CROP EXCELLENCE®

THE PROS AND CONS OF USING STARTER FERTILIZER - IN-FURROW OR BANDED - AND THE POTENTIAL OF ENHANCED PERFORMANCE WITH A PROPRIETARY PRODUCT COMPRISED OF SURFACTANTS AND PURIFIED FULVIC ACID

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Introduction

In modern agriculture, the selection of fertilizers and their application methods significantly impact crop yield and soil health. Two common methods are in-furrow and banded applications. Here, we explore the pros and cons of using 10-34-0 or 11-37-0 fertilizer in these applications and discuss how incorporating a proprietary blend of surfactants and purified fulvic acid could enhance its efficacy.

In-Furrow Application of 10-34-0 or 11-37-0 Fertilizer

PROS:

1) **Efficient Nutrient Delivery:** In-furrow application places the fertilizer directly in the seed furrow at planting, ensuring that essential nutrients such as nitrogen (N) and phosphorus (P) are readily available during the critical early stages of plant growth. This promotes robust root development and early vigor.

2) **Reduced Fertilizer Waste:** By targeting the early root zone, in-furrow application minimizes the loss of nutrients to the surrounding soil, improving nutrient use efficiency and reducing the total amount of fertilizer required.

3) **Enhanced Early Growth:** Phosphorus is particularly important for early root development and energy transfer within the developing plant. The immediate availability of phosphorus from 10-34-0 or 11-37-0 can lead to stronger early growth, setting the stage for better overall crop performance.

CONS:

1) **Salt Injury:** One primary concern is the potential for salt injury to seeds and seedlings. The high salt content in 10-34-0 or 11-37-0 can damage young roots and(or) cause phytotoxicity, reducing emergence and the early growth benefit.

2) **Limited Nutrient Spectrum:** While 10-34-0 or 11-37-0 provides a good source of nitrogen and phosphorus, it lacks potassium (K), Sulfur (S), and other micronutrients essential for balanced plant nutrition. Additional fertilization strategies may be necessary.

3) **Equipment and Operational Challenges:** Applying fertilizer in-furrow requires specialized equipment and precise calibration. Inaccurate application can lead to uneven distribution, reducing benefits and potentially harming the crop.

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Banded Application of 10-34-0 or 11-37-0 Fertilizer

PROS:

1) **Balanced Nutrient Distribution:** Banding involves placing fertilizer in a concentrated band near the seed but not directly in the furrow. This method can provide a more balanced nutrient distribution, reducing the risk of salt injury.

2) **Greater Flexibility:** Banding allows for a wider range of fertilizers and nutrient blends to be used, enabling farmers to tailor nutrient applications more precisely to crop needs.

3) **Reduced Equipment Wear:** Compared to in-furrow application, banding may result in less wear and tear on planting equipment, as the fertilizer is not placed directly in the seed zone.

CONS:

1) **Potential for Nutrient Loss:** Nutrients in banded fertilizer may be less accessible to the developing seedlings compared to in-furrow applications, especially under dry conditions, potentially reducing the early growth benefits.

2) **Complexity of Application:** Banding requires more precise placement relative to the seed row, which can be challenging to achieve consistently, potentially leading to variable crop performance.

Enhancing 10-34-0 or 11-37-0 with UNDERTOW®

The introduction of **UNDERTOW®** (a proprietary blend of surfactants and purified fulvic acid) into in-furrow or banded fertilizer formulations can mitigate risks and improve the performance of 10-34-0 or 11-37-0 by providing the following benefits:

Reduced Risk of Salt Injury: Surfactants help mitigate salt concentration around the seed by improving soil moisture distribution and reducing localized salt concentration. This lowers the risk of salt injury associated with in-furrow application of 10-34-0 or 11-37-0.

Improved Nutrient Availability and Uptake: Fulvic acid is known to chelate fertilizer nutrients, enhancing their availability and uptake by roots. This can improve nutrient use efficiency associated with banding application of 10-34-0 or 11-37-0.

Enhanced Root Development: Surfactants and fulvic acid work together to improve root growth. Surfactants improve the wetting and penetration of fertilizer into the soil by reducing the surface tension of water, allowing nutrients to spread nutrients more efficiently throughout the soil and roots zone. Fulvic Acid promotes root growth by stimulating cell division and elongation, leading to more extensive root architecture, capable of accessing additional water and nutrients from exploration of a larger volume of soil.

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Better Soil Health: Surfactants and fulvic acid work together to maintain soil health. Surfactants improve soil structure and water infiltration, creating a more favorable environment for root growth. Fulvic acid improves nutrient use and root growth. The actions on the root system cause higher production of root exudates which directly contribute to microbial activity and soil organic matter, both of which directly impact overall soil health.

Conclusion

The use of 10-34-0 or 11-37-0 fertilizer in row crops, whether through in-furrow or banded applications, presents a mix of advantages and challenges. While in-furrow application offers efficient nutrient delivery, it carries risks of salt injury which can harm yield. Banded application reduces the risk of salt injury and provides balanced nutrient distribution but supplies nutrients less efficiently. Adding **UNDERTOW®** into these fertilizers can significantly enhance their effectiveness by reducing the risk of salt injury with in-furrow applications, improving nutrient efficiency in banded applications, and by supporting better root development and soil health in all applications.