

Insects for Feed, Food and Pharma

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Team



Walter Jansen PhD, MSc
 > Animal husbandry
 > Insurances
 > Claim settlement
 > Arbitration



Tara van Beelen BSc
 > Insects
 > Insurances
 > Domestic animals



Natasja Gianotten MSc
 > Immunology
 > Ethology
 > Non-Production animals



Annette Warmerdam
 > Insurances
 > Office Management



Marieke de Wijs BSc
 > Multifunctional agriculture
 > Animal nutrition



Eva Mes BSc
 > Multifunctional agriculture
 > Education
 > Animal welfare



Susanne Driessen MSc
 > Biology
 > Education
 > (Government) policy

Over 18 years experience



Recreation/ sports



Education



Nature

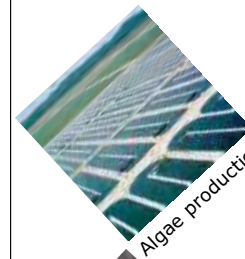


Production



Companion

Over 18 years experience



Algae production



Medicine production



Roughage




Congress organization



Milking machines



Negligence

Increasing protein need 

Increasing world population

6.000.000.000 -> 9.000.000.000

+

Increasing welfare

25 kg meat pp/yr -> 80 kg meat pp/yr

=

Meat consumption in 2050
450 billion kilo meat per year

2 times higher than the current level!

(Source FAO)

Solution? More.... 



Solution? More.... 



Solution? More.... 



Solution? More....

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Solution? More....

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Solution? More....

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Solution? More....

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Solution? More....

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Solution? More....

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Solution? More....

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Risks!

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Risks!

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Risks!

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Competition!

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Competition!

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Competition!

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Competition!

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Competition!


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Conclusion

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Potential for growth of
regular livestock
production is limited

Increasing protein need 

Increasing world population

6.000.000.000 -> 9.000.000.000

+

Increasing welfare


25 kg meat pp/yr -> 80 kg meat pp/yr

=

Meat consumption in 2050
450 billion kilo meat per year

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One of the solutions! 



One of the solutions! 



One of the solutions! 



One of the solutions!

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One of the solutions!

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INSECTS!

Why insects?!

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Insects convert feedstuff to food efficiently

Species	FCR
Cattle	6.5 – 7.9
Sheep	6.3 – 7.1
Swine	3.1 – 3.9
Turkeys	2.5 – 3.2
Broilers	1.8 – 2.2
INSECTS	1.1 – 1.5

Why insects?!

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Consequential that insects convert feedstuff efficiently

- Less area needed for meat production
- Less manure per kg meat
- Less ammonia
- Less greenhouse gases

Why consuming insects?

Result due to the short period from birth to market:

1 COW		INSECT	
Female weight	650 kg	Weight insect (162.500)	650 kg
Yield after 3 years	650 kg	Yield after 3 years	1.800.000 kg

Why insects?!

No competition



Why insects?

No competition



Why insects?

No competition



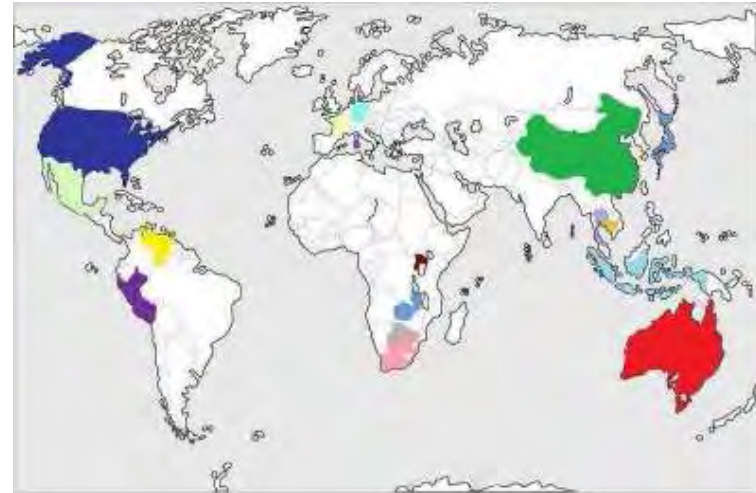
Why insects?!

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Why insects?!

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Why insects?!

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Excellent quality

- Taste
- Protein
- Amino acid
- Fat
- Fatty acids
- Vitamins
- Minerals



Why Insects?!

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Huge future market

In comparison with today we need in 2050
225.000.000.000 kg meat
Extra worldwide

INSECTS 10%?
€ 45.000.000.000

Why Insects?!

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Many opportunities



Nail polish



Fibers



Water clearance



Medicine

Yet to develop

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- Increased **mass production**- year round availability of products;
- Increased **consumption**;
- More contract and integrated production. **Larger integrators**.
- Increased **labor-saving device**.
- **Sustainable** agriculture.
- Increased **food safety**.
- Increased **quality** of products.
- Increased **biotechnology**.
- Increased attention to insect **behavior and welfare**.

Dutch gouvernement

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- **Supro 2**
Scientific knowledge development
- **Subsidy Jagran BV**
Feasibility study, Food and Nutrition Delta
- **Network meeting October 22th**
Blue Ocean Strategy, chain development
- **“Regeling praktijknetwerken”**
Knowledge development trough knowledge exchange

Already involved

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Together

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Questions???

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Tara van Beelen BSc (project manager insects) is present today and tomorrow.