

UFOXANE 3A IN WG FORMULATION

Ufoxane® 3A for optimal processability and superior performance of water dispersible granules (WG)



PURPOSE

Showcase examples of benefits using Ufoxane 3A as a co-formulant for single- and multi-active granulated products.

RESULTS

Ufoxane 3A has positioned itself as a benchmark product because of its efficiency at low to moderate dosage, high performance after accelerated storage and good performance under extra hard water conditions. Ufoxane 3A helps to maintain critical product properties during manufacturing, storage and final application for a wide range of water dispersible granules.

Ufoxane 3A provides

Better dispersibility and higher suspensibility

Better robustness and extrusion capacity

Better performance in multi-active compositions

PROCEDURE

Ufoxane 3A has been established as a benchmark product because of its efficiency at low to moderate dosage, high performance after accelerated storage and good performance under extra hard water conditions. Ufoxane 3A helps maintain critical product properties during manufacturing, storage and final application for a wide range of water dispersible granules. Two examples illustrate some of these benefits.

Testing 1 - PROCEDURE

Better dispersibility and higher suspensibility
Ufoxane 3A was compared with a standard sodium lignosulfonate in 75% chlorothalonil (Figure 1) and in 68% thifensulfuron-methyl + 7% metsulfuron-methyl extruded granules (Figure 2). Suspensibility (MT 15) was compared with that of a standard lignosulfonate and an industrial standard naphthalene sulfonate condensate (NSC) as benchmark (storage: 14 days at 54 °C).

Chlorothalonil 75% - Extruded

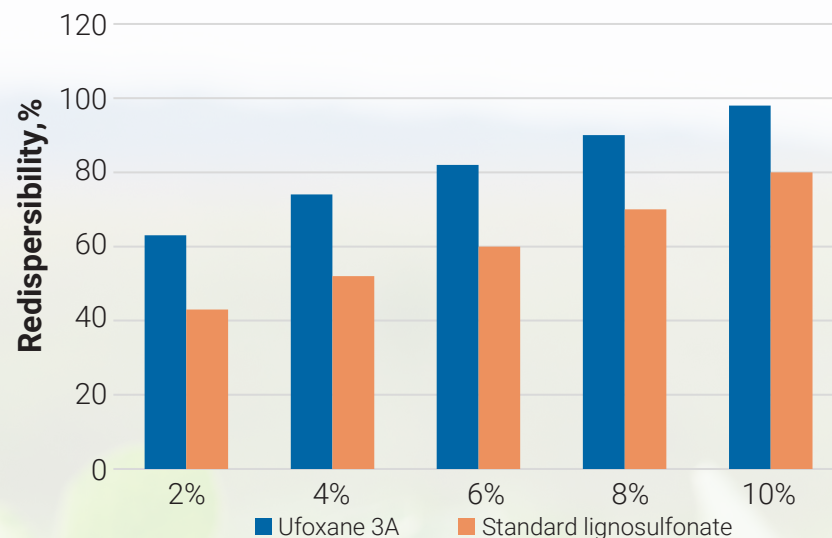


Figure 1: Chlorothalonil 75% - Extruded

Thifensulfuron-methyl (68%) + Metsulfuron-methyl (7%)

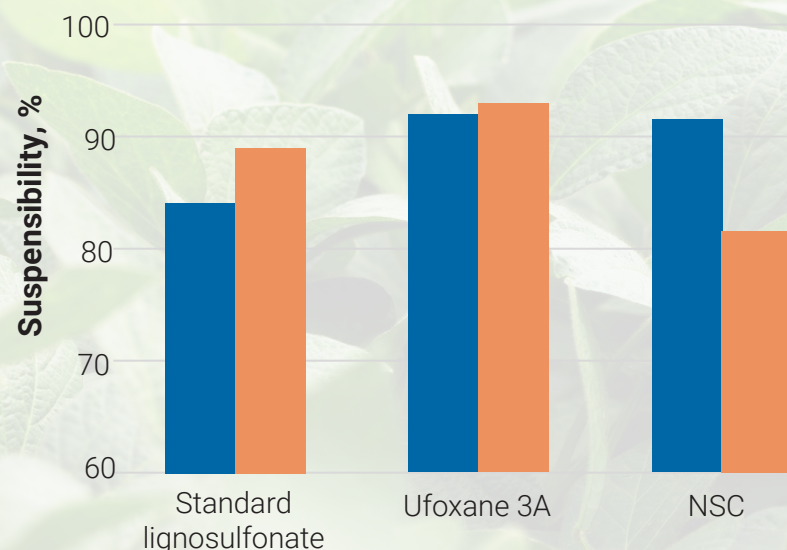


Figure 2: Thifensulfuron-methyl (68%) + Metsulfuron-methyl (7%)

DISCUSSION

Ufoxane 3A will normally show a strong positive response on all key performance parameters, even at a moderate concentration. It will also provide good storage stability and maintain high suspensibility and low wet-sieve residue during product application.



Testing 2 - PROCEDURE

Better robustness and extrusion capacity (figure 3 and figure 4) Extruded Copper oxychloride WG (86%) was produced by varying the water-content of the premix from “low” to “high”. The extruder was run at fixed speed (40 rpm) and the premix circulated until steady state. Extrusion rate was determined by collecting and weighing product at fixed time intervals. Suspensibility and dispersibility were determined at fixed dispersant concentration (7,5%). An industrial standard NSC was used as benchmark.

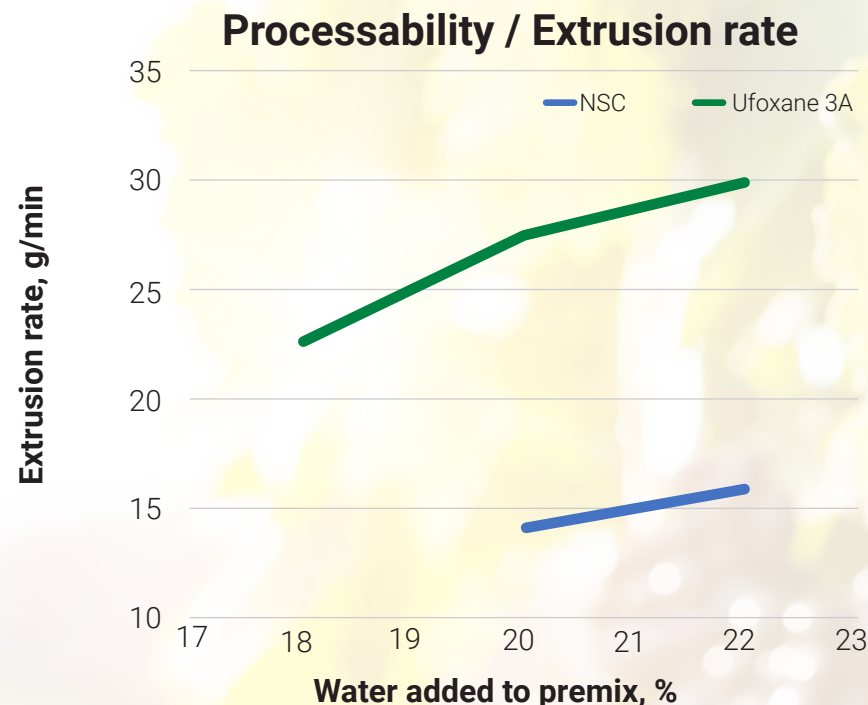


Figure 3: Processability / Extrusion rate

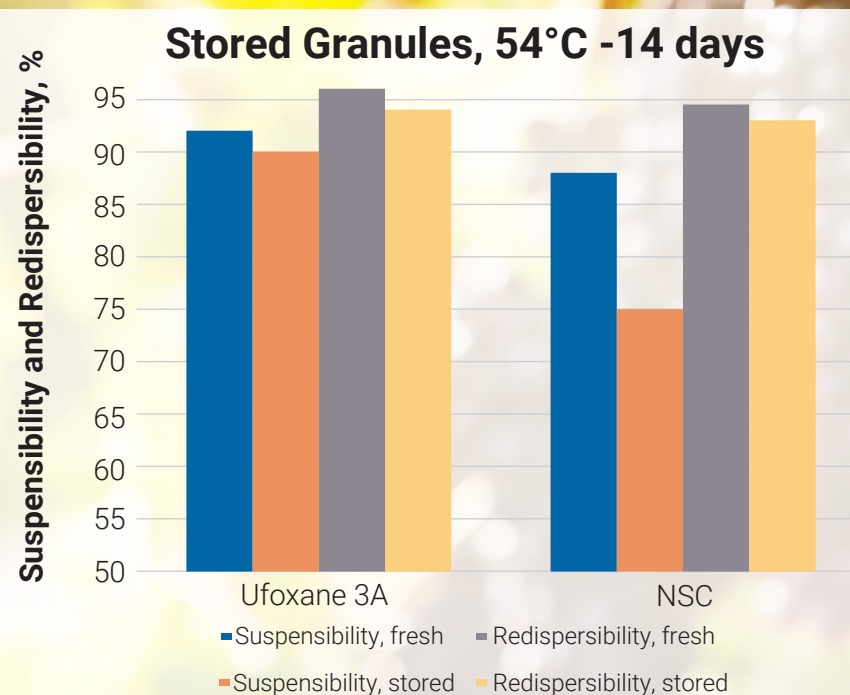


Figure 4: Stored granules (54°C, 14 days)

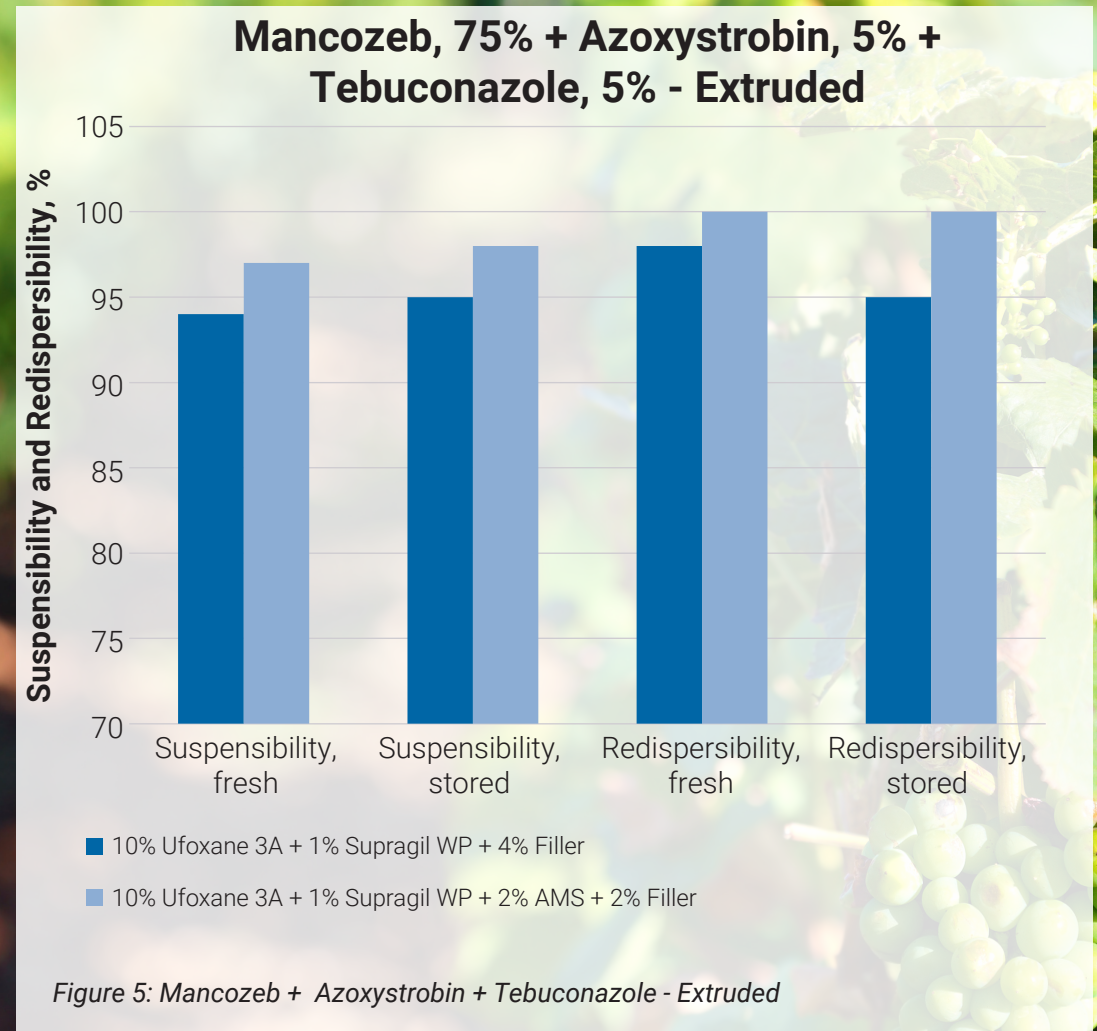
DISCUSSION

The extrusion process should be robust in handling possible fluctuations in the quality of the premix. Ufoxane 3A shows superior extrusion capacity and robustness in handling a broader range of water content in the premix. It imparts granules with high dispersibility and suspensibility even after accelerated storage.



Testing 3 - PROCEDURE

Better performance in multi-active compositions Mancozeb (75%), azoxystrobin (5%) and tebuconazole (5%) extruded granules were produced using a basket extruder (Tsutsui KAR 75) and suspensibility and dispersibility measured (Figure 5).



DISCUSSION

Ufoxane 3A delivers superior performance once the correct balance between concentration of the dispersant, type and amount of wetting agent, and if needed, a disintegration agent (ammonium sulfate shown in example) are employed in the formulation.



CONCLUSIONS

Ufoxane 3A is one of the most versatile, high-quality dispersants used in production of spray- and extruded agrochemical formulations. It has become an industry standard dispersant because of its robustness in handling challenging active materials, alone or in synergistic blends, and providing formulation tolerance to chemical and physical stress.

This work was performed by the Borregaard Agriculture laboratory team.

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Ufoxane 3A is designed to

Optimise grinding and milling processes

Maintain superior dispersing and binding properties

Handle challenging active materials and their combinations

Provide excellent storage stability of the final product

Give superior performance in hard water or electrolytes

Provide cost/performance advantage versus other dispersants

