

WHITE PAPER

RISK OF FLOWERING, GROWERS CAN ANTICIPATE AND MITIGATE DAMAGES

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One of the most significant problems for sugarcane production is flowering. In this article, we will explore why flowering deserves proper attention, our vision for this topic in 2023, how climate change will create more challenges in the future, and how a new tool can help decide in this volatility.

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EXAMINING THE RISKS OF FLOWERING AND ISOPORIZATION.

WHAT ARE THE PREDICTIONS FOR 2023?

Flowering is a natural process that occurs in sugarcane when the plant encounters favorable conditions to initiate the process. The main factors for this process include photoperiod (day length), soil moisture, and temperature. However, when sugarcane plants flower, they spend the accumulated energy in the form of sucrose to emit the floral stem, leading to the isopORIZATION inside the stem. This can significantly reduce the yield of sugarcane crops and, in some cases, result in losses of up to 30% in both yield and sugar content.

The application of an inhibitor is a tool used in flowering varieties to prevent losses. Another strategy adopted is to anticipate the harvest towards the end of the crop season by using ripeners. Note that the damage can be “silent” due to the process of isopORIZATION that typically worsens with the flowering.

The image shows the dehydration of the stem tissues (Figure 2), which turn white compared to the healthy tissue (Figure 1) due to water loss after the sugarcane undergoes the process of isopORIZATION.

Figure - 1

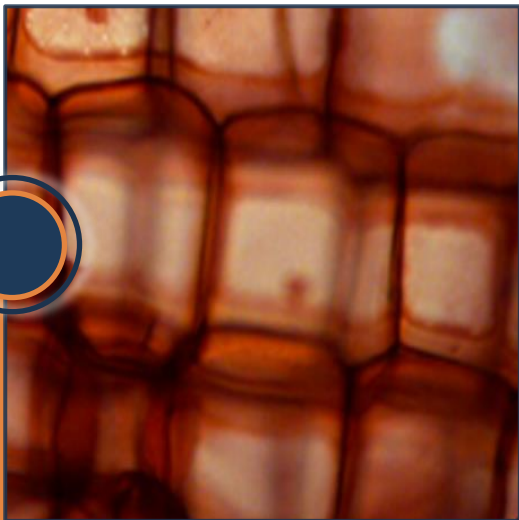
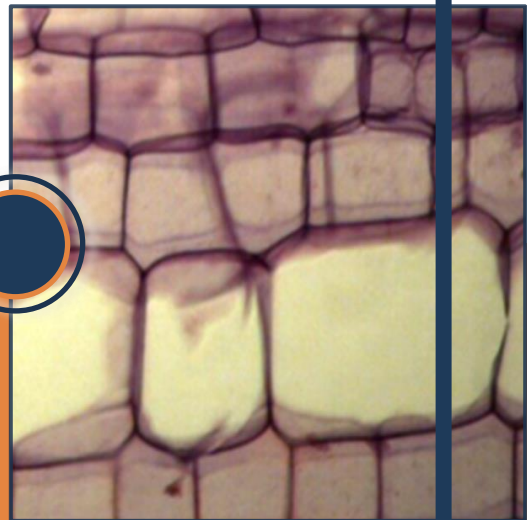


Figure - 2



INCREASING THREAT:

FLOWERING AND ISOPORIZATION RISKS EXACERBATED BY CLIMATE CHANGE

Climate change is also expected to create more challenges for sugarcane production in the future.

Rising temperatures and changes in rainfall patterns can make it harder to grow sugarcane and can also increase the risk of flowering.

We must be vigilant in seeking to minimise the damage caused by these changes, using new digital tools to support decision-making.

Flowering is something natural for the sugarcane plant, from a productive point of view it is undesirable, since this natural phenomenon consumes the plant's reserves.

Genetic improvement has been working to reduce or inhibit this process, a fact that currently the varieties bloom depending on climatic favorability, so we must evaluate the information to decide whether to apply inhibitors or not.

The difficulty is in deciding when to apply the inhibitors because induction occurs a few months before flowering actually occurs when losses will already occur.



According to the current scenario, a tool is available that can help sugarcane farmers make better decisions. Tested in 2023 in partnership with some important multinational companies in the sugarcane sector, this tool uses satellite images and machine learning algorithms to monitor the health of sugarcane plants and predict the risk of flowering. With this information, mills and producers can make decisions using mathematical models that consider various factors about when to harvest their crops and how to manage them preventively to mitigate the damage caused by the flowering and isoporization processes.

INNOVATIVE TOOL FOR FLOWERING AND ISOPORIZATION RISK ANALYSIS

In summary, the problem of flowering in sugarcane production is a significant risk and deserves attention. However, with modern tools, farmers can make better decisions and manage their crops more effectively. Artificial intelligence has been helping us with this crossing of information, taking into account all the climate data and the conditions of the sugarcane fields, improving assertiveness to really apply where it will flourish (or very likely) and be rational about the consumption of inputs. This is our goal: to enable more sustainable productions through the use of mathematical models and AI.

We are available to present this and other solutions developed by sector experts to optimize your resources. Count on us, let's face this challenge together!

