



**Task Force Harvest to Market Sanitation Practices  
Including Non Tobacco Related Materials (NTRM)**

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## **Executive Summary**

Harvest to market sanitation practices are key in delivering a tobacco leaf product to market in a condition which qualifies for further utilisation in the manufacture of tobacco products. These guidelines outline appropriate practices which are focused on minimising or eliminating the possibility of Non Tobacco Related Materials (NTRM) entering the leaf supply chain.

The key philosophy as considered in the guidelines is the PDCA (Plan - Do - Check – Act) method which utilises information as a tool to drive continuous improvement. Conducting appropriate assessments at critical control points during the tobacco production process (defined as tobacco seedling production until delivery of product to customer) allows effective identification of root causes of NTRM and thereafter development of control strategies and practices.

The guidelines have been developed considering a generic model of tobacco production systems and will require adaptation considering local conditions. This document is designed to be complementary to the CORESTA Guide N° 3 Good Agricultural Practices, February 2005.

# 1. Introduction

Appropriate practices should be implemented throughout the tobacco supply chain to promote sanitation and maximise product cleanliness. These practices should target all sources of contamination and the resulting inclusion of Non Tobacco Related Materials (NTRM). It should be noted that the primary goal of these guidelines is to provide an appropriate system for minimising or eliminating the possibility of NTRM entering the tobacco supply chain.

For the purpose of this document NTRM is considered to be any visibly detectable material which is not related to the tobacco plant within the leaf product which is utilised for manufacture of tobacco products. The supply chain scope of this document is inclusive of tobacco seed production, through the delivery of tobacco product to the manufacturing customer. The inclusion of NTRM in tobacco leaf products is the primary indicator of overall supply chain hygiene and the effectiveness of existing sanitation practices.

The key philosophy, as considered, is the PDCA (Plan-Do-Check-Act) method which indicates that information should be utilised as an enabler for continuous improvement. For this reason, the establishment and improvement of good practices should be supported by specific, measurable results at important stages of the tobacco supply chain. In order to establish such results, this document identifies a methodology for the collection and categorisation of NTRM at specific critical control points.

The document will categorise NTRM to promote effective identification of the root cause of the material within the supply chain. Upon identification of the source of NTRM, practices can be developed to minimise the incidence of these materials with continual monitoring to ensure improvement.

Within the tobacco supply chain scope an understanding of the critical control points is essential to allow appropriate measurement and action standards. Effective measurement and continuous improvement plan development cognisant of the critical control points ensure that the appropriate resources can be allocated to the continuous improvement process.

It is important to understand that different tobacco production systems will have unique recommendations as regards NTRM. This document will elaborate general good practices which are aimed at minimising or eliminating levels of NTRM within the supply chain.

This document will not elaborate on any manufactured product related criteria and is designed to be complementary to the CORESTA Guide N° 3 Good Agricultural Practices, February 2005.

## 2. Categorisation

### ***Non Tobacco Plant Material***

<b>Material</b>	<b>Definition</b>	<b>Likely Source</b>
Weed	Plant material from living plants in the field	Field
Straw	Plant material from harvested plants on the farm	Farm
Seed	The reproductive product of a plant, whole or part	Field/ Farm
Other Plant Material	Other plant material not covered above.	Trees

### ***Animal Material***

<b>Material</b>	<b>Definition</b>	<b>Likely Source</b>
Animal	Any animal or animal material except feathers	Farm
Insect	Any insect or insect material except cocoons	Farm
Feather	The principal covering of birds, including native or farm bird species	Farm
Cocoon	The silky pupa covering, spun by insect larvae	Field/ Farm

### ***Mineral Material***

<b>Material</b>	<b>Definition</b>	<b>Likely Source</b>
Rock/Stone/Sand (small amounts)	Hardened mineral or earth material occurring in small amounts	Field
Rock/Stone/Sand (large amounts)	Hardened mineral or earth material occurring in large amounts	Farm

## ***Man Made Material***

### Category A

<b>Material</b>	<b>Definition</b>	<b>Likely Source</b>
Plastic String	Organic string product of polymerisation	Farm
Plastic Sheet	Organic sheet product of polymerisation	Farm
Other Plastic	Other organic products of polymerisation	Farm
Foam	Semi-rigid or sponge material of an organic nature	Farm/ Processing
Rubber	Elastic compounds of varying composition	Farm/ Processing

### Category B

<b>Material</b>	<b>Definition</b>	<b>Likely Source</b>
Paper Products	A product made of cellulose pulp derived from wood	Farm/ Purchasing
Metal	Electropositive elements, conductors of electricity	Farm/ Processing
Glass	Material that solidifies from the molten state without crystallisation	Farm/ Processing
Hessian/Burlap	Coarsely woven cloth made of fibres of jute, flex or hemp	Farm/ Processing
Wood Products	Wood material cut and dried, derived from trees and shrubs	Field/ Farm
Cloth	Fabric or material formed by weaving , knitting or pressing fibre	Farm/ Processing
Cotton Strings	Fibre string form Gossypium genus plants	Field/ Farm
Lint	Clinging bits of fibre, fluff and fuzz	Farm/ Processing

### **3. Hazard Analysis at Critical Control Points (HACCP)**

Hazard Analysis at Critical Control Points (HACCP) provides a process to identify points in the leaf supply chain which provide an opportunity to measure and identify areas for improvement as regards NTRM. A generic leaf supply chain model is illustrated in appendix 1 with identified critical control points. Through the next section of the document the following inspections are elaborated as appropriate protocols to be carried out at these points. The findings at any stage of the supply chain should be communicated to the appropriate groups to ensure activities are undertaken to address opportunities for improvement. It is especially critical to report findings to agronomic and field personnel or leaf sourcing staff and engage in a review process to determine the source of any NTRM and to develop strategies to improve the situation.

#### **3.1 On Farm Inspection**

Because the farm is the primary source of NTRM, particular attention must be given to ensure that farm environments and practices exist to minimise or eliminate potential sources of NTRM. The most effective way to monitor farm environments and practices is to directly observe them in relation to the recommendations and practices included in this guideline. Because this observation-based inspection method is more related to sanitation and the potential for NTRM contamination, this process should be used to capture qualitative measurements utilising a detailed farm checklist. The comparison between current farm environments and practices with identified best practice can then be used to document the primary areas of farm improvement needed. It should be noted that while a strong correlation is expected between farm environments and practices and actual NTRM inclusion, it is important to inspect farmer bales—the final output from the farm—in conjunction with on-farm inspections.

The inspection process can be undertaken by any person or organisation involved in the supply chain. The industry recommends that any number and combination of the following on-farm inspections take place where available and applicable:

1. Farmer self-inspection
2. Extension service inspections
3. Industry trade group inspections
4. Tobacco buyer inspections

Each farm should be inspected as often as practical with priority given to new farms and farms with previously documented deficiencies. Since it is impossible to visit all farms at a given period in the crop cycle, the inspections should be undertaken so that subsequent inspections on a particular farm occur in different periods of the crop cycle (i.e. field, harvest, curing, baling, etc...)

### **3.2 Pre Market Bale Inspection**

A pre-market inspection of farmer bales is an effective tool to use in conjunction with the on-farm inspection to preliminarily gauge the overall effectiveness of on-farm practices and the suitability of the farm environment. Efforts extended at this point in the supply chain can yield valuable information that can be directly used to create improvement recommendations for use on the farm. Additionally, these inspections and resulting farm recommendations may minimise costly delays and re-handling expenses later in the supply chain.

Pre-market inspections should be qualitative in nature to maximise crop coverage and minimise interruption to the supply chain. A sample of farmer bales should be selected and searched using a checklist for documentation purposes. This is the first stage of the supply chain where particular NTRM materials can be identified within the product, so care should be taken to properly record the findings. The minimum recommendation is for the exposed surfaces of the selected bales to be visually searched for signs of NTRM. Dependent on the perceived risk, the bales can also be split to reveal one or more interior surfaces for searching. Any findings should be documented on a bale inspection worksheet, or other appropriate method, and the farmer informed of the action required.

Because of the variety of marketing and supply systems throughout the world, the bale inspection process may require the efforts of differing people or groups. Depending on these arrangements, the bale inspection process should be undertaken by any appropriate person or organisation involved in the supply chain. The industry recommends that any number and combination of the following pre-market bale inspections take place:

1. Farmer self-inspection
2. Extension service inspections
3. Industry trade group inspections
4. Tobacco buyer inspections

The frequency of pre-market bale inspections should be determined based on the findings of the on-farm inspections and the relative experience of the farmer. Should deficiencies be identified during an on-farm inspection, a greater number of bales from the farm should be searched. Additionally, the bales coming from newly established farms should be searched more frequently.

### **3.3 Leaf Purchasing Bale Inspection**

During the purchasing process, many quality-related characteristics are assessed through visual inspection. The inspection process should include a qualitative assessment of NTRM inclusion. The results of this assessment can be used in a number of related ways including:

1. As direct feedback to the farmer regarding his farm environment and practices
2. As a mechanism to implement more thorough bale searching and NTRM removal protocols after purchase.
3. As a means to return unacceptable product to the farm before entering the processing facility.



Leaf purchase bale inspections should be qualitative in nature to maximise crop coverage and minimise interruption to the supply chain. A sample of farmer bales should be selected and the minimum recommendation is for the exposed surfaces of the selected bales to be visually searched for signs of NTRM. While any area of the entire bale can potentially contain NTRM, special care should be taken to examine the leaf butt ends of straight-laid or bundled tobacco. When appropriate, the bales can also be split to reveal one or more interior surfaces for searching. Any findings should be documented on a bale inspection worksheet, or other appropriate method, for delivery to the farmer.

This is the first step in the process where the inspection process becomes the primary responsibility of the tobacco purchaser. To aid in resource management and to maximise coverage of higher risk farms, it is advisable for the tobacco purchaser to have access to the on-farm inspections and pre-market bale inspections. At minimum and where reasonably implemented, the leaf purchaser should track past NTRM history with the farmer to guide inspection routines.

### ***3.4 Pre Blending Bale Inspection***

The last opportunity to establish full traceability between a bale and the farmer is prior to use in the processing facility. For this reason, it is most appropriate to conduct an inspection prior to blending at a point most appropriate for the factory operation. At this point, a quantitative measure of NTRM inclusion should be made including the weight and piece count of any NTRM materials found. The main goal is to construct a database that can be used to estimate the existence of NTRM in a particular crop. While random sampling and a complete search of selected bales can deliver valuable information regarding the existence of NTRM in a particular crop, the search frequency and completeness should be determined based on known circumstances and available resources.

The minimum recommendation is for the exposed surfaces of the selected bales to be visually searched for NTRM and that the bale is split at least into three pieces to expose the bale's interior. While any area of the entire bale can potentially contain NTRM, special care should be taken to examine the leaf butt ends of straight-laid or bundled tobacco.

### ***3.5 Post Re-Dryer Tobacco/Strip Inspection***

Various inspections and testing routines are carried out in order to judge the quality of the processing facility process. An inspection for NTRM should be included in the assessment of tobacco products being packaged in the processing facility, since these products will be delivered to the manufacturing customer. All tobacco products, including strip, stem and scrap, should be visually inspected at regular intervals to assess cleanliness and NTRM inclusion. Samples should be taken from the processing line after the final production step—usually drying and sizing—and prior to final packaging.

At this point, a quantitative measure of NTRM inclusion should be made including the weight and piece count of any NTRM materials found. The main goal is to construct a database that can be used to estimate the existence of NTRM in the final product. It is expected that the results from final product testing will bear a strong correlation to the amount of NTRM in the farmer bale and the amount of NTRM removed during processing. The established database

can be used for benchmarking purposes and as an overall indication of the sum of farm prevention routines, farmer bale cleanliness and NTRM identification and removal throughout the supply chain. Additionally, the data from particular samples can be traced to production intervals and particular packages of final product.

## 4. Good Practices

The most effective means of eliminating NTRM is to reduce the potential by implementing good preventive measures throughout the leaf supply chain. In each step of the process it is important to use materials that pose the least potential risk to the product, maintain clean facilities and monitor/maintain the condition of tools and equipment that may come in contact with tobacco. Self assessments are an effective tool and should be encouraged at all stages of the leaf supply chain.

### Field

- Fields should be maintained in a manner to control weeds and any non-tobacco plant matter.
- Fields should be kept clean of all NTRM.

### Transport

- Materials used for the transport of tobacco from the field to the curing areas should be of natural materials and in suitable condition to prevent fraying or breakage.
- Tarps or covers should be of natural materials and in suitable condition to prevent fraying.

### Curing Barns

- Curing barns (walls, floors, ceilings and supports) and surrounding areas should be swept clean.
- Animals and birds, including chickens and wild birds, should be restricted from accessing barns.
- Barn condition should be inspected and loose materials or objects should be secured or removed.
- Curing strings, if used, should be of natural material (cotton, jute or Hessian) and of sufficient strength to minimise breakage.

### Grading and Baling

- Animals and birds, including chickens and wild birds, should be restricted from accessing work areas.
- Grading and baling areas should be swept clean of all NTRM.

- Balers should be inspected and loose materials or objects should be secured or removed.
- Baling materials and tags should be of natural materials (cotton, Hessian, jute, paper based)
- The grading and baling process should include emphasis on NTRM detection and removal.

### Storage

- Animals and birds, including chickens and wild birds, should be restricted from accessing barns.
- Tobacco should be stored in areas segregated from other materials, especially fertilisers, chemicals, petroleum products and other farm products.
- Structures should be constructed in a manner to avoid potential insect entry and breeding areas.
- Tarps or covers should be of natural materials and in suitable condition to prevent fraying.
- Storage areas (walls, floors, ceilings and supports) and surrounding areas should be swept clean.
- NTRM awareness posters should be displayed in high visibility areas.

### Buying stations

- Designated eating, drinking and smoking areas should be established away from tobacco handling and storage areas.
- Trash receptacles should be placed in strategic locations to encourage appropriate use.
- Curing barns (walls, floors, ceilings and supports) and surrounding areas should be swept clean
- NTRM awareness posters should be displayed in high visibility areas.
- Structures should be constructed in a manner to avoid potential insect entry and breeding areas.

### Processing

- Rare Earth Magnets placed at critical control points in the processing line will collect metal materials but must be effectively cleaned and maintained.
- The classification process allows heavy particle drop out such as stones, if effectively calibrated.
- Rollers utilising a suitable material can collect strings and lint but must be effectively cleaned and maintained.

- Manual searching utilising training labour can be effective provided the tobacco carpet at the searching point is shallow, effective lighting is available and the labour is rotated to avoid fatigue.
- Material control within the processing environment is essential to avoid any contamination.

### General

- Designated eating, drinking and smoking areas should be established away from tobacco handling and storage areas.
- Trash receptacles should be placed in strategic locations to encourage appropriate use.
- Fertiliser supplied to growers should be in paper or solid plastic bags.

### Training

- Grower and field staff training and education should be conducted at least annually.
- Educational materials (posters, leaflets, pamphlets, etc) should be regularly distributed to growers.

## 5. Appendix - Leaf Supply Chain

