



ARRIVED



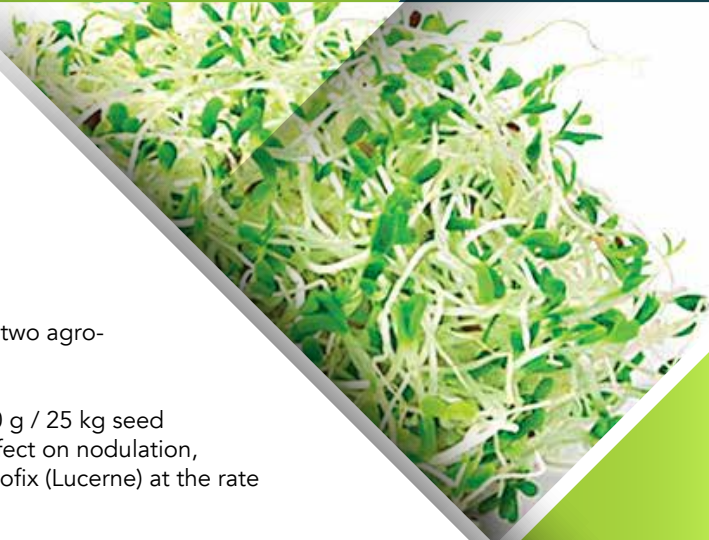
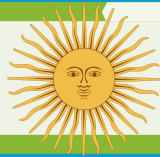
CKC BIO TECHNOLOGY

IS IN KENYA TO TAKE YOUR CROP TO THE

NEXT LEVEL

CKC is being recognized in the agricultural market for their products quality, providing reliable solutions that position us as leaders at home and abroad. Our Mission is to research, develop and provide products that bring value to the agricultural activity in continuous evolution, friendly with the environment and focused on sustainability.

EFFICACY REPORT
CONCLUSION



Summary of season 1 trials:

- ✓ Season 1 trial evaluations were conducted in two (2) agro-climatic zones. i.e. agro-climatic zone 4 (Mwea, Kirinyaga County) and agro-climatic zone 2 (Timau, Meru County).
- ✓ Season 1 trial evaluations were conducted simultaneously in the two agro-climatic zones between June and September 2017.
- ✓ In both agro-climatic zones, the lower rate of **CKC Alfalfa** at 170 g / 25 kg seed was the lowest effective dose that showed consistent positive effect on nodulation, growth and yield of Lucerne, which was comparable to that of Biofix (Lucerne) at the rate of 100 g / kg.

Results of season 1 trials are summarized in tables 8 and 9:

Table 8: Season 1 - Agro-climatic zone 4 (Mwea, Kirinyaga County)

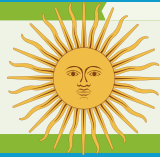
Treatment	Mean number of nodules/plant	Mean plant height (cm)	% Increase	Mean number of shoots/plant	% Increase	Yield- dry mass/plant (g)	% Increase
Control (no inoculation)	0.0 a	16.3 b		0.6 a		19.0 b	
CKC Alfafa 340g/25kg	0.0 a	32.6 a	100.1%	1.3 a	136%	53.3 a	180.7%
CKC Alfafa 255g/25kg	0.0 a	27.9 a	71.1%	0.7 a	18%	71.5 a	276.3%
CKC Alfafa 170g/25kg	0.0 a	29.0 a	78.3%	0.8 a	45%	71.1 a	273.9%
Biofix (Lucern) 100g/kg	0.0 a	26.3 a	61.7%	0.8 a	41%	69.5 a	265.5%
P-Value SED		0.015 ±3.950		0.161 ±0.2903		0.044 ±17.230	

Treatments with the same letter along the columns are not significantly different according to DMRT at $p \leq 0.05$

Table 9: Season 1 - Agro-climatic zone 2 (Timau, Meru County)

Treatment	Mean number of nodules/plant	% increase	Mean plant height (cm)	% increase	Mean number of shoots/plant	% Increase	Yield- dry mass/plant (g)	% Increase
Control (no inoculation)	2.1 a		20.2 a		0.5 a		10.1 b	
CKC Alfafa 340g / 25kg	2.6 a	24.0%	23.3 a	15.3%	0.9 a	80%	32.5 a	222.7%
CKC Alfafa 255g / 25kg	2.2 a	7.0%	25.5 a	26.0%	0.7 a	30%	20.b ab	106.1%
CKC Alfafa 170g / 25kg	2.6 a	27.0%	25.4 a	25.5%	1.2 a	130%	20.1 ab	99.4%
Biofix (Lucern) 100g / kg	2.6 a	24.0%	22.5 a	11.4%	1.1 a	120%	15.8 b	56.4%
P-Value SED	0.813 ±0.564		0.493 ±3.280		0.09 ±0.2473		0.018 ±5.480	

Treatments with the same letter along the columns are not significantly different according to DMRT at $p \leq 0.05$



The photos below illustrate less dense Lucerne crop in the control plots without inoculation compared to the treatments inoculated with the three rates of **CKC Alfafa** and Biofix (Lucerne) which had more shoots per plant.



T1 Control without inoculation **T2** **CKC Alfafa** at 170 g / 25 kg **T3** **CKC Alfafa** at 340 g / 25 kg **T4** **CKC Alfafa** 255 g / 25 kg **T5** Biofix (Lucerne) 100 g / 1 kg

Summary of season 2 trial:

- ✓ The second season trial evaluation was conducted in one site only, i.e. Agro-climatic zone 4 (Mwea, Kirinyaga County), to validate results that were obtained in season 1 from two agro-climatic zones.
- ✓ The second season trial evaluation was conducted between September 2017 and December 2017.
- ✓ Results showed that the lower rate of **CKC Alfafa** at 170 g / 25 kg seed was the lowest effective dose that showed consistent positive effect on nodulation, growth and yield of Lucerne, which was comparable to that of Biofix (Lucerne) at the rate of 100 g / kg.
- ✓ Results obtained in season 2 evaluations are consistent with those that were obtained in season 1 evaluations from trials done in agro-climatic zone 4 (Mwea, Kirinyaga County) and agro-climatic zone 2 (Timau, Meru County).

Results of season 2 trial are summarised in tables 10:

Table 10: Season 2 – Agro-climatic zone 4 (Mwea, Kirinyaga County)							
Treatment	Mean number of nodules/plant	Mean plant height (cm)	% increase	Mean number of shoots/plant	% Increase	Yield- dry mass/plant (g)	% increase
Control (no inoculation)	0.0 a	16.7 a		0.6 a		33.8 c	
CKC Alfafa 340g / 25kg	0.1 a	36.0 b	115.2%	1.1 a	79.2%	107.8 a	219.3%
CKC Alfafa 255g / 25kg	0.4 b	37.6 b	124.6%	1.1 a	75.0%	72.5 ab	114.8%
CKC Alfafa 170g / 25kg	0.1 a	28.6 ab	71.1%	0.7 a	12.5%	70.5 bc	108.9%
Biofix (Lucern) 100g / kg	0.1 a	24.0 ab	43.2%	0.9 a	45.8%	57.5 bc	70.4%
P-Value	<.001	0.022		0.194		0.01	
SED	±0.064	±5.880		±0.2265		±16.27	

Treatments with the same letter along the columns are not significantly different according to DMRT at p≤0.05



Trial Site: Delamere Farm
By: Hygrotech

RECOMMENDATION

In view of the consistent results obtained from the three trials season evaluations in two agro-climatic zones, **CKC Alfafa** has been approved by KEPHIS as an inoculant for Lucerne under the following recommendations:

Application Rate	170 grams per 25 kg seed
Method of application	Seed dressing
Dilution volume	Water: 1 litre / 25 kg seed
	Sugar: 500 g / 25 kg seed
Procedure	First dissolve sugar in water then add the solution to Lucerneseeds in a mixing equipment. Mix the seeds to achieve uniform distribution of the seed dress.
Number of applications	One (1) application as a seed dress
Effectiveness in different agro - climatic zones	CKC was effective in the two agro-climatic zones that it was tested in. i.e. agro-climatic zone 4 (Mwea, Kirinyaga County) and climatic zone 2 (Timau, Meru County).
Additional considerations	Plant the seed dressed seeds immediately after treating with CKC Alfafa



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