Research Paper *The Asian Journal of Horticulture,* (December, 2009 to May, 2010) Vol. 4 No. 2 : 498-500

Influence of graded levels of nitrogen and *Azospirillum* on yield parameters in watermelon *(Citrullus lanatus* Thumb.)

C. MURUGANANDAM AND A. ANBURANI

Accepted : *November, 2009*

See end of the article for authors' affiliations

Correspondence to :

C. MURUGANANDAM
Department of Horticulture, Faculty of Agriculture, Annamalai University, ANNAMALAI NAGAR (T.N.) INDIA

ABSTRACT

A field experiment was conducted in the Department of Horticulture, Faculty of Agriculture, Annamalai University to study the influence of graded levels of nitrogen and *Azospirillum* on yield and yield parameters in watermelon. The experiment was carried out in Factorial Randomized Block Design with 10 treatment combinations in 3 replications. The experiment consisted of application of nitrogen in 5 different levels (N_1 -30, N_2-45, N_3 - 60, N_4 -75 and N_5 - 90 kg ha^{-1}) and *Azospirillum* was applied in 2 levels (A_0-without *Azospirillum*; A_1-with *Azospirillum* application). Results revealed that application of nitrogen @ 75kg ha^{-1} along with *Azospirillum* @ 200 g per kg of seeds recorded the highest fruit length, fruit girth, fruit weight, number of fruits per vine and fruit yield per hectare when compare to other treatments.

Key words : Nitrogen, *Azospirillum,* Yield parameters, Watermelon

Modern agriculture largely depends on the use of high cost inputs such as chemical fertilizers, pesticides, herbicides, improved seeds, assured irrigation, scientific management and labour saving but energy intensive farm machinery. The application of such high input technologies undoubtedly increased the production but there is growing concern over the adverse effects of the use of chemicals on soil productivity and environmental pollution. If the chemical use has to be optimized, other sources of the nutrients are to be promoted. Therefore, the applications of plant nutrients through organic sources like compost, farmyard manure and bio fertilizers remain the alternate choice of the growers for maintaining its sustainable production.

Watermelon is one of the important vegetable crops found distributed throughout the tropics of the world. It is a richest source of iron among all the cucurbitaceous vegetable comprising long duration and requires heavy plant nutrients, for higher production. There is a great demand for the matured fruits in the market during summer months in tropical countries. Hence, maximizing the yield, to obtain more profit without earning any deleterious effect to the soil and environment is important. The nutrient status of soil found in and around Annamalainagar recorded poor nitrogen status and no work has been carried out so far to find out the optimum dose of nitrogen for watermelon. Hence, it is necessary to carry out a location specific research to find out the optimum quantity of nitrogen required for maximizing the productivity. The present investigation was, therefore, aimed to conduct to study the influence of graded levels of nitrogen and *Azospirillum* on yield parameters in watermelon.

MATERIALS AND METHODS

Field experiment was conducted in the Department of Horticulture, Faculty of Agriculture, Annamalai University during 2000-2001. The experiment was carried out in Factorial Randomized Block Design with 10 treatment combinations in 3 replications. The experiment consisted of application of nitrogen in 5 different levels (N_1 -30, N_2-45, N_3 - 60, N_4 -75 and N_5 - 90 kg ha^{-1}) and *Azospirillum* was applied in 2 levels (A_0-without *Azospirillum*; A_1-with *Azospirillum* application). The soil of the experimental field was sandy clay loam. Plots were earmarked for each treatment with an area of 20 m^2 and then beds were formed at a spacing of 1.5 m within each plot. In each bed, pits were taken at a spacing of 1.5 m. Five seeds were sown in each prepared pits. Thinning was done ten days after germination, the seedlings are thinned by maintaining two healthy seedlings per pit. The crop was raised by following the recommended interculture and plant protection practices. The first dose of nitrogen was applied at the time of sowing followed by top dressing at 30 days after sowing. The entire phosphorus and potassium were applied basally during the time of sowing. The fertilizers were applied in the form of urea, single super phosphate and muriate of potash. The required quantity of seeds was taken and it was treated with *Azospirillum* culture and then dried in shade for 30 minutes before sowing. Ethrel was applied @ 250