014-AGR

Amaranthus Breakfast before Driving to work using Sorghum-Based Biofuel

The exponential increase in crude oil consumption globally leads to varying degrees of environmental challenges associated with the use of non-renewable energy sources. Consequently, along with global warming, impact on public health has also been a major concern in recent years per excessive use of fossil fuel and related products development. To explore amelioration for such complex issues, amaranths seed consumption and sorghum biofuel usage are proposed where both are emerging sustainable C4 crops requiring limited agricultural inputs and water, as a proactive measure in climate endangered regime. Governmental change significantly determines the regulatory benchmark on fossil fuel exploration as the United States pose to declare a national emergency in the energy sector. Investigation of the heat tolerance of both the crops towards future food and fuel alternatives are conducted, as per foreseeable climate with current global warming trends. To achieve objectives through the designed framework, various limiting factors to the deployment of both these crops for sustainable use such as insect pests and diseases are examined. This is to identify the best management measures realizing the potential production thresholds towards providing adequate supply of the products to users by both sorghum-ethanol and food-amaranths. The environmental resilience of their notorious weed relatives, Johnson grass and pigweeds, are highlighted as per extended germplasm of both crops. Conceptual framework “Breakfast with Amaranth cereal towards work commute using Sorghum bioethanol-based vehicle” was developed to examine strategies to educate the public on nutritional benefits of *Amaranthus* while reducing greenhouse gas emissions. Community awareness of using C4 crops per current heatwave across the United States and around the world, would affect lives on earth via intervention approach encouraging to mitigate the impact of foreseeable disasters.

Key words: *Bioethanol, Amaranth, Sorghum and Climate change*