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Proper Amount of Fertilizer and Seeding Rates of Forage Barley (Cv.Youjin) in Korea's Midwest Reclaimed Land

Yeongmi Jang¹, Sharavdorj Khulan¹, Youha Gu¹, Jinwoong Cho^{1*}

¹College of Agricultural and Life Sciences, Chungnam National University, 99, Daehak-ro, Yuseong-gu, Daejeon, 34134, Korea

[Introduction]

Forage barley 'Youjin' is a variety developed by the Rural Development Administration. It's palatability is increased thanks to the degeneration of the hooded awn. Also, it is known that the amount of roughage is high and its quality is excellent when used as a silage. In addition, since its forage value is superior to that of the imported roughage, it is a crop with great effects in terms of cost and forage value when replaced with domestic forage instead of imported forage in the manufacturing of mixed forage. Youjin is resistant to the cold, so it can be grown nationwide except in the mountainous areas in the central and northern regions, and it is known that it is better to use nitrogen fertilizer properly during cultivation and not to grow it in places with bad drainage. Therefore, this study was conducted to provide basic data on the appropriate amount of fertilization and sowing for Youjin forage barley varieties in reclaimed land.

[Material and Methods]

This experiment was conducted in Seokmun Reclaimed land, located in Songsan-myeon, Dangjin-si, chungcheongnam-do, South Korea. The variety used in this experiment was Youjin. It was sown on October 15, 2021 by drill seeding, and 100% (22kg/10a) and 150% (33kg/10a) were sown based on the standard seeding rates. Nitrogen fertilizer was distributed at a ratio of basic fertilization: top dressing=4:6, while phosphorus and potassium were added as basal fertilizers for each field, with the standard amount of fertilizer being 0, 100, 150, and 200%. The harvest date was May 17, and the main survey items were soil characteristics, crop growth, yield, and forage nutritive value.

[Results and Discussion]

The pH and EC of the cultivated soil were within an appropriate range, and the amount of exchangeable cations Na and K was not very high, maintaining a relatively suitable environment for crops to grow. The average temperature in January and February was below zero, and it was confirmed as a suitable temperature for the growth of crops due to the increase in temperatures from March after the wintering of barley. In terms of culm length, panicle length, total tiller number, and leaf area, the best results were obtained with a seeding rate of 22kg per 10a, and a 100% and 200% amount of fertilizer. Dry weight was the highest with a seeding rates of 22kg per 10a and a 100% amount of fertilizer. The crude protein content was the highest at a seeding rate of 22kg per 10a and a 200% amount of fertilizer, as well as at a seeding rate of 33kg per 10a and a 150% amount of fertilizer. NDF showed increased results with increased fertilizer amount in the case of 22kg per 10a seeding rate, but showed no consistency at 33kg per 10a seeding rate. Regarding TDN, the fertilization level was 0% in the case of 22kg per 10a seeding rate, and it was the highest at 150% in the case of 33kg per 10a.

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*Corresponding author: E-mail, jwcho@cnu.ac.kr Tel. +82-42-821-7824