



## Full Length Research Article

### EFFECT OF BIOFERTILIZERS ON SEED GERMINATION AND SEEDLING VIGOUR IN CASHEW

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#### ABSTRACT

Investigation on the seed germination was earned out during the year 1999-2001 in the Department of Horticultur. Faculty of Agriculture, Annamalai University. Annamalai Nagar. ained in the VAM + neem cake treatment followed by VAM + vermicompost and VAM. Similar result was reported by Krishna et al., (1983) in cashew in which they suggested VAM application increased dry matter. Hence, application of VAM and neem cake can be recommended to enhance the germination and seedling vigour in cashew meant for use as rootstocks.

**Key words:** Cashewnut, Seedlings, Neem Cake, Vermicompost.

#### INTRODUCTION

Cashew is a highly profitable crop, perhaps more profitable than plantation crops, such as tea, coffee, rubber and cardamom. The added advantages are that it can be cultivated in barren wastelands and rocky areas in low elevations with minimum rainfall. In cashew, seed germination is a problem and on an average only 60 percent germination is obtained (Vijulan Harris et al., 1994). Application of biofertilizers is known to play an important role in improving germination, root proliferation and suppressing the plant diseases (Verma, 1993 and Subha Rao, 1995). In the background of the above, the present study has been undertaken. The investigation on the seed germination was earned out during the year 1999-2001 in the Department of Horticultur. Faculty of Agriculture, Annamalai University Annamalai Nagar.

#### MATERIALS AND METHODS

There were seven treatments including control and replicated thrice in completely randomized block design. Prior to sowing, all the seeds were sown in poly bags containing VAM (20gm/bag), VAM + neem cake (20gm/bag + 50 gm respectively), ground nut cake (100ml/bag). VAM + ground nut cake (20gm/bag +100ml respectively), vermicompost (50gm/bag). VAM + vermicompost (20gm/bag + 50 gm respectively). Observations on germination percentage, plant height, stem girth, number of leaves, leaf area, fresh weight of seedlings and dry weight of seedlings were taken. The experimental

date were analysed statistically following completely randomized design (CRD) by adopting the procedures described by Pause and Sukhatme (1978).

#### RESULTS AND DISCUSSION

The germination of seeds showed a direct relation with I he treatment pi seeds, where in the treated seeds resulted in higher germination percentage than control. Among the various treatments tried VAM + neem cake ' Department of Horticulture. Faculty of Agriculture. Annamalai University. recorded the highest germination percentage (92.42) than others. The next best were VAM + vermicompost and VAM. The lowest germination percentage was observed in control. Similar findings were reported by Krishna et al., (1983) in cashew wherein they found higher germination in VAM treatment. The results of the study revealed that there w-ere significant differences in plant height, leaf number, stem girth and leaf area.

The maximum plant height, leaf number, stem girth and leaf area were recorded in VAM + neem cake treatment. This was followed by VAM + vermicompost and VAM. Similar results were obtained by Krishna et al., (1983) in cashew in which they recorded maximum plant height and stem girth in VAM treatment. Ramesh et al. (1998) reported maximum plant height, stem girth, number of leaves and leaf area in VAM treatment in cashew. Maximum dry matter production was obtained in the VAM + neem cake treatment followed by VAM + vermicompost and VAM. Similar result was reported by Krishna et al., (1983) in cashew in which they suggested VAM application increased dry matter. Hence, application of VAM and neem cake can be recommended to enhance the germination and seedling vigour in cashew meant for use as rootstocks.

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**Table 1. Effect of VAM, vermicompost and oil cake on germination percentage and vegetative characters in cashew**

| Treatments                          | Germination %* | Plant height 60 DAG | Stem girth 60 DAG | Number of leaves 60 DAG | Leaf area (cm <sup>2</sup> ) 60 DAG | Fresh weight 60 DAG | Dry weight 60 DAG |
|-------------------------------------|----------------|---------------------|-------------------|-------------------------|-------------------------------------|---------------------|-------------------|
| T <sub>1</sub> VAM                  | 77.90 (61.95)  | 17.79               | 1.92              | 11.93                   | 28.65                               | 15.05               | 7.35              |
| T <sub>2</sub> VAM + neemcake       | 92.42 (74.01)  | 25.22               | 2.54              | 16.09                   | 46.23                               | 20.29               | 9.44              |
| T <sub>3</sub> groundnut cake       | 72.06 (58.09)  | 16.02               | 1.73              | 10.12                   | 20.90                               | 14.03               | 6.88              |
| T <sub>4</sub> VAM + groundnut cake | 73.88 (59.26)  | 16.53               | 1.76              | 10.72                   | 23.59                               | 14.52               | 7.05              |
| T <sub>5</sub> vermicompost         | 76.54 (61.02)  | 17.12               | 1.88              | 11.27                   | 26.71                               | 14.87               | 7.12              |
| T <sub>6</sub> VAM + vermicompost   | 85.61 (67.70)  | 21.49               | 2.23              | 14.01                   | 37.44                               | 17.96               | 8.34              |
| T <sub>7</sub> control              | 70.62 (57.17)  | 14.01               | 1.61              | 9.85                    | 19.84                               | 12.10               | 6.09              |
| CD (p = 0.05)                       | 4.89           | 3.14                | 0.21              | 1.72                    | 7.08                                | 0.30                | 0.61              |

(\* Transformed values in paranthesis)

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