

Thesis Title Responses of Wheat (Triticum aestivum L.)
Genotypes to Aluminum Toxicity.

Author Mr. Varapong Boonma

M.S. Agriculture (Agronomy)

Examining committee Lecturer Dr. Dumnern Karladee Chairman
Assist. Prof. Dr. Suchart Jiraporncharoen Member
Assist. Prof. Suthat Julsrigival Member
Assoc. Prof. Dr. Chuckree Senthong Member

Abstract

Two experiments of the study on responses of wheat (Triticum aestivum L.) genotypes to aluminum toxicity were conducted. In the first experiment, 30 lines were screened for tolerant to aluminum toxicity under laboratory condition with three levels of soil pH; 4.7, 5.7 and 6.7 during October to November 1988 at the Faculty of Agriculture, Chiang Mai University. It was found that root development such as root length and root dry weight were decreased by aluminum toxicity and in consequence a decrease in straw dry weight. The 25 days wheat seedling were examined by comparing the ratios of the lines' performance at pH 4.7 by pH 6.7 for four characters; root length, root dry weight, straw length and straw dry weight. It

appeared that only 12 lines showed the ratios above 0.8 and therefore were selected for testing in the second experiment which was conducted under acid soil condition at the Chiang Rai Horticulture Center, Chiang Rai in the 1988 to 1989 season.

The results in second experiment showed that there were genotypic responses to aluminum toxicity in this acid soil. Differences in yield and other components such as height, number of grains per ear were significant statistically. Only 5 lines; No 1015, No 144, No 1510, KU HEAD ROW # 12 and UP 262 appeared to remain those ability of tolerant to the toxicity. It was suggested that under acid soil condition in which aluminum becomes toxic, a high number of grains per ear seem to be more important to high yield than other characters. Therefore in breeding for tolerant genotypes, this character could be the better criteria for selection for tolerance to aluminum toxicity in wheat.