



ALFALFA - CALCIUM

TITLE – Responses of alfalfa to various calcium materials

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TRIAL OBJECTIVE – To examine the uptake of calcium by alfalfa with different calcium nutrient materials.

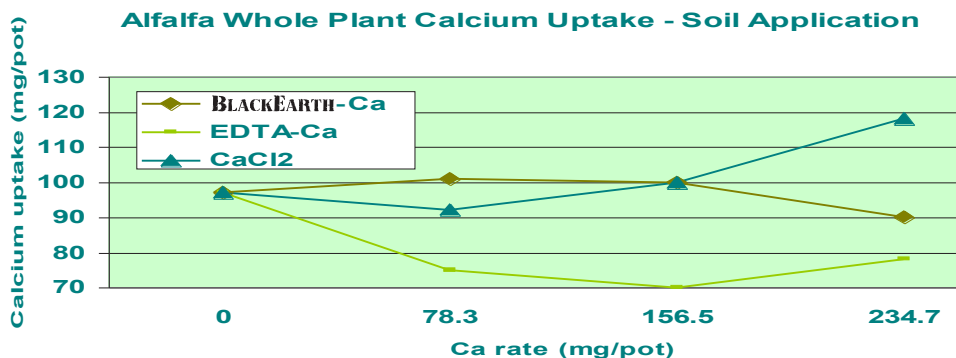
EXPERIMENTAL DESIGN –

Crop	Alfalfa (cv Nitro)
Experimental Design	Randomized complete block design with 5 replicates
Growing condition	Vermiculite and silica sand (1:1 v/v), NPK at 110, 190 and 185 kg/ha respectively. Watered with Hoagland solution (no Calcium). Pots fertilized at 17 days with 35 kg N/ha as NH ₄ NO ₃ , 135 kg/ha P ₂ O ₅ , and 275 kg/ha K ₂ O. Additional 35 kg N/ha as NH ₄ NO ₃ was applied at 35 days after sowing. Plants were first cut at 35 days after sowing.
Calcium condition	Applied at 35, 37, 39 days after sowing, 1/3 the desired amount delivered in 50 ml. of solution
Harvest	67 days after sowing

TREATMENTS –

	PRODUCT	Rate (mg/pot)
1	BLACK EARTH Chelated Calcium	0, 78.3, 156.5, 234.7
2	EDTA Chelated Calcium	0, 78.3, 156.5, 234.7
3	Chelated Calcium	0, 78.3, 156.5, 234.7

RESULTS AND DISCUSSIONS –



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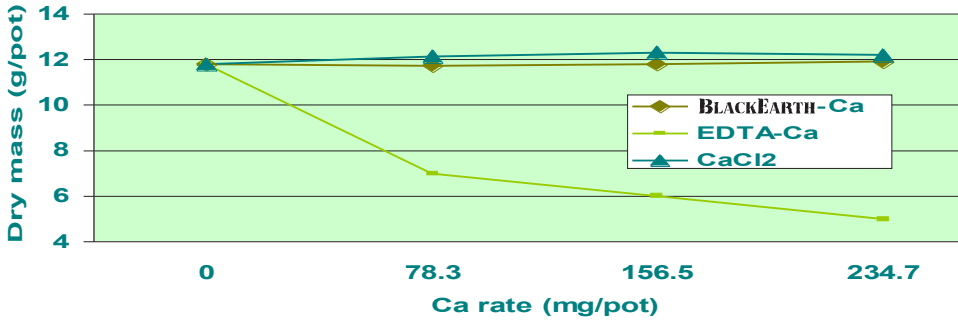
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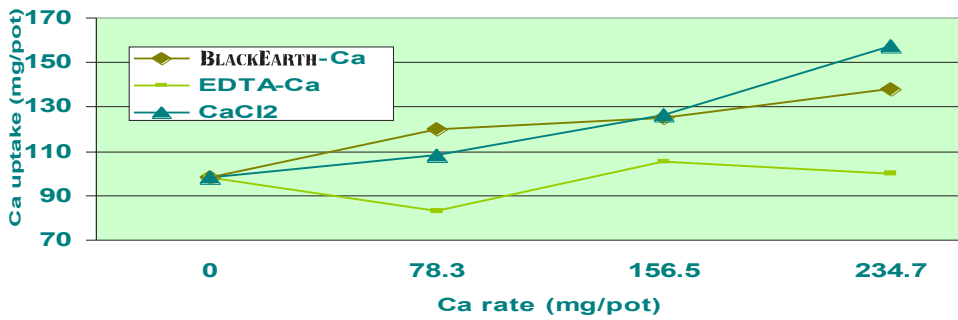
RESULTS AND DISCUSSIONS –



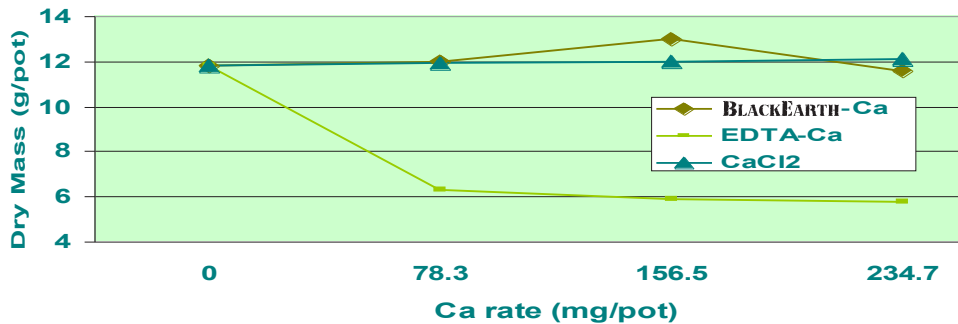
Alfalfa Dry Mass - Soil Application



Alfalfa Whole Plant Calcium Uptake - Foliar Application



Alfalfa Dry Mass - Foliar Application



Calcium application was more effective when foliar applied indicating poor translocation from roots. EDTA-Ca application decreased plant mass. **BLACK EARTH-Ca** and CaCl₂ were the most effective calcium sources.