

**Effects of a fermentation biomass (Ajitein) and a modified corn byproduct (Gold Pro) on health and growth performance of nursery pigs fed antibiotic-free and vegetarian diets.**

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A total of 1,329 pigs (DNA 600) were used in a 42-d study to evaluate the effect of Ajitein (a fermentation biomass from lysine and threonine production) and Gold Pro (GP; a corn and yeast protein ingredient) on nursery performance as compared to enzymatically modified soybean meal (HP300). Pigs (BW = 7.2 ± 0.3 kg) were blocked by weight and sex and allocated across six dietary treatments for phases 1 (d 0-7) and 2 (d 7-21), with phase 3 (d 21-42) being a common diet. Pigs were not given any antibiotics through feed, water or injectables. All diets were formulated to meet or exceed NRC 2012 nutrient requirements and to be isocaloric and balanced to ideal protein using crystalline amino acids. Diets were balanced in terms of calcium and STTD phosphorus. Dietary treatments were a control containing HP300 (Treatment 1); Control with GP replacing HP300 (Treatment 2); Control with GP and Ajitein (1.5% then 0.75% of diet) replacing HP300 (Treatment 3); Control with Ajitein (3.0% then 1.5% of diet) replacing HP300 and GP (Treatment 4); and HP300 plus Ajitein (Treatment 5). There were no differences ( $P > 0.10$ ) in BW and ADG during the entire study. Pigs fed HP300 + Ajitein (Treatment 5) exhibited increased ( $P < 0.02$ ) ADFI during Phase 1, but control pigs (Treatment 1) exhibited the lowest ADFI and highest ( $P = 0.081$ ) G:F. However, this G:F improvement did not carry over onto the succeeding phases or overall. Gold Pro alone or in combination with a low inclusion (13.6/6.8 kg/ton) of Ajitein tended to reduce mortality ( $P < 0.08$ ) in Phase 1-2 (d 0-21). In conclusion, GP and Ajitein, singularly, or in combination, can effectively replace HP300 in nursery diets with equivalent results on growth performance.

**Table 1. Effects on growth and health performance (Overall).**

Item	Treatment					SEM	P-value
	1	2	3	4	5		
ADG, g	333	330	319	320	318	14	0.6651
ADFI, g	544	531	522	517	526	15	0.7023
G:F	0.61	0.62	0.61	0.62	0.60	0.02	0.8161
d 42 BW, kg	21.9	21.6	21.2	21.5	21.1	0.6	0.6302
Pigs treated/pen	10.9	10.6	13.2	17.6	10.4	2.9	0.4200
Mortality, %	1.9	1.2	1.7	3.8	3.4	0.9	0.1800

Keywords: nursery pig, antibiotic-free, growth performance