

Hazelnut Products as a Feedstuff for Pigs

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Hazelnut (*Corylus spp*) is a perennial crop being explored as an alternative oilseed crop for farmers. Adding value to hazelnut processing co-products, such as shells and undersized in-shell hazelnuts, by feeding them to livestock may be possible, but there is limited data on performance and meat quality of pigs fed hazelnut products. The objective of this project was to gather preliminary data regarding feeding hazelnut kernels, shells, and in-shell hazelnuts to pigs raised in bedded hoop barns.

Materials and Methods

During the summer of 2021, 24 pigs were raised in six pens within the three mini-hoop barns at the Western Research and Demonstration Farm in Castana, Iowa. Each pen of pigs received one of six diets described in Table 1. Pigs were fed for 77 days with individual pig weight gain and feed disappearance by pen recorded. All pigs were harvested on the same day and two chops were collected from each pig to assess pork quality. One cube (1 in.²) of fat was removed from the chops of 12 pigs (two samples per diet) and analyzed for fatty acid profile.

Table 1. Hazelnut product diets fed to pens of growing pigs.

Diet Description	Pen	Barrows	Gilts
Control (corn-soybean meal diet fed in phase)	F	2	2
10% crushed hazelnut shells + 90% control	A	2	2
10% crushed hazelnut kernels + 90% control	E	2	2
10% crushed in-shell hazelnuts + 90% control	D	3	1
20% crushed in-shell hazelnuts + 80% control	C	2	2
30% crushed in-shell hazelnuts + 70% control	B	2	2

Table 2. Performance and chop quality characteristics of pigs fed hazelnut products.

Parameter	Dietary Treatment					
	Control	Control Diluted With				
		10% Shell	10% Kernel	10% Hazelnut	20% Hazelnut	30% Hazelnut
Start wt. lb.	151.3	149.5	150.5	149.0	150.3	150.0
End wt. lb.	305.5	309.5	303.0	311.3	306.5	312.0
Average daily gain, lb./d	2.0	2.1	2.0	2.1	2.0	2.1
Average daily feed intake, lb./d	7.0	7.3	6.8	7.7	7.9	7.5
Feed-to-Gain	3.5	3.5	3.4	3.7	4.0	3.6
Hot carcass wt. lb.	231.5	237.8	226.5	235.8	236.3	235.5
Last rib backfat, in.	0.9	0.9	1.0	1.1	0.9	1.0
Color	2.8	2.9	2.9	2.8	2.5	2.1
pH	5.6	5.7	5.6	5.6	5.6	5.5
Marbling, %	2.75	3.13	3.13	3.88	3.88	2.50
Cook Loss, %	22.9	23.5	25.7	22.2	21.4	22.9
Warner-Bratzler Shear Force	3.24	4.28	4.30	3.62	3.53	4.18

Table 3. Fatty acid profile of fat from pigs fed hazelnut products.

	Dietary Treatment					
	Control	Control Diluted With				
		10% Shell	10% Kernel	10% Hazelnut	20% Hazelnut	30% Hazelnut
Palmitic (16:0)	25.1	25.0	21.7	23.6	22.2	20.1
Oleic (18:1)	41.3	41.9	46.8	44.1	45.7	48.4
Linoleic (18:2)	9.6	10.0	11.3	9.6	11.4	12.0
Linolenic (18:3)	0.4	0.4	0.4	0.4	0.4	0.4

Summary

Table 2 presents performance and chop quality characteristics of pigs fed hazelnut products. Fatty acid profile of fat from pigs fed diets containing hazelnut products is presented in Table 3. This was a pilot project and the absence of replicated dietary treatments limits the conclusions that can be made. The data suggests that when pigs are fed hazelnut kernels or in-shell hazelnuts, the pork fat will contain more oleic acid (18:1) and less palmitic acid (16:0).e replicated in the spring of 2022.