INTRODUCTION

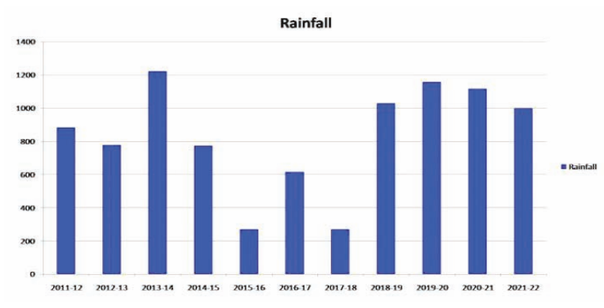
India is boutique for different types of tobaccos *viz.,* FCV, *Bidi*, Chewing, Cheroot, Cigar, *Hookah*, Burley, *Natu*, Oriental, *Rustica* are grown thus, the scenario is unique to India.



Nicotiana tabacum and *Nicotiana Rustica* are the two important species widely cultivated in India. *Rustica* tobacco characterized by short plants with round puckered leaf and yellow flowers, high nicotine and are mainly used for chewing (Khaini), Zarda, *hookah* tobacco paste, quiwam, tooth powder (Gul), Paan masala, Gutaka etc. Amongst the tobacco growing states of the country, *Rustica* tobacco is mainly grown in Uttar Pradesh, Gujrat and West Bengal. In Uttar Pradesh, *hookah* tobacco is grown mainly on the alluvial soil in an area of about 25,000 to 28,000 hectare as irrigated crop during *rabi* and summer seasons producing 39,594 MT of cured leaf with an average productivity of 1387 kg/ha. The production of *Hookah* tobacco in Uttar Pradesh is largely concentrated comprising Kanpur, Kanpur Dehat, Farrukhabad, Etah, Kasganj, Barabanki, Gonda, Gorakhpur, Unnao, Azamgarh, Basti, Fatehpur, and Kausambi districts. In Gujarat *hookah* tobacco is mainly grown in North Gujarat comprising the districts of Sabarkantha, Banaskantha, Nadiad, Gandhinagar, Khambat, Mehsana, Kheda and Anand in an area of 33513 ha. In West Bengal, the *Rustica* tobacco popularly known as *Motihari* tobacco cultivated in an area of 12,000 ha produducing 16.2 M kg with a productivity of 1350 kg/ha is concentrated in Cooch Behar, Jalpaiguri, Malda and Mushidabad districts of North Bengal region.

CLIMATE

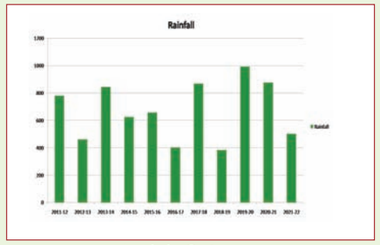
In Uttar Pradesh, *rustica* tobacco is cultivated in the alluvial belt of Indo-Gangetic plain in the Central Part of Uttar Pradesh, which is under Agro climatic zone-V. Normally the climate is semi arid with hot dry summer and moderate to severe cold during winter. The average annual rainfall of the area varies from 800 to 900 mm with a mean annual precipitation of about 818 mm, mainly through S-W monsoon rains from June to last week of September with occasional frost and shower in winter season during North- East monsoon during December and January. In middle Gujarat the average rainfall received is 924 mm in 39 rainy days. In north Gujarat average rainfall received is 590mm. In Dinhata, the annual rainfall received is 2690 mm in 92 rainy days.



Araul, Uttar Pradesh



Dinhata, West Bengal



Ladol, Gujarat

In Gujarat, *Rustica* tobacco is cultivated in the loamy soils. In West Bengal soils are light in texture, sandy loams and silt loams, whitish grey to greyish in colour, well-drained and well-aerated. *Hookah* tobacco in Uttar Pradesh is mainly grown on the alluvial soils, which are sandy loam in texture having pH 6.5 to 8.5. The soils are moderately alkaline silt loam and highly calcareous in nature.

PRODUCTION SCENARIO

Hookah tobacco is mainly grown in an Uttar Pradesh in an area of 25,000 ha, producing 39,594 M kg with a productivity of 1387 kg/ha. Whereas in Gujrat, *Rustica* tobacco is grown in 33,500 ha, producing 66,188 M kg with a productivity of 1975 kg/ha and in West Bengal, *Motihari* tobacco is cultivated in an area of 12000 ha producing 16.2 M kg with a productivity of 1350kg/ha.

AINPT CETNRE, BTRS, ANAND

ICAR had sanctioned the All India Co-ordinated Research Project on Tobacco during the fourth five year plan in 1970-71 with its head quarter at Anand. The AICRP on tobacco was renamed as All India Network Project on Tobacco under the administrative control of the Director, CTRI, Rajahmundry in 1998. The center works through the co-ordination of multidisciplinary research by a team of scientists including Plant Breeder, Agronomist, Nematologist, Pathologist, and Soil chemist. The center works to cater to the needs of *bidi* and *rustica* tobacco growing areas of the state.

AINPT CENTRE ARAUL

During seventh plan, the **All India Co-ordinated Research Project on Tobacco** centre was sanctioned during **1987-88** under the administrative control of Chandra Sekhar Azad University of Agriculture and Technology, Kanpur Uttar Pradesh, which was started functioning from 1988-89 at Saraimira then shifted to Araul, Kanpur in 2004. Tobacco Research Station, Araul is situated about 65 km away from the west side of Kanpur city on North side of G.T. Road (NH-22) adjoining Araul Town.

AINPT CETNRE, DINHATA

ICAR-CTRI Research Station, Dinhata is originally known as Wrapper and *Hookah* Tobacco Research Station was established in 1952 under the aegis of the then Indian Central Tobacco Committee (ICTC) under the administrative control of Central Tobacco Research Institute, Rajahmundry, Andhra Pradesh. Dinhata was sanctioned as one of the Sub-centers under the AICRP on tobacco, during the fourth five year plan in 1970-71 on *Motihari* (*N. rustica*) tobacco.

AINPT CETNRE, LADOL

Ladol centre was sanctioned as one of volunteer centers under the AICRP on tobacco in 2001. The center works to cater to the needs of *rustica* tobacco growing areas of the Gujarat state.

RUSTICA TOBACCO VARIETIES DEVELOPED BY THE CENTRES

ANAND

GCT-3: Released In 2001. High yielding (5986 kg/ha), suitable for *Lal Chopadia*. Recommenmded for *rustica* tobacco growing areas of North Gujarat.

GCT-2: Released In 1994. High yielding (3512 kg/ha) and suitable for tobacco growing areas of middle Gujarat.

GC-1: Released In 1981. High yielding (2693 kg/ha), suitable for *rustica* tobacco growing areas of Gujarat.



GCT-3



GCT-2



GC-1

ARAUL

Azad Kanchan: Released in 2008. High yielding (2800-3000 kg/ha), medium height, leaves broad and tolerant to leaf curl disease.

ArR-27: **Yield potential is** 3400 kg/ha, tolerant to drought, Tall, dark cast, thick bodied, broad leaves.



Azad Kanchan



ArR-27

DINHATA

Sonar Motihari: Released in 1977. Early maturing and high yielding (1690 kg/ha). Suitable for *Motihari* tobacco growing areas of North-West Bengal.

DD 437: Released in 1977. high yielding (1865 kg/ha), late maturing and suitable for *Motihari* tobacco growing areas of West Bengal.

Dharla: Released in 2003 with a yield potential yield of 2700 kg/ha. Tolerant to brown spot and frog-eye spot diseases. Suitable for North Bengal Zone.

Torsa: Released in 2008. High yielding (2200 kg/ha). Suitable for silty/ sandy loams of *Motihari* tobacco tract of Cooch Behar district.



Dharla



Torsa

LADOL

DCT 4: Released in 2009. High yielding (4900 kg/ha). Suitable for *rustica* tobacco growing areas of North Gujarat.

GCT 5: Released in 2021 is a medium early maturing with high cured leaf yield (4976 kg/ha) and good leaf expansion. Recommended for cultivation in the *rustica* tobacco growing areas of Gujarat state.



DCT 4



GCT 5

Some of the Important Technologies released to the Farming Community

- **Weed Management in *Hookah* Tobacco:** The study revealed that 38% of the area is occupied by Intercropping with vegetable pea.
- **Integrated Nutrient Management in *Hookah* Tobacco (INM):** The adoption of this technology revealed that 43% of the area is occupied by Weed Management in *Hookah* tobacco.
- **Intercropping with vegetable pea:** 11.5% of the area is occupied by Integrated Nutrient Management in *Hookah* tobacco (INM).
- **Alternative crops for *rustica* tobacco in Uttar Pradesh:** Among the different crops grown, tobacco is the most profitable crop and the next best alternative crop recommended is Bengal gram.
- **Optimum P and K for *rustica* tobacco in Uttar Pradesh:** Application of 50 kg P_2O_5 /ha and 50 kg K_2O /ha is recommended to farmers growing hookah tobacco in Uttar Pradesh for higher cured leaf yields.
- **Optimum spacing and topping for *hookah* tobacco in U.P.:** *Rustica* tobacco farmers of Uttar Pradesh are recommended to grow tobacco at a spacing of 45 x 45 cm and top at 12 leaves stage for higher cured leaf yields.





Integrated Nutrient Management in Hookah Tobacco



Intercropping with vegetable pea

CONSTRAINTS

- Tobacco control policies
- Heightened anti-tobacco campaign
- Labour problem
- Resource use efficiency is low
- No organized market

FUTURE THRUST

- Development of varieties with high photosynthetic use efficiency and nutrient use efficiency
- Development of hybrids with multiple resistance coupled with high yield.
- Developing economically viable and eco-friendly agro technologies for enhancing productivity and quality, reducing harmful substances,
- Developing value added products for promoting exports and generating revenue and employment on a sustainable basis

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Rustica tobacco in India



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