Medicon Agriculture & Environmental Sciences
Volume 8 Issue 6 June 2025
Article Type: Guest Editorial
ISSN: 2972-2691

The Economic Effectiveness of the use of Protein of Pea-barley Feed Mixture in the Feeding of Young Cattle with the use of Various Technological Methods

Kh.G. Ischmuratov*

Experimental station "Ufa" Ufa Federal Research Center of the Russian Academy of Scienc, Ufa, Russia

***Corresponding Author:** Kh.G. Ischmuratov, Experimental station "Ufa" Ufa Federal Research Center of the Russian Academy of Scienc, Ufa, Russia.

Received: October 02, 2024; **Published:** June 28, 2025

Legumes play an important role in solving the problem of feed protein. Their cultivation in mixed seeds allows for a significant increase in feed quality. The research carried out by the Research Institute of Animal Feed has shown that the best results for the extraction of dry matter and raw protein were observed in sowing from the mixture from 25% of peas and 75% of barley, and from the mixture 50:50. The content of 104 grams of digestible protein in one feed unit is ensured, and in the case of the 50:50 correlation, 120-130 grams correspondingly.

In this context, it was necessary to clarify which variant of silage and feed grain and which technological process are economically most advantageous for beef production per hectare of fodder crop area.

For the trial on bulls, silage of 3 variants was prepared:

- Silage from the pea-barley mixture with a 50:50 ratio.
- Silage from the pea-barley mixture with a 25:75 ratio.
- Silage from the pea-barley mixture with a ratio of 25:75 with the preservative "Wicher", which was introduced on the basis of 5 litres per tonne of green matter during the laying of the silage. Its ingredients are: 55% formalin, 30% acetic acid, 15% stabilizing substance. The silage pickling phase is the milk wax maturity of the barley.

On the other piece of land, part of the area was harvested as fodder grain. One part of the fodder grain was treated with heat of 1100 C with the KZS – 25B system, the other part was pre-dried at a temperature of 250 C.

The results of the feed analysis showed that the protein content and its quality in the silage and feed grain depends not only on the quantitative ratio of the components, but also on the way in which they are prepared for feeding, i.e. on technological processes such as preservation and heat treatment. For example, the introduction of the preservative "Wicher" in the variant with the 25:75 ratio promoted a reduction in the solubility of protein by 4.85% and its preservation in the preservation process by 6% per kilogram of the dry substance compared to the same variant without preservative.

The decomposability of protein decreased accordingly by 3-5% (absolutely).

Treatment with heat of the feed grain did not affect the change of chemical components and the protein level, with the increase in temperature, but the solubility and decomposability of protein significantly decrease. Solubility decreases by 11.17% compared to grain after ordinary drying, and decomposability – by 11.05%.

During feeding with the feedstuffs to be researched, all rations of the young cattle were provided with energy, protein and other nutrients in accordance with the regulations of the Institute of Animal Husbandry. The crude protein content as a percentage of dry

matter is: I – 15.21; II – 13.74%; III – 13.93; IV – 14.23 at solubility of protein ration: 41.40; 31,30; 28,68; 27.76% correspondingly. The processing of both silage and meal has had a significant influence on the reduction of the solubility of protein in rations. For the experimental period, the daily average increase according to the groups: I – 938, II – 927, III – 996 and IV – 938 grams.

At the end of the experiment, the meat yield per hectare of the feed to be researched was calculated (Table 1). It turned out that the largest increase in beef – 309 kg – was obtained in bull fattening with the use of silage in the ratio.

Group	*Fodder*	*Futterertrag, dt trockenen Stoffes/Ha*	*For the consumption of feed dry matter, dt/ha*	*% of consumption*	*dt of dry matter/ha total*	*Daily average consumption of dry fabric per day/kg*		*First (grams)*	*Silage share of the Zunach*	*Proportion of shot in the first*	*First, grams/ 1kg of dry cloth*		*Slaughter yield, %*	*Meat yield he 1kg of dry matter, grams*	*Meat yield per ha, kg*
						Altogether	*Including silage and grist*				*Altogether*	*Including silage and grist*			
I	Silage (50:50) and eat-treated grist (25:75)	31 20	23,25 5,00	75,1 24,9	28,25	7,23	5,43 1,80	938	705	232	130	97,5 32,2	55,45	72	203
II	silage (25:75) and grist “of the usual drying” (25:75)	43 19	32,68 4,56	75,9 24,1	37,24	7,23	5,49 1,74	927	704	223	128	97,3 30,8	53,67	69	257
III	Silage (25:75) and eat-treated grist (25:75)	43 20	32,46 4,90	75,4 24,6	37,36	7,33	5,53 1,80	996	752	244	136	102,6 33,3	58,68	80	299
IV	Silage (25:75) with “wicher” and grist from ordinary drying (25:75)	45 19	33,97 4,65	75,6 24,4	38,62	7,13	5,39 1,74	990	749	241	139	105,0 33,8	57,57	80	309

Table 1: Meat yield he hae of pea barley – mixture (silage) and of the hereditary grain.

25:75, preserved by "Wicher", and of the shot of the ordinary drying of the same ratio (4th group). In the 3rd group, which was fed with silage (25:75 ratio) and heat-treated meal (25:75 ratio), the meat yield was 299 kg. In the 2nd group, 257 kg were obtained. In the 1st group, the meat yield when using silage (50:50 ratio) and heat-treated meal (25:75 ratio) was only 203 kg.

Characteristic value	*Silage (25:75) and Ordinary Drying Meal (25:75)*	*Silage (50:50) and heat-treated grist (25:75)*	*Silage (25:75) and heat-treated meal*	*Silage (25:75) with "wicher" and grist from ordinary drying*
feed distribution, dt of silage Lead shot	267,84 238,08 29,76	357,12 327,36 29,76	267,84 238,08 29,76	252,96 223,20 29,76
Feed costs, rub.	1446,33	1826,07	1447,87	1598,14
Selbstkosten je dt Cereals, Rub.	5,39 3,90	5,11 3,90	5,52 3,90	6,08 4,43
Growth during the experiment, dt	17,40	18,46	18,46	17,40
Cost of gross production according to purchase prices, rub.	11,50	11,63	12,35	12,28
Cost of the increase, rub.	8222,50	8315,45	8830,25	8780,20
Cost of German feed, rub. Cost of a dt of finished silage	323,15	315,84	303,46	309,02
Cost of the whole production, Rub.	3716,22	3805,87	3747,73	3794,76
Conditional pure income, rub. (Profit)	4506,28	4809,88	5082,52	4985,44
% to the 2nd variant	100,0	106,7	112,8	110,6
Economic performance, one thousand rubles.	0	0,304	0,576	0,479

Table 2: The economic effectiveness of rations in bulls.

The economic efficiency of the rations, taking into account the protein quality, testifies to the expediency of using silage with a 25:75 ratio with the preservative "Wicher" in the 4th group and the heat-treated meal of the same ratio in the 3rd group at the temperature of the heat transfer medium 1100C when feeding young cattle, without taking into account the increase in the cost of these feeds.

Volume 8 Issue 6 June 2025