

## STUDY ON THE YIELD RESPONSE OF IR54 AND THE COMPETITIVE ABILITY OF ECHINOCLOA CRUSGALLI AS INFLUENCED BY LEVELS OF NITROGEN

First Place, Crops and Soil Science Section  
Student Category, 5th Regional Agricultural Research Symposium

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This study was conducted from September 16 to December 7, 1982 at the experimental field of the College of Agriculture, Central Philippine University. This aimed to find out (1) the number of *E. crusgalli* which could be tolerated by the IR 54 rice variety at certain level of nitrogen; 2) what level of nitrogen can support both the crop and a certain number of *E. crusgalli* and 3) the yield reduction at different weed density and level of nitrogen.

The experimental treatments were arranged in a split plot in randomized complete block design replicated three times. The main-plots were varying numbers of *E. crusgalli*, namely 0, 3, 6 and 9

planted per square meter. The sub-plots were the levels of nitrogen 0, 60, 90 and 120 kg N/ha.

The different weed population per square meter and nitrogen levels markedly influenced dry matter production such that heavier dry matter weight was obtained on plots with 3 and 6 barnyardgrass per square meter with 120 kg N/ha applied. The decrease in biomass of barnyardgrass at 9 weed population per square meter could be attributed to the competition for nutrients between the crop and the weeds.

Productive tiller production was significantly affected by the varying number of barnyardgrass per square meter and different rates of nitrogen fertilization such that the least

number of productive tillers (10.03) were obtained on plants with 9 barnyardgrass per square meter. The increasing rates of nitrogen increased significantly the number of productive tiller such that the highest number of productive tillers (14.025) was obtained on plants fertilized with 120 kg N/ha.

Rice yield on plots with 3 and 6 barnyardgrass per square meter was comparable with those without weeds. However, in plots with 9 barnyardgrass per square meter grain yield decreased by 8.1 percent. The application of the differ-

ent levels of nitrogen significantly increased grain production. Regression analysis revealed that 25.33 kg of grains was produced for every kilogram of nitrogen added.

Based on the results, IR54 rice variety can tolerate up to 6 barnyardgrass per square meter. If nitrogen is to be applied, 6 *E. crusgalli* must be supplied with 90 kg N/ha to support both the needs of the weeds and the rice crop. With 9 barnyardgrass per square meter, 120 kg N/ha must be applied; however, if supply is limited, 90 kg N/ha may be sufficient.