

Phytex 500™

AGRANCO CORP. USA



SCIENTIFIC UNIVERSITY TRIAL "IN VIVO" IN SWINE WITH STATISTICAL ANALYSIS



Response to the use of Phytex 500™ in swine rations in the growth ,development and finisher stages, compared to other phosphorous sources in Mexico.

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Purpose of Trial:

The purpose of the trial is to apply a simple method to prove the effects of (Phytex 500®), including the analysis of its benefits, such as the return on investment for swine producers and its comparison to other commercial phytase sources.



Material y Métodos

- This trial was conducted in individual pens in CNIF, INIFP in Ajuchitlan , Colón, Queretaro, Mexico.
- The pigs used were castrated males which were weighed at the start of the
- The trial was a “performance trial” in which the productive response to different commercial phytases were measured, and compared to the positive and negative groups. The parameters measured were: changes in propral composition, (dorsal fat, muscular depth and eye of the rib. Measurements were taken with real time - ultra-sonography , with a transducer of 19 mm and 3.5 MHz (in P2 , at the level of the tenth and last rib) . The ultra-sound measurements were taken at day 1, 28, 56 of the experiment (Mejía *et al*, 1999).
- The treatments used were::
 - Positive control, ration with 3.3 Mcal de EM / kg, 0.85% of digestible Lys. (real digestability), 0.57% Ca and 0.22 % P available.
 - Negative Control, ration with 3.15 Mcal of EM / kg , 0.81% digestible Lysine , 0.12 P available and a Ca P ratio (total) of 1.15 , as in 1.
 - PHYTASE (500 U/kg), ration as in 2 , adding Phytex 500®, at 0.100 kg/tonelada, at the expense of sorgum.
 - Groups 4 and 5 correspond to the two sources of phytase commonly available in Mexico.



Materia y Métodos (cont)

- The data was submitted to a variance , using the ASA General Lineal Models for a Complete Random Model with 24 pigs (8 repetitions per Treatment) , in two phases of feeding . In cases of repeat observations in time, the MIXED procedure was included to distinguish the performance.
- The nutrient levels in the positive control are the ones commonly used in 40 kg corporal weight, the same as the ones used at the initiation of the experiment. In the rest of the treatments, the nutrient concentrations were corrected (except for P) in order to maintain the same nutrient ratio (g) : EM (Mcal/ kg). An ideal Protein pattern was used (lial true digestibility of amminoacids). The protein level was the result, in a lysine range (total) between 5.6% and 6% of crude protein. The Ca and P levels available approximate the ones recommended in NRC (1998).t
- Due to the trial duration, 2 feeding phases were used; both with the same energy level , but adjusting the amminoacids , Ca and P needs in each feeding phase. In the adjustment in nutrient density , the difference between treatments were maintained, as described in the treatment



Results



Response to the use of Phytex 500™ in swine grower and development diets, compared to other sources of phytase.

<i>PARAMETERS</i>	<i>Positive Control</i>	<i>Negative Control</i>	<i>Phytex 500</i>	<i>Phytase B</i>	<i>Phytase C</i>	<i>P <</i>	<i>EEM</i>
Initial weight kg	32.69	32.99	33.00	33.28	32.65	0.990	0.700
Weight at day 56, kg	73.06	69.46	73.70	75.85	72.14	0.540	1.136
Weight gain	40.37	36.47	40.70	42.57	39.49		
Daily weight gain accumulated at day 56 , kg	0.72	0.65	0.73	0.76	0.71	0.060	0.011
Daily accumulated feed consumption at day 56,kg	2.31	2.37	2.30	2.38	2.23	0.740	0.037
Accumulated feed conversion at day 56.	3.21	3.65	3.15	3.13	3.14		
Chop eye area at day 56, cm2	26.09	25.42	26.14	26.75	25.84	0.820	0.340
Dorsal fat depth At day 56, cm	2.11	2.10	2.11	2.18	2.01	0.790	0.040



Response to the use of Phytex 500™ in swine diets weighing 70 kg to 93 kg, compared to other phytase sources.

<i>Parameters</i>	<i>Control Positive</i>	<i>Control Negative</i>	<i>Phytex 500</i>	<i>Phytase B</i>	<i>Phytase C</i>	<i>P<</i>	<i>EEM</i>
Weight at day, kg	73.06	69.46	73.70	75.85	72.14	0.540	1.136
Weight at day 77, kg	93.05	86.88	92.80	95.97	92.08	0.230	1.197
Weight gain during thew period	19.99	17.42	19.10	20.12	19.94		
Daily weight gain, from day 56 ato day 77, kg	0.95	0.83	0.91	0.96	0.95	0.008	0.012
Daily feed consumption from day 56 to day 77, kg.	3.00	3.42	2.96	3.26	3.00	0.0004	0.036
Feed Conversion (k/k)	3.16	4.12	3.25	3.40	3.16		
Chop eye area at day 77, cm ²	32.60	28.30	32.13	32.06	30.61	0.0002	0.298



Response to the use of Phytex 500™ in swine diets weighing 30 kg to 93 kg, compared to other phytase sources.

Parameters	Positive Control	Negative Control	PHYTEX 500	PHYTASE B	PHYTASE C	P <	EEM
Initial Weight , kg	32.69	32.99	33.00	33.28	32.65	0.990	0.700
Weight at day 77, kg	93.05	86.88	92.80	95.97	92.08	0.230	1.197
Accummulated daily feed consumption At day 77, kg	2.5	2.65	2.48	2.62	2.44	0.170	0.031
Accummulated daily weigh gain At day 77, kg	0.78	0.7	0.78	0.81	0.77	0.005	0.009
Weight gain / Accumulated feed consumption at day 77, kg	0.31	0.27	0.31	0.31	0.32	0.0001	0.003
Feed Conversion (K/K)	3.21	3.79	3.18	3.23	3.17		



Conclusions

Conclusions



- **Phytex 500 in swine diets is a reliable source to make phytic phosphorous available from raw materials.**
- Phytex 500 at 100g/ mt have similar effects in feed feed formulation as the other common commercial phytases
- **Values of 0.1% phosphorous and 0.3% calcium , are reliable values for substitution in swine diets , when using Phytex 500.**
- The use of Phytex 500, has positive effects in the chop eye area , it being a comparable *numerical difference* against, the other two phytases sources used, and being all, at normal phophosrous levels.