

ABSTRAK

Penelitian bertujuan untuk menaksir respon seleksi karakteristik pertumbuhan Domba Garut meliputi bobot lahir, bobot sapih, dan pertambahan bobot badan harian (PBBH) menggunakan pendekatan seleksi diferensial dan simpang baku populasi. Penaksiran respon seleksi menggunakan pendekatan seleksi diferensial dilakukan berdasarkan nilai pemuliaan setiap individu, sedangkan pendekatan simpang baku populasi didasarkan pada intensitas seleksi teoritis yang merepresentasikan proporsi individu terseleksi dalam satu populasi. Penelitian dilakukan di UPTD BPPTDK Margawati Garut dengan jumlah sampel sebanyak 291 ekor Domba Garut. Data dikoreksi terhadap faktor non-genetik seperti jenis kelamin, tipe kelahiran, dan umur induk. Heritabilitas ditaksir menggunakan metode analisis kovariansi saudara tiri seapak (*paternal half-sib*). Nilai pemuliaan individu dihitung berdasarkan rerata kelompok, kemudian digunakan untuk menentukan individu dengan performa genetik terbaik yang akan dipilih sebagai tetua. Respon seleksi menggunakan pendekatan seleksi diferensial (R_1) ditentukan oleh heritabilitas (h^2) dan seleksi diferensial (S). Respon seleksi menggunakan pendekatan simpang baku populasi (R_2) ditentukan oleh heritabilitas (h^2), intensitas seleksi (i) dan simpang baku populasi (σ_p). Tiga kategori intensitas seleksi digunakan yaitu rendah (75% individu terseleksi), sedang (50%), dan tinggi (25%). Nilai intensitas seleksi teoritis secara berurutan yaitu 0,42 (rendah); 0,8 (sedang); 1,27 (tinggi). Hasil penelitian menunjukkan bahwa rata-rata bobot lahir, bobot sapih, dan PBBH masing-masing adalah $3,50 \pm 0,63$ kg, $16,79 \pm 3,07$ kg, dan $131,86 \pm 28,51$ g/hari. Nilai heritabilitas tertinggi diperoleh pada bobot lahir sebesar $0,34 \pm 0,18$, diikuti bobot sapih sebesar $0,19 \pm 0,15$, dan PBBH sebesar $0,25 \pm 0,17$. Respon seleksi menggunakan pendekatan seleksi diferensial pada masing-masing tingkat intensitas seleksi untuk bobot lahir sebesar 0,08; 0,16; 0,25 kg, bobot sapih sebesar 0,21; 0,41; dan 0,71 kg, sedangkan PBBH sebesar 2,70; 5,42; 9,47g/hari. Sementara itu, respon seleksi menggunakan pendekatan simpang baku populasi untuk bobot lahir sebesar 0,09; 0,16; 0,26 kg, bobot sapih sebesar 0,23; 0,43; dan 0,68 kg, sedangkan PBBH sebesar 2,99; 5,69; dan 9,03 g/hari. Hasil tersebut menunjukkan bahwa kedua pendekatan menghasilkan taksiran respon seleksi yang relatif konsisten terhadap karakteristik pertumbuhan domba Garut.

Kata kunci: Domba Garut, karakteristik pertumbuhan, heritabilitas, nilai pemuliaan, respon seleksi

ABSTRACT

The study aimed to estimate the selection response of growth characteristics of Garut sheep including birth weight, weaning weight, and average daily gain (ADG) using a differential selection approach and population standard deviation. The estimation of selection response using the differential selection approach was carried out based on the breeding value of each individual, while the population standard deviation approach was based on the theoretical selection intensity representing the proportion of selected individuals in a population. The study was conducted at UPTD BPPTDK Margawati Garut with a total sample of 291 Garut sheep. Data were corrected for non-genetic factors such as sex, birth type, and dam age. Heritability was estimated using the paternal half-sib covariance analysis method. The breeding value of each individual was calculated based on the group mean, then used to determine individuals with the best genetic performance to be selected as parents. The selection response using the differential selection approach (R_1) was determined by heritability (h^2) and selection differential (S). The selection response using the population standard deviation approach (R_2) was determined by heritability (h^2), selection intensity (i) and population standard deviation (σ_p). Three categories of selection intensity were used, namely low (75% selected individuals), medium (50%), and high (25%). The theoretical selection intensity values were 0.42 (low), 0.8 (medium), and 1.27 (high), respectively. The results showed that the average birth weight, weaning weight, and ADG were 3.50 ± 0.63 kg, 16.79 ± 3.07 kg, and 131.86 ± 28.51 g/day, respectively. The highest heritability value was obtained in birth weight of 0.34 ± 0.18 , followed by weaning weight of 0.19 ± 0.15 , and ADG of 0.25 ± 0.17 . The selection response using the differential selection approach at each level of selection intensity for birth weight was 0.08, 0.16, and 0.25 kg; weaning weight was 0.21, 0.41, and 0.71 kg; while ADG was 2.70, 5.42, and 9.47 g/day. Meanwhile, the selection response using the population standard deviation approach for birth weight was 0.09, 0.16, and 0.26 kg; weaning weight was 0.23, 0.43, and 0.68 kg; while ADG was 2.99, 5.69, and 9.03 g/day. These results indicate that both approaches produced relatively consistent estimates of the selection response to the growth characteristics of Garut sheep.

Keywords: Garut sheep, growth traits, breeding value, heritability, selection response, selection intensity