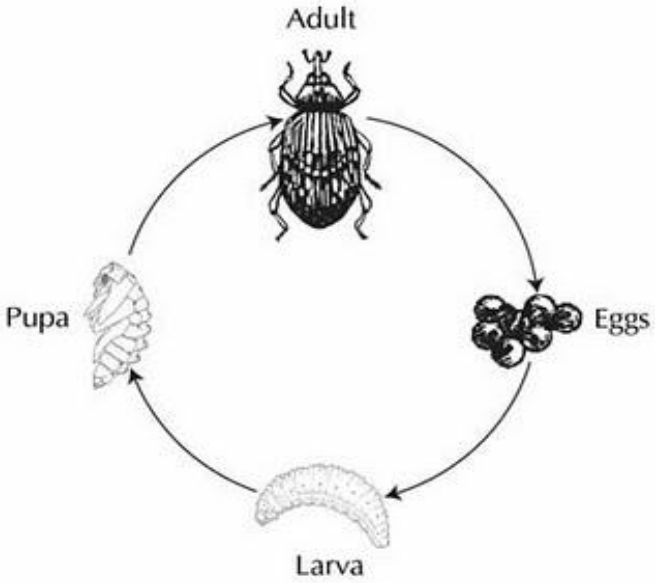
Marian Peters




2x more & 2x less

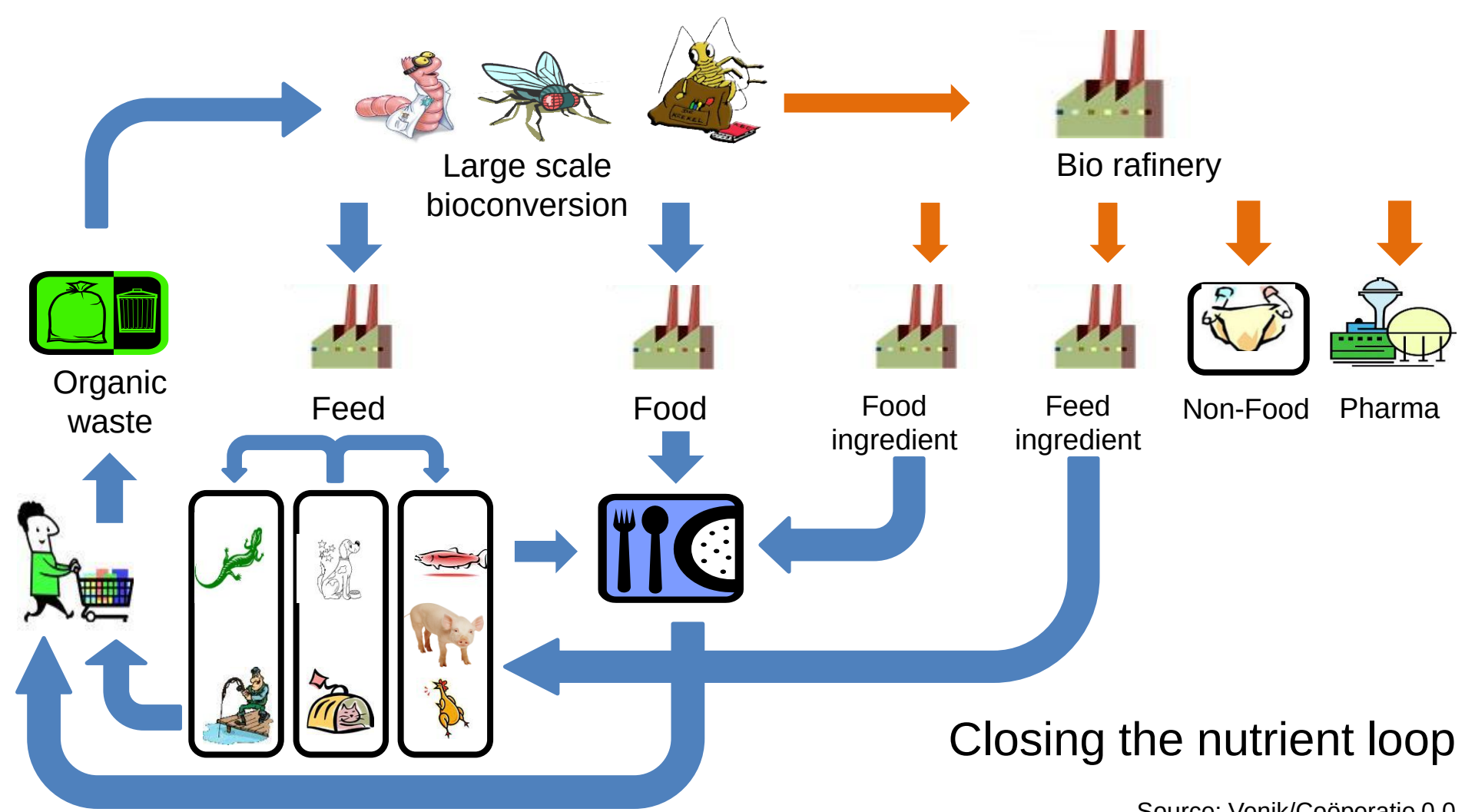


Short cycled mini-lifestock: harvested from nature or farmed?

Feed or food?

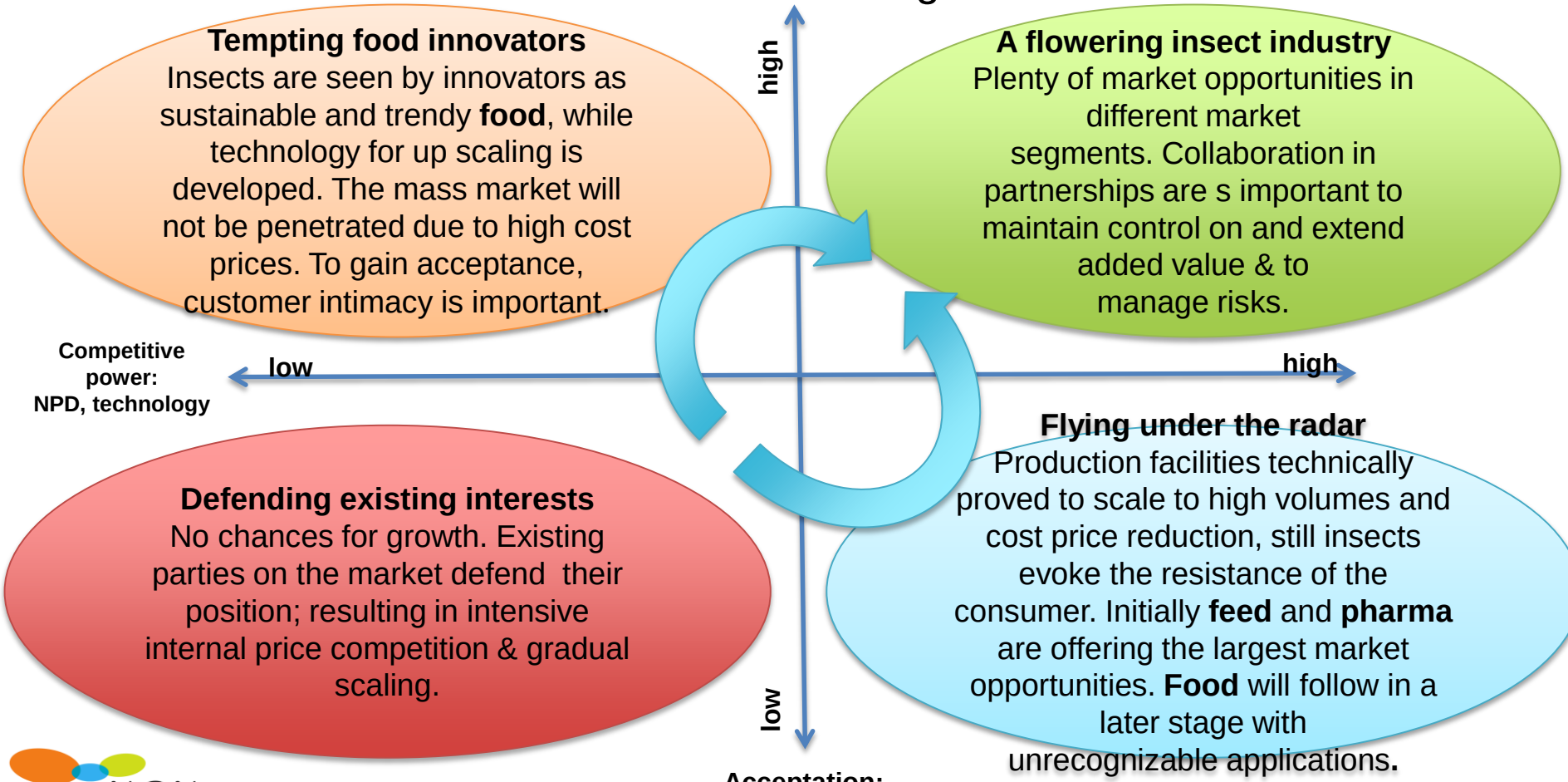
Conversions:

10 Kg feed:	3	Kg	pig
	5	Kg	chicken
	8	Kg	cricket



Source: Venik/Coöperatie 0.0

2 routes to sustainable growth



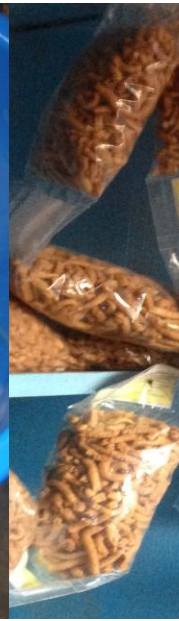
Source: Venik – ZLTO (2011)

controlled production environment









Seasonal harvesting vs. farming

Flying Food

FLYING FOOD

Ministry of Foreign Affairs of the Netherlands

TNO innovation for life

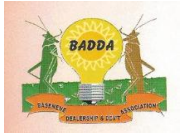
ICCO COOPERATION

jagran

NGN new generation nutrition

BoP INNOVATION CENTER

VENIK vereniging nederlandse insecten kwekers



NOSTIMOS B.V. Insectenkwekerij

Ruig Wild en Gevogelte SPECIALITEITEN

ADS Nyanza

kreca

has university of applied sciences

Mixa Foods & Beverages

Flying Food

- Commercial rearing and processing of crickets in Kenya and Uganda
- Increase accessibility of nutritious quality food at local markets
- Creating employment and income generation
- Sustainable value chain development
- Model for up-scaling and replication

Envisioned results in 2017, end of project

1. Established sustainable inclusive value chain on crickets (products) and develop a model for replication.
2. 4.000 farmers in Kenya and in Uganda have sustainably increased their income (equivalent to 1 000 €/year) by producing and selling 55.000kg * 12 months fresh and high quality crickets for consumption per year.
3. Established processing companies
4. Well established and increasing demand for cricket and derived products in Kenya and Uganda, including 1.000.000 BoP consumers.

State of affairs Flying Food

1. Start - Idea and Dutch consortium Q4 2010, led by TNO
2. Market study Q2 2011, with WUR and Venik
3. 3 working visits in 2011 - 2012: international consortium + business case with investment of Kramer Foundation, Sida, TNO and ICCO
4. Start of rearing at Bondo University Q3 2012
6. Project granted May 2013, Min of Foreign Affairs accepted 2 M€, search for additional 400 k€
7. June 2013: 20 farmers rearing Kenya
8. October 2013: training on rearing to 15 farmers Uganda

State of affairs rearing

Rearing in shelter to keep temperature constant and to protect crickets for lizards

Crickets are held in buckets and given water and food every day. Harvesting after 2-3 months.

2 trainers trained
25 farmers rearing crickets in Kenya
2 farmers rearing crickets in Uganda
21 farmers trained in Uganda



Scaling strategy within the project

	Farmers	KGs crickets produced per month (wet) by all farmers	Number of processors	Number of shops	Consumers who eat cricket derived products per month (incl. farmers)
2012	5	69	0	0	1.291
2013	25	346	1	1	6.454
2014	250	3.460	2	6	64.537
2015	1000	13.839	2	23	258.148
2016	4000	55.356	4	93	1.032.593
2017	4000	55.356	4	93	1.032.593

* Numbers are based on business models and business case of the envisioned value chain. Models and ratio's will be tested with field tests in 2013

Insects as food

What is the difference?

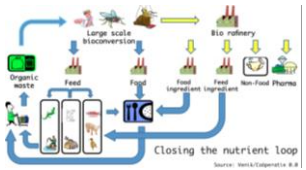
Traditional foods - food design

gastronomy

Future development

challenges


MAGMEAL
50kg NETT
Chicken
PIZZA


Large scale bioconversion
Bio refinery
Organic waste
Feed
Food
Food Ingredient
Feed Ingredient
Non-Food
Pharma
Closing the nutrient loop

Marktsituation

- Current market
  - Niche markets: pet-food
  - Products: whole insects (alive or dried)
  - High prices per kilo
  - Small farms

- Future market
  - Bulk markets (feed, food)
  - Products: composed, insects as ingredient
  - Low prices per kilo
  - Industrial production

Vicious circle

Products

Turn over

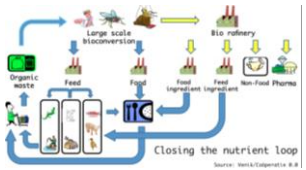
Cost price

Legislation

Market demand

investments

scaling



Venik

INSECT CENTRE

INSECTS
to feed the world

Collaboration

International Producers Insects for Feed & Food

What you feed the insects	Product made from insects	Target market of product	Permitted?	Permission / Restriction related to feeding het insect	Permission / Restriction related to marketing the product	Minimum requirements to start business	Proposed strategy for allowance in case of not permitted
100% vegetable and/or including eggs and dairy	**Life insects**	Petfood	Yes			Admission based on article 24(1) sub a, Reg. 1069/2009	
	Derived insect fat	Petfood, Aquaculture, Livestock (excluding ruminants)	Yes	100% purely vegetable doesn't fall onder restrictions mentioned in article 7, R 999/2001 Eggs and dairy are allowed based on Chapter II, article 10 R 142/2011	For pets: Article 35, R 1069/2009 For livestock including Aquaculture: Article 31, R 1069/2009	Admission based on article 24(1) sub a, Reg. 1069/2009	
	Hydrolized insect PAP	Petfood, Aquaculture, Livestock (excluding ruminants)	Yes	100% purely vegetable doesn't fall onder restrictions mentioned in article 7, R 999/2001 Eggs and dairy are allowed based on Chapter II, article 10 R 142/2011	For pets: Article 35, R 1069/2009 For livestock including Aquaculture: Annex IV, chapter II, point b,i, R 999/2001	Admission based on article 24(1) sub a, Reg. 1069/2009	
	Non-hydrolized insect PAP	Petfood	Yes	100% purely vegetable doesn't fall onder restrictions mentioned in article 7, R 999/2001 Eggs and dairy are allowed based on Chapter II, article 10 R 142/2011	Article 35, R 1069/2009	Admission based on article 24(1) sub a, Reg. 1069/2009	
		Aquaculture	No	100% purely vegetable doesn't fall onder restrictions mentioned in article 7, R 999/2001 Eggs and dairy are allowed based on Chapter II, article 10 R 142/2011	Allowed under point c, chapter II, annex IV, R 999/2001 Under regulation 56/2013 insect PAPs are allowed as a product in feed for aquaculture when processed by registred slaughterhouse. This is technically not possible for insects.	Admission based on article 24(1) sub a, Reg. 1069/2009 Registration as slaughterhouse for processing of larvae based on Annex IV, R 999/2001	Currently in discussion with DG Sanco and member states for release. Collaborative strategy to be detailed.
		Livestock (excluding ruminants)	No	No	Yes, under regulation 56/2013 insect PAPs are allowed as a product, yet in article XXX, there is mention of the origin of the PAP being a certified slaugherhouse, which is technically impossible under ruling XXX/XXX in article XXX		Currently in discussion with DG Sanco and member states for release. Collaborative strategy to be detailed.
100% vegetable and/or including eggs and dairy and meat and fish	**Derived products like protein meal and fats**	Petfood, Aquaculture, Livestock (excluding ruminants)	No	Falls under restriction article 7, R 999/2001			Develop general roadmap on risk assessment in collaboration with DG Sanco and EFSA
	Hydrolized insect PAP	Petfood, Aquaculture, Livestock (excluding ruminants)	No	Falls under restriction article 7, R 999/2001			Develop risk analysis strategy to prove safety of hydrolized proteins derived from insects fed with these products
All organic by-products and waste streams excluding manure, faeces and categorized material as prohibited to be fed to animals	**Life insects**	Life bait, circus animals and other markets mentioned in article XXX/XXX	Yes				
Manure	**Derived products**	Biodiesel, energy, Soil nutrients		Cannot be fed to animals in general under ruling 787/2003			Define process of growth of insects on manure as seperate business process. NON-FOOD "Only for purpose of manure processing with use of insects in energy and/or soil nutrients"

Thank you for your attention

Bug nuggets:
Bon appetite!