

Boosting crop health with starter dose of Calcium Nitrate fertilization

Introduction

FCV tobacco farmers in Karnataka, growing the crop as a rainfed *kharif* crop, often face poor growth and premature leaf yellowing. This is mainly due to soils lacking calcium, nitrogen, and other essential nutrients, which directly impact crop growth and productivity. To address this, calcium nitrate (CN) fertilizer was evaluated and found effective in correcting calcium deficiency.

Nature of the problem

In FCV tobacco cultivation, calcium is an essential nutrient with high plant demand, similar to potassium, and its content in cured leaves typically ranges from 1.5 to 2.0%. Calcium strengthens cell walls, increases cell thickness, promotes better root development, and improves drought tolerance. It also protects against aluminum and manganese toxicity and enhances plant defenses against several fungal pathogens. By supplying a quick source of calcium and nitrogen, crops grow faster, withstand stress, and develop stronger, more robust structures.

Technology intervention

Applying a starter dose of calcium nitrate, which provides readily available calcium and nitrate nitrogen, greatly benefits seedling growth and development. This practice, widely used in many crops and vegetables, promotes early root development and overall plant vigor. Strong initial growth helps plants establish quickly and better withstand drought conditions.

Recommendation

A starter application of calcium nitrate at 25 kg ha⁻¹ before planting is recommended in the KLS region to promote a strong root system for efficient nutrient absorption.

Impact

Based on ICAR-CTRI RS, Hunsur recommendations, the Tobacco Board has included calcium nitrate in the modified fertilizer schedule for FCV tobacco growers in KLS. This technological intervention *i.e.* application at CN @ 25 kg ha⁻¹ at planting has improved seedling establishment & growth, increased cured leaf yield, and enhanced bright-grade production by 7–11% across dry and semi-dry zones. Adopting this technology has helped the KLS farmers earn an additional annual revenue of ₹ 51.4 crores, with an ICBR of 1:3.9.



Farmers Feedback

“Following ICAR-CTRI RS, Hunsur’s recommendation, I applied calcium nitrate (CN) at 25 kg ha⁻¹, supplied by the Tobacco Board, in my five-acre field. The results were remarkable—leaves that previously showed yellowing turned dark green, and incidences of leaf curl, stem borer, and wilt were much lower than the previous year. I earned additional profit due to higher yield, especially from increased bright-grade leaves. Since then, I have been regularly intending for supply of CN fertilizer to Tobacco Board, Mysuru”.



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