

Invasion of the Indian cotton leafhopper *Amrasca biguttula* and its impact on cotton production in Côte d'Ivoire

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Background

Until recently, leafhopper were negligible pests of cotton crops in Côte d'Ivoire. However, for almost a decade now, these pests have become a real concern for growers. In 2022, their pressure was particularly strong. We need to know more about the species and their behaviour, in order to develop an appropriate control strategy.

Methodology

Leafhopper specimens were collected on cotton (*Gossypium hirsutum*) in growing areas. A total of 600 individuals have been identified between 2021 and 2022.

The identifications were made on the basis of the taxonomic keys to leafhoppers described by several authors, but consolidated by Dmitriev & Dietrich (2009) available at the following web address : <http://dmitriev.speciesfile.org/key.asp?key=Erythroneura&lng=E&n&i=1&keyN=12>

Results

❖ Composition of jassid species

From 2021 to 2022, a considerable change was observed in the composition of the jassids. In 2021, *J. lybica* was the dominant species (84.3%). In 2022, *A. biguttula*, which had never been seen before, became the majority species, with a proportion of 96.6%.

Proportion of jassid species in 2021

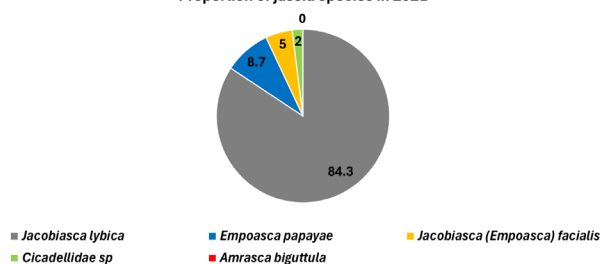


Figure 2. Main species of jasside observed in 2021

Proportion of jassid species in 2022



Figure 3. Main species of jasside observed in 2022

❖ Variation in jassid pressure and his impact on cotton production

Damage increased steadily during the growing season, from germination to harvest. Average damage levels vary according to years. The average level was highest in 2022. These heavy attacks in 2022 due to the appearance of *A. biguttula* caused considerable production losses, reaching 52%.

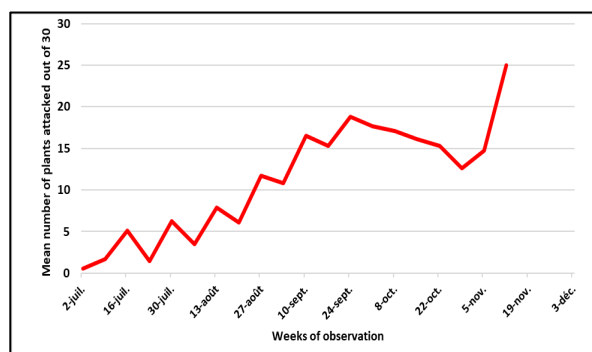


Figure 4. Seasonal trends in damage caused by jassids in 2022

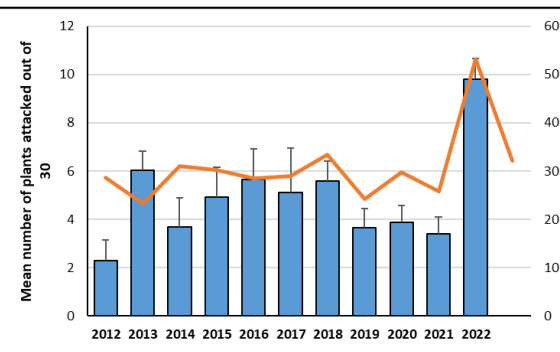


Figure 5. Annual variation in damage caused by jassids and yield losses from 2012 to 2023

Conclusion

Population of cotton leafhoppers are subject to wide variations. These variations could be explained by the appearance of new, more invasive species, due to changes in climatic conditions. The appearance of *A. biguttula* has had a severe impact on production, with the loss of 53%. These changes have also considerable impact on cotton production. Therefore, effective management methods need to be developed.

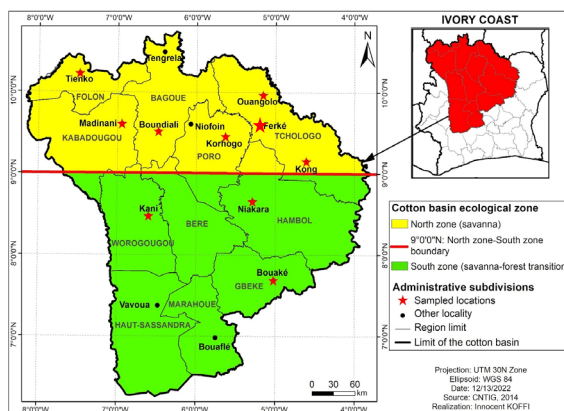


Figure 1. Location of jassid collection sites in the cotton-growing area