

TERMS OF REFERENCE FOR R&D PROJECT

Food and Agriculture Department
Tobacco and Tobacco Products Sectional Committee, FAD 4

1 Title of the Project

Study of Good Agricultural Practices for Flue-cured Virginia [FCV] Tobacco and Bidi tobacco

2 Background

2.1 Tobacco is one of the most economically significant agricultural crops in the world. It is a drought tolerant, hardy and short duration crop which can be grown on soils where other crops cannot be cultivated profitably. In India, Tobacco crop is grown in an area of 0.45 M ha (0.27% of the net cultivated area) producing ~ 750 M kg of tobacco leaf. India is the 2nd largest producer and exporter after China and Brazil respectively. Tobacco production is an important source of income for India's farmers. Tobacco provides livelihood to millions of people in various components of tobacco sector including tobacco production, processing, manufacture and trade.

2.2 Different tobacco types viz. Flue-cured Virginia [FCV] tobacco, bidi, chewing, hookah, cheroot, cigar wrapper, cigar filler, oriental and dark fire cured tobacco etc. are being cultivated in India. Tobacco is grown on a wide variety of soils and climates.

2.3 A number of Indian Standards have been formulated under Tobacco and Tobacco Products Sectional Committee, FAD 4 on tobacco products as well as related test methods. However, there is no national standard to provide all-inclusive guideline on good agricultural practices for tobacco.

2.4 The concept of Good Agricultural Practice (GAP) aims at ensuring sustainable, economically viable production of usable tobacco. Because tobacco is grown in many different regions of the world, under various agricultural systems at different levels of sophistication, there is no one GAP template to suit all farm situations. India produces different styles of tobacco, which vary in their physical and chemical characteristics under diverse climatic conditions. The need for development of Indian standard on good agricultural practices for flue-cured virginia [FCV] tobacco and bidi tobacco has been felt to provide a guideline document which may assist the farmers to enhance the productivity while protecting, sustaining or enhancing the environment with regard to soil, water, air, animal and plant life.

3 Objective of the Project

To study good agricultural practices for FCV tobacco and Bidi tobacco covering all verticals of tobacco cultivation including soil and water management, crop management, pest and disease management, environment conservation, labour practices and economic sustainability in order to provide comprehensive guidelines based on field specific empirical data/ information for different regions of the country relating to good agricultural practices for FCV tobacco and Bidi tobacco.

4 Scope

4.1 Study of existing literature related to published research conducted, international/ regional guidelines & standards related to Good agricultural practices for flue-cured virginia [FCV] tobacco and bidi tobacco and any other relevant national/ international documents to understand the protocols practiced globally and nationally.

4.3 Collecting information on various farming locations for FCV tobacco and Bidi tobacco

4.3 Primary survey in locations with different geographical and climatic conditions i.e., Agro-climatic zones (ACZs) of India ACZs to understand the best practices, regulatory stipulations, existing issues and potential solutions.

4.4 Stakeholder consultation for development of an all-inclusive GAP program with Agro-climatic zones specific recommendations.

4.5 Preparation of comprehensive recommendations based on the study conducted for the following:

- (i) Good agricultural practices for flue-cured virginia [FCV] tobacco
- (ii) Good agricultural practices for bidi tobacco

5 Research Methodology

5.1 Conducting extensive literature survey on available guidelines, standards , research publication or technical references on good agriculture practices for flue-cured virginia [FCV] tobacco and bidi tobacco at regional/national/ international level related to Good agricultural practices for flue-cured virginia [FCV] tobacco and bidi tobacco.

5.2 Study various regulatory provisions related to tobacco farming in India which are necessary to be addressed as a part of good agricultural practices in FCV and bidi tobacco.

5.3 Identify various verticals of good agricultural practices in FCV and bidi tobacco cultivation for the study such as soil and water management, crop management, pest and disease management etc. Conducting extensive literature survey on significance of these verticals related to the study.

5.4 Identification of different geographical and climatic conditions i.e., Agro-climatic zones (ACZs) of India for FCV tobacco and bidi tobacco cultivation and collate data on various farming locations in these regions.

5.4 *Sampling plan:*

5.4.1 Conduct primary survey among stakeholders (minimum 15) involved in FCV tobacco and bidi tobacco farming in different locations to understand the best practices being employed in the country.

5.4.2 Conduct on site visits to minimum 15 locations in different Agro-climatic zones for the detailed study of best practices and protocols related to the identified verticals of Good Agricultural Practices for the purpose of the study.

5.5 Study good agriculture practices for flue-cured virginia [FCV] tobacco and bidi tobacco different geographical and climatic conditions i.e., Agro-climatic zones (ACZs) of India ACZs. The study is expected to cover all the identified verticals of Good Agricultural Practices in FCV and bidi tobacco cultivation such as soil and water management, crop management, pest and disease management, environment conservation, labour practices, economic sustainability etc.

5.6 Identify challenges faced during FCV tobacco and bidi tobacco farming and effective solutions which can be employed in farming practices to address these challenges.

5.7 Based on detailed literature review, stakeholder consultations and on-site visits, suggest good agriculture practices for FCV tobacco and bidi tobacco farming for development of an all inclusive GAP program with Agro-climatic zones specific recommendations.

6 Deliverables

Detailed project report of the work done, in hard copy and digital formats, as per the scope specified under 4, with the following as appendices:

- a) Database on various farming locations in Agro-climatic zones (ACZs) of India for FCV tobacco and bidi tobacco cultivation.
- b) Identified verticals/ elements of Good Agricultural Practices for the purpose of the study and their significance in FCV tobacco and bidi tobacco cultivation.
- c) Research findings collected through the secondary as well as primary study including Questionnaires (from survey), field specific empirical data/ information for different regions of the country relating to good agricultural practices for FCV tobacco and Bidi tobacco.
- d) Discussion and visit reports, to be appended with the project report.
- e) Various regulatory provisions related to tobacco farming in India which are relevant as part of developing all-inclusive good agricultural practices in FCV and bidi tobacco
- f) Comprehensive guidelines covering all necessary elements of Good agricultural practices for flue-cured virginia [FCV] tobacco and bidi tobacco (separately) with Agro-climatic zones specific recommendations based on field literature review/ surveys/ specific empirical data/ information collected from different regions of the country ensuring sustainable, economically viable production of usable tobacco.

7 Timeline and Method of Progress Review

7.1 Timeline for the project is 6 months from the date of award of the project.

7.2 Stages of review:

Stage	Timeline
Stage I : Review of literature, regional/national/ international guidelines & standards related to Good agricultural practices for flue-cured virginia [FCV] tobacco and bidi tobacco. Collecting information on various farming locations for FCV tobacco and Bidi tobacco different geographical and climatic conditions i.e., Agro-climatic zones (ACZs) of India.	Second Month
Stage II : Primary research findings on good agricultural practices/ protocols for FCV tobacco and Bidi tobacco covering all verticals of tobacco cultivation based on-site visits from different regions of the country and stakeholder consultations. Submission of interim report to Sectional Committee at the end of third month for review.	Third Month to Fifth Month
Stage III : Draft report submission – Sectional Committee will evaluate the draft report and provide feedback/recommend changes, if required.	End of Fifth Month

At the end of 6th month, project allottee to submit final project report incorporating recommendations/feedback of Committee.

Note: The timelines given above are indicative and calculation of time will start from the date of award of sanction letter for the project to the Project leader.

8 Support from BIS

8.1 Access to Indian and International Standards

8.2 Letters from BIS to concerned stakeholders for support in research project.

9 Nodal Officer

Smt. Nitasha Doger, Scientist-D/ Joint Director, FAD, BIS may be contacted at fad4@bis.gov.in for any queries on the research project.