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# SLAUGHTER AND MEAT QUALITY OF FATTENING PIGS FOR USE IN DIETS OF SOY PROTEIN CONCENTRATE DRY FEED.

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*Given the results of studies of slaughter and meat quality of pigs fed on diets with different protein soy food production technologies: the pressure of expansion (concentrate dry soy protein food), spinning under pressure (soybean cake), Extrusion (extrudate soy). As a control sunflower oil cake. Found a significant positive effect of soy protein feed on growth rate, feed conversion, slaughter and meat quality of pigs, the morphological structure of the carcass. Best for slaughter yield carcasses were fed to pigs counterparts cake and soy protein concentrate soy dry forage (+2.47% and 1.53% respectively to control). In general, meat and tallow products guinea pigs on key dimensions correspond to the normal categories of pork.*

***Key words**: soybean, pressure of expansion, spinning, extrusion, face, meatiness, quality, bacon, category.*

**Statement of the problem.** Pig - one of the major livestock industries that can provide much of the biological human needs in meat products. However, with the problem of meat and meat products is a problem of quality, especially the quality of ink. Currently the case of a lean pork, which should be worked on I diet and using protein fat-containing organic feed that is relevant to the this stage in the development of pig production. In this plan efficient use of soy protein foods are made with different technologies. Therefore put on the development issue is urgent in nature.

**Analysis of major studies and publications which discuss this issue.** Summarizing long research scientists proved that slaughter and meat quality of pigs depend on the characteristics of animal waste [3, 2], and from their feeding [6 - 9]. In solving the problem you are getting quality lean pork noteworthy issues balancing rations of pigs through the use of soybean forage as they are the most economical source of high quality protein is in and energy [1,4,5,10]. Research of B.D. Shatalina (1975), A.E. Chykova (1979) .S . Tronchuk, A.A. Polishchuk (1989), S.O. Semenov (1997), ound that the use of soybean in different production technologies (extrusion, thermal processing units, micronization, waste oilekstraktion of production), improves the efficiency of growing and fattening pigs meat.

As can be seen from the analysis of the literature questions the impact of soy protein concentrate powder feed derived technology pressure of expansion on slaughter and meat quality of pigs remains little explored.

**Aims and objectives of research.** The aim of the study was to analyze slaughter and meat quality of fattening pigs by the use of i in the diet of soy protein ingredients produced with different technologies (expansion under pressure, under pressure spinning, extrusion). The objective of the study is determine the possibility of using soy protein concentrate powder feed rations in fattening pigs.

**The methodology of the research.** In the state enterprise "Experimental Basis "Hope" Institute pig and agricultural production NAASU in winter 2011 - 2012 has been lead scientific and economic research on the effects of soy protein feed for slaughter and meat quality Poltava pig meat breed. For research after a 15-day preparation period, 48 were selected heads of clinically healthy pigs, which were formed in 4 of unique origin, age and body weight. Animals were kept in stalls, two heads. The basis adopted a formula feed designed for pigs of "Vyshgorodskyi IVF" using soy concentrate in an amount of 18% T and the addition of feed barley, maize, wheat and premix. Slaughter of animals held in a slaughter house experimental facilities. Experiments carried out by generally accepted methods in the pig. The term crediting period was 76 days. Research conducted under the scheme of the experiment the use of protein food s: Group $D_1$ - soy protein concentrate dry fodder, the group $D_2$ - soybean cake, $D_3$ - soy extrudate, for control of sunflower meal is taken, group C (Table 1).

***1. FigureSciencesovo-economicexperiment***

| Group | Species | Number of heads | Sex | | The periods of the experiment | | System maintenance |
|---|---|---|---|---|---|---|---|
| | | | ♀ | ♂ | preparatory (15 days) | account (76 days) | |
| C - control | PM | 12 | 7 | 5 | Main Ration (MR) sunflower cake | MR + 82% sunflower cake, 18% | stank, by 2 goals. |
| $D_1$ - research | PM | 12 | 7 | 5 | - / / - | MR 82 % + kontsetrat soy, 18% | - / / - |
| $D_2$ - research | PM | 12 | 7 | 5 | - / / - | MR 82 % + Soybean cake, 18% | - / / - |
| $D_3$ - research | PM | 12 | 7 | 5 | - / / - | MR 82 % + soy extrudate 18 % | - / / - |

**Studies.** Chief criterion for evaluating the effectiveness of fattening pigs is the average daily rate increases and cost of feed per unit of live weight gain S (Table 2).

***2. Growth rate and cost of feed for pigs (N = 12, M ± m)***

| Groups | Age achieve 100 kg, days | The average increase | | Feed conversion per 1 kg growth | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | feed | | metabolizable energy | | crudeprotein | |
| | | g | % | kg | % | MJ | % | g | % |
| C | 237 ± 3,24 | 720 ± 20,83 | 100 | 3.65 | 100 | 42.41 | 100 | 625.50 | 100 |
| D 1 | 228 ± 2,22 * | 825 ± 21,94 ** | 114.60 | 3.18 | 87.12 | 37.68 | 88.85 | 596.12 | 95.30 |
| D 2 | 225 ± 2,56 ** | 833 ± 14,83 *** | 115.70 | 3.19 | 87.40 | 37.89 | 89.34 | 571.78 | 91.41 |
| D 3 | 232 ± 3,32 | 785 ± 28,56 | 109.00 | 3.33 | 91.23 | 39.79 | 93.82 | 607.16 | 97.07 |

*Note:* * - P ≥ 0, 95; ** - P ≥ 0, 99; *** - P ≥ 0, 9, 99 to the control group

During the experiment - compared with control counterparts - the best growing animals D 1 and D 2 study groups, their gains were significantly higher by 14.6 and 15.7%, respectively, at higher feed conversion by metabolic energy, crude protein and mu feed per 1 kg increase. The highest feed conversion marked the first experimental group D 1, fed on soy concentrate. 1 kg increase in body weight in pigs of this group has been spent to 3, 18 kg of feed, 37.68 MJ metabolizable energy and 596, 12 g of crude protein, which is 12, 88 % / 11.15 % / 4.7 % Respectively lower than in the control group.

Inclusion in the diet of fattening pigs concentrate soy and other soy food had a positive impact on slaughter and meat quality of guinea pigs (Table 3).

***3. Slaughter and meat quality of pigs (N = 3, M ± m)***

| Index | Group | | | |
|---|---|---|---|---|
| | C | D 1 | D 2 | D 3 |
| Live weight before slaughter, kg | 102,00 ± 1,15 | 103,00 ± 1,00 | 100,00 ± 4,0 | 104,00 ± 3,00 |
| Steam carcass weight, kg | 67, 57 ± 2,17 | 69,76 ± 0,36 | 68,61 ± 2,05 | 70,38 ± 2,8 |
| Slaughter carcass yield,% | 0 66,2 ± 1,36 | 67,73 ± 0,32 | 68,67 ± 1,34 | 67,63 ± 0,88 |
| To control | - | 1.5 3 | 2.47 | 1.43 |
| Area "musclecell" cm ² | 33,27 ± 3,57 | 35,67 ± 3,18 | 36,63 ± 3,35 | 32,67 ± 1,24 |
| % of the control group | 100 | 107,2 | 110,1 | 98,2 |
| Back fat thickness, mm: | | | | |
| on 6-7 thoracic vertebrae | 37,33 ± 3,84 | 35,33 ± 2,60 | 29,00 ± 3,61 | 32,67 ± 4,26 |
| last rib | 26,33 ± 6,06 | 25,67 ± 3,84 | 27,67 ± 4,26 | 25,00 ± 5,00 |
| sacrum | 32,33 ± 5,46 | 24,67 ± 2,73 | 29,00 ± 6,03 | 24,33 ± 4,81 |
| the average | 32,00 ± 4,86 | 28,56 ± 1,75 | 28,56 ± 4,57 | 27,33 ± 4,68 |
| % of the control group | 100 | 121.08 | 91.21 | 87.14 |

Data analysis table shows that in terms of slaughter exit in youngsters between research groups found no significant difference - he was at 67,63 – 68,67 %. Of the animal groups that dominated counterparts control group (1.43 - 2.47 %). Area "muscle cells" in the average group of researchers is 34.99 cm ² (min 32,67 - max 36,63 cm ²).

The deposition of fat along the ridge is more evenly in animals, diets that use soy cake, respectively, in the other groups fat thickness carcasses along the ridge is less evenly.

Shows a tendency to slaughter parameters in the groups of animals fed on diets with inclusion of soy protein concentrate powder feed grade soybean cake, but the data are unreliable character.

The use of soy in feed rations for fattening pigs positive impact on the quality of morphological carcass composition (Table 4).

***4. Morphological composition of carcasses (n = 3, M ± m)***

| Index | T RUE and | | | |
|---|---|---|---|---|
| | C | $D_1$ | $D_2$ | $D_3$ |
| Steam carcass weight, kg | 67,57 ± 2,17 | 69,76 ± 0,36 | 68,61 ± 2,05 | 70,38 ± 2,8 |
| Fat mass, kg | 23, 92 ± 1,08 | 23, 70 ± 0,22 | 22, 53 ± 1,9 5 | 23, 82 ± 1,4 0 |
| % of the control group | 100 | 99, 08 | 94, 19 | 99, 58 |
| Weight of meat, kg | 36, 47 ± 3, 09 | 39, 02 ± 0,68 | 38, 62 ± 2, 55 | 38.8 0 ± 2,14 |
| % of the control group | 100 | 106, 99 | 105, 89 | 106, 39 |
| Bone mass, kg | 7,18 ± 0,14 | 7, 04 ± 0,34 | 7, 46 ± 0,6 7 | 7,76 ± 0,86 |
| % of the control group | 100 | 98, 05 | 103, 90 | 108.08 |
| Exit % | | | | |
| bacon | 35,40 ± 2,53 | 7 33,9 ± 0,45 | 32,83 ± 3,11 | 33,85 ± 2,10 |
| meat | 53,97 ± 2,70 | 55,93 ± 0,54 | 56,29 ± 2,39 | 55,13 ± 1,15 |
| bone | 10,63 ± 0,38 | 10,10 ± 0,50 | 10,88 ± 0,72 | 11,02 ± 1,05 |
| The ratio of meat carcasses meat / bacon | 1: 0.53 | 1:0,65 | 1:0,72 | 1:0,63 |
| % ofthecontrolgroup | 100 | 107, 84 | 112, 42 | 106, 54 |
| Ham weight, kg | 11,16 ± 0,38 | 11,2 ± 0,29 | 12,03 ± 0,57 | 11,79 ± 0,59 |
| % of the control group | 100 | 100.36 | 107.80 | 105.65 |
| Energy value of meat and, Kkal | 121,85 ± 4,66 | 127,56 ± 14,11 | 107,90 ± 9,63 | 109,42 ± 8,91 |

Analysis of the data in Table 4 shows what percentage of the output of meat in the carcasses of research groups is 55.13 - 56.29 %, which demonstrates the high level of the amount of meat pigs fed on soy feed.

Out of fat in the carcasses is 32.83 - 33.97% - that's where that is lower than the control group. Weight of ham on average is 11.67 kg (min 11,20 - max 12,03 kg), the ratio of meat to fat carcasses - 1/0, 63 - 1/0, 65. According to other indicators and morphological composition and the difference was not significant.

**Conclusions.** The use of soy protein feed made with different technologies, such as soy protein concentrate powder feed (expansion under pressure), soybean cake (spinning under pressure) extrudat soybean (extrusion) improves slaughter and meat quality of pigs: increased output meat from 1.16 % to 2.32%. With a decrease in fat mass from 1.43% to 2.57%, relative to controls. Studies have shown the use of soy protein concentrate powder feed rations in fattening pigs, along with other protein foods, as studied in the experiment.

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