

Product Processing of Wool Sheep

Abstract

Product processing of wool sheep aimed to develop an efficient shearing equipment and method to reduce wool lost as well as to develop the processing of mutton and pelt of wool sheep for RPF. Three experiments (Exp) were carried out. Exp 1: Development of shearing equipment. The new equipment has been developed, using battery and a 6 mm cut comb which is more suitable than the 3 and the 9 mm cut combs. The efficiency was compared with the scissor which is normal used at present by farmers and the imported shearing equipment. The shearing was done in 27 heads of wool sheep, being allotted to 3 groups of 3 replicates, each containing 3 heads of animals. The result revealed that the imported equipment and the developed equipment needed significantly shorter time and gave better efficiency of shearing compared to the present available scissor ($P < 0.05$). However, the amount of fleece/ sheep, the length of fleece being obtained and the length of left over fleece at sheep body as well as the wound at sheep skin were not significantly differ from each other ($P > 0.05$). It indicated that the new developed equipment can well replace the imported equipment. Exp 2: Processing of smoked lamb legs and lamb stew. Six male sheep after fattening with the average age of 14.6 ± 1.9 months and weighed 37.1 ± 4.0 kg were slaughtered. It was found that the percentage of carcass was 50.1%. The edible part was 51.5% LW, composed of body carcass 38.8% LW and visceral after cleaning 12.7% LW. The processing of smoked lamb legs was done by dividing 24 front and hind legs of sheep into 4 groups, each with 3 replicates of 2 pieces. They were marinated with either spice or no spice with different amount of salt and sugar. After smoking, the tasting was done using 9-point hedonic scale on sensory evaluation by 15 keen taste panels, 10 academics and 31 general consumers. The result revealed that the taster significantly preferred the lamb meat being marinated in the solution No. 3 which contained spice, 500 g salt and 1,250 g sugar than the other solutions ($P < 0.05$). The degree of satisfaction was at medium rate. The second preference was the marinated solution No. 4 which also contained spice but had higher salt content (1,000 g). The processing of lamb stew was done by using 1.5 kg hip mutton being cut into at least 24 small pieces and allotted to 3 groups, each with 3 replicates. They were marinated with one of the 3 ingredients. Group 1: mixed thoroughly with 50 g medium ripe pineapple, left for 15 min before moving off the pineapple. Group 2: mixed thoroughly with 1 spoonful

baking soda, left for 1 hour. Group 3 mixed thoroughly with 1 spoonful commercial enzyme, left for 30 min. After that, each mixture was subjected to stew cooking. The stews were then evaluated using 9-point hedonic scale as in the case of smoke lamb legs. It was found that the marinated with pineapple gained significantly more favor than the other 2 ingredients ($P < 0.05$). The satisfaction was at medium level with the score of 7.20 ± 1.24 . Exp 3: Development of tanning sheep pelt. The pelt obtained from Exp 2, which had an average area of 13.04 sq. ft/ piece, each was divided into 4 parts. Choose 18 same size of the completed pieces to be allotted into 3 groups, each with 3 replicates of 2 pieces. They were cleaned by removing the leftover meat, fat and membrane as much as possible. The pelt was then soaked in 1 of the 3 tanning solutions containing alum at different rate, i.e. 0.75, 1.0 and 1.25 kg respectively for 4 days. The result revealed that the more alum caused the higher acidity or the lower pH of tanning solution. The solution containing 1.25 kg alum (approximately 1.25%) significantly caused lower pH compared to the 0.5 kg alum (approximately 0.5%) but not significantly differed to the 1.0% alum. No significant different in pH of washing water among groups. Washing had to be done 3 times to get acidity at around neutral ($\text{pH} = 6.9$). The pelts were fixed in the wood frames and were desiccated in the shade with good ventilation for 5 days. The pelt quality was evaluated using the 9-point hedonic scale method. The 31 evaluators composed of 16 academic from livestock officers, 5 buyers and 10 general consumers. It was founded that the all 3 groups of evaluators gave significantly overall preference to the tanning solution No. 2 and No. 3 than solution No. 1 ($P < 0.05$). The score were 7.87 ± 0.62 and 7.84 ± 0.93 vs. 7.42 ± 0.81 , respectively, which were considered to be “very like”. Pelt color, fur color, smell and texture of pelt showed no significant differences among the 3 solutions ($P > 0.05$).

Keywords: Sheep, Wool, Sheep meat, Processing, Products