

Technical Bulletin

RSA Flo Cel™ Zinc and Rice

RSA Flo Cel™ Zinc is a zinc seed treatment which can be used to supplement a normal fertility program and aid in preventing and correcting zinc deficiency. RSA Flo Cel™ Zinc is targeted at the seed zone, counteracting the poor mobility of zinc which is generally the cause of deficiency problems. RSA Flo Cel™ Zinc also provides young plants with available zinc for immediate uptake via root interception ensuring good early growth.

Benefits of RSA Flo Cel™ Zinc

- Micro-fine particles ensure even coverage and fast, effective plant uptake
- A highly concentrated stable suspension of zinc oxide
- Formulated as a 50% zinc material (62% zinc oxide) which has excellent suspending characteristics
- Contains an aggressive sticking agent, allowing treatment to remain intact with normal handling.

Zinc Deficiencies in Rice

In rice, zinc deficiency affects growth and important biochemical processes including:

- Cytochrome and nucleotide synthesis
- Auxin metabolism
- Chlorophyll production
- Enzyme activation
- Membrane integrity.

Zinc deficiency symptoms usually appear between two to four weeks after emergence. If the deficiency is not severe,

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plants can recover after 4 -6 weeks, but maturity will be delayed and yield reduced.

Zinc accumulates in roots and can be translocated from roots to developing plant parts. Because little translocation of zinc occurs within the leaf canopy, particularly in N deficient plants, zinc deficiency symptoms are more common in young or middle aged leaves. Zinc deficiency can be identified by any of the following symptoms:

- Dusty brown spots on upper leaves of stunted plants
- Uneven plant growth
- Decreased tillering
- Increased spikelet sterility in rice
- Chlorotic midribs particularly near the leaf base of younger leaves
- Leaves lose turgor and turn brown as brown blotches and streaks appear on lower leaves and white lines sometimes appear along the leaf midrib
- Leaf blade size is reduced.

Zinc deficiency in rice can be caused by one of more of the following factors:

- Small amounts of available zinc in the soil
- Planted varieties are susceptible to zinc deficiency
- High pH which causes solubility of zinc to decrease.

Zinc deficiency is the most widespread micronutrient disorder in rice. Its occurrence has increased with the introduction of modern varieties, crop intensification and increased zinc removal. Soils particularly prone to zinc deficiency include the following:



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- Neutral and calcareous soils containing a large amount of bicarbonate
- Intensively cropped soils where large amounts of N, P and K fertilizers have been applied in the past
- Paddy soils under prolonged inundation and very poorly drained soils with moderate to high organic matter content
- Sodic, saline, and peat soils
- Soils with high available P and Si
- Sandy soils
- Highly weathered, acid and coarse textured soils containing small amounts of available zinc
- Leached, old acid sulfate soils with a small concentration of K, Mg and Ca.

Product Use

RSA Flo Cel™ Zinc may be used on rice as well as corn, wheat, barley, oats and other small grains.

Use Rates and Timing

RSA Flo Cel™ Zinc contains 8.35 pounds of zinc per gallon and is used at 3.8 fluid ounces per 100 pounds of seed. Due to the high concentration, its use rate is less than most other zinc seed treatments. The table below compares it to other zinc products.

Comparison	Flo Cel Zinc	Competitor
% zinc w/w	50	32.5
Rate/100 lb rice seed	3.8 fl oz	8 fl oz
Seed treated/gallon	3800 lb	1600 lb
3.8 fl oz diluted with water to a total volume of 16 fl oz.		

Contents

Guaranteed Analysis 3-0-0	
Nitrogen (N).....	3%
Zinc (Zn).....	50%
Derived from urea and zinc oxide.	

Technical Specifications

Product class	fertilizer
Formulation	liq. flowable
Weight/ gallon	16.7 pounds
Specific gravity	1.95-2.05
pH	8-9
Solubility in water	miscible
Appearance	white susp.
Odor	odorless
Min. storage temp.	32°F*
Container size	2.5 gallons
Packaging	50 jugs/pallet

* do not allow to freeze.

This bulletin provides some technical information and is not intended to give complete information for all applications. Always read and follow label directions.

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