

# TECHNICAL AND ECONOMIC ASPECTS OF USING DIFFERENT SOURCES OF FOOD IN ROMANIAN SHEPHERD BREED FEEDING

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## Abstract

Romanian Shepherd breeding has gained interest after the international approval in 2005. In terms of nutrition for these breeds, some breeders are contend with commercial food nutrition, while others are followers of traditional feeding, based on regular processed ingredients by boiling. Purpose of this paper is to realize an economic and technical evaluation from the use of different sources of food for dogs. Commercial varieties studied were dehydrated, semi-moist and moist food, in front against traditional rations models based on literature. The results show that food trade presents a more balanced level of nutrients in relation to food standards. Assessment of individual daily costs may recommend using premium and superpremium dog food, as more economically profitable.

**Key words:** shepherd dog, dog, canine nutrition, pet food

## INTRODUCTION

Romanian shepherd dog breeds are rustic breeds with good disease resistance and a higher rate of food valorification due to secular evolution with flocks existing in our country, the main criterion for selection is usefulness and natural selection is responsible for the continuity of these breeds so far.

Knowing these breed specific nutrition is particularly important for breeders and owners, making it helpful in the work of international approval, thereby maximizing the genetic potential externalization of these breeds [1]. Another important aspect specific for animal breeding, is economic efficiency that can be achieved using different sources of food. Literature gives little information about national dog breeds and even less about the specific of their alimentation.

## MATERIAL AND METHODS

In to achieve the paper goal 11 varieties of food were compared; 9 types of commercial dry food and two models of cooked food recipes. Four commercial varieties of food are labeled by manufacturers as superpremium

(Achan, Arion, Royal Canin, Brekkies) and five varieties as premium (Natural Menu, Dingo Nature, Dibo Menu, Upsolute Passion Bewi), specific for canine young alimentation. For the cooked food were used two recipes a models from literature.

## RESULTS AND DISCUSSIONS

For a proper evaluation of any sort of food intended for animal nutrition in general and dogs in particular we need to consider and consult specific food rules considering age, physiological state and species.

Table 1 presents the nutritional rules regarding specific alimentation for young and adult dogs, expressed in quantity required per kg of body weight a day [2].

These food standards are a guideline because the dogs have individual requirements are influenced by season, physiological status, level of activity, weight or race.

For each stage of their life during body development, dogs have different requirements regarding feeding. For this study were taken from the literature two rations of food, usually cooked in specialized farms breed dogs (kennels) based on fresh ingredients, processed by boiling and managed as wet dogs.

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Table 1 Feeding rules for zoung and adult dogs

<b>Nutrient</b>	<b>UM</b>	<b>Adults - maintenance</b>	<b>Youth - growth</b>
Proteins	g	4,80	9,6
Fats	g	1,10	2,2
Linoleic acid	g	0,22	0,44
<b>Minerale</b>	-	-	-
Calcium	mg	242	484
Phosphorus	mg	198	396
Potassium	mg	132	264
NaCl	mg	242	484
Magnesium	mg	8,8	17,60
Iron	mg	1,32	2,64
Copper	mg	0,16	0,32
Manganese	mg	0,11	0,22
Zinc	mg	1,10	2,20
Iodine	mg	0,034	0,068
Selenium	µg	2,42	4,84
<b>Vitamins</b>	-	-	-
Vit. A	UI	110	220
Vit. D	UI	11	22
Vit. E	UI	1,10	2,20
Thiamine	µg	22	44
Riboflavin	µg	48	96
Pantothenic acid	µg	220	440
Niacin	µg	250	500
Piridoxin	µg	22	44
Folic acid	µg	4,00	8,00
Biotin	µg	2,20	4,40
Vit. B12	µg	0,50	1,00
Coline	mg	26	52

Source: Corbin, 1974

Table 2 presents a model of diet for youth large canine weighing between 15 and 20 kg.

Also in the table are presented the quantities of each ingredient within the ration composition for youth canine weighing between 15 and 20 kg, and the total amount of the daily ration. For each ingredient, was

calculated an average price, so in the end is listed the total price for this ratio.

Regarding the chemical composition of the ingredients used in food rations, the data were consistent with those mentioned by various authors in the literature [3], [4].

Table 2 Sample diet canine large for young canine dogs weighing between 15 and 20 kg

<b>Assortment</b>	<b>Amount (g)</b>	<b>Protein (g)</b>	<b>Fat (g)</b>	<b>Carbohydrates (g)</b>	<b>Kcal</b>	<b>Price (RON)</b>
Beef	675	125,25	20,25	-	742	3,00
Poultry	200	17,60	9,60	0,80	252	1,00
Cow's milk	300	9,00	9,90	11,40	180	0,60
Oatmeal	100	12,40	3,40	16,40	200	0,50
Yolk	30	2,80	2,80	0,50	76	0,50
Shelling	50	11,40	0,90	11,00	85	0,10
Corn flour	100	4,70	0,60	37,90	187	0,15
Animal fat	75	-	71,30	-	663	0,20
Rice	100	4,00	0,60	75,90	356	0,30
Mineral salt	25	-	-	-	-	0,80
Chopped Bones	100	6,00	7,00	-	98	0,25
<b>Total</b>	<b>1775</b>	<b>193,15</b>	<b>126,35</b>	<b>153,90</b>	<b>2262</b>	<b>7,40</b>

Source: Bud, 2002

Youth canine diet model, weighing between 35 and 40 kg, is presented in table 3, which presents both the ingredients that went into the composition and formulation of its final price.

Because the composition of the ration model for large young canine weighing between 35 and 40 kg are found more plant origin ingredients, protein is 17.6% lower and the amount of fat is higher by 8.5% than the ration model for large young canine weighing between 15 and 20 kg.

The chemical composition of super premium and premium commercial products, as found on the label of each product is shown in Table 4 and Table 5. Besides the chemical composition in the tables are present prices per kg of product.

The data analysis shows that the product with the highest amount of protein (31% CP of DM) is the *Achan* product, and the highest

content of fat is found in *Royal Canin* product (22% EE of DM), both are considered superpremium food.

At the opposite end with the lowest protein content (9% CP of DM) and fat (4.5% EE of DM) is found *Bewi* product, this product is a premium product.

In terms of protein and fat content, most commercial products had higher values than cooked food, for large canine young weighing between 15 and 20 kg, except *Upsolute Passion* (10% CP of DM) and *Bewi* (9% CP of DM) and *Dibo Menu* (6% EE of DM) *Bewi*. (4.5% CP of DM) considered premium varieties.

In terms of cost per kilogram most expensive product is superpremium (*Natural Menu* - 17.8 RON/kg product) and the cheapest kind of food is diet model large youth canine weighing between 35 and 40 kg (3.51 RON/kg product).

Table 3 Sample diet canine large for young canine dogs weighing between 35 and 40 kg

Assortment	Amount (g)	Protein (g)	Fat (g)	Carbohydrates (g)	Kcal	Price (RON)
Beef	400	74,06	11,60	-	440,00	2,40
Dry bread	350	21,00	2,80	189,00	886,20	1,05
Rice	300	12,00	1,80	227,60	1068,00	0,90
Wheat	100	8,40	0,40	39,90	207,00	0,15
Shelling	100	14,80	1,80	22,40	175,00	0,60
Corn flour	200	9,40	2,40	75,80	374,00	0,30
Animal fat	100	-	100,00	-	930,00	0,10
Mineral salt	15	-	-	-	-	-
<b>Total</b>	<b>1565</b>	<b>139,66</b>	<b>120,80</b>	<b>554,70</b>	<b>4080,20</b>	<b>5,50</b>

Source: *Bud*, 2002

Table 4 Chemical composition of commercial products intended for young canine superpremium

Specification	UM	Acana	Arion	Royal Canin	Brekkies
Protein	g	31,00	26,00	30,00	25,00
Fat	g	14,00	14,00	22,00	12,00
Fibre	g	2,50	2,50	1,80	2,00
Moisture	g	10,00	9,00	10,00	20,00
Ca	g	1,10	1,30	1,25	1,40
P	g	0,90	1,00	0,90	0,90
Vit. A	UI	20000	20000	n/a	n/a
Vit. D	UI	2400	1500	n/a	n/a
Vit. E	UI	400	150	n/a	n/a
Vit. K	mg	1,30	7,00	n/a	n/a
Vit. C	mg	150	40,00	n/a	n/a
Vit B12	mg	0,30		n/a	n/a
Tiamina	mg	34,00	n/a	n/a	n/a
E M	kcal/kg	3950	3604	4230	2500
<b>Cost-pet shop</b>	<b>RON/kg</b>	<b>14,00</b>	<b>12,00</b>	<b>17,00</b>	<b>13,95</b>

Source: <http://www.dogfoodanalysis.com>

Table 5 Chemical composition of commercial products intended for young canine premium

Specificare	UM	Natura Meniu	Dingo Natura	Dibo Meniu	Upsolut Passion	Bewi
Protein	g	27,00	28,00	11,00	10,00	9,00
Fat	g	17,00	15,00	6,00	9,00	4,50
Fibre	g	2,00	2,00	0,30	0,30	0,50
Moisture	g	25,00	20,00	76,00	78,00	80,00
Ca	g	1,10	1,20	0,80	0,80	0,82
P	g	0,85	0,90	0,50	0,60	0,55
Vit. A	UI	n/a	n/a	2000	2500	n/a
Vit. D	UI	n/a	n/a	200	250	n/a
Vit. E	UI	n/a	n/a	30	25	n/a
Vit. K	mg	n/a	n/a	n/a	n/a	n/a
Vit. C	mg	n/a	n/a	n/a	n/a	n/a
Vit B12	mg	n/a	n/a	n/a	n/a	n/a
Tiamina	mg	n/a	n/a	n/a	n/a	n/a
E M	kcal/kg	3100	2950	1500	1600	1420
<b>Cost-pet shop</b>	<b>RON/kg</b>	<b>17,80</b>	<b>16,50</b>	<b>10,90</b>	<b>7,50</b>	<b>5,60</b>

Sursa: <http://www.dogfoodanalysis.com>

The average cost per kg product of all sorts of food analyzed is 11.18 RON/kg product, and mean values of protein and fat content is 18.6% CP of DM and 10.6% EE of DM.

The difference between price and quality can be shown by the quantity to be administered according to age and weight to meet nutrient requirements.

Such a product may meet the requirements of the animal with a smaller amount of the product and thus be more economically efficient even if the unit price is higher compared.

In Table 6 are given the quantities of each product, premium and super premium, taking into account the weight of the animal.

Also in the table below are found costs manageable quantities calculated by the unit cost of the product.

Thus, we can see that for 15-20 kg category the lowest amount administered is *Royal Canin* 152 g of product with a cost of 2.43 RON and the most expensive option is cooked food in a quantity of 1.78 kg and at a cost of 7.4 RON. The same situation can be observed for the 35-40 kg category where most economic option was all *Royal Canin* products with a quantity of 275 g and a cost of 4.4 RON and most expensive option is the food cooked with an amount of 1.57 kg and a cost of 5.5 RON.

Table 6 Comparison of daily food quantities and price / day for young canine

Specification	Category 15-20 kg	Price RON/ quantity/ day	Categoria 35-40 kg	Category RON/ quantity/ day
<b>Acana</b>	165	<b>2,31</b>	333	<b>4,66</b>
<b>Arion</b>	190	<b>2,28</b>	368	<b>4,41</b>
<b>Royal Canin</b>	152	<b>2,43</b>	275	<b>4,40</b>
<b>Brekkies</b>	200	<b>2,70</b>	465	<b>6,50</b>
<b>Natural Meniu</b>	230	<b>4,10</b>	505	<b>9,00</b>
<b>Dingo Natura</b>	280	<b>4,62</b>	572.5	<b>9,44</b>
<b>Dibo Meniu</b>	545	<b>5,94</b>	955	<b>10,41</b>
<b>Ubsolute Passion</b>	565	<b>4,23</b>	945	<b>7,08</b>
<b>Bewi</b>	545	<b>3,05</b>	925	<b>5,18</b>
<b>Cooked food</b>	1775	<b>7,40</b>	1565	<b>5,50</b>

Source: <http://www.dogfoodanalysis.com>

## CONCLUSIONS

Following data analysis can highlight the following conclusions:

- in terms of ensuring the necessary daily nutrients, commercial premium and super premium food is nutritionally balanced compared to cooked food;
- cooked food is at the lower end in terms of nutrient content in protein and fat respectively, compared to the other types analyzed;
- in terms of commercial economicity, dry food costs have a better price value than cooked food.

- best price to quality ratio was found for a variety of super premium dry food.

## REFERENCES

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