

THE TOXICITY OF SESBANIA SEED FOR PIGS

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Sesbania (Sesbania cannabina) is a prolific seed producing legume, widely distributed and native to Queensland. It is a weed of summer grain crops, especially sorghum grown in the Callide Valley. Levels of contamination up to 8% (w/w) are not uncommon (P. Brennan, *pers. comm.*).

We have been unable to find any reports that S. cannabina is toxic to livestock. However, all parts and particularly the seeds of a similar South African specie, S. punicea, were shown by Tierblanche *et al.* (1966) to be toxic to most domestic livestock and poultry.

Two experiments were conducted to assess the toxicity of S. cannabina seeds to pigs. In each experiment, 24 males and 24 females were fed a sorghum-based grower diet estimated to contain 8.5g available lysine and 13.8 MJ digestible energy per kg. Graded amounts of Sesbania seed, at 0.5% (w/w) increments from 0 to 3.5% in Experiment 1 and 0.25% (w/w) increments from 0 to 1.75% in Experiment 2, were added at the expense of starch. Pigs were restrictively fed the diets from 21 to 50kg live weight.

In each experiment, the addition of Sesbania seed to the diet resulted in a linear deterioration in **growth** rate (GR) and feedconversion ratio (FCR); daily feed intake (DFI) declined whereas the total feed (TF) eaten by the pigs to attain the 50kg target live weight increased. The equations describing these relationships were:

Experiment 1

GR (g/d)	:	$Y = 470 - 19.1X$	($P < 0.01$; $r = 0.89$)
FCR (g feed/g gain)	:	$Y = 2.72 + 0.088X$	($P < 0.01$; $r = 0.72$)
DFI (kg/d)	:	$Y = 1.27 - 0.019X$	($P = 0.05$; $r = 0.44$)
TF (kg)	:	$Y = 76.6 + 1.71X$	($P < 0.05$; $r = 0.42$)

Experiment 2

GR (g/d)	:	$Y = 526 - 56.5X$	($P < 0.01$; $r = 0.85$)
FCR (g feed/g gain)	:	$Y = 2.45 + 0.244X$	($P < 0.01$; $r = 0.87$)
DFI (kg/d)	:	$Y = 1.29 - 0.049X$	($P < 0.05$; $r = 0.62$)
TF (kg)	:	$Y = 69.6 + 5.12X$	($P < 0.01$; $r = 0.73$)

where X is the percentage (w/w) sesbania seed in the diet.

The Sesbania seed was unpalatable to the pigs and caused DFI to be depressed even though the diets were fed restrictively. However, the unpalatability of the Sesbania seed can not account for all of the growth depression nor all of the deterioration in FCR that occurred. Although no deaths occurred, a number of pigs fed diets containing more than about 1.5% Sesbania seed scoured intermittently throughout the trial.

These findings show that seeds of S. cannabina are toxic to pigs. In this study, the Sesbania seed was fed whole, being added at the time the diets were mixed. Had the seeds been ground as would normally occur during the milling of contaminated grain, its toxicity might have been even greater. It is recommended that grain contaminated with seeds of S. cannabina not be fed to pigs.

TIERBLANCHE, M., DeKLERK, W.A., SMIT, J.D. and ADELAAR, T.F. (1966)

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