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Foliar Nutrients

12 Bo-La™ 150 g/L boron (B) + 7.5 g/L molybdenum (Mo). Soluble liquid.
13 Boron™ 150 g/L boron (B). Soluble liquid.
14 Brock™ 375 g/L manganese (Mn) + 125 g/L copper (Cu). Suspension concentrate.
15 Carnival® 225 g/L calcium (CaO) + 30 g/L magnesium (MgO) + 149 g/L nitrogen (N) + 0.75 g/L boron (B) + 0.3 g/L zinc (Zn). Soluble liquid.
17 Cereal Plus® 25 g/L magnesium (MgO) + 18 g/L copper (Cu) + 37 g/L manganese (Mn) + 6 g/L zinc (Zn). Soluble liquid.
18 Classic™ 500 g/L manganese (Mn). Suspension concentrate.
19 Complex 200 g/KG nitrogen (N) + 80 g/KG phosphorus (P₂O₅) + 140 g/KG potassium (K₂O) + 20 g/KG magnesium (MgO) + 160 g/KG sulphur (SO₃) + 0.3 g/KG boron (B) + 2 g/KG copper (Cu) chelated with EDTA + 0.2 g/KG iron (Fe) chelated with EDTA + 2.6 g/KG manganese (Mn) chelated with EDTA + 0.06 g/KG molybdenum (Mo) + 1.4 g/KG zinc (Zn) chelated with EDTA. Soluble powder.
20 Copper™ 256 g/L copper (Cu). Suspension concentrate.
21 Hi-Phos® 440 g/L phosphorus (P₂O₅) + 80 g/L magnesium (MgO) + 74 g/L potassium (K₂O). Soluble liquid.
22 Jett® 200 g/L manganese (Mn). Soluble liquid.
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<th>No.</th>
<th>Product Name</th>
<th>Description</th>
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<td>23</td>
<td>Kosman™</td>
<td>250 g/KG potassium (K₂O) + 150 g/KG manganese (Mn) + 60 g/KG nitrogen (N) + 90 g/KG sulphur (S). Soluble dry flowable.</td>
</tr>
<tr>
<td>24</td>
<td>KuruS™</td>
<td>360 g/L potassium (K₂O) + 630 g/L sulphur (SO₃). Soluble liquid.</td>
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<td>26</td>
<td>Legume Mix™</td>
<td>80 g/L manganese (Mn) + 50 g/L zinc (Zn) + 3 g/L molybdenum (Mo) + 179 g/L sulphur (SO₃). Soluble liquid.</td>
</tr>
<tr>
<td>27</td>
<td>MagnuS™</td>
<td>480 g/L magnesium (MgO) + 360 g/L sulphur (SO₃). Suspension concentrate.</td>
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<tr>
<td>29</td>
<td>Maize Micronutrient Complex™</td>
<td>83 g/L magnesium (MgO) + 20 g/L manganese (Mn) + 10 g/L zinc (Zn) + 75 g/L nitrogen (N). Soluble liquid.</td>
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<tr>
<td>30</td>
<td>Manganese 15%™</td>
<td>150 g/L manganese (Mn). Soluble liquid.</td>
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<tr>
<td>31</td>
<td>Manganese 400™</td>
<td>400 g/L manganese (Mn) (66g/L as nitrate and 334g/L as carbonate). Suspension concentrate.</td>
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<tr>
<td>33</td>
<td>Maple DF™</td>
<td>310 g/KG manganese (Mn) + 450 g/KG sulphur (SO₃). Soluble dry flowable.</td>
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<tr>
<td>34</td>
<td>Molybdenum™</td>
<td>60 g/L molybdenum (Mo). Soluble liquid.</td>
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<tr>
<td>35</td>
<td>Multiple™</td>
<td>139 g/L magnesium (MgO) + 110 g/L copper (Cu) + 330 g/L manganese (Mn) + 84 g/L zinc (Zn). Suspension concentrate.</td>
</tr>
<tr>
<td>36</td>
<td>Mycrobor® DF</td>
<td>180 g/KG boron (B). Soluble dry flowable.</td>
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<tr>
<td>37</td>
<td>Potato Micronutrient Complex™</td>
<td>60 g/L calcium (CaO) + 60 g/L magnesium (MgO) + 160 g/L nitrogen (N). Soluble liquid.</td>
</tr>
<tr>
<td>38</td>
<td>Prince®</td>
<td>133 g/L magnesium (MgO). Soluble liquid.</td>
</tr>
<tr>
<td>40</td>
<td>Promise™</td>
<td>500 g/L magnesium (MgO). Suspension concentrate.</td>
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<tr>
<td>41</td>
<td>Root 66™</td>
<td>100 g/L magnesium (MgO) + 60 g/L manganese (Mn). Soluble liquid.</td>
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43 Seamac Gold™  Ascophyllum based seaweed extract + 80 g/L nitrogen (N) + 88 g/L phosphorus (P₂O₅) + 62 g/L potassium (K₂O). Soluble liquid.

45 Seamac PCT™  Ascophyllum based seaweed extract. Soluble liquid.

48 SeamaXX™  Ascophyllum based seaweed extract + 38 g/L nitrogen (N) + 17.5 g/L phosphorus (P₂O₅) + 30 g/L potassium (K₂O) + manganese (Mn) + copper (Cu) + boron (B) + iron (Fe) + molybdenum (Mo) + zinc (Zn). Soluble liquid.

51 Stage™  33 g/L magnesium (MgO) + 140 g/L manganese (Mn).

53 Stoker™  60 g/L boron (B) + 53 g/L magnesium (MgO) + 22 g/L manganese (Mn) + 2 g/L zinc (Zn) + 2 g/L molybdenum (Mo) + 148 g/L sulphur (S) + 32 g/L nitrogen (N). Suspension concentrate.

54 Sulphur™  800 g/L sulphur (S). Suspension concentrate.

56 Super 80™  133 g/L magnesium (MgO). Soluble liquid.

58 Thio-S™  151 g/L nitrogen (N) + 862 g/L sulphur (SO₃). Soluble liquid.

60 Trice™  330 g/L manganese (Mn) + 110 g/L copper (Cu) + 84 g/L zinc (Zn). Suspension concentrate.

61 Vertex Hi-N 34™  340 g/L nitrogen (N) (nitric nitrogen 37 g/L, ammoniacal nitrogen 140 g/L, ureic nitrogen 163 g/L) + 35 g/L magnesium (MgO) + 9 g/L manganese (Mn) + 5 g/L copper (Cu). Soluble liquid.

63 Zinc™  150 g/L zinc (Zn). Soluble liquid.

64 Zinc FL™  690 g/L zinc (Zn). Suspension concentrate.

66  Safety & Storage and other information.

67  Notes
ABOUT FMC CROP NUTRITION

FMC Crop Nutrition is an operating division of FMC Corporation (formerly known as Headland Crop Nutrition). FMC Crop Nutrition was founded in the UK in 1985 and is a leading supplier of speciality crop nutrition products.

FMC’s products include:
- Speciality crop nutrition products; liquids, suspension concentrates and powders
- Advanced products; with added humic acid and lignosulfonate technology
- Biostimulant based products.
- Fertigation products (NPK solubles)

In addition to its long established market presence in the UK and Eire, FMC Crop Nutrition has expanded rapidly over the past 30 years and now exports to more than 45 countries worldwide covering Europe, the Middle East, Asia, Africa, Australasia and North and South America.

FMC has its own modern custom built production, formulation and filling plant at Pentre in the north-west of the United Kingdom.

FMC maintains its own technical support team to provide superlative standards of service for its customers in line with its position as one of the world’s foremost and innovative manufacturers of specialty crop nutrition products.

For more information about FMC’s products or services, visit our website at:

www.fmc-agro.co.uk

Please refer to the online our Compatibility Guide for further information, which can be found on our website.

www.fmc-agro.co.uk
Available, balanced nutrition is essential to plant development. Foliar nutrient products must be of the highest quality to counteract natural or induced deficiencies and meet the growing requirements of high yielding crops.

Formulation technology has developed rapidly and moved away from applying foliar nutrients in basic inorganic form. For maximum effectiveness foliar applied plant nutrients need to move through waxy plant cuticles into the leaf and internal transport system as efficiently as possible.

Formulation ingredients can have a significant impact on facilitating leaf entry and subsequent nutrient availability within the plant.

Scientific research shows that in addition to aiding uptake, some co-formulants can act to help compatibility in the spray tank (and some have a dual role, helping both compatibility and uptake), some modify the acidity of the spray water and some act to tie up or block unwanted ions which could interfere with product efficacy. Others act within the plant by increasing or maintaining levels of chlorophyll, improving the uptake of other nutrients or acting like plant hormones.

Finally, the type of salt used in the product can have an impact on uptake and availability e.g. manganese based on the nitrate salt has been shown in trials to be taken into the plant more readily than those based on sulphate or carbonate salts.

Applying an unformulated foliar nutrient product is very different from applying a fully optimized formulated product. The first option is very cost ineffective in terms of element uptake and utilisation. Potential differences in terms of element uptake and utilisation by the plant mean that applying a fully formulated FMC product is often the most cost effective solution because the applied element is readily absorbed and utilised by the plant.

FMC products are fully formulated using advanced chemistry and contain the best available surfactants and adjuvants to assist absorption by the plant and ensure any investment in plant nutrition is maximised.
CO-FORMULANTS USED IN OUR PRODUCTS

Adjuvants:  
FMC has a wealth of experience with both formulation and performance adjuvants.

Acidifiers:  
Acidifiers can help reduce the pH of the water in the spray tank and some can act as secondary complexing agents.

Humics:  
Scientific evidence has shown that humics act in a multi-faceted role as naturally occurring complexing agents to facilitate nutrient uptake, to increase and maintain chlorophyll levels in the plant, to aid water retention and to enhance uptake of other nutrients.

Complexing Agents:  
These act in a similar, but far more efficient way than the older chelating agents i.e. protect the element from being tied up in other chemical reactions and help tank compatibility. Chelating agents vary in strength and some like EDTA take a long time to bio-degrade. Products that use older chelates are significantly restricted in the amount of element that can be applied in the product. FMC uses complexing agents that bio-degrade, are not synthetic but are made from natural occurring substances. They do not significantly restrict the amount of element applied and do not have the chelating power of older materials so they both protect the element but release it when needed in the plant.

Other Co-Formulants:  
Include formulation stickers and dispersants to maintain products in suspension, stop caking and settlement in the can or spray tank. FMC products have a high production criteria for aspects such as particle size - a particle analyser is used to accurately assess particle size of suspension products. As well as the core range of liquid and suspension products our UK manufacturing and development facility is capable of producing other formulation types including:

- Novel mixtures, liquids and suspensions
- Specialist range of dry flowable products
- Advanced humic acid-based products
- Water conditioner products
# The Importance of Micronutrients

<table>
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<tr>
<th>Micronutrient</th>
<th>Some Major Functions in the Plant¹</th>
<th>Conditions Which Increase Deficiency</th>
<th>Crops Sensitive to Deficiency or Have a High Requirement</th>
<th>Satisfactory Tissue Levels 4</th>
<th>Some of the Deficiency Symptoms</th>
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<tr>
<td>Boron</td>
<td>Pollen production, Lignin production, Production of plant hormones</td>
<td>Soils low in organic matter, Light and acid soils, Calcareous soils where B is locked up</td>
<td>OSR, Brassicas, Sugar Beet</td>
<td>30 ppm</td>
<td>Extended flowering in OSR, Cracked petioles, Heart Rot in beet</td>
</tr>
<tr>
<td>Copper</td>
<td>Lignin production, Pollen production, Part of the SOD2 enzyme which helps plant defence against disease and overproduction of harmful free oxygen radicals</td>
<td>Peat soils where the copper can be tied up in less available forms, Leached acid soils, Shallow and organic chalks</td>
<td>Cereals</td>
<td>5 ppm</td>
<td>White tip of leaves, Blind grains, Ergot can be more common in copper deficient cereals</td>
</tr>
<tr>
<td>Manganese</td>
<td>Important role as an electron acceptor in photosynthesis, Part of the SOD enzyme</td>
<td>Light sandy soils, Calcareous soils, Soils high in organic matter</td>
<td>OSR, Brassicas, Sugar Beet, Peas and Beans</td>
<td>40 ppm</td>
<td>Pale and floppy leaves, Speckled yellows in beet</td>
</tr>
<tr>
<td>Molybdenum</td>
<td>Vitally important function as a converter of nitrogen into plant available N</td>
<td>Soils of low pH</td>
<td>OSR, Brassicas, Peas and Beans</td>
<td>0.5 - 1 ppm</td>
<td>Deformed leaves, Whiptail in brassicas</td>
</tr>
<tr>
<td>Zinc³</td>
<td>Production of plant auxins, Part of the SOD enzyme</td>
<td>Leached sandy soils, Alkaline soils, Where high levels of phosphate are present</td>
<td>Maize, Cereals, OSR</td>
<td>30 ppm</td>
<td>White streaks in cereals, Miniaturisation of leaves</td>
</tr>
</tbody>
</table>
1. All elements play a number of roles in the plant and research shows some appear more important than others.

2. The superoxide dismutase (SOD) enzyme activates when free oxygen radicals are being overproduced, for example in very high sunlight or hot, drought conditions. SOD enzymes reduce the deleterious effects of free oxygen radicals and also act as plant defence against disease.

3. As an element zinc is only second as a micronutrient after manganese in terms of the amount generally required in arable crops. Both in Europe and globally it is the most widespread deficiency.

4. This figure relates to levels in the most sensitive crops and NOT to all crops. For example, boron is required in high amounts by OSR but not by cereals so the tissue level refers to OSR.

**NB:** These plant tissue levels were developed many years ago using lower yielding varieties, on a lower agronomic regime and as such had less demand for nutrition as crops do now.

FMC field trials have shown tissue levels have been far in excess of these figures yet significant yield benefits were still achieved even at high levels of manganese and copper.

FMC consider that these satisfactory tissue levels should be increased - for example, a level of 40 ppm manganese in the tissue should be higher before being considered a satisfactory level.
The above chart shows the inter-action between elements in terms of plant uptake.

Taking calcium for example, this has a major impact on the uptake of other elements and can antagonise uptake of manganese, zinc and boron. There are various possible reasons for this including a precipitation with calcium carbonate, by affecting pH or by elements being adsorbed to particles of calcium carbonate.

Calcium to boron is a straight line and indicates that calcium may antagonise the uptake of boron. This has importance in soils with high calcium levels. Some soils may test at acceptable levels for boron and yet a significant crop response may be achieved when boron is foliar applied (because in the soil boron is not being released to the plant due to antagonism by calcium). This illustrates the importance of correctly interpreting a soil analysis. Simply referring to the soil boron levels without regard to other factors could be costly in terms of lost yield.

Another implication is for soil applied opposed to foliar applied nutrients. Applying nutrients via the leaf obviates the problem of element antagonism in soil (again, application of boron to the soil containing high levels of calcium could result in the boron being ‘locked up’/unavailable to the plant). Other antagonisms include phosphate and zinc and a potential mutual antagonism between potassium and magnesium.
Effect of pH on Element Availability

Explanatory Notes:

pH levels in the soil can affect the availability of elements to plants.

Most micronutrients become less available as the pH increases although boron sometimes shows an increase in availability at pH 9 due to an interaction with OH- ions.

Molybdenum however differs from the other micronutrients in becoming more available as the pH increases.

The significance of this information lies in the effect on the availability of plant nutrients at raised pH levels.
BO-LA™

150 g/L boron (B) + 7.5 g/L molybdenum (Mo).
Soluble liquid.
Rates: 1 - 2.5 L/ha
Packs per Pallet: 36 x 2 x 10 litres

Introduction:
Bo-La™ is an inorganic liquid formulation of boron and molybdenum, designed for cost-effective correction of deficiency of these elements in crops. Deficiency can affect many crops, particularly vegetables, brassicas, root crops and oilseed rape. Molybdenum deficiency affects a number of crops, but particularly cauliflowers and lettuce, giving rise to the characteristic ‘whiptail’ symptoms. Other members of the brassica family can also be affected. Deficiency is most likely to arise on acid soils.

Formulation:
Bo-La™ is a high concentration micronutrient formulation containing boron and molybdenum fully soluble in water.

Rates of Use:
Marginal deficiency and Autumn applications:
1 L/ha in at least 200 L/ha of water.

Moderate deficiency:
2 L/ha in at least 200 L/ha of water.

Severe deficiency:
2 - 2.5 L/ha initially followed by further applications as required if symptoms should re-appear.

Timing:
Bo-La™ can be applied to crops whenever a boron deficiency is observed or expected, but after the 3 leaf stage, or when there is sufficient foliage present to absorb the spray.

FMC recommends that soil and tissue analysis results are used whenever possible to guide micro and macronutrient applications to optimise crop nutrient status.
Do not apply this product in very bright sunlight or in temperatures above 25°C. If possible, spray in the evening or early morning for best results.

Compatibility:
Bo-La™ is physically and chemically compatible with a wide range of agrochemical products. Consult your supplier for the latest information. Up-to-date information is available at our website. Always read the label of the partner product carefully before mixing with Bo-La™.
BORON™

150 g/L boron (B).
Soluble liquid.

Rates: 1.25 - 2.5 L/ha
Packs per Pallet: 36 x 2 x 10 litres 1000 litre IBC

Introduction:
Boron™ is an essential micronutrient for regulating plant cell water balance and sugar translocation. It is also of importance in reproductive systems, ensuring healthy pollen development. Deficiency can adversely affect most crops, including vegetables, brassicas, root crops, horticultural crops and oilseed rape, impairing growth, yield and quality.

Formulation:
Boron™ is a high concentration formulation containing boron fully soluble in water as the ethanolamine.

Rates of Use:
Marginal deficiency:
1.25 L/ha in at least 200 L/ha of water.

Moderate deficiency:
2.5 L/ha in at least 200 L/ha of water.

Severe deficiency:
2.5 L/ha in at least 200 L/ha of water. Repeat after 3 - 4 weeks and again if symptoms return.

Timing:
Boron™ can be applied to crops whenever a boron deficiency is observed or expected, after the 3 leaf stage, or when there is sufficient foliage present to absorb the spray.

FMC recommends that soil and tissue analysis results are used whenever possible to guide micro and macronutrient applications to optimise crop nutrient status. Do not apply this product in very bright sunlight or in temperatures above 25°C. If possible, spray in the evening or early morning for best results.

Compatibility:
Boron™ is physically and chemically compatible with a wide range of agrochemical products. Consult your supplier for the latest information. Up-to-date information is available on our website. Always read the label of the partner product carefully before mixing with Boron™.
BROCK™

375 g/L manganese (Mn) + 125 g/L copper (Cu).
Suspension concentrate.

Rates:  1 L/ha
Packs per Pallet:  51 x 2 x 5 litres

Introduction:
Brock™ is a ready-to-use liquid formulation for correction of manganese and copper deficiencies in crops or for use as a maintenance treatment.

Formulation:
As well as providing a highly-concentrated source of manganese and copper, its excellent suspension formulation is tolerant of wide ranges of pH and can be mixed with many tank-mix partners including a number of materials which may be incompatible with other forms of manganese products.

Rates of Use:
**Apply 1 L/ha in at least 200 L/ha of water. Repeat if deficiency is severe.**

Timing:
Brock™ can be applied to crops whenever deficiency is observed or expected, or as a routine maintenance treatment. Applications may commence after the 3 leaf stage.

Autumn sown crops will benefit from an application before the onset of Winter. FMC recommends that soil and tissue analysis results are used whenever possible to guide micro and macronutrient applications to optimise crop nutrient status.
Do not apply this product in very bright sunlight or in temperatures above 25°C. If possible, spray in the evening or early morning for best results.

Compatibility:
Brock™ is physically and chemically compatible with a wide range of agrochemical products. Consult your supplier for the latest information. Up-to-date information is available on our website. Always read the label of the partner product carefully before mixing with Brock™.
CARNIVAL®

225 g/L calcium (CaO) + 30 g/L magnesium (MgO) + 149 g/L nitrogen (N) + 0.75 g/L boron (B) + 0.3 g/L zinc (Zn).
Soluble liquid.

Rates: 2.5 - 10 L/ha
Packs per Pallet: 36 x 2 x 10 litres 1000 IBC

Introduction:
Carnival® contains calcium, magnesium, nitrogen, zinc, and boron formulated to maximise uptake of calcium with additional nutrients to aid the production of quality fruit and vegetables.

Formulation:
Carnival® is formulated to maximise uptake of calcium and nutrients to aid the production of quality fruit and vegetables. A concentrated liquid formulation for easy mixing and handling. Please refer to our website for a more detailed formulation analysis.

Rates of Use:

**Apples:**
Low levels of calcium increase the risk of bitter pit, russetting, skin splitting, cracking and surface rupture and seriously affect the potential for crop storage. Calcium also helps to condition the tree throughout the growing season.

Rate: 2 - 5 L/ha from bud burst to the beginning of flowering, repeated every 7 - 10 days. 5 - 10 L/ha from petal fall to one week before harvest, repeated every 10 - 14 days.
Water: Depending on tree size 200 - 500 L/ha, applying sufficient water to reach incipient runoff.
Timing: Apply from petal fall and repeat at 10 - 14 day intervals with final application 10 - 14 days prior to harvest, depending on the cultivar. The exact rates and timing can be manipulated to suit local spraying practices. Avoid spraying during high temperatures. If temperatures exceed 21°C and spraying cannot be delayed, use the lower rate and apply at frequent intervals to give the same total amount over the season. Spraying in the late afternoon or early evening has been shown to reduce the risk of scorch. Young foliage is more susceptible to phytotoxicity.

**Strawberries:**
To improve fruit firmness and prolong shelf life.
Rate: Maintenance 2.5 L/ha
Deficiency 5 L/ha
Water: 500 - 1000 L/ha
Timing: Apply from start of flowering. Applications can be made every 10 - 14 days.

Continued on the next page
CARNIVAL® CONTINUED

Carrots:
For prevention of deficiency.
Rate: 5 L/ha
Water: Use at least 200 L/ha
Timing: 2 - 3 applications at 10 - 14 day intervals beginning at the pencil stage.

Celery:
Blackheart, a localised calcium deficiency usually occurs in young immature leaves at the centre of the plant. Spray to ensure Carnival® reaches the heart of the plant.
Rate: Up to 5 L/ha
Water: At least 200 L/ha
Timing: When symptoms of deficiency are first seen. As early as possible once the young plant has sufficient foliage to absorb the spray.

Outdoor lettuce:
In order to prevent tip burn it is essential that Carnival® is applied directly to the susceptible tissue. Early treatment is essential.
Rate: 5 L/ha
Water: At least 200 L/ha
Timing: Begin application before head formation and repeat every 10 - 14 days as required.

Potatoes:
For the reduction of calcium deficiency related disorders.
Rate: 5 L/ha
Water: Use sufficient water to ensure good cover.
Timing: When required, repeat after 10 - 14 days.

Vegetable brassicas:
For the prevention of deficiency problems in cauliflower, cabbage, brussels sprouts and Chinese leaves.
Rate: 5 L/ha
Water: At least 200 L/ha
Timing: Spray early in the growing season at 7 - 10 day intervals

Compatibility:
Carnival® is physically and chemically compatible with a wide range of agrochemical products. Consult your supplier for the latest information. Up-to-date information is available on our website. Always read the label of the partner product carefully before mixing with Carnival®.
CEREAL PLUS®

37 g/L manganese (Mn) + 25 g/L magnesium (MgO) + 18 g/L copper (Cu) + 6 g/L zinc (Zn).
Soluble liquid.

Rates: 2.5 - 5 L/ha
Packs per Pallet: 36 x 2 x 10 litres 1000 IBC

Formulation:
Cereal Plus® contains a carefully balanced blend of nitrate and sulphate based micronutrients specifically formulated to meet the nutrient needs of cereal crops.

Rates of Use:
Apply 2.5 - 5.0 L/ha in at least 200 L/ha of water.
Applications may be made at any time after the 3-leaf stage when the plant has sufficient leaf area to absorb the spray.

Avoid spraying during very strong sunlight, in temperatures above 25°C or when the crop is suffering from drought stress.

Timing:
For cereals, apply in the autumn from GS 13, once sufficient foliage is present in the crop to absorb the spray. Apply again at or around GS 31 in the spring.

FMC recommends that soil and tissue analysis results are used whenever possible to guide micro and macronutrient applications to optimise crop nutrient status. Do not apply this product in very bright sunlight or in temperatures above 25°C. If possible, spray in the evening or early morning for best results.
CLASSIC™

500 g/L manganese (Mn).
Suspension concentrate.

Rates: 1 L/ha
Packs per Pallet: 51 x 2 x 5 litres

Introduction:
Classic™ is a ready-to-use liquid formulation for correction of manganese deficiency. Most crops are sensitive to manganese levels, particularly cereals, vegetables, brassicas, root crops and fruit.

Formulation:
Contains an advanced surfactant / suspension system to ensure rapid and even dispersion in the spray tank and superior adhesive properties on foliage.

Rates of Use:
1.0 L/ha in at least 200 L/ha of water.
Increase the water volume as necessary for application to bush, cane or top fruit. Repeat at 10 - 14 day intervals if required. Do not apply more than 5 L/ha per crop per season. Do not apply to protected crops.

Timing:
Cereals: Apply from the 3 - leaf stage.

Oilseed rape, leaf and root brassicas: Apply from 4 - 6 leaf stage.

Peas and beans: Apply from commencement of flowering.

Potatoes: Apply from full emergence.

Grassland: Apply from when growth re-starts in the spring.

Other crops: Apply from when there is sufficient foliage present to absorb the spray.
**COMPLEX 20-8-14™**

200 g/KG nitrogen (N) + 80 g/KG phosphorus (P₂O₅) + 140 g/KG potassium (K₂O) + 20 g/KG magnesium (MgO) + 160 g/KG sulphur (SO₃) + 0.3 g/KG boron (B) + 2 g/KG copper (Cu) chelated with EDTA + 0.2 g/KG iron (Fe) chelated with EDTA + 2.6 g/KG manganese (Mn) chelated with EDTA + 0.06 g/KG molybdenum (Mo) + 1.4 g/KG zinc (Zn) chelated with EDTA. Soluble powder.

**Rates:**
- 2.5 - 5 KG/ha
- Packs per Pallet: 100 x 10 kilograms

**Introduction:**
Complex 20-8-14™ is a carefully formulated fully soluble blend of NPK and micronutrients. It is suitable for optimising nutrient balance in a wide range of crops.

Complex 20-8-14™ may be used as a routine nutrient source for maintaining healthy crop growth and development and also to provide a source of rapidly absorbed additional nutrients at a time of crop stress or during periods of particularly rapid growth and development.

**Formulation:**
Complex 20-8-14™ contains a balanced ratio of fully soluble and plant-available nutrients formulated for easy and straightforward mixing and application.

**Rates of Use:**
**2.5 - 5 KG/ha in at least 200 L/ha of water.**
Application to small areas may also be made with a knapsack sprayer. Use 2.5 gms per litre of water, applied to the point of runoff.

**Timing:**
Apply when required or as indicated by the results of tissue analysis, once the crop has sufficient leaf area present to absorb the spray (e.g. the 3 leaf stage in cereals). Repeat at 7 - 14 day intervals as required.
FMC recommends that soil and tissue analysis results are used whenever possible to guide micro and macronutrient applications to optimise crop nutrient status.
Do not apply this product in very bright sunlight or in temperatures above 25°C. If possible, spray in the evening or early morning for best results.

**Compatibility:**
Complex 20-8-14™ is physically and chemically compatible with a wide range of agrochemical products. Consult your supplier for the latest information. Up-to-date information is available at our website. Always read the label of the partner product carefully before mixing with Complex 20-8-14™.
Copper™

256 g/L copper (Cu).
Suspension concentrate.

Rates: 0.25 - 0.5 L/ha in 200 - 400 L/ha of water for correction of copper deficiency.

Packs per Pallet: 51 x 2 x 5 litres

Introduction:
Copper™ is essential to crops for stimulation of enzyme systems in association with other elements, and is particularly active in many of the metabolic pathways within the cell. All crops can be affected by copper deficiency including cereals, vegetables, fruit, brassicas, root crops, horticultural produce and grassland. Crops grown on peaty soils, shallow organic chalks, heathland and heavily leached soils are most likely to exhibit copper deficiency.

Formulation:
Copper™ is a suspension concentrate formulation containing 435 g/L copper oxychloride. It contains an advanced wetter / surfactant system for optimum leaf coverage and absorption.

Rates of Use:
**Marginal deficiency:**
0.5 L/ha in at least 200 L/ha water.

**Moderate deficiency:**
1 L/ha in at least 200 L/ha water.

**Severe deficiency:**
1 L/ha in at least 200 L/ha water Repeat after 3 - 4 weeks and again if symptoms return. Higher rates may be required when applying to Pome, Stone or Top fruit, please consult your advisor.

Timing:
Applications should be made during periods of active growth when there is enough foliage present to absorb the spray. Do not apply when the crop is under stress due to drought or extremes of temperature. FMC recommends that soil and tissue analysis results are used whenever possible to guide micro and macronutrient applications to optimise crop nutrient status.

Compatibility:
Copper™ is physically and chemically compatible with a wide range of plant protection products. Consult your supplier for the latest information. Up-to-date information is available on our website. Always read the label of the partner product carefully before mixing with Copper™.
**HI-PHOS®**

440 g/L phosphorus (P<sub>2</sub>O<sub>5</sub>) + 80 g/L magnesium (MgO) + 74 g/L potassium (K<sub>2</sub>O).

Soluble liquid.

Rates: 5 - 10 L/ha
 Packs per Pallet: 36 x 2 x 10 litres 1000 IBC

Introduction:

Hi-Phos® is a liquid formulation containing magnesium, potassium and phosphorus in carefully balanced proportions for application to potatoes, cereals, peas, beans, sugar beet and other crops.

Rates of Use + Timing:

**Potatoes:** To encourage tuber numbers - Apply 10 L/ha in at least 200 L/ha of water at tuber initiation. To encourage bulking - Apply 5 L/ha in at least 200 L/ha of water at the onset of bulking and repeat at least once during bulking. The timing of the 2<sup>nd</sup> application should be based on tissue analysis and should not be less than 10 days after the 1<sup>st</sup>.

**Cereals:** Apply 5 L/ha in at least 200 L/ha of water at tillering and repeat at 10 - 14 day intervals as required. An application between ear emergence and the end of flowering may also be beneficial.

**Oilseed rape:** Apply 2.5 - 5 L/ha in at least 200 L/ha of water. Apply in the Autumn when the crop has 6 - 8 leaves and repeat in the Spring at early stem extension.

**Peas and beans:** Apply 5 L/ha in at least 200 L/ha of water when the crop is 1 - 15 cm high and repeat after 10 - 14 days.

**Sugar beet:** Apply 5 L/ha in at least 200 L/ha of water at the 4 - 6 leaf stage. Repeat at 10 - 14 day intervals as required.

**Maize:** Apply 2.5 - 5 L/ha in at least 200 L/ha of water at the 4 - 8 leaf stage. Repeat at 10 - 14 day intervals if required.

**Other crops sensitive to P and K deficiencies:** Apply as early in the growing season as possible providing there is adequate leaf cover. Repeat as required.

FMC recommends that soil and tissue analysis results are used whenever possible to guide micro and macronutrient applications to optimise crop nutrient status. Do not apply this product in very bright sunlight or in temperatures above 25°C. If possible, spray in the evening or early morning for best results.

Compatibility:

Hi-Phos® is physically and chemically compatible with a wide range of agrochemical products. Consult your supplier for the latest information. Up-to-date information is available on our website. Always read the label of the partner product carefully before mixing with Hi-Phos®. Do not mix Hi-Phos® with any highly alkaline products.
**JETT®**

200 g/L manganese (Mn).
Soluble liquid.

**Rates:** 1.25 - 2.5 L/ha

**Packs per Pallet:** 36 x 2 x 10 litres 1000 litre IBC

**Introduction:**
Jett® is an advanced formulation of manganese that is rapidly taken up by the plant. Manganese is used in the plant in conjunction with other essential nutrients for stimulation of various enzyme systems. Its major role is in the synthesis of chlorophyll and metabolism of nitrogen. Most crops are sensitive to manganese levels, particularly cereals, vegetables, brassicas, root crops and fruit.

**Formulation:**
Jett® is a fully soluble formulation of manganese nitrate for foliar treatment of manganese deficiency in crops. The nitrate form of manganese is up to 25% more plant available than conventional sulphate forms and is especially useful for foliar application to crops requiring high amounts of manganese.

**Rates of Use:**

**Marginal deficiency:**
1.25 L/ha in at least 200 L/ha of water.

**Moderate deficiency:**
2.5 L/ha in at least 200 L/ha of water.

In areas of severe or known deficiency a programme of applications throughout the growing season may be necessary. Do not exceed more than 12 litres per season.

**Timing:**

**Cereals:**
Apply as necessary after the 3 leaf stage

**Other crops:**
Apply as necessary when the crop has developed enough foliage to absorb the spray.

FMC recommends that soil and tissue analysis results are used whenever possible to guide micro and macronutrient applications to optimise crop nutrient status. Do not apply this product in very bright sunlight or in temperatures above 25°C. If possible, spray in the evening or early morning for best results.

**Compatibility:**
Jett® is physically and chemically compatible with a wide range of agrochemical products. Consult your supplier for the latest information. Up-to-date information is available on our website. Always read the label of the partner product carefully before mixing with Jett®.
KOSMAN™

250 g/KG potassium (K₂O) + 150 g/KG manganese (Mn) + 60 g/KG nitrogen (N) + 90 g/KG sulphur (S).
Soluble dry flowable.

Rates: 2.5 - 5 KG/ha
Packs per Pallet: 100 x 10 kilograms

Formulation:
Soluble powder formulation designed to provide rapid uptake of nutrients by the plant at times of deficiency or rapid growth.

Rates of Use:
Maintenance:
Apply 2.5 KG/ha

Correction of deficiency:
Apply 5 KG/ha. If deficiency is severe, repeat applications at 10 - 14 day intervals may be necessary.
Apply in at least 230 L/ha of water for maximum uptake.
KURUS™

360 g/L (K₂O) + 630 g/L sulphur (SO₃).
Soluble liquid.

Rates: 2.25 - 6.75 L/ha
Packs per Pallet: 36 x 2 x 10 litres 1000 IBC

Introduction:
Potassium is involved with promoting root growth, maintaining stem strength, encouraging protein production and ensuring the efficiency of water use. Sulphur is necessary for nitrogen utilization and is vital for protein formation. Shortages of potash in the plant cannot be rectified in-season using conventional fertilisers, which is why FMC have introduced KuruS™.

Applications of KuruS™ should be made based on soil and/or plant tissue analysis for potassium. DO NOT apply KuruS™ to the foliage of crops sensitive to sulphur.

Formulation:
KuruS™ is a clear, chloride free, liquid fertiliser solution. KuruS™ requires no mixing because it is already in solution, and will remain so even down to 0°C. Because it is a complete solution, it is ideal as a foliar spray, or for use through drip irrigation systems.

Rates of Use + Timing:
2.25 - 6.75 L/ha unless otherwise specified, apply in enough water to provide thorough coverage.

Potatoes:
First application at tuber initiation, a second application 2 - 3 weeks later and a third application at tuber bulking.

Cereals:
From tillering to early boot (GS 20 - 43).

Pulses:
Apply during late bud to 10% flowers showing.

Tomatoes:
Apply from the beginning of fruit set and repeat every 10 - 14 days.

Apples:
Apply in at least 900 L/ha with the first application at first full leaf and subsequent applications as required.
**KURUS™ CONTINUED**

Rates of Use + Timing:

**Oilseed rape:**
Apply from 4 - 6 leaf stage

**Vines:**
Apply in at least 270 L/ha of water, beginning 2 weeks after flowering.
Repeat every 7 - 10 days.

**Turf grass:**
KuruS™ may be used on turf, for full details contact FMC.

**Soil fertiliser:**
For the recommendations concerning applying KuruS™ directly to the soil, either alone or through irrigation systems please contact FMC.

**Compatibility:**
KuruS™ is physically and chemically compatible with a wide range of agrochemical products. Consult your supplier for the latest information. Up-to-date information is available on our website. Always read the label of the partner product carefully before mixing with KuruS™. Blends of KuruS™ should not be acidified below pH6. Avoid mixing with highly acidic materials.
LEGUME MIX™

80 g/L manganese (Mn) + 50 g/L zinc (Zn) + 3 g/L molybdenum (Mo) + 179 g/L sulphur (SO₃). Soluble liquid.

| Rates | 2.5 - 3.5 L/ha |
| Packs per Pallet | 36 x 2 x 10 litres |

Introduction:
Legume Mix™ contains a carefully balanced blend of manganese, zinc and molybdenum specifically formulated to meet the nutrient needs of leguminous crops such as peas, beans, clover and lucerne. Legume Mix™ is also very suitable for application to oilseed rape, brassicas and other vegetable crops.

Formulation:
Legume Mix™ contains a carefully balanced blend of manganese, zinc and molybdenum specifically formulated to meet the nutrient needs of leguminous crops such as peas, beans, clover and lucerne. Legume Mix™ is also very suitable for application to oilseed rape, brassicas and other vegetable crops.

Rates of Use + Timing:
**Maintenance:**
2.5 L/ha in at least 200 L/ha of water.
Apply before the onset of flowering.

**Deficiency:**
3.5 L/ha in at least 200 L/ha of water.
Apply as soon as deficiency is observed or suspected. Repeat at 14 day intervals if required.

Application Rate:
Applications may begin at any stage once the plant has sufficient leaf area to absorb the spray.

FMC recommends that soil and tissue analysis results are used whenever possible to guide micro and macronutrient applications to optimise crop nutrient status.

Compatibility:
Legume Mix™ is physically and chemically compatible with a wide range of agrochemical products. Consult your supplier for the latest information. Up-to-date information is available on our website. Always read the label of the partner product carefully before mixing with Legume Mix™.
MAGNUS™

480 g/L magnesium (MgO) + 360 g/L sulphur (SO₃).
Suspension concentrate.

Rates: 1 - 5 L/ha
Packs per Pallet: 75 x 10 litres

Introduction:
Magnus™ is a liquid foliar fertiliser for application to agricultural crops to provide additional magnesium and sulphur during periods of peak demand.

Formulation:
Formulated for foliar application to provide additional magnesium and sulphur during periods of peak demand.

Rates of Use + Timing:

Cereals:
Apply 1 - 3 L/ha from when the crop has 3 leaves and repeat if required.

Oilseed Rape:
Apply 1 - 3 L/ha in the Autumn when the crop has 6 - 8 leaves and repeat in the Spring if required.

Peas and Beans:
Apply 5 L/ha when the crop is 10 - 15 cm high and repeat after 10 - 14 days if required.

Sugar Beet:
Apply 2 - 4 L/ha from the 6 leaf stage. Repeat if required before the crop leaves meet across the rows.

Potatoes:
Apply 2 - 4 L/ha from when the haulm meets across the rows. Repeat if necessary.

Maize:
Apply 4 L/ha when required from the 4 - leaf stage. Repeat if necessary.

Leaf brassicas and other leafy vegetables:
Apply 2 L/ha as soon as enough foliage is present to intercept the spray. Repeat if necessary.

Root brassicas and other root vegetables:
Apply 2 L/ha as soon as enough foliage is present to intercept the spray. Repeat if necessary.

Continued on the next page
Rates of Use + Timing Continued:

**Water Volumes:**
Use at least 200 L/ha. Increase the volume if necessary to ensure good coverage of the leaves. Do not apply this product in very bright sunlight or in temperatures above 25°C. If possible, spray in the evening or early morning for best results.

**Compatibility:**
Magnus™ is physically and chemically compatible with a wide range of agrochemical products. Consult your supplier for the latest information. Up-to-date information is available on our website. Always read the label of the partner product carefully before mixing with Magnus™.
MAIZE MICRONUTRIENT COMPLEX™

83 g/L magnesium (MgO) + 20 g/L manganese (Mn) + 10 g/L zinc (Zn) + 75 g/L nitrogen (N).

Soluble liquid.

Rates: 2.5 - 5 L/ha
Packs per Pallet: 36 x 2 x 10 litres 1000 litre IBC

Introduction:
Maize Micronutrient Complex™ is a carefully balanced blend of magnesium, manganese, zinc and nitrogen for application to maize and sweetcorn. It is designed to maintain levels of these essential elements during the growing season when demand is greatest.

Formulation:
Maize Micronutrient Complex™ is a carefully balanced solution formulated with a modern wetting system for effective cover and adhesion to foliage.

Rates of Use:
Apply 2.5 - 5 L/ha in at least 200 L/ha of water.
Use the higher rate on crops with a greater leaf canopy.

Timing:
Apply from when the maize has 5 leaves and repeat as required. The higher rate should be applied to crops with a greater leaf canopy.

FMC recommends that soil and tissue analysis results are used whenever possible to guide micro and macronutrient applications to optimise crop nutrient status.
Do not apply this product in very bright sunlight or in temperatures above 25°C. If possible, spray in the evening or early morning for best results.

Compatibility:
Maize Micronutrient Complex™ is physically and chemically compatible with a wide range of agrochemical products. Consult your supplier for the latest information. Up-to-date information is available on our website. Always read the label of the partner product carefully before mixing with Maize Micronutrient Complex™.
MANGANESE 15%™

150 g/L manganese (Mn).
Soluble liquid.

Rates: 2 - 4 L/ha
Packs per Pallet: 36 x 2 x 10 litres 1000 litre IBC

Introduction:
Manganese is used in the plant in conjunction with other essential nutrients for stimulation of various enzyme systems. Its major role is in the synthesis of chlorophyll and metabolism of nitrogen. Most crops are sensitive to manganese levels, particularly cereals, vegetables, brassicas, root crops and fruit.

Formulation:
Manganese 15%™ is formulated with buffering agents and a modern surfactant system to ensure stability and effective cover and adhesion to foliage.

Rates of Use:
**Marginal deficiency:**
2 L/ha in at least 200 L/ha of water.

**Moderate deficiency:**
4 L/ha in at least 200 L/ha of water.

**Severe deficiency:**
4 L/ha in at least 200 L/ha of water and repeat as necessary during the growing season.

Timing:
Apply whenever a manganese deficiency is observed or expected, or as a routine maintenance treatment. Applications may commence after the 3-leaf stage or as soon as there is sufficient foliage present to absorb the spray.

FMC recommends that soil and tissue analysis results are used whenever possible to guide micro and macronutrient applications to optimise crop nutrient status.

Do not apply this product in very bright sunlight or in temperatures above 25°C. If possible, spray in the evening or early morning for best results.

Compatibility:
Manganese 15%™ is physically and chemically compatible with a wide range of agrochemical products. Consult your supplier for the latest information. Up-to-date information is available on our website. Always read the label of the partner product carefully before mixing with Manganese 15%™.
MANGANESE 400™

400 g/L manganese (Mn) (66g/L as nitrate and 334g/L as carbonate).
Suspension concentrate.

Rates: 1 L/ha
Packs per Pallet: 51 x 2 x 5 litres

Introduction:
Manganese 400™ is a ready to use soluble and suspension concentrate containing manganese for the correction of deficiency in a wide range of crops.

Most crops are sensitive to manganese levels, particularly cereals, vegetables, brassicas, root crops and fruit. Both high and low pH soils will suffer from manganese deficiency as well as chalky soils and recently ploughed-up grassland. Puffy soils may suffer from deficiency, as may heavily leached or poorly drained soils.

Formulation:
Manganese 400™ is a ready-to-use liquid containing manganese in nitrate and carbonate forms, formulated as a suspension concentrate, for correction of manganese deficiency in a wide range of crops. It contains an advanced surfactant/suspension system to ensure rapid and even dispersion in the spray tank and superior adhesive properties on foliage.

Rates of Use:
Apply manganese 400™ at 1 L/ha.
Repeat applications at 10 - 14 day intervals if required. Do not apply to protected crops. Use at least 200 L/ha of water. Increase the water volume as necessary for application to bush, cane or top fruit.

Timing:
Cereals:
Apply from the 3 leaf stage.

Oilseed rape, leaf and root brassicas, sugar beet:
Apply from the 4 - 6 leaf stage.

Peas and beans:
Apply from 4 - 6 fully expanded leaf stage with repeat treatments as required.

Potatoes:
Apply from full emergence.

Grass:
Apply when growth re-commences in the Spring.

Continued on the next page
Timing Continued:

**Other crops:**
Apply when there is sufficient foliage present to retain the spray.
FMC recommends that soil and tissue analysis results are used whenever possible to guide micro and macronutrient applications to optimise crop nutrient status.
Do not apply this product in very bright sunlight or in temperatures above 25°C. If possible, spray in the evening or early morning for best results.

**Compatibility:**
Manganese 400™ is physically and chemically compatible with a wide range of agrochemical products. Consult your supplier for the latest information. Up-to-date information is available on our website. Always read the label of the partner product carefully before mixing with Manganese 400™.
MAPLE DF™

310 g/KG manganese (Mn) + 450 g/KG sulphur (SO₃).
Soluble dry flowable.

Rates: 2.5 - 5 KG/ha
Packs per Pallet: 100 X 10 kilograms

Formulation:
Maple DF™ is suitable for correction of manganese deficiency in a wide range of crops and also for use as a maintenance treatment.

Rates of Use:

**Apply 2.5 - 5 KG/ha in at least 200 L/ha of water.**
Repeat applications may be necessary as advised or recommended by analysis.

Subclinical (maintenance) dressing: 1 KG/ha twice during Spring / Summer period.

Timing:

**Cereals:**
In the Autumn as soon as there is sufficient leaf present to absorb the spray and repeat in the spring when growth re-commences.

**Oilseed rape:**
In the Autumn prior to dormancy and again in the Spring at the onset of growth.

**Potatoes:**
Apply with the first blight sprays. Repeat applications with later blight sprays at half-rate will be beneficial.

**Sugar beet:**
Apply at 4 - 6 leaves.

**Peas and beans:**
In areas of known deficiency, apply when the crop is 10 - 15 cm high. If symptoms persist, repeat at flowering and again 7 - 10 days later.

Do not apply to crops which are under stress from frost, drought or other factors. Do not apply in bright sunlight or in temperatures above 25°C. If possible, spray in the early morning or evening for best results.

Compatibility:

FMC crop nutrition products are physically and chemically compatible with a wide range of agrochemical products. Consult your supplier or FMC for the latest information.
MOLYBDENUM™

60 g/L molybdenum (Mo).
Soluble liquid.

Rates: 2 L/ha
Packs per Pallet: 36 x 2 x 10 litres

Introduction:
Molybdenum™ is an inorganic liquid formulation of molybdenum, designed for cost-effective correction of molybdenum deficiency in crops. Molybdenum is essential to the plant in small amounts for fixation of nitrogen by enzyme systems and for nitrate reduction.

Molybdenum deficiency affects a number of crops, but particularly cauliflowers and lettuce, giving rise to the characteristic ‘whiptail’ symptom. Other members of the brassica family can also be affected. Deficiency is most likely to arise on acid soils.

Formulation:
Molybdenum™ is an inorganic liquid formulation of molybdenum (as sodium molybdate), formulated with buffering agents and a modern surfactant system to ensure stability and effective cover and adhesion to foliage, designed for cost-effective correction of molybdenum deficiency in crops.

Rates of Use:
**Apply 0.5 - 2 L/ha in at least 200 L/ha of water.**

Timing:
Apply as soon as there is sufficient foliage available to allow uptake by the plant. Treat transplanted crops at the seedling stage. FMC recommends that soil and tissue analysis results are used whenever possible to guide micro and macronutrient applications to optimise crop nutrient status.

Do not apply this product in very bright sunlight or in temperatures above 25°C. If possible, spray in the evening or early morning for best results.

Compatibility:
Molybdenum™ is physically and chemically compatible with a wide range of agrochemical products. Consult your supplier for the latest information. Up-to-date information is available on our website. Always read the label of the partner product carefully before mixing with Molybdenum™.
MULTIPLE™

139g/L magnesium (MgO) + 110g/L copper (Cu) + 330g/L manganese (Mn) + 84g/L zinc (Zn). Suspension concentrate.

Rates:  1 L/ha
Packs per Pallet:  51 x 2 x 5 litres

Introduction:
A micronutrient blend for use in agriculture.

Formulation:
Highly concentrated suspension formulation for foliar application to cereals.

Rates of Use:
Apply 1 L/ha in 200 L/ha of water.
Repeat if deficiency is severe.
Do not apply Multiple™ in less than 200 L/ha water.

Timing:
To be used only where there is a recognised need. Do not exceed the appropriate dose rates.

Multiple™ can be applied to crops whenever deficiency is observed or expected. Applications may commence after the 3 leaf stage in cereals, and in other crops when sufficient foliage has developed to absorb the spray. Autumn sown crops will benefit from an application before the onset of Winter.
Do not apply this product in very bright sunlight or in temperatures above 25°C. If possible, spray in the evening or early morning for best results.

Compatibility:
Multiple™ is physically and chemically compatible with a wide range of agrochemical products. Consult your supplier for the latest information. Up-to-date information is available on our website. Always read the label of the partner product carefully before mixing with Multiple™.
Mycrobor® DF

180 g/KG boron (B).
Soluble dry flowable.

Rates: Various - see text. Do not apply more than 24 KG/ha to any crop in a single growing season
Packs per Pallet: 70 x 15 kilograms

Formulation:
Mycrobor® DF is a carefully formulated fully soluble source of boron. It is suitable for correction of boron deficiency in a wide range of crops and may be applied to soil or to foliage. Mycrobor® DF is formulated for easy and straightforward mixing and application, equivalent to 18% boron by weight.

Rates of Use:
Sugar beet:
12 - 18 KG/ha as a soil treatment or 12 KG/ha as a foliar spray.

Oilseed rape and other brassicas:
6 - 12 KG/ha as a soil treatment or 12 KG/ha as a foliar spray.

Legumes (peas, beans etc):
12 KG/ha as a soil application or 3 KG/ha as a foliar spray.

Maize:
5 KG/ha as a soil treatment or 2.5 KG/ha as a foliar spray.

Root crops:
12 KG/ha, applied either to the soil or as a foliar spray.

Top fruit and soft fruit:
12 KG/ha as a soil treatment or 2 KG/ha as a foliar spray. The foliar spray may be applied up to 4 times at 10 - 14 day intervals depending on the severity of the deficiency.

Grapes and ornamentals (flower crops):
12 KG/ha as a soil treatment, or 2 KG/ha as a foliar spray. The foliar spray may be applied up to 4 times at 10 - 14 day intervals depending on the severity of the deficiency.

Timing:
Apply when required or as indicated by tissue analysis.

Compatibility:
Refer to our website for up-to-date information.
POTATO MICRONUTRIENT COMPLEX™

60 g/L calcium (CaO) + 60 g/L magnesium (MgO) + 160 g/L nitrogen (N).
Soluble liquid.

Rates:
5 - 10 L/ha

Packs per Pallet:
32 x 20 litres
1000 litre IBC

Introduction:
Potato Micronutrient Complex™ is a carefully balanced blend of ureic and nitrate nitrogen, calcium and magnesium for foliar application to potatoes. It is designed to maintain levels of these essential elements during the growing season when demand is greatest.

Formulation:
Potato Micronutrient Complex™ is a carefully balanced blend of ureic and nitrate nitrogen, calcium and magnesium for foliar application to potatoes, with a modern wetting system for effective cover and adhesion to foliage.

Rates of Use:
Apply 5 - 10 L/ha in at least 200 L/ha of water.
Use the higher rate and water volumes on crops with a greater leaf canopy.

Timing:
Apply as soon as the crop has enough leaf canopy to absorb the spray and repeat 3 - 4 times over the growing season.

Best results will be obtained from applications made during the early morning or evening when moisture is present in the plant.
Do not apply in extremes of temperature, very bright sunlight or when crops are under drought or other stress.

Compatibility:
Potato Micronutrient Complex™ is physically and chemically compatible with a wide range of agrochemical products. Consult your supplier for the latest information. Up-to-date information is available on our website. Always read the label of the partner product carefully before mixing with Potato Micronutrient Complex™.
**PRINCE®**

133 g/L magnesium (MgO).
Soluble liquid.

**Rates:** 1.25 - 6 L/ha

**Packs per Pallet:** 36 x 2 x 10 litres 1000 litre IBC

**Introduction:**
Magnesium is needed in sufficiently large quantities to be classed as a macronutrient. It is fundamental to plants, necessary for the production of chlorophyll. It is also active in many enzyme systems. Transitory shortages can have a significant effect both on yield and quality of produce.

**Formulation:**
Prince® is a liquid formulation containing magnesium as the highly soluble and plant available nitrate.

Plants can use nitrates up to 25% more efficiently than the same amount of element from a formulated sulphate and the solubility of nitrates allows more concentrated formulations to be produced.

**Rates of Use + Timing:**

**Cereals:**
Yield depression can result from a deficiency of magnesium in the flag leaf, GS 32. Wheats have shown quality improvements from a further application from GS 39 - 59.

**Up to GS 31:**
Marginal deficiency 1.25 L/ha
Moderate deficiency 2.5 L/ha

**GS 32**
3 - 6 L/ha

**GS 39 - 59**
3 - 6 L/ha

**Maize:**
Has a high requirement for magnesium. Transitory shortage should be avoided in order to promote optimum growth as early as possible. Apply 3 - 6 L/ha at the 4 - 8 leaf stage.

**Potatoes:**
Magnesium is important to potatoes due to its role in carbohydrate production. It can also improve quality by minimising internal blackening and bruising. Apply 3 - 5 L/ha once there is sufficient leaf to absorb the spray and continue the programme of 3 - 4 applications over the season.

**Sugar beet:**
Apply 3 L/ha from the 6 - 8 leaf expanded leaf stage or as indicated by tissue analysis.

**Vegetables and brassicas:** Apply 3 L/ha from the 4 - 6 fully expanded leaf stage or as indicated by result of tissue analysis.
PRINCE® CONTINUED

Rates of Use + Timing Continued:

**Oilseed rape:**
Adequate magnesium levels are essential to ensure good crop establishment. Apply 3 L/ha when the crop has reached the 4-leaf stage of growth and has sufficient leaf area to absorb the spray.

**Apples:**
Apply 3 L/ha from petal fall. Apples are likely to need three applications 2-5 weeks apart or apply according results of tissue analysis.

**Grapes:**
Apply 3 L/ha from the end of flowering. Three applications 3-5 weeks apart are likely to be required.

**Water volume:**
Use at least 200 L/ha.

FMC recommends that soil and tissue analysis results are used whenever possible to guide micro and macronutrient applications to optimise crop nutrient status. Do not apply this product in very bright sunlight or in temperatures above 25°C. If possible, spray in the evening or early morning for best results.

**Compatibility:**
Prince® is physically and chemically compatible with a wide range of agrochemical products. Consult your supplier for the latest information. Up-to-date information is available on our website. Always read the label of the partner product carefully before mixing with Prince®.
**PROMISE™**

500 g/L magnesium (MgO). Suspension concentrate.

**Rates:**
- 4 L/ha

**Packs per Pallet:**
- 51 x 2 x 5 litres

**Introduction:**
Magnesium is needed in sufficiently large quantities to be classed as a macronutrient. Transitory shortages can have a significant effect both on yield and quality of produce.

**Rates of Use:**
- **4 L/ha in at least 200 litres of water.**
  Repeat after 10 - 14 days if deficiency is severe. Increase the water volume where foliage is dense or when applying to fruit trees.

**Timing:**

**Cereals:**
Any time from the 3 leaf stage. Repeat after 10 - 14 days if necessary. Wheats have shown quality improvements from a further application at GS 39 - 59.

**Potatoes:**
Apply as soon as there is enough foliage present to absorb the spray and repeat at 10 - 14 day intervals as part of a programme.

**Sugar beet, brassicas and other vegetables:**
Apply at the 6 leaf stage or as indicated by the results of tissue analysis. Repeat if required.

**Top fruit:**
Apply up to 3 sprays commencing after petal fall at intervals of 21 days.

FMC recommends that soil and tissue analysis results are used whenever possible to guide micro and macronutrient applications to optimise crop nutrient status. Do not apply this product in very bright sunlight or in temperatures above 25°C. If possible, spray in the evening or early morning for best results.

**Compatibility:**
Promise™ is physically and chemically compatible with a wide range of agrochemical products. Consult your supplier for the latest information. Up-to-date information is available on our website. Always read the label of the partner product carefully before mixing with Promise™.
ROOT 66™

100 g/L magnesium (MgO) + 60 g/L manganese (Mn).
Soluble liquid.

Rates: 2.5 - 5 L/ha
Packs per Pallet: 36 x 2 x 10 litres 1000 litre IBC

Introduction:
Root 66™ has been formulated to provide a mixture of manganese and magnesium for those crops that have a demand for both elements at the same time. Manganese has an important role in key enzyme production in association with other elements and is of primary importance for plant respiration through the synthesis of chlorophyll and for the metabolism of nitrogen. Magnesium is essential for the formation of chlorophyll production in association with other elements.

Formulation:
Saving on tank mixing, Root 66™ is a convenient way of applying the highly soluble and plant available nitrates. Plants can utilise nitrates up to 25% more efficiently than the same amount of element from sulphate sources and the solubility of nitrates allows more concentrated formulations to be produced.

Rates of Use:
**Maintenance application:**
2.5 L/ha in at least 200 L/ha of water.

**Moderate deficiency:**
5 L/ha in at least 200 L/ha of water.

**Severe deficiency:**
5 L/ha in at least 200 L/ha of water. Repeat applications 3 - 4 weeks apart as required.

Timing:
**Cereals:**
Apply when there is a need for an application of both manganese and magnesium from GS 29 - 59.

**Linseed:**
Apply as required during establishment and throughout the growing season.

**Maize:**
Apply at the 6 - 8 leaf stage.

Continued on the next page
ROOT 66™ CONTINUED

Timing Continued:

**Potatoes:**
As required throughout the growing season. A programme of applications applied about 3 weeks apart has been found to maintain optimum levels of nutrients in this crop.

**Pulses (Peas and Beans):**
Apply as required.

**Oilseed rape:**
Apply at the 3 - 5 leaf stage to help establishment of the crop. Stem extension is the next critical stage for application.

**Onions:**
Apply as required during the growing season.

FMC recommends that soil and tissue analysis results are used whenever possible to guide micro and macronutrient applications to optimise crop nutrient status.
Do not apply this product in very bright sunlight or in temperatures above 25°C. If possible, spray in the evening or early morning for best results.

**Compatibility:**
Root 66™ is physically and chemically compatible with a wide range of agrochemical products. Consult your supplier for the latest information. Up-to-date information is available on our website. Always read the label of the partner product carefully before mixing with Root 66™.
**SEAMAC GOLD™**

Ascophyllum based seaweed extract + 80 g/L nitrogen (N) + 88 g/L phosphorus (P₂O₅) + 62 g/L potassium (K₂O). Soluble liquid.

Rates: 3 - 12 L/ha
Packs per Pallet: 36 x 2 x 10 litres

Introduction:
Seamac Gold™ is a solution of natural extract of seaweed, rich in plant growth hormones such as cytokinins, gibberellins and auxins formulated with the three principal plant nutrients nitrogen, phosphorus and potassium to supplement the plant’s nutrient status at times of rapid growth.

When applied to a growing crop at the correct time, Seamac Gold™ provides a localised increase in hormone levels (particularly cytokinin) in the plant, stimulating its metabolism. This in turn encourages nutrient uptake, nitrogen metabolism and carbohydrate production which improves plant development and helps to optimise yield potential.

Formulation:
Seamac Gold™ is a solution of extracts of the seaweed *Ascophyllum nodosum* formulated with soluble forms of nitrogen, phosphorus and potassium. It readily disperses in water for straightforward mixing and spraying. Seamac Gold™ provides essential micronutrients and N, P, K in a readily available form to help prevent any shortfalls from reducing yield or quality.

Rates of Use:
**Cereals:**
Apply 3 - 5 L/ha, in the Autumn when the crop has achieved full ground cover. Repeat in the Spring at growth stage 30 - 31 and again (if required) in the Summer at full flag leaf emergence.

**Oilseed rape:**
Apply 5 L/ha, at stem extension (30 - 40 cm high) and repeat as required up to the end of flowering.

**Grassland pasture:**
Apply 5 L/ha, in Autumn and Spring during period of maximum growth. In drought conditions, spray immediately after rain has fallen.

**Hay and silage:**
Apply 5 L/ha, when growth is maximum in the Spring. If reducing fertilizer inputs after the 1st cut, increase the rate to 12 L/ha.

Continued on the next page
SEAMAC GOLD™ CONTINUED

Rates of Use Continued:

Potatoes:
Apply 5 L/ha, 2 weeks after emergence and repeat every 2 - 4 weeks until flowering.

Sugar beet, red beet, fodder beet and mangels:
Apply 5 L/ha, when the crop has achieved full leaf cover. Repeat once or twice during the growing period as required.

Peas and beans:
Apply 5 L/ha, 6 weeks after emergence. Repeat once if required, before the end of flowering.

Leaf brassicas:
Apply 5 L/ha to developed leaves as active growth commences.

Do not apply this product in very bright sunlight or in temperatures above 25°C. If possible, spray in the evening or early morning for best results.

Compatibility:
Seamac Gold™ is physically and chemically compatible with a wide range of agrochemical products. Consult your supplier for the latest information. Up-to-date information is available on our website. Always read the label of the partner product carefully before mixing with Seamac Gold™.
Seamac PCT™

Ascophyllum based seaweed extract.
Soluble liquid.

Rates: 1.25 - 5 L/ha
Packs per Pallet: 36 x 2 x 10 litres

Introduction:
Seamac PCT™ is a concentrated liquid crop spray which contains a group of powerful plant growth compounds. These plant compounds are naturally occurring in all plants and are essential to plant life. Seamac PCT™ simply adds more compounds to a plant at the time it needs them most. PCT stands for Plant Compound Technology. The plant compounds stimulate plants to produce higher yields and quality.

Formulation:
Seamac PCT is a solution of soluble extracts. It readily disperses in water for straightforward mixing and spraying.

Rates of Use:
Important:
Guard 2000® should always be included at 0.1% of the spray volume in order to enhance spray coverage and retention as well as to increase rainfastness.

Conventional spraying - Minimum 200 L/ha
Aerial and ULV spraying - 35 L/ha

COMBINABLE CROPS
Wheat - feed: 1.25 L/ha in the Autumn at GS 21
2.5 L/ha in the Spring at GS 30

Wheat - milling: 1.25 L/ha in the Autumn at GS 21
2.5 L/ha in the Spring at GS 51 - 71

Barley: 1.25 L/ha in the Autumn at GS 21
2.5 L/ha in the Spring at GS 30

Oats: 1.25 L/ha in the Autumn at GS 13 - 22
2.5 L/ha in the Spring at GS 30

Oilseed rape: 2.5 L/ha in the Autumn at 3 - 5 true leaves
5 L/ha in the Spring at green bud

Peas & beans: 5 L/ha immediately before flowering

Continued on the next page
SEAMAC PCT™ CONTINUED

ROOT CROPS
Potatoes – first early and seed crops: 5 L/ha from stolon swelling to pea-sized tubers.

Potatoes – second earliest and maincrop: 5 L/ha when tubers are 15 - 20 mm in diameter.

Potatoes - large varieties or those of low tuber numbers: 5 L/ha at stolon swelling to pea-sized tubers and repeat when tubers are 15 - 20 mm diameter.

Sugar beet, turnips, swedes: 5 L/ha at 6 - 8 fully developed leaves.

Carrots: 5 L/ha at pencil stage of root expansion.

GRASS
All grass, silage & zero grazing hay, grazing: 1.25 L/ha in the Autumn before growth stops. 2.5 L/ha at onset of growth in the Spring or after 1st cut of a conservation crop.

VEGETABLES
Onions: 5 L/ha at 3 - 5 true leaves.

Leaf brassicas: 2.5 L / 100 L/ha of water as a root dip at transplanting. 5 L/ha after first top dressing.

Brassicas: 5 L/ha at developed leaf after first top dressing.

Brussels sprouts, broccoli, calabrese: 5 L/ha at button stage.

Lettuce: 5 L/ha at onset of hearting.

Tomatoes, cucumbers and peppers: 5 L/ha at first flower, then repeat at 3 - 4 week intervals.

FRUIT
Apples, pears, plums, citrus: 5 L/ha after fruit set and post harvest.

Blackcurrants, redcurrants, vines: 5 L/ha after full set and post harvest.

Raspberries, strawberries: 5 L/ha at blossom time and post harvest.
SEAMAC PCT™ CONTINUED

FLOWERS
Tulips, daffodils:
5 L/ha when flower bud first detectable and post flowering

Roses:
5 L/ha at bud swelling after pruning and repeat at 3 - 4 week intervals

Chrysanthemums:
5 L/ha at joining and repeat at 3 - 4 week intervals

Other flowers:
5 L/ha at bud break

Do not apply this product in very bright sunlight or in temperatures above 25°C. If possible, spray in the evening or early morning for best results.

Compatibility:
Seamac PCT™ is physically and chemically compatible with a wide range of agrochemical products. Consult your supplier for the latest information. Up-to-date information is available on our website. Always read the label of the partner product carefully before mixing with Seamac PCT™.
**SEAMAXX™**

Ascophyllum based seaweed extract + 38 g/L nitrogen + 17.5 g/L phosphorus (P$_2$O$_5$) + 30 g/L potassium (K$_2$O) + manganese (Mn) + copper (Cu) + boron (B) + iron (Fe) + molybdenum (Mo) + zinc (Zn).

Soluble liquid.

Rates: 1.5 - 5.6 L/ha

Packs per Pallet: 36 x 2 x 10 litres

**Introduction:**

SeamaXX™ is a solution of natural extract of seaweed rich in plant hormones and other organic compounds which stimulate crop growth formulated together with nitrogen, phosphorus, potassium and a carefully balanced blend of plant-available micronutrients.

Applied at the correct time, SeamaXX™ provides localized increases in hormone levels (particularly cytokinins) which stimulate the plant’s metabolism. This encourages nutrient uptake and carbohydrate production. The presence of additional N, P, K and micronutrients helps to optimize the plant’s nutrient status at a time of rapid growth.

**Formulation:**

A concentrated seaweed extract plant growth stimulant with N, P, K and micronutrients

**Application Rates:**

**Winter wheat, barley and oats:**

Apply 1.5 L/ha at GS 21 - 23. Repeat 6 weeks later and again at GS 30 - 31. Wheats may benefit from a further application of 3 L/ha at GS 47 - 59.

**Spring wheat, barley and oats:**

Apply 1.5 L/ha at GS 21 - 23. Repeat at GS 30 - 31. Wheats may benefit from a further application of 3 L/ha at GS 47 - 59.

**Oilseed rape:**

Apply 1.5 L/ha soon after emergence when there is sufficient foliage present to absorb the spray. Repeat again 6 weeks later and thereafter at 6 week intervals as required.

**Potatoes:**

Apply 1.5 L/ha in a programme at 7 - 14 day intervals through the growing season. Seed crops and low tuber setting cultivars will benefit from an additional application of 2.5 L/ha about 10 days prior to tuber initiation, repeated at tuber initiation.

**Sugar beet:**

Apply 4 L/ha at the 4 - 6 true leaf stage and repeat twice at 3 week intervals.
Application Rates Continued:

**Grassland:**
- Grass for silage - apply 5.6 L/ha 28 days before each cut.
- Permanent pasture - apply 5.6 L/ha at 4 - 6 week intervals through the growing season.

**Maize and sweetcorn:**
- Apply 1.5 L/ha at 2 - 4 leaf stage. Repeat at stem elongation and thereafter at 4 - 6 week intervals as required.

**Vegetables and salad crops:**
- Apply 3 L/ha to transplanted crops as soon as possible after transplanting. Apply 3 L/ha to all crops at 3 week intervals throughout the growing season.

**Top fruit (apples and pears):**
- Apply 3 L/ha up to 8 times in a programme through the season to harvest.
  - Apples - begin at ‘mouse ear’
  - Pears - begin at ‘green cluster’

**Stone fruit:**
- Apply 3 L/ha up to 5 times at regular intervals through the season up to harvest.
  - Cherries - begin at ‘white bud’. Cherries may benefit from up to 3 post harvest applications prior to leaf fall.
  - Plums - begin at ‘cot - split’

**Strawberries:**
- Apply 3 L/ha as soon as possible after transplanting (if applicable) and then at 3 - 6 week intervals to the green fruit stage. After picking, apply up to three times onto foliage crowns.

**Cane fruit:**
- Apply 3 L/ha at first new leaf and continue at 2 - 4 week intervals up to green fruit. The first application to transplanted crops should be made as soon as possible after planting.

**Bush fruit:**
- Apply 3 L/ha at 3 week intervals from early leaf until open flower (blackcurrants, redcurrants) or immediately prior to harvest (gooseberries).

**Hops:**
- Apply 3 L/ha when the bine is at 15 cm and repeat up to 4 times at 2 - 3 week intervals from when the bine is half-way up the wire.
Application Rates Continued:

**Vines:**
Apply 3 L/ha at early leaf and thereafter at 2 - 3 week intervals until harvest.

**Bulbs and corms:**
Apply 3 L/ha at flower bud detection and repeat after flowering. NB Avoid spraying open flowers as the product may stain the petals.

**Transplanted crops:**
Transplanted crops and modules will benefit from a dip or soak in a 1:300 dilution of SeamaXX™ in water 24 hours before planting out.

**Water volumes:**
Apply SeamaXX™ in 200 - 500 L/ha, using sufficient water to ensure efficient cover of the foliage.

**Compatibility:**
SeamaXX™ is physically and chemically compatible with a wide range of agrochemical products. Consult your supplier for the latest information. Up-to-date information is available on our website. Always read the label of the partner product carefully before mixing with SeamaXX™.
Manganese is used in the plant in conjunction with other essential nutrients for stimulation of various enzyme systems. Its major role is in the synthesis of chlorophyll and metabolism of nitrogen. Similarly, magnesium is a key building block of chlorophyll and has a major role in some enzyme systems. Magnesium shortages can be transitory and an application of Stage is useful in overcoming this problem. Most crops are sensitive to manganese levels, particularly cereals, vegetables, brassicas, root crops, and fruit.

Marginal deficiency:
1.75 L/ha in at least 200 L/ha of water.

Moderate deficiency:
3.5 L/ha in at least 200 L/ha of water.

In areas of severe or known deficiency a programmed approach throughout the growing season may be necessary. Apply at 3.5 L/ha in at least 200 L/ha of water and repeat every 3 - 4 weeks as necessary.

Timing:
Apply whenever a manganese deficiency is observed or expected or as a routine maintenance treatment.

Applications may commence after the 3 leaf stage or as soon as there is sufficient foliage to absorb the spray. The addition of the magnesium will help overcome a marginal transitory deficiency.

Winter cereals and winter oilseed rape:
These crops will have a requirement for manganese in the Autumn. This should be followed in the Spring by a further application if required pre-stem extension to ensure adequate levels at a time of rapid growth.
Timing Continued:

**Peas, potatoes and sugar beet:**
These crops can benefit from a programmed approach.

FMC recommends that soil and tissue analysis results are used whenever possible to guide micro and macronutrient applications to optimise crop nutrient status. Do not apply this product in very bright sunlight or in temperatures above 25°C. If possible, spray in the evening or early morning for best results.

Compatibility:
Stage™ is physically and chemically compatible with a wide range of agrochemical products. Consult your supplier for the latest information. Up-to-date information is available on our website. Always read the label of the partner product carefully before mixing with Stage™.
**STOKER™**

60 g/L boron (B) + 53 g/L magnesium (MgO) + 22 g/L manganese (Mn) + 2 g/L zinc (Zn) + 2 g/L molybdenum (Mo) + 148 g/L sulphur (S) + 32 g/L nitrogen (N).

Suspension concentrate.

Rates: 2.5 L/ha
 Packs per Pallet: 51 x 2 x 5 litres

**Introduction:**

Stoker™ is an advanced suspension formulation for foliar application to oilseed rape, brassicas, peas and beans and other arable crops. The formulation provides superior foliar cover and adhesion, optimising availability, uptake and absorption of the product.

**Formulation:**

Stoker™ is an advanced suspension formulation of manganese, magnesium, boron, zinc and molybdenum with nitrogen and sulphur for foliar application to oilseed rape, brassicas, peas, beans and other arable crops. The formulation provides superior foliar cover and adhesion, optimising availability, uptake and absorbton of the application.

**Rates of Use:**

Apply 2.5 L/ha in at least 200 L/ha of water. Ensure thorough cover of the foliage.

**Timing:**

**Oilseed rape:**
Start at the 4 - leaf stage and repeat if necessary at 10 - 14 day intervals. Repeat when stems begin to elongate rapidly.

**Leaf brassicas:**
Apply early in the season when the plants have sufficient leaf area to intercept the spray. Repeat if necessary at 10 - 14 day intervals until 4 weeks before harvest.

**Pulses (Beans, Peas, Soya beans):**
Apply early in the season when the plants have sufficient leaf area to intercept the spray. Repeat if necessary at 10 - 14 day intervals until 4 weeks before harvest.

**Other agricultural and horticultural crops:**
Stoker™ is suitable for application to other agricultural and horticultural crops where nutrient deficiency has been identified or is suspected. Applications may begin as soon as the target crop has sufficient foliage to intercept the spray and repeated as required.

**Compatibility:**

Stoker™ is physically and chemically compatible with a wide range of agrochemical products. Consult your supplier for the latest information. Up-to-date information is available on our website. Always read the label of the partner product carefully before mixing with Stoker™.
SULPHUR™

800 g/L sulphur (S).
Suspension concentrate.

Rates: 5 - 10 L/ha
Packs per Pallet: 75 x 10 litres

Introduction:
Sulphur™ is an essential nutrient for a wide range of agricultural and horticultural crops and required in considerable amounts. Cereals, oilseed rape and multi-cut grass are especially demanding of sulphur.

Soil sulphur is easily leached making shallow-rooting plants particularly vulnerable to deficiency. Availability varies with soil and area and it is possible for any soil to be deficient. Soils of pH less than 5 or more than 8 have particularly limited sulphur availability.

Formulation:
Sulphur™ is a high quality suspension formulation, engineered to give outstanding coverage and rapid conversion into available sulphur. The suspension is easy to pour, disperses readily and suspends well in water. It is chemically and physically stable and is compatible with a wide range of other products.

Recommendations For Use:

Oilseed rape:
Apply 5 - 10 L/ha in at least 200 L/ha of water. Make the first application just prior to stem extension. Repeat as necessary. Crops have shown good responses to foliar applied sulphur right up to mid-flowering, even in the absence of any deficiency.

Cereals:
Apply 5 - 10 L/ha in at least 200 L/ha of water. The higher rate should be used in areas with low atmospheric sulphur deposition.

Grassland:
Apply 5 - 10 L/ha in at least 200 L/ha of water.

Grazing grass:
Apply during early Summer. Keep livestock out of treated areas for at least 3 weeks.

Conservation grass:
Apply 2 weeks before the first (or second) cut.
Other crops:
Many other agricultural and horticultural crops such as grape vines and other fruits also show good responses to application of sulphur. Applications should be made during periods of active growth when there is enough foliage present to absorb the spray. Do not apply when the crop is under stress due to drought or extremes of temperature.

FMC recommends that soil and tissue analysis results are used whenever possible to guide micro and macronutrient applications to optimise crop nutrient status.

Compatibility:
Sulphur™ is physically and chemically compatible with a wide range of plant protection products. Consult your supplier for the latest information. Up-to-date information is available on our website. Always read the label of the partner product carefully before mixing with Sulphur™.
Magnesium is needed in sufficiently large quantities to be classed as a macronutrient. It is fundamental to plants, necessary for the production of chlorophyll. It is also active in many enzyme systems. Transitory shortages can have a significant effect both on yield and quality of produce.

**Super 80™**

133 g/L magnesium (MgO).
Soluble liquid.

Rates: 1.25 - 6 L/ha
Packs per Pallet: 36 x 2 x 10 litres 1000 litre IBC

**Introduction:**
Magnesium is needed in sufficiently large quantities to be classed as a macronutrient. It is fundamental to plants, necessary for the production of chlorophyll. It is also active in many enzyme systems. Transitory shortages can have a significant effect both on yield and quality of produce.

**Formulation:**
Super 80™ is a liquid formulation containing magnesium as the highly soluble and plant available nitrate. Plants can use nitrates up to 25% more efficiently than the same amount of element from a formulated sulphate and the solubility of nitrates allows more concentrated formulations to be produced.

**Rates of Use:**
1.25 - 6 L/ha in at least 200 L/ha of water.

**Cereals:**
Yield depression can result from a deficiency of magnesium in the flag leaf. Wheats have shown quality improvements from a further application between GS 39 - 59.

**Up to GS 31:**
Marginal deficiency 1.25 L/ha
Moderate deficiency 2.5 L/ha

**GS 32:**
3 - 6 L/ha

**GS 39 - 59:**
3 - 6 L/ha

**Maize:**
Has a high requirement for magnesium. Transitory shortage should be avoided in order to promote optimum growth as early as possible. Apply 3 - 6 L/ha at the 4 - 8 leaf stage.

**Potatoes:**
Magnesium is important to potatoes due to its role in carbohydrate production. It can also improve quality by minimizing internal blackening and bruising. Apply 3 - 5 L/ha once there is sufficient leaf to absorb the spray and continue the programme of 3 - 4 applications over the season.

**Sugar beet:**
Apply 3 L/ha from the 6 - 8 expanded leaf stage or as indicated by tissue analysis.
**SUPER 80™ CONTINUED**

Rates of Use Continued:

**Vegetables and brassicas:**
Apply 3 L/ha from the 4 - 6 fully expanded leaf stage or as indicated by tissue analysis.

**Oilseed rape:**
Adequate magnesium levels are essential to ensure good crop establishment. Apply 3 L/ha when the crop has reached the 4 leaf stage of growth and has sufficient leaf area to absorb the spray.

**Apples:**
Apply 3 L/ha from petal fall. Apples are likely to need three applications 2 - 5 weeks apart or apply according to tissue analysis.

**Grapes:**
Apply 3 L/ha from the end of flowering. Three applications, 3 - 5 weeks apart are likely to be required.

**Water volume:**
Use at least 200 L/ha.

FMC recommends that soil and tissue analysis results are used whenever possible to guide micro and macronutrient applications to optimise crop nutrient status. Do not apply this product in very bright sunlight or in temperatures above 25°C. If possible, spray in the evening or early morning for best results.

**Compatibility:**
Super 80™ is physically and chemically compatible with a wide range of agrochemical products. Consult your supplier for the latest information. Up-to-date information is available on our website. Always read the label of the partner product carefully before mixing with Super 80™.
THIO-S™

151 g/L nitrogen (N) + 862 g/L sulphur (SO₃).
Soluble liquid.

Rates: 3 - 10 L/ha
Packs per Pallet: 36 x 2 x 10 litres 1000 IBC

Introduction:
A high sulphur fertiliser with nitrogen.

Rates of Use + Timings:

Cereals:
Apply 3 - 5 L/ha at GS 30 - 31 and repeat at 10 - 14 day intervals if required.
Wheats will benefit from a further application at GS 55 - 79.

Oilseed rape:
Apply 5 - 10 L/ha at stem extension and repeat at 10 - 14 day intervals as required.
Do not apply during flowering.

Potatoes:
Apply 5 L/ha at or shortly after 100% emergence and repeat at 10 - 14 day intervals as required.

Sugar beet, beans and peas:
Apply 5 L/ha at the 4 - 6 leaf stage and repeat at 10 - 14 day intervals as necessary.

Market brassicas:
Apply 5 L/ha when the crop has 4 - 6 leaves and repeat at 10 - 14 day intervals as required.

Onions, leeks, carrots:
Apply 5 L/ha when the crop is 15 cm tall and repeat at 10 - 14 day intervals as necessary.

Maize:
Apply 5 L/ha when the crop has 4 - 8 leaves and repeat 14 days later.

Grass for silage:
Apply 10 L/ha 4 weeks before the first (or second) cut.

Water volume:
Use in at least 200 L/ha in all cases.
THIO-S™ CONTINUED

FMC recommends that soil and tissue analysis results are used whenever possible to guide micro and macronutrient applications to optimise crop nutrient status. Do not apply this product in very bright sunlight or in temperatures above 25°C. If possible, spray in the evening or early morning for best results.

Compatibility:
Thio-S™ is physically and chemically compatible with a wide range of agrochemical products. Consult your supplier for the latest information. Up-to-date information is available on our website. Always read the label of the partner product carefully before mixing with Thio-S™.
TRICE™

330 g/L manganese (Mn) + 110 g/L copper (Cu) + 84 g/L zinc (Zn).
Suspension concentrate.

Rates: 1 L/ha
Packs per Pallet: 51 x 2 x 5 litres

Introduction:
Trice™ is a high concentration liquid micronutrient for correction of manganese, copper and zinc deficiencies in agricultural crops or application as a balanced maintenance treatment.

Formulation:
Trice™ is a high concentration liquid micronutrient for correction of manganese, copper and zinc deficiencies in agricultural crops or application as a balanced maintenance treatment.

Trice™ is formulated for rapid dispersion in water and trouble-free application. Its formulation is tolerant of a wide range of pH conditions and may be mixed with many other crop protection chemicals, including a number of materials which may be incompatible with other forms of manganese.

Rates of Use:
**Apply 1 L/ha in at least 200 L/ha of water.**
Repeat if deficiency is severe.

Timing:
Trice™ can be applied to crops whenever deficiency is observed or expected, or as a routine maintenance treatment. Applications may commence after the 3 leaf stage in cereals, and in other crops when sufficient foliage has developed to absorb the spray.

Autumn sown crops will benefit from an application before the onset of Winter.

FMC recommends that soil and tissue analysis results are used whenever possible to guide micro and macronutrient applications to optimise crop nutrient status.
Do not apply this product in very bright sunlight or in temperatures above 25°C. If possible, spray in the evening or early morning for best results.

Compatibility:
Trice™ is physically and chemically compatible with a wide range of agrochemical products. Consult your supplier for the latest information. Up-to-date information is available on our website. Always read the label of the partner product carefully before mixing with Trice™.
**VERTEX HI-N 34™**

340 g/L nitrogen (N) (nitric nitrogen 37 g/L, ammoniacal nitrogen 140 g/L, ureic nitrogen 163 g/L) + 35 g/L magnesium (MgO) + 9 g/L manganese (Mn) + 5 g/L copper (Cu).

Soluble liquid.

**Rates:** 3 - 4.5 L/ha

**Packs per Pallet:** 36 x 2 x 10 litres 1000 litre IBC

**Introduction:**

Vertex HI-N 34™ is a high nitrogen content soluble foliar fertiliser containing additional micronutrients to give a balanced foliar feed to maintain and enhance crop yield.

Vertex HI-N 34™ may be used to supplement fertilizer practice at times of stress when the crop requires quickly assimilated nutrients, maintaining and enhancing yield. It is especially useful during periods of rapid growth or when crops have been subject to adverse weather conditions or damage.

**Rates of Use + Timings:**

**Brassicas:**
Apply at any time after 3 true leaves when the crop is growing actively. Apply 4.5 L/ha in at least 200 L/ha of water.

**Cereals:**
From first node to ear emergence (GS 31 - 51). Do not repeat applications within 3 weeks. Apply 3 L/ha in at least 200 L/ha of water.

**Grassland:**
Apply 3 L/ha in at least 200 L/ha of water.

**Oilseed rape:**
Apply from stem extension and post flowering. Do not apply during flowering. Apply 3 L/ha in at least 200 L/ha of water.

**Potatoes:**
Apply initially when leaves meet in the row, timing the last application with the final blight spray. Apply 3 L/ha in at least 200 L/ha of water.

If necessary the rate of application may be increased to 4.5 L/ha on cereals, grassland, oilseed rape and potatoes on healthy well-established crops and under good growing conditions. This is best applied as 2 or 3 applications as necessary. Avoid overlapping spray bout widths.

Continued on the next page
VERTEX HI-N 34™ CONTINUED

Rates of Use + Timings Continued:
FMC recommends that soil and tissue analysis results are used whenever possible to guide micro and macronutrient applications to optimise crop nutrient status. Do not apply this product in very bright sunlight or in temperatures above 25°C. If possible, spray in the evening or early morning for best results.

Compatibility:
Vertex Hi-N 34™ is physically and chemically compatible with a wide range of agrochemical products. Consult your supplier for the latest information. Up-to-date information is available on our website. Always read the label of the partner product carefully before mixing with Vertex Hi-N 34™.
ZINC™

150 g/L zinc (Zn).
Soluble liquid.

Rates: 2 - 4 L/ha
Packs per Pallet: 36 x 2 x 10 litres 1000 litre IBC

Introduction:
Zinc™ is a buffered liquid formulation of zinc sulphate designed for cost-effective correction of zinc deficiency in crops.

Maize, potatoes, top fruit, hops, linseed, barley and beans are particularly sensitive to zinc levels. Sandy soils, high pH soils and soils with high phosphate level can limit the availability of zinc. Low temperature and wet conditions also limit the uptake of zinc.

Formulation:
Zinc™ is formulated with buffering agents and a modern surfactant system to ensure stability and effective cover and adhesion to foliage.

Rates of Use:

**Marginal deficiency:**
Apply 2 L/ha in at least 200 L/ha of water.

**Moderate deficiency:**
Apply 4 L/ha in at least 200 L/ha of water.

**Severe deficiency:**
Apply 4 L/ha in at least 200 L/ha of water and repeat as necessary during the growing season.

Spray whenever a zinc deficiency is observed (or expected) or as a routine maintenance treatment. Applications may commence at the 3 leaf stage or as soon as there is sufficient foliage present to absorb the spray. Full recommendations for specific crops are available from your supplier or from FMC.

FMC recommends that soil and tissue analysis results are used whenever possible to guide micro and macronutrient applications to optimise crop nutrient status. Do not apply this product in very bright sunlight or in temperatures above 25°C. If possible, spray in the evening or early morning for best results.

Compatibility:
Zinc™ is physically and chemically compatible with a wide range of agrochemical products. Consult your supplier for the latest information. Up-to-date information is available on our website. Always read the label of the partner product carefully before mixing with Zinc™.
ZINC FL™

690 g/L zinc (Zn).
Suspension concentrate.

Rates: 1 L/ha
Packs per Pallet: 51 x 2 x 5 litres

Introduction:
Zinc FL™ is used in the plant in conjunction with other essential nutrients for stimulation of various enzyme systems. Zinc deficiency severely depresses photosynthesis.

Maize, potatoes, top fruit, hops, linseed, barley and beans are particularly sensitive to zinc levels. Sandy soils, high pH soils and soils with high phosphate level can limit the availability of zinc. Low temperature and wet conditions also limit the uptake of zinc. Low temperatures frequently occur during the early stages of development of maize and it is essential that adequate zinc is available.

Formulation:
Zinc FL™ is a ready-to-use liquid containing zinc formulated as a suspension concentrate, for correction of zinc deficiency in a wide range of crops. It contains an advanced surfactant/suspension system to ensure rapid and even dispersion in the spray tank and superior adhesive properties on foliage.

Rates of Use:
Apply at 1 L/ha.
Repeat applications at 10 - 14 day intervals if required or as indicated by tissue analysis. Do not apply to protected crops. Use at least 200 L/ha of water. Increase the water volume as necessary to ensure good cover of the foliage.

Timing:
Cereals:
Apply from the 3 - leaf stage.

Oilseed rape, leaf and root brassicas, sugar beet, maize:
Apply from the 4 - 6 leaf stage.

Peas and beans:
Apply from the commencement of flowering.

Potatoes:
Apply from full emergence.

Other crops:
Apply when there is sufficient foliage present to retain the spray.
ZINC FL™ CONTINUED

Timing:
FMC recommends that soil and tissue analysis results are used whenever possible to guide micro and macronutrient applications to optimise crop nutrient status. Do not apply this product in very bright sunlight or in temperatures above 25°C. If possible, spray in the evening or early morning for best results.

Compatibility:
Zinc FL™ is physically and chemically compatible with a wide range of agrochemical products. Consult your supplier for the latest information. Up-to-date information is available on our website. Always read the label of the partner product carefully before mixing with Zinc FL™.
SAFETY & STORAGE

All FMC Nutrition products are safe for crops if used in accordance with the label, and are packed in high quality and convenient, easy to open bags or plastic containers.

For full information on specific safety precautions, protective clothing, storage conditions and transport advice for our products, refer to the label or visit our website.

Application / Mixing
For our liquid solution products:
Shake the container well before opening. Half-fill the spray tank with clean water, begin agitation and slowly add the required amount of product. Add the rest of the water whilst maintaining agitation, and apply without delay. Maintain agitation while travelling and throughout the spraying operation.

For our suspension products:
Shake the container well before opening. This redistributes formulation components within the product. Half fill the spray tank with clean water and along with constant agitation pour out 25% of the product. Replace the cap and shake well again before pouring the remainder of the product.

This should ensure homogenous suspension and easy washout of the container. Maintain agitation while travelling and throughout the spraying operation.

Best results will be obtained from applications made during the early morning or evening when moisture is present in the plant.

FMC recommends that soil and tissue analysis results are used whenever possible to guide micro and macronutrient applications.

Avoid applying in extremes of temperatures (above 25°C), very strong sunlight or when the crops are under drought or other stress.

For full application details on individual products refer to the label or our website.

Compatibility
FMC foliar nutrient products are physically compatible with most spray-applied agricultural chemicals.

Always consult an FMC representative for the latest information on products and compatibilities.

www.fmc-agro.co.uk