

Pig carcass classification in Slovakia



**I. Bahelka, P. Demo, E. Hanusová,
J. Tomka, D. Peškovičová**

Animal Production Research Centre, 951 41 Nitra-Luzianky, Slovakia

AIM

EU legislation recommends to verify the accuracy of pig carcass grading methods used in member countries every 4-5 years. From that reason our aim was to form new regression formulas for one manual – ZP and two apparative – ULTRAFOM, FAT-O-MEATER methods used under condition of Slovak Republic.

MATERIAL and METHODS

- **two experiments (one for ZP and ULTRAFOM methods, and the second for FAT-O-MEATER) were performed**
- **sampling of pigs was realized according to breed, sex, slaughter weight and backfat thickness to reflect current status of pig population in Slovakia**
- **after achieving the slaughter weight, pigs were slaughtered at experimental slaughterhouse of APRC Nitra**
- **by 45 min post mortem, the lean meat content using ZP method and/or devices was measured**
- **twenty-four hours after slaughter, detailed dissection of four main joints of left pig carcass according to EU reference method was done**
- **carcass parameters were measured as follows:**

- **thickness of muscle (M) and of backfat including skin (F) measured between 2/3 last ribs, 70 mm off the dorsal mid-line using ULTRAFOM (U-FOM) and/or FAT-O-MEATER (FOM), [mm]**
- **backfat thickness including skin above *musculus gluteus medius* (m.g.m.) in the point of its thinnest layer, [mm]**
- **muscle thickness measured as the shortest connecting between m.g.m. cranial end and dorsal edge of spinal chord canal, [mm]**
- **lean meat content (LMC) estimated using original regression formulas of ZP, ULTRAFOM and FOM, (%)**
- **the new regression formulas were calculated using multiple linear regression in statistical package SAS (1999-2000)**

New regression formulas:

- $Y_{ZP} = 59.790 + 0.107 \times M - 0.581 \times F$

$$RMSEP = 1.6371, \quad R^2 = 0.729$$

- $Y_{UFOM} = 64.436 + 0.073 \times M - 0.742 \times F$

$$RMSEP = 1.5603, \quad R^2 = 0.753$$

- $Y_{FOM} = 61.213 + 0.152 \times M - 0.624 \times F$

$$RMSEP = 1.7031, \quad R^2 = 0.7276$$

Table 1. Pearson's correlation coefficients between Ultrafom, ZP and dissection traits

Trait	ZP-Muscle	U-FOM Fat	U-FOM Muscle	ZP-LMC	U-FOM LMC	Dissection LMC
ZP-Fat thickness	-0.300	0.627	0.005	-0.966	-0.744	-0.827
ZP-Muscle thickness	-	-0.243	0.282	0.464	0.339	0.398
U-FOM Fat thickness		-	-0.079	-0.755	-0.953	-0.830
U-FOM Muscle thickness			-	0.246	0.423	0.368
ZP-LMC				-	0.765	0.857
U-FOM LMC					-	0.871

Table 2. Pearson's correlation coefficients between FOM and dissection traits

Trait	FOM - Muscle	FOM - LMC	Dissection - LMC
FOM – Fat	-0.134	-0.969	-0.897
FOM – Muscle	-	0.367	0.344
FOM – LMC		-	0.927

Figure 1. Comparison of pig grading using dissection and new ZP and ULTRAFOM formulas

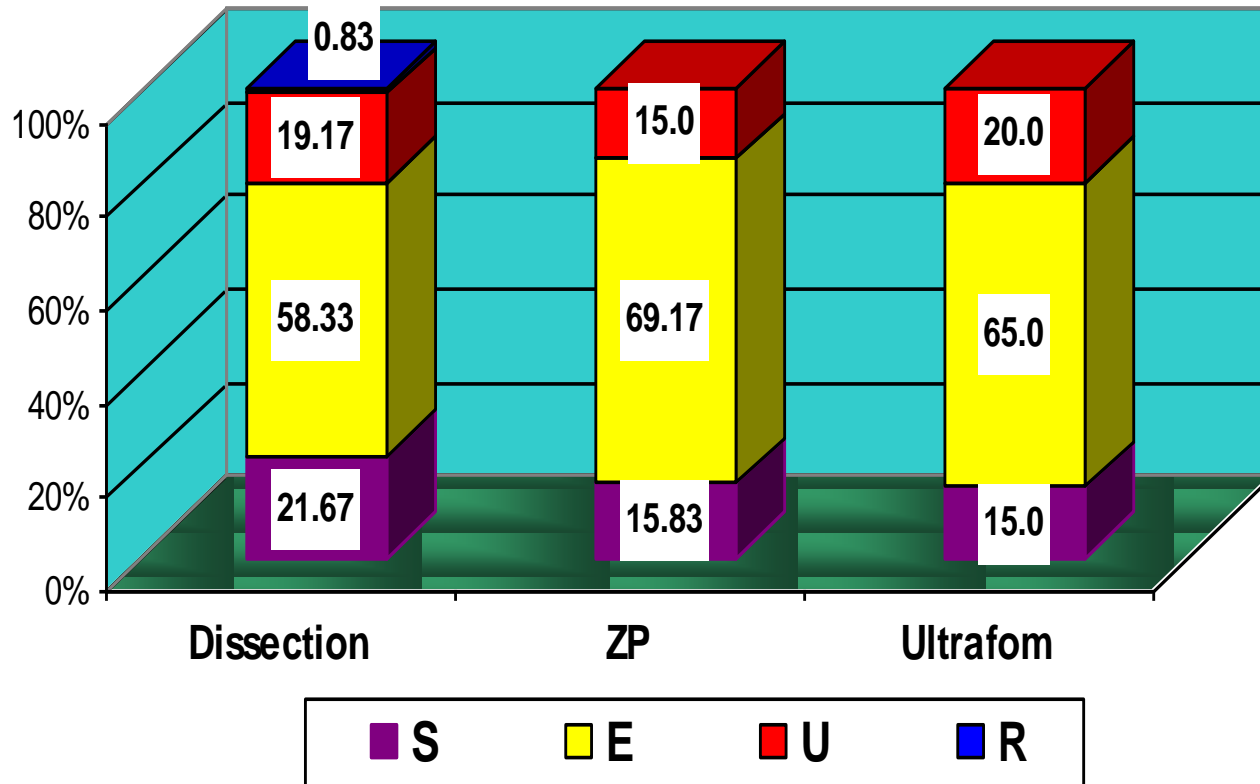
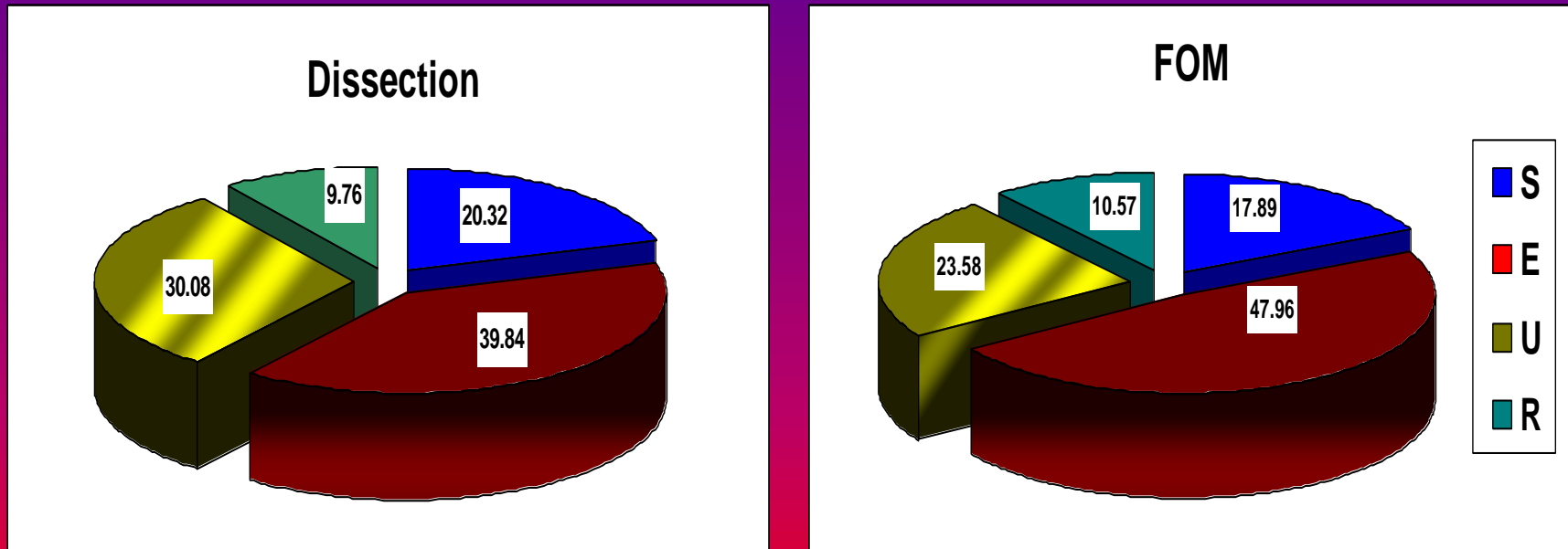


Figure 2. Comparison of pig grading using dissection and new FOM formulas



CONCLUSION

The results suggest high accuracy of new regression formulas which fully meet to EU legislation. They represent good presumption for more objective pig grading and equitable payment for pig producers in Slovakia.