PESTICIDES & TOXIC CHEMICALS CONTROL BOARD

Newsletter

Contact us for more information:
Pesticides & Toxic Chemicals Control Board,
NAREI Compound, Mon Repos, ECD, Guyana, S.A.
TEL: 592 220 8880 | **Website:** www.ptccb.org.gy

Pesticides in the Spotlight

Chemicals Management in Guyana

(by Pesticides and Toxic Chemicals Control Board)

The world in which we live has changed tremendously from that of previous generations. Synthetic chemicals are ubiquitous in our environment worldwide, and traces of these compounds are found in all humans and the ecosystem.

With tens of thousands of chemicals and pesticides on the world market governments have their hands full especially as global trade expands each year. An estimated 1-2 million chemical preparations are on sale around the world today. After the automotive industry, the chemical industry is the world's largest manufacturing industry. Worldwide, around 15,000 new chemicals are introduced every year. In the United States and China alone, at least 75,000 industrial chemicals are currently produced or imported.

Plants, the main source of food, are susceptible to approximately 100,000 diseases and there are over 10,000 species of plant feeding insects that contribute to the destruction of one third of the world's food crops. Farmers competing in a diminishing environment rely on fertilizers and pesticides. The improper use of this group of chemicals has resulted in contamination of the environment, food and all humans.

Growth in the use of pesticides and other chemicals has raised public concern due to various studies linking hazardous chemicals to increased occurrences of cancer, respiratory diseases, reproductive disease, impairment in the physical and emotional development of children, neurological disease, and more. New substances are continuously introduced into domestic and global markets, and the impacts of many of these substances are unknown. Due to poor reporting and monitoring, it is difficult to estimate what part of the international trade is in chemicals hazardous to human health and the environment.

Current trends show that patterns of global chemicals production, their trade, use and disposal are changing towards developing countries and economies in transition. Understanding these changes in the chemicals production, trade, use and disposal and the potential risks they pose, are essential to ensuring that chemicals are effectively managed so that their contribution to improving quality of life is maximized and their related risks minimized. Modern society could not maintain its current standard of living without chemicals; however, sound chemicals management is necessary to prevent human health and the environment being harmed.

Against, this backdrop on October 1, 2000 the Pesticides and Toxic Chemicals Control Board was established, under the Pesticides and Toxic Chemicals Act 2000 (No. 13 of 2000), with the overall mandate of achieving Sound Chemicals Management for Guyana.

In our next article we will examine chemicals management in Guyana and the role of the Pesticides and Toxic Chemicals Control Board as we strive towards achieving Sound Chemicals Management.

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Laboratory and Food Security

According to the World Food Summit of 1996, food security exists "when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life".

In this context, the Pesticides & Toxic Chemicals Board, but more particularly its Laboratory, strives to ensure the safety of food commodities- from the standpoint of freedom from pesticides- for all Guyanese and for export. Guyana's historical position as the leader of raw agricultural based products throughout the Caribbean is challenged by the increasing use of synthetic organic pesticides.

In this regard, the laboratory attempts to meet these challenges by improving regulatory practices of pesticides usage. Proper use of pesticides not only entails the use of legal products but also includes the correct application practices by farmers and agriculturists alike.

The laboratory is equipped with analytical and supporting equipment and continues to enhance its capabilities – with respect to both personnel and equipment.

Chromatographic methods of analysis are employed by the laboratory's Quality Control (QC) Division for qualitative and quantitative analysis of pesticide products. The QC Division also conducts physio-chemical analyses to monitor the application and efficacy of products. Additionally, the Residue Division's (RD) current aim is to ensure that pesticide residues on crops confirm to established Maximum Residual Limits.

These methods of analysis are undertaken using the High Performance Liquid Chromatography (HPLC) and Gas Chromatography-Mass Spectrometry (GC-MS) techniques by the QCD and RD respectively.

These proven techniques of analysis are essential to the laboratory's objective of providing regulatory support to the Pesticides & Toxic Chemicals Board.

N.B. Elaborate on the functions of the lab. as it relates to quality of products entering Guyana; this is important since poor quality materials would affect the level of control achieved and cause farmers to more chemicals on their crops as they struggle to manage pests that are damaging their crops.

Say in simple terms how residue analysis helps in protecting human health and supporting the export drive

Focus on "International Chemicals Agreements"

Stockholm Convention

The Stockholm Convention on Persistent Organic Pollutants was adopted by the Conference of Plenipotentiaries on the 22nd May 2001 in Stockholm, Sweden. The Convention entered into force on 17th May 2004.

The Stockholm Convention on Persistent Organic Pollutants is a global treaty to protect human health and the environment from chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of humans and wildlife, and have harmful impacts on human health or on the environment.

Exposure to Persistent Organic Pollutants (POPs) can lead to serious health effects including certain cancers, birth defects, dysfunctional immune and reproductive systems, greater susceptibility to disease and damages to the central and peripheral nervous systems. Given their long range transport, no one government acting alone can protect its citizens or its environment from POPs.

In response to this global problem, the Stockholm Convention, which was adopted in 2001 and entered into force in 2004, requires its parties to take measures to eliminate or reduce the release of POPs into the environment.

What are the POPs covered under the Convention?

The first 12 compounds covered under the Convention are Aldrin, Chlordane, DDT, Dieldrin, Endrin, Heptachlor, Hexachlorobenzene, Mirex, Polychlorinated Biphenyls, Polychlorinated dibenzo-dioxins, Polychlorinated dibenzofurans, and Toxaphene.

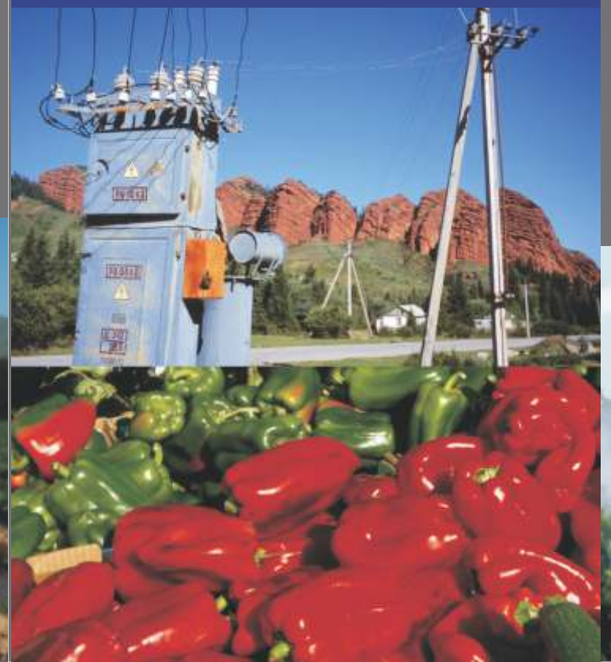
The 9 new POPs added to the Convention are Alpha hexachlorocyclohexane, Beta exachlorocyclohexane, Chlordecone, Commercial octabromodiphenyl ether (hexabromodiphenyl ether and heptabromodiphenyl ether), Commercial pentabromodiphenyl ether (tetrabromodiphenyl ether and pentabromodiphenyl ether), Hexabromobiphenyl, Lindane, Pentachlorobenzene, Perfluorooctane sulfonic acid (PFOS), its salts and perfluorooctane sulfonyl fluoride (PFOS-F).

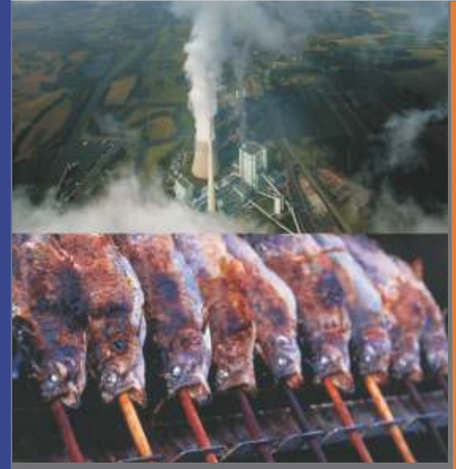
Environmental and Health Effects of POPs

POPs have contributed to our general well-being like other chemicals. However, exposure to them can also cause serious health problems. Health and environmental concerns associated with POPs include:

- Persistence for long periods in the environment
- Travelling long distances and depositing far away from their sources of release
- Accumulating in the fatty tissues of living organisms
- Causing complications like cancer and birth defects
- Triggering adverse effect on the ecosystem and biodiversity
- Potentially disrupting immune and reproductive systems and even diminishing intelligence

Guyana acceded to the Convention in September 2007 and the preparation of the NIP has been undertaken in fulfillment of the country's obligations under Article 7 of the Convention. The support of an enabling activity grant from the Global Environmental Facility (GEF) for its preparation is gratefully acknowledged.





POPs in Guyana

Guyana has never been a producer of chemicals defined under the Convention as Persistent Organic Pollutants (POPs). However, while a relatively small country in terms of population and industrial activity, it can be expected to have imported POPs either as chemicals or as contained in products and equipment. Similarly it would be expected to have sources of unintentional POPs release and POPs legacies in the form of stockpiles, waste and contaminated sites. In general, Guyana is well advanced in addressing sound chemicals management generally and POPs issues specifically. It has a stable and well established institutional structure for chemicals management, notably a dedicated agency in the form of the PTCCB with responsibility in for chemicals management and use as well as the Convention, the Environmental Protection Agency (EPA) providing environmental regulatory control in relation to waste management and emissions, and a network of stakeholder Ministries, agencies and organizations that have related and synergistic responsibilities.

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U.S. Proposes New Safety Rules For Farm Pesticide Use

Farm workers, children and other people working or living near farm fields would have more protection from hazardous pesticides under changes proposed on Thursday, 20th Feb., 2014 by the U.S. Environmental Protection Agency.

"Today marks an important milestone for the farm workers who plant, tend, and harvest the food that we put on our tables each day," Gina McCarthy, EPA administrator, said in a statement. EPA is proposing revisions to the agency's 22-year-old "Worker Protection Standard" that EPA officials say will help protect approximately 2 million U.S. farm workers and their families from exposure to pesticides used to protect crops from weeds, insects, and disease.

The EPA said pesticides are beneficial tools in agriculture when used in proper concentrations and with proper protections. U.S. scientists are studying how human health is affected by the use of herbicides, insecticides and other farm chemicals in growing a variety of crops. Some consumer and environmental groups have been calling for greater controls on pesticide use.

The EPA, the United States Department of Agriculture, the National Institutes of Health, and the National Institute for Occupational Safety and Health have been overseeing an "Agricultural Health Study" of nearly 90,000 people in Iowa and North Carolina tracking the impact of factors including pesticide use. The studies have linked a series of health problems to pesticide use, including various cancers and Parkinson's disease.

"Current medical research suggests that while farmers are generally healthier than the general U.S. population, they may have higher rates of some cancers, including leukemia, myeloma, non-Hodgkin lymphoma, and cancers of the lip, stomach, skin, brain, and prostate," the study states.

Among the changes proposed, the EPA would require annual training in pesticide protection, instead of once every five years. It would expand mandatory posting of signage warning people from entering fields newly treated with pesticides; prohibit children under 16 from handling pesticides unless they are part of a family farm; and set no-entry buffer areas of 25 feet to 100 feet around pesticide-treated fields to limit exposure from over spraying and fumes. The EPA is seeking public comments on the proposed changes before making a final decision.

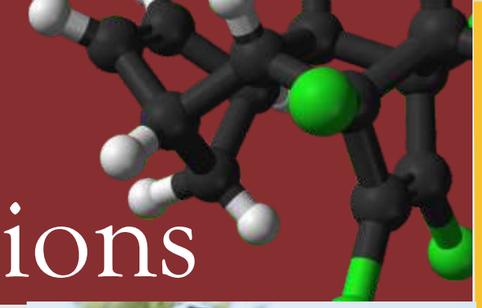
A coalition led by residents of rural Minnesota announced a campaign to convince fast-food restaurant chain McDonald's to reduce pesticide use on farms where potatoes are grown for its French fries. The group said studies of air quality have shown contamination by the fungicide chlorothalonil, a farming chemical listed by the EPA as a probable carcinogen. McDonald's had no immediate comment.

In Hawaii, the state department of agriculture and the U.S. Geological Survey are undertaking a statewide "pesticide sampling" project to check soil and water for pesticide residues.

(Reporting By Carey Gillam; Editing by David Gregorio)

http://www.reuters.com/article/2014/02/20/us-usa-epa-pesticides

Pesticide Formulations



The **active ingredient** in a pesticide formulation is the actual chemical in the product that controls the pest

The **inert ingredients** are materials added during the formulation process for several different reasons, but they don't have pesticidal activity.

Inerts may simply be:

1. Added as bulk material to aid in handling the product.
2. Added to increase the safety of the product, or
3. Enhancing the effectiveness of the product.

One inert component that enhances the effectiveness of the product is an Adjuvant; this is a technical term that means additive; it is a product that assists with

1. pesticide stability,
2. mixing, or
3. Control effectiveness.

The inert ingredients may also include materials such as water for bulking or diluting the material so a user can easily measure the appropriate dose needed.

Some formulations include emusifiers to assist the tank mixing and stability of the product in the tank mix.

Some active ingredients don't mix well in water therefore during the formulation process they are mixed with petroleum solvents.

In some other formulations, the active ingredient is bound or attached onto dry carrier materials like clay talc.

Some materials are added to the formulated product to assist the applicator, such as dyes that show where the material has been applied.

Other inerts are surfactant materials that increase the effectiveness of the active ingredient.

So the formulation includes the active and inert ingredients, but only the active ingredients are listed on the label. The inerts are largely the trade secrets of the manufacturer and help their product be more competitive by increasing safety or effectiveness or make the product easier to handle.

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Pesticides
Awareness Week, 2013

The Ministry of Agriculture commemorated Pesticides Awareness Week, 2013 from the 27th October – 2nd November, 2013 under the theme "Pesticides – Store Wise, Save Lives".

From healthcare to food production, the manipulation of chemicals for human use has been nothing short of ground breaking. The most recent manipulation of chemicals for varying applications as pesticides has enabled advances in food technology areas like bio-technology and pest control.

Globally, large scale use of pesticides has resulted in environmental degradation and exposing humans and wildlife to high levels of chemicals that adversely affect nature and human health. Public concerns about the adverse impacts of chemicals on human health and the environment have made the sound management of chemicals and their associated wastes an essential component of overall public policy in countries at all stages of development, especially developing ones.

While chemicals like pest control products used to restrict the spread of vector borne diseases such as malaria, can make significant contributions to resolving many modern issues, if not properly managed, these chemicals can cause significant damage to human health and the environment. Hence, the ever present need for Government to direct increasing attention to risk management actions so as to protect our citizens and our precious environment from the threats posed by pesticides.

Note should be taken that pesticide use has been one reason why food production has increased; its use has contributed to decreased hunger in the world.

These chemicals are inherently poisonous in nature and since the inception of their use they have resulted in accidental poisonings both acute and chronic in nature to humans.

Storage of pesticides is an area of immense concern in a society where suicide rates from the use of chemical pesticides are high. It is important today that we send a message that all pesticides must be stored under lock and key and away from children, animal feed and foods. These and other storage guidelines are important to be followed to prevent cases of pesticides poisonings. The easy access to these chemicals by persons who are not pesticide users is alarming. Many persons also store pesticides in other containers, e.g beverage bottles, which can be easily mistaken and result in pesticide poisonings. We have seen where drinks, water and rum bottles just to name a few are used to store pesticides. These chemicals should never be stored in containers other than their originally labelled containers. Pesticides containers MUST NEVER be used for storage of foods or any other products. For households, remember to store pesticides high enough so that they are out of reach of children and pets.

Lastly, in the commercial setting, we should strive to design and build pesticide storage structures to keep pesticides secure and isolated from the surrounding environment. Keep a written pesticide inventory and the material safety data sheet for the chemicals used on site. Sensitization and sharing of best practices regarding pesticides use can never be overdone.

Pesticides will continue to be an integral part of our lives in the foreseeable future. Therefore for the sustainable management of our environment, our health and our future, we must remember: "Pesticides-Store Wise, Save Lives!"

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Pesticides Awareness in Schools

The Pesticides and Toxic Chemicals Control Board recently concluded its Pesticide Awareness Programme in Secondary Schools with an Awards Ceremony held on the 29th October, 2013. This year's program targeted 10 selected schools in five administrative regions, namely 2, 3, 5, 6 and 9.

Schools were tasked with establishing a Pesticides Awareness Corner in their schools. This Corner was expected to provide a wealth of information to all students about the Board as well as pesticides, their use, hazards, benefits etc. Materials to develop the corners were provided by the Board, with schools expected to add their own bit of creativity.

This approach of targeting students enhances awareness for the proper use, storage and an overall better understanding of how pesticides work. The selected schools were very innovative in the displays of their respective corners. All the selected schools completed the exercise and developed very informative corners in the schools, and were awarded consolation prizes in the form of Agricultural text books for CESEC exams at a value of $20,000.00 each. The selected books are expected to strengthen Agriculture Science Programs in schools.

This year, Corentyne Comprehensive Secondary came out the winner and received $100,000 in farming equipment and a trophy. Zeeburg and Charity secondary schools placed second and third respectively.

The Board extended its annual schools' Pesticides Awareness Corner competition to the hinterland in 2013. Three schools from region nine (9) were selected for this leg of the competition; these schools were Annai Secondary, St. Ignatious Secondary and Aishalton Secondary. The competition followed a similar pattern to that on the Coast; Pesticides Board gave each school some source material to develop a pesticides awareness corner. The schools were given instructions and guidance on what the judging criteria would be and what rules they needed to adhere to. This leg of the Schools' Pesticides Awareness Corners was an overall success. The students of the two schools that produced a corner were very excited and enthusiastic about the entire awareness process and they seemed to be very knowledgeable about pesticides, their types and the safe handling and storage.

Geddes Grant Guyana Limited won the prize for best storage facility in Guyana. This is a new feature added to the Board's annual awareness program this year. The Board evaluated storage facilities of all our pesticides importers and awarded the best kept area in keeping with pesticides storage practices.

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Focus on Rodenticides

Rodenticides, colloquially rat poison, are a category of pest control chemicals intended to kill rodents.

Rodenticides are essential throughout Guyana for the protection of human and animal health and well-being, for the protection of food stocks from consumption and soiling by rodents, for the prevention of damage to installations, structures and possessions and for the removal of alien invasive species for the protection of vulnerable wildlife populations

Rodenticides can be broken down into two categories, baits and tracking powders. Both baits and tracking powders are rodent poisons in the traditional sense; that must be eaten to kill the pest. Baits can be used both in the field and in and around buildings, and are designed to attract the rodents to a feeding station. Tracking powders are placed along rodent runways in and around buildings, picked up by the fur as the animal passes by, and then ingested during grooming.

Rodenticide baits and tracking powders are the types of rodenticides that are most often encountered by homeowners with a rodent problem. There are two types of rodent poisons generally available – acute poisons (also known as single feed baits) and chronic poisons (multiple feed baits). Acute poisons are extremely dangerous to pets and children, as one encounter can make them very sick or kill them.

Multiple feed baits are the more commonly used type of rodent poisons. Typically these poisons act as anti-coagulants, literally causing the victim to bleed to death internally. The fact that these poisons must be made available to the pest animal over time makes them very hazardous as children, pets and other non-target animals have an extended opportunity to get into contact with them. Current labels for rat and mouse baits used outdoors require that baits be applied in protective, tamper proof bait stations or placed in areas inaccessible to non-target wildlife.

Types of bait stations

Bait stations can be designed for rats or mice. They can also be designed to contain solid baits from grain or seed, liquid baits, or both.

Ready-made bait boxes may be purchased from commercial suppliers, or you may make them yourself. Manufactured bait boxes made of plastic, cardboard or metal are sold through hardware stores, farm supply stores, or to pest control companies.

Care should be taken so that only rodents can reach the bait. Locks, seals or concealed latches are often used to make bait boxes more tamperproof. Clearly label all bait boxes or stations with "POISON," or "RODENT BAIT — DO NOT TOUCH," or with a similar warning.

Bait station design

It is important to design bait stations to allow several rodents to feed at the same time. They can be as simple as a flat board nailed at an angle to the bottom of a wall, or a length of pipe into which bait can be placed . More elaborate stations are completely enclosed and can contain liquid as well as solid, cereal-type, rodent baits. A hinged lid with a childproof latch can be used for convenience in inspecting permanent stations.

Types of bait to use

Bait boxes are ideal when using commonly available rodent baits. Most of these products are multiple-dose (anticoagulant) rodenticides. For these baits to be effective, rodents must feed on them for several days. Label instructions on such baits typically state, "Provide an uninterrupted supply of bait for at least 15 days or until signs of feeding have stopped."

Concentrates that are mixed with water to make a liquid bait are a good choice during dry seasons. They also work well in places where rodents have few water sources, such as in a granary. Liquid baits that contain a small amount of sugar are particularly attractive to rodents. Rats will often come to water stations, since they need water daily unless they are feeding on very moist food. Although mice can survive without drinking water, they will use it when it is conveniently available.

Because many kinds of animals drink water, you should protect receptacles containing liquid rodenticides from use by animals other than mice and rats. Enclosing liquid bait containers within bait stations is one method of reducing hazards to pets, livestock and desirable wildlife

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Rats as important Urban Pests

Rats a group of rodents are mammals, and are characterized by two continuously growing incisors or front teeth which they use for gnawing, eating food and self-defense. They have poor eyesight and are colourblind, however they have keen senses of smell, hearing, touch and taste. Additionally, they see light, shadow and movement.

Rats are found in domesticated settings in urban and suburban areas and villages; they are also found in agricultural fields, especially sugar cane and in some seasons in rice fields. Several species of pests are found in Guyana, and include the Norwegian rat, roof rat and what may be regarded as the field rat *Holochilus* spp.

Unhygienic conditions will attract rats. Flooding and extreme dry weather cause rats that live outdoor, like *Holochilus* to migrate to areas, including homes, where they may find food and shelter.

Rats pose a serious health hazard since they are disease vectors. Additionally they chew electrical wire thus posing a potential fire hazard. Urban areas are both food and shelter for rats.

Signs of a rat problem

Rats are nocturnal and usually hide from humans, so typical signs of a rat problem in the home are:

- Scratching noises in walls or under the floor
- Droppings – rats leave dark, pellet-like dropping about 10-14mm long
- Distinctive smell – rats leave an ammonia-like smell that will be particularly strong in enclosed areas such as under cupboards
- Damage – rats have teeth that grow continuously and gnaw on wood and plastic to keep them trim.
- Ripped food packaging – rats will tear open food which may leave teeth marks in either the packaging or food.
- Nests – rats build nest in warm, hidden places using shredded materials such as newspaper and fabrics. Nests will often contain young rats.
- Burrows – In gardens, rats will dig burrows especially in compost heaps or under sheds. They will also build nests under waste materials around homes.

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WARNING

PESTICIDE STORAGE CHECKLIST

Improperly stored pesticides can cause harm to YOU, other people, animals and the environment.
Use the checklist as a guide to proper pesticide storage.
If you answer NO to any of the questions below, you should fix the problem.

YES	NO	
☐	☐	Pesticide Storage room is locked
☐	☐	Storage area is well ventilated
☐	☐	Pesticides are stored in original containers
☐	☐	Original labels are attached to containers
☐	☐	Labels have expiry dates
☐	☐	Containers are tightly closed & bags properly sealed
☐	☐	Pesticides are stored off the floor and low to the ground
☐	☐	No liquid products are stored above dry products
☐	☐	Animal feed is stored separately from pesticides
☐	☐	Pesticides are stored separately from food, animal feed and any other consumables
☐	☐	Used pesticide containers are tripled rinsed, punctured and stored separately
☐	☐	Emergency telephone numbers are posted
☐	☐	**"Pesticides –KEEP OUT"** is posted at the entrance to storage area

Remember!
Pesticide Stored Wise - Save Lives

Coordinating Group of Pesticides Control Boards of the Caribbean

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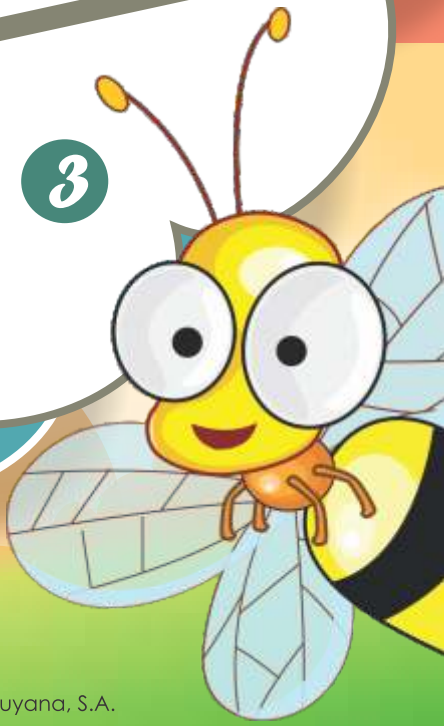
Safari Maze

START

1

2

3



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