

Risk-Based Sampling (RBS) for inspection of plant commodities: Approaches and Tools from NAPPO

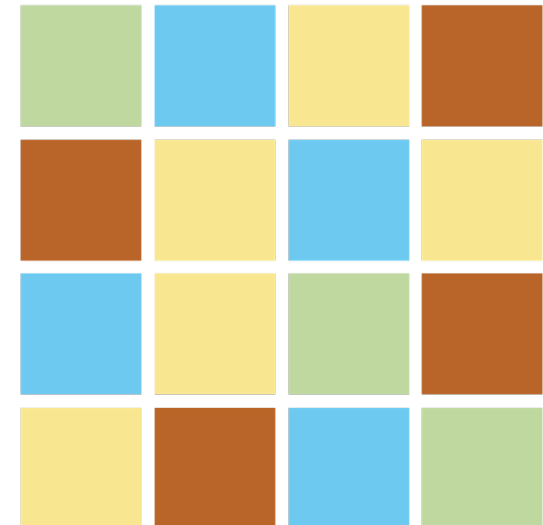


Maribel Hurtado

Stephanie Bloem

Bob Griffin

Experts from different countries



May 25, 2023

UNECE disclaimer

- The author and the speaker of this presentation confirm that they have authorization to use all photos and visual elements.
- The material is either copyright-free or the author / speaker holds the necessary copyright.
- The UNECE will remove any material from its events and supporting websites if there is unlawful use of copyrighted material.
- The author / speaker takes responsibility for any infringements on copyright and holds the UNECE harmless to this effect.

NAPPO is a **forum** for Canadian, U.S. and Mexican regulatory and industry professionals **to collaborate** in the protection of (all) plant resources and the environment while facilitating safe trade



NAPPO ...

- Promotes harmonized regional approaches to plant health challenges
- Facilitates communication and engagement of/for stakeholders
- Maintains transparency; fosters trust
- www.NAPPO.org

NAPPO actively cooperates with partners around the world

Share plant health information/intelligence

Promote harmonized phytosanitary measures



Contribute to the development and implementation of international plant health standards

Host workshops, webinars, training events

Interregional consultation

Inspection as a Phytosanitary Measure

ISPM 5: Official visual examination of plants, plant products or other regulated articles to determine if pests are present or to determine compliance with phytosanitary regulations

Inspection is sampling –
Inspection is usually not done 100%, instead, it is based on sampling.

What Is Risk-Based Sampling (RBS)?

- ✓ RBS is an inspection design that takes account of the probability of detection to determine the sample size for an inspection.
- ✓ It consistently achieves a specific level of detection and confidence and is adjusted to correspond to different levels of risk.
- ✓ This means that the number of items to be inspected will vary depending on the level of infestation to be detected, the size of the consignment, and the pest risk.

(NAPPO, 2020)

Sampling design

Percentage based sampling

- Fixed sample size (usually 2%)
- Detection Level is only constant when lot size is constant
 - Not technically justified

Risk-based sampling

- Fixed risk (detection level)
- Sample size varies with lot size
- Technically justified

Additional advantages of RBS

Complies with international obligations:

- World Trade Organization (WTO) - Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement).
 - International Plant Protection Convention (IPPC), International Standards for Phytosanitary Measures (ISPMs):
 - ✓ ISPM23 - *Guidelines for Inspection*
 - ✓ ISPM 31 - *Methodologies for sampling of consignments*
 - WTO - Trade Facilitation Agreement (TFA).
-

Agreement on the Application of Sanitary and Phytosanitary Measures - SPS Agreement

*“Countries must establish SPS measures on the basis of an **appropriate assessment of the actual risks involved**, and, if requested, make known what factors they took into consideration, the assessment procedures they used, and the **level of risk they determined to be acceptable**.”*

ISPM 23 Guidelines for Inspection

ISPM 23. *“When considering **inspection as an option for risk management** and the basis for phytosanitary decision-making, it is important to consider both technical and operational factors associated with a particular type and **intensity of inspection**. Such an inspection may be required to **detect specified regulated pests at the desired level and confidence depending on the risk associated with them.**”*

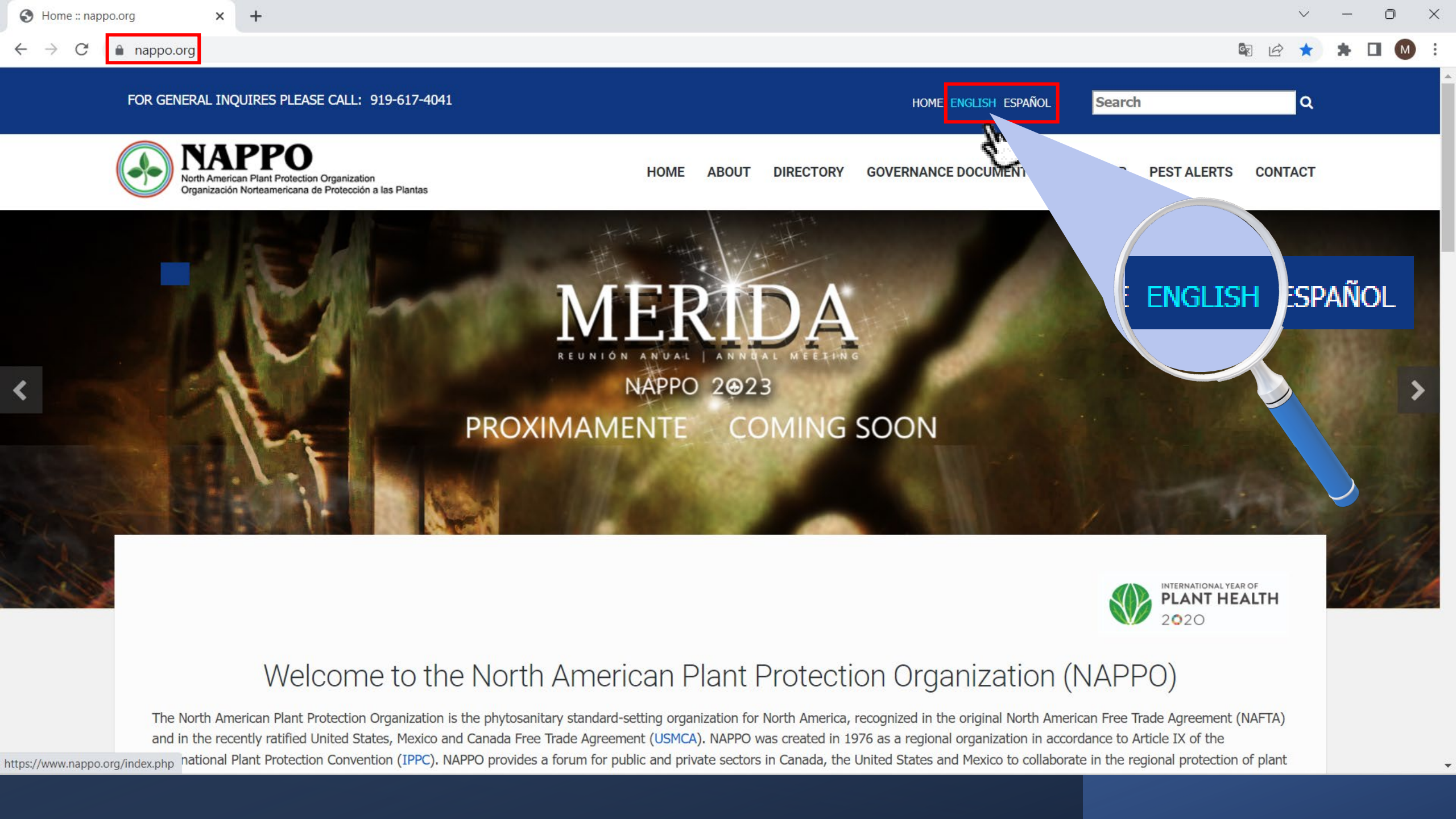
Trade Facilitation Agreement

*Each Member shall design and apply **risk management** in a manner as to **avoid arbitrary or unjustifiable discrimination**, or a disguised restriction on international trade.*

*Each Member shall concentrate **customs control** and, to the extent possible other relevant **border controls**, on **high-risk consignments** and **expedite the release of low-risk** consignments.*

*Each Member shall **base risk management** on an assessment of risk through appropriate **selectivity criteria**.*

NAPPO Tools to facilitate implementation of RBS



FOR GENERAL INQUIRES PLEASE CALL: 919-617-4041

HOME **ENGLISH** ESPAÑOL

Search



NAPPO

North American Plant Protection Organization
Organización Norteamericana de Protección a las Plantas

HOME

ABOUT

DIRECTORY

GOVERNANCE DOCUMENTS

PEST ALERTS

CONTACT

MERIDA

REUNIÓN ANUAL | ANNUAL MEETING

NAPPO 2023

PROXIMAMENTE COMING SOON

ENGLISH

ESPAÑOL



INTERNATIONAL YEAR OF
PLANT HEALTH
2020

Welcome to the North American Plant Protection Organization (NAPPO)

The North American Plant Protection Organization is the phytosanitary standard-setting organization for North America, recognized in the original North American Free Trade Agreement (NAFTA) and in the recently ratified United States, Mexico and Canada Free Trade Agreement ([USMCA](#)). NAPPO was created in 1976 as a regional organization in accordance to Article IX of the International Plant Protection Convention ([IPPC](#)). NAPPO provides a forum for public and private sectors in Canada, the United States and Mexico to collaborate in the regional protection of plant

**NAPPO**North American Plant Protection Organization
Organización Norteamericana de Protección a las Plantas

workshops and symposia

**WORK PROGRAM**[This Year](#)[Previous Years](#)**NEWSLETTERS**[Latest](#)[Previous](#)**NAPPO ANNUAL MEETING**[2022 Meeting](#)[Previous Years](#)CLICK BELOW TO ACCESS RESOURCES
AND TOOLS TO HELP YOU LEARN MORE
ABOUT RISK-BASED SAMPLING

HG Tables	Webinar Video		Proceedings
Sample Size Calculator	RBS Video		
		References	Manual Part I
Practical Exercise	Training Module		Manual Part II

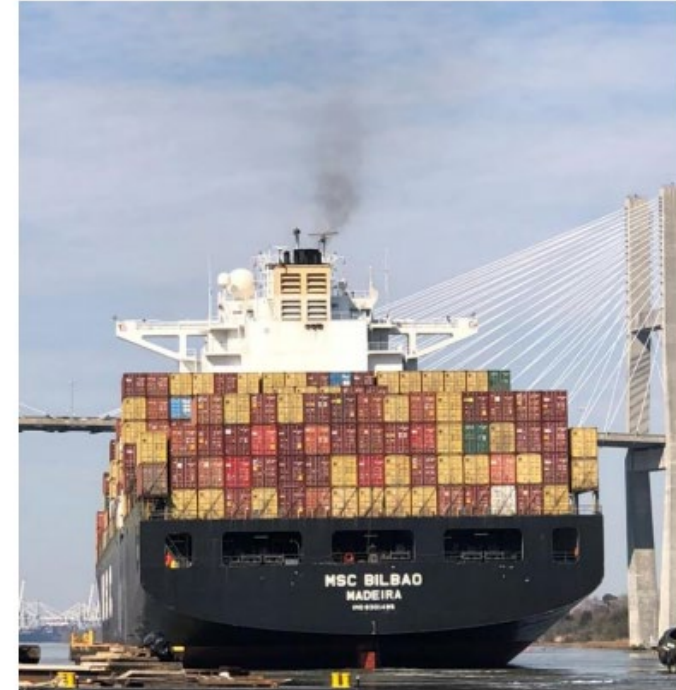
RISK-BASED SAMPLING[LEARN MORE](#)**N.A. SEA CONTAINER
INITIATIVE**[LEARN MORE](#)

Resources and Learning Tools



HG Tables	Webinar Video		Proceedings
Sample Size Calculator	RBS Video		
		References	Manual Part I
Practical Exercise	Training Module		Manual Part II

**Proceedings
International
Symposium for Risk-
Based Sampling
June 2017**



NAPPO

North American Plant Protection Organization
Organización Norteamericana de Protección a las Plantas
MEXICO - USA - CANADA





Menu

▼ 1. Introduction

1.1. Introduction

1.2. Preview

▼ 2. Inspection: What It Is and Why We Do It

2.1. Inspection: what it is and why w...

2.2. What is "inspection"?

2.3. What exactly do we mean when ...

2.4. A different definition

2.5. Whose responsibility is inspection

2.6. Who performs inspections

2.7. What do you think is the purpose...

2.8. Why we perform inspections

2.9. The options for infested shipments

2.10. The importance of inspection

▼ 3. Inspection Is Sampling

3.1. Inspection Is sampling

3.2. The reality of inspection and incr...

3.3. Even when we can inspect 100%

3.4. Why can't we completely elimina...

3.5. Efficiency

3.6. Inspection is sampling

3.7. Forms of sampling

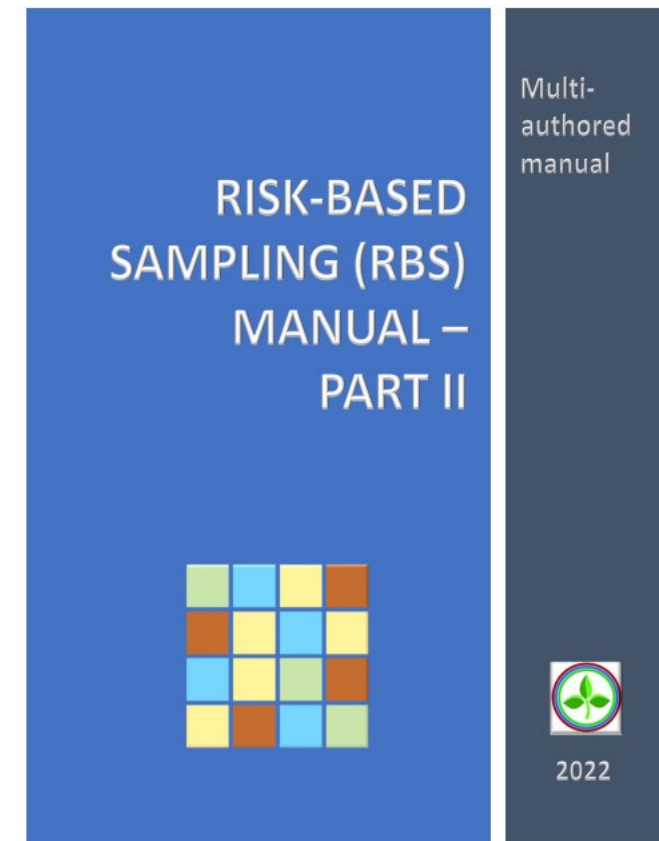
Risk-Based Sampling for Inspection





Video on next steps for Risk-Based Sampling

RISK-BASED SAMPLING MANUALS



PREFACE.....	2
1. GLOSSARY AND DEFINITIONS	7
2. ACRONYMS AND ABBREVIATIONS.....	12
3. RBS: FREQUENTLY ASKED QUESTIONS	13
4. INTRODUCTION	17
4.1. Scope and objectives of the RBS manual	23
4.2. Target audience.....	23
4.3. Use of the RBS Manual.....	23
5. HOW TO - GUIDE FOR IMPLEMENTING RISK-BASED SAMPLING (RBS)	25
5.1. Prerequisites.....	25
5.2. Sampling	27
5.3. Ranking	31
6. WHAT IS RISK-BASED SAMPLING?	33
6.1. Inspection	33
6.2. Fixed proportion sampling	37
6.3. Risk-Based Sampling.....	39
6.4. Risk-Based Sampling systems and policies.....	41
7. WHY USE RISK-BASED SAMPLING	44
7.1. Perspectives on inspection.....	45
7.2. The International Regulatory Framework.....	47
7.3. Operational advantages of RBS	51
7.4. Conclusion: Why implement RBS?	54
8. CASE STUDIES	56
8.1. Building a risk-based compliance framework for Plant Protection and Inspection Services of the Ministry of Agriculture of Israel	56
8.2. Risk-Based Sampling: Experiences from the United States.....	77
8.3. Mexican experience with Risk-Based Sampling	81
8.4. New Zealand experience with Risk-Based Sampling - International developments in determining levels of intervention in Risk Pathways	84
8.5. EPPO Approaches to Risk-Based Sampling Risk-Based Inspection and Risk-Based Sampling in Europe and the Mediterranean region	90
9. BIBLIOGRAPHY	100
10. APPENDICES	105

CONTENTS RBS MANUAL PART I



CONTENTS RBS MANUAL PART II

1.	INTRODUCTION	3
2.	SPECIAL TOPICS.....	5
2.1	Political commitment.....	5
2.2	Training	5
2.3	Space and equipment	6
2.4	Randomization	6
2.5	Selecting the appropriate sample unit.....	7
2.6	Uncertainty	7
2.7	Correlation of inspection variables	8
2.8	Singling, mingling, and commingling cargo.....	8
2.9	Interagency cooperation.....	11
2.10	Stakeholder communication.....	12
3.	DATA AND TOOLS	13
3.1.	Data.....	13
3.2.	Tools.....	19
4.	SAMPLING METHODS.....	25
4.1.	Sampling unit, population, and frame	25
4.2.	Sampling methods	27
4.3.	Implementing sampling plans	30
4.4.	Probability distributions.....	32
4.5.	Continuous Sampling Plans (CSPs).....	38
5.	DESIGNING, IMPLEMENTING, AND MAINTAINING A RISK-BASED SAMPLING PROGRAM.....	46
5.1.	Introduction	46
5.2.	Standard RBS programs – acceptance sampling.....	48
5.3.	Assessing current sampling operations	59
5.4.	Case studies to illustrate the RBS program design process	67
5.5.	Designing the Risk-Based Sampling (RBS) program	67
5.6.	Implement inspection scheme.....	90
5.7.	Maintain inspection scheme	94
5.8.	Implementing ratings-based programs.....	95
5.9.	Conclusions	105
6.	BIBLIOGRAPHY.....	107
7.	APPENDICES.....	115

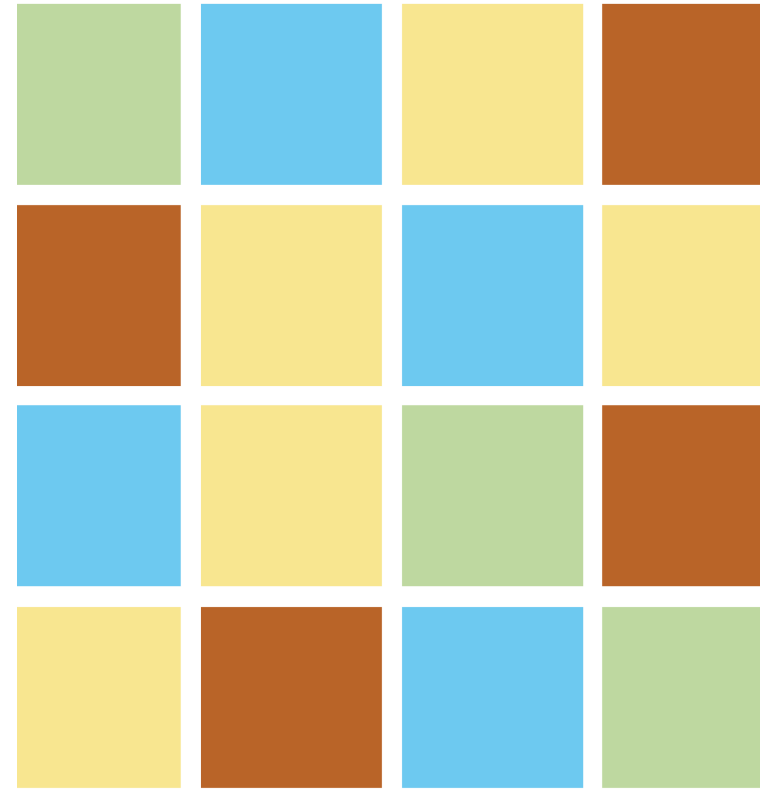


NAPPO

North American Plant Protection Organization

Organización Norteamericana de Protección a las Plantas

MEXICO - USA - CANADA



Thanks!

<https://www.nappo.org/>

