

Impact of Climate Change on the Incidence of Insect and Disease Pests of Sugarcane

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Abstract—Sugarcane is an important cash crop of India subjected to several insect and disease pests. Productivity of sugarcane crop in North India is low as compared to other sugarcane growing states of the country. Among various factors, insect and disease pests play a major role for low productivity and low sugar recovery. Growing of sugarcane crop in large areas and ratooning provides a sort of mono cropping stable agro ecosystem for multiplication of these pests. Keeping in view the serious nature of the pests and losses caused to sugarcane crop, regular survey in sugarcane fields of different sugar mills of Haryana, Punjab and UP states has been conducted during 2006-2015 to determine the spatial pattern and intensity of different sugarcane pests. Information generated so far reveals that some of the insect and disease pests considered as minor pest earlier have gained the status of major pests due to climate change. Among the sugarcane diseases, red rot and wilt have always been considered as important diseases but in the recent past, yellow leaf disease (YLD) and pokkah boeng have observed new emerging diseases in north India and many popular sugarcane varieties have become susceptible to these diseases. Sudden emergence of these diseases to epidemic level poses challenge to varietal planning and successful cropping in different regions in the country. YLD is assuming far greater importance now, in view of its wide spread in all most all the sugarcane varieties. Similarly emergence of wilt disease is a major threat for sugarcane cultivation. Recently increased incidence of wilt was noticed in early maturing high sugared varieties of sugarcane in Punjab, Haryana and UP. Incidence of Pokkah boeng disease has also been observed from traces to 40% in almost all the varieties (plant and ratoon crop) under cultivation in the north western zone. Among the various insect - pests, early shoot borer, top borer, stalk borer, root borer, Pyrilla, whitefly and black bug have identified as key pests of sugarcane. From 2006-07 onwards, white grub emerged epidemically as a new pest in sugarcane growing tracts under Uttarakhand (UK) and western UP. Severe white grub incidence (30-90%) was recorded in sugarcane cultivars viz. CoS 767, CoS 8432, CoS 8436, CoJ 64 and CoS 88230 from Haridwar (U.K) to Bulandshahar (UP) under different sugar mills area. Black bug has always been considered as a minor and pre-monsoon pest of sugarcane. Generally it was an assumption that its population decreased during rainy season but, in present scenario incidence of black bug has recorded right from germination to harvest of the crop. Another minor pest, root borer has also become a major pest in subtropics. Pink borer and Internode borer have been identified as new insect pests of sugarcane in Punjab and Haryana states since last two years. The results of survey indicate that dynamics of pests have been shifted over the years due to indiscriminate use of agro chemicals and climate change which may alter the qualitative and quantitative traits of sugarcane.