The effectiveness of in vivo determination of meat quality using an ultrasonic scanning device in Kazakhstan.

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The aim of the project is to study the effectiveness of in vivo determination of meat quality using an ultrasonic scanning device. Tasks: to determine the ribeye area, the fat of the cattle using an EXAGO ultrasonograph; compare the ribeye area, the fat of the slaughter cattle, determined using an EXAGO ultrasonograph and measured on the carcass after slaughter.

The studies were carried out on pedigree bull-calves of the Kazakh white head (85 animals), Auliekol (101 animals) breeds and on the feeding stock (6 animals) with a live weight of more than 400 kg.

Table 1: Intravital meat qualities of pedigree bull-calves , obtained with the help of ultrasound

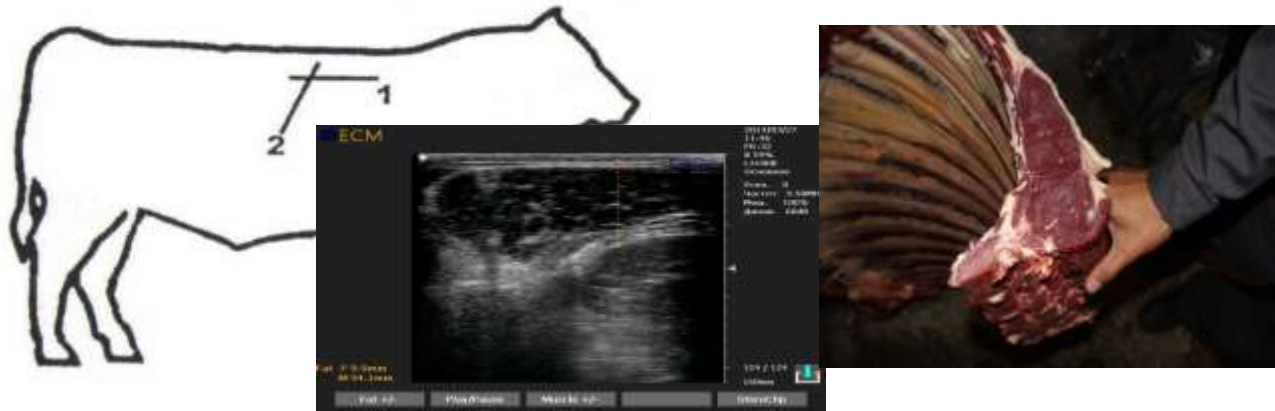| Indicator	Breed							
	Kazakh white head (n=85)				Auliekol (n=101)			
	age of days	M±m	δ	Cv	age of days	M±m	δ	Cv
Weight, lb	373	772.1±8.52	79.01	10,23	350	686.2±5.97	59.41	8.66
Ribeye area, sq in	373	23.2±0.32	2.98	12.87	350	20.4±0.26	2.59	12.72
Fat thickness, in	373	0.10±0,002	0.02	18.19	350	0.09±0,002	0.02	17.8

Table 2: Intravital meat qualities of steer bulls before slaughtering animals, obtained with the help of ultrasound

Indicator	Prepared bull						Average		
	1	2	3	4	5	6	M±m	δ	Cv
Weight, lb	1256.6	1294.1	1294.1	1095.7	983.3	943.6	1144.6±64.83	158.8	13.87
Ribeye area, sq in	27.17	29.09	28.9	23.7	23.62	21.97	25.74±1.24	3.04	11.80
Fat thickness, in	0.2	0.23	0.30	0.10	0.10	0.13	0.18±0.03	0.08	45.39

Table 3: Meat qualities of steer bulls after slaughtering

Indicator	Prepared bull						Average		
	1	2	3	4	5	6	M±m	δ	Cv
Ribeye area, sq in	28.62	31.73	31.04	24.76	24.53	24.06	27.5±1.41	3.46	12.61
Fat thickness, in	0.12	0.24	0.24	0.12	0.08	0.04	0.14±0.03	0.08	59.25

Table 4: The sameness ribeye area of obtained by ultrasound and after slaughter

	Ribeye area, cm^2		Sameness, %
	Ultrasound	after slaughtering	
M±m	25.74±1.24	27.5±1.41	93,8±0,86
δ	3.04	3.4	2.11
Cv	11.80	12.61	2.25

The coincidence of ribeye, measured by an ultrasound with a post-mortem measurement averaging 93.8%. The introduction of ultrasound methods for determining beef productivity in beef industry will allow livestock husbandry to become cost-effective and improve the beef quality.

Ultrasound data can help predict the carcass traits of an animal. Improving carcass traits can be value added to the cow herd.