Agrotechnol 2016, 5:3(Suppl)
http://dx.doi.org/10.4172/2168-9881.C1.022

Climate change and the plight of African agriculture: Issues and options

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Africa is the least contributor to climate change, but African agriculture is most affected by the vagaries of climate change. Key traditional African crops show signs of declining yields in the wake of climate change. Leading opinion makers are of the view that Africa should opt for heat resisting high yielding varieties of crops and that in the absence of such an option, the prospects for fostering sustainable agricultural development will be at stake. Operationalizing such an option entails huge investment on research, which African countries may not be able to afford. Do the polluters pay for such an ambitious research endeavors, what are the other options open to Africa? While there are indicators of heat related losses of productivity in African agriculture, yield response to climate change could be enhanced through huge investment in mitigation within the framework of regional integration with Gulf countries, which are aspiring to expand agricultural operations across their borders. Alternatively, adaptation could be tried by changing the patterns of cultivation and through the geographical expansion of the commodity belts in terms of value addition to earn additional funds for mitigation and adaptation in order to combat the adverse impact of climate change on African agriculture.

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Effect of organic matter and bio-inoculants for the sustainable management of root-knot nematode infesting okra (Abelmoschus esculentus)

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The efficacious nature of organic matter such as Calotropis procera and bio-inoculants like Glomus fasciculatum and Trichoderma viride was determined in okra cultivar 'Arka Anamika' when inoculated singly as well as concomitantly for the ecofriendly management of the root-knot nematode, Meloidogyne incognita in terms of growth parameters such as plant height, fresh as well as dry weights, number of flowers and fruits/plant, percent pollen fertility, chlorophyll content and mycorrhization. Combined applications of C. procera, bio-inoculants G. fasciculatum and T. viride caused greatest reduction in the multiplication of second stage juveniles of M. incognita in soil, number of root-galls and egg masses per root system. Consequently, the highest improvement in plant growth and total biomass of okra was observed in the same treatment. However, individual inoculation of C. procera and these bio-inoculants also showed significant improvement in growth parameters but was less as compared to concomitant inoculations. G. fasciculatum was found most efficacious against disease development caused by M. incognita followed by T. viride and C. procera. The agronomic parameters like NP and K contents were significantly enhanced in such plants which received combined inoculations of organic matter and bio-inoculants. Soil application of organic matter also influenced the microbial activity of these bio-inoculants, more with the G. fasciculatum than T. viride. This investigation has further explained that inoculation of such bio-inoculants and organic matter may utilized successfully in field condition for ecofriendly management of plant-parasitic nematodes including M. incognita without altering existing harmony among beneficial micro-organisms.

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