

## **The effect of nitrogen fertilization and emergence cohorts on the survival, growth and reproduction of *Fimbristylis miliacea* L. Vahl**

### **ABSTRACT**

This research was conducted in the glasshouse at Universiti Putra Malaysia to determine the influence of nitrogen fertilization and cohorts of emergence on plant survival and reproductive capacity of *Fimbristylis miliacea*. One hundred seeds were sown on the surface of the saturated soil in the buckets. The treatments were without nitrogen (N) and with 170 kg N ha<sup>-1</sup>. The experimental design was CRD with eight replications. *Fimbristylis miliacea* seedling emergences was recorded weekly up to 4 weeks and were considered as 1st, 2nd, 3rd and 4th cohorts, respectively. Considering the repeated observation of emergence cohorts, statistical analysis was done as a split plot design where N treatment was considered as main plot and emergence cohorts was subplot by using the SAS statistical software and means were tested using Tukey's studentized range test at the 5% level of probability. Percentage emergence and percentage survival data were transformed into square root values and cumulative cohort data for all parameters were analyzed using unpaired t test to determine N effects. The nitrogen had no influence on *F. miliacea* emergence. Whereas, high death rates in *F. miliacea* among young seedlings indicated a Deevey Type III survivorship curve and higher number of deaths occurred in late emerging cohorts (4th cohorts) especially when nitrogen was applied. Early emerging cohorts had greater survivorship and contributed most extensively to the next generation by producing more than 90% seeds irrespective of nitrogen treatment. *Fimbristylis miliacea* plants establishing from every 100 seeds can reproduce 287,722 seeds with nitrogen treatment, which was 1.65 fold greater than without nitrogen.

**Keyword:** Nitrogen; Cohorts; Life table; *Fimbristylis miliacea* L. Vahl