

The Rabbit as a Meat Producing Animal

Nephi M. Patton*
Peter R. Cheeke

Rabbit production is now a minor agricultural enterprise throughout the world. It is most highly developed in Western European countries such as France, Italy and Spain. Rabbits are also raised in large numbers in China, which is the main exporter of rabbit meat. Increasing quantities of Chinese rabbit meat are being imported into the United States.

Rabbits have a number of attributes which may result in their importance increasing in the future. They have the potential to become a major livestock species. This article will briefly review some of these attributes, and present some of the problems which currently prevent this potential from being realized.

Some of the attributes of the rabbit as a livestock species are:

1. Rabbits can be fed high forage, low grain diets that are largely noncompetitive with human food requirements.
2. Rabbits utilize forage protein very efficiently.

3. Rabbits have a high feed conversion efficiency, with feed/gain ratios of 2-2.3 on high grain diets, and 3-3.8 on high forage, grain-free diets.
4. They have a high growth rate, similar to that of broiler chickens, reaching market weight (4-4.5 lbs) at 8 weeks of age.
5. Rabbits have the potential of being in a constant state of reproduction; they can be rebred within 24 hours of parturition.
6. There is a high degree of genetic diversity for productive traits, so that selection and breeding programs have the potential for a rapid rate of improvement.
7. Rabbit meat is a high quality, nutritious product.
8. Rabbits are suited to both small scale (backyard, self-sufficiency) and to large scale commercial production.

The ability of rabbits to utilize high forage diets efficiently is shown in Table 1.

Table 1. Performance of weanling rabbits fed high alfalfa diets (Pote et al., 1980)

% Dietary alfalfa	% Corn replaced by alfalfa	Average daily gain(g)	Average daily intake(g)	Feed/gain	Daily DE intake (Kcal)	Mortality (%)
0	0	31.4 ^a	84.2 ^a	2.7	310	20
10	10.1	44.0 ^b	107.5 ^b	2.4	374	20
20	21.7	36.6 ^{ab}	105.3 ^b	2.9	350	10
30	36.2	40.1 ^{ab}	110.4 ^b	2.8	349	70
40	50.7	36.4 ^{ab}	115.8 ^b	3.2	344	10
50	65.2	41.1 ^b	130.9 ^c	3.2	365	10
60	79.7	37.3 ^{ab}	134.3 ^{cd}	3.6	349	10
74	100	38.2 ^{ab}	147.6 ^d	3.9	346	0

Means followed by different superscripts differ significantly (P < 0.05).

*N. M. Patton, Rabbit Research Center, Oregon State University, Corvallis, OR 97331

Reciprocal Meat Conference Proceedings, Volume 34, 1981

Contribution of the Rabbit Research Center and the Department of Animal Science, Oregon Agricultural Experiment Station, Corvallis, OR 97330

In this study (Pote et al., 1980), the complete replacement of grain with alfalfa did not reduce average daily gain. Gain was lowest on the low fiber, high energy corn-soy diet with no alfalfa added. Even with a diet containing 74% alfalfa, the feed/gain ratio was less than 4. Values for poultry, swine or cattle fed a grain-free high alfalfa diet would probably be much higher, and in the case of growing swine and poultry, performance with a 74% alfalfa diet would be extremely poor. The ability of rabbits to use high forage diets may be particularly important in tropical developing countries. Harris

et al. (1981) have shown that rabbits can grow as rapidly and efficiently on diets containing several tropical forages as when they are fed diets containing alfalfa.

An additional benefit of the use of high forage diets is that the incidence of enteritis is markedly reduced. Enteritis is a disorder of the digestion tract, causing diarrhea, dehydration, toxemia and death. It is responsible for the death of a high percentage of all fryer rabbits produced. Cheeke and Patton (1980) have suggested that it is caused by carbohydrate overload of the hindgut (cecum and colon). Feeding high grain diets allows undigested starch to enter the hindgut, where it supports the proliferation of pathogens which produce endotoxins. Absorbed endotoxins are responsible for the death of the affected animals. The use of high forage diets reduces the dietary starch level, and likelihood of carbohydrate overload.

Rabbit meat is a high quality nutritious product. Results of a recent study on its composition are shown in Table 2.

Some of the problems which currently limit the profitability of rabbit production are high disease losses, and the high labor intensity of rabbit raising. If these problems can be overcome, rabbit production may become more important in the future. Because of their ability to efficiently utilize high forage diets, rabbits have the potential to become a major meat producing livestock species.

Discussion

Dr. Lewis: Do your processors make many biological products from the rabbits?

Patton: The processors here in Oregon are quite small, however, 70% of our rabbits are shipped to California, where they do make biological products. Pel-freeze, in Arkansas, has a huge biological division. Some of our producers might be up to 1000 rabbits a week, but our major production is going into California where the major market is. We do not have USDA inspection of rabbit meat unless you buy it since it is not mandatory. Pel-freeze is the only slaughter plant in America that has USDA inspection so they can ship all over the country. In Oregon, however, we must ship on the paw into California to be able to get the product to where the people are.

Dr. Lewis: Do you distinguish the price of your rabbit by color of coat?

Patton: Processors pay less money for the colored skin or the colored rabbit. The reason for this is that the price of white fur has just skyrocketed. We are now getting 60¢ a skin for white fur. It used to be sold for 50¢ a pound. Now we are getting \$3.60 a pound for white, but the colored fur is considerably less. By-products of the rabbit industry include biologicals and the fur market is increasing rapidly.

Question: Don't you feel that if that's the case, then why would this industry not become competitive with the poultry industry?

Patton: I think the price of fur is going to help, but that 62¢ a pound we're paying for rabbits live includes the coat, so we are not in the same ballgame. One of the things the research center is interested in is automation of rabbit production. We are now handling them by hand. They are bred by hand and are very sensitive to feed. One of the problems with our en-

Table 2. Nutrient composition of rabbit meat^a

<i>Nutrient</i>	<i>Amount of Nutrient</i>	<i>Vitamins^c</i>	<i>Amount of Nutrient</i>	
Crude Protein (%)	18.5 ^b	Thiamine (mg/100g)	0.11	
Fat (%)	7.4 ^b	Riboflavin (mg/100g)	0.37	
Water (%)	71 ^b	Niacin (mg/kg)	21.2	
Ash (%)	0.64 ^b	Pyridoxine (mg/kg)	0.27	
Unsaturated fatty acids as a % of total fatty acids	63	Pantothenic acid (mg/kg)	0.10	
Cholesterol (mg/100g)	136 ^c	Vitamin B12 (micrograms/kg)	14.9	
		Folic acid (micrograms/kg)	40.6	
	<i>Minerals^c</i>		<i>Amino Acids^d</i>	
	Zinc (mg/kg)	54	Leucine	8.6
	Sodium (mg/kg)	393	Lysine	8.7
	Potassium (g/kg)	2	Histidine	2.4
	Calcium (mg/kg)	130	Arginine	4.8
	Magnesium (mg/kg)	145	Threonine	5.1
	Iron (mg/kg)	29	Valine	4.6
			Methionine	2.6
			Isoleucine	4.0
			Phenylalanine	3.2

^aData taken from Rao, D. R. et al., 1979. Nutritive value of rabbit meat. pp. 53-59 in: The Domestic Rabbit: Potentials, Problems and Current Research. Published by OSU Rabbit Research Center, Corvallis, OR 97331.

^bWet weight basis.

^cDry weight basis.

^dAmino Acids expressed as % of protein.

teritis syndrome is if you full feed a rabbit continuously, they're liable to die. So the things we are studying are methods for feeding a rabbit so you can automate and not be concerned with death loss.

Kinsman: What has been the acceptance of the term, *cunie* meat?

Patton: Not very well. Most people still refer to it as rabbit meat, even though we have suggested that the name be changed a number of times. You may recall that before the truth in selling laws came in, the rabbit coat was called a CONIE. *Cuney* might be a take off from that same idea, but people are still calling it rabbit meat.

Kauffman: I would like to know your philosophical answers to the animal rights people concerning this issue of rabbit for food?

Patton: I guess I would ask you what your philosophical comments concerning beef for food or chickens for food.

Kauffman: I asked first.

Patton: Well, certainly if you view it from a livestock point of view, it's the same. If you view it from a pet point of view,

then, of course, it's different. We are desperately trying to promote this from the standpoint of livestock. As I mentioned, that picture we used for promotion actually didn't do us any good.

Zobrisky: Whatever happened to this company called FUNK Incorporated here in Washington state.

Patton: They have gone out of business. They had some very interesting ideas, but the person who had the ideas didn't know how to raise rabbits.

References

- Cheeke, P. R. and N. M. Patton. 1980. Carbohydrate overload of the hindgut: a probable cause of enteritis. *J. Appl. Rabbit Res.* 3(3):20-23.
- Harris, D. J., P. R. Cheeke, L. Telek and N. M. Patton. 1981. Utilization of alfalfa meal and tropical forages by weanling rabbits. *J. Appl. Rabbit Res.* 4:4-9.
- Pote, L. M., P. R. Cheeke and N. M. Patton. 1980. Utilization of diets high in alfalfa meal by weanling rabbits. *J. Appl. Rabbit Res.* 3(4):5-10.