

## 学 位 論 文 要 旨

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題 目

Studies on Seed Production of *Urochloa* spp. under Different Cultivation Practices for Maximizing Seed Yield  
(異なる栽培条件下でのウロクロア属草種の種子生産に関する研究)

*Urochloa* spp. is a genus of forage plants in the grass family that are native to tropical and subtropical grassland regions of Asia, including Okinawa, Africa, Australia, and South America. The success of new forage species depends on their palatability, ability to produce high dry matter, nutritional quality, yield stability, pest and disease resistance, and high capacity to produce viable seeds. Considering latitude and climatic conditions, northern Thailand was chosen for *Urochloa* spp. seed production practices. In this study, the seed production of *Urochloa* spp. under different cultivation practices for maximizing seed yield was examined. The summary of this study is as follows.

- 1) As a result of comparative seed production of the five *Urochloa* cultivars, the novel cultivars ‘OKI-1’ and ‘Br-203’ produced sufficient inflorescences, racemes, and spikelets which had the potential for useful seed yields compared with commercially available cultivars such as *U. decumbens* cv. ‘Basilisk’, *U. ruziziensis* cv. ‘Kennedy’, and hybrid *Urochloa* cv. ‘Mulato II’.
- 2) Two field trials were conducted to determine the optimal plant spacing for seed production of two novel *Urochloa* cultivars, OKI-1 and Br-203. The OKI-1 and Br-203 tended to have higher pure seed yields (PSY) at plant spacings of 100 × 100 cm (136.5 kg/ha) and 75 × 100 cm (79.6 kg/ha), respectively. Both cultivars showed similar trends in PSY, filled seed percentage, and a thousand seed weight-
- 3) Optimum cultivation practices were evaluated to maximize seed production for two novel *Urochloa* cultivars, including a closing cut date (CCD) and nitrogen application rate (N-rate). As a result, the highest seed yields in cv. ‘OKI-1’ and cv. ‘Br-203’ were obtained when the CCD was early-July and early-July to mid-July, respectively, regardless of N-rate within 0–150 kgN/ha.
- 4) In the two *Urochloa* cultivars, allowing ripe seeds to fall into a nylon net sheet stretched as a receptacle beneath the seedheads, 1 m above the ground, and collecting them every five days or more frequently is suitable for hand-harvesting of seed.
- 5) As a result of breaking dormancy and having examined an effective method to promote germination rate, the following germination-promotion process was most suitable. The combination of H<sub>2</sub>SO<sub>4</sub> scarification for 10–12 minutes and priming with 100 ppm GA<sub>3</sub> as a germination promoting substrate promoted an increased germination percentage of the new *Urochloa* spp. (cv. ‘OKI-1’) seeds when seeds were stored at temperatures of 5°C and 25°C.