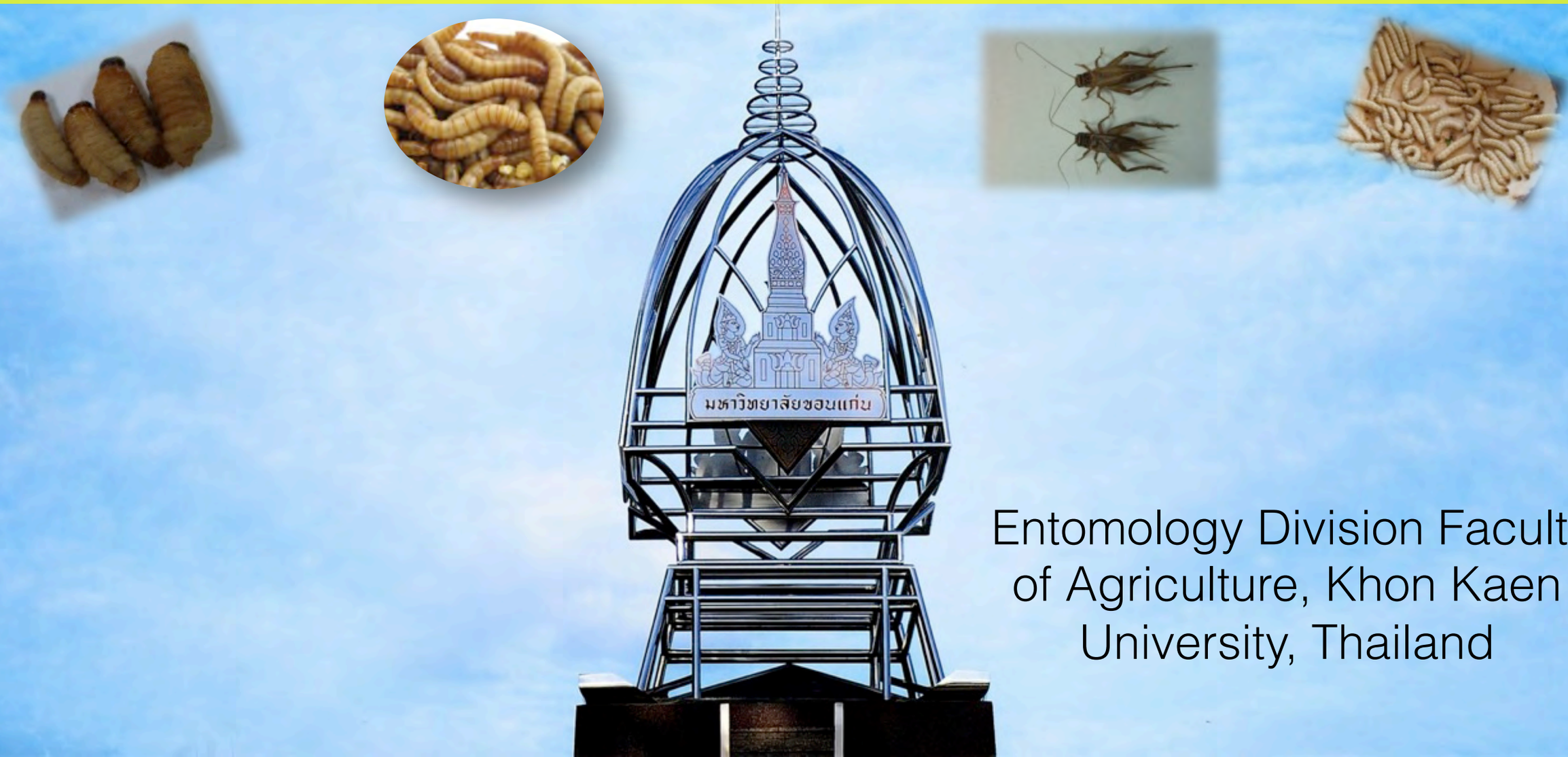
Farming insects for food in Thailand

:Yupa Hanboonsong



Entomology Division Faculty
of Agriculture, Khon Kaen
University, Thailand

Who eats insects?

Entomophagy = The art and culture of eating insects, a tradition at least 4000 years old

At least 115 nations eat insects in all continents (except Antarctica)

Europe


bugs triobolo's
bugs
bugs triobolo's
bugs


roduct information
Pizza
Margherita
450 gram
Ingredients: wheat flour, 1
insect protein, tomato
ugar, salt, spices,


oduct information
Meat croque
Deep freeze
280 gram e / 4
dients: 15% Locust meat, wa
heat flour, sugar, salt, e
onion, gelatin


Product information
Spinach quiche
310 gram e
Ingredients: water, free-range eggs, wh
12% spinach, 11% blue cheese (milk,
rennet, preservatives, flavourings, ac
mealworm paste, modified starch
salt, yeast, flavourings, maltodext
ration: the quiche can

USA & Canada


Larvets
ORIGINAL WORM SNAX
Larvets
ORIGINAL WORM SNAX


FRIED GRASSH


Monica Martinez
INSECT CHEF


Made in
USA

Mexico

Africa

mopane worm

China

Japan

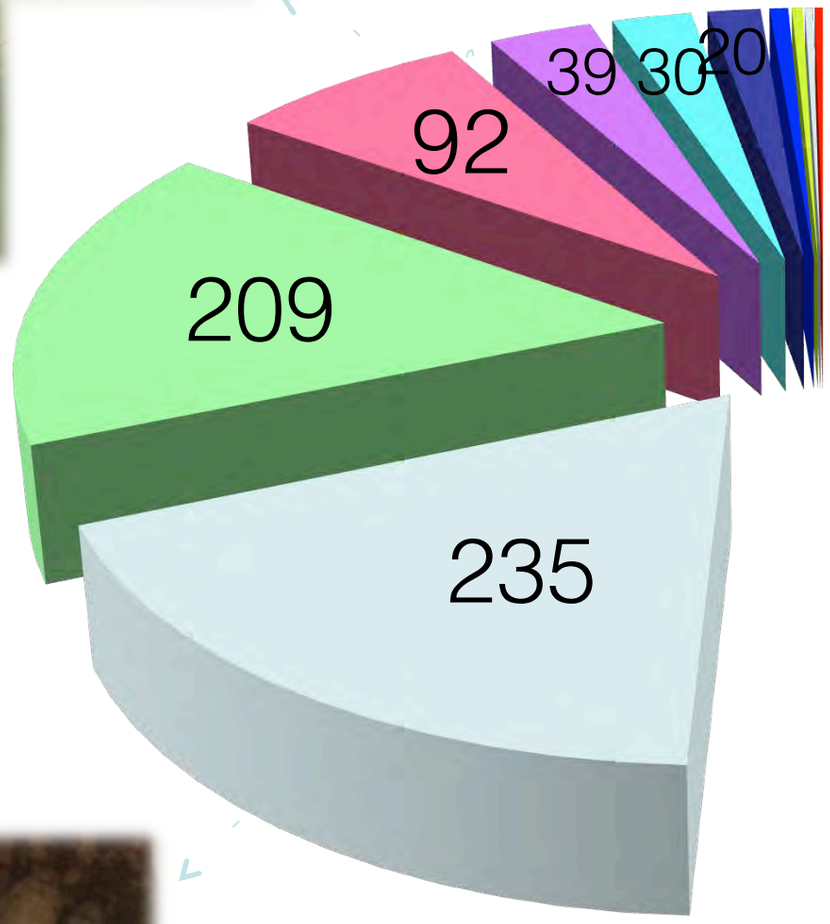
http://tonymcnicol.com/2008/10/31/creepy-crawly-cuisine/

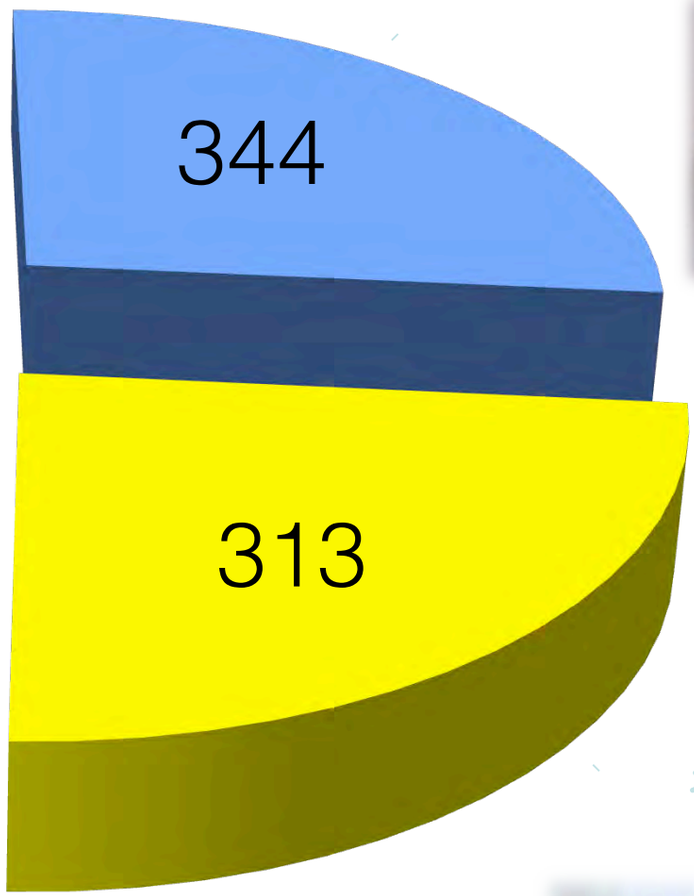
Thailand

What kind of insects are eaten?

Approximately 1,681 species of insects in at least 14 Orders are eaten around the world (Ramos –Elorduy, 2005)

other species





Species of edible insects in the world

Modified from: Ramos-Elorduy (1998)

Why should we eats insects?

Tasty

- **Excellent quality food with proteins and micronutrients**

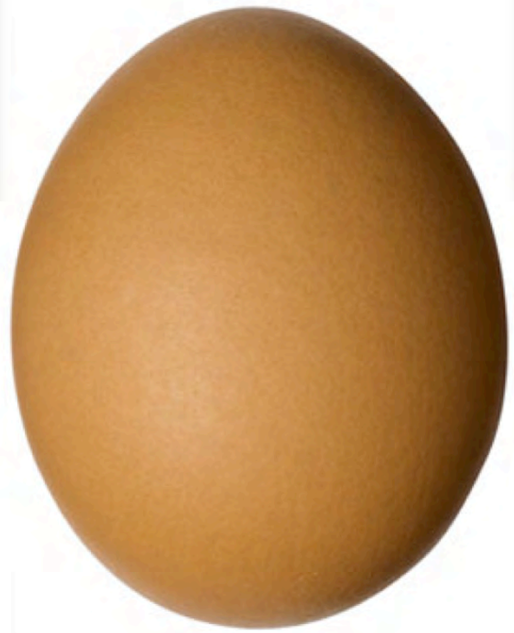
- **Gram for Gram... cricket can be more nutritious than an equal quantity of beef or pork**

Nutritional value of some insects compared to chicken (100 g)

	Cricket	Palm weevil	Chicken
Energy (kcal)	121.5	561	138.5
Protein (g)	12.9	6.69	15.24
Lipid (g)	24.32	no data	4.14
Iron (mg)	no data	13.1	1.33
Thiamine (mg)	no data	3.02	0.06
Riboflavin (mg)	no data	2.24	0.37
Niacin (mg)	no data	7.78	5.03

The same amount of proteins

Cricket 100 g.



1 chicken egg

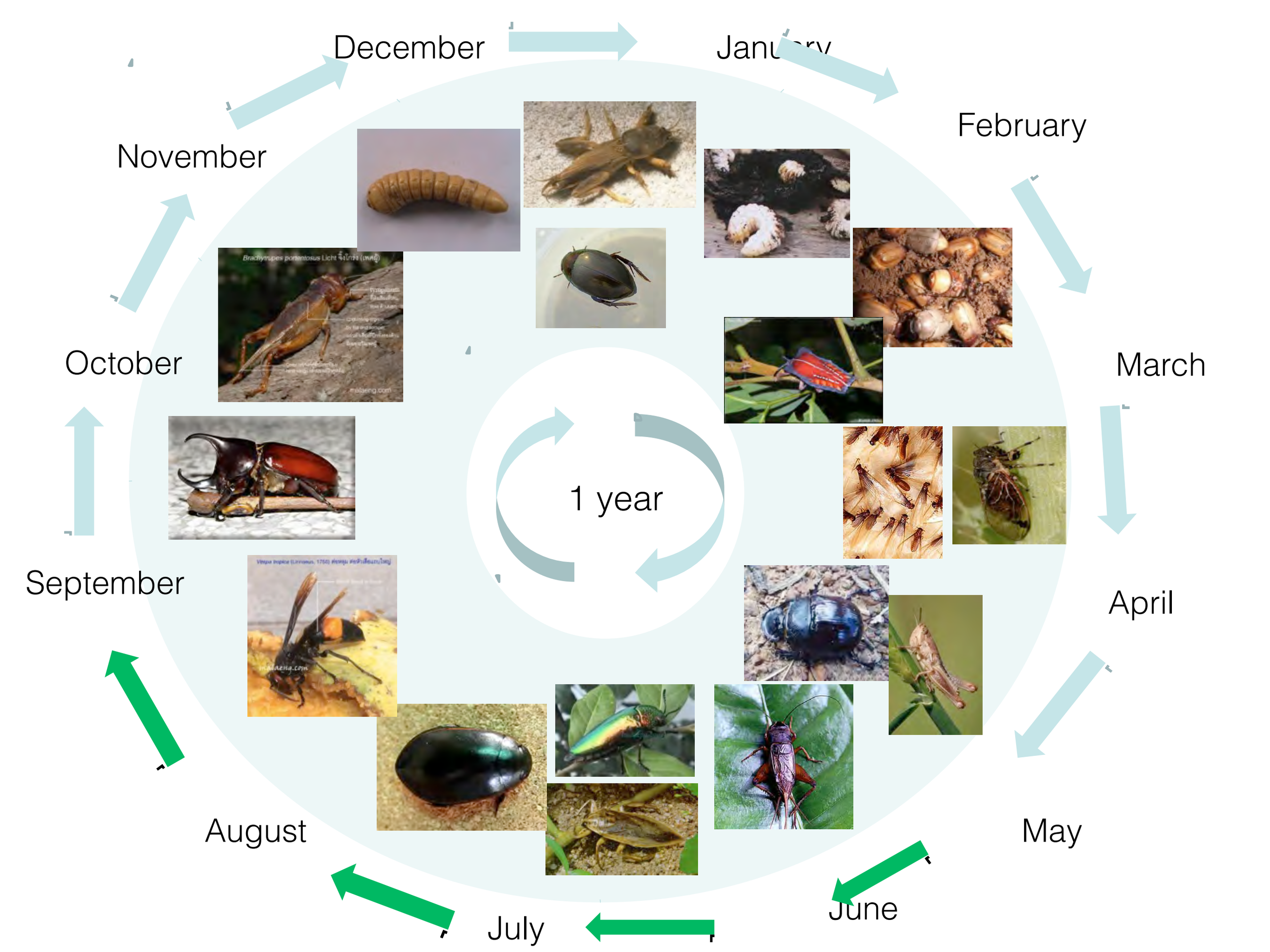
The same amount of calories

Grasshopper 1 kg.

Bread and sausage

When can we find insects?

Different edible species are available all year


December
January
February
March
April
May
June
July
August
September
October
November
1 year

Where to find insects?

Insects can be cultured or collected

-Insect farming

-Wild harvesting

Collecting Bamboo worm (*Omphisa Fuscidentalis Hampson*)

and Wasp (*Vespula Vulgaris?)*

Collecting Stink bug, Common skimmer and Weaver ant

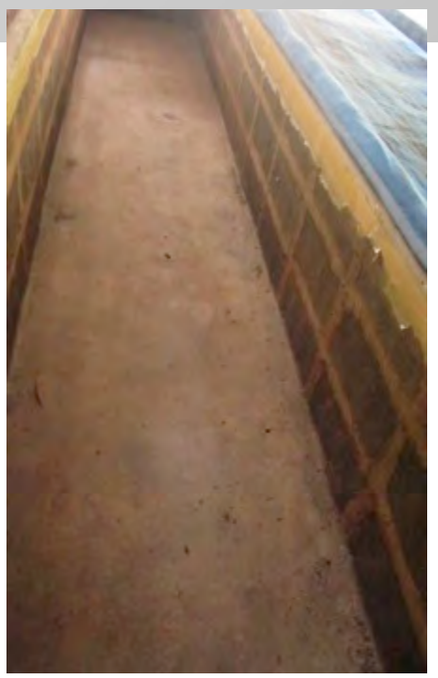
Farming of insect for food

- Developed from an economic crisis
- Two species farmed
  : cricket & palm weevil
- ıly 1% of food species farmed

House cricket farm

Palm weevil farm

Breeding cricket



Prepare for breeding

Breeding cricket (continue)

Feeding

Cricket egg collecting

Breeding cricket (continue)

&

Harvesting at 40-50 days

Processing cricket for the market

wash

Boil in hot water

Cricket product

Breeding palm weevil

Preparation of Food Feeding

Palm stalks

Machine chopping

Palm pieces

Sago palm

Hand chopping

Palm pieces

Breeding palm weevil

Breeding Method

leave for 20-30 days

pupae inside the cocoon for 10-15 days

Income & cost production

Farmed insects	Duration (days)	Income/ harvesting time(US$)	Cost production (%)
House cricket	45	2,000-5,000	50
Palm weevil	37-45	3,500-4,000	10

Market pathway

Village markets:
unprocessed

Street vendors :
processed /cooked

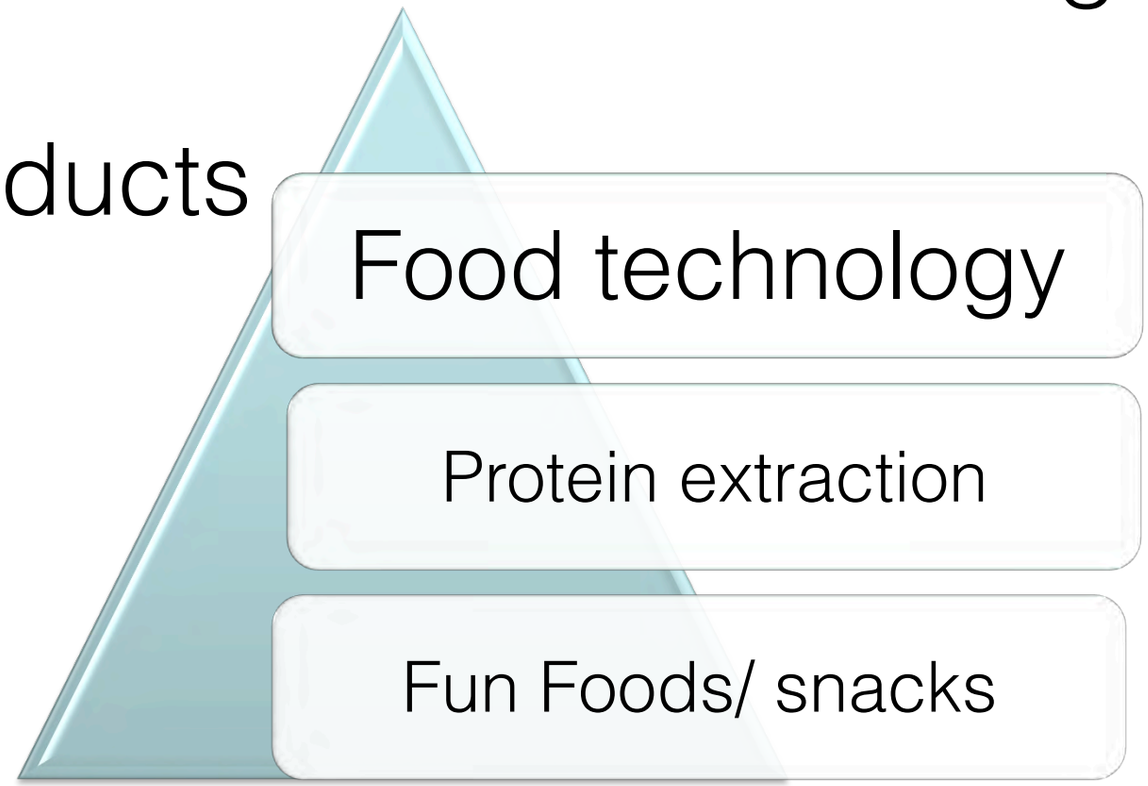
Supermarket:
Frozen packets, microwave ready

Village markets

Supermarkets

Future vision

- Potential as a new protein source
- Best practice in intensive farming
- New products



- Food safety practice

Thank you for your attention