



Groundnut Bud Necrosis: A Threat to Peanut Production in Tropical Regions

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Description

Groundnut Bud Necrosis (GBN) is a significant threat to peanut (*Arachis hypogaea*) production, particularly in tropical regions where the crop is a major staple and cash crop. Caused by the Groundnut Bud Necrosis Virus (GBNV), which is transmitted by thrips, this disease can have devastating effects on peanut yield and quality. This discuss the nature of Groundnut Bud Necrosis, its impact on peanut production and the strategies to manage and moderate its effects in tropical regions. Groundnut Bud Necrosis is primarily caused by the Groundnut Bud Necrosis Virus (GBNV), a member of the Tospovirus genus. The virus is spread by various species of thrips, notably *Thrips palmi* and *Frankliniella schultzei*. These tiny insects feed on infected plants and then transmit the virus to healthy plants, facilitating its rapid spread. Infected plants exhibit a range of symptoms, beginning with chlorotic (yellow) spots on young leaves, which may eventually turn necrotic.

One of the symptoms is the necrosis of buds, where the growing tips of the plant die off, significantly impacting flowering and pod development. Other symptoms include leaf distortion, stunted growth

and premature senescence, all of which contribute to reduced yield and quality. The thrips vectors play an essential role in the transmission of GBNV. These insects can rapidly spread the virus over short distances, while wind can facilitate the movement of infected thrips over longer distances. The virus can also persist in infected plant debris and soil, creating a reservoir for future outbreaks. The impact of GBN on peanut production is multifaceted, affecting both yield and quality. This has serious implications for farmers, especially in tropical regions where peanuts are a precarious crop. GBN significantly reduces peanut yield through several mechanisms. The necrosis of buds leads to fewer flowers and consequently, fewer pods.

The reduction in pod formation directly translates to lower yield. Additionally, infected plants may exhibit stunted growth, further limiting their ability to produce a full crop. Even when pods are produced, GBN-infected plants often yield smaller pods with poorly developed kernels. The quality of these kernels is compromised, affecting their commercial value. Poorly filled pods and smaller kernels result in lower market prices and reduced profitability for farmers. Managing GBN requires additional resources, including the use of resistant varieties, chemical controls for thrips and enhanced cultural practices. These increased production costs can strain the financial resources of farmers, particularly in resource-limited settings where peanuts are a primary source of income. Managing GBN is challenging due to the complex interactions between the virus, its vectors and the host plants. Several factors contribute to the difficulty in controlling this disease.

GBN is a serious threat to peanut production in tropical regions, with significant impacts on yield, quality and economic viability. The disease, caused by the GBN Virus and transmitted by thrips, can lead to severe yield losses and compromised quality, affecting both farmers and the broader agricultural industry. Effective management of GBN requires a combination of strategies, including the use of resistant varieties, thrips control, cultural practices and farmer education. Ongoing research and development efforts are essential to improving disease management and reducing the impact of GBN on peanut production. By addressing the challenges and investing in innovative solutions, it is possible to ease the threat of GBN and support sustainable peanut farming in tropical regions.

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