



**Workshop on:
Pesticides, Agriculture and Food: Multi and Growing concerns in Cambodia**

Promoting Organic Agricultural Practices



**Presented by:
Mr. NOUN Tum
Partnership & Biz Development Manager
H/P: 012 588 496
Email: tum@khmer-organic.com**

Outline:

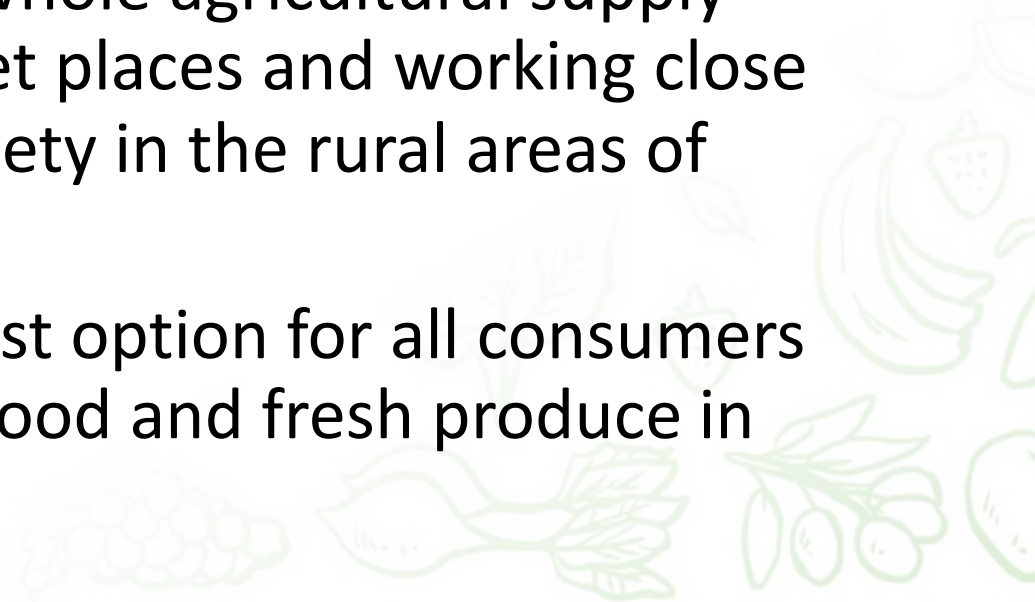
1. Briefing about Khmer Organic Cooperative
2. Cooperatives we are working with
3. The agricultural practices of the farmers
4. The bio-pesticides that are uses by farmers.



1. A brief about us

Khmer Organic is a social agribusiness enterprise established since 2014 by working along the whole agricultural supply chain from the farm gate to market places and working close relationship with farmers and society in the rural areas of Cambodia.

Khmer Organic is providing the best option for all consumers by bringing a real quality of local food and fresh produce in Cambodia.



ចក្ខុវិស័យ



VISION

Consumers have fresh organic agriculture produces and quality for consuming, and understand the benefits of organic agriculture for health, environmental, socio-economic and sustainable development in Cambodia.



Our philosophy: "COMMITTED BEYOND INVESTMENT"
Working together for sustainable agriculture and healthy and quality of life!



Promote organic farming and supply quality organic produce in Cambodia.



MISSION

Working together for sustainable agriculture and healthy and quality of life!

Providing a healthy agriculture chain from farmers to consumers where both obtain their maximum benefits.

Serving consumers with getting more options and better varieties of organic products from trustable sources of organic farms in Cambodia.



Our philosophy: "COMMITTED BEYOND INVESTMENT"
Working together for sustainable agriculture and healthy and quality of life!

Business Approaches

1. Trust
2. Quality of products
3. Green environment
4. Inclusive business
5. Sustainability
6. Corporate Social Responsibility (CSR)



Standards received & being implemented



- Organic certified (EU/USDA)
- Organic aligned (under internal controlling)
- Under compliance: GMP/HACCP
- Food safety standard



Our Products & Service

Vegetables, fruits, rice, cashew nuts, pepper, palm sap, sugar palm, soybean milk, cereals, honey, chicken egg, duck egg and other local products.

Our services: Selling local produce through shopfront, online sale, wholesale, catering service and exporting perspectives.



Food Safety & Standards

Development of organic farms & management system to obtain Organic standard for 73 types of vegetables and fruits.



Certified by:



International Organic Standards (EU/USDA)

Applied:

- **Agricultural Cooperative: (Grower Group)**
- **Own Organic Farm: (Learning & Sharing Organic Agriculture Practices)**



Food Safety & Standards

Some of our products are applying for GMP/HACCP. We are now under compliance. We have provided internal training to our staff on food safety standards.

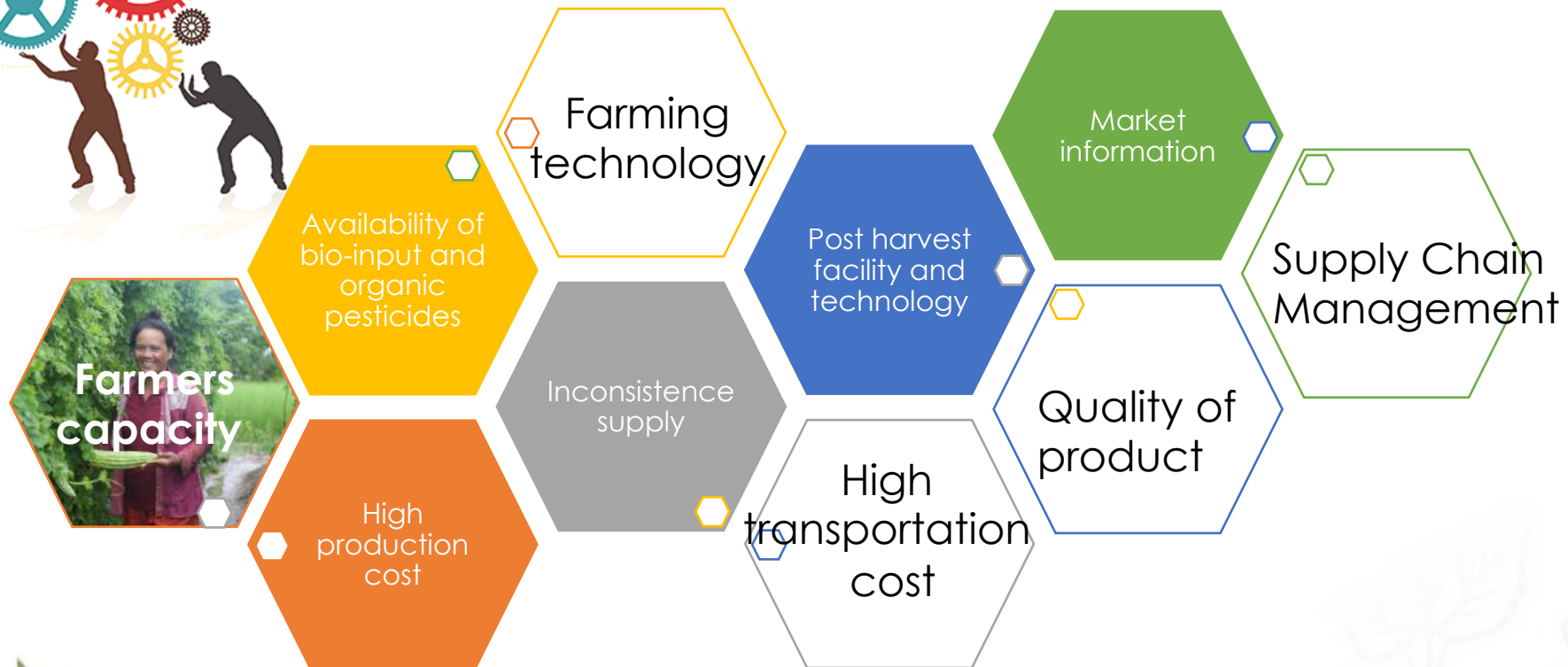
Palm Sap processing to comply with GMP & HACCP practice



Sources of produce



Challenges



Our past & current
partners in promoting
organic and healthy
agriculture.



Implemented by
giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH



SAFT
Standards in the Southeast
Asian Food Trade



DGRV
German Cooperative and
Raiffeisen Confederation

World Vision
CAMBODIA

2. Cooperatives we are working with:



We currently working and cooperating with 6 Agriculture Cooperatives (Grower Groups) on producing vegetable and rice. Contract farming business model development.



សូមអរគុណ





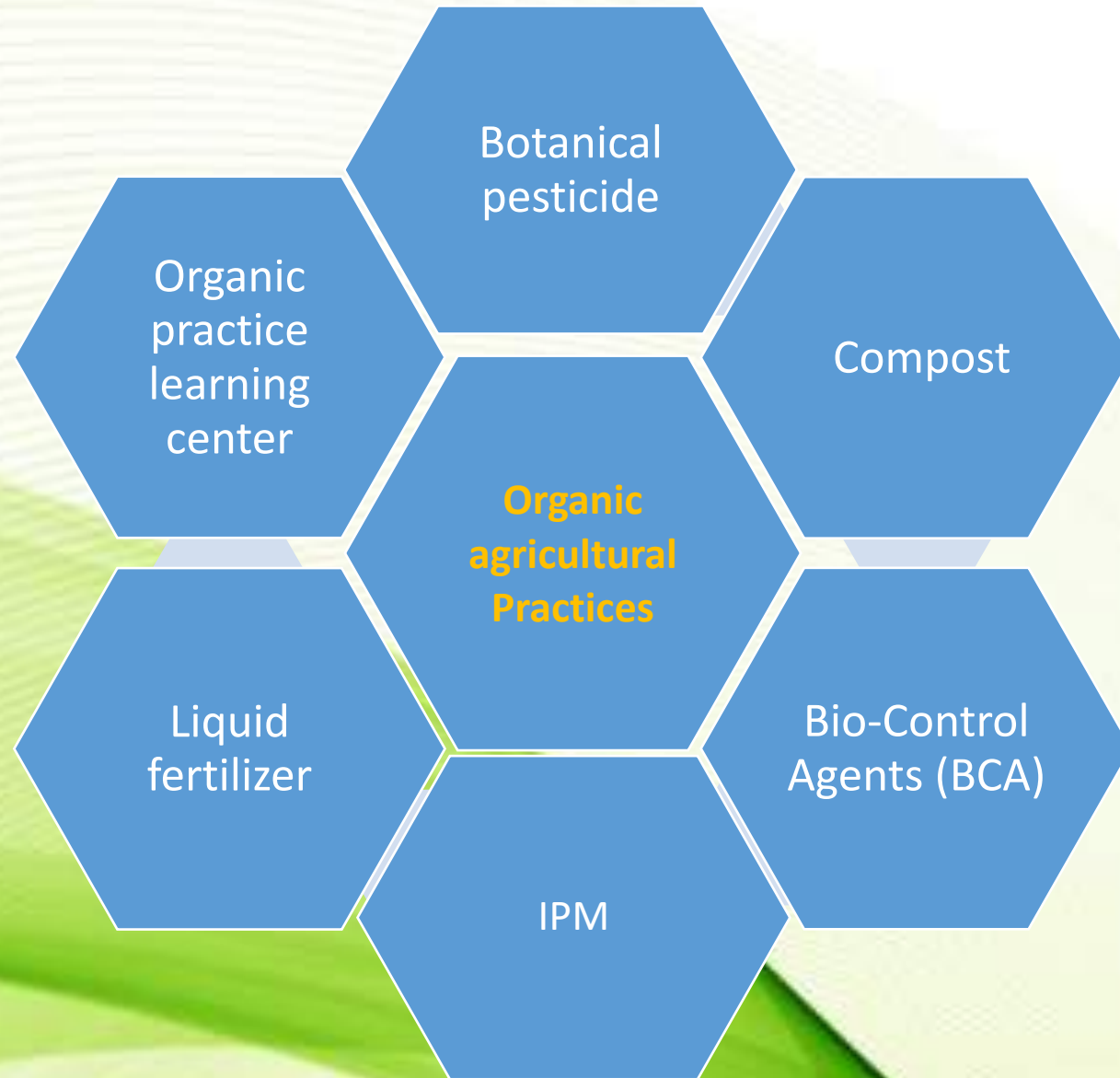
ក្រុមហ៊ុន អេកូ អហ្គ្រី ខូអិលធីឌី
Eco-Agri Co.,Ltd.

#206E1, Street 63, Boeung Keng Kong 1, Phnom Penh, Cambodia.

Tel: 023 975 999

www.eco-agri-center.com

The agricultural practices of the farmers



The bio-pesticides that are uses by farmers.

What is BCA (Bio Control Agent) ?

Definition : The use of living organism or natural product as enemy to manage pest and disease.

- Permitted to apply in organic farming
- Environmental friendly
- Cost effective product
- No Harmful to the natural enemy, animal and human health
- Required to apply in the early infection and to prevention

What are BCA ?

❑ Macro-organisms (Macrobials)

- Parasitoids
- Parasites
- Predators
- Nematodes

❑ Microbial agents (Microbials)

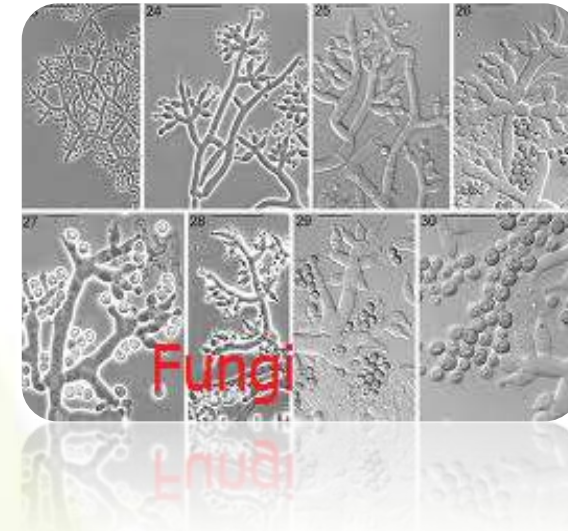
- Viruses (*Baculovirus*)
- Bacteria (*BT*)
- Fungi (*Beauveria*, *Trichoderma*)
- Protozoa (*Thelohania*, *Sarcocystis singaporensis*)

❑ Semiochemicals

- Pheromones,
- Kairomones

❑ Natural Products

- Neem



Bio-fungicide (Trichoderma harzianum)

- Target Diseases : Damping off, Rice blast, Root rot, Anthracnose, Fungus Diseases, etc.
- Mixing Trichoderma 20 gm with 20 L of water
- Not recommend to use with Chemical Pesticide



Rice blast



Damping off



Root Rot



Use as Bio-Compost

- 500 -1000 g of Trichoderma mixed with 1 ton of compost



Use Seed Coating

- Soak seed with water
- Mix 20gm of Trichoderma with 1kg of Seed.
- Keep overnight before sowing.



Corn seed +Trichoderma

Bacillus Subtilis (BS)

Target Diseases : Phytophthoraspp, Aspergillus spp, Pythium spp, Rhizoctonia solani, Fusarium spp, Botrytis cinerea, Sclerotium spp, Anthracnose

Dosage : BS 25-50ml with 20L of water.



Anthracnose



Phytophthora



Beauveria Bassiana

Target Insect : Aphids, white fly, Thrips, Spodoptera , Caterpillars, Mealybugs, Termite.

Dosage : 200gm with 20 L of water



Insect infected by Beauveria Bassiana



Metarhizium anisopliae

Target Insect : Aphids, white fly, Thrips, Weevil, Flea beetle, Bugs, BPH etc.

Dosage : 50-100 gm with 20L of water.



Insect infected by Metarhizium

BPH

Whiteflies

Bug

Bio- Insecticide

Bacillus Thuringiensis Kurstaki (BT)

- Target insect : Lepidotera, helioverpa, Plutella xylostella, DBM, carterpila ect.
- Dosage : BT 40-60gm with 20L of water



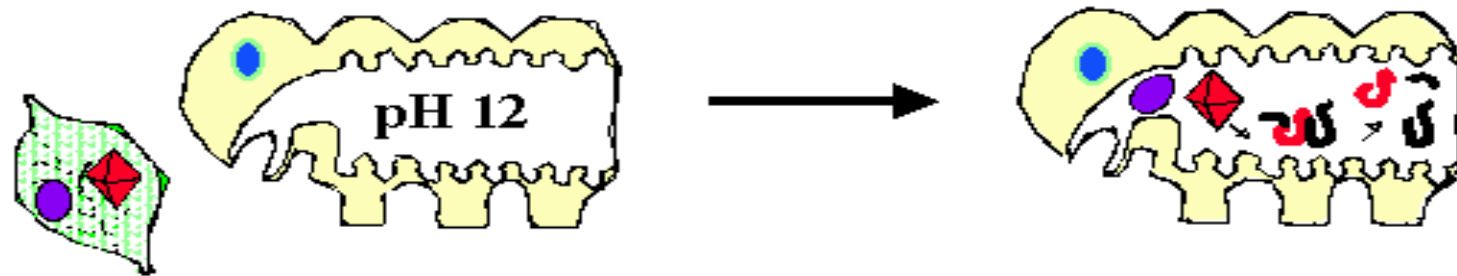
After spray BT 3-4 hour



After spray BT 2 day



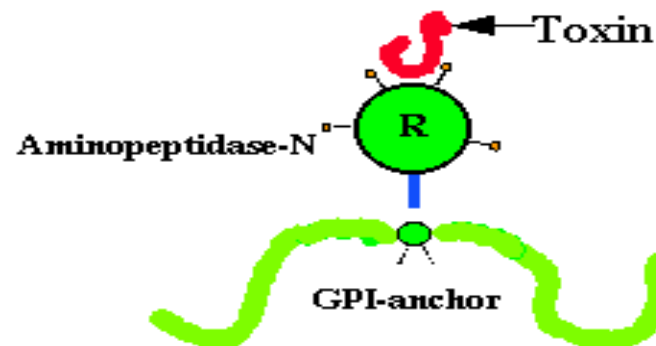
MECHANISM OF TOXIN ACTION



1 Crystal and spore eaten by insect

2

Crystal dissolves and protoxin is processed to smaller 'active' form by gut enzymes



3 Activated toxin binds to receptor (R) in the midgut epithelium

4

Toxin inserts into the membrane making it permeable to ions and small molecules so that the cell bursts

PHEROMONE AND TRAP



Pheromone Lure of
 Diamondback moth

pheromone Lure
 of american
 bollworm

pheromone Lure
 of brinjal shoot &
 fruit borer

pheromone Lure
 of Tobacco
 caterpillar

pheromone Lure
 of Melon Fly

pheromone Lure
 of Rice yellow
 stem borer



Insecticide -BIO-KING

- Extracted Plant Based ADJUVANT
- Target pest: Whiteflies, Thrips, Nematodes, mites, Aphid etc.
- Mix Bio-king 5ml with 10L of water



Whiteflies



Aphid



Thrips



The background features abstract, flowing, wavy shapes in shades of light green and yellow, creating a sense of movement and depth. The text is centered over this background.

Thank you !