

## **The impact of the implementation of the 'dead season policy' on market access for Zimbabwean Tobacco**

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## Abstract

A study was conducted to evaluate the implementation and impacts of the tobacco 'dead season policy' in combating trans-boundary pests for market access in Zimbabwe using the Development Assistance Committees of the Organization for Economic Co-operation and Development program evaluation criteria of relevance, effectiveness and efficiency. The evaluation employed a mixed-methods approach to collect qualitative and quantitative data using online questionnaires triangulated by data collected from secondary data sources, Key Informant Interviews and Focus Group Discussions. A sample size of 2000 online Microsoft tool questionnaires were administered and analyzed using Microsoft Excel and the Statistical Package for Social Sciences. Based on the majority (65%) of the respondents, the tobacco 'dead season policy' is achieving its intended goals. Over the past 14 years (2011-2024), there was 100% phytosanitary compliance for the tobacco plant products exported from Zimbabwe. The 'tobacco dead season policy' remains effective, efficient and relevant regarding market access and plant bio-security. In comparison with the tobacco 'dead season policy', other plant products not managed by a similar policy exhibited a 0.13 percent non-compliance rate during the same period. However, the study revealed that the use of the policy brought in some negative impacts of corruption by the enforcement agencies, as depicted by the 56% of the respondents triangulated with the results from the Key Informant Interviews and Focus Group Discussions. While the policy must be continued, its review in line with climate change associated with weather variabilities and technological advancement in pest management is critical for the control of trans-boundary pests associated with cross-border traffic.

**Key words:** Plant biosecurity, transboundary pests, market access, tobacco dead season policy, phytosanitary evaluation

## Introduction

Tobacco (*Nicotiana tabacum* L.) is an important industrial crop globally. It is a major contributor to GDP and export revenue. In Zimbabwe for example, it accounts for 50% agricultural exports, 30% of total exports and nearly 10% of the GDP (Gwanongodza, 2020). In literature, flue cured tobacco (*Nicotiana tabacum* L.) is one of the highly ranked economically important non-food crop in the world (Porkabiri *et al.*, 2019), with over 4,916 million kilograms produced per year worldwide (Mwadzingeni *et al.*, 2013) by over 100 countries on an average area coverings 4.2 million hectares (Davalieva *et. al.*, 2010) and Zimbabwe is ranked as one of the largest producers of tobacco leaves in Africa, with livelihoods for large-scale, resettled, A1, A2, and small-scale farmers based on their production and productivity (Masvongo *et al.*, 2013). In the presence of the TDSP, in 2024, Zimbabwe's tobacco export earnings increased by a whopping 138 percent year-on-year to reach US\$436 million in the first quarter,

a value auguring very well with the government vision to have a Tobacco Value Chain Transformation Plan that will provide a \$5 billion tobacco industry by 2025 (The Herald, May 16, 2024); a plan feeding into vision 2030 which is anchored on the tobacco regulations prevailing in the country.

Market access for tobacco products is greatly affected by presence of pests leading to interceptions due to non-compliance. Phytosanitary measures (laws) are a key component of pest control mechanisms critical for biosecurity control of plants and plant products destined for both domestic and cross-border markets (Mujaju *et. al.* 2021). Plant pests cause qualitative and quantitative losses to crops, which occur at any time between sowing and consumption of the produce. "Pests cause crop losses of about 30–40 percent in Africa and millions of dollars are lost to managing and controlling them," [IPPC, (International Plant Protection Convention) strategic plan 2020 to 2030]. To reduce these losses,

management practices must be adjusted to prevent pest spread and stop crop damage (Mudada et. al., 2022). These pest management options include pest avoidance, inoculum exclusion, eradication, prevention of infection by using toxic chemical barriers between the plant surface and pests, and the use of pest resistance mechanisms (IPPC, 2016; Gupta and Pandey, 2014).

One of the methods of implementing pest avoidance strategy is through having 'dead season' in production programs. The 'dead season' is an anthropogenic system of creating artificial hunger for pests by destroying their food. It is the technique on which dead-season policy systems in crop protection is based, especially for monophagous pest species. The 'dead season policy' has a gazetted cropping calendar where living plants are supposed to be eliminated to create a human-made food crisis for the control of plant pests being controlled (Mudada, 2023). In Zimbabwe, cotton, tobacco and paprika are regulated using the 'dead season policy,' as dictated by the Plant

Pest and Diseases Act Chapter 19.08 of 1959, revised in 2016. These regulations provide guidelines for pest control systems to produce phytosanitary clean products that are acceptable in foreign markets. In particular, the tobacco dead season policy (TDSP) as guided by the "Plant Pests and Diseases (Tobacco) Regulations Statutory Instrument 711 of 1979" and as amended, was created in order to reduce the incidences of pests and diseases in the tobacco crops, especially the viruses: [Cucumber Mosaic Virus (CMV), Tobacco Bushy Top Virus, Tobacco Streak Virus, Potato Virus Y (PVY), Tobacco Leaf Curl Virus (TLCV), Tobacco Streak Virus (TSV) and Tomato Spotted Wilt Virus (TSWV)] that are vectored by aphids, whitefly (*Bemisia tabaci*) and thrips (*Thripidia tabaci*) respectively. Affected tobacco crops result in poor leaf products that are rejected internationally due to phytosanitary concerns. This study focused on evaluating the impact of the tobacco dead-season policy on the management of transboundary pests for market access.

## **Methodology**

### **Geographical setting of the survey**

The comprehensive evaluation of TDSP was based on informant interviews in Zimbabwe. There was an equal probability of choosing respondents from all tobacco production provinces of the country during data collection, especially when using the online Microsoft forms tool questionnaire.

### **Study Approach**

The study used both qualitative and quantitative methods to assess the TDSP on how it has impacted on the protection of tobacco crops from transboundary pests with an objective of achieving phytosanitary compliance on export of tobacco products from Zimbabwe.

### **Data Collection**

Data were collected from the respondents using structured, semi-structured, and unstructured interviews. Data were collected in three different formats: using an online questionnaire supported by Microsoft forms a data collection tool, using personal Key Informant Interviews (KII), and Focus

Group Discussion (FGD) comprising farmer's groups and extension personnel. The informants drawn from various sectors, such as regulators, extension, traders, academia, farmers, seed producers, plant breeders, researchers, local leaders (headmen), and the general public. Data were collected from August 28, 2024, to December 31, 2024. Informed consent was sought from each participant and the rights to confidentiality and anonymity was fully explained. No incentives were given to participants in this research. Ethical approval was not applicable.

### **Data analysis**

Data were cleaned to ensure completeness and removal of duplication. Transcribed notes from the field were distilled from the texts and a list of common themes was developed. Themes were identified to give expressions to the community of voices across participants (Sundet, 2011). Most significant stories were also collected from the FDG and personal interviews for this evaluation. The quantitative data were analysed using SPSS Version 25.

The analysed variables were presented as frequencies and percentages. Descriptive statistics were applied to the results of the evaluation. Inferential statistical analysis was performed as well and included Chi-square analysis. Secondary quantitative data were subjected to Fishers' t-test at 95% confidence interval and the analysis of variance (ANOVA). Differences between means were determined using the Fisher's (1935) least significant difference (LSD) at 5% (Lynne and AbdiIn, 2010).

## **Results and Discussion**

### **Demography and Characteristics of the Respondents**

Two Focus Group Discussions (FGD) were conducted. The first FGD comprised of eight females and five males. The second FGD comprised four females and 15 males. The 2000 respondents from the online Microsoft Forms tool questionnaire consisted of 57% males and 40% females (Table 1). The age of the respondents less than 36 years of age

(youth as per World Bank criteria) had the highest frequency of 41.5% (Table 1, Table 2). The above 65 years age group had the least frequency, with 2% participation in the online tool.

The respondents in the online questionnaire had either secondary school certificate or below (Table 1). However, some informants (1.5%) were reluctant to share their education level. The respondents with post-and undergraduate education had the same frequency as the participants of 12.5%. The characteristics of the respondents resembled those of well-randomized samples. More farmers responded to the questionnaire than in any other sector, with a 50 percent share of the total informants. The respondents' sectors included: contract/buyers, extension personnel, farmers, land owners, plant breeders, regulators, researchers, seed producers, seed sellers, and students. Two percent did not disclose their sectors by either not responding to or indicating others.

**Table 1: Characteristics of respondents who participated on online Microsoft Forms tool survey.**

<b>RESPONDENTS CHARACTERISTICS</b>	<b>Possible response</b>	<b>Frequency (Percent)</b>	<b>Cumulative Percent</b>
<b>GENDER</b>	Man	57.0	57.0
	Non-binary	0.5	57.5
	Prefer not to say	2.5	60.0
	Woman	40.0	100.0
	<b>Total</b>	<b>100.0</b>	
<b>AGE GROUP</b>	35 years and below	41.5	41.5
	36 to 45 years	22.0	63.5
	46 to 55 years	17.0	80.5
	56 to 65 years	17.5	98.0
	Above 65 years	2.0	100.0
<b>Total</b>	<b>100.0</b>		
<b>HIGHEST LEVEL OF EDUCATION ATTAINED</b>	Certificate	18.5	18.5
	Diploma	14.5	33.0
	Non-response	1.5	34.5
	Post graduate	12.5	47.0
	Secondary School Certificate and below	40.5	87.5
	Undergraduate	12.5	100.0
<b>Total</b>	<b>100.0</b>		
<b>SECTOR OF RESPONDENT</b>	Contractor / Buyer	2.0	2.0
	Extension personnel	4.5	6.5
	Farmer	50.0	56.5
	Land owners	5.0	61.5
	NON-RESPONSE	.5	62.0
	Other (Please specify)	1.5	63.5
	Plant Breeder	2.0	65.5
	Regulators	6.5	72.0
	Researcher	7.5	79.5
	Seed producer	1.0	80.5
	Seed seller	12.5	93.0
	Student	7.0	100.0
	<b>Total</b>	<b>100.0</b>	

**Table 2: Age categories of respondents who participated on online Microsoft Forms tool survey.**

Details	Age					Total	
	≤ 35 years	36 to 45 years	46 to 55 years	56 to 65 years	Above 65 years		
Gender Man	Count	40 <sub>a</sub>	29 <sub>a, b</sub>	19 <sub>a, b</sub>	22 <sub>a, b</sub>	4 <sub>b</sub>	114
	% within Gender	35.1%	25.4%	16.7%	19.3%	3.5%	100.0%
	% within Age	48.2%	65.9%	55.9%	62.9%	100.0%	57.0%
	% of Total	20.0%	14.5%	9.5%	11.0%	2.0%	57.0%
	Gender						
Non-binary	Count	0 <sub>a</sub>	0 <sub>a</sub>	1 <sub>a</sub>	0 <sub>a</sub>	0 <sub>a</sub>	1
	% within Gender	0.0%	0.0%	100.0%	0.0%	0.0%	100.0%
	% within Age	0.0%	0.0%	2.9%	0.0%	0.0%	0.5%
	% of Total	0.0%	0.0%	0.5%	0.0%	0.0%	0.5%
	Gender						
Prefer not to say	Count	4 <sub>a</sub>	1 <sub>a</sub>	0 <sub>a</sub>	0 <sub>a</sub>	0 <sub>a</sub>	5
	% within Gender	80.0%	20.0%	0.0%	0.0%	0.0%	100.0%
	% within Age	4.8%	2.3%	0.0%	0.0%	0.0%	2.5%
	% of Total	2.0%	0.5%	0.0%	0.0%	0.0%	2.5%
	Gender						
Woman	Count	39 <sub>a</sub>	14 <sub>a</sub>	14 <sub>a</sub>	13 <sub>a</sub>	0 <sub>a</sub>	80
	% within Gender	48.8%	17.5%	17.5%	16.3%	0.0%	100.0%
	% within Age	47.0%	31.8%	41.2%	37.1%	0.0%	40.0%
	% of Total	19.5%	7.0%	7.0%	6.5%	0.0%	40.0%
	Gender						
Total	Count	83	44	34	35	4	200
	% within Gender	41.5%	22.0%	17.0%	17.5%	2.0%	100.0%
	% within Age	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	% of Total	41.5%	22.0%	17.0%	17.5%	2.0%	100.0%
	Gender						

*Each subscript letter denotes a subset of Age categories whose column proportions do not differ significantly from each other at the 0.05 confidence level.*

### **General Knowledge of the respondents on the five tobacco dead season policy dates**

The key survey questionnaire respondents had some traceable knowledge of the dates of the tobacco dead-season calendar (Table 3). However, not all respondents were aware of the five gazetted dates for the tobacco-dead season. One percent of the key informants did not respond to this section of the survey questionnaire. The study revealed that key informants

knew at least one regulated date for the tobacco dead-season policy calendar. It is important to note that about 44% of the respondents had knowledge all the five dates for tobacco dead season calendar were known by only four percent of the informants (Table 3). The highest number (44%) of the respondents knew at least one gazetted date for the tobacco dead season calendar (Table 3) 44% of the informants knew at least one calendar date for tobacco dead season policy.

**Table 3: The Knowledge level of respondents on the five gazetted dates for the tobacco dead season policy.**

<b>Variable</b>	<b>Percentage</b>
One date known	44%
Two dates known	13%
Three dates known	27%
Four dates known	12%
Five dates known	4%
Non-response	1%
<b>Total</b>	<b>100%</b>

## **Evaluating the relevance, efficiency and impact of the Tobacco Dead Season Policy (TDSP) in Zimbabwe**

No baseline data were obtained from secondary data sources regarding the yield levels before the implementation of the policy versus the yield levels following the introduction of the policy. The same applied for baseline data regarding the pest pressure, market access and production cost in relation to the above. A literature study revealed trace to zero information about tobacco dead-season policy implementation in Zimbabwe.

### **Relevance and Objectives of the 'Tobacco Dead Season' Policy (TDSP)**

Information extracted from key informants, survey responses and FGD revealed varied options regarding the relevance of the TDSP (Table 4). The majority (65%) of the responses identified the positive primary purposes of the dead season policy, which is to control pests. The ultimate objective of the policy to achieve 100% compliance

on product phytosanitary matters, was known to only 12% of the respondents. KII could outline the policy objectives in full. The myth that the tobacco dead season policy was a strategy to protect seed business was revealed from other respondent's opinions at a relatively high proportion of 21% (Table 4). This myth relates the 'dead season policy' to the seed business, where banning the ratooning of the tobacco crop is thought to be a gimmick to allow the seed industry to sell seeds every season. Triangulating the online responses and the information extracted from KII and FGD indicated that the objectives of the dead-season policy were met, that is, to export tobacco products that met the exclusion of transboundary pests of the phytosanitary export requirements of trading partners across the border. The primary purpose of reducing pest carryover from season to season was also achieved. TDSP was a relevant policy for the country's tobacco production industry.

**Table 4: Opinion of respondents on the objectives of the tobacco dead season policy.**

<b>Item</b>	<b>Possible Response</b>	<b>Frequency (%)</b>
Most important objective of the tobacco dead season policy	Non-response	0.5
	Other	3.5
	To control pests	63.0
	To produce phytosanitary qualified crops for export.	12.0
	To protect seed business	21.0
	<b>Total</b>	<b>100.0</b>
Were the objectives of this policy achieved since its enactment?	Maybe	17.0
	No	7.5
	Non-response	1.0
	Yes	74.5
	<b>Total</b>	<b>100.0</b>

### **Evaluating TDSP policy objectives**

The opinions of informants if the dead-season policy had produced the intended results (Table 5). From the 2000 participants, 66% felt that the intended results of this policy were positive, while 24.5% had some doubt. From the results, 8.5% indicated that this policy did not provide the results expected. Further investigation of this issue revealed a series of reasons why this policy was said to be good. Triangulation

of these data with responses from KII and FDG indicated positive notes. Data from the research indicated that TDSP was associated with quality tobacco products being sent to international markets with no phytosanitary concerns. The survey data shows that tobacco quality produced in Zambia was demanded by many international markets (TIMB, 2024).

*"The use of tobacco regulation to control pests is good as it stops pesticide*

*resistance by pest since the technique employs famine as the driver for pest mortality and not chemicals.*” said one of the interviewees.

Although no baseline data was found for triangulation purposes, TDSP yielded

positive results in reducing production costs related to the tobacco crop. Regulatory pest control mechanisms involved the non-use of chemicals; hence, there were no costs associated with pesticides.

**Table 5: Opinion of respondents on the positivity of TBDP.**

<b>Possible response</b>	<b>Frequency (%)</b>
Maybe	24.5
No	8.5
Non-response	1.0
Yes	66.0
Total	100.0

### **Evaluating the TDSP intended outcomes and impacts**

The online survey responses (64.5%) (Table 6), coupled with data from KII and FGD, showed that the tobacco dead season policy yielded positive outcomes and impacts. As explained earlier, the resulting outcome focused solely on crop production and the productivity advantages of reducing the costs of crop production. The costs incurred owing to

international product rejection following non-compliance with trade biosecurity laws have not been recorded. Plant health officers tended to be focused only on crop-satisfying market biosecurity challenges for export. The damage and costs associated with international market rejection due to phytosanitary standards were found to be negligible, a clear benefit tallied to the TDSP.

**Table 6: Respondents opinion on positive benefit for implementing TDSP in Zimbabwe**

Possible response	Frequency (%)	Cumulative Percent
Maybe	28.5	28.5
No	6.5	35.0
Non-response	.5	35.5
Yes	64.5	100.0
<b>Total</b>	<b>100.0</b>	

**Unintended outcomes and impacts caused by the TDSP.**

While positive notes could be jotted down, criticism of TDSP was revealed. The survey online results (56%) (Table 7), the KII and FGD revealed a shocking experience where a minority of the enforcement teams of the National Plant Protection Organization (NPPO), police force, and council police found some opportunities for corrupt tendencies. Instead of fully enforcing laws by following proper accounting procedures, regulation enforcement agents shared some of the money due to the fines through bribery and corrupt tendencies. Apart from this negative corrupt tendency from law enforcement agents, discrepancies in fines resulted in unequal

punishment due to non-homogenous by-laws. In Hurungwe, the Rural-council-by-laws stipulated a fine of USD 10.00 per hectare or part of it for non-compliance with the May 15 tobacco stalks and roots destruction, while the main regulation stipulated a fine of USD 100.0 per ha or part of it for the same offence.

One member from the FGD said that;  
*"...the destruction of crop residues every season brings on board the need for extra labour..."*

The above statement showed some unexpected drawbacks to the cost of tobacco production associated with TDSP implementation. The real value of how much extra costs were lost in the tobacco stalk destruction process against the

actual profits realized from implementing TDSP, could not be determined owing to the unavailability of baseline data. However, the triangulation of data amongst the KII, FGD and key respondents indicated an estimated extra cost equivalent to ploughing a hectare, given that the ploughing technique is

used to destroy the tobacco stalk and root residues, while costs equivalent to the use of herbicide for a hectare were added to production costs in the instances where chemical weed killers were used as the stalk destruction option.

**Table 7. Respondents opinion on negative outcomes and impacts on TDSP in Zimbabwe**

Possible response	Percent	Cumulative Percent
Maybe	22.5	22.5
No	18.5	41.0
Non-response (Blank responses)	3.0	44.0
Yes	56.0	100.0
Total	100.0	

### **Evaluating the policy implementation plans**

The implementation of the dead-season policy should follow specified dates, as designed by law. From the responses, there were instances where adherence to the deadlines was not done in accordance with the regulations. This resulted in some landowners being fined for noncompliance. The gazetted dates for the TDSP are: May 15, the latest date

to destroy tobacco stalks in the field; June 1, the earliest date to sow tobacco seeds into the seed beds; September 1, the earliest date to transplant tobacco from the seedbed into the field; October 31, the latest date to clean off tobacco scrap and residues from the bans and warehouses; and December 31, the latest date to destroy tobacco nursery residues from the seedbeds.

Generally, the implementation of the policy, however, has followed the itemized course of action, where some growers, mostly commercial farmers, endeavoured to follow the regulations. However, there were some deviations from the expected course of action in the smallholder farming community. The survey information and triangulation by FGDs and personal interviews (KII) indicated that the establishment of seedbeds and destruction of tobacco stalks from the field was a challenge. Meeting these specific dates was not happening as intended. While the standard operating procedures advised that at least 80% compliance should be achieved to effectively allow for the positive benefits of reducing pests carried over from season to season and that the regulations open up for stakeholders to request for extension to the stipulated dates, there were still challenges where growers tend to seek for extension to the dates due to challenges attributed to climate change. The planting of tobacco in the fields had deviated from the traditional September to October to dates

ranging from late November to January, for dryland tobacco production, due to late rains. It was found that the NPPO had to seek support from the police force through a formal request to get security backup services, especially during field visits for compliance inspections.

Moreover, some activities performed were not stipulated anywhere in the regulations associated with TDSP. One of the activities involved the NPPO, where they issued warning letters to stakeholders with un-destroyed crop residue after the deadline. The second activity performed outside regulations was on follow-up for unpaid fines. During this research, it was noted that instead of following sets of procedures, the regulatory agency preferred to keep a list of the penalized stakeholders and never made an effort to cause them to be penalized by the magistrate courts, citing that charging farmers could impact anticipated production and productivity.

### **Barrier affecting the implementation of the TDSP**

The implementation of the policy was met with some challenges at both the

beneficiaries and regulators' levels. Data from KII indicated that the destruction of tobacco crop residues was not an easy task. The regulations stipulated complete destruction of the tobacco stalk and root residues, so that no regrowth is seen. The destruction methods used involved uprooting the crop by any means possible and exposing the uprooted crop to drying. This has been going on well in the past until around the new millennium when the breeding of robust crop cultivars emerged (Godwin et al., 2019). Before then, any injury to the tobacco plants would cause them to die and hence reach the intended intention of killing the plants to create a dead season to remove food for the monophagous pests.

As the Tobacco Research Board (TRB) continued to improve variety development, the destruction of the crop using the same method of cutting or uprooting by digging with a hand hoe or by cutting the stalks underneath the ground with a tractor drawn or oxen-drawn ploughs became ineffective. The current varieties were very robust.

Cutting of the stalks into small sticks during crop destruction actually aided vegetative propagation of the tobacco plant where moisture was present. Thus, instead of reducing the food for the pest off season, the proliferation of vegetative regrowth provided fresh food to support the very pests that the regulation was seeking to terminate.

According to one informant during a personal interview:

*"The current varieties are resistant to nematodes and just cutting the stalks would not kill them as compared to the old varieties that were susceptible to nematodes".*

The wave of current varieties had caused a lot of outcry where the compliance level, especially on regrowth, was not being met. Moreover, some activities performed were not stipulated anywhere in the regulations associated with TDSP. One of the activities involved the NPPO, where they issued warning letters to stakeholders with un-destroyed crop residue after the deadline. The second activity performed outside regulations was on follow-up for unpaid fines. During

the study, it was noted that instead of following sets of procedures, the regulatory agency preferred to keep a list of the penalized stakeholders and never made an effort to cause them to be penalized by the magistrate courts, citing that bashing farmers could heavily impact anticipated production and productivity. This had caused farmers to plough their fields more than once in an attempt to have a full crop death, thus increased the costs of implementation, which was a counterattack to the intention of reducing the cost of making tobacco crops compliant with international phytosanitary standards.

Mr Bowman, in 2016 (Marondera) came up with a plan to destroy stalks by applying herbicides instead of using the ploughing method to kill tobacco residues. The technique required the stalks to be dried in situ using an herbicide. The remaining dry tobacco sticks in the field would then be used as a natural trellis for pea crops grown after tobacco rotation. This technique, which became an alternative method to crop residue destruction, was quickly

abandoned owing to the high cost of pesticides. Stakeholder ignorance was also identified as one of the challenges associated with the implementation of the TDSP.

### **Factors that facilitated the implementation of the TDSP**

Awareness creation, use of fines and acceptance of the crop at international markets motivates for the continued implementation of this policy as intended (Thompson, 1990). Awareness campaign and instituting penalties to non-compliance were noted as some of the major contributors to the success of the policy apart from the fact that the crop could be bought at international markets without any product rejection due to the breach of the trading partners biosecurity laws.

Effective monitoring and field inspections by the NPPO were major deterring measures; growers and landowners would not like to be found on the wrong side of the law. Until around 2020, compliance was low, especially among the smallholders, as fines were not

deterrent enough (USD 20 per ha or part for not destroying stalks). With the gazetting of statutory instrument 121 of 2019, the survey revealed that the visibility of the plant inspectors triggered growers and landowners to immediately act and remove stalks in the field to avoid the current exorbitant fines associated with non-compliance (USD 100.00 per ha or part of it). The new regulation had also gazetted fines of exporting a crop not complying with standards to USD 1000.00 per or tonne or part of it, which the survey considered as a very strong deterrent measure to the will be offenders (Anonymous, 2021).

Apart from the use of regulatory mechanisms to force compliance with implementation, phytosanitary awareness programs and farmer training made the implementation tick easy. Below were some extracts from some of the KII encountered on this research: "*Educate farmers every season*"; "*Kudzidzisa varimi zvakanyanya*"; literary translated as 'complete training of farmers' and "*Varimi ngavapiwe ruzivo*

*hwakakwana*" literally translated as 'give farmers enough knowledge.'

### **Recommendation for the future actions of the TDSP**

Opinions from the informants showed the need to continue the policy, but with some adjustments. From the survey results, 76% respondents advocated for continued implementation of this policy. This policy has led to positive development for the country. There was no rejection of tobacco products exported from the country because of concerns about phytosanitary standards with trading partners. The 'dead season policy' had been noted as the main contributor to the cleanliness of the county's tobacco products. From the study, tobacco exported from Zimbabwe over the past 14 years (2011 to 2024) encountered only one international interception due to the presence of a pest (Table 7). The pest (*Megaselia scalaris*) which was found to associated with the tobacco pest pathways, intercepted in 2022, was suspected to be a hitchhiker pest, known to occur in a transit country

(Anonymous, 2022). This pest does not occur in Zimbabwe.

Subjecting the commodity interception data for both tobacco and other plant products for the last 14 years (2011 to 2024) to a Fischer's *t-test* showed significant differences in the compliance of tobacco plants and other plant products to phytosanitary export standards (95% confidence interval for mean: (11120, 19924); test statistic  $t = 7.25$  on 26 d.f.; Probability  $< 0.001$ ). Non-compliance with the phytosanitary measures of the trading partners for tobacco plant products, where pest management is guided by TDSP, was

zero for the past 14 years. Further subjecting the secondary export data collected from the NPPO records to the analysis of variance (ANOVA) provided more insight into the contribution of TDSP apropos, in the elimination of transboundary plant pests for tobacco. The mean number of tobacco products that flouted transboundary pest measures was 0.1 for 14 years from as high as 15,051 consignments. The number of non-compliant tobacco products was significantly different ( $P < 0.001$ ) from that of non-tobacco plants, signifying the positive contribution of TDSP to the management of transboundary pests (Table 8).

**Table 8: Mean phytosanitary export consignments and interception data for tobacco and total plant products for the period 2011 to 2024 in Zimbabwe.**

<b>Item</b>		<b>Mean number of interceptions (2011-2024)</b>	<b>Mean number of consignments exported (2011-2024)</b>	<b>Mean percentage interception (2011-2024)</b>
Other	Plants	42 <sup>a</sup>	18283 <sup>c</sup>	0.23%
Products				
Tobacco products		0.1 <sup>b</sup>	11818 <sup>c</sup>	0.00%
Grand Mean		21.4	15051	0.12%
<i>F-Probability</i>		<i>&lt; 0.001</i>	<i>=0.141</i>	
<i>LSD5%</i>		<i>12.87</i>	<i>8762.9</i>	
<i>SED</i>		<i>6.26</i>	<i>4263.1</i>	
<i>CV</i>		<i>77.3%</i>	<i>74.9%</i>	

(Source of data: NPPOZw, records 2011-2024)

Majority of the respondents (76%), advocated for the policy to be continued with necessary amendments, modification and improvements including reviewing the penalty further up to close loop holes of the little few non-compliances that were remaining; by adding necessary clauses such as making awareness campaigns mandatory for budgetary purposes (Table 9).

**Table 9. Opinion of the respondents on the policy continuation, improvements/ modifications, or suspension/termination**

<b>Question</b>	<b>Possible responses</b>	<b>Frequency (%)</b>
Should the implementation of this policy continue?	Amend, modify or improve it and continue implementation	76.0
	Continue implementing it as it is	19.5
	Non-response	1.5
	Stop, terminate or suspend the policy	3.0

	<b>Total</b>	<b>100.0</b>
What will happen to the quantities of exported tobacco products if we stop implementing this policy?	Increase	24.5
	Decrease	63.5
	Non-response	6.5
	Remain the same	5.5
	<b>Total</b>	<b>100.0</b>
Can this policy be improved?	Maybe	18.0
	No	5.0
	Non-response	4.5
	Yes	72.5
	<b>Total</b>	<b>100.0</b>
Are the current fines of USD100.00 punitive enough to deter non-compliance?	Maybe	20.5
	No	13.0
	Non-response	1.5
	Yes	65.0
	<b>Total</b>	<b>100.0</b>

### **New achievements and emerging impacts from the implementation of the TDSP**

Other areas of improvement to the policy noted included capacitating regulators timeously, continuous staff development and retention to avoid loss of experience, charging contractors whose clients are found to be non-compliant with the regulations, causing contractors to fund the costs associated with tobacco stalk

destruction through the input loan schemes, considering amending the dedicated dates of the dead season in accordance with the shifting season due to climate change, increasing extension workers, regulators, and farmers interface, and creating value and market for the tobacco stalks. The use of by-laws in rural councils should be continued, but there must be synchrony in terms of fines charged. There was also a need to

regularly include law enforcement agents in all actions where Plant Health Officer's security is concerned. Strengthening the implementing institute structure and instituting ways to reduce corruption

### **What has worked and why?**

From this study, it can be revealed that penalties were good action points, as they were key to compliance. 58% of the respondents advocated for both fines and imprisonment for noncompliance with the TDSP. The use of fines and imprisonment in solitary was advocated for by 21.5% and 18% percent of the respondents, respectively, soothing the high importance of this policy and its regulations to in the country. Education and awareness of the people to improve pest management was also highlighted as a key factor supporting the implementation of this policy. Knowing the consequences of non-compliance, stakeholders forge to be always compliant with the regulations and thus avoiding to be penalized.

Triangulating data from the FGD and personal interviews revealed similar and

tendencies by a few implementing agencies were also cited as ways to improve the implementation of the dead-season policy in Zimbabwe.

divergent views. Some of these views are provided below.

*... "Education will always encourage participation; some non-compliant people are doing so because of lack of knowledge" ...*

*... "repeated offences need some stronger punishment such as imprisonment". "Both fines and imprisonment should be given to non-compliant farmer so that the can feel the heat of not complying to the regulation" ...*

The involvement of *police force* was found to yield results during regulation enforcement across all compliance actions. Triangulation of data provided by FGD, KII, and online respondents indicated that the involvement of *police force* provided security to the NPPO staff during enforcement operations. Facilitation by the police resulted in some non-compliant farmers paying double

finer in instances where the offenders were resistant. Such instances ended with the offenders paying fines to the offence from the regulations associated with the TDSP and criminal law provisions to police.

### **What has not worked and why?**

The issuance of post-paid tickets to non-complaint stakeholders without taking the full set of actions to recover the fines was found to be a poor mechanism for motivating compliance.

*"Fines have not worked in times of hyperinflation due to arbitrage. Warnings do not work, as they increase costs of policy implementation".*

In cases where stakeholders were penalized and do not actually pay the fines, the purpose of the penalty will have failed. Failure to pay fines was attributed to the lack of resources and the unavailability of sufficient legal representation to follow penalized non-complying cases. While there were positive outcomes from the involvement of the police force and the charging of

penalties, negative actions revealed in corrupt tendencies were noted in this research. The major reasons associated with corrupt tendencies include greediness and lack of integrity. The signing of integrity pledges overseen by the Zimbabwe Anti-Corruption Commission should suffice in instilling discipline across implementing agents.

While fines were paid by non-compliant stakeholders, their values were eroded by inflation when paid in a local currency equivalent to USD. No spot fines were stipulated in the regulations associated with the TDSP; hence, penalized stakeholders could drag payments beyond the seven working days cited in the standard operating procedure as the maximum time period to honour the penalties.

The use of warning letters to growers and landowners was found to be merely a waste of resources as warnings were not part of the regulations. Warning letters to non-compliant farmers served in the same way as awareness. Following up, non-paid penalties may need to be

avoided at all costs, and law enforcement agents, such as the police force, should take offenders to the magistrate courts as stipulated in the law.

### **Actions that may lead to the improvement of the policy impact in future**

While the policy had been noted to be positive and that it has produced a positive impact, there were barriers that required attention to get rid of bottlenecks in its implementation. The data collected revealed that the rainfall pattern deviated from the norm due to reasons associated with climate change. The time when the tobacco dead-season policy was established (1979), weather patterns have changed, and the shifting of dates for the first rains has pushed days ahead. Effective rains were received between September and October, but currently, effective rainfall is anticipated from mid-October to November if it is received. Other measures noted included amending the regulations in line with changed operating environments both in technology and the physical

environment, increasing awareness, capacitating regulators with resources on time, continuous staff development, and strong staff retention, increasing extension coverage, and incorporating stalk destruction budgets in input loan packages offered by contractors. There was also a need to create value and market for stalks so that farmers would see more benefit to cut them down such as use as energy sources or paper manufacturing apart from pest control.

For local authorities, the formulation of bylaws that incorporate TDSP policy regulations and penalties harmonized with the main regulations, as per the statutory Instrument 121 of 2019, is recommended. The Kaizen principle (Masaaki, 1986) was advocated for TDSP, which is a culture of continuous learning and improvement. Advocating for competition regarding early birds in adhering to dead-season calendar dates may motivate and encourage noncompliant stakeholders to stick to policy. Involving the police force was seen as an action to consider. Close

monitoring of staff and training on integrity matters was raised as a measure to strengthen efforts to combat corrupt tendencies. Community leaders were seen as key stakeholders in advocating for compliance with regulations.

### **Conclusion**

The TDSP objectives to exclude transboundary pests of economic importance in cross border tobacco pest-pathways remained relevant and adequate regarding the social, economic, and environmental needs it is meant to address. The policy effectiveness was witnessed in the primary objective of the TDSP of the phytosanitary context, where biosecurity fears, in market access of tobacco pest pathways, was thwarted. The TDSP provided opportunities for farmers, especially the smallholder sector, to realize cash from crop sales.

The limited use of pesticides created opportunities for savings as the use of expensive pesticides was minimized. However, while the TDSP was still relevant as far as pest suppression is concerned, there was a need to review the policy to factor in challenges that climate variability has caused, especially the changing rainfall pattern that led to changes in planting dates. It remains critical to note that one of the greatest marks the TDSP caused was the breeding confidence of tobacco products worldwide in terms of biosecurity compliance.

### **Policy Recommendations**

The implementation of TDSP in combating transboundary pests associated with cross-border trade must be continued and extended to other plant and plant products associated with cross border traffic.

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