

# Managing *Dalbulus maidis* (Hemiptera: Cicadellidae) (De Long & Wolcott 1923) in the Valle del Cauca Department, Colombia

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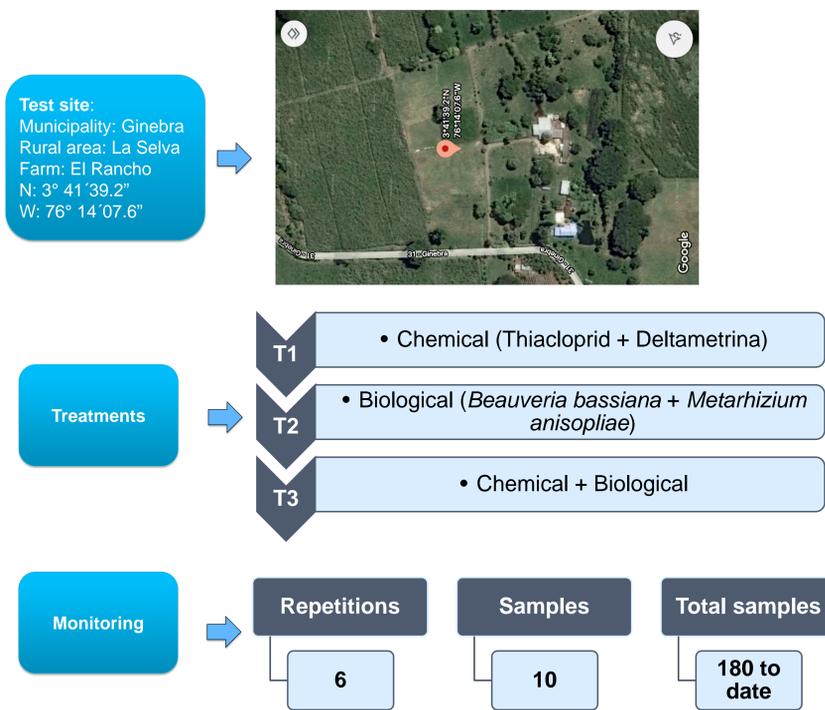
## INTRODUCTION

“Corn stunt disease” is one of the most common and limiting diseases in Central and South America. The complex of pathogens that cause the disease in maize are: (1) corn stunt spiroplasma "*Spiroplasma kunkeli*" (CSS), (2) maize bushy stunt (MBS) and (3) maize fine streak virus (MFS) (Albertazzi Castro 1992, Rodríguez 2020), with leafhoppers *Dalbulus maidis* and *Dalbulus elimatus* Ball. being the vector agent. (Sierra-Macías et al. 2007). In Colombia, *D. maidis* was reported as a limiting pest in maize in 2016 with losses of more than 70% in the Huila region. In 2018, it was reported in Tolima and in 2019 in Valle del Cauca. Chemical control is the only tool used to manage it. In Valle del Cauca, 10 applications were reported during the crop cycle.

## OBJECTIVE

Decide on a management strategy to reduce the impact of the insect in the field using monitoring as a decision-making tool.

## MATERIALS Y METHODS



## PROTOCOL



Figure 1. Monitoring of the *D. maidis* population in the field with a bag to capture individuals.



Figure 2. *D. maidis* sample count in the laboratory: (A) celestron, (B) collected sample, (C) separation by sex and (D) parasitoid associated with adults of *D. maidis* in this locality *Gonatopus* sp. (Hymenoptera: Drynidae).

## RESULTS

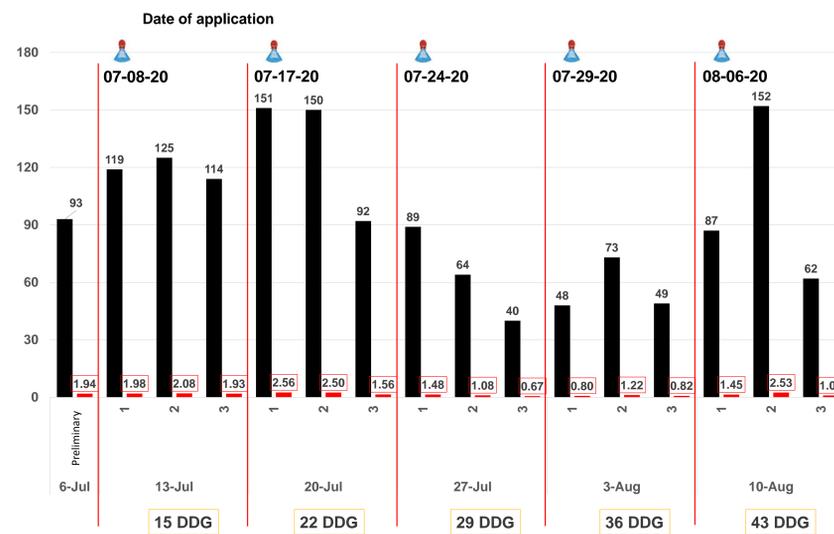


Figure 3. Effect of treatments of *D. maidis* on the population under field conditions: Black bar indicates number of adults collected, red bar the average amount of individuals/plant.

DDG	Samples	Total*	Average	
22	180	393	2.21	A
15	180	358	2.00	A
8	50	93	1.94	A
43	180	301	1.68	A
29	180	193	1.08	B
36	180	170	0.94	B
<b>Total</b>	<b>950</b>	<b>1,508</b>	<b>1.60</b>	

Table 1. Population dynamics in the days following corn germination (DDG) due to the effect of treatments: \* Total adults collected. Averages followed by different letters are statistically different at  $p < 0.05$ , Tukey-Kramer.



Figure 4. *D. maidis* individuals affected by the biological control agent under study conditions: (A) sporulation in wet chamber.

Treatments*	Sample	Total	Average	
Preliminary	50	93	1.94	A
2	300	564	1.18	A
1	300	494	1.03	A
3	300	357	0.75	B
<b>TOTAL</b>	<b>950</b>	<b>1,508</b>	<b>1.02</b>	

Table 2. Effect of treatments on *D. maidis* population under field conditions: \*Preliminary (evaluation before treatments, 1= Chemical treatment, 2= Biological treatment, 3= Chemical + biological treatment. Averages followed by different letters are statistically different at  $p < 0.05$ , Tukey-Kramer.

## CONCLUSIONS

- We were able to establish a protocol that allows us to monitor *D. maidis* in the field and make control decisions.
- The effect of the treatments implemented on the *D. maidis* population was observed.
- It was observed that treatment T3 (combination of biological plus chemical) showed the greatest effect on the *D. maidis* population under study conditions.

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