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

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Characteristics of GoldStart, Competitor and Generic Fertilizer Grades as Related to Seed Furrow Use

In this document we are comparing the characteristics of GoldStart fertilizers to competitor 9-18-8-5S and 9-15-4-3S fertilizer grades. We are most interested in characteristics that limit use as a seed placed starter. We'll compare the suitability for seed placement for a variety of selected products.

In this case we are most concerned with the source of sulfur in 9-18-8-5S and 9-15-4-3S. The sulfur source is potassium thiosulfate. Potassium thiosulfate is otherwise an excellent source of both potassium and sulfur. Nutra-Flo also promotes use of this product. However, its high salt index makes it risky to use in seed placed fertilizers. Seed is expensive and replanting even more so. As a general rule, fertilizers containing thiosulfate should not be placed with the seed.

Sulfur is an important nutrient for crops, but since it is mobile, it can be applied to the soil in a variety of methods that will make it available to the crop. We do not need to risk seed burn by placing thiosulfate in contact with the seed. In fact, many universities recommend that no thiosulfate should be placed with the seed.

GoldStart starter fertilizers are formulated from specific raw materials that have low salt indexes for safe placement into the seed furrow. The calculated salt indexes for GoldStart fertilizers are lower than those of many products made by our competitors and generally available commodity grades.

Table 1. Seed placement suitability for selected fertilizers.

Fertilizer Product	Salt Index	Suitability for Seed Placement	High in Orthophosphate	Salt-Out Temperature (deg F°)
GoldStart 3-18-18	8.5	Yes	Yes	-1
GoldStart 6-24-6	11.5	Yes	Yes	10
GoldStart 9-18-9	16.7	Yes	Yes	2
10-34-0	20.0	Caution	No	-20
4-10-10	27.5	No	No	16
7-21-7	27.8	No	No	9
9-15-4-3S*	30.3	No	No	36
9-18-8-5S*	41.0	No	No	50
UAN (28%)	63.0	No	N.A.	0
UAN (32%)	71.1	No	N.A.	32

*Salt index and salt-out temperatures were calculated assuming that ammoniacal and UAN solution are used for the nitrogen sources. If urea is substituted for UAN solution, both the salt index and salt-out temperatures are lower.

Interpreting the table:

- Suitability for seed placement is determined by salt index.
- For seed placement, fertilizers with a salt index less than 20 are suggested for least risk of germination damage.
- Sulfur from potassium thiosulfate used in 9-15-4-3S and 9-18-8-5S dramatically raises salt index.
- Including sulfur from thiosulfate sources is generally not recommended for seed placed fertilizers.
- GoldStart's low salt indexes are due to the use of potassium phosphate for the potash source.
- GoldStart fertilizers generally have lower salt-out temperatures compared to competitor's 9-15-4-3S and 9-18-8-5S, for example, for trouble free operation in cooler, northern climates.
- Products high in orthophosphate are immediately available to the first functioning roots even in cold soil conditions.