

# 14.\_TECHON\_2021\_\_052\_037\_C omplete.pdf

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**Submission date:** 15-Aug-2023 09:38AM (UTC+0800)

**Submission ID:** 2145993142

**File name:** 14.\_TECHON\_2021\_\_052\_037\_Complete.pdf (226.93K)

**Word count:** 4231

**Character count:** 23028

## NTRM (Non Tobacco Related Material) Madura Sliced Tobacco Controlling Strategy

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### Abstract

This study aims to examine the effectiveness of controlling NTRM of Madura sliced tobacco for partner farmers and non-partners farmers. The study had two treatments, each containing NTRM of Tobacco Company Partner Farmers and Non-Partner Farmers or free farmers. The research method used was purposive random sample or sample collection was carried out non-intentionally or (purposive sampling). NTRM observations are carried out by opening each tobacco bage, looking for NTRM and sorting each NTRM. Then each type of NTRM is weighed and expressed in grams. For NTRM observation, Mitra Farmers were conducted in the warehouse of purchase of P T. Sadana Arifnusa, while for Non-Partner Farmers were carried out in the farmer's house when the tobacco was ready to be sent to the warehouse of purchase. The result of this study is high value of NTRM in Madura sliced tobacco in non-partner villages is due to the lack of understanding of farmers on the dangers of NTRM, cultivation and processing technical standards, as well as how to present in trade in accordance with SNI-Tobacco Rajangan Madura. Whereas the low level of NTRM in Madura sliced tobacco to partner farmers is a positive impact of the partnership program implemented with a warehouse for the purchase of tobacco PT. Sadhana Arifnusa.

*Keywords:* - NTRM, controlling strategy, sliced Madura tobacco

### 1. Introduction

Hazardous material of cigarette smoke comes from nicotine, tar, CO gas and others. The source of these hazardous ingredients can come from tobacco plants themselves, pesticide residues and fertilizers, fuel residues during curing of tobacco leaves, and foreign materials. Foreign material or NTRM (Non Tobacco Related Material). The method of processing tobacco leaves into sliced tobacco as many tobacco farmers in Indonesia do, such as Rajura madura, paiton, temanggung, etc., has a great opportunity for NTRM to be produced on dried tobacco. This can occur because of processing methods (curing, rolling, crushing, drying, sorting) are carried out in an open place that is in direct contact with NTRM sources. NTRM is an important concern for the IHT (Tobacco Products Industry) as an effort to suppress the harmful ingredients of cigarette smoke, reduce interference with cigarette production, and aesthetics.

NTRM is divided into three types, each NTRM-Organic, NTRM-Non-Synthetic, and NTRM-Synthetic (Coresta, 2007). Organic NTRM can be in the form of materials from nature that interfere with taste and aroma, production and aesthetic processes such as wood chips, weeds, straw, plant seeds, animal waste, insect carcasses, cocoons, and others. NTRM-Sintetik in addition to disturbing the production process is carcinogenic as well as

plastic materials, stereoform, rubber, cigarette butts, and others. Non-synthetic NTRM such as paper, stone, metal and others disturb more the cigarette production process. In accordance with (Coresta, 2007) provisions, NTRM must be kept as low as possible, before tobacco is sold to IHT's tobacco buying warehouses.

National tobacco development is carried out by farmers and obtains counseling or guidance from the local Plantation Office. Counseling provided is generally limited due to limited extension workers and materials for counseling. Since the 1990s began to develop a partnership system between farmers as producers and IHT or tobacco companies as tobacco consumers. Partner Farmers obtain guidance from Partner Companies directly carried out by the field field officers. Coaching materials contain SOP (Standard Operational Procedure) technical instructions for cultivation and processing including NTRM control, sorting and thickening, fertilizer and medicine loans and others. Partner Farmers are obliged to follow established SOP and sell processed tobacco products to the Partner Company. This system has long been carried out by farmers and the Company for virginia tobacco in Lombok and works well. For tobacco in East Java and Central Java, such as madura tobacco, paiton, maesan, temanggung and many others have not been done much.

This study aims to examine the effectiveness of

controlling NTRM of Madura sliced tobacco for Partner Farmers and Non-Partners. The partnership system has been tested for madura tobacco although it is still in a very limited area, since the last few years. Information on the results of research results is expected to be a reference for the development of a partnership system on a broad scale of madura tobacco and other tobacco.

## 2. Methodology

Sliced madura tobacco in Pamekasan district which is processed by farmers in Kadur (KD) village, Bulai village (BL), Kertek village (KR), Galis village (GL), Asampitu village (AP) which do not join the partnership with the purchase warehouse and Madura sliced tobacco processed by farmers in Bulay (BY) village, Guluk-guluk village (GG), Klompang Berek village (KB), Biorong village (BC) who entered into a partnership with a tobacco purchase warehouse PT. Sadhana Arifnusa.

The study had two treatments, each containing NTRM of Tobacco Company Partner Farmers and Non-Partner Farmers or free farmers. As a Partner Farmer is a farmer assisted by P.T. Sadana Arifnusa who has a warehouse for the purchase of Madura sliced tobacco in Pamekasan, Pamekasan Regency. The research method used was purposive random sample or sample collection was carried out non-intentionally or (purposive sampling). The requirements of farmers selected for the first treatment are partner farmers namely farmers who grow tobacco and process their own tobacco leaves, and are bound to sell tobacco to the Partner Company, namely PT. Sadhana Arifnusa. Whereas the second treatment is Free Farmers who also plant and process their own tobacco leaves, but are not bound to tobacco companies or are free to sell tobacco to any tobacco company they want. The sample collection was repeated by five farmers to come from different villages.

Farmers sell tobacco in bales wrapped in siwalan leaf mat with a size of 50x50x60 cm. The weight of one tobacco ball is 50-60 kg, depending on the quality of the tobacco. NTRM observations are carried out by opening each tobacco balge, looking for NTRM and sorting each NTRM. Then each type of NTRM is weighed and expressed in grams. For NTRM observation, Mitra Farmers were conducted in the warehouse of purchase of P T. Sadana Arifnusa, while for Non-Partner Farmers were carried out in the farmer's house when the tobacco was ready to be sent to the warehouse of purchase.

## 3. Finding and Analysis

### 3.1 NTRM Madura Sliced Tobacco

NTRM observation result on Madura tobacco on non-partner farmers and partner farmers in Pamekasan District are presented in Table 1. The highest number of organic NTRM was found in Asampitu village, Pademawu Subdistrict, at 2.31 gr within average weight of 50 kg tobacco (1 bal). This could occur while the cleanliness in the field not a major attention at drying time. It would provide opportunity for NTRM entry, i.g. leaves, pieces of wood, grass and others. While the highest number of Synthetic NTRMs found from Galis village of 2.91 g, which is likely to be mixed when time of harvesting of tobacco leaves, curing, crushing, drying up to the thickening process. The highest number of non-synthetic NTRM was obtained in Asampitu village at 11.59 g (Table 1).

Table 1 showed that the high NTRM in Madura chopping tobacco mostly found in non-partner villages. Meanwhile, NTRM in partner villages with PT. Sadhana Arifnusa tends to be lower, even synthetic NTRM is not permitted at all in the Madura sliced tobacco of partner farmers PT. Sadhana Arifnusa.

Madura sliced tobacco which contains the principles to achieve quality objectives that contribute to ensuring the stability of the quality of IHT products within the low hazardous materials in them begins with the standard of cultivation and processing techniques, and how to present in trade according to SNI-Sliced Tobacco in Madura which has been agreed on by consensus. Utilization of plant material, fertilizer and pesticides, segregation of foreign materials or NTRM became a focus that taken into account. Through an understanding of GMP by all parties, especially by farmers as tobacco producers and graders in charge of determining the quality of tobacco. For this reason, it is necessary to provide more intensive information and technology escort at the farmer level (Tirtosastro, 2014).

As much 100 kg of green leaf tobacco which is processed into sliced tobacco, could be reached into 12 kg of NTRM includes organic NTRM, synthetic NTRM, non-synthetic NTRM with a percentage of Organic NTRM of 0.069% while Synthetic NTRM 0.062% and Non-synthetic NTRM 60% (Suyanto and Tirtosastro, 2006).

### 3.2 Effect of NTRM on Kretek And Tobacco Products

Basically, NTRM (Table 2) affects the quality of cigarettes and also the possibility of cigar products and others, as follows:

- i. Contamination of flavor and aroma of cigarettes.



When pieces of chicken feathers were mixed in blended tobacco and rolled into cigarettes, it will produce a foreign aroma which is far different from the original aroma of the cigarette even will greatly disturb the customer. Likewise, pieces of rubber bands that become small pieces because tobacco will go through the cutting machine before being formulated and rolled into cigarettes.

#### ii. Physical cigarettes produced.

Small pieces of wood carried in rolls (rolled) cigarettes at the edge would press the wall of paper which could tearing of paper. Leak cigarettes would certainly be difficult to suck the taste and becomes uncomfortable as usual. If the piece of wood is in the middle, the cigarette becomes hard and will inhibit the air flow till cigarette suction becomes heavy.

Table 1 : NTRM Madura sliced tobacco (gram).

NTRM types	non-partner farmers					partner farmers			
	KD	BL	KR	GL	AP	BY	GG	KB	BC
NO	1.03	1.08	1.17	2.05	2.31	0.05	0.83	0.28	0.06
NS	0.26	0.49	1.24	2.91	11.59	-	-	-	-
NN	8.73	11.34	5.54	5.76	0.44	3.47	1.34	0.54	0.38
<b>Total</b>	<b>10.02</b>	<b>12.91</b>	<b>7.95</b>	<b>10.72</b>	<b>14.34</b>	<b>3.52</b>	<b>2.17</b>	<b>0.82</b>	<b>0.44</b>

Legend: NO: NTRM Organic, NS: NTRM Synthetic, NN: NTRM Non-Synthetic

KD: Kadur, BL: Bulai, KR: Kertek, GL: Galis, AP: Asampitu,

BY: Bulay, GG: Guluk-guluk, KB: Klompang Berek, BC: Bidorong.

#### iii. Increased carcinogenic material.

Synthetic materials e.g. raffia rope, widely used as a binder in processing sliced tobacco, were potentially increase carcinogenic ingredients. Likewise, plastic mats as a base when chopping or offering. Utilization of wave roofs plastic and others will spread plastic dust which could increase carcinogenic materials, especially in sliced tobacco. The same, plastic bags, plastic bags to rubber bands and others usage.

requirements. Tobacco, which is exposed by chicken droppings would offer disadvantaged aesthetically even though it has been cleaned. It is necessary to secure tobacco when processing from the range factors that interfere or violate aesthetics.

#### 3.3 Mixed Process of NTRM Madura Sliced Tobacco

The mixing of foreign material in sliced tobacco could occur during curing, rolling, knitting, drying, and wrapping. For example, when chickens trampling on tobacco, they could cause chicken feathers and chicken dung mixed with tobacco mixed in it (Tirtosastro and Murdiyati, 2011).

Tobacco processing in open and unclean place, such as in curing process as the habits of madura tobacco farmers who are carried out under the shade of a tree, as well as in the process of chopping which only uses mats that have been used almost every year, it might fall easily. NTRM also could be found while drying process in stretch field where is located not far from the highway that carries a lot of dust, animals such as chickens that roam the drying place and workers who have a habit of smoking at work. In the future, it is very necessary to provide training and socialization to farmers, workers and all parties related to the understanding of all parties about the importance of controlling NTRM. NTRM control is an important part of the effort to maintain the competitiveness of sliced tobacco. NTRM in sliced tobacco are not only found in organic NTRM, synthetic NTRM and non-synthetic NTRM. There are some indications

Table 2 : NTRM grouping.

Organic	Synthetic	Non-synthetic
- Stalk	- Cig. butts	- Wood
- Straw	- Stereiform	- Nail
- Corn cob	- Netting	- Cloth
- Weed	- Plastic	- Glass
- Grass	- Foam	- Paper
- Dried fruits	- Rubber	- Feather
- Leather	- Unknown	- Rocks
- Insect	- Etc	- Cotton
- Banana		- Sheet
- midrib		- material
- Mat rip		- Etc
- Palm fiber		
- Etc		

Source : Coresta, 2007

#### iv. Aesthetics.

Cigarettes are enjoyed by mouth, so that include the guarantee of cleanliness and contain aesthetic

of adding sugar and pineapple juice that intentionally add weight and aroma to sliced tobacco which will on sale.

NTRM mixing in Madura sliced tobacco could be began at harvest when it puts on dirty soil. Each stage of production has the opportunity for the NTRM to enter and at that time must be immediately separated. For example, the soil attached to the leaves or the grass of the leaves to be transported must be removed immediately (Tirtosastro and Musholaeni, 2015).

### 3.4 NTRM Control of Madura Sliced Tobacco

NTRM control is part of Good Agriculture Practices. While the main performer who are most effective in NTRM handling are should be farmers. The entry of NTRM in farmers would be starts from the harvest of tobacco leaves during the ripening process. The farmers habit which directly putting tobacco leaves without giving a base is main cause. Such as straw, gravel, soil, dust, plastics, candy wrappers, poultry feathers, and others will be entered (Tirtosastro and Dewi, 2012).

GMP (Good Manufacturing Practices) on madura sliced tobacco include principles to achieve quality objectives that contribute to ensuring the stability of the quality of IHT (Tobacco Products) products and the low hazardous substances in them. Description of the GMP Madura sliced tobacco begins with the standard of cultivation and processing techniques. Explanation about how to present in trade according to the provisions of SNI-Madura Sliced Tobacco which has been agreed by consensus. Through an understanding of GMP by all parties, especially by farmers as tobacco producers and graders in charge of determining the quality of tobacco. For this reason, it is necessary to provide more intensive counseling and technology escort at the farmer level.

NTRM control must begin at the beginning of production activities, especially when harvesting, processing, sorting and wrapping. In addition, it does not have to increase production costs, however giving more accuracy in handling each stage of production and processing NTRM control is an important part of maintaining the competitiveness of sliced tobacco madura, temanggung, krosok as for boyolali and also other tobacco. (Tirtosastro and Musholaeni, 2015).

In fact, NTRM control technically only adds precision in work and carefulness in choosing complementary materials such as rope material, packaging materials, and other processing auxiliary materials. NTRM control according to Tirtosastro (2010), has three main programs, as follows:

- a. NTRM prevention in the field, transportation,

and entry into the blending system at the factory.

- b. Sorting NTRM from the entire process chain
- c. Protect tobacco products by implementing appropriate sanitation and management programs for all equipment and materials related to the chain of tobacco production processes.

### 3.5 NTRM Control At The Partnership Farmer

Low level of NTRM of Madura sliced tobacco on partner farmers is due to the control of NTRM at the partner farmer level. In Bidorong village, Pakong Subdistrict is one of the villages that have established partnership relationships with PT. Sadhana Arifnusa which is a large tobacco supplier company for the PT. HM. Sampoerna. The type of partnership between farmers and PT. Sadhana Arifnusa which is established by synergistic partnership.

Synergistic partnerships are cooperation that hold honesty, mutual benefit, mutual respect and mutual need. Here by, PT. Sadhana Arifnusa has the obligation to develop appropriate technology packages, channel technology packages through counseling and provide escort so that farmers could carried out technology packages that are provided properly. It also distributing and providing escort technology packages by placing field officers in the village.

Tobacco farming in partner area are escorted by a field-officer from a partner company. The purpose of placing field officers is to oversee the implementation of SOP (Standard Operational Procedures) and distribute technology packages to tobacco farmers in the area. Field-officers on duty to control farming activities from pratanam to harvesting, and guarding the sale of tobacco to the PT.Sadhana Arifnusa warehouse located in Pamekasan district.

Field officers in distributing technology packages from PT. Sadhana Arifnusa through counseling to farmer groups in every village in Bidorong. Field officers act as mediators between PT. Sadhana Arifnusa with partner farmers. Moreover, they also receive farmers' complaints regarding the farming and provide solutions to problems that occur in the field. In guarding the technology package, field officers control directly to the land. The purpose of the escort is to ensure farmers work on tobacco farming in accordance with the SOP provided. Technology packages are usually listed in SOPs which include pre-service, cultivation, maintenance and marketing activities. In this case the farmer must carry out farming activities accordance with the SOP.

NTRM control at the farmer partnership level is



as follows:

- Utilization of a burlap sack at the harvest time.
- Curing should be happen in a place with a roof which is equipped with a base
- Utilization of clean machines equipped by containers below
- Expulsion by widik and uses a tobacco container (gunny sack).
- In drying process, should be place in cleaned placement, especially the bamboo which is already available.
- NTRM check by the farmers in daily.
- NTRM check for casually to flip the tobacco to dry evenly by farmers.
- Continuing of NTRM checked until the next process.
- The next process is immunity, the farmers who help the wrapping process may not use sandals and should not smoke and pay attention to the cleanliness of the surroundings because it will trigger the entry of NTRM into tobacco.

### 3.6 Partnership of Farmers and Tobacco Companies

The basic concept of tobacco partnership means cooperation between small and medium-sized businesses or large businesses accompanied by sustainable development and development based on mutual need, mutual reinforcement and mutual benefit. Partnership is an activity of two economic units that need each other and are complementary (Sumardjan, 1997). Through partnerships, between farmers as tobacco producers and companies as consumers, each party will obtain optimal benefits because through the partnership the operational costs of each party will be more efficient.

According to Sumardjo et al., (2004), there are two forms of partnership. First is the dispersal partnership, the two parties who have partnerships have formal ties which could not strong. Agribusiness networks are up to the market mechanism and generally only concern each individual. The relationship between partnerships in tobacco in East Java is currently more likely to be dispersal. However, tobacco farmers as producers still in a weak position, especially in terms of production techniques and the formation of tobacco prices. Other forms of partnership are synergistic and mutually beneficial and implemented for long-term sustainable programs. Example, relatively good synergistic partnership are between tobacco companies and virginia tobacco farmers in Lombok. The quality of tobacco produced and technology to achieve this goal is quite clear, as well as the implementation of technology packages on the production system at the farm level. The synergistic partnership model for virginia tobacco is presented as Figure 1.

The synergistic partnership formula first introduced by P. T. BAT Indonesia (now Bentoel Group) which was delivered at various national and regional tobacco meetings (BAT, 1988). The partnership is basically an effort to implement certain technology packages to produce specific qualities as desired by consumers and by providing benefits to farmers in proportional amounts. According to the Ministry of Agriculture program, farmers are encouraged to become complete agribusiness performers, as producers, as processors (agro-industry) and as distributors or marketers. The principle is plant, process and sell their own tobacco to partner companies by themselves. At present, most farmers sell their products through intermediary services. The warehouse of farmers also only accept tobacco from intermediaries who become customers. The partnership itself is carried out without clear boundaries, or is in a general and free environment and there is only linkage with individual farmers.

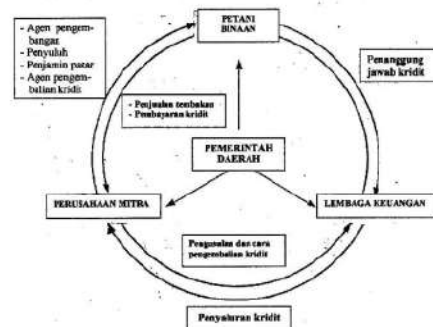


Figure 1 : Tobacco Partnership Scheme

In its journey, a form of synergistic partnership, especially in Lombok, experienced ups and downs, due to the following internal and external factors:

- Farmers are often tempted by greater profits so that they sell their products to non-partner companies that can buy higher. The elements are interlocking between management and non-processing companies, implied most strongly in the harvest season.
- Partnerships that are carried out correctly will increase production and quality so as to attract non-partner parties to participate in buying
- Non-partner companies can place prices more attractive in trading transactions because this company does not require management costs for farmers.
- Many companies participate as managers or partners, which are carried out in a half-way because indeed the partnership standard has not been fully established.

- c. There is no effective protection from the Regional Government against parties who are partnering, due to various limitations.

Regional Regulation No. 4/2006 concerning the Cultivation and Partnership Business of Virginia Tobacco Plantations in West Nusa Tenggara (West Nusa Tenggara Province, 2006), has not been fully implemented, especially in relation to the tasks and functions of the Synergistic Partnership Control Team.

Based on the partnership journey that has lasted for more than 20 years in Lombok, tobacco companies can be divided into two groups, as follows:

- a. First group: Require high quality froscope and well arranged according to the desired grade. Even till buying follow-up quality (low quality), cause by adapts of the provisions in the Partnership system. Relations with farmers are synergistic might cause high quality can only be obtained if optimal technology packages can be applied in production systems.
- b. Second Group: Requires fc with quality as it is. This group is a pure businessman, never thinking of the long-term interests and guidance of farmers. Relations with farmers tend to be dispersal, or there is no binding relationship. Tobacco of any quality, this group of companies can become a business object, because the company has expertise in marketing.

At present, farmers are generally led to improve quality and productivity by a technology approach. The role of intermediary traders at the beginning of the implementation of the partnership is still quite high, however, the number is shrinking because being a tobacco farmer is still more respectable and gives a higher chance of profit. In addition, companies in the First Group tend to encourage individual farmers to deliver the tobacco to the warehouse.

Companies from the First Group adopted a strategy by increasing trust in assisted farmers. The loan for production facilities, especially fertilizers, medicines, armpit control, fuel and part of the oven building money, should be link between the management company and the assisted farmers. Threats in the form of dismissal as partner farmers can make partner farmers behave more honestly according to the agreement.

#### 4. Conclusion

High value of NTRM in Madura sliced tobacco in non-partner villages is due to the lack of understanding of farmers on the dangers of NTRM,

cultivation and processing technical standards, as well as how to present in trade in accordance with SNI-Tobacco Rajangan Madura. Whereas the low level of NTRM in Madura sliced tobacco to partner farmers is a positive impact of the partnership program implemented with a warehouse for the purchase of tobacco PT. Sadhana Arifnusa. In the partnership program, farmers are ensured to work on tobacco farming in accordance with the SOP provided which includes pratanam, cultivation, maintenance and marketing activities so that Madura-free sliced tobacco will be obtained free of NTRM.

#### Acknowledgment

This research has been carried out at PT. Sadhana Arifnusa a tobacco purchase warehouse in Pamekasan District. Many thanks to Professor Samsuri Tirtosastro who has provided a lot of guidance over the years. May the late Professor Samsuri get the best place with Allah SWT. Aamiin

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