

Tobacco Hybrid, CH-3

Complete Details of Technology:

The Flue Cured tobacco grown in Karnataka Light Soils (KLS) has unique demand in the international market as natural neutral filler. Increasing production cost over years has resulted increase in cost of cultivation and gradual reduction of farmers net income. In order to sustain the competitive edge in the exports production cost need to be reduced through lower cost of cultivation or higher productivity or both. With the objective to enhance the monetary benefits accrued to KLS farmers and sustain the export demand, a high yielding hybrid, CH-3 having superior quality and flavour characteristics has been developed by M/s ITC Ltd and ICAR-CTRI. CH-3 is a high yielding Cytoplasmic Male Sterile FCV tobacco Hybrid developed by crossing CMS Kanchan with P18-1, a FCV germplasm line.

The plant has semi erect habit and grows to a height of 185 cm under un-topped condition. It has green colour stem, very long, medium broad leaves and short to medium internodal length. Leaf has good puckering and frills. The leaf is medium green cast in nature and has a wavy lamina and acute to acuminate tip. Leaf is sessile with high auricle development. The plant produces a total of 28 to 32 leaves with 28 curable leaves. The hybrid has a cured leaf yield potential of 2700 kg/ha under Karnataka Light Soil condition. The physical and chemical quality characteristics are within the acceptable range. The cured leaf is lemon to lemon orange colour in lower plant positions and orange to deep orange colour in the higher plant positions. The leaf is medium bodied, oily with excellent ripeness characteristics and good flavour.

In replicated yield trials conducted during 2000 to 2004 at Pala village, Hunsur Taluk, Mysore district, CH-3 yielded significantly higher cured leaf (22-28%) over Kanchan. During the year 2005, under adverse weather conditions (high rainfall and low sunshine hours), also, CH-3 performed well over check Kanchan, with 23% higher cured leaf yield with better grade out turn. Under Initial Varietal Trials (2006), the hybrid, CH-3 showed promise over Kanchan at CTRI Research Station, Hunsur and AINRPT Centre, Shimoga in terms of cured leaf yield and TGE. In Advanced Varietal Trial (2007 & 2008) at CTRI Research Station, Hunsur, the hybrid, CH-3 showed promise over the check variety with 7% increase in cured leaf yield and 8% increase in top grade equivalent. At AINRPT Centre, Shimoga the hybrid, CH-3 was significantly superior over the check, Rathna in all the yield parameters. In bulk evaluation trials (2008 & 2009) at CTRI Research Station, Hunsur the hybrid, CH-3 recorded an increase of 21% in cured leaf yield and 26% increase in TGE over Kanchan.

In the on-farm trials conducted during five seasons (2004 to 2008) across Mysore area, the hybrid showed 12-36% increase in cured leaf yield over Kanchan. The hybrid was also reported to perform better than check, Kanchan in low rainfall areas in KLS region, as opined by the farmers. The hybrid, CH-3 showed similar level of pest and incidence like the control, Kanchan under field conditions.

The hybrid, CH-3 produced 76% mature to ripe leaf as compared to 73% in Kanchan in a study conducted to assess the performance related to leaf maturity. Chemical analysis data revealed that percentage of nicotine (1.03-2.89), reducing sugars (13.9-20.2) and chlorides (0.04-0.30) are in desirable range and at par with Kanchan. The hybrid, CH-3 also proved superior to check Kanchan in sensory evaluation of smoke in cigarettes. Smoke test data and Manufacturability test revealed that the hybrid, CH-3 possessed lower tar content than check, Kanchan. CH-3 recorded significantly higher values of neutral volatile flavor compounds than check, Kanchan, thereby indicating that it is a flavourful hybrid and suitable for exports. In storage & manufacturability tests, the hybrid, CH-3 was graded on par with Kanchan in parameters taken for the study.

Advantages: The hybrid, CH-3 has desired plant type and cured leaf traits such as more leaf width, better leaf maturity, ripeness, colour and spotting; higher yield potential, superior smoke profile, lower tar content and higher flavor as compared to the ruling variety, Kanchan. Also, farmers opined that hybrid, CH-3 performs well under low rainfall. In view of its overall superior performance, trade preference and farmers acceptance, the hybrid, CH-3 is released for commercial cultivation in Karnataka Light Soils.

Brief Description of Technology Including Salient Features:

CH-3 is a flavourful high yielding Cytoplasmic Male Sterile FCV tobacco Hybrid developed by crossing CMS Kanchan with P18-1, a FCV germplasm line. The plants of CH-3 produce a total of 28 to 32 leaves with 28 economic leaves. The hybrid has a potential of 2200 to 2700 kg/ha under Karnataka Light soils. The cured leaf produces lemon to lemon orange colour in lower plant positions and orange to deep orange colour in the higher plant positions. The leaf is medium bodied optimally spotted, oily with excellent ripeness characteristics and good flavour. The percentage of nicotine, reducing sugars and chlorides are within the acceptable range. The hybrid was rated higher to control in the sensory evaluation of cigarettes. The smoke test revealed that the hybrid, CH-3 possesses lower tar content than check, Kanchan. The analysis of flavor compounds also showed considerably higher neutral volatile compounds in the hybrid than check, Kanchan and hence can be considered as flavourful. In view of its overall superior performance, trade preference and farmers acceptance, the hybrid, CH-3 is released for commercial cultivation in Karnataka Light Soils.

Benefits/Utility

- CH-3 is high yielding flavourful tobacco suitable to Karnataka light soils
- CH-3 possess lower tar than control variety
- CH-3 performs well under low rainfall condition
- Has > 20% additional yield advantage over the existing varieties
- Farmer can get an additional income of Rs. 30,000/- kg/ha using this hybrid