

African Journal of Agricultural Research

[AJAR Home](#)
[About AJAR](#)
[Submit Manuscripts](#)
[Instructions for Authors](#)
[Editors](#)
[Call For Paper](#)
[Archive](#)
[Email Alerts](#)
[Afr. J. Agric. Res.](#)
[Vol. 3 No. 7](#)

Viewing options:

- Abstract
- **Full text**
- [Reprint \(PDF\)](#) (247k)

Search Pubmed for articles by:

[Fasinmirin JT](#)
[Oguntuase AM](#)

Other links:

[PubMed Citation](#)
[Related articles in PubMed](#)

Related Journals

- [Journal of Cell & Animal Biology](#)
- [African Journal of Environmental Science & Technology](#)
- [Biotechnology & Molecular Biology Reviews](#)
- [African Journal of Biochemistry Research](#)
- [African Journal of Microbiology Research](#)
- [African Journal of Pure & Applied Chemistry](#)
- [African Journal of Food Science](#)
- [African Journal of Biotechnology](#)
- [African Journal of Pharmacy & Pharmacology](#)
- [African Journal of Plant Science](#)

African Journal of Agricultural Research Vol. 3 (7), pp. 486-493, July, 2008
Available online at <http://www.academicjournals.org/AJAR>
ISSN 1991-637X © 2008 Academic Journals

Full Length Research Paper

Soil moisture distribution pattern in *Amaranthus cruentus* field under drip irrigation system

Fasinmirin J. T. and A. M. Oguntuase

Department of Agricultural Engineering, Federal University of Technology, Akure Ondo State, Nigeria.

*Corresponding author. E-mail: fasinmirin_johnson@yahoo.com

Accepted 20 June, 2008

Abstract

The status, availability and distribution of moisture distribution within a crop's root zone depths affect the yield and growth of crops. An experiment was carried out to determine the influence of three drip irrigation regimes on pattern of moisture distribution within the soil profile of *Amaranthus cruentus* field. Irrigations were carried out at 50 KPa (Low stress), 60 KPa (Medium stress) and 70 KPa (Severe stress) levels. The pattern of soil water extraction differed significantly among treatments ($P < 0.05$). *A. cruentus* extracts water for its use depending on available moisture within depths of the root zone. The surface soil at 0.1 and 0.2 m depths rapidly loses moisture at the peak of the dry season in treatment 70 KPa (severely stressed level). Soil hydraulic charge was high (-80.6 and -70.9 KPa) at crop emergence in the root zone of *A. cruentus* during the dry season experiment of 2005 and 2006 respectively. It however reduced to as low as -5.7 KPa at crop maturity (77 – 76 DOY) due to occasional rain showers experienced around the period of crop maturity. Relationship between soil hydraulic charge and soil moisture storage gave $r^2 = 0.82$ and standard deviation ± 1.19 at $P < 0.05$. The findings from this research may be useful at determining the appropriate moisture stress level at which irrigation is best carried out in vegetable field for optimum yield.

Key words: Irrigation, moisture deficit, hydraulic charge, moisture storage, root zone.

- [Journal of Medicinal Plant Research](#)
 - [International Journal of Physical Sciences](#)
 - [Scientific Research and Essays](#)
-

[Advertise on AJAR](#) | [Terms of Use](#) | [Privacy Policy](#) | [Help](#)

© Academic Journals 2002 - 2008