application reducing plant stress
- Superior source of K
- Highly compatible with pesticides and other fertilizer
- High analysis
- Non caustic or corrosive
- Low salt index
- High solubility

THE FOLLOWING CONDITIONS MUST BE OBSERVED IN ORDER TO APPLY ALPINE LIQUID FERTILIZER FOR FOLIAR APPLICATIONS. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN DAMAGE TO THE PLANTS.
- **DO** use ALPINE fertilizers under conditions of optimum plant growth including highest humidity, moderate temperature and adequate soil moisture.
- **DO** add, as a minimum, equal amounts of water. **Do** use sufficient water to provide thorough coverage.
- **DO** consult with your local ALPINE District Sales Manager to determine pesticides which are compatible with ALPINE fertilizer.
- **DO** add wettable or soluble powders, emulsifiables or flowables to water in the mix and wet, dissolve or disperse before adding ALPINE fertilizer.
- **DO** consult your local ALPINE District Sales Manager for rate and application instructions.
- **DO** use a small jar or container prior to full scale mixing to proportionally mix all the components to confirm compatibility.
- **DO NOT** use when the crop is under stress from pests, heat or inadequate soil moisture.
- **DO NOT** apply by aircraft if surface wind is greater than five miles per hour to assure adequate crop coverage and droplet disposition.
- **DO NOT** spray to run off. Do not spray to visible droplet coalescence. Do not allow concentrated spray mist to run off fruit or leaves.
- **DO NOT** apply during the heat of the day.
- **DO NOT** mix with calcium containing products unless the calcium is fully EDTA chelated.
- **DO NOT** mix fertilizers with hard water. mixing with hard water may cause clogging of lines due to the combining of calcium, magnesium and iron in the water with phosphate in the fertilizer.

4R nutrient stewardship

bio-K®

Designed for all crops that require potassium, Bio-K® is an innovative potassium technology. Unlike other forms of potassium, Bio-K is a natural plant metabolite that provides the most efficient nutrient uptake. Using Bio-K technology results in quicker germination, improved root development and an elevated abiotic stress tolerance; leading to better plant establishment, more vigorous growth and higher yields.

Consult with your authorized ALPINE Retailer or ALPINE District Sales Manager for more specific recommendations.

ALPINE F18 Max

bio-K®

Patented Potassium Technology

Guaranteed Nutritional Analysis:
lbs per litre applied

Total Nitrogen (N) 0.217
Available Phosphate ($P_2 0_5$) 0.108
Soluble Potash ($K_2 0$).....0.163

Guaranteed Nutritional Analysis:
grams per litre applied

Boron (B) 1.23
Copper (Cu).....2.46
Manganese (Mn).....12.3
Zinc (Zn) 12.3

Product Properties:

Analysis:	8-4-6 0.1B 0.2Cu 1Mn 1Zn
Weight:	1.26 kg/L
pH:	6.5–7.5
Appearance:	Clear, blue-colored liquid
Odour:	Nearly Odourless

General Product Information:
ALPINE F18 Max™ is a new and improved foliar nutritional product, comprised of essential plant nutrients, fully chelated micronutrients, surfactants, compatibility agents, and organic acids as well as the latest in potassium uptake technology, Bio-K®, and is ammonia free. ALPINE F18 Max is manufactured with the highest quality raw materials on the market today, which once absorbed by the plant helps to promote a healthier plant and root system, and ultimately helps to improve crop productivity. ALPINE F18 Max is well adapted to all cropping and management systems, including but not limited to row crops, vegetables, fruit, tree, and turf/ornamentals.

First Aid: Please see the SDS sheet for more information, call (800) 265-2268 or visit us online at www.alpinepfl.com.

KEEP OUT OF THE REACH OF CHILDREN.

*These are general product recommendations. Please consult with your authorized ALPINE DEALER OR ALPINE DISTRICT SALES MANAGER for specific fertility recommendations.

ALPINE F18 Max™

Premium liquid foliar fertilizer

ALPINE®

Application Instructions:
ALPINE F18 Max fertilizer is supplied in a ready to use liquid form, making its application by spray equipment convenient and easy. Apply with adequate water to ensure thorough spray coverage. It is uniquely adapted to all crops and cropping systems to promote rapid growth and development, especially those crops that have encountered environmental stresses due to hail, insects, etc. ALPINE F18 Max fertilizer can be mixed with many crop protection products. Conduct a jar test to verify compatibility with your tank mix product.

General Foliar Application Rates:
1 to 4 litres per acre

Cereals and Small Grains: 1–2 litres per acre at tillering through flag leaf.

Corn, Soybeans, Canola, Sugar Beets: 1–2 litres per acre with in-season herbicide/insecticide applications.

Potatoes: 1–2 litres per acre at tuber initiation.

Forage and Hay Crops: 1–4 litres after sufficient leaf regrowth, usually between 7 and 10 days after cutting. There are no grazing restrictions.

Berries: 1–2 litres per acre at leaf emergence and again pre-bloom.

Fruit/Nut Trees: 2–4 litres per acre at bloom to improve bud set and retention.

Cucurbits: 1–2 litres per acre when runners are 4–6 inches long.

Other Vegetables (beans, peppers, tomatoes, etc.): 1–2 litres pre-bloom.

The Role Of Micronutrients:
ALPINE F18 Max offers 4 essential micronutrients. All are chelated except boron:

- **Boron:** Critical for new growth of plant and in pollination and reproductive stages. Essential for maintaining sugar and starch balances.
- **Copper:** Essential in protein formation and for enzyme activation.
- **Manganese:** Vital in chlorophyll development and enzyme systems in the oxidation process.
- **Zinc:** Promotes root development, vigorous shoot growth, stress tolerance, and a more even maturity.

Mixing Instructions:
ALPINE liquid fertilizers can mix with many crop production products. Some non-100% EDTA chelates may not be compatible.

1. Add 1/3 water to spray tank
2. Start sprayer agitation and maintain
3. Add crop protection product as per label instructions
4. Add 1/3 water
5. Add ALPINE F18 Max
6. Add remaining water volume, agitate before spraying

Favorable spray conditions:
- Time: Afternoon or evening when temperature has dropped 3 degrees from peak
- Temperature: 18–29°
- Humidity: greater than 70%
- Wind speed: less than 8km/5mph

ALPINE F18 Max, as with foliar fertilization in general, is not intended as a replacement for a sound fertility program, but rather as a management tool to help maximize yield and quality.

ALPINE F18 Max is a clean, easy handling product that fits into most crop protection programs. Each drop of foliar has the exact same nutrient ratio, which means it will not settle out of solution.

nutrient stewardship

bio-K®

Designed for all crops that require potassium, Bio-K® is an innovative potassium technology. Unlike other forms of potassium, Bio-K is a natural plant metabolite that provides the most efficient nutrient uptake. Using Bio-K technology results in quicker germination, improved root development and an elevated abiotic stress tolerance; leading to better plant establishment, more vigorous growth and higher yields.

Consult with your authorized ALPINE Retailer or ALPINE District Sales Manager for more specific recommendations.

ALPINE K20-S

bio-K®

Patented Potassium Technology

Guaranteed Nutritional Analysis:
lbs per litre applied

Total Nitrogen (N)	0.089
Soluble Potash ($K_2 0$)	0.595
Sulphur (S)	0.238

Guaranteed Nutritional Analysis:
grams per litre applied

Boron (B) (actual)	2.7
Manganese (Mn) (actual)	1.350
Molybdenum (Mo) (actual)	0.027

Product Properties:

Analysis: 3-0-20 8S 0.2B 0.1Mn 0.002Mo
Weight: 1.35 kg/L
pH: 8.5–10.5
Appearance: Slight rose color
Odour: Slight ammonia odour

General Product Information:
Crop injury may occur from unusual weather conditions. The user assumes all risk of use and handling. Do not apply ALPINE K20-S liquid fertilizer to any crop sensitive to sulfur as plant or leaf injury may occur. It is always best to apply ALPINE K20-S liquid fertilizer early in the morning or late evening. Applications made during periods of high temperature (> 30°C) or low humidity (< 30%) can result in plant and leaf tissue damage.

First Aid: Please see the SDS sheet for more information, call (800) 265-2268 or visit us online at www.alpinepfl.com.

KEEP OUT OF THE REACH OF CHILDREN.

SELLER WARRANTS THAT THE ABOVE PRODUCT CONFORMS TO ITS CHEMICAL DESCRIPTION AND IS REASONABLY FIT FOR THE PURPOSE ON THE LABEL WHEN USED IN ACCORDANCE WITH DIRECTIONS UNDER NORMAL CONDITIONS OF USE (INCLUDING NORMAL WEATHER CONDITIONS). NEITHER THIS WARRANTY NOR ANY OTHER WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, EXPRESS OR IMPLIED, EXTENDS TO THE USE OF THIS PRODUCT WHEN USED CONTRARY TO THE LABEL INSTRUCTIONS OR UNDER ABNORMAL CONDITIONS (INCLUDING ABNORMAL WEATHER CONDITIONS), AND THE BUYER ASSUMES THE RISK OF ANY SUCH USE. ALPINE STARTER OR FOLIAR APPLICATIONS ARE INTENDED TO SUPPLEMENT EXISTING SOIL FERTILITY PROGRAMS AND WILL NOT BY ITSELF PROVIDE ALL THE NUTRIENTS NORMALLY REQUIRED BY AGRICULTURAL CROPS.

*These are general product recommendations. Please consult with your authorized ALPINE DEALER OR ALPINE DISTRICT SALES MANAGER for specific fertility recommendations.

CAUTION: THIS FERTILIZER CONTAINS BORON AND SHOULD BE USED ONLY AS RECOMMENDED. IT MAY PROVE HARMFUL WHEN MISUSED.

WARNING: THIS FERTILIZER IS TO BE USED ONLY ON SOIL WHICH RESPONDS TO MOLYBDENUM. CROPS HIGH IN MOLYBDENUM ARE TOXIC TO GRAZING ANIMALS (RUMINANTS).

ALPINE K20-S®

Premium foliar fertilizer

ALPINE®

General Product Information:
Foliar application of ALPINE K20-S liquid fertilizer can increase yields, but should only be considered as a supplement to a balanced soil-applied nutrient program.

- **Sulfur** is needed to produce amino acids which are required to make proteins and enzymes.
- **Boron** is critical to move carbohydrates from the leaves to the fruit.
- **Manganese** plays a vital role in photosynthesis and general plant tissue health.
- **Molybdenum** plays a key role in the transformation of nitrogen into amino acids. The quicker the plant converts nitrates into amino acid, the less energy the plant will require to manage nitrates, allowing that energy to be utilized in performing other plant functions, increasing nutrient use efficiencies. Molybdenum also plays an important role in allowing legumes to symbiotically fix atmospheric nitrogen.

Foliar applications of ALPINE K20-S liquid fertilizer has the advantage of allowing producers to add necessary nitrogen, potassium, sulfur and micronutrients when:

1. Tissue analysis indicates a N, K or micronutrient shortage
2. Large fruit or grain load is expected
3. Deficiency N, K, S or micronutrient symptoms appear

ALPINE K20-S liquid fertilizer may be mixed with other fertilizers, fungicides or pesticides. Always jar test to determine compatibility.

Agronomic Advantages of ALPINE K20-S
- High K absorption
- Foliar S source
- Optimizes plant health

Product Advantages of ALPINE K20-S
- Contains Bio-K®
- Non corrosive
- Good cold weather storage
- Clean, easy handling
- Tank-mixable with ALPINE MicroBolt® Micronutrients
- Tank-mixable with most crop protection products

Product Recommendations:
ALPINE K20-S liquid fertilizer is recommended for use on the following crops:

- **Corn (Field):** Apply 4–8 L per acre from 2 leaf to VT
- **Alfalfa:** Apply 4–8 L to the crown at early green–up and then again after each cutting allowing for sufficient regrowth.
- **Canola:** Apply 4–8 L per acre at bud to bolting stage.
- **Sugarbeets:** Apply 4–8 L prior to row canopy closing or anytime tissue tests indicate additional potassium is needed.
- **Dry Beans:** Apply 2–4 L per acre at early bloom.
- **Potatoes:** Apply 8 L per acre at tuber initiation and repeat at tuber bulking.
- **Small Grains:** Apply 4–8 L per acre at tillering to early boot stage.
- **Soybeans:** Apply 4–8 L per acre at the R2–R4 growth stages.

*These recommendations are believed to be reliable and should be followed carefully. Failure to follow label directions or improper application practices all of which are out of control of the manufacture or seller can result in plant or leaf damage.

ALPINE K20-S liquid fertilizer may be used foliar anytime additional nutrition is needed. Use enough water to ensure good coverage.

4R nutrient stewardship

bio-K®

Designed for all crops that require potassium, Bio-K® is an innovative potassium technology. Unlike other forms of potassium, Bio-K is a natural plant metabolite that provides the most efficient nutrient uptake. Using Bio-K technology results in quicker germination, improved root development and an elevated abiotic stress tolerance; leading to better plant establishment, more vigorous growth and higher yields.

Consult with your authorized ALPINE Retailer or ALPINE District Sales Manager for more specific recommendations.

ALPINE K19-S

bio-K®

Patented Potassium Technology

Guaranteed Nutritional Analysis:
lbs per litre applied

Soluble Potash (K_2O)..... 0.528

Sulphur (S)..... 0.167

Product Properties:

Analysis: 0-0-19 6S

Specific Gravity: 1.26 kg/L

pH: 8.0–8.8

Appearance: Clear liquid

Odour: Slight sulphur odour

General Product Information:
ALPINE K19-S brand liquid fertilizer is designed to be blended with various other fertilizers to provide important nutrients needed to grow high-yielding crops. It can be mixed with UAN solutions and liquid urea solutions to provide two very critical elements - potassium and sulfur; typically missing from these base fertilizer products. ALPINE K19-S can be blended with UAN solutions to create a strip-till/ sidedress fertilizer that provides extra potassium, and sulfur at a time when uptake of these nutrients is rapidly increasing.

First Aid: Please see the SDS sheet for more information, call (800) 265-2268 or visit us online at www.alpinepfl.com.

KEEP OUT OF THE REACH OF CHILDREN.

*These are general product recommendations. Please consult with your authorized ALPINE DEALER OR ALPINE DISTRICT SALES MANAGER for specific fertility recommendations.

ALPINE K19-S®

Premium liquid fertilizer

Product Recommendations:
Potassium: Potassium teams with nitrogen and sulfur to produce protein essential for proper plant growth. A high testing soil potassium level does not mean adequate potassium will be available to fulfill the plants need. The addition of potassium to your fertilizer program provides the following:

- Helps increase drought resistance
- Helps develop stronger stalks and stems
- Maintains a healthy plant metabolism
- Assists in photosynthesis
- Helps translocation within the plant
- Increases protein and starch levels within the plant
- Aids in fighting diseases

Sulfur: Sulfur is an essential nutrient for corn production, often ranked behind only nitrogen, phosphate and potassium. Sulfur is critical in a young corn plant, deficient amounts at this growth stage and you begin to lose yield. Sulfur is needed to metabolize nitrogen making it available to the plant. The need for sulfur is closely related to the amounts of nitrogen available to the crop. Sulfur activates the enzyme nitrate reductase, which converts nitrates to amino acids within the corn plant.

Recommended Rates:
Use the following chart to determine rates and analysis.

Custom Blends Using ALPINE K19-S*:

Strip-Till/ Sidedress Blend Ratios Using ALPINE K19-S		
ALPINE K19-S	**28% UAN**	**Analysis**
4 Litres	120 Litres	27-0-0.6-0.2S
ALPINE K19-S	**32% UAN**	**Analysis**
4 Litres	150 Litres	31-0-0.5-0.16S

*These recommendations are believed to be reliable and should be followed carefully. Failure to follow label directions or improper application practices all of which are out of control of the manufacture or seller can result in crop damage. Use caution when applying fertilizer directly to the seed as injury may occur.

Mixing Instructions:
- Fill tank with 1/2 of the needed fertilizer solution, if using an induction system simply induct the ALPINE K19-S while filling your tank.
- Start agitation/recirculation and add the prescribed amount of ALPINE K19-S; continue agitation/ recirculation during filling and application.
- Add the remaining fertilizer solution and any other products allowing adequate time to insure complete mixing.

*ALPINE always recommends doing a jar test to check for fertilizer compatibility when mixing with ALPINE K19-S.

nutrient stewardship

bio-K®

Designed for all crops that require potassium, Bio-K® is an innovative potassium technology. Unlike other forms of potassium, Bio-K is a natural plant metabolite that provides the most efficient nutrient uptake. Using Bio-K technology results in quicker germination, improved root development and an elevated abiotic stress tolerance; leading to better plant establishment, more vigorous growth and higher yields.

Consult with your authorized ALPINE Retailer or ALPINE District Sales Manager for more specific recommendations.

ALPINE SRN

ALPINE SRN®

Premium liquid foliar fertilizer

Guaranteed Nutritional Analysis:

lbs per litre applied

Total Nitrogen (N)	0.796
Urea Nitrogen	0.222
Slow Release Water Soluable Nitrogen	0.574

Product Properties:

Analysis:	28-0-0
Weight:	1.29 kg/L
Specific Gravity:	1.29 kg/L
pH:	9.0–10.5
Appearance:	Clear Liquid
Odour:	Slight ammonia odour

General Product Information:

ALPINE SRN liquid fertilizer functions as an efficient source of Nitrogen at critical growth stages in field crops, vegetables, turf and fruits. ALPINE SRN liquid fertilizer may be soil applied, foliar sprayed or injected through irrigation systems including drip. Its use is suggested as a supplement to a regular, balanced fertilizer program to enhance yields and improve overall quality. 72% of the total nitrogen in this product is in the slow release form; this allows the nitrogen release to be matched with the crops needs.

Product Advantages:

- Contains 28% total nitrogen of which 72% is slowly available
- Very low salt index
- Excellent storability
- Non burning and non corrosive
- May be mixed with other fertilizers
- Apply aerial at low volumes – may be applied diluted with water or undiluted

Agronomic Advantages:

- The most efficient form of nitrogen available
- Provides slow even release of nitrogen for a period of 30 days when foliar applied
- Reduces leaching and volatilization
- Provides excellent foliar absorption
- May be used as a carrier for crop protection chemicals

First Aid: Please see the SDS sheet for more information, call (800) 265-2268 or visit us online at www.alpinepfl.com.

KEEP OUT OF THE REACH OF CHILDREN.

*These are general product recommendations. Please consult with your authorized ALPINE DEALER OR ALPINE DISTRICT SALES MANAGER for specific fertility recommendations.

Recommended Application Rates:

Field Crops:

- **Alfalfa –** Apply 4–8 L/ac after each cutting when sufficient foliage is present.
- **Canola –** Apply 4–8 L/ac prior to bolting.
- **Cereal and Small Grains –** Apply to 8 L/ac at tillering through flag leaf.
- **Corn (Field) –** Apply 8 L/ac on the young plant when sufficient foliage is present. Apply 4–8 L/ac at tasseling and again after pollination.
- **Corn (Seed) –** Apply 8 L/ac before detasseling or anytime a crop protection product is used.
- **Corn (Sweet) –** 4–8 L/ac when plants are 12 to 24 inches tall, then at tassel emergence and repeat after pollination.
- **Potatoes –** Apply 8 L/ac at early tuber initiation and again as additional nitrogen is needed.
- **Soybeans –** Apply 4–8 L/ac at the R4 to R6 growth stage or anytime with glyphosate.
- **Sugar Beets –** Apply 8 L/ac at both the 10th leaf stage and the 20th leaf stage.
- **Wheat (Winter) –** Apply 4–8 L/ac as a top-dress and again at flag leaf stage. (Spring) – Apply 4–8 L/ac anytime prior to flag leaf and again at grain fill to boost protein.

Check with your ALPINE District Sales Manager for rates on other field crops.

Vegetable Crops:

- **Beans (Snap, Green, Lima) –** Apply 4–8 L/ac at early pod fill.
- **Broccoli, Brussel Sprouts, Cabbage and Cauliflower –** Apply 4–8 L/ac prior to head formation.
- **Cucumbers, Squash and all Melons –** Apply 4–8 L/ac at early bloom. Crop protection products anytime an application is needed.
- **Lettuce –** Apply 4–8 L/ac at early head formation.
- **Onions and Garlic –** Apply 4–8 L/ac at 12 inch height then again at bulb fill.
- **Peas –** Apply 4–8 L/ac at early flowering then again every 14 days after.
- **Peppers –** Apply 4–8 L/ac at early fruit development.
- **Spinach –** Apply 4–8 L/ac once sufficient foliage is established then every 14 days after.
- **Tomatoes –** Apply 8 L/ac at full bloom.

Check with your ALPINE District Sales Manager for rates on other vegetable crops.

Turf:

Recommended rates are from .25 lbs. to 1 lb. Nitrogen/1000 sq ft per application. Use 3 to 5 gallons of water per 1000 sq ft as a carrier.

APPLICATION CHART FOR ALPINE SRN ON TURF (1 L = 0.796 lbs. Nitrogen)

mL of ALPINE SRN	Lbs. Nitrogen	mL of ALPINE SRN	Lbs. Nitrogen
325 mL	¼ lb.	825 mL	⅔ lb.
475 mL	⅓ lb.	975 mL	¾ lb
650 mL	½ lb.	1300 mL	1 lb.

Sprinkler Irrigation including Center Pivot:

Apply 4–12 L/ac per application depending on crop demand. For Center Pivot application set on lowest water setting possible.

Drip Irrigation:

Apply up to 16 L/ac per application during active root growth. Check for compatibility if using with other fertilizer.

4R nutrient stewardship

Consult with your authorized ALPINE Retailer or ALPINE District Sales Manager for more specific recommendations.

ALPINE CRN-B

Guaranteed Nutritional Analysis:
Lbs per litre applied

Total Nitrogen (N)..... 0.672

Available Phosphate ($P_2 0_5$)..... 0.0

Soluble Potash ($K_2 0$)..... 0.0

Boron (B) 0.013

33% of the total nitrogen found in **ALPINE CRN-B** fertilizer is Controlled Release Nitrogen

Product Properties:

Analysis:	25-0-0-0.5B
Weight:	1.22 kg/L
pH:	8.5–9.5
Appearance:	Clear liquid
Odour:	May have slight ammonia odour

GENERAL PRODUCT INFORMATION:
ALPINE CRN-B liquid fertilizer is manufactured by utilizing the highest quality raw materials coupled with urea triazone technology to provide a very agronomically efficient source of N. Its use is suggested as a supplement to a regular, balanced nutrition program to enhance yields and improve overall quality. 33% of the total nitrogen in this product is in the controlled release form which allows the nitrogen release to be matched with the crop needs. The quality of the raw materials used to formulate ALPINE CRN-B liquid fertilizer:

- Maximizes plant nutrient absorption through the use of triaizone technology
- Minimizes salt- index providing safe foliar use
- Minimizes equipment corrosion
- Is plant safe at recommended rates
- Compatible with other liquid fertilizers
- May be used with crop protection products

FIRST AID: Please see the SDS sheet for more information or call 800.265.2268.

CAUTION: BORON IS TO BE USED WHERE SOIL TEST AND/OR TISSUE ANALYSIS INDICATE A DEFICIENCY, AND SHOULD NOT BE USED AT RATES IN EXCESS OF THE RATE RECOMMENDED BY A QUALIFIED INDIVIDUAL/ENTITY SUCH AS A CERTIFIED CROP ADVISOR, AGRONOMIST OR UNIVERSITY. EXCESSIVE APPLICATION OF BORON MAY CAUSE CROP DAMAGE.

ALPINE CRN-B®

Foliar feeding is one of the most efficient methods of supplying nutrients during critical growing stages.

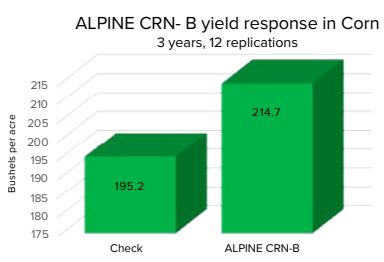
ALPINE CRN-B can provide the nutritional requirements to the plants either alone or in combination with other ALPINE products to deliver the required balanced nutrition that is determined by soil and tissue tests. Foliar nutrition can make a good crop even better or it can supply a deficient, stressed crop the proper nutrients for a quick recovery.

ALPINE CRN-B liquid fertilizer provides the plants with a quick uptake of nitrogen as well as a controlled release of nitrogen during 3–4 weeks to provide additional nitrogen in an efficient manner corresponding to crops needs. Application timing is usually done in conjunction with the application of crop protection products which result in application cost savings and efficient use of the grower's time.

THIS FERTILIZER CONTAINS Boron and should be used only as recommended. It may prove harmful when misused.

Advantages of ALPINE CRN-B:
- Efficient form of nitrogen
- Provides slow even release of nitrogen
- Reduces leaching and volatilization
- Provides excellent foliar absorption
- Compatible with other liquid fertilizers
- Carrier for crop protection programs

Recommended rates	
Cereals- barley, oats, rye, tricale, wheat	4–8 L/ac
Oilseeds- canola, flax, mustard, safflower, soybeans, sunflower:	4–8 L/ac
Pulses- beans, chickpeas, fababeans, lentils, peas:	4–8 L/ac
Potatoes:	4–8 L/ac
Corn:	4–8 L/ac
Alfalfa:	4–8 L/ac
Sugar beets:	4–8 L/ac



4Rs verification	
Right Source	A controlled release product to minimize N losses
Right Rate	Low efficient use rate
Right Place	Foliar applied for rapid uptake
Right Time	Applied at crucial N plant growth requirement

4R nutrient stewardship

WESTERN CA ONLY

ALPINE CRN-S

Guaranteed Nutritional Analysis:
lbs per litre applied

Total Nitrogen (N)..... 0.56

Sulphur (S)..... 0.08

33% of the total Nitrogen found in ALPINE CRN-S fertilizer is Controlled Release Nitrogen

Product Properties:

Analysis: 21-0-0 3S (33% SRN)

Weight: 1.21 kg/L

pH: 7.2–8.2

Appearance: Clear liquid

Odour: May have slight ammonia odour

General Product Information:
ALPINE CRN-S liquid fertilizer is manufactured by utilizing the highest quality raw materials coupled with urea triazone technology to provide a very agronomically efficient source of N. It's use is suggested as a supplement to a regular, balanced nutrition program to enhance yields and improve overall quality. 33% of the total nitrogen in this product is in the controlled release form which allows the nitrogen release to be matched with the crop needs. The quality of the raw materials used to formulate ALPINE CRN-S liquid fertilizer:

- Maximizes plant nutrient absorption through the use of triaizone technology
- Minimizes salt- index providing safe foliar use
- Minimizes equipment corrosion
- Is plant safe at recommended rates
- Compatible with other liquid fertilizers
- May be used with crop protection products

First Aid: Please see the SDS sheet for more information, call (800) 265-2268 or visit us online at www.alpinepfl.com.

KEEP OUT OF THE REACH OF CHILDREN

*These are general product recommendations. Please consult with your authorized ALPINE DEALER OR ALPINE DISTRICT SALES MANAGER for specific fertility recommendations.

ALPINE CRN-S®

Premium liquid foliar fertilizer

Foliar Recommendations:

ALONE:	WITH PESTICIDE:
Cereals–barley, oats, rye, tricale, wheat:	
2–8 L/ac	2–4 L/ac
Oilseeds–canola, flax, mustard, safflower, soybeans, sunflower:	
2–8 L/ac	2–4 L/ac
Pulses–beans, chickpeas, fababeans, lentils, peas:	
2–8 L/ac	2–4 L/ac
Potatoes:	
2–10 L/ac	2–4 L/ac
Corn:	
2–8 L/ac	2–4 L/ac
Alfalfa:	
2–8 L/ac	2–4 L/ac
Sugarbeets:	
2–8 L/ac	2–4 L/ac

*Max rate of any combination of nutritional products without pesticide is 10 litres and with pesticide 5 litres.

**10 gal/ac water minimum when using pesticide and nutrition together.

Foliar Feeding:
Foliar feeding is one of the most efficient methods of supplying nutrients during critical growing stages. ALPINE CRN-S liquid fertilizer provides available N and S to make a good crop even better or it can supply a deficient, stressed crop the proper nutrition for a quick recovery. ALPINE CRN-S liquid fertilizer is manufactured with the highest quality raw materials on the market today to maximize foliar absorption. ALPINE CRN-S liquid fertilizer can also be safely mixed with most insecticides, herbicides, and fungicides to help maximize yield potential (please follow proper mixing instructions).

nutrient stewardship

Consult with your authorized ALPINE Retailer or ALPINE District Sales Manager for more specific recommendations.

ALPINE MicroBolt B

Guaranteed Nutritional Analysis:
grams per litre applied

Boron (B) 134

Product Properties:

Analysis	0-0-0-10B
Weight:	1.34 kg/L
pH:	7.5–8.3
Appearance:	Clear to slight yellow
Odour:	Odourless

General Product Information:
ALPINE MicroBolt B micronutrient is manufactured by utilizing the highest quality raw materials to provide a very agronomically efficient source of plant available boron. ALPINE MicroBolt B micronutrient delivers:

- Maximum plant nutrient solubility - in furrow or foliar
- Minimal salt index
- No application equipment corrosion
- Compatibility with most other liquid fertilizers
- Tank mixable with most pesticides
- Low impurities
- Neutral pH

First Aid: Please see the SDS sheet for more information, call (800) 265-2268 or visit us online at www.alpinepfl.com.

KEEP OUT OF THE REACH OF CHILDREN.

THE FOLLOWING CONDITIONS MUST BE OBSERVED IN ORDER TO APPLY ALPINE MicroBolt B micronutrient. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN DAMAGE TO THE PLANTS:
- **DO USE** ALPINE MicroBolt B micronutrient under conditions of optimum plant growth including highest humidity, moderate temperature and adequate soil moisture.
- **DO USE** sufficient water to provide thorough coverage.
- **DO** consult with your local ALPINE Agronomist or Sales Manager to determine pesticides which are compatible with ALPINE MicroBolt B micronutrient.
- **DO** consult your local ALPINE Agronomist or Sales Manager for rate and application instructions.
- **DO USE** a small jar or container prior to full scale mixing to proportionally mix all the components to confirm compatibility.
- **DO NOT** use when the crop is under stress from pests, heat or inadequate soil moisture.
- **DO NOT** apply during the heat of the day.

SELLER WARRANTS THAT THE ABOVE PRODUCT CONFORMS TO ITS CHEMICAL DESCRIPTION AND IS REASONABLY FIT FOR THE PURPOSE ON THE LABEL WHEN USED IN ACCORDANCE WITH DIRECTIONS UNDER NORMAL CONDITIONS OF USE (INCLUDING NORMAL WEATHER CONDITIONS). NEITHER THIS WARRANTY NOR ANY OTHER WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, EXPRESS OR IMPLIED, EXTENDS TO THE USE OF THIS PRODUCT WHEN USED CONTRARY TO THE LABEL INSTRUCTIONS OR UNDER ABNORMAL CONDITIONS (INCLUDING ABNORMAL WEATHER CONDITIONS), AND THE BUYER ASSUMES THE RISK OF ANY SUCH USE. ALPINE STARTER OR FOLIAR APPLICATIONS ARE INTENDED TO SUPPLEMENT EXISTING SOIL FERTILITY PROGRAMS AND WILL NOT BY ITSELF PROVIDE ALL THE NUTRIENTS NORMALLY REQUIRED BY AGRICULTURAL CROPS.

*These are general product recommendations. Please consult with your authorized ALPINE DEALER or ALPINE DISTRICT SALES MANAGER for specific fertility recommendations.

CAUTION: THIS FERTILIZER CONTAINS BORON AND SHOULD BE USED ONLY AS RECOMMENDED. IT MAY PROVE HARMFUL WHEN MISUSED.

ALPINE MicroBolt® B

Premium liquid micronutrient

Application Rate*:
Use 0.25–1 L/ac either in furrow or as a foliar spray. Optimum rate of application will vary between fields, depending on soil pH and organic matter content. Product should be used on the basis of soil and/or tissue analysis.

DO NOT use boron in furrow in corn or in soybeans planted at 30".

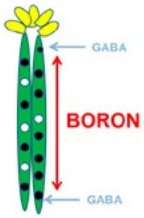
Maximum of 2 L/ac of any combination of micronutrients when mixed with a seed placed starter fertilizer.

Mixing instructions:
1. Put 1/3 water or fertilizer in the tank
2. Add correct amount of product
3. Fill tank with balance of water or fertilizer
4. Agitate adequately to mix

Role of Boron:
- Vital to the growth and 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

Sugar Mover:
- Boron moves plant sugars up and down the plant daily
- During the night time, boron moves plant sugars from the plant to feed the root system, which in turn feeds the soil biology
- During night, the soil biology exudes food for the roots and then boron moves this food from the roots up into the plant during the day
- This process takes place daily

Cell Development:
- Boron functions in plants in the differentiation of meristematic cells. Without boron, cells may continue to divide, but structural components are not differentiated.
- Missing florets (seeds) in timothy and alfalfa heads
- Larger cereal heads and fuller canola and legume pods

The "Missing Seed" Thing:


Explanation: At the top and the bottom of the pod is an amino acid called GABA. This amino acid must move in the pod to fertilize each and every seed in that pod. No GABA no SEED. The nutrient that moves GABA throughout the pod is boron along with mainly phosphorous, manganese, calcium and other nutrients. Remember boron along with phosphorous moves sugars in the plant daily, so if there is an interruption of this or a lack of nutrients - the SEED DOES NOT BECOME FERTILIZED SO THEREFORE NO SEED.

Boron Soil Availability:
- Soils with high pH values reduce solubility and therefore plant uptake
- Soils with low pH values increase solubility but can also lead to leaching of boron out of the root zone
- 0.6–1.2 ppm in soil test is medium amount

Boron in the Leaf:
- Sufficiency tissue test ranges in ppm
  - **Canola:** 15–20
  - **Small grains:** 8–20
  - **Peas:** 15–45
  - **Cornat tasseling:** 6–20
  - **Soybeans:** 25–60

Deficiencies Symptoms:
- Plants turn pale green
- Heads poorly developed and sterile
- Deformed flowers
- Proliferation of side shoots resulting in a "witches broom" condition

nutrient stewardship

Consult with your authorized ALPINE Retailer or ALPINE District Sales Manager for more specific recommendations.

ALPINE MicroBolt Ca

Guaranteed Nutritional Analysis:
grams per litre applied

Soluble Potash (K_2O).....84.7

Calcium (Ca)..... 36.3

Product Properties:

Analysis: 0-0-7 3Ca

Weight: 1.21 kg/L

pH: 6.5–8.5

Appearance: Clear to slight tan liquid

Odour: Slight musty odour

General Product Information:
ALPINE MicroBolt Ca micronutrients are intended for use in a complete crop nutritional program where a soil and/or plant tissue analysis has indicated a calcium deficiency. ALPINE MicroBolt Ca micronutrients may be applied with ALPINE liquid fertilizers, other liquid fertilizers, fertilizer suspensions, nitrogen solutions, or water.

First Aid: Please see the SDS sheet for more information, call (800) 265-2268 or visit us online at www.alpinepfl.com.

KEEP OUT OF THE REACH OF CHILDREN

*These are general product recommendations. Please consult with your authorized ALPINE DEALER or ALPINE DISTRICT SALES MANAGER for specific fertility recommendations.

ALPINE MicroBolt® Ca

Premium liquid micronutrients

Application Rate*:
Use 0.5–1 L/ac either in furrow or as a foliar spray.

Optimum rate of application will vary between fields, depending on soil pH and organic matter content. Product should be used on the basis of soil and/or tissue analysis.

Maximum of 2 L/ac of any combination of micronutrients when mixed with a seed placed starter fertilizer.

Mixing Instructions:
1. Put 1/3 of water or fertilizer in tank
2. Add correct amount of product
3. Fill tank with balance of water or fertilizer
4. Agitate adequately to mix

Role Of Calcium:
- Essential for cell wall structure
- Development of protein
- Root development
- Movement of carbohydrates
- Seed production

Calcium Soil Availability:
- Low pH reduce availability

Calcium In The Leaf:
- Sufficiency tissue test ranges in ppm
  - **Canola:** 1.19–1.40
  - **Small grains:** 0.25–0.45
  - **Peas:** 1.10–1.80
  - **Corn at tasseling:** 0.30–0.70
  - **Soybeans:** 0.50–2.0

Deficiencies symptoms
- Emerging leaves are distorted or irregularly shaped

nutrient stewardship

Consult with your authorized ALPINE Retailer or ALPINE District Sales Manager for more specific recommendations.

ALPINE MicroBolt Cu

Guaranteed Nutritional Analysis:
grams per litre applied

Total Nitrogen (N).....37.8

Copper (Cu)..... 94.5

Product Properties:

Analysis:	3-0-0 7.5Cu
Weight:	1.26 kg/L
pH:	6.0–7.0
Appearance:	Dark blue
Odour:	Might have a slight ammonia odour

General Product Information:
ALPINE MicroBolt Cu micronutrient is manufactured by utilizing the highest quality raw materials to provide a very agronomically efficient source of plant available Copper. The chelate used is compatible with high orthophosphate products. ALPINE MicroBolt Cu micronutrient delivers:

- Maximum plant nutrient solubility - in furrow or foliar
- Minimal salt index
- No application equipment corrosion
- Compatibility with most other liquid fertilizers
- Tank mixable with most pesticides
- Low impurities

First Aid: Please see the SDS sheet for more information, call (800) 265-2268 or visit us online at www.alpinepfl.com.

KEEP OUT OF THE REACH OF CHILDREN.

THE FOLLOWING CONDITIONS MUST BE OBSERVED IN ORDER TO APPLY ALPINE MicroBolt Cu micronutrient. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN DAMAGE TO THE PLANTS:

- **DO USE** ALPINE MicroBolt Cu micronutrient under conditions of optimum plant growth including highest humidity, moderate temperature and adequate soil moisture.
- **DO USE** sufficient water to provide thorough coverage.
- **DO** consult with your local ALPINE Agronomist or Sales Manager to determine pesticides which are compatible with ALPINE MicroBolt Cu micronutrient.
- **DO** consult your local ALPINE Agronomist or Sales Manager for rate and application instructions.
- **DO USE** a small jar or container prior to full scale mixing to proportionally mix all the components to confirm compatibility.
- **DO NOT** use when the crop is under stress from pests, heat or inadequate soil moisture.
- **DO NOT** apply during the heat of the day.

SELLER WARRANTS THAT THE ABOVE PRODUCT CONFORMS TO ITS CHEMICAL DESCRIPTION AND IS REASONABLY FIT FOR THE PURPOSE ON THE LABEL WHEN USED IN ACCORDANCE WITH DIRECTIONS UNDER NORMAL CONDITIONS OF USE (INCLUDING NORMAL WEATHER CONDITIONS), NEITHER THIS WARRANTY NOR ANY OTHER WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, EXPRESS OR IMPLIED, EXTENDS TO THE USE OF THIS PRODUCT WHEN USED CONTRARY TO THE LABEL INSTRUCTIONS OR UNDER ABNORMAL CONDITIONS (INCLUDING ABNORMAL WEATHER CONDITIONS), AND THE BUYER ASSUMES THE RISK OF ANY SUCH USE. ALPINE STARTER OR FOLIAR APPLICATIONS ARE INTENDED TO SUPPLEMENT EXISTING SOIL FERTILITY PROGRAMS AND WILL NOT BY ITSELF PROVIDE ALL THE NUTRIENTS NORMALLY REQUIRED BY AGRICULTURAL CROPS.

*These are general product recommendations. Please consult with your authorized ALPINE DEALER or ALPINE DISTRICT SALES MANAGER for specific fertility recommendations.

THIS FERTILIZER CONTAINS COPPER AND SHOULD BE USED ONLY AS RECOMMENDED. IT MAY PROVE HARMFUL WHEN MISUSED.

ALPINE MicroBolt® Cu

Premium liquid micronutrient

Application rate*:
Use 0.25–1 L/ac either in furrow or as a foliar spray.

Optimum rate of application will vary between fields, depending on soil pH and organic matter content. Product should be used on the basis of soil and/or tissue analysis.

DO NOT use at flag leaf stage in cereals.

Maximum of 2 L/ac of any combination of micronutrients when mixed with a seed placed starter fertilizer.

Mixing Instructions:
1. Put 1/3 water or fertilizer in the tank
2. Add correct amount of product
3. Fill tank with balance of water or fertilizer
4. Agitate adequately to mix

Role of Copper:
- Copper is important in plant disease prevention
  - Plant diseases (i.e., net blotch, ergot and pig tailing)
- Copper affects lignin building qualities and is crucial in preventing lodging
- Copper is important as a co-enzyme
- Copper builds and converts acids to proteins
- Copper greatly affects kernel size and kernel weight
- Copper and other micro deficiencies are enhanced by too much up-front Nitrogen early in spring
- The window of opportunity to correct a copper deficiency lasts until just before heading

Copper Soil Availability:
- 0.9–1.2 ppm in soil test is medium amount

Copper in the Leaf:
- Sufficiency tissue test ranges in ppm
  - **Canola:** 4–12
  - **Small grains:** 6–15
  - **Peas:** 10–30
  - **Corn at tasseling:** 6–20
  - **Soybeans:** 8–20

Deficiencies Symptoms:
- Deficiency symptoms usually occur on new growth since copper is an immobile nutrient
- Deficient plants will become chlorotic and take on a bleached appearance
- New plant growth often dies

4R nutrient stewardship

Consult with your authorized ALPINE Retailer or ALPINE District Sales Manager for more specific recommendations.

ALPINE MicroBolt Fe

Guaranteed Nutritional Analysis:
grams per litre applied

Total Nitrogen (N)..... 72.60

Iron (Fe)..... 54.45

Product Properties:

Analysis: 6-0-0 4.5Fe

Weight: 1.21 kg/L

pH: 6.3–7.3

Appearance: Reddish brown

Odour: Odourless

General Product Information:
ALPINE MicroBolt Fe micronutrients are intended for use in a complete crop nutritional program where a soil and/or plant tissue analysis has indicated a iron deficiency. ALPINE MicroBolt Fe micronutrients may be applied with ALPINE liquid fertilizers, other liquid fertilizers, fertilizer suspensions, nitrogen solutions, or water.

First Aid: Please see the SDS sheet for more information, call (800) 265-2268 or visit us online at www.alpinepfl.com.

KEEP OUT OF THE REACH OF CHILDREN.

*These are general product recommendations. Please consult with your authorized ALPINE DEALER or ALPINE DISTRICT SALES MANAGER for specific fertility recommendations.

ALPINE MicroBolt® Fe

Premium liquid micronutrient

Application Rates*:
Maximum annual application rate is 7 L/ac.

Optimum rate of application will vary between fields, depending on soil pH and organic matter content. Product should be used on the basis of soil and/or tissue analysis.

Maximum of 2 L/ac of any combination of micronutrients when mixed with a seed placed starter fertilizer.

Mixing Instructions:
1. Put 1/3 of water or fertilizer in tank
2. Add correct amount of product
3. Fill tank with balance of water or fertilizer
4. Agitate adequately to mix

Role of Iron:
- Required for the formation of chlorophyll
- Essential for plant respiration, photosynthesis
- Required for symbiotic nitrogen fixation
- Energy transfer

Iron Soil Availability:
- 12–22 ppm in soil test is medium amount
- Availability decrease with rising pH
- Poorly drained soils reduce iron uptake

Iron in the Leaf:
- Sufficiency tissue test ranges in ppm
  - **Canola:** 100–200
  - **Small grains:** 35–120
  - **Peas:** 50–100
  - **Corn at tasseling:** 50–250
  - **Soybeans:** 50–150

Deficiencies symptoms
- Most common symptom is interveinal leaf chlorosis on new growth
- This can spread to entire plant with the plant turning white in extreme cases

nutrient stewardship

Consult with your authorized ALPINE Retailer or ALPINE District Sales Manager for more specific recommendations.

ALPINE MicroBolt Mg

Guaranteed Nutritional Analysis:
grams per litre applied

Soluable Potash (K_2O)..... 114.30

Magnesium (Mg) 31.75

Product Properties:

Analysis:	0-0-9 2.5Mg
Weight:	1.27 kg/L
pH:	7.5–8.5
Appearance:	Orange to pink amber
Odour:	Slightly ammonia odour

General Product Information:
ALPINE MicroBolt Mg micronutrients are intended for use in a complete crop nutritional program where a soil and/or plant tissue analysis has indicated a magnesium deficiency. ALPINE MicroBolt Mg micronutrients may be applied with ALPINE liquid fertilizers, other liquid fertilizers, fertilizer suspensions, nitrogen solutions, or water.

First Aid: Please see the SDS sheet for more information, call (800) 265-2268 or visit us online at www.alpinepfl.com.

KEEP OUT OF THE REACH OF CHILDREN.

*These are general product recommendations. Please consult with your authorized ALPINE DEALER or ALPINE DISTRICT SALES MANAGER for specific fertility recommendations.

ALPINE MicroBolt® Mg

Premium liquid micronutrient

Application Rate*:
Use 0.5–1 Litre/ac either in furrow or as a foliar spray.

Optimum rate of application will vary between fields, depending on soil pH and organic matter content. Product should be used on the basis of soil and/or tissue analysis.

Maximum of 2 L/ac of any combination of micronutrients when mixed with a seed placed starter fertilizer.

Mixing Instructions:
1. Put 1/3 of water or fertilizer in tank
2. Add correct amount of product
3. Fill tank with balance of water or fertilizer
4. Agitate adequately to mix

Role of Magnesium:
- Is the central element of the chlorophyll molecule
- Involved with sugar synthesis and starch translocation
- Carries phosphorus in the plant
- Forms part of many enzymes

Magnesium Soil Availability:
- Low soil temperatures and low pH reduce availability

Magnesium in the Leaf:
- Sufficiency tissue test ranges in ppm
  - **Canola:** 0.40–0.50
  - **Small grains:** 0.20–0.40
  - **Peas:** 0.35–0.80
  - **Corn at tasseling:** 0.20–0.50
  - **Soybeans:** 0.25–0.60

Deficiencies Symptoms:
- Interveinal chlorosis of older leaves

4R nutrient stewardship

Consult with your authorized ALPINE Retailer or ALPINE District Sales Manager for more specific recommendations.

ALPINE MicroBolt Mn

Guaranteed Nutritional Analysis:
grams per litre applied

Soluable Potash (K_2O).....133.0

Manganese (Mn) 79.8

Product Properties:

Analysis:	0-0-10 6Mn
Weight:	1.33 kg/L
pH:	6.8–7.5
Appearance:	Pink
Odour:	Slightly musty

General Product Information:
ALPINE MicroBolt Mn micronutrient is manufactured by utilizing the highest quality raw materials to provide a very agronomically efficient source of plant available Manganese. The chelate used is compatible with high orthophosphate products. ALPINE MicroBolt Mn micronutrient delivers:

- Maximum plant nutrient solubility - in furrow or foliar
- Minimal salt index
- No application equipment corrosion
- Compatibility with most other liquid fertilizers
- Tank mixable with most pesticides
- Low impurities

First Aid: Please see the SDS sheet for more information, call (800) 265-2268 or visit us online at www.alpinepfl.com.

KEEP OUT OF THE REACH OF CHILDREN.

THE FOLLOWING CONDITIONS MUST BE OBSERVED IN ORDER TO APPLY ALPINE MicroBolt B micronutrient. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN DAMAGE TO THE PLANTS:
- **DO USE** ALPINE MicroBolt B micronutrient under conditions of optimum plant growth including highest humidity, moderate temperature and adequate soil moisture.
- **DO USE** sufficient water to provide thorough coverage.
- **DO** consult with your local ALPINE Agronomist or Sales Manager to determine pesticides which are compatible with ALPINE MicroBolt B micronutrient.
- **DO** consult your local ALPINE Agronomist or Sales Manager for rate and application instructions.
- **DO USE** a small jar or container prior to full scale mixing to proportionally mix all the components to confirm compatibility.
- **DO NOT** use when the crop is under stress from pests, heat or inadequate soil moisture.
- **DO NOT** apply during the heat of the day.

CAUTION: This fertilizer contains Boron and should be used only as recommended. It may prove harmful when misused.

SELLER WARRANTS THAT THE ABOVE PRODUCT CONFORMS TO ITS CHEMICAL DESCRIPTION AND IS REASONABLY FIT FOR THE PURPOSE ON THE LABEL WHEN USED IN ACCORDANCE WITH DIRECTIONS UNDER NORMAL CONDITIONS OF USE (INCLUDING NORMAL WEATHER CONDITIONS). NEITHER THIS WARRANTY NOR ANY OTHER WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, EXPRESS OR IMPLIED, EXTENDS TO THE USE OF THIS PRODUCT WHEN USED CONTRARY TO THE LABEL INSTRUCTIONS OR UNDER ABNORMAL CONDITIONS (INCLUDING ABNORMAL WEATHER CONDITIONS), AND THE BUYER ASSUMES THE RISK OF ANY SUCH USE. ALPINE STARTER OR FOLIAR APPLICATIONS ARE INTENDED TO SUPPLEMENT EXISTING SOIL FERTILITY PROGRAMS AND WILL NOT BY ITSELF PROVIDE ALL THE NUTRIENTS NORMALLY REQUIRED BY AGRICULTURAL CROPS.

*These are general product recommendations. Please consult with your authorized ALPINE DEALER or ALPINE DISTRICT SALES MANAGER for specific fertility recommendations.

THIS FERTILIZER CONTAINS MANGANESE AND SHOULD BE USED ONLY AS RECOMMENDED. IT MAY PROVE HARMFUL WHEN MISUSED.

ALPINE MicroBolt® Mn

Premium liquid micronutrient

Application rate*:
Use 0.5–1 L/ac either in furrow or as a foliar spray.

Optimum rate of application will vary between fields, depending on soil pH and organic matter content. Product should be used on the basis of soil and/or tissue analysis.

Maximum of 2 L/ac of any combination of micronutrients when mixed with a seed placed starter fertilizer.

Mixing Instructions:
1. Put 1/3 water or fertilizer in the tank
2. Add correct amount of product
3. Fill tank with balance of water or fertilizer
4. Agitate adequately to mix

Role of Manganese:
- Manganese assists iron in chlorophyll production
- Catalyst in oxidation-reduction process
- Manganese affects lignin building qualities and is critical in preventing lodging and disease
- Manganese is crucial when growing oats
- Glyphosate has been linked to manganese deficiencies
- With glyphosate translocating within the root mass of weeds and RR crops thus leaking into the root rhizosphere, this immobilizes Manganese which is required for the growth of many plants
- Without manganese, there is no seed production (i.e. seedless grapes, oranges have no manganese)

Manganese Soil Availability:
- Manganese is not available when soils are cold in spring because manganese starts out in the Mn4+ state, must convert to the Mn3+ state and then convert to the Mn2+ state to be available to the plant. The fungus “Take-all” root rot oxidizes early manganese availability, reducing lignification of roots, making them more susceptible to infections. This is where a GREAT SEED TREATMENT WORKS.
- Reduced lignifications also can create lodging problems
- Foliar, seed-placed or seed-treated with manganese are ways to correct Mn deficiencies but seed-treated and seed-placed treatments are preferable.
- 9–12 ppm in soil test is medium amount

Manganese in the Leaf:
- Sufficiency tissue test ranges in ppm
  - **Canola:** 60–110
  - **Small grains:** 30–60
  - **Peas:** 4–70
  - **Corn at tasseling:** 30–100
  - **Soybeans:** 35–100

Deficiencies Symptoms:
- Low pollen fertility and reduced 1000 kernel or bushel weight are symptoms of manganese deficient crops.
- In cereals greenish grey spots

nutrient stewardship

Consult with your authorized ALPINE Retailer or ALPINE District Sales Manager for more specific recommendations.

ALPINE MicroBolt MoCo

Guaranteed Nutritional Analysis:
grams per litre applied

Molybdenum (Mo) (actual) 43.6%

Cobalt (Co)(chelated) (actual).....4.36%

Product Properties:

Analysis:	0-0-0 4Mo 0.4Co
Weight:	1.09 Kg/L
pH:	7.8–8.8
Appearance:	Liquid, deep pink
Odour:	Slightly sweet

General Product Information:
ALPINE MicroBolt MoCo micro-nutrients are intended for use in a complete crop nutritional program where a soil and/or plant tissue analysis has indicated a molybdenum or cobalt deficiency. ALPINE MicroBolt MoCo micro-nutrients may be applied with ALPINE liquid fertilizers, other liquid fertilizers, fertilizer suspensions, nitrogen solutions, or water.

First Aid: Please see the SDS sheet for more information or call (800)265-2268 or visit us online at www.alpinepfl.com.

THE FOLLOWING CONDITIONS MUST BE OBSERVED IN ORDER TO APPLY ALPINE MicroBolt MoCo micro-nutrient. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN DAMAGE TO THE PLANTS:

- DO USE ALPINE MicroBolt MoCo micro-nutrient under conditions of optimum plant growth including highest humidity, moderate temperature and adequate soil moisture.
- **DO USE** sufficient water to provide thorough coverage.
- **DO** consult with your local ALPINE Agronomist or Sales Manager to determine pesticides which are compatible with ALPINE MicroBolt MoCo micro-nutrient .
- **DO** consult your local ALPINE Agronomist or Sales Manager for rate and application instructions.
- **DO USE** a small jar or container prior to full scale mixing to proportionally mix all the components to confirm compatibility.
- **DO NOT** use when the crop is under stress from pests, heat or inadequate soil moisture.
- **DO NOT** apply during the heat of the day.

SELLER WARRANTS THAT THE ABOVE PRODUCT CONFORMS TO ITS CHEMICAL DESCRIPTION AND IS REASONABLY FIT FOR THE PURPOSE ON THE LABEL WHEN USED IN ACCORDANCE WITH DIRECTIONS UNDER NORMAL CONDITIONS OF USE (INCLUDING NORMAL WEATHER CONDITIONS). NEITHER THIS WARRANTY NOR ANY OTHER WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, EXPRESS OR IMPLIED, EXTENDS TO THE USE OF THIS PRODUCT WHEN USED CONTRARY TO THE LABEL INSTRUCTIONS OR UNDER ABNORMAL CONDITIONS (INCLUDING ABNORMAL WEATHER CONDITIONS), AND THE BUYER ASSUMES THE RISK OF ANY SUCH USE. ALPINE STARTER OR FOLIAR APPLICATIONS ARE INTENDED TO SUPPLEMENT EXISTING SOIL FERTILITY PROGRAMS AND WILL NOT BY ITSELF PROVIDE ALL THE NUTRIENTS NORMALLY REQUIRED BY AGRICULTURAL CROPS.

*These are general product recommendations. Please consult with your authorized ALPINE DEALER OR ALPINE DISTRICT SALES MANAGER for specific fertility recommendations.

WARNING: THIS FERTILIZER IS TO BE USED ONLY ON SOIL WHICH RESPONDS TO MOLYBDENUM. CROPS HIGH IN MOLYBDENUM ARE TOXIC TO GRAZING ANIMALS (RUMINANTS).

ALPINE MicroBolt® MoCo

Premium liquid micronutrient

Application Rate:
In-Furrow: 150 ml/ac

Foliar: 200 ml/ac

Optimum rate of application will vary between fields, depending on soil pH and organic matter content. Product should be used on the basis of soil and/or tissue analysis.

*Maximum of 2 L/ac of any combination of micro-nutrients when mixed with a seed placed starter fertilizer

**Excess application of molybdenum is toxic to crop and to animals eating the crop

Mixing Instructions:
1. Put 1/3 water or fertilizer in the tank
2. Add correct amount of product
3. Fill tank with balance of water or fertilizer
4. Agitate adequately to mix

Role of Molybdenum:
- Transforms nitrogen into amino acids
- Allows legumes to symbiotically fix atmospheric nitrogen
- Catalyst in oxidation-reduction process

Molybdenum Soil Availability:
- 0.11–0.20 in soil is medium amount
- Availability increases with pH increases

Molybdenum In The Leaf:
- Sufficient tissue test ranges in ppm
  - **Corn:** 0.1–2.0
  - **Small grains:** 0.03–5.0
  - **Soybean:** 1.0–5.0

Deficiencies Symptoms:
- Yellowing on older leaves to light green on rest of plant
- Appears as nitrogen deficiency in legumes
- Decreased nodulation

Cobalt:
With proper management, Cobalt, a critical cobalamin (coenzyme vitamin B12 & derivatives) component, is needed for several enzyme and coenzyme operations. Its role in accelerating the nitrogen fixation in legumes is now well established. Other positive impacts include stem development, coleoptile elongation, bud formation, plant growth enhancement and yield when exogenously applied. Some studies show that Co plays a significant role in ethylene production in plants.

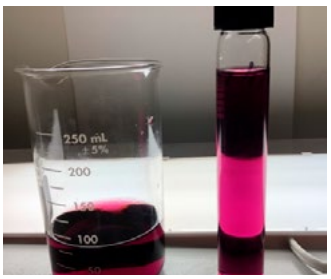
1. Under conditions of cobalt deficiency, impaired protein synthesis may occur in Rhizobium
2. Ribonucleotide reductase. This enzyme is involved in the reduction of ribonucleotides to deoxyribonucleotides and therefore in DNA synthesis. Under cobalt deficient plants, there are fewer and longer Bacteroides in the root nodules, indicating depressed rhizobial cell division.
3. Methyl malonyl-coenzyme A mutase. This enzyme is involved in the synthesis of heme (iron porphyrins) in the Bacteroides and thus-in cooperation with the host nodule cells-in synthesis of leghemoglobin. Under conditions of cobalt deficiencies, the synthesis of leghemoglobin is therefore reduced, which affects the N_2 fixation rate adversely.

Therefore: In legumes grown in cobalt-deficient soils, Rhizobium infection is much less extensive than in plants supplied with cobalt, and the onset of N_2 fixation, as indicated by the nitrogen accumulation in plants, is delayed for several weeks.

nutrient stewardship

Consult with your authorized ALPINE Retailer or ALPINE District Sales Manager for more specific recommendations.

Cobalt enhance hemoglobin



ALPINE MicroBolt Zn

Guaranteed Nutritional Analysis:
grams per litre applied

Total Nitrogen (N)..... 52.0
Zinc (Zn).....117.0

Product Properties:

Analysis:	4-0-0 9Zn
Weight:	1.31 kg/L
pH:	6.5–7.5
Appearance:	Clear to slightly yellow color
Odour:	Slight ammonia odour

General Product Information:
ALPINE MicroBolt Zn micronutrient is manufactured by utilizing the highest quality raw materials to provide a very agronomically efficient source of plant available Zinc. The chelate used is compatible with high orthophosphate products. ALPINE MicroBolt Zn micronutrient delivers:

- Maximum plant nutrient solubility - in furrow or foliar
- Minimal salt index
- No application equipment corrosion
- Compatibility with most other liquid fertilizers
- Tank mixable with most pesticides
- Low impurities
- Neutral pH

First Aid: Please see the SDS sheet for more information, call (800) 265-2268 or visit us online at www.alpinepfl.com.

KEEP OUT OF THE REACH OF CHILDREN.

THE FOLLOWING CONDITIONS MUST BE OBSERVED IN ORDER TO APPLY ALPINE MicroBolt Zn micro**-nutrient**. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN DAMAGE TO THE PLANTS:

- **DO USE** ALPINE MicroBolt Zn micro-nutrient under conditions of optimum plant growth including highest humidity, moderate temperature and adequate soil moisture.
- DO USE sufficient water to provide thorough coverage.
- **DO** consult with your local ALPINE Agronomist or Sales Manager to determine pesticides which are compatible with ALPINE MicroBolt Zn micro-nutrient .
- DO consult your local ALPINE Agronomist or Sales Manager for rate and application instructions.
- **DO USE** a small jar or container prior to full scale mixing to proportionally mix all the components to confirm compatibility.
- DO NOT use when the crop is under stress from pests, heat or inadequate soil moisture.
- **DO NOT** apply during the heat of the day.

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*These are general product recommendations. Please consult with your authorized ALPINE DEALER OR ALPINE DISTRICT SALES MANAGER for specific fertility recommendations.

THIS FERTILIZER CONTAINS ZINC AND SHOULD BE USED ONLY AS RECOMMENDED. IT MAY PROVE HARMFUL WHEN MISUSED.

ALPINE MicroBolt® Zn

Premium liquid micronutrient

Application Rate*:
Use 0.5–1 L/ac either in furrow or as a foliar spray.

Optimum rate of application will vary between fields, depending on soil pH and organic matter content. Product should be used on the basis of soil and/or tissue analysis.

Maximum of 2 L/ac of any combination of micronutrients when mixed with a seed placed starter fertilizer.

Mixing Instructions:
1. Put 1/3 water or fertilizer in the tank
2. Add correct amount of product
3. Fill tank with balance of water or fertilizer
4. Agitate adequately to mix

Role of Zinc:
- Zinc is crucial in flower formation. i.e. canola
- Zinc acts like “antifreeze” in the plant to give early and late frost protection
- Zinc controls the synthesis of many plant growth regulators
- Animals deficient in zinc require twice as much feed to attain the same weight
- Zinc is unavailable in high pH soils
- Zinc improves germination rate and plant vigor
- Zinc is necessary for starch formation and proper root development
- Zinc is also essential for seed formation and maturity

Zinc Soil Availability:
- The availability of zinc is directly related to 3 soil factors:
  1. The amount of zinc supplying minerals
  2. The amount of available phosphate
  3. Soil pH (calcium carbonate)
- Soils with both high pH and high phosphate levels, the available zinc is complexed to form $ZnPO_4$
- When zinc is precipitated in this form, it is unavailable and deficiencies can occur
- 1.1–3.0 ppm in soil test is medium amount

Zinc in the Leaf:
- Research indicates the P to Zn ratio in leaf tissue should be 100–150:1
- Whenever the P content of a plant increases, so must the Zn concentration in order that this ratio be maintained
- Sufficiency tissues test ranges in ppm
  - **Canola:** 25–45
  - **Small grains:** 20–50
  - **Peas:** 40–80
  - **Corn at tasseling:** 25–50
  - **Soybeans:** 25–50

Deficiencies Symptoms:
- The most common nutrient deficiencies include interveinal chlorosis on older leaves with shortening of the intermodal area
- This shortening often leaves a short compressed plant with a rosetted appearance

nutrient stewardship

Consult with your authorized ALPINE Retailer or ALPINE District Sales Manager for more specific recommendations.

ALPINE MicroFusion B

NUTRIENTS SUPPLIED (pounds per gallon):

Boron (B) 0.65
Copper (Cu) 0.015
Manganese (Mn) 0.010
Molybdenum (Mo).....0.05
Cobalt (Co) 0.005

Derived From:
Boric Acid, Copper EDTA, Cobalt Sulfate, Manganese EDTA, and Sodium Molybdate.

Contains non-plant food ingredients:
0.2% organic acids derived from fulvic acid.
3.5% macroalgae extract.

PRODUCT PROPERTIES:

Analysis: .....6.5 B - 0.05 Co - 0.15 Cu - 0.1 Mn - 0.5 Mo
Weight:.....10.40 lbs. per gallon
Specific gravity:.....1.248 kg/L
pH: 7.5-8.5
Appearance:.....Green/Brown Liquid
Odor: .....Slight amine

GENERAL PRODUCT INFORMATION:

ALPINE MicroFusion B liquid fertilizer is manufactured with 100% fully EDTA chelated copper, and manganese. Unlike other micronutrient sources such as complexes, partial chelates, and natural organic complexes, ALPINE EDTA chelated micronutrients are 100% available to the crop. 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 micros may offer cost savings at first, they can actually create deficiencies for lack of availability.

ALPINE MicroFusion B is powered by our new ALPINE Enduro-Shield technology, which is a purified, high quality, marine macroalgae extract product obtained from Ascophyllum nodosum and contains growth promotant and bioactive compounds which aid in stress mitigation and nutrient utilization.

FIRST AID: Please see SDS sheet for more information, call (800) 622-4877 or visit us online at www.nachurs.com.

KEEP OUT OF REACH OF CHILDREN.

*THESE ARE GENERAL PRODUCT RECOMMENDATIONS. PLEASE CONSULT WITH YOUR AUTHORIZED ALPINE DISTRIBUTOR OR AGRONOMIST FOR SPECIFIC FERTILITY RECOMMENDATIONS. THESE RECOMMENDATIONS ARE BELIEVED TO BE RELIABLE AND SHOULD BE FOLLOWED CAREFULLY. FAILURE TO FOLLOW LABEL DIRECTIONS OR IMPROPER APPLICATION PRACTICES, ALL OF WHICH ARE OUT OF CONTROL OF THE MANUFACTURER OR SELLER, CAN RESULT IN PLANT OR LEAF DAMAGE. CROP INJURY MAY RESULT FROM UNUSUAL WEATHER CONDITIONS, FAILURE TO FOLLOW LABEL DIRECTIONS OR IMPROPER APPLICATION PRACTICES ALL OF WHICH ARE OUT OF CONTROL OF ALPINE.

SELLER WARRANTS THAT THE ABOVE PRODUCT CONFORMS TO ITS CHEMICAL DESCRIPTION AND IS REASONABLY FIT FOR THE PURPOSE ON THE LABEL WHEN USED IN ACCORDANCE WITH DIRECTIONS UNDER NORMAL CONDITIONS OF USE (INCLUDING NORMAL WEATHER CONDITIONS). NEITHER THIS WARRANTY NOR ANY OTHER WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, EXPRESS OR IMPLIED, EXTENDS TO THE USE OF THIS PRODUCT WHEN USED CONTRARY TO THE LABEL INSTRUCTIONS OR UNDER ABNORMAL CONDITIONS (INCLUDING ABNORMAL WEATHER CONDITIONS), AND THE BUYER ASSUMES THE RISK OF ANY SUCH USE. ALPINE STARTER OR FOLIAR APPLICATIONS ARE INTENDED TO SUPPLEMENT EXISTING SOIL FERTILITY PROGRAMS AND WILL NOT BY ITSELF PROVIDE ALL THE NUTRIENTS NORMALLY REQUIRED BY AGRICULTURAL CROPS.

ALPINE MicroFusion® B

Premium liquid micronutrient

APPLICATION RATES:

ALPINE MicroFusion® B is formulated to provide necessary micronutrients for optimum growth with the advantage of excellent compatibility with ALPINE in-furrow starters.

- **Foliar -** apply 1-2 pints per acre with sufficient volume to ensure good coverage at specific timings per the below:
  - Corn-prior to VT
  - Soybean-after R1
  - Wheat-before heading
  - Potato-during bulking
- **Fertigation** - apply 1–2 pints per acre. Extremely hard water and/or high total dissolved solids may effect performance.

Compatibility: **ALPINE MicroFusion B** may be applied in combination with other liquid fertilizers, fertilizer suspensions, and nitrogen solutions. Always jar test combinations before field mixing.

These are general product recommendations. Please consult with your ALPINE Sales Manager or agronomist for specific fertility recommendations.

GENERAL MIXING INSTRUCTIONS

1. Put 1/3 of fertilizer in tank
2. Add other chemicals, if any
3. Fill tank with balance of fertilizer
4. Add correct amount of chelated miccronutrient
5. Agitate adequately to mix

CAUTION: Check compatibility with standard jar test.

WARNING: BORON IS TO BE USED WHERE SOIL TEST AND/OR TISSUE ANALYSIS INDICATE A DEFICIENCY, AND SHOULD NOT BE USED AT RATES IN EXCESS OF THE RATE RECOMMENDED BY A QUALIFIED INDIVIDUAL/ENTITY SUCH AS A CERTIFIED CROP ADVISOR, AGRONOMIST OR UNIVERSITY. EXCESSIVE APPLICATION OF BORON MAY CAUSE CROP DAMAGE. THIS FERTILIZER IS TO BE USED ONLY ON SOIL WHICH RESPONDS TO MOLYBDENUM. CROPS HIGH IN MOLYBDENUM ARE TOXIC TO GRAZING ANIMALS (RUMINANTS).

THE ROLE OF MICRONUTRIENTS:

Boron (B)

Boron is vital to the growth and 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.

Copper (Cu)

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, deficiency symptoms usually occur on new growth. Copper deficient plants will become chlorotic and take on a bleached appearance. New growth may die.

Manganese (Mn)

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 deficiencies are very similar to iron deficiencies and appears in the younger leaves of the plant first. Color may be pale between the veins of broadleaf plants.

Molybdenum (Mo)

Molybdenum helps to transform basic nitrogen into amino acids, which are building blocks for proteins. It also helps legumes to symbiotically fix atmospheric nitrogen. Molybdenum is a catalyst in many oxidation-reduction process within plants.

Cobolt (Co)

Cobalt is needed in the formation of cobalamin which is a part of hemoglobin that is required for nitrogen fixation in legumes. Cobalt is also involved in ethylene regulation in response to plant stress.

4R nutrient stewardship

Powered by ALPINE's newest technology

ENDURO SHIELD BY ALPINE®

ABG Ag Services Field Trials

GSP - 265.2

GSP + Enduro-Shield - 269.0

FOR OVER 50 YEARS, ALPINE® HAS BEEN THE INDUSTRY LEADER IN NPK LIQUID FERTILIZER TECHNOLOGY

ALPINE MicroFusion Mn

Guaranteed Nutritional Analysis:
grams per litre applied

Total Nitrogen (N)	12.7
Soluble Potash (K)	63.5
Iron (Fe) EDTA	2.54
Molybdenum (Mo) EDTA	6.44
Zinc (Zn) EDTA	19.05
Fulvic Acid	0.3%

EDTA chelated trace element for prevention and correction of micronutrient deficiency.

Product Properties:

Analysis:	1-0-5- 0.2Fe- 0.4Mo- 3Mn- 1.5Zn
Weight:	1.24 kg/L
pH:	6.8–7.6
Appearance:	Dark red liquid
Odour:	Slightly musty

General Product Information:

ALPINE MicroFusion Mn brand liquid fertilizer is manufactured with 100% fully EDTA chelated iron, magnesium, manganese, and zinc. Unlike other micronutrient sources such as complexes and partial chelates, ALPINE EDTA chelated micronutrients are 100% available to the crop. ALPINE MicroFusion Mn also includes Fulvic Acid, increasing nutrient exchange and root growth, enhancing nutrient use efficiencies.

First Aid: Please see the SDS sheet for more information, call (800) 265-2268 or visit us online at www.alpinepfl.com.

KEEP OUT OF THE REACH OF CHILDREN.

*These are general product recommendations. Please consult with your authorized ALPINE DEALER OR ALPINE DISTRICT SALES MANAGER for specific fertility recommendations.

THIS FERTILIZER CONTAINS ZINC AND SHOULD BE USED ONLY AS RECOMMENDED. IT MAY PROVE HARMFUL WHEN MISUSED.

ALPINE MicroFusion® Mn

Premium liquid micronutrient

Application Rates:

- **In-Furrow:** apply 1-2 litres per acre with the seed. May be applied with any ALPINE in-furrow starter labeled for soybeans.
- **Foliar:** Apply 1-2 litres per acre with sufficient spray volume to ensure good coverage.
- **Drip:** Apply at 1-2 litres per acre

Application Instructions:

- ALPINE MicroFusion Mn can be applied to soil at planting time, or thru a drip system, or foliar spray applied directly to the plant.
- Can be applied through virtually any type of delivery system.
- Always refer to a soil or tissue report to determine the nutrients needed to correct micronutrient deficiencies.

General Mixing Instructions:

1. Put 1/3 of carrier fertilizer or water in tank
2. Add other chemicals, if any
3. Fill with balance of carrier fertilizer or water
4. Add correct amount of ALPINE MicroFusion Mn
5. Agitate adequately to mix

CAUTION: Check compatibility with standard jar test.

ALPINE MicroFusion Mn liquid fertilizer may be applied with ALPINE liquid fertilizers, other liquid fertilizers, fertilizer suspensions, and nitrogen solutions.

The Role Of Micronutrients:

Iron (Fe)

Iron functions as a catalyst in several processes within the plant. It plays a vital role in the formation of chlorophyll and also functions in the respiratory enzymes. Iron serves in the transportation of energy in the plant. Iron is also an immobile nutrient and nutrient deficiencies are usually noticed first in the young leaves. They will first exhibit interveinal chlorosis which will spread over the entire leaf and turn the leaf white. New growth will cease and the leaves will die.

Molybdenum (Mo)

Molybdenum is essential in the transformation of nitrogen into amino acids. It also enhances legumes with the symbiotic fixation of atmospheric nitrogen. Molybdenum is also a catalyst in the oxidation reduction process.

Manganese (Mn)

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 deficiencies are very similar to iron deficiencies and appears in the younger leaves of the plant first. Color may be pale between the veins of broadleaf plants.

Zinc (Zn)

Zinc is necessary for starch formation and proper root development. It is also essential for seed formation and maturity. The most common nutrient deficiencies 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.

Fulvic Acid (FA)

Fulvic acids are a diverse group of smaller, organic molecules, naturally occurring in soils, and soluble across the full pH spectrum. They contain ***high density*** chemically and biologically active functional groups (carboxylic, hydroxyl, phenolic), important component of soil humus. Fulvic Acids benefit nutrient exchange and chelation, enhancing phosphorus and micronutrient availability to your plants.

4 nutrient stewardship

Consult with your authorized ALPINE Retailer or ALPINE District Sales Manager for more specific recommendations.

ALPINE MicroFusion Zn

Guaranteed Nutritional Analysis:
grams per litre applied

Total Nitrogen (N)	0.09
Soluble Potash (K_2O)	0.09
Copper (Cu) EDTA	2.38
Manganese (Mn) EDTA	11.90
Zinc (Zn) EDTA	53.55
Fulvic Acid	0.3%

EDTA chelated trace element for prevention and correction of micronutrient deficiency.

Product Properties:

Analysis:	2-0-2- 0.2Cu- 1Mn- 4.5Zn
Weight:	1.19 kg/L
pH:	7.0–7.8
Appearance:	Clear blue liquid
Odour:	May have a slight ammonia odour

General Product Information:

ALPINE MicroFusion Zn brand liquid fertilizer is manufactured with 100% fully EDTA chelated copper, manganese, and zinc. Unlike other micronutrient sources such as complexes and partial chelates, ALPINE EDTA chelated micronutrients are 100% available to the crop. ALPINE MicroFusion Zn also includes Fulvic Acid, increasing nutrient exchange and root growth, enhancing nutrient use efficiencies.

First Aid: Please see the SDS sheet for more information, call (800) 265-2268 or visit us online at www.alpinepfl.com.

KEEP OUT OF THE REACH OF CHILDREN.

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ALPINE MicroFusion® Zn

Premium liquid micronutrient

Application Rates:
- **In-Furrow:** Apply 1-2 litres per acre with the seed. May be applied with any ALPINE in-furrow starter labeled for corn.
- **Foliar:** Apply 1-2 litres per acre with sufficient spray volume to ensure good coverage.
- **Drip:** Apply at 1-2 litres per acre.

Application Instructions:
- ALPINE MicroFusion Zn can be applied to soil at planting time, or thru a drip system or foliar spray applied directly to the plant.
- Can be applied through virtually any type of delivery system.
- Always refer to a soil or tissue report to determine the nutrients needed to correct micronutrient deficiencies.

General Mixing Instructions:
1. Put 1/3 of carrier fertilizer or water in tank
2. Add other chemicals, if any
3. Fill tank with balance of carrier fertilizer or water in tank
4. Add correct amount of ALPINE MicroFusion Zn
5. Agitate adequately to mix

CAUTION: Check compatibility with standard jar test.

ALPINE MicroFusion Zn liquid fertilizer may be applied with ALPINE liquid fertilizers, other liquid fertilizers, fertilizer suspensions, and nitrogen solutions.

nutrient stewardship

Consult with your authorized ALPINE Retailer or ALPINE District Sales Manager for more specific recommendations.

The Role Of Micronutrients:

Copper (Cu)

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, deficiency symptoms usually occur on new growth. Copper deficient plants will become chlorotic and take on a bleached appearance. New growth may die.

Manganese (Mn)

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 deficiencies are very similar to iron deficiencies and appears in the younger leaves of the plant first. Color may be pale between the veins of broadleaf plants.

Zinc (Zn)

Zinc is necessary for starch formation and proper root development. It is also essential for seed formation and maturity. The most common nutrient deficiencies 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.

“Plants which are deficient in zinc have limited ability to handle stress, slower growth rates and reduced chlorophyll synthesis” (Sharma et al.,2013)

Fulvic Acid (FA)

Fulvic acids are a diverse group of smaller, organic molecules, naturally occurring in soils, and soluble across the full pH spectrum. They contain ***high density*** chemically and biologically active functional groups (carboxylic, hydroxyl, phenolic), important component of soil humus. Fulvic Acids benefit nutrient exchange and chelation, enhancing phosphorus and micronutrient availability to your plants.

ALPINE Bio Cal

Guaranteed Nutritional Analysis:
grams per litre applied

Calcium (Ca)..... 76.2

Derived from: Calcium Acetate

Product Properties:

Analysis:	0-0-0-6Ca
Weight:	1.15 kg/L
pH:	5.0–5.6
Appearance:	Tan Colour
Odour:	Slightly acidic odour

General Product Information:
ALPINE Bio Cal is a secondary nutrients intended for use in a complete crop nutritional program where a soil and/or plant tissue analysis has indicated a calcium deficiency. ALPINE Bio Cal may be applied with ALPINE liquid fertilizers, other liquid fertilizers, fertilizer suspensions, nitrogen solutions, or water. ALPINE Bio Cal will not blend directly with products containing phosporous.

First Aid: Please see the SDS sheet for more information, call (800) 265-2268 or visit us online at www.alpinepfl.com.

KEEP OUT OF THE REACH OF CHILDREN.

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THIS FERTILIZER CONTAINS ZINC AND SHOULD BE USED ONLY AS RECOMMENDED. IT MAY PROVE HARMFUL WHEN MISUSED.

ALPINE Bio Cal®

Premium liquid calcium

Application Rates:
Use 0.5–2 litre/ac either in-furrow or as a foliar spray.

Optimum rate of application will vary between fields, depending on soil pH and organic matter content. Product should be used on the basis of soil and/or tissue analysis.

Maximum of 2 L/ac of any combination of micronutrients when mixed with a seed placed starter fertilizer.

General Mixing Instructions:

1. Put 1/3 of carrier fertilizer or water in tank
2. Add correct amount of ALPINE Bio Cal®
3. Fill with balance of carrier fertilizer or water
4. Agitate adequately to mix

CAUTION: Check compatibility with standard jar test.

The Role Of Calcium:

- Essential for cell wall structure
- Development of protein
- Root development
- Movement of carbohydrates
- Seed production

Calcium Soil Avaliability:

- Low soil temperatures and low pH reduce availability

Calcium in the Leaf:

- Sufficiency tissue test ranges in ppm
  - Canola: 1.19–1.40
  - Small grains: 0.25–0.45
  - Peas: 1.10–1.80
  - Corn at tasseling: 0.30–0.70
  - Soybeans: 0.50–2.00

Deficiencies Symptoms:

- Emerging leaves are distorted or irregularly shaped

nutrient stewardship

ALPINE Bio Mag

Guaranteed Nutritional Analysis:
grams per litre applied

Magnesium (Mg) 63.5
Derived from: Magnesium Acetate

Product Properties:

Analysis:	0-0-0-5Mg
Weight:	1.22 kg/L
pH:	4.9–5.5
Appearance:	Yellow Colour
Odour:	Slightly acidic odour

General Product Information:
ALPINE Bio Mag is a secondary nutrients intended for use in a complete crop nutritional program where a soil and/or plant tissue analysis has indicated a magnesium deficiency. ALPINE Bio Mag may be applied with ALPINE liquid fertilizers, other liquid fertilizers, fertilizer suspensions, nitrogen solutions, or water. ALPINE Bio Mag will not blend directly with products containing phosporous.

First Aid: Please see the SDS sheet for more information, call (800) 265-2268 or visit us online at www.alpinepfl.com.

KEEP OUT OF THE REACH OF CHILDREN.

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THIS FERTILIZER CONTAINS ZINC AND SHOULD BE USED ONLY AS RECOMMENDED. IT MAY PROVE HARMFUL WHEN MISUSED.

ALPINE Bio Mag®

Premium liquid magnesium

Application Rates:
Use 0.5–2 litre/ac either in-furrow or as a foliar spray.

Optimum rate of application will vary between fields, depending on soil pH and organic matter content. Product should be used on the basis of soil and/or tissue analysis.

Maximum of 2 L/ac of any combination of micronutrients when mixed with a seed placed starter fertilizer.

General Mixing Instructions:
1. Put 1/3 of carrier fertilizer or water in tank
2. Add correct amount of ALPINE Bio Mag®
3. Fill with balance of carrier fertilizer or water
4. Agitate adequately to mix

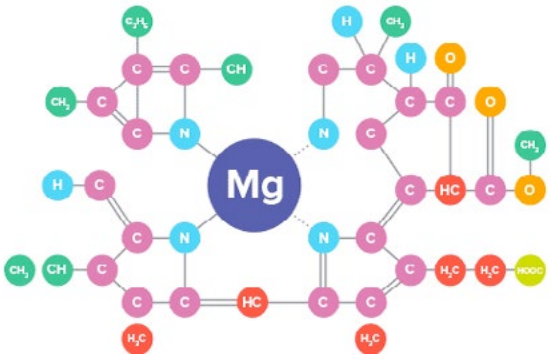
CAUTION: Check compatibility with standard jar test.

The Role Of Magnesium:
- Is the central element of the chlorophyll molecule
- Involved with sugar synthesis and starch translocation
- Carries phosphorus in the plant
- Forms part of many enzymes

Magnesium Soil Avaliability:
- Low soil temperatures and low pH reduce availability

Magnesium in the Leaf:
- Sufficiency tissue test ranges in ppm
  - Canola: 0.40–0.50
  - Small grains: 0.20–0.40
  - Peas: 0.35–0.80
  - Corn at tasseling: 0.20–0.50
  - Soybeans: 0.25–0.60

Deficiencies Symptoms:
- Interveinal chlorosis of older leaves



nutrient stewardship

Consult with your authorized ALPINE Retailer or ALPINE District Sales Manager for more specific recommendations.

bio-K®

Patented Potassium Technology

Guaranteed Nutritional Analysis:

lbs per litre applied

Total Nitrogen (N)	0.195
Available Phosphate ($P_2 0_5$)	0.56
Soluble Potash ($K_2 0$)	0.11

Product Properties:

Analysis:	7-20-4
Weight:	1,27 kg/L
pH:	5.5–6.2
Appearance:	Clear, opaque
Odour:	Slight ammonia

NOT RECOMMENDED FOR STORAGE BELOW 40°F.

Can only be stored in poly, fiberglass, or stainless tanks.

General Product Information:

ALPINE AT 20™ is a new and improved nutritional product with compatibility agents for use in all types of irrigation systems (surface, subsurface, pivot, sprinkler, etc.). Water is becoming more limited for production agriculture each day and the need to incorporate fertilizer into water (fertigation) will provide the most efficient use of available resources. **ALPINE AT 20**™ allows for this.

ALPINE Aqua-Tech® technology is a polyamine acid-based compatibility agent which protects phosphate molecules from combining with elements (i.e. calcium, magnesium, etc.) contained in hard water sources, thus preventing the formation of insoluble, scale forming precipitates. One hundred percent (100%) of the contained phosphate is present in the orthophosphate form which is immediately available for plant absorption and incorporation into metabolic processes.

Additionally, one hundred percent (100%) of the contained potassium is derived from **ALPINE Bio-K® technology** which has organic acid origins, resulting in highly efficient and very soluble potassium source **ALPINE AT 20**™ is manufactured with the highest quality raw materials on the market today, allowing for continued and safe use in irrigation systems as a more efficient use of available plant nutrients. **ALPINE AT 20**™ is well adapted to all cropping and management systems (not limited to drip irrigation) which require nitrogen, phosphorus, and potassium, including but not limited to row crops, vegetables, fruit, tree, and turf/ornamentals.

First Aid: Please see the SDS sheet for more information, call (800) 265-2268 or visit us online at www.alpinepfl.com.

KEEP OUT OF THE REACH OF CHILDREN.

ALPINE AT20™ *(7-20-4)*

Premium Irrigation fertilizer

ALPINE®

Application Instructions:

ALPINE AT 20™ fertilizer is supplied in a ready to use liquid form, making its application by fertigation systems and spray equipment convenient and easy. It can easily be injected into drip or pivot irrigation systems via injection points directly from storage containers (totes, tanks, etc.). Applications of **ALPINE AT 20**™ has the advantage of allowing producers to add necessary nitrogen, phosphorus, and potassium through irrigation systems when:

1. Tissue analysis indicates a N, P, or K shortage
2. Large fruit or grain load is expected
3. Deficiency symptoms of N, P, or K appear

Fertigation Rates:

Rates will vary based on crop, nutrient demand, and environment, with seasonal totals ranging from 4-80 litres per acre. 4-20 litres per acre per application at 1 to 4 times during the season is common, with the highest demand occurring early in vegetative growth and/or during grain or fruit fill. Do not apply with UAN solutions as insoluble precipitates will form. Flush system with water and/or acid prior to and following application.

Water Hardness	Water : ALPINE AT20
Up to 475 ppm - mg/L (27GPG)	300:1
500 ppm - mg/L (29 GPG) to 1000 ppm - mg/L (58 GPG)	500:1
Above 1000 ppm - mg/L (58GPG)	DO NOT USE

FOLLOW EQUIPMENT MANUFACTURER'S ACID FLUSH RECOMMENDATIONS

Consult with your authorized ALPINE Retailer or ALPINE District Sales Manager for more specific recommendations.

In-Foliar Recommendation:

For corn, use no more than 12 litres per acre in soils with CEC below 10 and no more than 20 litres per acre in soils with a CEC greater than 10. Consult an ALPINE agronomist if using ALPINE AT 20 in-furrow on crops other than corn or if adding micronutrients in-furrow.

Foliar Feeding General Guidelines*:

Corn: *4-12 litres per acre. Foliar aplly as needed.*

Canola: *2-4 litres per acre. Foliar apply as needed.*

Vegetable Crops: *Use 2-4 litres per acre with 8–10 gallons of water every 7–10 days on vegetable crops starting 10–15 days after transplant or at 2"–5" tall on seeded crops.*

Soybeans: *2-4 litres per acre. Foliar apply as needed.*

Small Grains, Dry Beans, Sugar Beets and other Row Crops: *2-4 litres per acre foliar.*

Transplant Solution:

Use 4-8 litres per acre with 100 gal/water at set out.

*These recommendations are believed to be reliable and should be followed carefully. Failure to follow directions or improper application practices, all of which are out of control of the manufacturer or seller, can result in plant or leaf damage, or plugged irrigation equipment.

aqua-TECH®

ALPINE Aqua-Tech® is a unique polyamine technology that allows for greater plant productivity through fertigation systems, delivering highly available low-salt nutrients safely and precisely.

bio-K®

Designed for all crops that require potassium, Bio-K® is an innovative potassium technology. Unlike other forms of potassium, Bio-K is a natural plant metabolite that provides the most efficient nutrient uptake for quicker germination, improved root development and an elevated abiotic stress tolerance; leading to better plant establishment, more vigorous growth and higher yields.

ALPINE Envoy

Guaranteed Nutritional Analysis:
CONTAINS NON-PLANT FOOD INGREDIENTS

SOIL AMENDING ACTIVE INGREDIENTS

Fulvic Acid.....3%

Product Properties:

Specific gravity:	1.01
pH:	2.5–3.0
Appearance:	Gold yellow liquid
Odour:	Slight acid odour

General Product Information:
ALPINE Envoy is a pure fulvic concentrate of unique organic acids. ALPINE Envoy is isolated from pure leonardite ore rich in organic matter. Through a double extraction process, ALPINE Envoy is concentrated into a clear, bioactive fulvic acid liquid to increase nutrient use efficiency.

FIRST AID: Please see SDS sheet for more information, call 800.265.2268 or visit us online at www.alpinepfl.com.

KEEP OUT OF REACH OF CHILDREN.

ALPINE Envoy™

General Product Information:

Product benefits include:

- High fulvic acid content
- Increased nutrient utilization
- Energizes soil bioactivity
- Low use rates (0.25–1 Litre)
- Flexible application options
- Easy handling and mixing properties
- Translucent, clean material

Directions For Use:
Foliar applied: Apply 0.25–0.5 Litres per acre with sufficient water for thorough coverage by ground or air application. Repeated applications may be beneficial.

Fertigation: Apply 0.5–1 Litre per acre via drip irrigation at critical periods of growth and development to aide in nutrient uptake and efficiency. Repeated applications may be beneficial.

Blending & Compatibility Guidelines:
ALPINE Envoy is formulated for superior compatibility with liquid fertilizer solutions. When possible, add ALPINE Envoy to tank first, then add fertilizer solution, and mix thoroughly. Always jar test new combinations to reduce risk of incompatibility.

nutrient stewardship

Consult with your authorized ALPINE Retailer or ALPINE District Sales Manager for more specific recommendations.

ALPINE Soilmax

ALSO CONTAINS NON-PLANT FOOD INGREDIENT:

Humic Acid from Leonardite..... 12%

Product Properties:

Analysis:	0-0-1
Specific Gravity:	1.06
pH:	11.5
Appearance:	Black liquid
Odour:	Odourless

General Product Information:

ALPINE Soilmax is a highly refined humic acid product containing an unprecedented 12% humic acid. **ALPINE Soilmax** may be applied with starter or in-furrow fertilizers, foliar fertilizers, soil-applied or fertigation-applied fertilizers or as standalone treatments. Utilizing advanced formulation technology **ALPINE Soilmax** does not settle in storage and may be applied through drip or microsprinkler systems without worry of system blockage.

FIRST AID: Please see SDS sheet for more information, call 800.265.2268 or visit us online at www.alpinepfl.com.

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SELLER WARRANTS THAT THE ABOVE PRODUCT CONFORMS TO ITS CHEMICAL DESCRIPTION AND IS REASONABLY FIT FOR THE PURPOSE ON THE LABEL WHEN USED IN ACCORDANCE WITH DIRECTIONS UNDER NORMAL CONDITIONS OF USE (INCLUDING NORMAL WEATHER CONDITIONS). NEITHER THIS WARRANTY NOR ANY OTHER WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, EXPRESS OR IMPLIED, EXTENDS TO THE USE OF THIS PRODUCT WHEN USED CONTRARY TO THE LABEL INSTRUCTIONS OR UNDER ABNORMAL CONDITIONS (INCLUDING ABNORMAL WEATHER CONDITIONS), AND THE BUYER ASSUMES THE RISK OF ANY SUCH USE. ALPINE STARTER OR FOLIAR APPLICATIONS ARE INTENDED TO SUPPLEMENT EXISTING SOIL FERTILITY PROGRAMS AND WILL NOT BY ITSELF PROVIDE ALL THE NUTRIENTS NORMALLY REQUIRED BY AGRICULTURAL CROPS.

ALPINE Soilmax™

General Product Information:

Benefits of ALPINE Soilmax:

- Highly concentrated liquid humic acid
- Advanced extraction process
- Provides flexible application options
- Easy handling
- Greatly reduced sediment

Benefits Attributed to Humic Acid:

- Increased nutrient uptake
- Increased root mass
- Increased soil buffering capacity
- Improved soil water-holding capacity
- Increased CEC (Cation Exchange Capacity)
- Improved soil structure
- Increased soil microbial activity
- Increased shoot growth (foliar)
- Increased crop yield and/or quality
- Translucent, clean material

Directions For Use:

ALPINE Soilmax can be applied in a broad range of techniques at all stages of plant growth.

Soil applied (in-furrow, 2x2, etc.)– Apply 2 L/ac to 20 Litres or more or more per acre with fertilizer or with water. Higher rates or repeated applications may be beneficial. This product may require agitation when mixed with a concentrated phosphate fertilizer such as ammonium polyphosphate.

Fertigation– ALPINE Soilmax may be water-run in open systems or injected into closed irrigation systems at rates of 4–20 L/ac or more per acre. May be applied by itself or with liquid fertilizer.

Blending & COMPATIBILITY Guidelines

ALPINE Soilmax is formulated to improve compatibility with liquid fertilizer solutions. Many fertilizers will mix spontaneously with **ALPINE Soilmax**. In some cases, dilution with one volume of water or other compatible fertilizer per volume of **ALPINE Soilmax** is necessary prior to addition of fertilizers such as ammonium polyphosphate for best mixing. Always jar test new combinations for compatibility prior to field mixing. To reduce risk of incompatibility, follow this sequence of mixing:

1. Water
2. **ALPINE Soilmax**
3. Fertilizer

Always do jar test for confirmation of compatibility.

nutrient stewardship

Consult with your authorized ALPINE Retailer or ALPINE District Sales Manager for more specific recommendations.

Notes

Notes

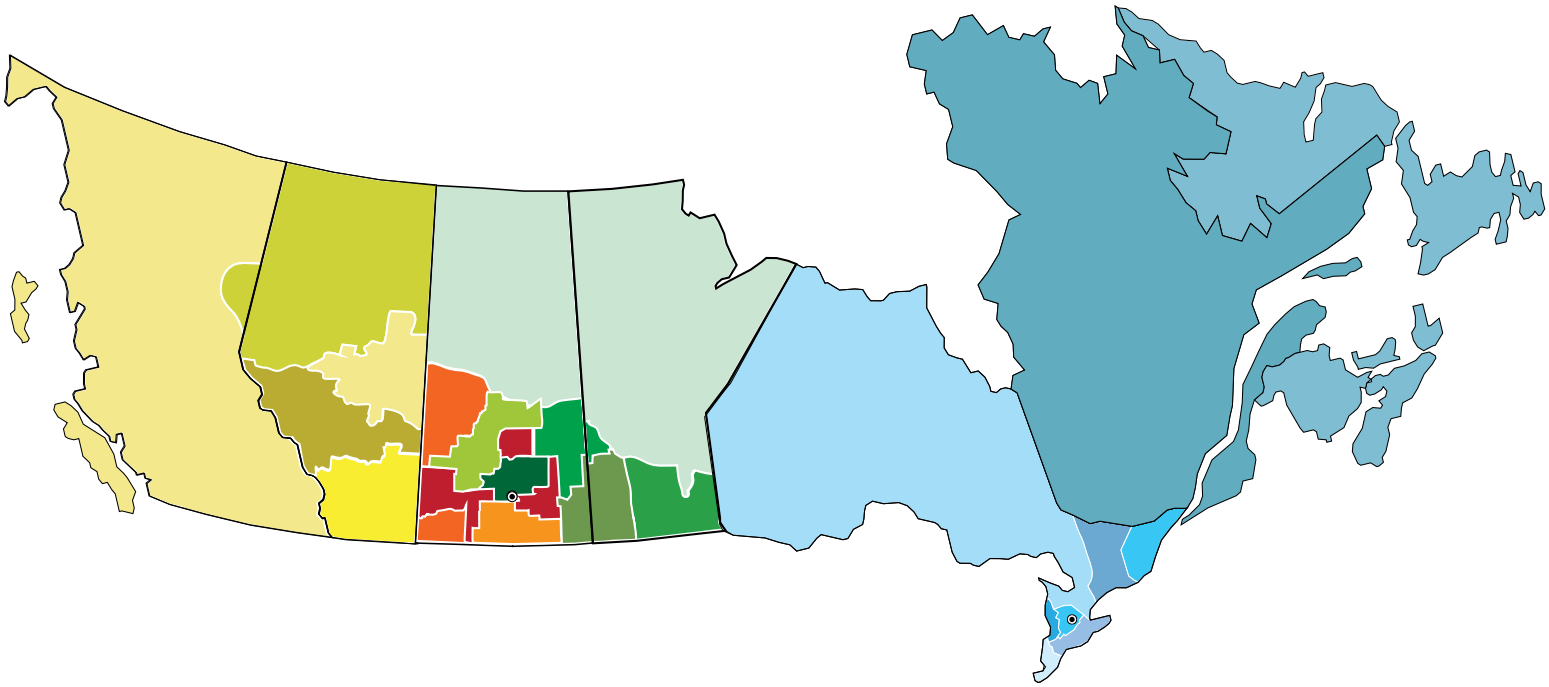
ALPINE®

PRODUCTION & DISTRIBUTION
NEW HAMBURG, ONTARIO
1356 Nafziger Rd.,
New Hamburg, ON N3A 3G8

PRODUCTION & DISTRIBUTION
BELLE PLAINE, SASKATCHEWAN
Box 25,
Belle Plaine, SK S0G 0G0
877.832.8815

SALES & MARKETING
NEW HAMBURG, ONTARIO
1356 Nafziger Rd.,
New Hamburg, ON N3A 3G8
800.265.2268

Canada Sales Map



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