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Pigs to Pork

NUTRITION

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Forage Utilization Guidelines for Hogs

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The profit in animal production depends upon how efficiently the operator combines his available resources of land, labor and capital with his managerial talents into acceptable marketable products. To a large extent the margin of profit may be influenced by the relative amounts of forages and concentrates in the rations. Under the stress of decreasing margins of profit, a wise decision as to how much of each component to feed is becoming increasingly important. Factors to be considered in making such decisions include:

1. The relative cost of available forages and concentrates.

2. The nutrient requirements of the animal. These requirements are affected by the species and the purpose of feeding--for body maintenance, growth, reproduction, finishing, etc.

3. The kinds and quality of available forages and concentrates, their palatability, digestibility, and nutrient content. 1/

Swine producers, research workers and others have long pointed out the importance of a sound feeding program as a major contributor to profitable pork production. Forages and forage products have had a prominent role in this feeding program.

Our present day knowledge of the several nutrients required by hogs, --the amounts needed, the amounts present in different feeds, and the ability to supply them from sources other than forages--has developed to the point that forages are no longer considered an essential part of rations for growing-finishing pigs. However, the relative cost of available forages and concentrates very often favor including forage and/or forage products in the ration.

On the other hand the non-essentiality of forages has not been so conclusively demonstrated for sows, particularly during the pre-gestation and gestation periods. There is still the possibility that green forages may contain some unknown nutritional factor or factors essential for successful reproduction.

Forages such as high quality legume pasture, silage and haylage are well adapted for modern brood sow nutrition. These forages are particularly suited to the sow gestation period where the emphasis should be on limiting the energy intake with a low cost, but a nutritionally adequate feeding program. Your attention is called to "Forages for Sows," Mimeo AS-330, 1965 for a more thorough discussion of this subject.

The daily nutrient requirements for swine will vary according to the purpose for which the animals are being fed. For example, is the animal being fed just for body maintenance, for growth, for reproduction, for finishing, etc.? Table 1 shows how these requirements vary. Using this table you can determine the daily needs of your hogs.

1/ "Profitable use of Forages," 1958. Nutritional News Bulletin: Vol. 14, No. 3.

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Table 1. Daily nutrient requirements of swine [a]

Animal	Expected daily gain	Total air-dry feed	Requirements: Crude protein	Requirements: Total digestible nutrients
	pounds		pounds	
Boars:				
Young (300 pounds)	1.0	6.0	0.90	4.2
Adult (500 pounds)	---	7.5	0.98	5.2
Bred:				
Gilts	1.0	5.5	0.88	4.1
Sows	0.7	6.5	0.91	4.9
Lactating:				
Gilts	---	11.0	1.65	8.2
Sows	---	12.5	1.62	9.4
Growing pigs weighing:				
10-25 pounds	0.6	1.2	0.26	0.96
25-50 pounds	1.0	2.5	0.45	2.00
50-75 pounds	1.3	3.7	0.59	2.70
75-125 pounds	1.6	5.2	0.73	3.90
Finishing pigs (full fed) weighing:				
125-175 pounds	1.7	6.7	0.87	5.00
175-225 pounds	1.9	7.8	0.94	5.80

[a] Taken from the 1965 National Research Council recommendations.

The third important factor to consider in the formulation of a ration--kind and quality of available forages and concentrates --can be determined by a variety of means.

Proximate Analysis Tables that appear in nearly every feeds and feeding, nutrition, or pork production text book offer an estimate of the nutrient content and digestibility. Table 2. in "Balancing Swine Rations," Mimeo AS-326, 1965 lists the typical chemical analysis of some of the concentrate feedstuffs commonly used in swine rations. Table 2 lists the nutrient content of some of the forages commonly used in swine feeding.

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Table 2. Nutrient content of commonly used feedstuffs[a/]

Feedstuff	Total dry matter	Total protein	TDN	Calcium	Phosphorus
Hay	%	%	%	%	%
Alfalfa, hay, all analyses	90.5	15.3	50.7	1.47	.24
Alfalfa meal, dehydrated	88.3	12.0	51.8	1.28	.20
Clover-timothy hay (30-50% clover)	88.1	8.6	51.0	.69	.16
Ladino clover hay	89.5	18.5	59.5	1.53	.29
Lespedeza hay, in bloom	89.1	13.0	46.4	1.00	.19
Mixed hay, less than 30% legumes	89.2	8.8	48.8	.90	.19
Silage					
Alfalfa, wilted	36.2	5.3	21.5	.51	.12
Alfalfa haylage	60.0	10.4	35.8	.84	.20
Corn, dent, well matured	27.6	2.3	18.3	.10	.07
Sorghum, sweet	25.4	1.6	15.2	.08	.06

a/ Snapp and Neumann, 1960 Beef Cattle, Ed. 5, 652 pp. Wiley.

The use of actual complete analysis rather than using average analyses will add to the accuracy of ration formulation providing that extreme care is taken in selecting a representative sample and in running the analysis on the sample.

The animal is the best gauge of palatability and digestibility.

As is so characteristic in all other facets of the pork production enterprise, no one tool is the answer when determining what and how much to feed a pig. By combining the use of many tools, a wiser decision can be made.

Determine the relative costs, quality, nutrient content, palatability and digestibility of the various forages available. Then, use this information along with the daily requirements of the pig to make a wise decision in balancing the ration as described in "Balancing Swine Rations," Mimeo AS-326, 1965.

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