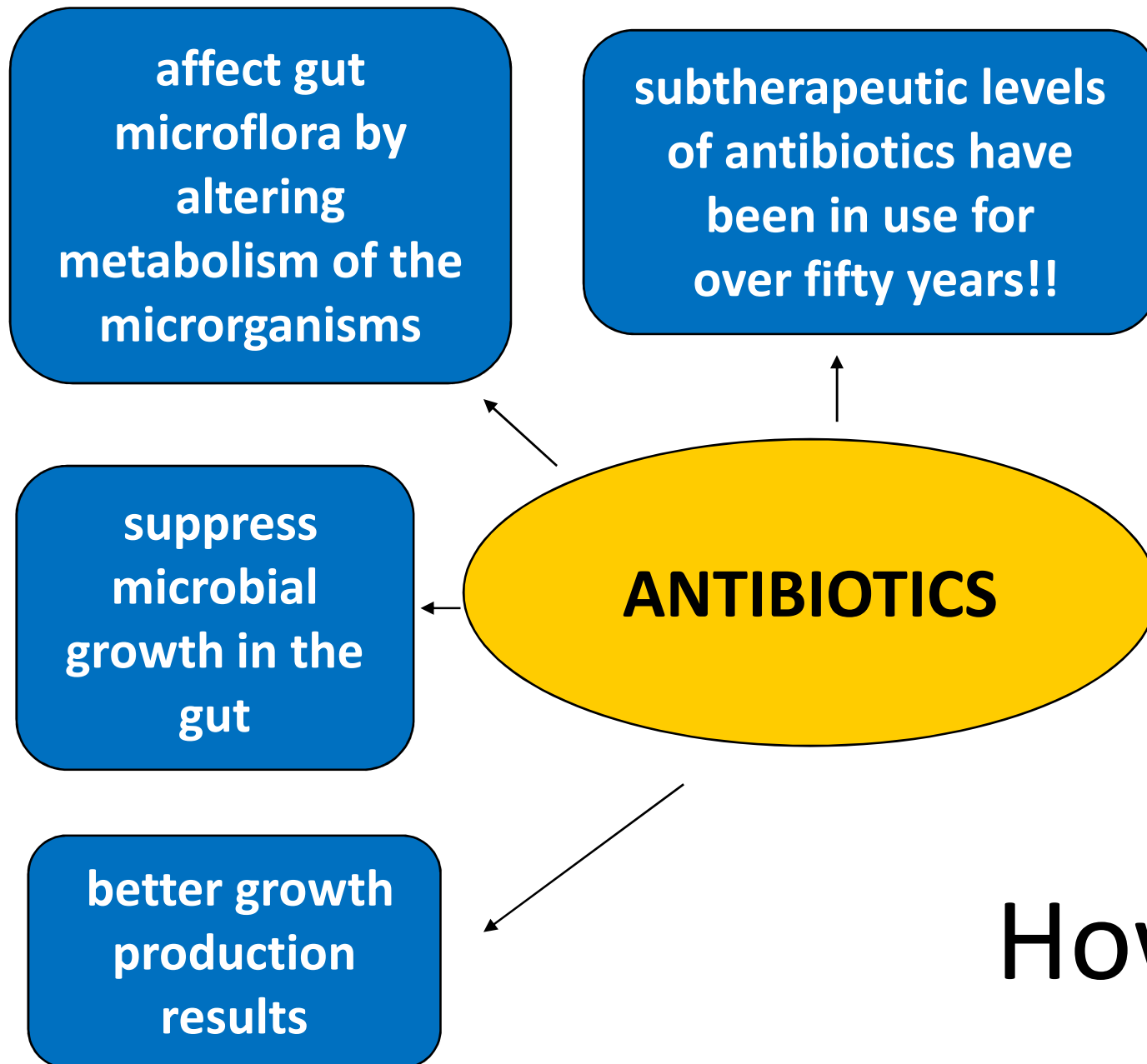


THE EFFECTS OF PROBIOTIC SUPPLEMENTATION IN WEANED PIGS DIET

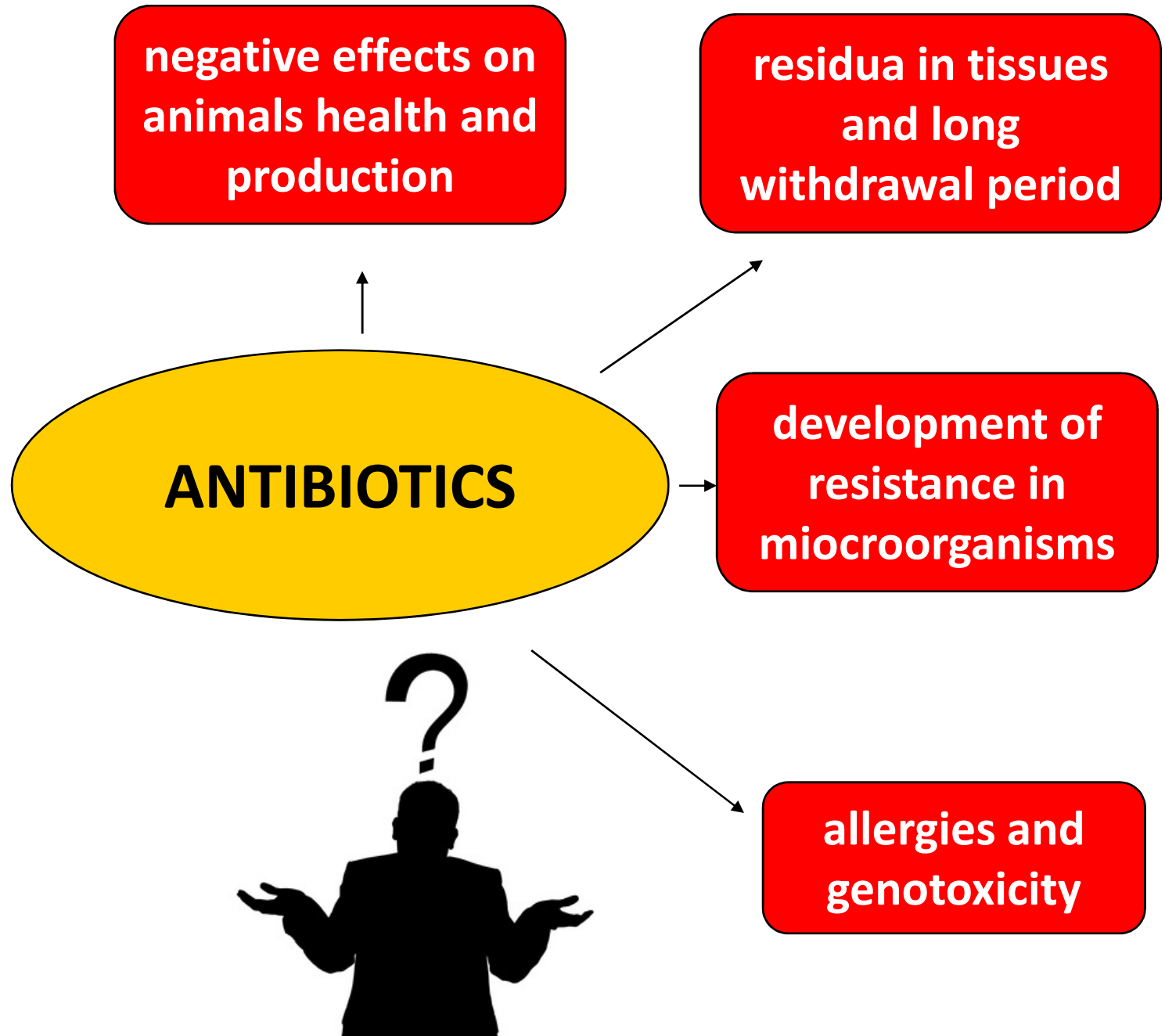
FACULTY OF VETERINARY MEDICINE, BELGRADE UNIVERSITY



Dragan Šefer, Stamen Radulović, Radmila Marković, Dobrila Jakić-Dimić



However...



European Parliament and Council Regulation



(EC, No 1831/2003)
from 22. september 2003



**Antibiotics can be used as a feed additives
only before 31. december of 2005**

Great interest for development of new alternatives that would help in manipulation of gastrointestinal microflora in livestock



PROBIOTICS

- ✓ Aggregation to pathogenic bacteria
- ✓ Competition at adherence site
- ✓ Nutritive competition between microorganisms
- ✓ Bactericide effects
- ✓ Prevention of Coliform bacteria and other bacteria from attaching to the intestinal wall



FEEDING TRIAL

- ✓ The experiment included 24 pigs (Landrace x Yorkshire)
- ✓ Commercial conditions of rearing
- ✓ Weaned at age of 35 days
- ✓ Distributed randomly in two feeding treatments
- ✓ The experiment lasted 40 days



Animals were fed with identical commercial complete corn - soybean based diets with a standard chemical composition

	C	E-I
Corn	53	53
Soybean meal	18	18
Soybean grit	19	19
Premix	10	10
Growth stimulator	-	+

Raw composition of diets up to BW 15 kg (%)

	C	E-I
Corn	60	60
Soybean meal	15	15
Soybean grit	15	15
Premix	10	10
Growth stimulator	-	+

Raw composition of diets for BW 15 – 25 kg (%)

GROWTH STIMULATOR	GROUP	
	C	E-I
PROBIOTIC	-	0,4 kg/t

Probiotic is commercial product comprised of a mixture of spray-dried spore-forming *B. subtilis* and *B. licheniformis* (3.2×10^9 viable spores/g)

The chemical composition of the diet for pigs up to 15 kg, [%]

	C	E-I
Water	11,21	11,20
Ash	3,24	3,30
Protein	20,94	20,90
Fat	6,20	6,15
Cellulose	3,58	3,55
Starch	54,83	54,90
Ca	0,95	0,94
P	0,68	0,66
ME, MJ/kg	14,35	14,32
Lysine	1,44	1,44
Methionine+cystine	0,72	0,72
Tryptophan	0,31	0,31

The chemical composition of the diet for pigs 15 - 25 kg, [%]

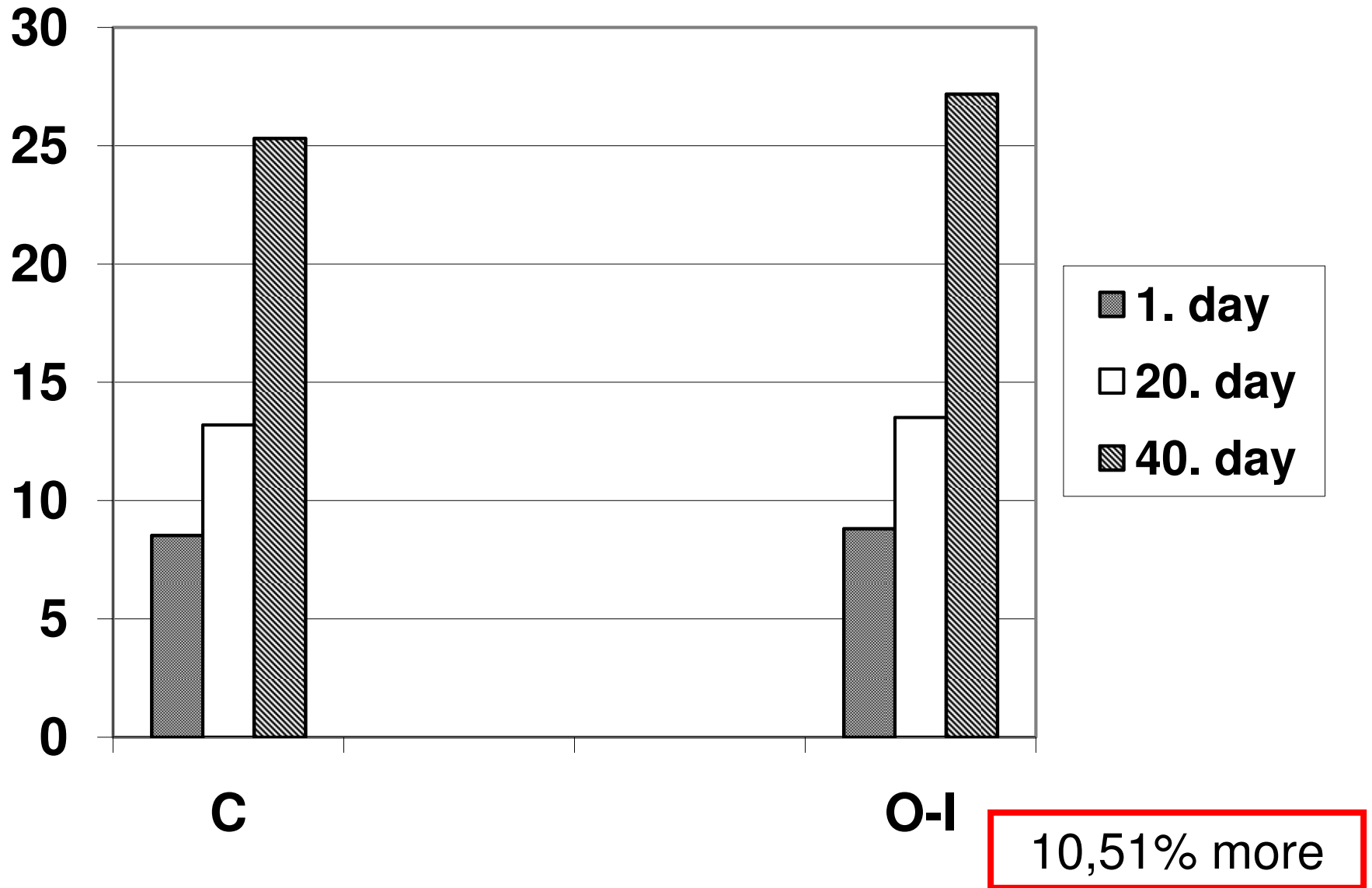
	C	E-I
Water	11,50	11,42
Ash	2,92	2,94
Protein	18,66	18,60
Fat	5,73	5,70
Celullose	3,43	3,40
Starch	57,76	57,94
Ca	0,90	0,89
P	0,66	0,64
ME, MJ/kg	14,21	14,18
Lysine	1,27	1,27
Methionine+cystine	0,64	0,64
Tryptophan	0,28	0,28

GROWTH PRODUCTION RESULTS

Body weight* of pigs during the experiment, [kg]

Days of the experiment	C	E-I
1.	8,53±2,20	8,54±1,51
20.	13,20±4,04	13,94±2,93
40.	25,32±6,31	27,98±4,76

*The value is expressed as $\bar{x} \pm Sd$



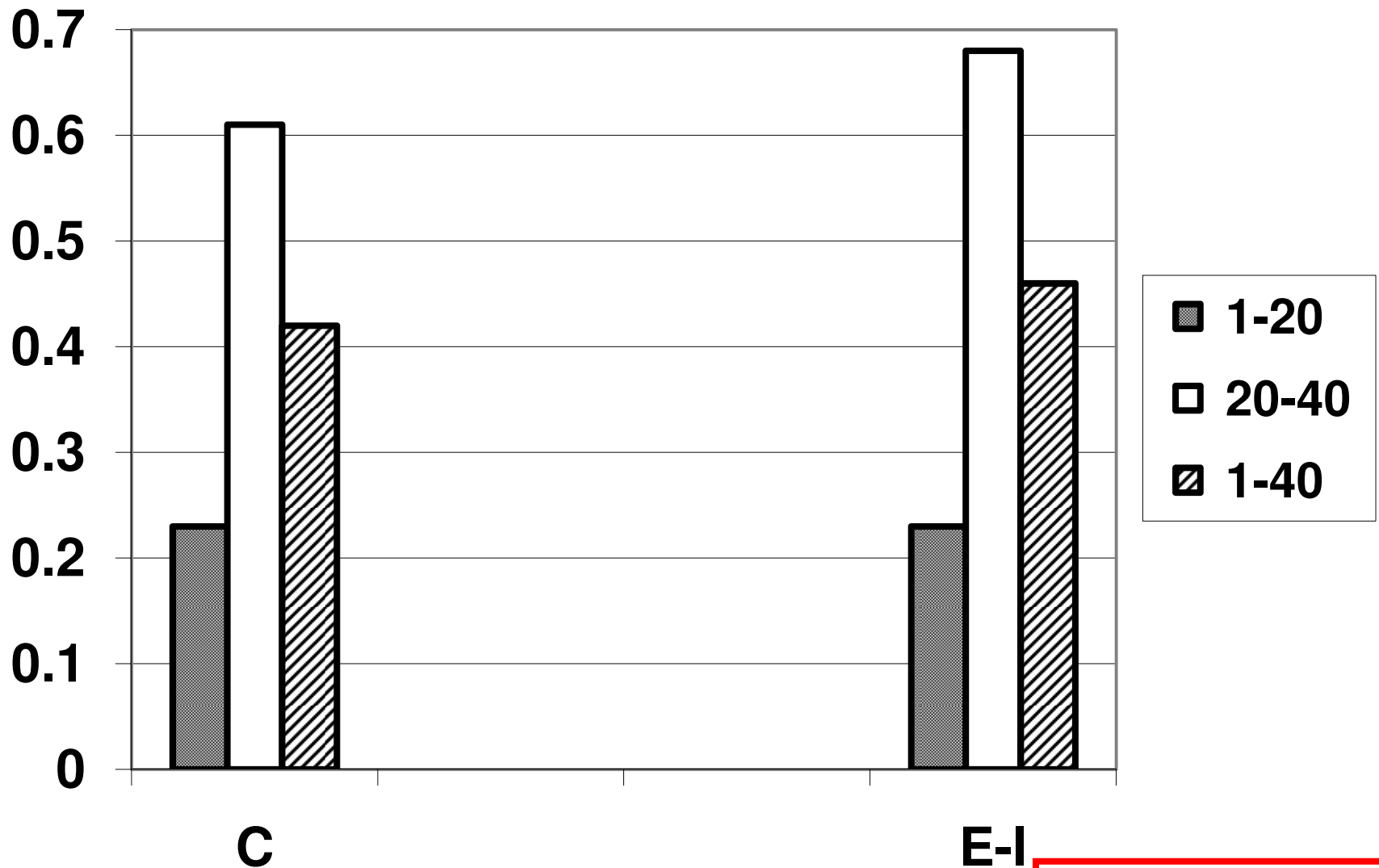
The average body weight of pigs during experiment, (kg)

GROWTH PRODUCTION RESULTS

Average daily gain of pigs during experiment, [kg]

Period of experiment	C	E-I
1-20.	0,23±0,15	0,27±0,10
20-40.	0,61±0,13	0,70±0,13
1-40.	0,42±0,12	0,49±0,09

*The value is expressed as $\bar{X} \pm Sd$



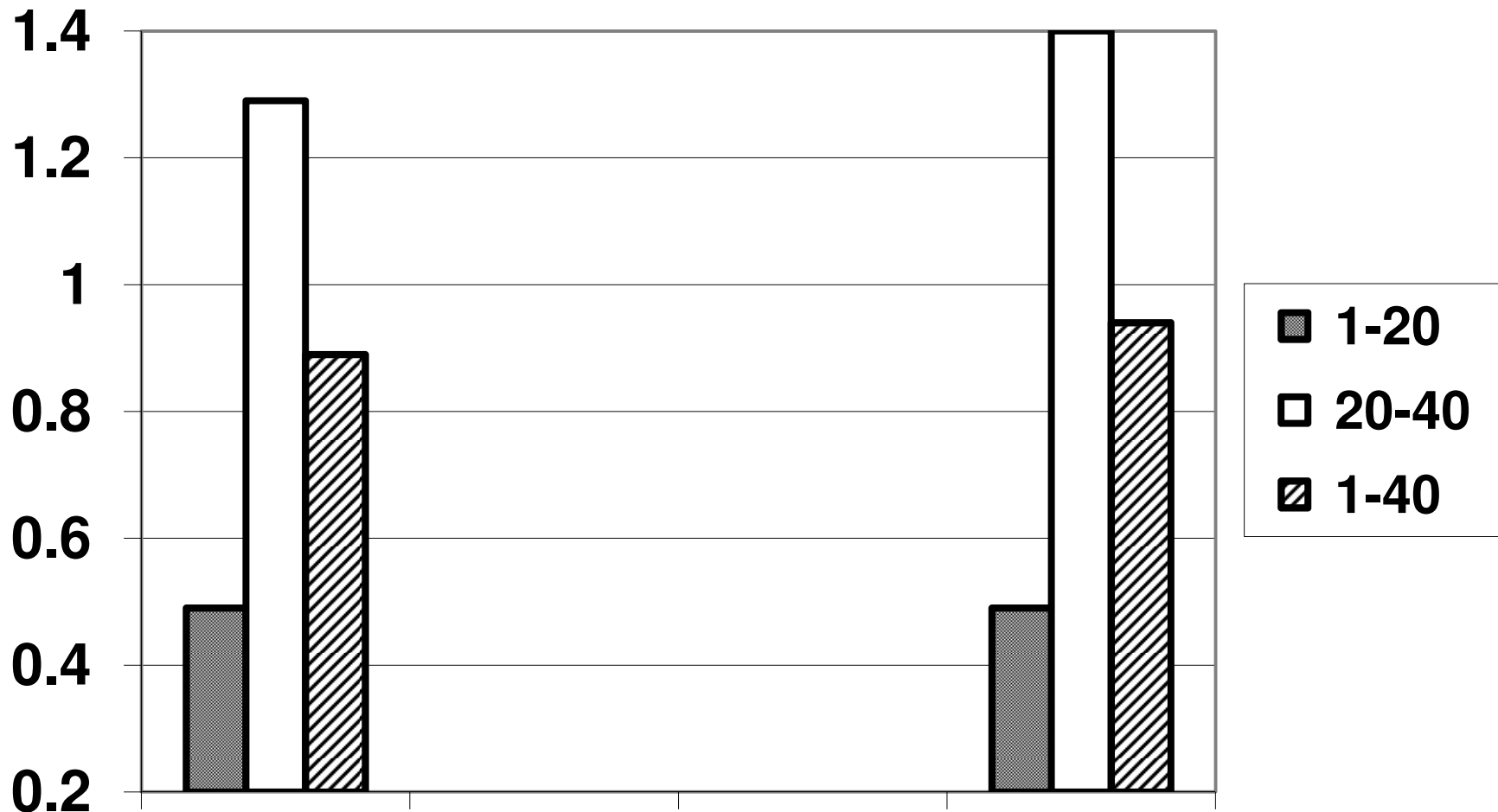
16,67% more

The average daily body weight gain during the experiment, kg

GROWTH PRODUCTION RESULTS

Average daily feed consumption, [kg]

Period of experiment	C	E-I
1-20.	0,49	0,53
20-40.	1,29	1,38
1-40.	0,89	0,96



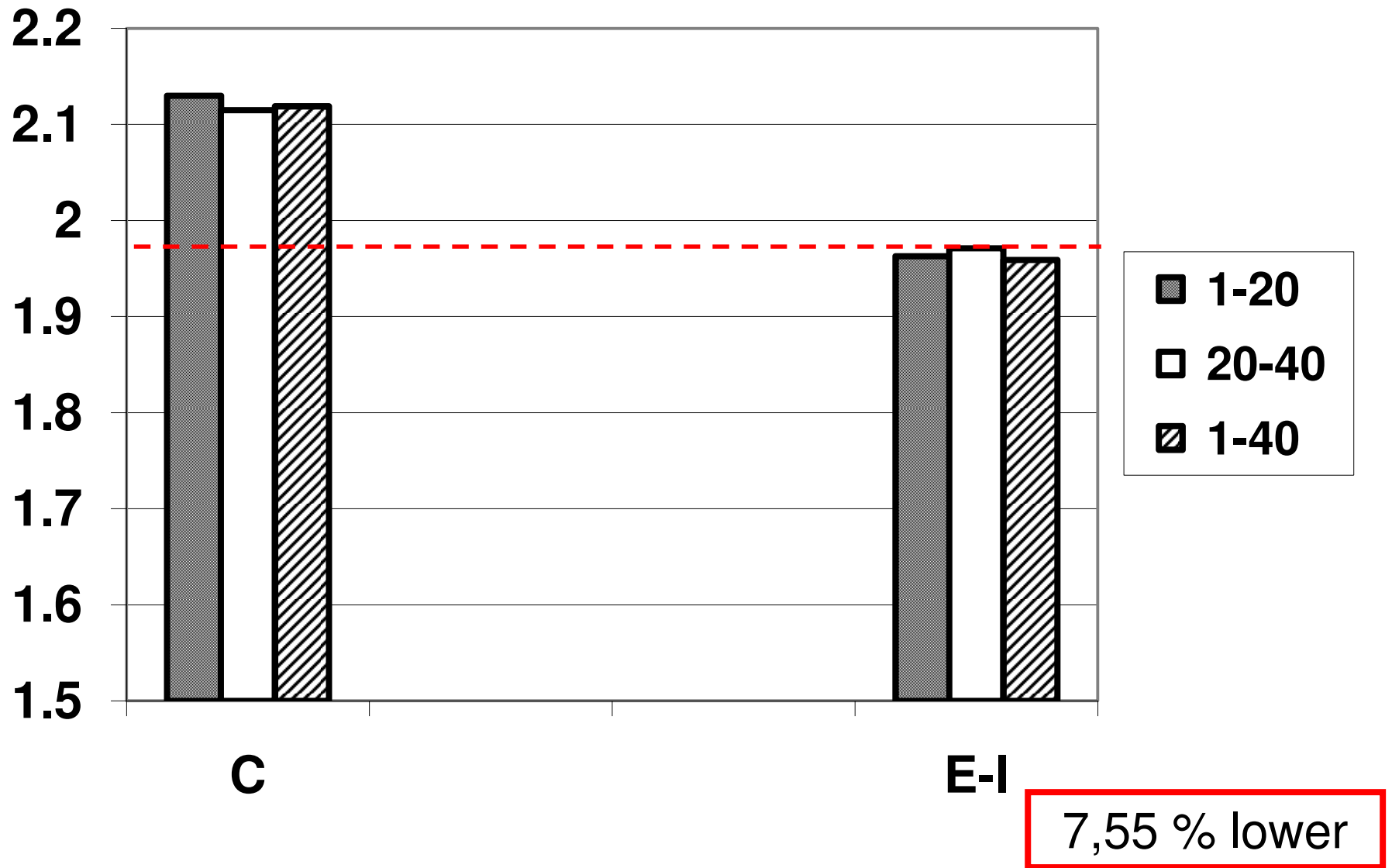
7,86% more

Average daily feed consumption during experiment, (kg)

GROWTH PRODUCTION RESULTS

Feed to gain ratio during experiment

Period of experiment	C	E-I
1-20.	2,130	1,963
20-40.	2,115	1,971
1-40.	2,119	1,959



Feed to gain ratio during experiment

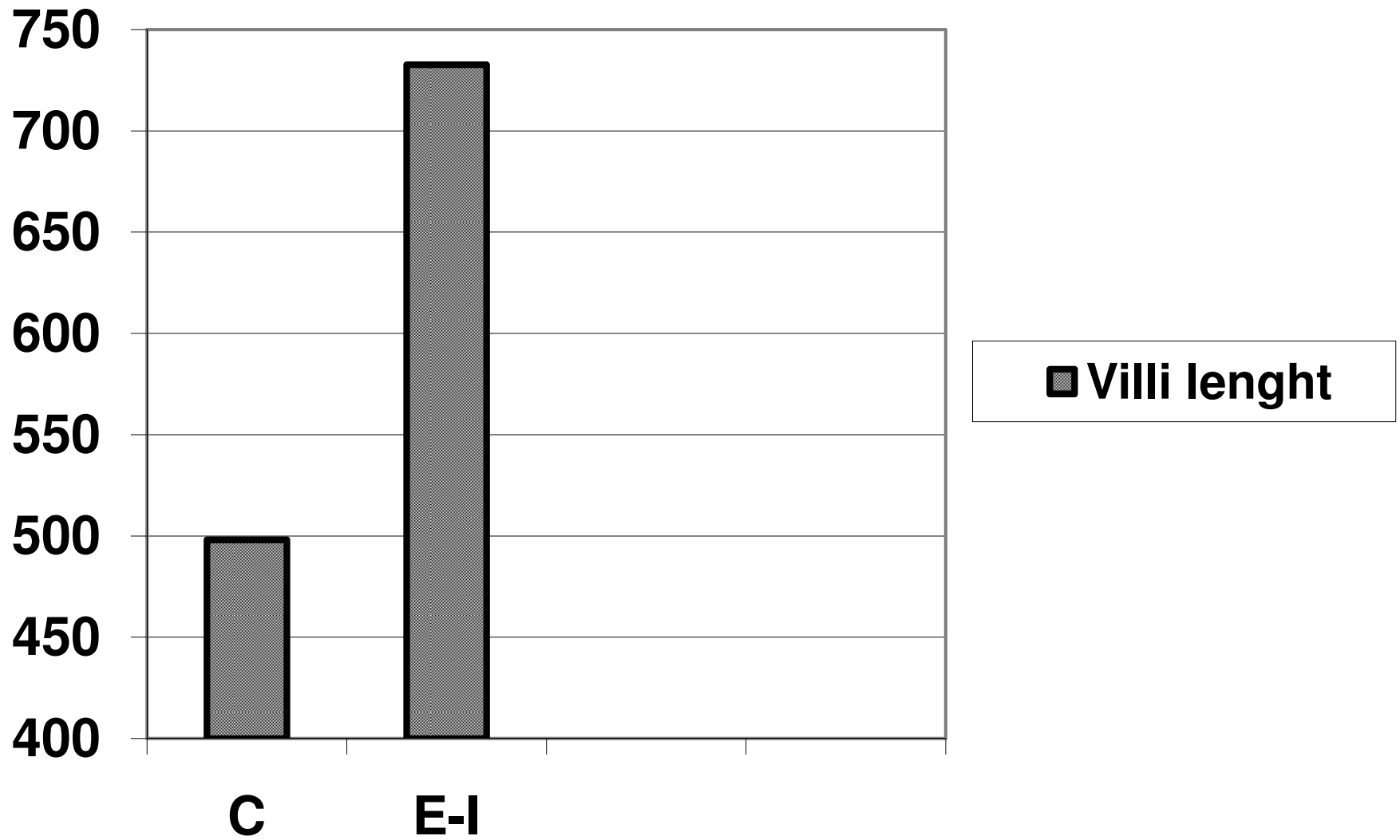
MORPHOMETRIC ANALYZES

Morphometric characteristics * of jejunum (μm)

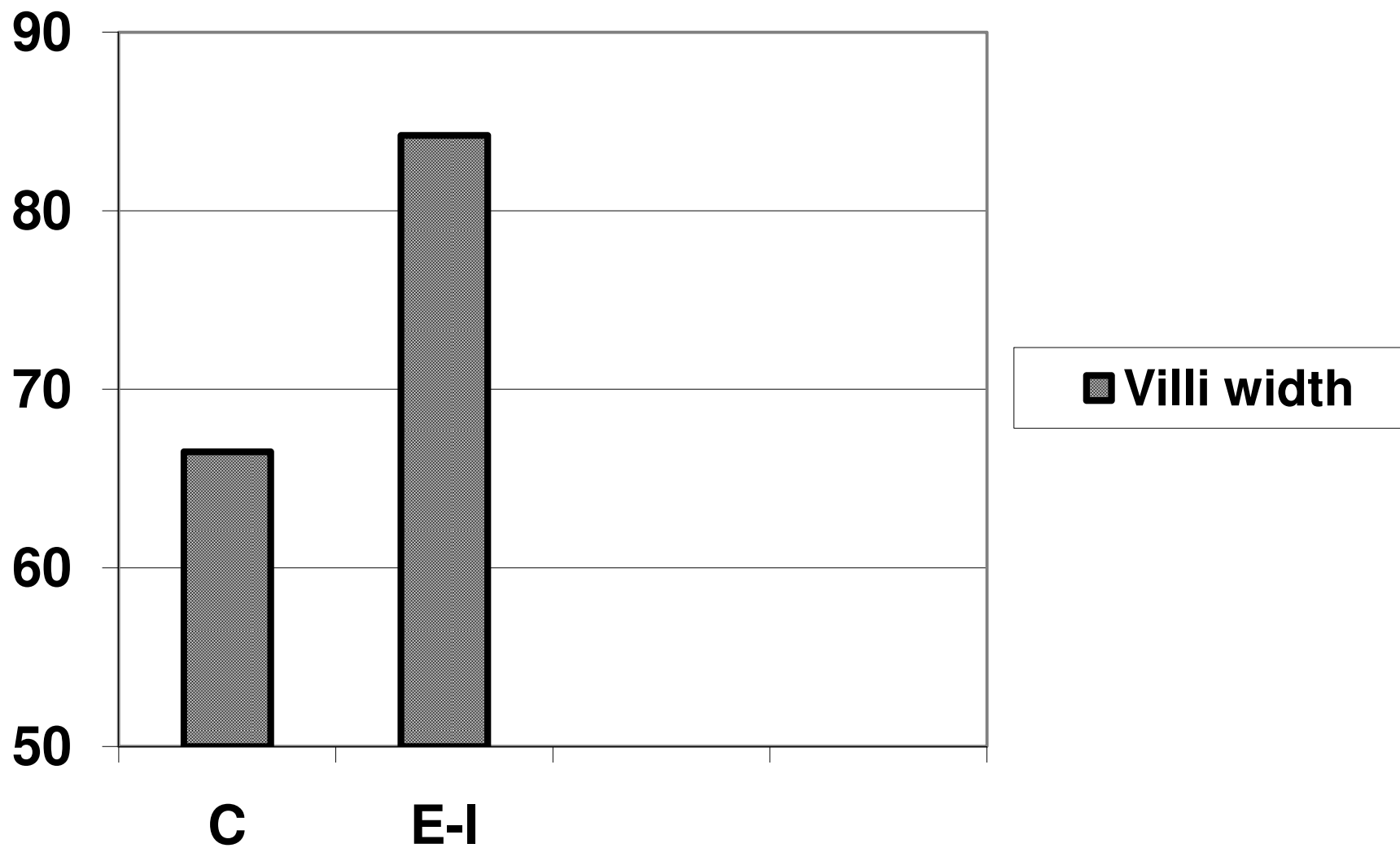
OBSERVED PARAMETER	C	E-I
Villi length	498,1 \pm 112,5 ^C	732,7 \pm 117,3 ^C
Villi width	66,5 \pm 18,70 ^C	84,23 \pm 17,76 ^C
Crypt depth	166,8 \pm 55,26	159,9 \pm 60,04

*The value is expressed as $\bar{x}\pm Sd$

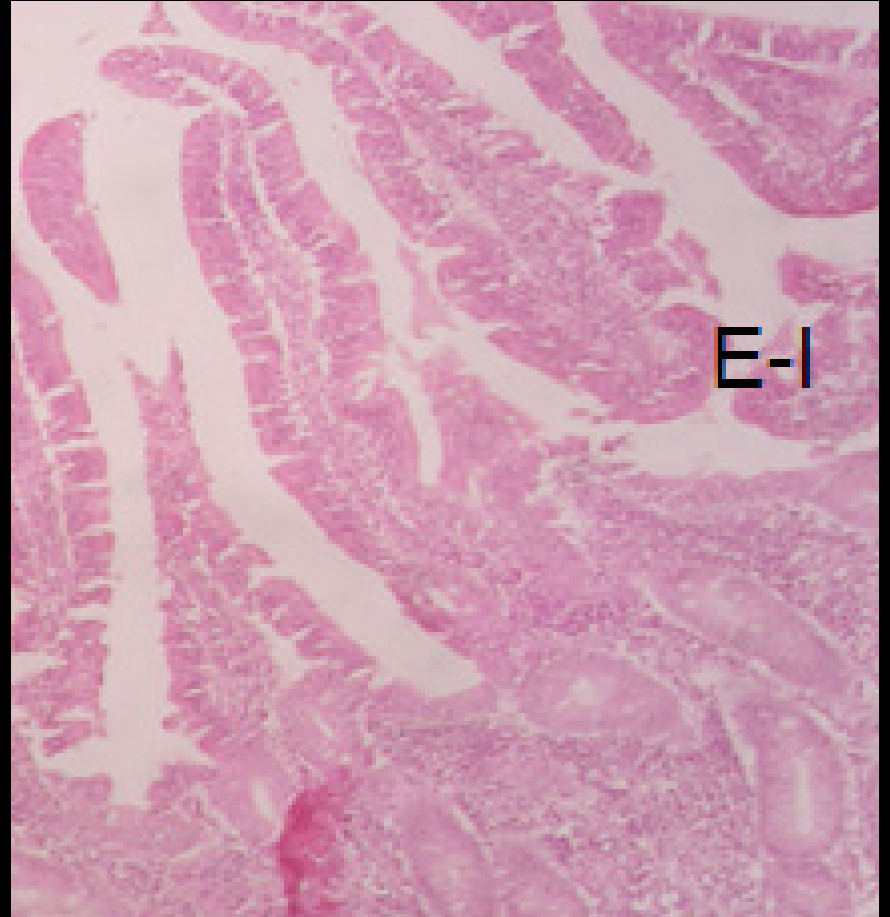
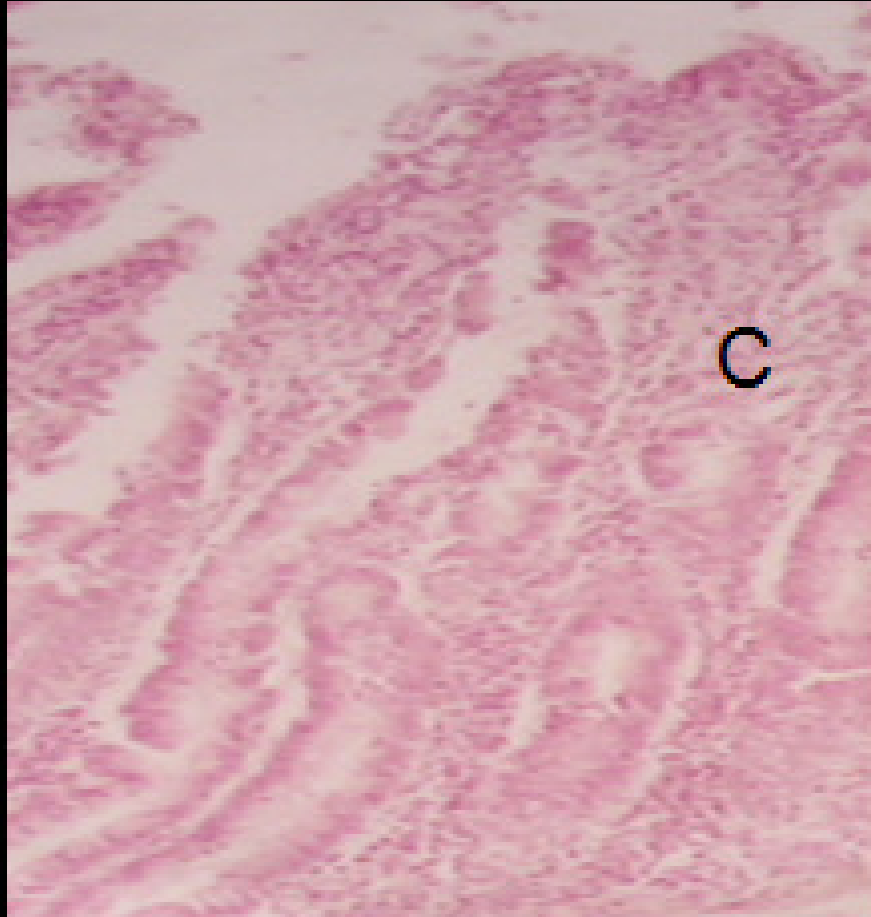
^C **p<0,001**

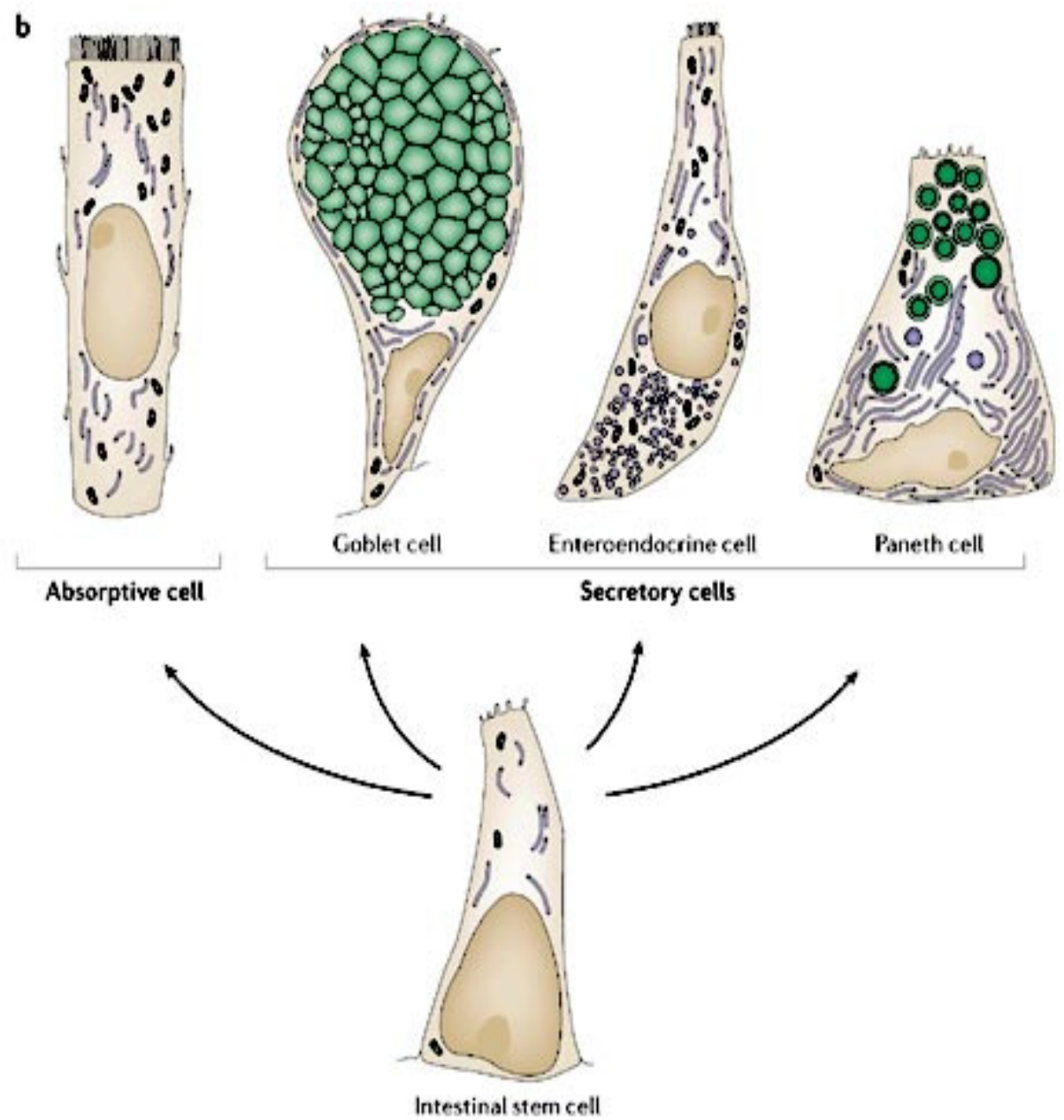
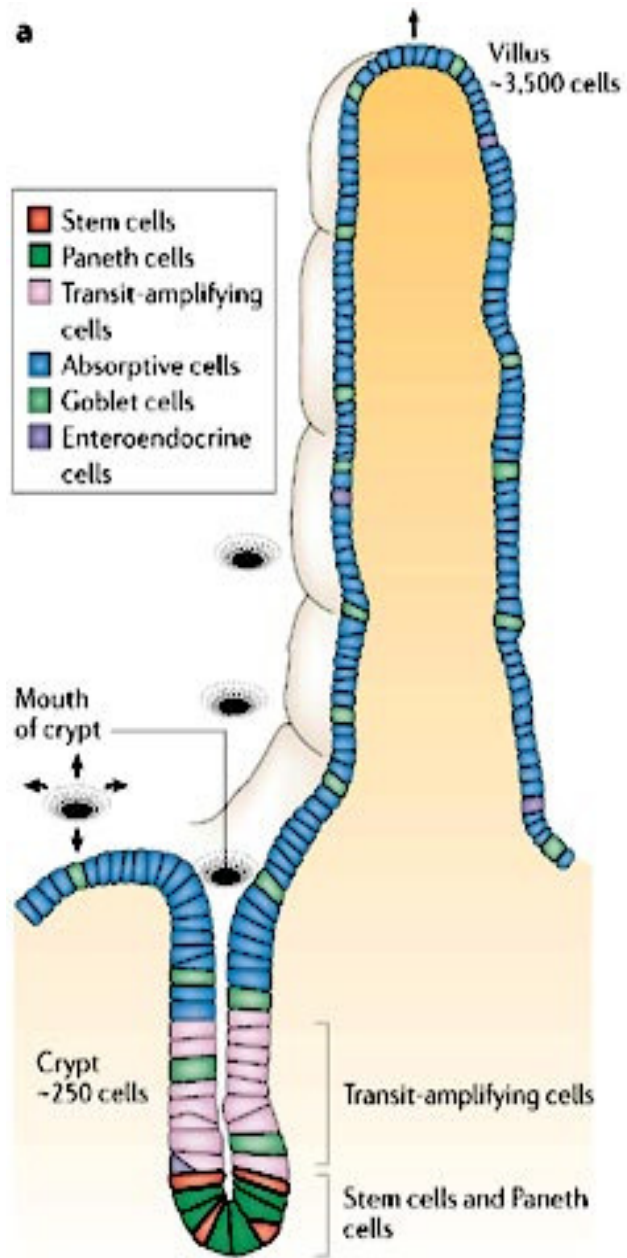


Length of the villi in the tested segment of jejunum



The width of the villi in the tested segment of jejunum





Obtained results indicate that the use of probiotic as alternative growth promoter has nutritive, medical and economic advantages



THANK YOU
FOR YOUR ATTENTION



DEPARTMENT OF
NUTRITION
AND BOTANY



Dr Dragan Šefer, redovni profesor
Šef Katedre za ishranu i botaniku
dsefer@vet.bg.ac.rs

FACULTY OF
VETERINARY MEDICINE
BELGRADE UNIVERSITY



Dr Svetlana Grdović
vanredni profesor
cecag@vet.bg.ac.rs



Dr Jelena Nedeljković-Trailović
vanredni profesor
tjelena@vet.bg.ac.rs



Dr Radmila Marković
vanredni profesor
radmilam@vet.bg.ac.rs



Dr Branko Petrujković
docent
petrujkic@yahoo.com



Dipl. vet. Stamen Radulović
asistent
stamen.radulovic@gmail.com