



*BugBox Ltd.*

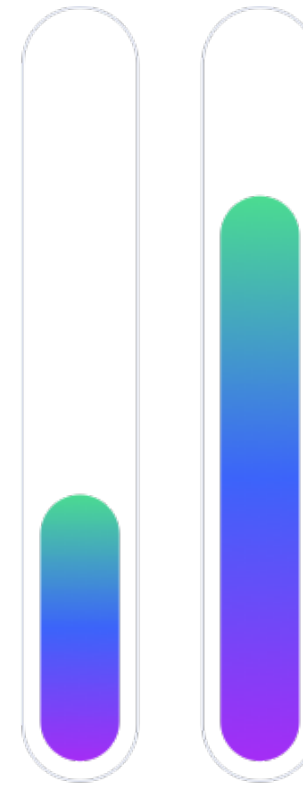
# Edible Insects Mass Rearing Technology and Software

Presentation



# Global market demand for meat is growing

Urbanization, population growth and a rising middle class lead to **greater meat consumption**



GROWTH OVER  
**69%** ▲

Required increase in food calories to feed **9.6 billion people by 2050**

Source [2]

## The edible insects market up **to 70%**

Achieving more than **\$1,2 billion by 2022**

The highest growth will come from the sale of coated edible insects - **85%**

# Current farming methods are not standardised, not effective, not safe for a human consumption

## Thailand method of farming

(mostly used worldwide)



annual production capacity of one farm - 375 kg/av



Key problem – **too much manual labor!**

# Species farmed in artificial conditions for feed & food

## for Feed



**Mealworm**  
*Tenebrio molitor*



**Black Soldier Fly**  
*Hermetia illucens*

## for Food



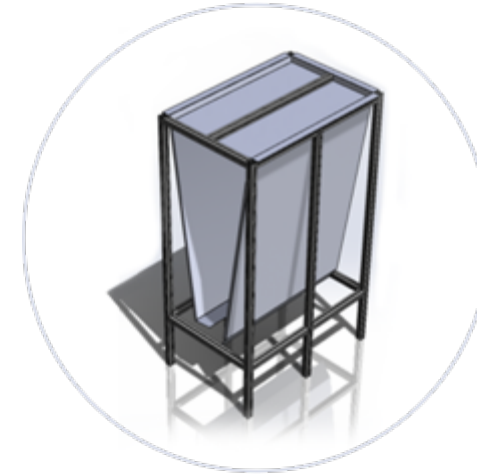
**Crickets**  
*Acheta domesticus*  
and other crickets



**Grasshoppers**  
*Ruspolia differens* and  
other grasshoppers

species BugBox technology is focusing

# *BugBox* innovative solution – scalable mass-rearing “REACTOR”



## Autonomous & closed environment allows to control & standardize:

- watering
- feeding
- cleaning
- lights
- temperature/moisture system
- eggs laying & hatchery system
- extinction of insects
- transport to production
- weight
- up to 500 000 insects in one REACTOR (10m<sup>3</sup>)
- production - 1,4T/annually (DW\*)
- suitable for different (*Orthoptera*) species
- easy cleaning, sterile
- durable
- no side effects to insects
- cost effective solution
- **one FTE can operate up to 100 reactors**

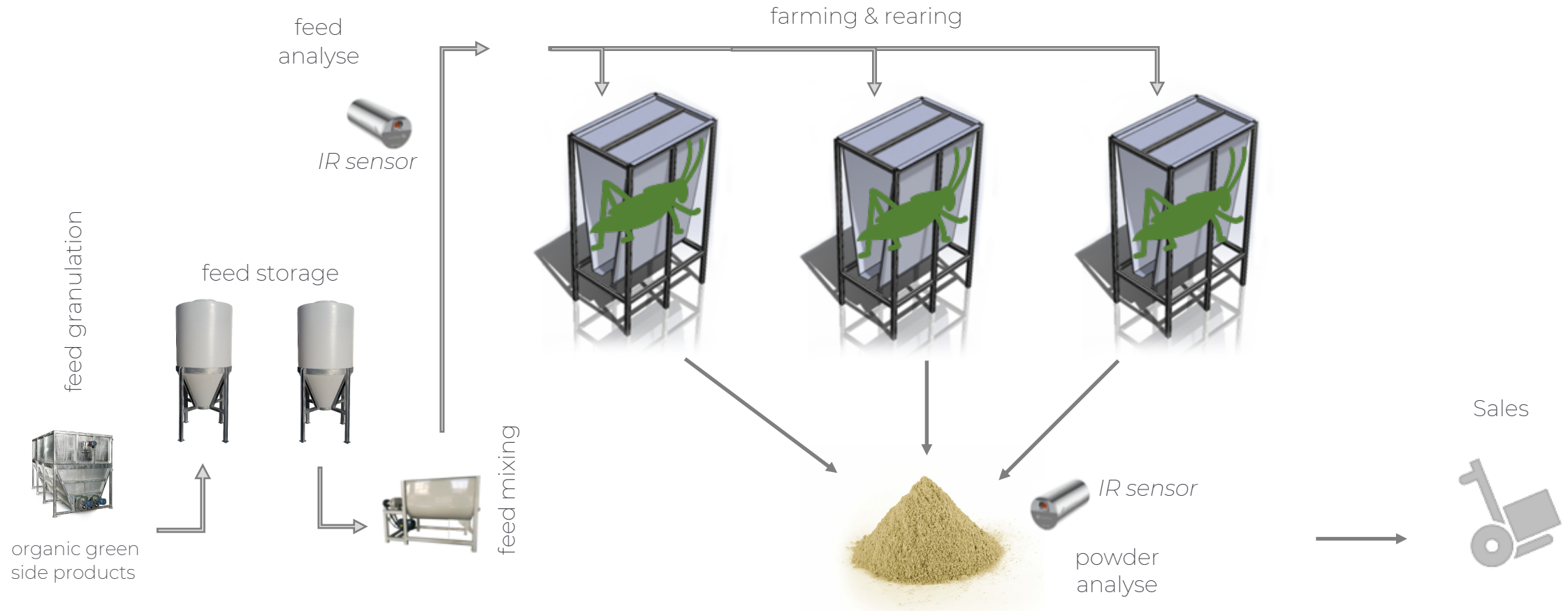
## Our own software runs all automated systems as

- feed for insects
- every rearing REACTOR
- hatchery
- entire rearing farm
- production unit

- **it's easy to scale** - up to 1000 reactors
- **software secures IP for technology**

\* wet weight

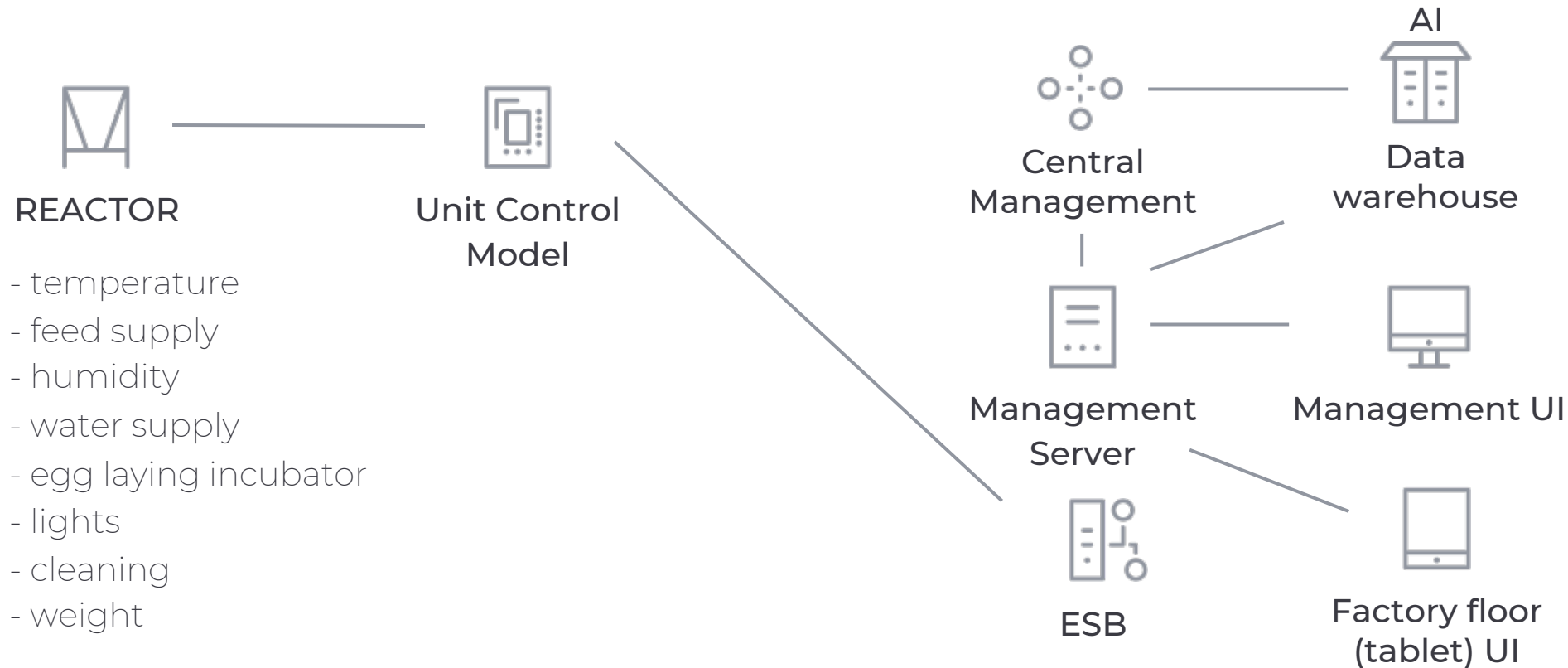
# We control all processes




# We measure everything!


fully controlled process by own software

Continuous data analyse by AI  
secures most efficient production





# Dashboard

Search | Notifications | Saul Goodman 

### Main Menu

- Dashboard
- Start farming
- Factory
- Incubator
- Reports

### Settings

- Profile
- Settings
- Logout

Start farming a new batch. Here can be some more copy. [Add a new batch](#)

### Reactors [View All](#)

| Reactor   | Species             | Date       | Time      | Temp  | Humidity | Weight  | Progress                                    | Status         |
|-----------|---------------------|------------|-----------|-------|----------|---------|---|----------------|
| REACTOR 1 | Gryllus bimaculatus | 20.02.2020 | 05:45 p.m | +28°C | 41%      | 52,4 kg | <div><div style="width: 75%;"></div></div>  | 75% completed  |
| REACTOR 2 | Gryllus bimaculatus | 20.02.2020 | 05:45 p.m | +28°C | 41%      | 52,4 kg | <div><div style="width: 45%;"></div></div>  | 45% completed  |
| REACTOR 3 | Gryllus bimaculatus | 20.02.2020 | 05:45 p.m | +28°C | 41%      | 52,4 kg | <div><div style="width: 100%;"></div></div> | 100% completed |
| REACTOR 4 | Gryllus bimaculatus | 20.02.2020 | 05:45 p.m | +28°C | 41%      | 52,4 kg | <div><div style="width: 22%;"></div></div>  | 22% completed  |
| REACTOR 5 | Gryllus bimaculatus | 20.02.2020 | 05:45 p.m | +28°C | 41%      | 52,4 kg | <div><div style="width: 100%;"></div></div> | 100% completed |
| REACTOR 6 | Gryllus bimaculatus | 20.02.2020 | 05:45 p.m | +28°C | 41%      | 52,4 kg | <div><div style="width: 22%;"></div></div>  | 22% completed  |





# Our technology creates new insect industry standards

## Business model

we sell or lease:

- fully automated edible insect mass-rearing & production factory

we sell:

- fully automated mass-rearing “REACTOR” s

we charge monthly fee\* for:

- software use
- maintenance

we collect all the data from sold factories

\* fee is avg €100/per reactor

# Winner of *ClimateLaunchpad* Estonian competition 2016





## Core team

**Erlend** Founder  
CEO

**Heikki** Co-founder,  
entomologist,  
Prof. of East Finland  
University, Finland

**Philip** biologist, East-African  
business development  
Prof. of Makerere  
University, Uganda

**Tõnis** engineer,  
“REACTOR” & production  
line development, factory  
automatization

**Siim** IT architect,  
software development for  
automatization

**Kättrin** nutritionist, CFFT expert,  
B2C product development

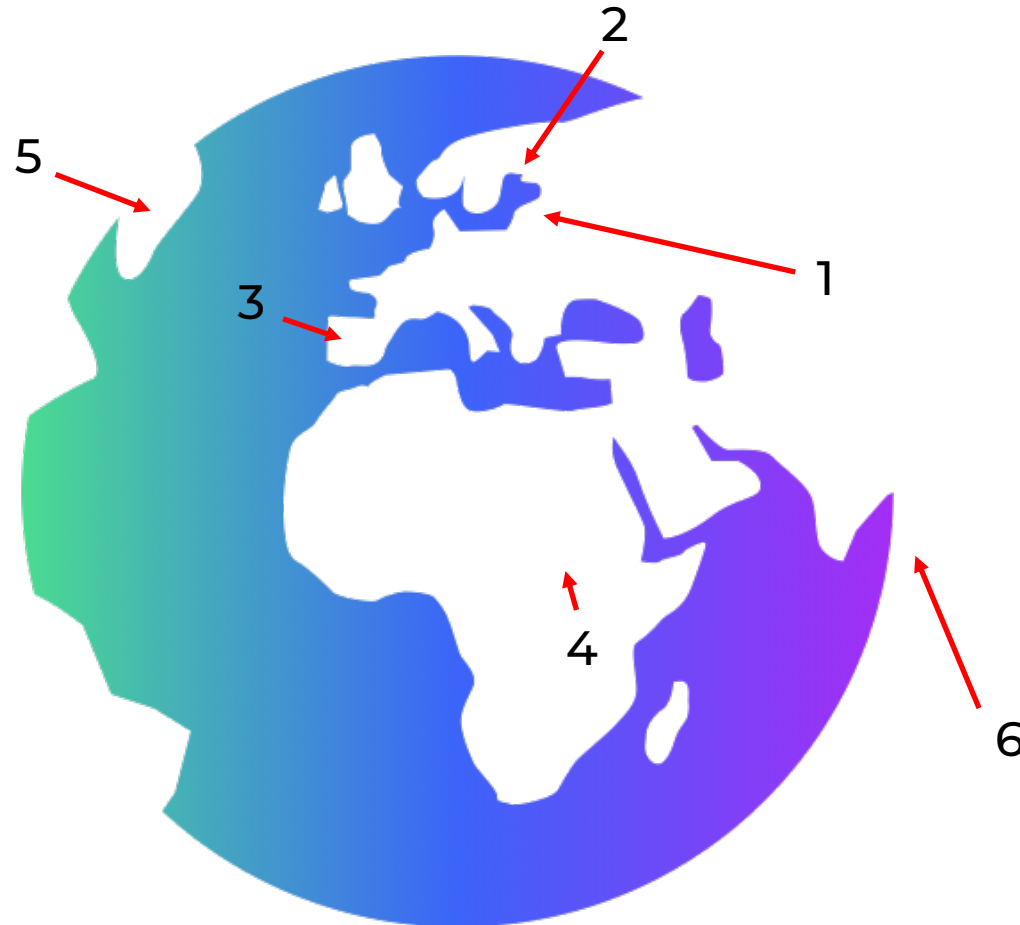


## Investors & Advisors

**Paulo  
Andrez** former president of EBAN  
(European Business Angel Network)

**Ivar  
Siimar** former president of EstBAN  
(Estonian Business Angel Network)

## Our current R&D locations



- 1. ESTONIA  
R&D center, technology solutions, software development
- 2. FINLAND  
entomology research & test center
- 3. PORTUGAL  
first experimental rearing plant & factory from 2021
- 4. UGANDA  
entomology research & tests field laboratory,
- 5. CANADA  
cooperation partner for B2C products
- 6. INDONESIA  
cooperation partner for a farming

Contact

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