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Investigation of forage value and usability of soybean varieties for livestock

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Abstract

Soybean (*Glycine max* (L.) Merrill) is a very outstanding material crop with high protein and oil contents. We conducted this study to evaluate forage value and usability of soybean varieties as livestock forage. Three soybeans cultivars, OT93-26, Geomjeongsaeol, and Pungwon, were evaluated for forage use in this study, and Kwangpyeongok and Yeongwoo were used as check forage corn and rice, respectively. The whole soybean plants were harvested at the R5 (beginning seed development)- and R6 (full seed)-reproductive stages for analyzing forage usability and quality. Days to harvesting of the R5 stage-OT93-26 was the shortest among the tested crops while that of Yeongwoo was 122 days. The fresh and dry matter yields of all 3 soybeans were greater at R6 stage than at R5. Crude protein of the soybean cultivars harvested had a higher compared to the rice and corn regardless of the harvesting stage. Contents of crude fiber, neutral detergent fiber and acid detergent fiber of Yeongwoo had the lowest whereas Pungwon harvested at R5 were the highest. Among the soybeans, digestible dry matter, dry matter intake, and relative feed value of R6-harvested Geomjeongsaeol and Pungwon were high more compared to those at the R5-harvested, but in case of OT93-26 those at R6 stage were inversely measured rather than those at R5 stage. In conclusion, soybean can be used as a forage with high nutritive value for livestock. Moreover, Geomjeongsaeol can be applied to develop new forage soybean varieties with high nutritive value, and R6 stage is the optimum harvesting stage in yield and quality of the tested soybeans more than R5.

Key Words: Soybean, Forage, Nutritive value, Crude protein, Growth stage

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