PureGrade™ Liquid Plant Food — Manufactured only by Nutra-Flo® Company

PureGrade Liquid Plant Food

Dissecting Fertilizer Claims

This Tech Sheet is intended for Nutra-Flo dealers who receive questions about some of the claims competitors make for their products. It is not the products themselves that we take issue with, but some of the claims that border on the unbelievable.

Nutra-Flo takes great pride in helping customers understand what is actually in a gallon of PureGrade fertilizer and what types of raw materials are used in its manufacture. This information is clearly stated on the product labels and in advertising literature, which is easily available from the company's website, The Company keeps very few secrets regarding its fertility products. Occasionally, growers ask us about product claims made by other companies to get a second opinion. Normally, we are content to let our competition do their own explaining, but from time to time we hear claims that must be addressed.

Nutra-Flo has been in the liquid starter fertilizer business since 1954 and just about the time we think we've heard it all, new claims come along that seem to be intended to confuse the customer. Let's explore a few claims that are currently being heard in the marketplace.

Stated claim: *Product has "long chain phosphates (or polymers)"*

Fact: "Long chain phosphates" or "polymers" is another way of saying 'polyphosphate,' a very common phosphorus source used in many liquid P fertilizers. There are several different sources of raw materials to supply polyphosphate, but they would be expected to react similarly in the soil. Time and warm temperatures are required to convert the polys to orthophosphate, the form of P that plants actually use. Polyphosphates are at a disadvantage in cold soils where rapid availability is desired.

Hearsay claim: *"9-24-3 has 15 pounds phosphate per gallon"*

Fact: This has to be a misstatement or a misunderstanding. It might be believable until we see that 9-24-3 weighs in at only about 11 pounds per gallon! How can there be 15 pounds of phosphate in a gallon weighing only 11 pounds? A typical **6 gallon** per acre application of 9-24-3 would apply about 15 pounds P_2O_5 per acre, but not 1 gallon. Perhaps they are referring to a 6 gallon 9-24-3 program.

All states have regulations covering the labeling of fertilizer. All states require that phosphorus be labeled as percent P_2O_5. In this case 9-24-3 has 9% nitrogen, 24% P as P_2O_5 and 3% potassium as K_2O. Phosphorus doesn't exist in the real world as P_2O_5, but it is the standard that all regulators and fertilizer manufactures use so that different grades and brands of fertilizers can be easily compared to each other. It is to the customers' benefit to do it this way. How much P_2O_5 is in a gallon of 9-24-3? The formula is 11 lbs/gal x 24% divided by 100, or just over 2.66 pounds per gallon. This is the same amount of P as contained in GoldStart 6-24-6, for example.

Stated claim: *"2-1-6 is a high potassium fertilizer"*

It depends on the definition of what is high or low. It's all relative. Most of the fertilizer industry would call it a low K fertilizer. It supplies only a little over ½ pound of K_2O per gallon. If potassium is really needed, why not purchase a higher K grade to begin with. A 3-18-18 starter fertilizer containing 2.0 pounds of K per gallon is often the first choice to supply potassium.

If 2-1-6 is purchased to be mixed or applied with 9-24-3 as recommended by the manufacturer, there will be extra labor and time involved to handle two liquids and to blend them together at some point. There is no need to do that when there are a variety of other excellent fertilizer grades available from Nutra-Flo and other manufacturers that have higher K content

Ninety-one percent by weight of every truckload of 2-1-6 is plain water. The shipping cost of the water may well be more then the value of the nutrients.

Growers are urged to ask questions of the salesmen making miraculous claims about their fertilizer products.

1. Specifically, ask about the pounds of N, P & K per gallon and per acre for the starter program to be certain the salesman knows how to do the math. Many don't. Ask yourself, "Do the numbers make sense?"
2. Also, ask for copies of the product labels that they send to the state regulatory authorities. The label must state what materials were used in the manufacture of the fertilizer.

There are a number of popular starter fertilizer products on the market such as 6-24-6, 9-18-9, 3-18-18 and at least a dozen others that provide a wide choice in the relative amounts of N, P & K to suit any need. Normally, there is no need to be blending liquid NPK starters at the farm level or even at the dealer level unless it is to add a micronutrient. Growers have access to a wide variety of products intended for in-row placement featuring low salt index, non-corrosiveness, excellent storability, easy handling in cold weather and other advantages. No one company has a monopoly on any of these features. There is no magic in fertilizer. If it doesn't sound right, ask questions.

Below are charts prepared by Nutra-Flo's chemistry department to show the amount of nutrients per gallon and per acre from 9-24-3 and 2-1-6 for various programs.

Actual lbs of Nutrients Applied per Acre

Product	gal/Acre	lbs/Acre	lbs N/Acre	lbs P_2O_5/Acre	lbs K_2O/Acre
9-24-3	1	11.1	1.00	2.66	0.33
9-24-3	3	33.3	3.00	7.99	1.00
9-24-3	4	44.4	4.00	10.66	1.33
9-24-3	5	55.5	5.00	13.32	1.67
2-1-6	1	9.4	0.19	0.09	0.56

9-24-3 and 2-1-6 Mixes

			Actual lbs of Nutrients Applied per Acre		
Product	gal/Acre	lbs/Acre	lbs N/Acre	lbs P_2O_5/Acre	lbs K_2O/Acre
9-24-3	3	33.3	3.00	7.99	1.00
2-1-6	3	28.2	0.56	0.28	1.69
TOTAL	6	61.5	3.56	8.27	2.69
per Gallon			**0.59**	**1.38**	**0.45**

			Actual lbs of Nutrients Applied per Acre		
Product	gal/Acre	lbs/Acre	lbs N/Acre	lbs P_2O_5/Acre	lbs K_2O/Acre
9-24-3	4	44.4	4.00	10.66	1.33
2-1-6	3	28.2	0.56	0.28	1.69
TOTAL	7	72.6	4.56	10.94	3.02
per Gallon			**0.65**	**1.56**	**0.43**

			Actual lbs of Nutrients Applied per Acre		
Product	gal/Acre	lbs/Acre	lbs N/Acre	lbs P_2O_5/Acre	lbs K_2O/Acre
9-24-3	5	55.5	5.00	13.32	1.67
2-1-6	3	28.2	0.56	0.28	1.69
TOTAL	8	83.7	5.56	13.60	3.36
per Gallon			**0.69**	**1.70**	**0.42**

Once we do the math on these products it becomes obvious what they are and what they aren't. 9-24-3 is a relatively high P and low K starter fertilizer. 2-1-6 adds only a little more than water to the program. According to the label, 2-1-6 has a freezing point of 34 degrees, slightly higher than water. Most starter fertilizers have a freezing temperature around zero to 10 above.

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