

Feeding Yellow- vs. Dark-Seeded Canola Meal at Increasing Dietary Inclusions to Hogs

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Background

Reducing the fibre content of canola meal would permit feeding higher inclusions in pig diets to further reduce feed cost. Compared to conventional, dark-seeded meal (*Brassica napus*), yellow-seeded (*Brassica juncea*) canola meal has tested similar in protein, higher in phosphorus, but lower in fibre content (Table 1).

Table 1. Nutrient composition of yellow- (*B. juncea*) and dark-seeded (*B. napus*), solvent extracted, canola meal

As is (89% DM)	<i>B. juncea</i>	<i>B. napus</i>	As is (89% DM)	<i>B. juncea</i>	<i>B. napus</i>
Crude protein, %	39.09	38.98	Crude fat, %	1.72	1.93
Lysine, %	2.01	2.02	Crude fibre, %	7.34	8.58
Avail. Lysine, %	1.85	1.82	ADF, %	13.42	18.19
Threonine, %	1.61	1.62	NDF, %	19.82	27.23
Tryptophan, %	0.41	0.43	Starch, %	1.66	0.00
Methionine, %	0.74	0.77	Ash, %	7.32	7.82
Cysteine, %	0.83	0.93	Calcium, %	0.71	0.67
Glucosinolates, umol/g	10.34	3.69	Phosphorus, %	1.40	1.27

Objective

To confirm that yellow-seeded canola meal has a higher dietary energy value than conventional dark-seeded canola meal, we fed increasing levels of each meal and evaluated effects on hog growth performance, dressing percentage, and carcass characteristics.

Approach

In a commercial scale trial, crossbred barrows (550) and gilts (550) housed in single-sex pens (48 pens, 22 pigs per pen; 33 kg) were divided into 4 area blocks based on their location in the test room. Pens of barrows or gilts within block were randomly assigned to be fed yellow- or dark-seeded, solvent-extracted, canola meal (Table 1) at 10, 20 or 30% to market weight (120 kg). Diets were formulated to provide the same net energy (2.25 Mcal/kg), standardized ileal digestible lysine to NE, and essential amino acids to lysine within 5 growth phases. Wheat DDGS was included at 20% in Grower 1, 15% in Grower 2, Grower 3, Finisher 1, and 5% in Finisher 2.

Pen weights and feed disappearance were measured on d 0, 22, 44, 60, 72 and weekly thereafter. Pen average daily weight gain (ADG), feed intake (ADFI) and feed to gain (F:G) were calculated for each phase and the entire trial. Beginning on d 73, pigs that had achieved market weight were slaughtered and the carcasses graded at Britco Pork (Langley, BC).

Results

Feeding increasing levels of both canola meals reduced feed disappearance by 81 g/d and weight gain by 9 g/d for each 10% meal inclusion, but reduced the amount of feed required per kg of weight gain. This reduction in feed required per kg gained was more pronounced for hogs fed yellow- compared to the dark-seeded meal (83 g vs. 32 g less feed/kg gain for each 10% increase in canola meal inclusion; Figure 1). Final trial body weight was not affected by canola meal or feeding level (Figure 2). Number of days on trial increased by 1 for each 10% increase in canola meal inclusion.

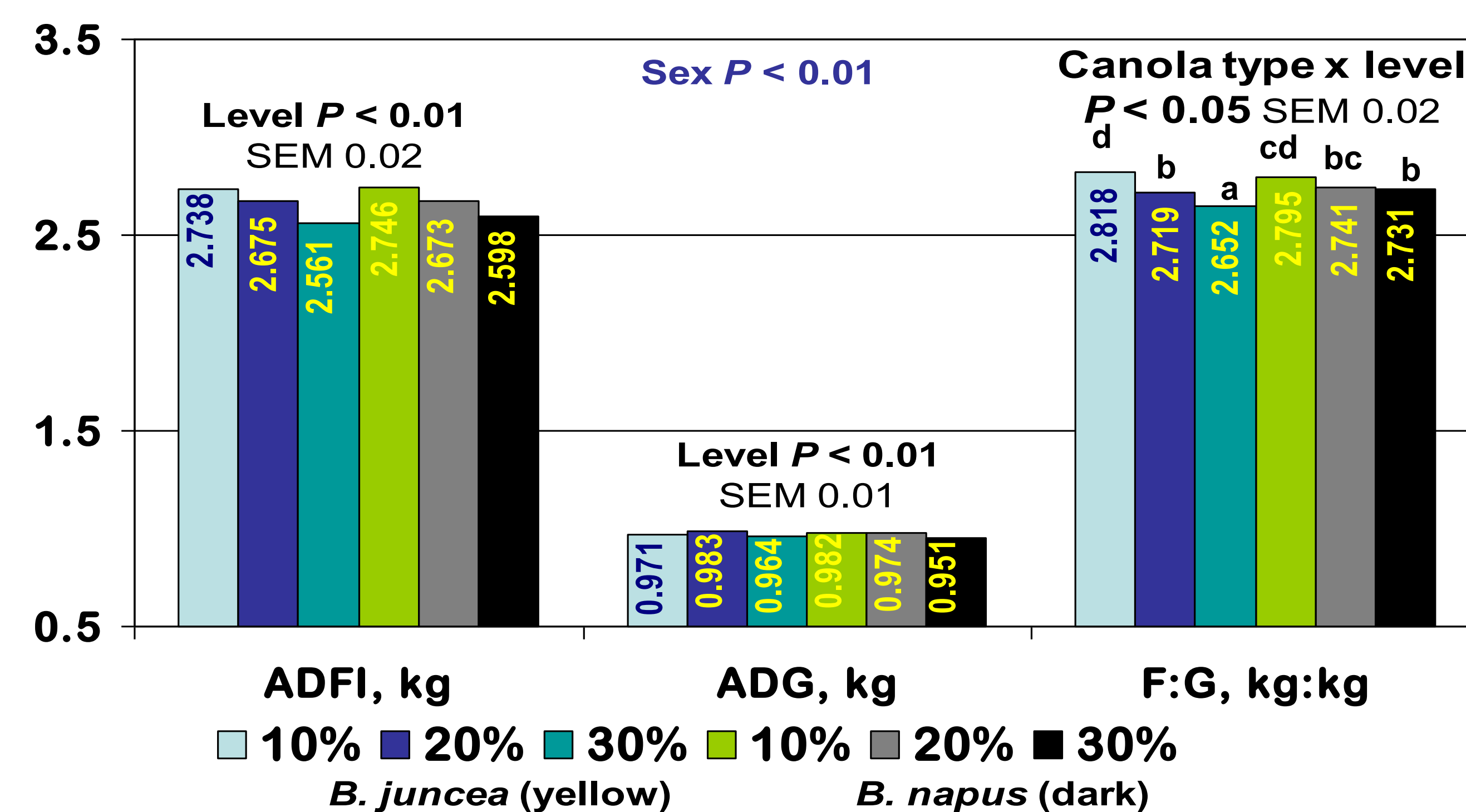


Figure 1. Effect of feeding increasing levels of yellow- and dark-seeded, solvent-extracted, canola meal to hogs

Feeding increasing levels of both canola meals reduced carcass weight by 0.46 kg, dressing percentage by 0.4 %-points, and loin depth by 0.5 mm for each 10% canola meal inclusion. Backfat depth, lean yield, and carcass index were not affected by either canola meal or feed inclusion level (Figure 3).

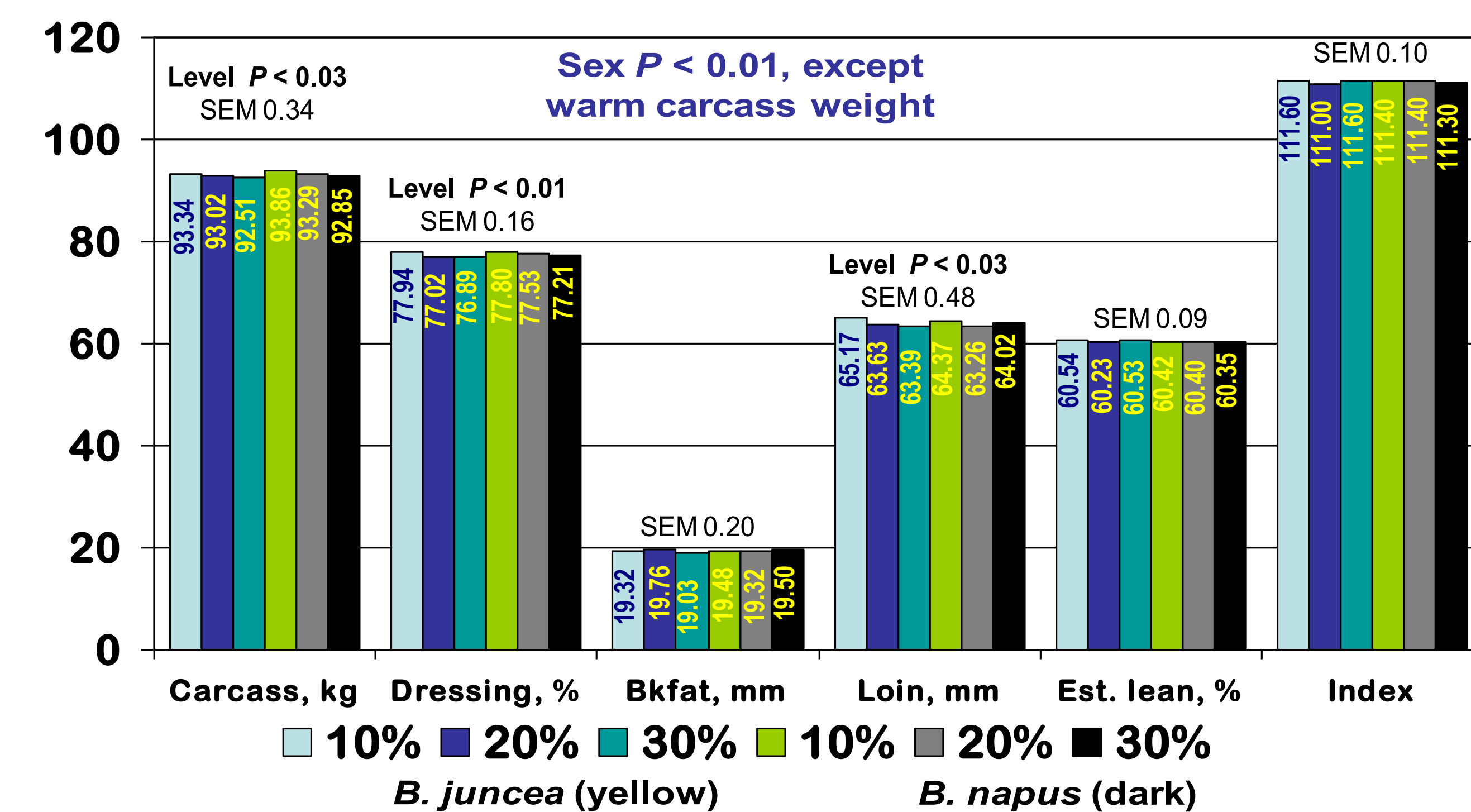


Figure 3. Effect of feeding increasing levels of yellow- and dark-seeded, solvent-extracted, canola meal on carcass traits

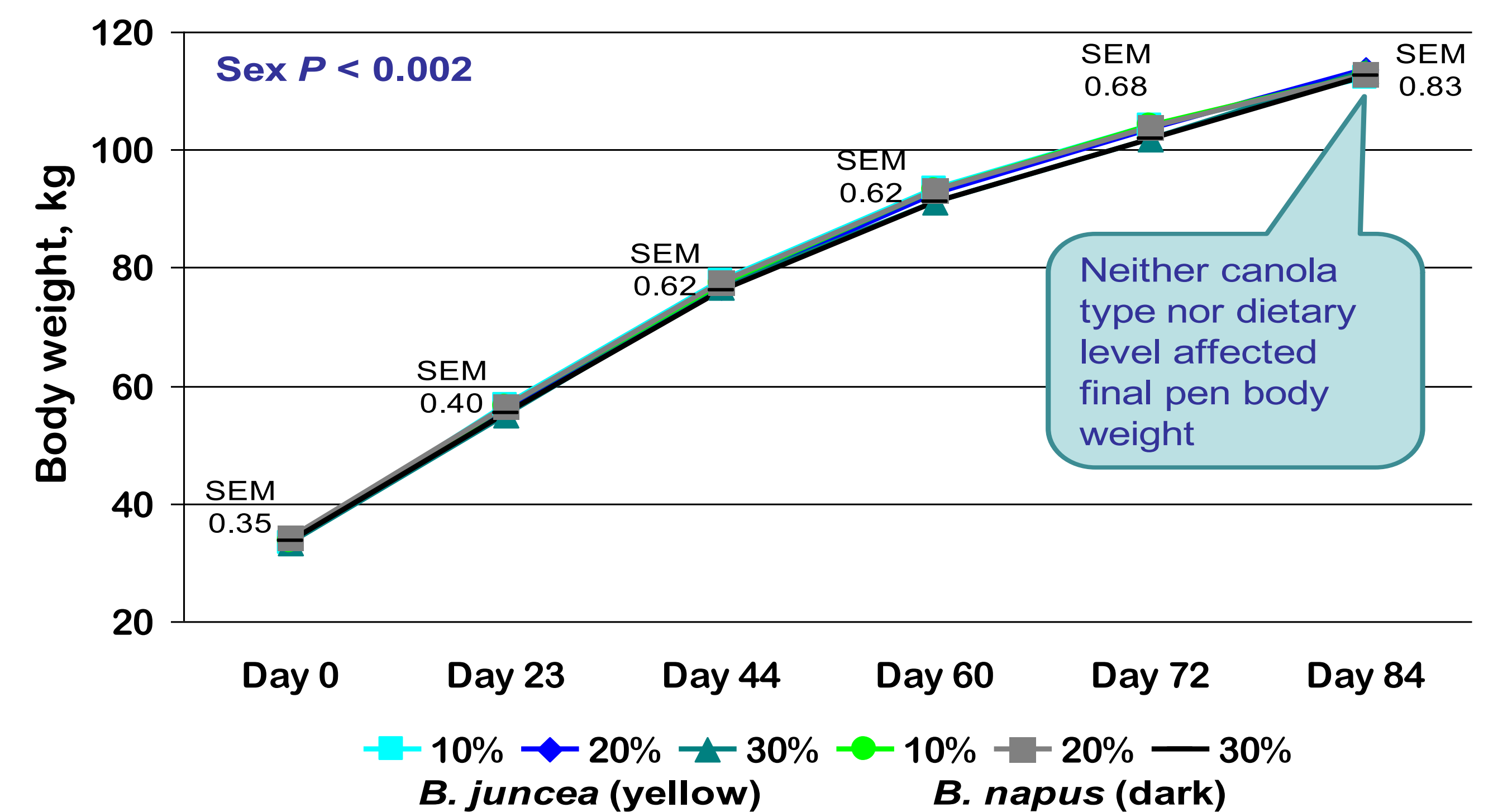


Figure 2. Effect of feeding increasing levels of yellow- and dark-seeded, solvent-extracted, canola meal on final pen body weight

Conclusions

- ✓ Feeding yellow-seeded canola meal improved overall trial feed conversion more than dark-seeded canola meal most likely due to reduced fibre content
- ✓ Feeding increasing levels (10, 20, 30%) of either yellow- or dark-seeded solvent-extracted canola meal did not result in major hog performance or carcass differences

Take Home Message

- ✓ Feeding up to 30% of either yellow- or dark-seeded canola meal is therefore feasible in commercial diets with high inclusions of wheat DDGS. Hog performance and carcass traits were adequate proving evidence that canola meal and wheat DDGS together can make up 50% of hog diets.

Acknowledgements

