

Plantex®

2012 Product Guide



**Love Solubility?
Then You'll Love Plantex.**



PLANTPRODUCTS®

Plantex Product Guide 2012

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PPCL Website

The PPCL website is the place to go for the next level of information. The 2012 version of the Plant Products/Plantex website is designed to complement the product guide as well as supply more detailed information. The website will contain things such as Material Safety Data Sheets (MSDS), complete product labels and other promotional information. You can find us at www.PlantProd.com

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No-Stretch 15-0-20

No-Stretch works to harden plant structure and prevents leggy growth. Use toward the end of the crop cycle for compact sturdy growth and to keep internodes short.

Pansy Special 15-2-20 **New!**

Plantex 15-2-20 is a water soluble formulation designed to provide all 5 macro nutrients; nitrogen, phosphorous, potassium, calcium and magnesium in one solution eliminating the need to switch from one formula to another. Over 80% of the nitrogen is in the nitrate form and there is no Urea. Plantex Solutions Pansy Special has a complete micronutrient package including higher boron and molybdenum required by pansies. Comes in a duo bag for easy usage. This formulation is basic in reaction.

Complete 17-5-17

Complete is an all-in-one advanced nutritional program containing high levels of nitrate with no urea. It contains all five macros (N, P, K, Ca and Mg). It is effective over a wide pH range and comes in a duo-bag for easy usage.

pH Buffer 18-6-24

pH Buffer is a balanced growth formula with enhanced micronutrient availability. pH Buffer puts buffering capacity into rain water or any water with very low alkalinity levels, ensuring better control over water and media pH.

pH Reducer 18-9-18

This high nitrate, urea free fertilizer, decreases media pH levels while providing enhanced micronutrients, including higher levels of iron, manganese and zinc for heavy feeding crops.

Fertility Plus 19-2-19

This high nitrate, urea free fertilizer is balanced with enhanced micronutrient availability and performance components which are ideal for heavy feeding, high performance plants.

Complete Plus 19-8-13

Complete Plus is a modification of the Complete formulation with more acidic potential. Complete Plus contains all five macros (N, P, K, Ca and Mg). Growers with higher alkaline water can reduce or eliminate the use of acid.

Cal Mag Royal 13-2-13 **New!**

Plantex 13-2-13 Provides calcium and magnesium with a 6:3 ratio. This formula is less basic than 12-2-14. Cal Mag Royal comes in a duo bag for easy usage.



Can't find a Solution that's right for you?

Plant Products is dedicated to producing the most innovative, highest quality water soluble fertilizers on the market. We are continually striving to serve you better by solving your growing troubles. If you can't find a Plantex fertilizer that answers your specific needs, talk to your sales representative to see if a **custom blend** is right for you.

For more information visit: www.PlantexSolutions.com



10-52-10 High P

10-52-10 supplies the necessary high phosphorus levels that young plants require with maximum solubility.

12-2-14 Cal Mag + P

Cal Mag + P is designed for plug production with 6% calcium and 3% magnesium as well as a complete micronutrient package.

14-0-14 Cal Mag

Cal Mag contains a complete micronutrient package including high molybdenum, over 90% of the nitrogen in nitrate form from magnesium nitrate, potassium nitrate and calcium nitrate as well as 5.9% calcium and 2.9% magnesium.

15-0-15 Cal Plus

The Cal Plus Special is a completely water soluble prilled mixture of calcium nitrate, potassium nitrate and micronutrients.

15-15-18 Pioneer

15-15-18 Pioneer can be used as a general purpose fertilizer.

17-4-19 Pansy New!

This formula is designed for use by pansy growers wanting an acidic soil reaction and the increased iron, magnesium and boron levels required by pansies. The iron is partially in DTPA form.

18-6-20 Poinsettia Plus New!

Plantex Poinsettia Plus is the newest introduction in our lineup of Professional Water Soluble Fertilizers. Designed specifically for Poinsettias, as an improvement over our successful 17-5-19, Poinsettia Plus may be used on other crops requiring lower level of Boron. Poinsettia Plus contains over 60% of the nitrogen in the nitrate form, a high level of magnesium and chelated micronutrients.

20-7-20 Acidic High Nitrate

20-7-20 is an all season feed with a higher potential acidity than 20-10-20.

20-10-20 All Purpose High Nitrate

Is an all season fertilizer with a high potential acidity.

20-20-20 Classic

20-20-20 Classic, balanced fertilizer may be used for general feeding. It is ideal for use when a more specific formula is not required.

21-5-20 High Nitrate - Low P

Effective in soilless media, this is used as a general feed and forms the base for many fertilizer programs. This urea free and high-nitrate, balanced growth formulation, with complete micronutrient availability, including magnesium and extra iron is designed to provide optimum plant nutrition.

21-7-7 Acid

This should be used for crops requiring higher acid soil conditions and when irrigation water has a high pH level.

24-8-16 Foliage

Plantex 24-8-16 uses forms of nitrogen most readily absorbed for growing foliage plants.

24-12-12 Orchid Fertilizer

Although designed for orchid growers, Plantex 24-12-12 can be used on other crops during periods of rapid vegetative growth. Years of research led to the development of this fertilizer. High in nitrogen to support vigorous growth, and balanced phosphorous and potassium for general plant health and bloom. Chelated copper, iron, manganese and zinc along with optimum levels of boron and molybdenum are designed for crop excellence.

High Capacity High Nitrate 25-4-15 New!

Plantex 25-4-15 is an economical higher nitrate formula to be used for heavy feeders. Monitor your micronutrient levels for crops requiring higher levels of iron and magnesium.



Conductivity

Plantex Solutions Conductivity (mmhos/cm)

Parts per Million Nitrogen	Cal Mag Royal 13-2-13	No-Stretch 15-0-20	Pansy Special 15-2-20	Complete 17-5-17	pH Buffer 18-6-24	pH Reducer 18-9-18	Fertility Plus 19-2-19	Complete Plus 19-8-13
50	0.64	0.45	0.39	0.35	0.38	0.39	0.37	0.28
100	1.19	0.91	0.78	0.68	0.76	0.75	0.73	0.57
150	1.75	1.37	1.16	1.01	1.14	1.44	1.09	0.85
200	2.30	1.83	1.54	1.34	1.52	1.44	1.44	1.13
250	2.86	2.28	1.91	1.67	1.89	1.78	1.79	1.41
300	3.42	2.72	2.28	2.00	2.23	2.13	2.13	1.68
350	3.97	3.16	2.64	2.33	2.63	2.47	2.47	1.95
400	4.53	3.60	3.00	2.70	3.00	2.81	2.81	2.21
450	5.08	4.03	3.35	3.00	3.36	3.14	3.15	2.48
500	5.64	4.45	3.70	3.31	3.72	3.48	3.48	2.74
550	6.19	4.87	4.04	3.36	4.08	3.81	3.80	3.00
600	6.75	5.28	4.34	3.96	4.44	4.14	4.12	3.25

Plantex Conductivity (mmhos)



Parts per Million Nitrogen	High P 10-52-10	Cal Mag + P 12-2-14	Cal Mag 14-0-14	Cal Plus 15-0-15	Pioneer 15-15-18	Pansy 17-4-19	
50	0.35	0.47	0.4	0.48	0.35	0.43	
100	0.67	0.93	0.85	0.95	0.7	0.83	
150	0.99	1.38	1.25	1.3	1	1.23	
200	1.32	1.81	1.6	1.7	1.4	1.62	
250	1.64	2.23	2.01	2.15	1.7	2.01	
300	1.97	2.64	2.35	2.5	2	2.39	
350	2.29	3.06	2.75	2.9	2.35	2.77	
400	2.62	3.44	3.15	3.3	2.65	3.14	
450	2.94	3.84	3.53	3.65	2.95	3.51	
500	3.26	4.23	3.85	4.05	3.25	3.87	
550	3.59	4.67	4.25	4.4	3.55	4.23	
600	3.91	5.02	4.6	4.75	3.8	4.59	

Conductivity

Total soluble salts is a measure in the form of electrical conductivity of the amount of fertilizer in solution. Most nutrients or other elements that are soluble will contribute to the conductivity of the solution. The electrical conductivity (EC) increases as the fertilizer concentration is increased.

Electrical conductivity is measured in mhos. The conductivity of fertilizer solutions is sufficiently small that it is measured in terms of millimhos (mmhos, one one-thousandth of a mho) or micromhos (µmhos, one one-millionth of a mho). Conductivity meters measure in either mmhos or µmhos. Since most meters used by our growers are calibrated in mmhos, the data given here on our fertilizers uses the same measurement.

The following table can be used to measure the accuracy of fertilizer injector systems by following these steps:

- (1) Take a conductivity reading of clear irrigation water.
- (2) Take a conductivity reading of final fertilizer solution.
- (3) Subtract the conductivity reading value of clear water from the conductivity reading of fertilizer solution.
- (4) Compare the answer found in 3 to the corresponding value in the table in order to find the concentration of fertilizer.

Example: Conductivity of clear irrigation water is 0.60 mmhos.
 Conductivity of the final fertilizer solution using 20-20-20 is 2.85 mmhos.
 The conductivity due to the fertilizer is only 2.85 mmhos - 0.60 mmhos = 2.25 mmhos.
 For 20-20-20, a conductivity reading of 2.25 mmhos corresponds to a feeding rate of 550 ppm of Nitrogen (N).

Note: The values on this chart were obtained under laboratory conditions using distilled water and a Plant Products conductivity meter. The values obtained by the grower under field conditions could, therefore, vary slightly (+/-10%) from the values listed here.

	Poinsettia Plus 18-6-20	Acidic High Nitrate 20-7-20	All Purpose High Nitrate 20-10-20	Classic 20-20-20	High Nitrate Low P 21-5-20	Acid 21-7-7	Foliage 24-8-16	Orchid 24-12-12	High Capacity 25-4-15
	0.42	0.37	0.35	0.25	0.68	0.38	0.2	0.26	0.31
	0.80	0.69	0.69	0.40	1.15	0.73	0.4	0.50	0.59
	1.17	1.01	1.03	0.65	1.63	1.08	0.6	0.74	0.87
	1.54	1.33	1.36	0.85	2.11	1.43	0.8	0.97	1.15
	1.89	1.65	1.70	1.1	2.58	1.76	1	1.20	1.42
	2.24	1.97	2.02	1.25	3.06	2.09	1.2	1.44	1.70
	2.59	2.29	2.34	1.50	3.53	2.42	1.4	1.67	1.98
	2.94	2.61	2.66	1.65	4.00	2.73	1.6	1.89	2.26
	3.28	2.93	2.98	1.90	4.48	3.04	1.8	2.12	2.54
	3.62	3.25	3.30	2.1	4.96	3.35	2	2.34	2.81
	3.96	3.57	3.63	2.25	5.44	3.65	2.17	2.56	3.09
	4.29	3.89	3.96	2.40	5.91	3.97	2.34	2.78	3.32

The term PPM stands for Parts Per Million. One ppm of a certain nutrient, such as Nitrogen, means that the solution contains 1 part of nitrogen in 1,000,000 parts of water by weight. There is an easy formula which can be used to determine the ppm of a solution.

$$\text{ounces of fertilizer product} / \text{gallons of water in solution} \times \text{grade of fertilizer} \times 75 = \text{ppm}$$

It works like this: Plantex 20-20-20 contains 20% N. To find the ppm of nitrogen in a solution containing 1 oz of Plantex 20-20-20 in 100 gallons of water, the equation is:

$$1 (\text{oz. of product}) / 100 (\text{gallons of water}) \times 20 (\text{grade of fertilizer}) \times 75 = 15 \text{ ppm}$$

Therefore one ounce of Plantex 20-20-20 in 100 gallons of water has 15 parts per million of nitrogen in the solution.

To determine the number of ounces required to make up a 200 ppm solution of nitrogen with Plantex 20-20-20 fertilizer in 100 gallons of solution, use the following formula:

$$\text{ppm in solution} \times \text{gallons of water} \div \% \text{ grade of the fertilizer} \div 75 = \text{oz. of fertilizer}$$
$$200 \times 100 \div 20 \div 75 = 13.3$$

To calculate the amount for a concentrated stock solution, the “gallons of water” number in the equation is the volume of water in the tank, multiplied by the injector ratio. Using the above example, if the tank is 100 gallons and the injector ratio is 1:100 then the following formula is used:

$$200 \times (100 \times 100) \div 20 \div 75 = 1333.3 \text{ oz.}$$
$$1333.3 \text{ oz.} \div 16 \text{ oz. per lb.} = 83.3 \text{ lbs.}$$

General Guidelines for Preparing a Stock Tank of Plantex Fertilizer

- Verify that the formula you choose to use is recommended for your water type and specific crops
- Determine the number of pounds required to add to the concentrate barrel by reading the label and adjusting for your injector dilution ratio. A table is provided in this Plantex guide on page 18 and is also available on line at www.PlantProd.com.
- Use a clean, empty concentrate tank. It is preferable that the tank be graduated in gallons and that the tank is opaque or dark in color so that light does not penetrate into the fertilizer concentrate. A cover on top of the tank is also recommended to avoid light penetration and prevent foreign material from entering the barrel.
- Identify the stock tank by labelling or writing on the barrel. For example Plantex 20-10-20, 200 ppm
- An agitator at the bottom of the tank will provide constant movement within the tank and keep the fertilizer mixed well. However most operations do not have agitators and Plantex will stay in solution as long as the concentration is not supersaturated.
- Some operators like to use dust masks and safety glasses when handling fertilizers, it is not mandatory, but suggested.
- Fill your stock tank a third of the way with water and then add the required amount of fertilizer. Mix well as the fertilizer dissolves and then top off the barrel to the desired gallon. It is important that the amount of water added is the amount calculated for the desired ppm. For example if 25 lbs. are being placed in 26 gallons of water, make sure that the concentrate drum can hold more than 26 gallons of water since the mass of fertilizer will displace the water. You may need a drum that holds 35 gallons of water with fertilizer in solution.
- Dissolving fertilizer is a chemical reaction and at times condensation may develop on the outside of the concentrate tank. Plantex will dissolve well in cold water and a maximum solubility rate per gallon is available in the Plantex fertilizer guide.
- To avoid the formation of insoluble precipitates, do not mix any fertilizer containing calcium (such as calcium nitrate) with formulas containing sulphates (such as Magnesium sulphate) or phosphates (such as Monopotassium phosphate). If you are unsure of what is compatible, please contact your Plantex representative.
- Stir the final concentrate tank and place the screened siphon tube for your injector into the solution. It is recommended that the siphon tube not rest on the bottom of the tank but be placed above the bottom of the barrel.
- Should the fertilizer concentrate sit unused for any period of time, stir the product prior to starting your injector.

For information on Plantex product variations, including No Dye and No Boron, please contact your Plant Products representative or visit our website at www.PlantProd.com

Plantex Foliar Fertilizer

Foliar Fertilizer:

Plantex, because it is so highly soluble, is ideal for use in a foliar feeding program. Foliar sprays will not replace your regular program of root feeding but this technique will supply valuable supplementary nutrients to plants quickly and efficiently. Plantex, as a foliar fertilizer, can be applied together with a number of pesticide mixtures to reduce the overall cost of application and in some cases to improve the effectiveness of the pest control product.

Potassium and sodium are rapidly absorbed and are highly mobile within the plant. Although phosphorus, sulfur and chlorine are absorbed at a slow rate they are mobile and travel at a rapid rate. Manganese, zinc, copper, and molybdenum are slightly mobile. Calcium, iron and magnesium are rapidly absorbed but do not move out of the leaf to which they are applied.

Foliar sprays applied to dormant or damaged plants are found to supply nutrients when natural conditions hinder or prevent root absorption. These sprays can supply two to three percent of the total phosphorus requirement and as much as 10-15% when applied in four separate sprays. Foliar sprays, even though applied in small amounts are the most efficient method of applying fertilizer to plants, the plant is able to use 95% of this fertilizer, instead of the 10% that would be used when applying it to the soil.

Foliar fertilization is also useful in correcting deficiency problems in plants, providing almost instantaneous results.

Recent research indicates that urea is the most rapidly absorbed form of nitrogen through the foliage. Urea also enhances the foliar absorption of micronutrients when applied in combination with them.

Forms of Nitrogen:

Soluble fertilizers can contain three forms of nitrogen:

1. Nitrate Nitrogen,
2. Ammoniacal Nitrogen,
3. Urea Nitrogen (also known as water soluble organic nitrogen).

Although plant roots can absorb nitrogen in the nitrate (NO_3^-), nitrite (NO_2^-), ammonium (NH_4^+) and amide (NH_2^- as in organic urea) forms, most nitrogen is absorbed in the nitrate form. Therefore, most ammoniacal and urea must be converted in soil to nitrate nitrogen before it can be taken up by the plant's roots. This conversion requires certain microbial activity to occur, and this activity can be reduced by extremes in soil temperature or moisture. Soilless mixes are initially lower in microorganisms slowing down the conversion. To deal with these situations high nitrate formulations are recommended for winter feeding and soilless mixes in general. Different plants can prefer different forms of nitrogen or different proportions of the various forms; a mixture of the various forms of nitrogen provides optimum growth, rather than 100% of one form.

Plantex vs Mixing your own:

Fertilizer accounts for 1% to 3% of the cost of producing a plant. Simple mistakes such as a miscalculation, placing a decimal in the wrong place or an error in weighing out nutrients could cause the loss of an entire crop. Using low quality raw materials which are not completely soluble will reduce the quality of your fertilizer and could clog the injector. If the nutrient does not dissolve into solution, the plant cannot utilize it. You may think you are applying 200 ppm but because some of the nutrients are insoluble, you may actually be applying much less. A premixed soluble fertilizer such as Plantex is economical. Plantex is scientifically blended with the highest quality raw materials. Chances for errors are eliminated.

Potential Acidity/Basicity for Plantex and Plantex Solutions Fertilizers

Potential acidity is expressed as the amount of calcium carbonate in lbs needed to neutralize the acidity caused by one ton of the fertilizer. Potential basicity is the amount in lbs of calcium carbonate that has the same alkalizing effect as one ton of the fertilizer.

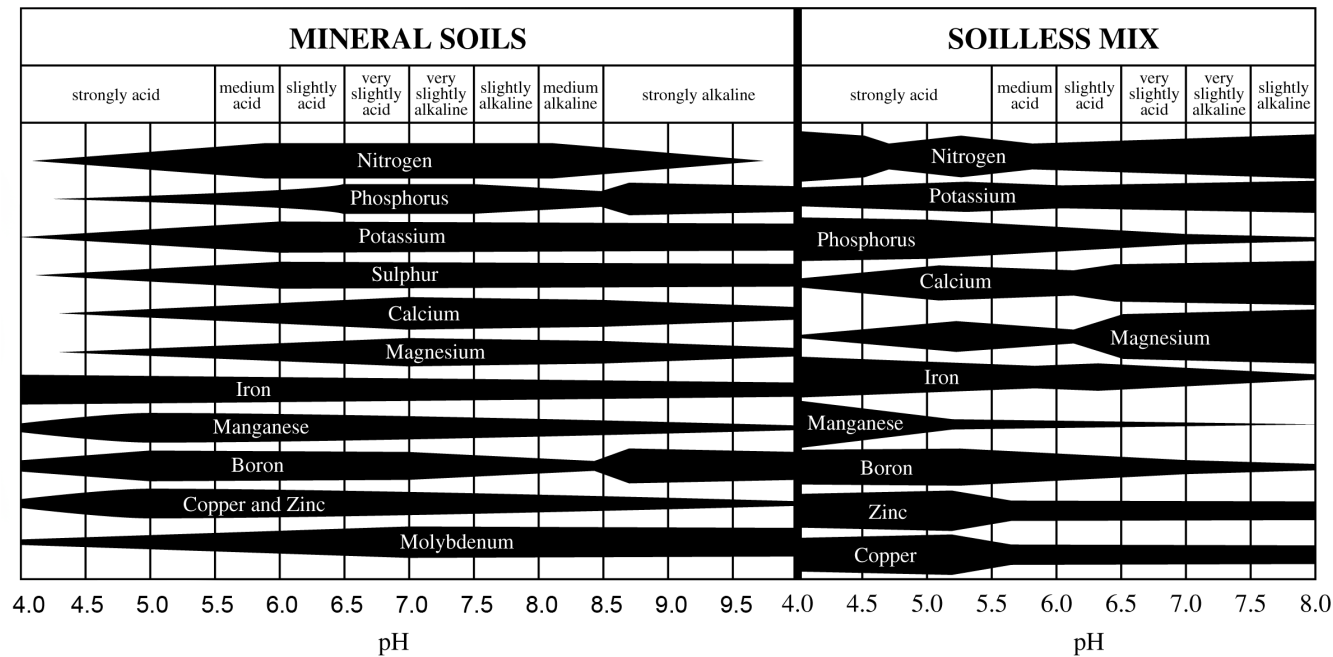
Formulation	Acidity (A)/Basicity (B) Potential	EC (mmhos/cm) at 100 ppm N	EC (mmhos/cm) at 200 ppm N
Acid Feed 21-7-7	1580 (A)	0.73	1.43
Orchid 24-12-12	1165 (A)	0.50	0.97
High Nitrogen 28-14-14	1012 (A)	0.20	0.38
High P 10-52-10	900 (A)	0.67	1.32
Foliage 24-8-16	850 (A)	0.40	0.80
pH Reducer 18-9-18	700 (A)	0.64	1.38
Starter 15-30-15	680 (A)	0.60	1.17
High Capacity 25-4-15	615 (A)	0.59	1.15
Classic 20-20-20	570 (A)	0.40	0.85
Acidic High N 20-2-20	510 (A)	0.75	1.43
Acidic High Nitrate 20-7-20	510 (A)	0.69	1.33
All Purpose High Nitrate 20-10-20	440 (A)	0.69	1.36
High Nitrate - Low P 21-5-20	410 (A)	1.15	2.10
Complete Plus 19-8-13	300 (A)	0.57	1.13
Fertility Plus 19-2-19	300 (A)	0.66	1.29
pH Buffer 18-6-24	300 (A)	0.76	1.52
Poinsettia Plus 18-6-20	270 (A)	0.80	1.54
Pansy 17-4-19	240 (A)	0.83	1.62
Super K 20-5-30	231 (A)	0.50	0.90
Pioneer 15-15-18	150 (A)	0.70	1.40
High K 15-15-30	143(A)	0.75	1.47
Complete 17-5-17	105 (A)	0.68	1.34
Hydroponic Tomato 4-18-37	55 (B)	N/A	N/A
No-Stretch 15-0-20	170 (B)	0.91	1.83
Hydroponic 7-11-27	180 (B)	1.66	3.27
Pansy Special 15-2-20	210 (B)	0.78	1.54
Hydroponic 6-11-31	280 (B)	1.80	3.60
Cal Mag 14-0-14	320 (B)	0.85	1.60
Cal Plus 15-0-15	325 (B)	0.95	1.70
Cal Mag Royal 13-2-13	330 (B)	1.19	2.30
Cal Mag + P 12-2-14	400 (B)	0.93	1.81

Potential Acidity/Basicity values are used as an indicator to reflect the effect of particular analysis on pH of media in which a plant is grown.

The effect of pH on availability of plant nutrients

The chart below shows the relative availabilities of most plant nutrients at various pH levels. The width of each horizontal bar indicates maximum availability at the widest point and diminishing availability as the bar narrows.

Applying nutrients in the proper balance is essential for proper plant nutrition, but maintaining the pH of the soil mix so that these nutrients are available for uptake is just as crucial. From these charts it can be seen that an optimum pH in soil mixes is around 6.5 - 7.5, whereas the optimum for soilless mixes falls in the 5.5 – 6.5 range.



Looking for more technical information?
Visit our website at www.PlantProd.com
or call our technical support directly.



Plantex Turf Water Soluble Fertilizer

Greens Fertilizers

(available in 21-5-21 Greens 1 and 20-5-30 Greens 2)

Turfgrass Greens Fertilizers are recommended for use on greens, tees and other fine turf areas. Each analysis contains chelated micronutrients for maximum micronutrient availability and prevention of deficiencies. Turfgrass Greens Fertilizers offer excellent coverage and control of nutrients when using low nutrient application rates and excellent turf safety when used as directed.

21-5-21 Greens 1

Turfgrass 21-5-21 Greens 1 will provide approximately one week of fertility when applied as directed. Factors such as precipitation amount and/or frequency, clipping removal and soil texture will affect fertility rate and duration. Dissolve the recommended amount of fertilizer in at least 5 gallons of water and apply to 1000 square feet.

20-5-30 Greens 2

Greens 2 is recommended for use on high stress areas where root growth and development require high levels of potassium. The increased level of iron improves turf colour.

12-0-12 Sand Based Greens Grow In

Plantex 12-0-12 is an ammonical nitrogen based fertilizer for fertilizing new sand based greens during and after a grow in. It contains a high level of sulphur and micronutrients at levels required for most sand based root zones.

19-0-19 Sulfate Based Maintenance

Plantex 19-0-19 is a sulphate based maintenance fertilizer used to supply micronutrients (Mg, B, & Fe) that are commonly deficient in many soils. Nitrogen is derived from Potassium Nitrate.

Nutritrace™ CSM Mix

Plantex Nutritrace CSM (Chelated Secondary Micronutrient) Mix is a water soluble mix of secondary nutrients which can be used as a general preventative supplement or as a corrective where known deficiencies exist. Nutritrace CSM is an important component of a regular feeding program for crops grown in artificial and soilless media. Nutritrace CSM may also be used when needed for crops grown in soil.

Nutritrace Iron **New!**

Nutritrace Iron is an 11% chelated iron that is active across the entire pH range. Suitable for soil and foliar applications.

28-8-18 Bentgrass II

This formula is a water soluble fertilizer designed specifically for Bentgrass Turf. Suitable for tees, greens, and other fine turf areas. Features include a high urea content for up to 3 weeks of available nitrogen, a complete Micronutrient

package with 1% Iron (0.1% chelated), and fully chelated manganese, copper and zinc. This is a No Dye formulation

28-5-14 Bentgrass Special

Designed specifically for Bentgrass turf this formulation is suitable for tees, greens and other fine turf areas. Low application rates can be applied evenly.

Features:

- High urea content for 3 weeks of available Nitrogen
- A complete micronutrient package including 1% Iron, (0.1% chelated).
- Fully chelated manganese, copper and zinc.
- No dye formulation.

35-5-10 Turf Fertilizer

This urea based formulation will provide 4 to 8 weeks of fertility. It is completely soluble and compatible with most turf herbicides, insecticides and fungicides. Plantex 35-5-10 is an ideal product for larger areas and fits well into your spray program.

Features:

- A low salt index to minimize the risk of burning,
- More readily available nutrients than dry fertilizers since the nutrients are applied in the liquid form.
- Added chelated iron for fast greening of turf.
- It's compatibility with most turf fungicides and insecticides, and the possibility of applying with fairly low volumes of water make it ideal for application with pesticides.

15-2-15 Ultra Dwarf Special

This formula is a water soluble fertilizer suitable for use on all fine turf areas. Low application rates can be applied evenly.

Features:

- 1:1 ratio of nitrate to ammoniacal Nitrogen, for immediate availability.
- Provides about 1 week of fertility.
- High levels of Magnesium, Iron and Manganese.
- Suitable for foliar and root-feeding.

Other Formulations Available

- 10-52-10 High P Fertilizer
- 12-0-44 Potassium Nitrate
- 20-10-20 All Purpose High Nitrate
- 17-5-19 High Mg
- 20-20-20 Classic
- 15-0-15 Cal Plus

Potential Acidity/Basicity for Plantex Turf Fertilizers

Potential acidity is expressed as the amount of calcium carbonate in lbs. needed to neutralize the acidity caused by one ton of the fertilizer. Potential basicity is the amount in lbs. of calcium carbonate that has the same alkalizing effect as one ton of the fertilizer.

Formulation	Acidity (A)/Basicity (B) Potential	EC (mmhos) at 100ppm N	EC (mmhos) at 200 ppm N
Turf 35-5-10	1130 (A)	0.093	0.186
Sand Based Greens Grow In 12-0-12	970 (A)	1.20	2.28
Bentgrass II 28-8-18	730 (A)	0.18	0.38
Classic 20-20-20	570 (A)	0.40	0.85
Sulfate Based Maintenance 19-0-19	370 (A)	0.44	0.85
Cal Plus 15-0-15	325 (A)	0.95	1.70
Greens 1 21-5-21	185 (A)	0.69	1.32
Greens 2 20-5-30	75 (A)	0.50	0.98

Potential Acidity/Basicity values are used as an indicator to reflect the effect of particular analysis on pH of media in which a plant is grown.



Plantex Sources of Nutrients

	Plantex Solutions								Plantex			
Ingredient	Cal Mag Royal 13-2-13	No-Stretch 15-0-20	Pansy Special 15-2-20	Complete 17-5-17	pH Buffer 18-6-24	pH Reducer 18-6-24	Fertility Plus 19-2-19	Complete Plus 19-8-13	High P 10-52-10	Cal Mag + P 12-2-14	Cal Mag 14-0-14	Cal Plus 15-0-15
Urea									X			
Ammonium nitrate	X	X	X	X	X	X	X	X			X	X
Potassium nitrate	X	X	X	X	X	X	X	X		X	X	X
Ammonium phosphate	X		X	X		X		X	X			
Ammonium sulfate						X						
Potassium phosphate					X		X		X	X		
Potassium Bicarbonate					X							
Urea Phosphate												
Sodium nitrate												
Calcium nitrate	X	X	X	X				X		X	X	X
Magnesium nitrate	X	X	X	X				X		X	X	
Magnesium sulfate						X	X					
Iron EDTA	X	X	X	X		X	X	X	X	X	X	X
Iron DTPA		X			X	X	X	X				
Iron EDDHA		X			X	X	X	X				
Manganese EDTA	X	X	X	X	X	X	X	X	X	X	X	X
Copper EDTA	X	X	X	X	X	X	X	X	X	X	X	X
Zinc EDTA	X	X	X	X	X	X	X	X	X	X	X	X
Boric Acid	X	X	X	X	X	X	X	X	X	X	X	X
Sodium molybdate	X	X	X	X	X	X	X	X	X	X	X	X

Plantex Sources of Nutrients

Plantex											
Ingredient	Pioneer 15-15-18	Pansy 17-4-19	Poinsettia Plus 18-6-20	Acidic High Nitrate 20-7-20	All Purpose High Nitrate 20-10-20	Classic 20-20-20	High Nitrate Low P 21-5-20	Acid 21-7-7	Foliage 24-8-16	Orchid 24-12-12	High Capacity 25-4-15
Urea	X					X			X	X	
Ammonium nitrate		X	X	X	X	X	X				X
Potassium nitrate	X	X	X	X	X	X	X		X	X	X
Ammonium phosphate	X		X	X	X	X		X	X	X	
Ammonium sulfate				X	X	X	X		X	X	
Potassium phosphate		X		X							X
Potassium Bicarbonate											
Urea Phosphate										X	
Sodium Nitrate	X										
Calcium nitrate											
Magnesium nitrate											
Magnesium sulfate	X	X	X	X	X	X	X		X		X
Iron EDTA	X	X	X	X	X	X	X	X	X	X	X
Iron DTPA			X				X				X
Iron EDDHA											
Manganese EDTA	X	X	X	X	X	X	X	X	X	X	X
Copper EDTA	X	X	X	X	X	X	X	X	X	X	X
Zinc EDTA	X	X	X	X	X	X	X	X	X	X	X
Boric Acid	X	X	X	X	X	X	X	X	X	X	X
Sodium molybdate	X	X	X	X	X	X	X	X	X	X	X

Plantex Specifications

Plantex Solutions

Formulation	Cal Mag Royal 13-2-13	No-Stretch 15-0-20	Pansy Special 15-2-20	Complete 17-5-17	pH Buffer 18-6-24	pH Reducer 18-9-18	Fertility Plus 19-2-19	Complete Plus 19-8-13	
Total Nitrogen (N)	13%	15%	15%	17%	18%	18%	19%	19%	
Nitrate Nitrogen	12%	12.2%	12.7%	12.1%	11.8%	8.5%	12.1%	12.1%	
Ammoniacal Nitrogen	1.0%	2.8%	2.3%	4.9%	6.2%	9.5%	6.9%	6.9%	
Urea Nitrogen	—	—	—	—	—	—	—	—	
Available Phosphate (P ₂ O ₅)	2%	—	2%	5%	6%	9%	2%	8.0%	
Soluble Phosphorus (P)	0.9%	—	0.9%	2.1%	2.6%	3.90%	0.87%	3.4%	
Soluble Potash (K ₂ O)	13%	20%	20%	17%	24%	18%	19%	13%	
Soluble Potassium (K)	11.5%	16.6%	16.4%	13.9%	19.9%	14.90%	15.7%	10.7%	
Calcium (Ca)	6%	3%	3.75%	3%	—	—	—	2.5%	
Magnesium (Mg)	3%	1.5%	1.90%	1%	—	0.2%	1.5%	1%	
Sulphur (S)	—	—	—	—	—	5.50%	1.9%	—	
Iron (Fe)	0.08%	0.25%	0.1%	0.10%	0.10%	0.25%	0.25%	0.25%	
Manganese (Mn)	0.06%	0.075%	0.05%	0.05%	0.05%	0.075%	0.075%	0.075%	
Zinc (Zn)	0.02%	0.075%	0.05%	0.05%	0.05%	0.075%	0.075%	0.075%	
Copper (Cu)	0.01%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	
Boron (B)	0.012%	0.02%	0.03%	0.02%	0.02%	0.02%	0.02%	0.02%	
Molybdenum (Mo)	0.0011%	0.015%	0.075%	0.015%	0.015%	0.015%	0.015%	0.015%	
Chelating agent	0.9% EDTA	1.48% EDTA 0.95% DTPA 0.10% EDDHA	1.24% EDTA	1.24% EDTA	0.71% EDTA 0.52% DTPA 0.16% EDDHA	1.48% EDTA 0.95% DTPA 0.10% EDDHA	1.48% EDTA 0.95% DTPA 0.10% EDDHA	1.48% EDTA 0.95% DTPA 0.10% EDDHA	
Pot A/B (lbs. CaCO ₃ /ton	330 (B)	170 (B)	210 (B)	105 (A)	300 (A)	700 (A)	300 (A)	300 (A)	
Solubility (lbs. per gallon)									
50°F	3	2 1/3	2 3/4	3 1/4	2 3/4	2 1/2	1	1 3/4	
60°F	4 1/2	3 1/3	3 3/4	4 1/2	2 1/3	2 3/4	1 2/3	3 1/3	
75°F		4 1/4		6 2/3	3 3/4	3 3/4	2 3/4	4 2/3	

Reference: EDTA - Ethylene Diamine Tetraacetate

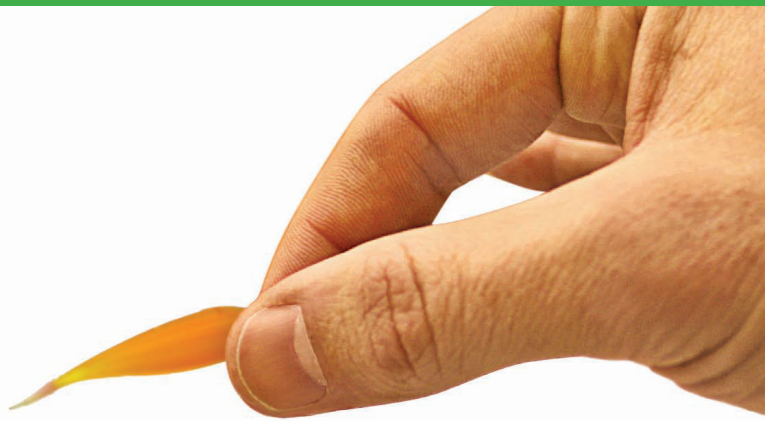
DTPA - Diethylene Triamine Pentaacetate

EDDHA - Ethylene Diamine Dihydroxyphenylacetic Acid

Plantex

	High P 10-52-10	Cal Mag +P 12-2-14	Cal Mag 14-0-14	Cal Plus 15-0-15	Pioneer 15-15-18	Pansy 17-4-19	Poinsettia Plus 18-6-20	Acidic High Nitrate 20-7-20	All Purpose- High Nitrate 20-10-20	
	10%	12%	14%	15%	15%	17%	18%	20%	20%	
	—	11.7%	12.85%	13.4%	8.2%	11%	11.5%	11.4%	12%	
	7.1%	0.3%	1.2%	1.6%	3.1%	6%	6.5%	8.6%	8%	
	2.9%	—	—	—	3.9%	0%	—	—	—	
	52%	2%	—	—	15%	4%	6%	7%	10%	
	22.6%	0.97%	—	—	6.5%	1.7%	—	3%	4.3%	
	10%	14%	14%	15%	18%	19%	20%	20%	20%	
	10%	11.6%	11.6%	12.4%	14.9%	15.5%	15.7%	16%	16.6%	
	—	6%	5.9%	11%	—	—	—	—	—	
	—	3%	2.9%	—	1.15%	3.25%	2%	0.18%	0.08%	
	—	—	—	—	0.2%	4.0%	2.5%	2%	—	
	0.1%	0.1%	0.1%	0.1%	0.1%	0.18%	0.1%	0.1%	0.1%	
	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	
	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	
	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	
	0.02%	0.02%	0.02%	0.02%	0.02%	0.035%	0.01%	0.02%	0.02%	
	0.0005%	0.015	0.015%	0.015%	0.015%	0.015%	0.06%	0.015%	0.015%	
	1.24% EDTA	1.24% EDTA	1.24% EDTA	1.24% EDTA	1.24% EDTA	1.24% EDTA 0.56% DTPA	0.71% EDTA 0.70% DTPA	1.24% EDTA	1.24% EDTA	
	900 (A)	400 (B)	320 (B)	325 (B)	150 (A)	240 (A)	270 (A)	510 (A)	440 (A)	
	3 3/4	3 2/5	1 3/4	1 3/4	2 3/4	3	2 1/2	3	2 3/4	
	3 3/4	4 1/3	3	2 1/2	3 3/4	4 3/4	3 1/2	3 1/2	3	
	4 1/4	5 3/4	4 1/4	3 1/4	4 3/4		5	5	4	

	Classic 20-20-20	High Nitrate Low P 21-5-20	Acid 21-7-7	Foliage 24-8-16	Orchid 24-12-12	High Capacity 25-4-15	Nutritrace CSM
	20%	21%	21%	24%	24%	25%	—
	5.9%	12.9%	2.1%	4.8%	3.6%	14.3%	—
	3.90%	8.1%	13.2%	4.5%	9.5%	10.7%	—
	10.27%	—	5.7%	14.7%	10.9%	—	—
	20%	5%	7%	8%	12%	4%	—
	8.7%	2.2%	3%	3%	5.2%	1.8%	—
	20%	20%	7%	16%	12%	15%	—
	16.6%	16.6%	5.8%	13.2%	10.0%	13.0%	—
	—	—	—	—	—	—	—
	—	0.15%	—	0.1%	—	0.15%	1.5%
	—	0.20%	13%	—	6%	0.2%	1%
	0.1%	0.125%	0.1%	0.1%	0.1%	0.125%	7%
	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	2.0%
	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	0.4%
	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	0.1%
	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	—
	0.0005%	0.015%	0.0005%	0.0005%	0.0005%	0.015%	0.06%
	1.24% EDTA	1.24% EDTA 0.17% DTPA	1.24% EDTA	1.24% EDTA	1.1% EDTA	1.24% EDTA 0.15% DTPA	65.4% EDTA
	570 (A)	410 (A)	1580 (A)	850 (A)	1165 (A)	615 (A)	N/A
	2 1/2	1	3 3/4	2 3/4	1/6	3	—
	3 1/2	2 1/3	4 1/2	3 3/4	1 1/4	4 3/4	—
	4	4 1/3	4 2/3	4 3/4	2 2/3	6 1/2	—



Loves me...

Loves me...

Plantex[®]

No question.
It's the perfect match.

Plantex is the water soluble fertilizer that plants love. We start with only the highest quality ingredients, with formulations that are engineered to meet your plants' specific feeding requirements. Giving you results you'll love. That's the Plantex difference.

Loves me...



Injector Rates

Plantex per Gallon of Concentrate			
Injector Ratio	100 ppm NITROGEN	150 ppm NITROGEN	200 ppm NITROGEN
Plantex: 10-52-10			
(1:200)	26.7 oz.	40.0 oz.	53.3 oz.
(1:100)	13.3 oz.	20.0 oz.	26.7 oz.
(1:16)	2.1 oz.	3.2 oz.	4.3 oz.
Plantex: 12-2-14			
(1:200)	22.2 oz.	33.3 oz.	44.4 oz.
(1:100)	11.1 oz.	16.7 oz.	22.2 oz.
(1:16)	1.8 oz.	2.7 oz.	3.6 oz.
Plantex: 14-0-14			
(1:200)	19.0 oz.	28.6 oz.	38.1 oz.
(1:100)	9.5 oz.	14.3 oz.	19.0 oz.
(1:16)	1.5 oz.	2.3 oz.	3.0 oz.
15% Nitrogen Formulas: Plantex Solutions No-Stretch 15-0-20, 15-2-20 Plantex: 15-0-15, 15-15-30, 15-30-15, 15-15-18			
(1:200)	17.8 oz.	26.7 oz.	35.6 oz.
(1:100)	8.9 oz.	13.3 oz.	17.8 oz.
(1:16)	1.4 oz.	2.1 oz.	2.8 oz.
Plantex: 17-4-19, 17-5-19			
(1:200)	15.7 oz.	23.5 oz.	31.4 oz.
(1:100)	7.8 oz.	11.8 oz.	15.7 oz.
(1:16)	1.3 oz.	1.9 oz.	2.5 oz.
18% Nitrogen Formulas: Plantex Solutions pH Buffer 18-6-24 Plantex Solutions pH Reducer 18-9-18 Plantex: 18-6-20			
(1:200)	14.8 oz.	22.2 oz.	29.6 oz.
(1:100)	7.4 oz.	11.1 oz.	14.8 oz.
(1:16)	1.2 oz.	1.8 oz.	2.4 oz.
Plantex Solutions Fertility Plus 19-2-19 Plantex Solutions Complete Plus 19-8-13			
(1:200)	14.0 oz.	21.1 oz.	28.1 oz.
(1:100)	7.0 oz.	10.5 oz.	14.0 oz.
(1:16)	1.1 oz.	1.7 oz.	2.2 oz.

Plantex per Gallon of Concentrate			
Injector Ratio	100 ppm NITROGEN	150 ppm NITROGEN	200 ppm NITROGEN
20% Nitrogen Formulas: Plantex: 20-20-20, 20-5-30, 20-10-20, 20-7-20, 20-2-20			
(1:200)	13.3 oz.	20.0 oz.	26.7 oz.
(1:100)	6.7 oz.	10.0 oz.	13.3 oz.
(1:16)	1.1 oz.	1.6 oz.	2.1 oz.
21% Nitrogen Formulas: Plantex: 21-5-20, 21-7-7			
(1:200)	12.7 oz.	19.0 oz.	25.4 oz.
(1:100)	6.3 oz.	9.5 oz.	12.7 oz.
(1:16)	1.0 oz.	1.5 oz.	2.0 oz.
24% Nitrogen Formulas: Plantex: 24-10-20, 24-8-16, 24-12-12			
(1:200)	11.1 oz.	16.7 oz.	22.2 oz.
(1:100)	5.6 oz.	8.3 oz.	11.1 oz.
(1:16)	0.9 oz.	1.3 oz.	1.8 oz.
25% Nitrogen Formulas: Plantex: 25-4-15			
(1:200)	10.7 oz.	16.0 oz.	21.3 oz.
(1:100)	5.3 oz.	8.0 oz.	10.7 oz.
(1:16)	0.9 oz.	1.3 oz.	1.7 oz.

Gallons of Water per 25 lb bag			
Injector Ratio	100 ppm NITROGEN	150 ppm NITROGEN	200 ppm NITROGEN
Plantex: 13-2-13			
(1:200)	19.5	13.0	9.8
(1:100)	39.0	26.0	19.5
Plantex Solutions Pansy Special 15-2-20			
(1:200)	22.5	15.0	11.3
(1:100)	45.0	30.0	22.5
Plantex Solutions Complete 17-5-17			
(1:200)	25.5	17.0	12.8
(1:100)	51.0	34.0	25.5

Basic Analysis Fertilizers

Description	Guarantee	Kg/Bag (lbs/Bag)	# per skid
Ammonium Nitrate	34-0-0	25 (55lbs.)	40
Boric Acid	17.5%B	22.68 (50lbs.)	42
Calcium Chloride	30% Ca	20 (44lbs.)	63
Calcium Nitrate GG	15.5-0-0 19% Ca	25 (55lbs.)	46
Calcium Nitrate Miniprill	15.5-0-0 19% Ca	25 (55lbs.)	40
Chelated Iron	13.2% Fe	25 (55lbs.)	40
Chelated Iron EDDHA	6% Fe	25 (55lbs.)	20
Chelated Iron DTPA	7% Fe	25 (55lbs.)	24
Chelated Liquid Iron DTPA	6% Fe	250 (550lbs.)	4
Chelated Manganese EDTA	12.5% Mn	25 (55lbs.)	30
Chelated Zinc EDTA	14.5% Zn	25 (55lbs.)	30
Copper Sulfate	26% Cu	22.68 (50lbs.)	40
Diammonium Phosphate	21-53-0	25 (55lbs.)	36
Dolomitic Limestone	21% Ca 12% Mg	25 (55lbs.)	40
Iron Sulfate	21% Fe	22.68 (49.89 lbs.)	54
Magnesium Nitrate	10-0-0 9.3% Mg	25 (55lbs.)	42
Magnesium Sulfate	9.8% Mg	25 (55lbs.)	35
Manganese Sulfate	32% Mn	22.68 (50lbs.)	54
Mono Potassium Phosphate	0-52-34	25 (55lbs.)	42
Mono Ammonium Phosphate	12-61-0	25 (55lbs.)	36
Muriate of Potash	0-0-62	25 (55lbs.)	56
Mycrobor	20.5% B	22.68 (50lbs.)	40
PeKacid (Acidic MKP)	0-60-20	25 (55lbs.)	42
Potassium Bicarbonate	0-0-47	25 (55lbs.)	40
Potassium Nitrate Multi K	13.5-0-46	25 (55lbs.)	42
Potassium Sulfate Solupotasse	0-0-51	25 (55lbs.)	42
Purecal - Calcium Nitrate	13-0-0 18%Ca	25 (55lbs.)	40
Sodium Molybdate	46% Mo	1 (2.2lbs.)	12/Case
Tracer Dye - Blue		400g (0.88lbs.)	
Triple Superphosphate - fine	0-46-0	25 (55lbs.)	40
Urea	46% N	22.68 (50lbs.)	50
Zinc Sulfate Monohydrate	35% Zn	22.68 (50lbs.)	54

Starter Charge for Soilless Media

Media Premix and Media Starter

Pre-Mix 1-3-4

Pre-mix 1-3-4 is designed to be incorporated into the media prior to planting.

Rate: 10 lbs per cubic yard, depending upon crop being produced, type of media and other amendments added to soilless media.

Media Starter 10-5-10

Another material for incorporation into the media, with a higher level of N and K. 10-5-10 contains Plant Products proprietary wetting agent to improve water and nutrient distribution.

Rate: 2-4 lbs. per cubic yard, depending upon crop being produced, type of media and other amendments added to soilless media.

Custom Starter Charge:

Ask about having a custom Plantex Starter Charge formulated to meet the needs of your particular production requirements. Rather than add 5 or more components to your soil line, you will reduce the error in mixing and inventory requirements to 2 items, custom media starter charge and lime. We are able to produce this starter charge in 50 lbs. and 1 ton totes.

Please contact your Plant Products representative for more information.

Media Starter vs Mixing Your Own:

If you are mixing your own media, you know how difficult it can be to get a small amount of an input mixed thoroughly into the entire batch. It is even more difficult with a continuous system where peatmoss, perlite, bark and other components are being mixed and then limestone and other nutritional products are being fed into the mix. Plantex can take the inaccuracy out of the addition of the limestone and nutrient by providing a ready-made or custom premix for your media. One hopper can be dedicated to this ingredient, rather than several and the mix of ingredients will be perfect and flowable every time.

Antagonisms

Having insufficient quantities of a nutrient in the soil can create deficiencies in the soil, however, having excesses of certain nutrients can also induce deficiencies of others as the chart indicates.

High root media levels of nutrients in the left column bring about deficiencies of nutrients listed in the right column.

Formulation	Premix 1-3-4	Media Starter 10-5-10
Total Nitrogen (N)	1%	10%
Nitrate Nitrogen	1%	4.5%
Ammoniacal Nitrogen	0	0.1%
Urea Nitrogen	0	0.5%
Available Phosphate (P ₂ O ₅)	3%	5%
Phosphorus (P)	1.3%	2.1%
Soluble Potash (K ₂ O)	4%	10%
Soluble Potassium (K)	3.3%	8.3%
Calcium (Ca)	17%	6%
Magnesium (Mg)	0.4%	3%
Sulphur (S)	3.0%	6.5%
Iron (Fe)	1.2%	0.75%
Manganese (Mn)	0.28%	0.15%
Zinc (Zn)	0.1%	0.15%
Copper (Cu)	0.05%	0.05%
Boron (B)	0.01%	0.02%
Molybdenum (Mo)	0.005%	0.004%
Chelating agent	Not Chelated	Not Chelated

Common Antagonisms Occurring in Crops in General

Nutrient in Excess	Induced Deficiency
N	K
K	N, Ca, Mg
Na	K, Ca, Mg
Ca	Mg
Mg	Ca
Ca	B
Fe	Mn
Mn	Fe

Hydroponic Fertilizer

Hydroponic Tomato 4-18-37

Hydroponic Tomato 4-18-37 Higher phosphorus and potassium level for use during tomato fruit production. Must be used in conjunction with a calcium and magnesium supply for a complete nutritional program.

Hydroponic 6-11-31

This formula provides an excellent fertility program for greenhouse vegetable crops grown in Nutrient Flow Technique (NFT), rockwool culture and other forms of hydroponic or soilless culture. It must be used with calcium nitrate for a complete nutritional program. 3% Mg and 0.3% DTPA Iron.

Features:

- All nitrogen is in the nitrate form, giving the grower complete control over the levels of ammoniacal nitrogen in NFT tomatoes.
- A high K:N ratio which provides the high potassium required by hydroponic vegetables.
- A unique micronutrient package designed especially for NFT production; lower-base Iron, manganese, copper and zinc are all chelated.

Hydroponic 7-11-27

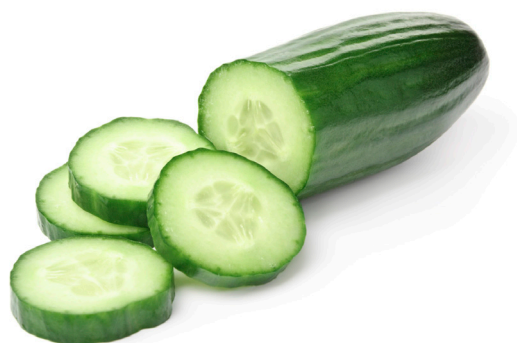
This formula has been designed for use in conjunction with calcium nitrate to supply nitrogen, phosphorous, potassium, minor elements*, calcium and magnesium at appropriate levels for hydroponic culture.

*Iron chelated with DTPA for better availability.

3.75% Mg and 0.1% DTPA Iron

7-11-27 is a good general formulation to use for crops grown hydroponically, including use in substrate cultures such as rockwool and phenolic foam.

Basic analysis fertilizers and chelated micro mixes are also available.



Miscellaneous

Water Soluble Fertilizer

High Nitrogen 28-14-14

Crops such as cut flowers, container nursery stock and field grown vegetables respond well to this formula. 28-14-14 is also recommended for Orchids and many woody ornamentals. The very low salt index and high level of urea nitrogen in this formula ensures this fertilizer to be suitable for foliar feeding.

This formula is designed:

- For use during periods of vegetative growth, when plants have a high nitrogen requirement.
- To correct nitrogen deficiency where soil or tissue tests show low nitrogen
- For foliar feeding of nursery and agricultural crops.

Starter 15-30-15

Plantex High Phosphorus is ideal for hydrangeas since the high phosphorus levels tie up excess aluminum in the soil resulting in a strong pink coloration in the blooms. Acid-loving plants such as African violets respond well to this formulation due to its high potential acidity.

Recommended:

- When higher phosphorus levels are required.
- During the early stages of crop growth, such as required by many greenhouse crops, particularly tomatoes and cucumbers grown in soil.
- To remedy phosphorus deficient soils.

Acidic High Nitrate 20-2-20

Plantex 20-2-20 is a high nitrate formulation containing a very low percentage of phosphorus. It is an ideal formulation for soilless mixes containing sufficient levels of phosphorus. The micronutrient package includes magnesium and a higher level of molybdenum to ensure maximum nitrate uptake.

Super K 20-5-30

This high potassium fertilizer is ideal for use when plants are maturing and blooming. It allows the plants to establish heavier, thick-walled cells which results in good keeping qualities. Since the potential acidity is very low, this fertilizer will exhibit minimal acidifying activity in the soil.

This formula is recommended for summer feeding of roses, geraniums and other ornamentals. Greenhouse tomatoes and cucumbers that are grown in soil respond well to this formula when used alone or in combination with potassium nitrate.

High K 15-15-30

15-15-30 supplies twice as much potassium as nitrogen, while still maintaining the optimal levels of the other plant nutrients. Use High K on pot mums, easter lilies, geraniums, gloxinias and when finishing poinsettias and chrysanthemums.

Features:

- Over 58% of the nitrogen in the nitrate form,
- A very low potential acidity, making it a neutral formula, exhibiting minimal acidifying tendencies in the soil.

Recommended for:

- Periods of low light
- When soil or tissue samples show low potassium levels
- When plants are setting bud, as well as during maturation and blooming.

Nutritrace™ CSM Mix

Plantex Nutritrace CSM (Chelated Secondary Micronutrient) Mix is a water soluble mix of secondary nutrients which can be used as a general preventative supplement or as a corrective where known deficiencies exist. Nutritrace CSM is an important component of a regular feeding program for crops grown in artificial and soilless media. Nutritrace CSM may also be used when needed for crops grown in soil.



Just like an umbrella keeps you dry no matter what the weather, ACER brand controlled release fertilizers help you produce quality plants year in and year out. No two years are alike nowadays. It could be hot and dry or it could be cool and wet, or maybe growing conditions might be better perfect. In any of these cases, too much or too little nutrient at the wrong time can set you back. Under the ACER umbrella your plant nutrition will stay consistent.

ACER 17-7-10 One Season Incorporation plus minors (7-8 month)

17-7-10 One Season is ideal for container grown nursery plants including deciduous shrubs and conifers. Multicote technology provides the safest controlled release of nutrients possible along with controlled release of micros for the best possible plant performance. This product is the backbone of most nursery potting operations, providing the versatility, safety and nutritional needs to the best selling nursery plants. Used where season long nutrition is desired. Nutrient release is not significantly affected by media type, moisture level, pH or microbial activity. ACER 17-7-10 One Season is designed to release 80% of its nutrients in 140 days at a constant temperature of 77°F.

2.3%S, 0.6%Fe, 0.09%B, 0.21%Zn, 0.22%Mn, 0.07%Cu, 0.009%Mo, 6.2% WSN, 6.2% Ammoniacal N, 4.9% Nitrate N all coated

ACER 13-10-15 Perennial plus minors (6 month)

ACER 13-10-15 Perennial Controlled Release Fertilizer is ideal for use on container grown perennials. The use of Multicote coating technology ensures professional high quality results with optimum safety and performance. Some shorter release coated materials are also included to provide early season nutrition. Nutrient release is not significantly affected by media type, moisture level, pH or microbial activity. Nutrients are metered out at specific levels based upon growing temperatures. ACER 13-10-15 also contains micronutrients required to provide optimum plant performance and growth.

1.6%S, 1.4%Fe, 0.09%B, 0.21%Zn, 0.22%Mn, 0.07%Cu, 0.009%Mo, 6.8% Ammoniacal N, 6.2% Nitrate N all coated

ACER 20-4-8 Topdress Special plus minors (6-8 month)

ACER 20-4-8 Topdress has been designed as a economical full season professional formulation for high nutrient demand species, vigorous growers and hardy woody ornamentals, including containerized or field grown nursery stock. This ACER product is a blend of polymer coated urea and potassium nitrate and slowly available micronutrients. It can be custom formulated from 4 month to 10 month.

3.8%S, 0.57%Fe, 0.09%B, 0.22%Zn, 0.24%Mn, 0.09%Cu, 0.002%Mo, 16.7% WSN, 0.9% Ammoniacal N, 2.4% Nitrate N all coated

ACER 17-4-13 Topdress plus minors (6-8 month)

A full season product, ACER 17-4-13 Topdress combines the technologies of coated nutrients from Multicote, polymer coated urea and potassium nitrate with a package of micronutrients providing high quality results with optimum safety and performance. Designed for topdress of a wide range of species including broadleaf evergreens, woody ornamental shrubs, ground covers and deciduous trees.

2.5%S, 0.72%Fe, 0.11%B, 0.26%Zn, 0.27%Mn, 0.09%Cu, 0.008%Mo, 6.8% WSN, 4.8% Ammoniacal N, 5.4% Nitrate N all coated



Multicote® is a quality brand of Haifa, a world leader in the manufacturing and distribution of specialty fertilizers. Backed by years of formulation and application expertise, Haifa brings reliable nutrition to your plants.

Professional production of ornamental plants requires that plants will develop and thrive under unnatural conditions. To achieve this, nutrition must follow plant needs throughout the growth period. At every stage, plant nutrients should be supplied at the right balance. Multicote® controlled release fertilizers offer complete, carefully balanced nutrition from initial propagation through all the potting on stages without allowing any disruptive shortages or oversupply situations that can affect growth and health. The result is healthier, stronger and more saleable plants.

Multicote polymer-coated controlled release fertilizers release plant nutrients slowly and continuously throughout the growth cycle. A single application of Multicote will take care of optimal plant nutrition over months. Multicote is available in a wide range of formulas, and with release longevities of 4 to 16 months (at soil temperature of 70°F). A single application of Multicote® provides balanced nutrition for the plant over months. Multicote® products feature reliable release profiles which are unaffected by soil type, soil pH, moisture or microbial activity.

How does it Work?

The most reliable and effective way to control the availability of nutrients for plant uptake is by regulating their release into the soil solution. This is accomplished by encapsulating fertilizer granules in a polymeric coating. Following application, Multicote® granules start absorbing moisture that dissolves the nutrients inside the granules. The dissolved nutrients then diffuse, slowly and continuously, into the root zone. The rate of diffusion – the actual release rate - depends upon and is dictated solely by the soil temperature. The release rate increases as temperature rises, just as happens with plant uptake rates. After the release is complete, the empty shell ruptures and degrades, leaving no residues in the soil.

The Advantages of Multicote

- Plant nutritional needs are met by a single application per season
- Reliable release profile, which is unaffected by soil type, soil pH, moisture or microbial activity.
- Broad selection of products for an extensive variety of applications
- High concentration of nutrients
- Homogeneously distributed in the soil or potting mix

Multicote release longevity

Multicote release rate increases with temperature, and the longevity is decreased accordingly.

	60°F (15°C)	70°F (21°C)	86°F (30°C)
Multicote 4	6 months	4 months	2 months
Multicote 6	7-8 months	6 months	3-4 months
Multicote 8	9-10 months	8 months	5-6 months
Multicote 12	15-16 months	12 months	7-8 months
Multicote 16	20-22 months	16-18 months	9-10 months





Multicote Extra

Multicote Extra is a premium NPK plus minor nutrient in a homogenous prill

Product	Release Longevity @70°F	Usage
15-7-15	4 months	Bedding Plants, Baskets
15-7-15	6 months	Baskets, Perennials
15-7-15	8 months	Perennials, foliage, woody ornamentals
14-7-14	12 months	Foliage, Palms, citrus, woody ornamentals
14-7-14	16 months	Palms, citrus, woody ornamentals

Multicote NPK Pro

Multicote NPK Pro is a blend of premium NPK plus minors, urea and potassium nitrate. All Multicote NPK Pro formulas are well suited to many salt sensitive container nursery crops.

Product	Release Longevity @70°F	Usage
14-14-16	4 months	Short term nursery, landscape or color crops
18-6-12	4 months	Short term nursery, landscape or greenhouse crops
21-5-14	6 months	Longer term foliage and green plants
15-15-15	6 months	Longer term color crops such as perennials
17-7-14	8 months	Flowering herbaceous and woody stock
18-6-12	8 months	All purpose container production in northern climate or shorter term container production in southern climate.
20-6-12	8 months	Ideal season - long formulation for long term flowering plants.
17-7-14	12 months	Intermediate release formulation for long term flowering plants
20-5-12	12 months	Intermediate release formulation for long term nursery plants
17-5-14	16 months	Sunbelt season-long flowering nursery stock
22-5-10	16 months	Sunbelt season-long foliage nursery stock

Multicote N Pro

Multicote N Pro is an economical NPK container nursery fertilizer. All major components are polymer coated for a lower priced product yet safe to use on most nursery crops. Due to high nitrogen content, application rates can be reduced, thus saving the grower money.

Product	Release Longevity @70°F	Usage
24-5-10	6 months	Hardy nursery stock or container production
23-5-10	8 months	Hardy nursery stock or container production
22-5-11	12 months	Hardy nursery stock or container production

Available Multicote Analyses		Forms of Nitrogen		
		Ammoniacal N-NH ₄	Nitrate N-NO ₃	Urea N-NH ₂
Multicote 6 Extra	15-15-15 + Minor	5.7%	6.6%	2.7%
Multicote 6 Extra	21-5-14 + Minors	5.5%	4.7%	10.8%
Multicote 6 N-Pro	24-5-10 + Minors	3.0%	3.6%	17.4%
Multicote 8 NPK Pro	17-7-14 + Minors	4.9%	5.1%	7.0%
Multicote 8 NPK Pro	18-6-12 + Minors	7.0%	5.5%	5.5%
Multicote 8 N-Pro	23-5-10 + Minors	3.0%	3.6%	16.4%
Multicote 12 Extra	14-7-14 + 1.2Mg + Minors	7.4%	6.6%	—
Multicote 12 NPK Pro	17-6-14 + Minors	4.8%	5.1%	7.1%
Multicote 12 NPK Pro	20-5-12 + Minors	4.1%	4.5%	11.4%
Multicote 16 Extra	14-7-14 + 1.2Mg + Minors	7.5%	6.5%	—
Multicote 16 NPK Pro	17-5-14 + Minors	4.6%	5.0%	7.4%
Multicote 16 NPK Pro	22-5-10 + Minors	5.6%	4.4%	12%





Precision Fertility™ from Plant Products Co. Ltd.
The advantage previously only available to high tech greenhouses.
Plantex® Solutions. The fertilizer plants love. The results you'll love.



Fertigation

Advantages of Plantex Water Soluble Fertilizers and Precision Fertility.

Premium High Quality Raw Materials:

- High Quality - Only Greenhouse Grade or Technical Grade raw materials are used.
- All raw materials are from trusted and respected sources – For over 70 years we have used the most consistent inputs available. Our strict attention to uniformity assures the grower that each bag of Plant-Prod will be the same year after year. Growers can rest assured that using the highest quality inputs will help them produce the highest quality crops.

Purity:

- Plantex water soluble fertilizers have a very low electro-conductivity (E.C.) - due to the absence of contamination and fillers derived from inferior quality raw materials, our E.C. levels are consistently low and uniform. Plants absorb nutrients that are required for growth, not extraneous elements.
- Plantex water soluble fertilizers contain minimal sulphates and chlorides, that could lead to leaf/plant necrosis at higher levels. The purity of Plantex sets it apart from the competition.

High Solubility:

- Plantex Water Soluble Fertilizers utilize the proprietary Turbo Process™: The small particle size of our blend allows for greater surface area and therefore, higher solubility in water.
- 100% water soluble with all nutrients being fully available to the plant
- Lines Stay Clear, No Down Time – **No Fillers** or chemical reagents added to increase solubility or flowability

Formulated with Chelated Micronutrients:

- Fully available to the plant
- Micronutrient levels higher than Agricultural grade water soluble blends
- Chelated micronutrients are 5x – 7x more effective than sulphates (MSU, 1957)
- Each batch is tested for solubility and purity, plus samples are retained.
- Each bag is labeled with a date of production stamp that can be traced back to the sample.

Plant-Prod Water Soluble Fertilizers Are Excellent For:

- Greenhouse production
- Field fertigation
- Foliar feeding

Introducing Four New Fertigation Formulations:

- Plantex Solutions 22-0-22
Precision Classic Feed
- Plantex Solutions 14-0-14
Precision Cal Mag
- Plantex Solutions 13-0-25
Precision High K
- Plantex Solutions 10-50-10
Precision Starter

Water testing and custom fertilizer recommendations are available, Contact your local distributor to find out how to have this service customized for your use.

Directions for Outdoor Crops

Directions for Outdoor Crops:

The following recommendations are given as a guide only and should be modified according to specific climatic, soil, and crop conditions.

Plantex water soluble fertilizers can be used on agricultural crops in transplanting solutions, in applications through irrigation systems, or as a foliar feed. The most appropriate formulation of fertilizer for each crop is suggested in these recommendations; however, if a specific analysis is not available, a general program with Plantex 20-20-20 Classic Fertilizer can be used. Unless otherwise stated, the amount of water recommended to use when applying Plantex fertilizers is 100 gallons per acre for dilute sprayers and not less than 4 - 5 gallons per acre for concentrate sprayers.

Plantex fertilizers, although compatible with most pesticides commonly used on agricultural crops, should NOT be used with dinitro compounds, dormant oil, bordeaux mixtures, spray lime, or any other highly alkaline spray materials. Use only with pest control products that are recommended and labeled for use with fertilizers.

Most of the Plantex fertilizers used agriculturally are applied as a foliar feed to supplement a regular fertilizer program. Unless otherwise specified, the suggested rates given on the following pages are for foliar applications.

Application Timing for Foliar Feeding:

Accurate application timing of foliar fertilization is essential to ensure maximum utilization of nutrients. The appropriate product must be applied at the optimum physiological time for the crop, (i.e. 10-52-10 applied after transplant or crop emergence). In addition to applying the right product at the right time, there is an optimum time of day for the application of foliar feed. It is recommended that foliar fertilizer be applied either in early morning hours or at dusk. This ensures that the product will either penetrate the leaf cuticle or enter through open stomata, and prevents nutrient losses through volatilization. It is also recommended that there be at least a 3 hour rain-free period to avoid nutrients being washed off.

Soil and Plant Tissue Nutrient Analysis Testing:

Soil and plant tissue analysis samples taken through the season will assist in avoiding nutrient deficiencies as well as minimizing unnecessary applications. Soil testing should be taken either in the fall after harvest or prior to planting in the spring. Plant tissue sampling should be taken throughout the season to monitor the nutrient status of the crop. Plant tissue samples should be taken from newest fully developed leaf at each physiological milestone (i.e. flowering, fruit development, maturation). Additionally, plant tissue samples should always be taken if there is any suspected nutrient deficiency symptoms present in the field. Fruit/Bulb/Tuber samples can also be sent in for analysis during development to monitor yield quality. These types of analysis will help provide a complete view of the crop's health and development.

Transplants:

Use 10-52-10 at a rate of 1 lb per 25 gallons of water as a drench to the roots for all transplants as they are being set out in the field. Apply enough solution to each transplant to moisten the entire root system.

Tree Fruits and Nuts:



Apples, Peaches, Pears, Plums, Nectarines, Apricots, Cherries, Citrus, Pecans, Almonds, Walnuts, and Figs

During the early part of the season from Bud Break through Leaf Burst use 15-30-15 Starter, at a rate of 6.5 to 13 lbs./acre + Zn EDTA at a rate of 1 quart/acre. These can be applied in 4 applications 7 days apart, to promote root proliferation and new shoot growth. During Bloom, 20-20-20 Classic, applied at a rate 1.5lb./acre in 100 gallons of water in dilute sprays or 5 - 10 lbs./acre in concentrate sprays will enhance vegetative growth. During Fruit Development, use Cal Mag 14-0-14 at a rate of 5 - 9oz./acre in 100 gallons applied every 7 - 14 days to promote photosynthesis and yield quality.

NOTE: When fruit color and maturity are delayed by nitrogen applications, do not apply foliar fertilizer in late season sprays

Avocados

Avocados require nitrogen fertilization annually, the amount of fertilizer varies according to the variety and age of the tree. Up until the fifth year, fertilizer should be applied frequently in increasing amounts. After the fifth year, N, P and K requirements should be based on leaf analysis testing.



Directions for Outdoor Crops

Small Fruits:



Strawberries

After mulch removal apply 10-52-10 Starter, at a rate of 3lbs./acre + Zn-EDTA 1 quart/ acre to promote root proliferation. During Fruit Set, use Cal-Mag 14-0-14 at a rate of 5 – 9oz./acre in 100 gallons of water, applied every 7 – 14 days to promote photosynthesis and fruit quality. During periods of Harvesting apply 15-0-15 Cal-Plus after each pick, at a rate of 4lb./acre until the crop is finished. These applications will enhance subsequent fruit quality and yield.

NOTE: Three or more early season applications are recommended, and as many late season applications are required to give desired plant growth.

Cane (Raspberries, Blackberries, Blueberries, Gooseberries, Currants)

At time of bud break use 10-52-10 Starter, at a rate of 3lb./acre + Zn-EDTA 1 quart/acre to enhance new root and shoot development. On producing canes application of 20-20-20 Classic, prior to bloom at a rate of 5 - 10lb./acre will promote vigorous vegetative shoot and leaf growth. During fruit development apply 15-0-15 Cal-Plus, at a rate of 4lb./acre every 7 – 14 days to enhance fruit quality and yield. Post-Harvest (prior to leaf drop) Boric Acid applied at a rate of 1lb/acre and Zn-EDTA at a rate of 1 pint/acre will assist winterization of cane.

Grapes (Wine, Table and Raisin grapes)

At Bud break, apply 10-52-10 Starter, at a rate of 3lb/acre + Zn-EDTA 1 quart/ acre to promotion of new root and shoot development. Pre-Bloom, use 20-20-20 Classic, at a rate of 5 -10lb./acre to enhance new leaf growth. At time of Fruit Set, apply Cal-Mag 14-0-14, at a rate of 5 – 9oz./acre in 100 gallons applied every 7 – 14 days to promote photosynthesis and fruit quality. During Veraison (Coloring), apply 15-0-15 Cal-Plus, at a rate of 4lb./acre, apply every 7 – 14 days, to enhance fruit quality and yield. Post-Harvest (prior to leaf drop), Boric Acid applied at a rate of 1lb./acre and Zn-EDTA at a rate of 1 pint/acre will assist winterization of vines.

Vegetables:

Tomatoes, Peppers, Cucumbers, Melons and Squash

Use 10-52-10 Starter, at time of Transplant at a rate of 3lb/acre + Zn-EDTA 1 pint/ acre to prevent transplant shock and enhance root proliferation. 3 weeks after transplant, use 20-20-20 Classic, at a rate of 5 -10lb./acre to promote vegetative growth and enhance photosynthesis. During Fruit Development, apply 15-0-15 Cal-Plus, at a rate of 5 – 10lb./acre apply every 7 – 14 days until first pick, to enhance fruit quality and yield.

Celery, Lettuce, Endive, Broccoli, Cabbage, Cauliflower, Brussels Sprouts, Kale and Spinach

At time of Transplant use 10-52-10 Starter at a rate of 3lbs./acre + Zn-EDTA 1 pint/ acre to prevent transplant shock and promote root proliferation. If direct seeded, apply 15-30-10 Starter, at a rate of 5lbs./100 gallons of water 10 days after

emergence. During Vegetative growth (3 – 4 weeks after emergence), apply 20-20-20 Classic, at a rate of 5 -10lbs./acre, 2 applications per season to promote vegetative growth and photosynthesis.

Carrots and Parsley

Apply 15-30-15 Starter approximately two weeks after germination at a rate of 5 lbs./acre. When plants are well established, the foliage can efficiently use high concentrations of nutritional sprays, therefore 20-20-20 Classic at a rate of 10 to 15 lbs./acre is recommended. The frequency of application should depend on the prevailing weather conditions and the amount of growth desired.



Directions for Outdoor Crops

Beans, Peas and Sweet Corn

Apply 15-30-15 when plants are 5 to 6 inches high at the rate of 6.5 to 13 lbs./acre. Follow with applications of 20-20-20 at the rate of 5 to 10 lb./acre or 28-14-14 using 3.5 to 7 lbs./acre, depending on the nitrogen requirements of the crop. Applications should be repeated every 7 to 10 days or as needed to give the vigor and growth desired.

Asparagus

After transplanting, use 15-30-15 at a rate of 5 lbs./acre when there is sufficient top growth to absorb the nutrients. During development of the crop, and the period of vegetative growth after harvest, apply 20-20-20 at a rate of 5 lbs./acre at 45 day intervals.

Beets, Sugar Beets, Onions and Garlic

When the plants are 5 to 6 inches high, apply 5 lbs./acre of 15-30-15. This application should be followed by one or two treatments of 20-20-20 at 5 lbs./acre during the development of the bulbs or tubers.

Potatoes

Due to the diversity of soil types, climatic conditions and crop cultivars, two fertilization programs are given to enable growers to choose the most suitable schedule for their situation.

(1) Use 10-52-10 as a starter solution when setting seed potatoes. When plants are 3 to 4 inches high, apply one or two sprays of 15-30-15 at a rate of 5 lbs./acre. Later in the growing season applications of 20-20-20 at 5 to 10 lb./acre can be used to improve foliage color and tuber development when soil conditions are unfavorable. Potatoes set the majority of their tubers between the 70th and 100th day after planting. Foliar feeding can help maintain plant growth during this critical period if adverse soil or temperature conditions occur. Foliar fertilizer sprays can be applied with most insecticide and fungicide treatments.

(2) When plants are 3 to 4 inches high, apply one or two sprays of 15-30-15 at a rate of 5 lbs./acre. After flowering, two applications of 15-15-30 should be made 7 days apart using 3 lbs./acre.

Field Crops:

Clover and Alfalfa

Before the first cut is taken, apply 15-30-15 at a rate of 3.5 to 7 lbs./acre. After each cutting, apply 20-20-20 using 5 to 10 lbs./acre or 15-30-15 at a rate of 6.5 to 13 lbs./acre.

Cotton

At Seedling Stages (early vegetative growth but at least 10 days after germination), apply 10-52-10 Starter, at a rate of 3lbs./acre + Zn-EDTA 1 pint/acre, to promote crop establishment and root proliferation. At the Flowering/Square Stage (5 – 6 weeks after emergence), apply 20-20-20 Classic, at a rate of 5 -10lbs./acre, to enhance photosynthesis and

vegetative growth, and prevent herbicide stall. During Boll Development, apply 14-0-14 Cal Mag, at a rate of 5 – 10 lbs./acre applied every 7 – 14 days until maturity to enhance boll development and cotton fiber quality.

Soybeans (IP and RR varieties)

During Vegetative growth stages (V1 – V4), use 20-20-20 Classic, applied at a rate of 5 – 10 lbs./Acre to promote vegetative growth and prevent herbicide stall. During Pod Fill (R4), use Cal Mag 14-0-14 applied at a rate of 3 – 5 lbs./Acre to promote photosynthesis and yield quality.

Ground Nuts (Peanuts)

During First Square (2 weeks after planting), use 15-30-15 Starter, at a rate of 6.5 – 13lbs./acre to promote root proliferation and new vegetative growth. During Bloom Stage, apply Boric Acid – 2 applications 2 – 4 weeks apart, at a rate of 0.25lbs./acre, to improve translocation of carbohydrates from the foliage to the ground nut.

Cereals (Wheat, Rye, Barley, Oats)

During early Tillering Stages (3 - 4 tillers), use Plantex 10-52-10 Starter, applied at a rate of 3 – 5 lbs./acre to promote root development and tillering. During the late Tillering Stages to Flag Leaf, use 20-20-20 Classic, applied at a rate of 3 – 5lbs./acre + 6 fl oz./acre Cu-EDTA to enhance both photosynthesis and grain quality and fill.

Rice

At the 4-6 leaf stage prior to flooding, use 15-30-15 Starter, at a rate of 5 lbs./acre to enhance root proliferation and tiller formation. During Internode elongation (after flood), use 20-20-20 Classic at a rate of 5lbs./acre to promote photosynthesis, prevent herbicide stall and enhance grain fill.

Nursery Ornamentals:

15-30-15 should be used on container nursery stock to establish young plants. 20-20-20 or 28-14-14 can be used later, depending on plant and type of growth desired. When applying these fertilizers through the sprinkler system use 2 lbs. in 100 or more gallons of water every 2 to 3 weeks. If alkalinity is a problem use 21-7-7 for several applications in order to reduce the soil's pH. Wash 21-7-7 off foliage with clear water after fertilization.

For field grown plants, use 6 lbs./acre in 100 gallons of water on shrubs, trees and flowers for direct spraying to foliage and for transplanting work.





Plants love Plantex water soluble fertilizers.

You'll see better color, stronger stems,
healthier root systems
and faster growth with shorter internodes.

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