

FCH 222: A high yielding Fusarium Wilt Resistant FCV Tobacco Variety

Introduction

In the transitional zone of the Karnataka Light Soils (KLS), Flue-Cured Virginia (FCV) tobacco is grown as a rainfed crop which is valued for its export quality. Fungal diseases have long threatened the crop, and while resistant varieties have kept black shank under control, Fusarium wilt (*Fusarium oxysporum* f.sp. *nicotianae*) has emerged as a major problem. The disease affects about 7.5% of the 69,049 ha of FCV tobacco in KLS, particularly in medium and high rainfall areas, impacting villages such as Abbur, Kachuvinahally, Neralakupe, Marur, Kebakoplu and Harave. To address this, ICAR–CTRI RS, Hunsur developed and released FCH 222, a Fusarium wilt–resistant variety. Along with resistance, it offers higher yields and superior leaf quality, especially in the dry and semi-dry regions of KLS.

Nature of the problem

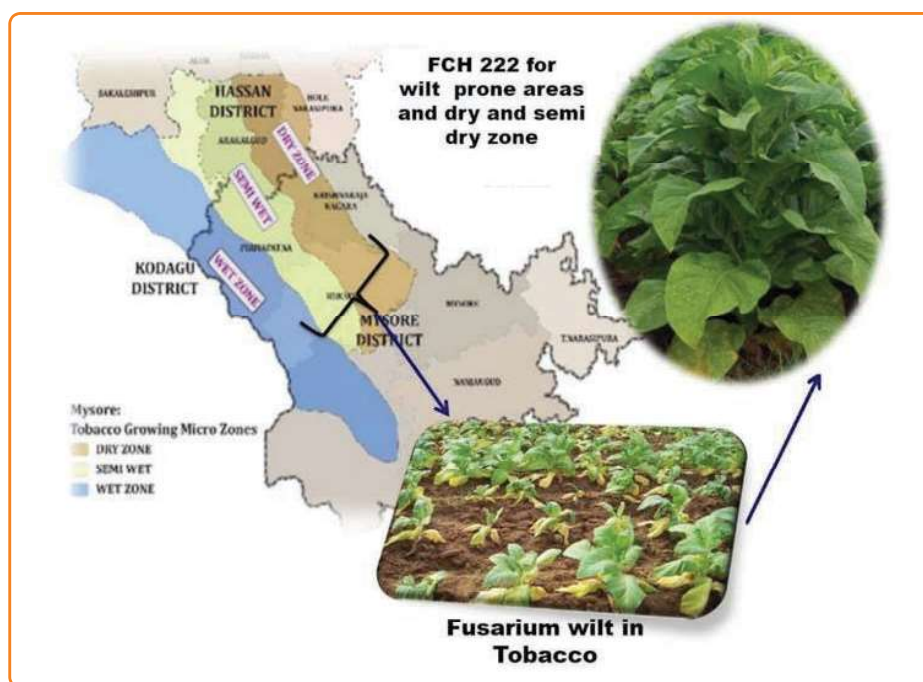
Over the years, Fusarium wilt has caused increasing yield and quality losses in FCV tobacco due to the continuous cultivation of susceptible varieties like Kanchan and CH 3. In areas such as Hunsur, Periyapatna and Chilkunda, growers faced avoidable yield losses of about 9%. With no effective chemical control or crop rotation options available, research was focused on identifying resistant sources and developing a Fusarium wilt–resistant variety suited for the KLS region.

Technology intervention

The Fusarium wilt–resistant variety FCH 222 was developed through hybridization between FCH 201 and Speight-G 33 (resistant donor) using the pedigree method. In wilt-sick plots, FCH 222 showed strong resistance with only 2.5% disease incidence, similar to Speight-G 33 (5.0%). Even in highly sick soils, disease incidence was only 20% compared to 90–95% in susceptible varieties like Kanchan and Bhavya. FCH 222 is a medium cast variety with 20–22 curable leaves that are light in color, moderately puckered, and show medium spangling at maturity. The cured leaf is ripe, medium-bodied, pliable, lemon to orange in color with optimum spotting, and has physical and chemical qualities comparable to the ruling variety Kanchan. Besides resistance, FCH 222 provides higher yields with superior leaf quality, especially in the dry and semi-dry regions of KLS where rainfall is low.

Recommendation

FCH-222 is a highly Fusarium wilt–resistant variety with an average yield potential of 3,000 kg ha⁻¹ and 70% bright grades. Hence, it is recommended for the light soils of the southern transition zone of Karnataka, particularly in Fusarium wilt–endemic areas where FCV tobacco is grown under monsoon conditions.



Impact

Approximately 500 kg seed of FCH 222 developed by ICAR-CTRI RS, Hunsur, was distributed through the Tobacco Board, Ministry of Commerce, primarily to registered FCV tobacco growers in wilt-prone areas. Beyond effective Fusarium wilt disease management, the variety FCH 222 also enhanced bright-grade leaf production, leading to higher average prices for growers. The adoption of FCH 222 across 5,178 hectares in KLS resulted in a 9% yield increase due to Fusarium wilt management. Overall, the adoption of FCH 222 technology generated an additional annual revenue of approximately ₹14.7 crores for FCV tobacco growers in KLS.





HOSAKOPPALU - Sri Sannathammai Gowda



HARNEHALLY - Sri Mahadevappa

Farmers Feedback

"My field was badly affected by Fusarium wilt, and I lost more than 60% of plants every year resulting in a poor crop stand. After getting to know about the new variety, FCH 222, from ICAR-CTRI RS, Hunsur, I tried it and was happy to see a healthy crop. I achieved 2,490 kg ha⁻¹ of cured leaf with over 75% bright grades. The crop was easy to manage, and I was satisfied with the topping at 20 leaves and the five-day harvesting interval".



Sri Mahadevappa
Village - Harinehally