

Drie parels

Topsector Agro & Food

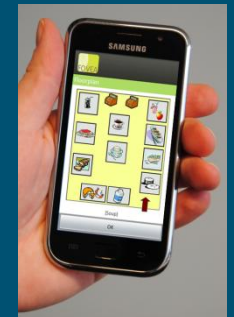
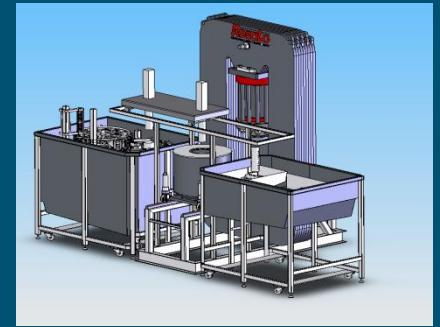
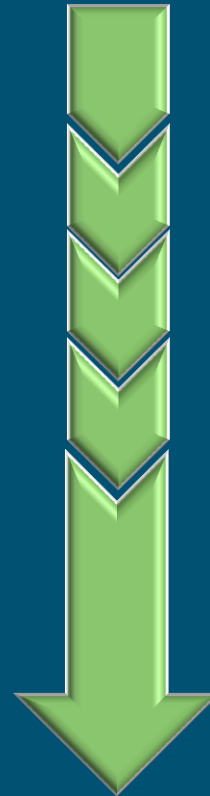
Charon Zondervan

14 juni 2011, Den Haag



Overzicht

- Primaire productie
- Voedselverwerking
- Markt



Genome wide breeding



- Projectleider: Roel Veerkamp
- KB-04-002-019
- Partners: Luik, Teagasc, SLU, IPG, Hendrix Genetics, INRA, IRTA, ...
- Doel:
 - Ontwikkelen en gebruiken van genetische tools t.b.v. fokkerijprogramma's van koeien, varkens en kippen

Genetische selectie



Persbericht

Arnhem, 16 oktober 2006

Doorbraak met genetische merkers bij HG

EURIBRID FIRST TO USE GENOMIC SELECTION COMMERCIALY

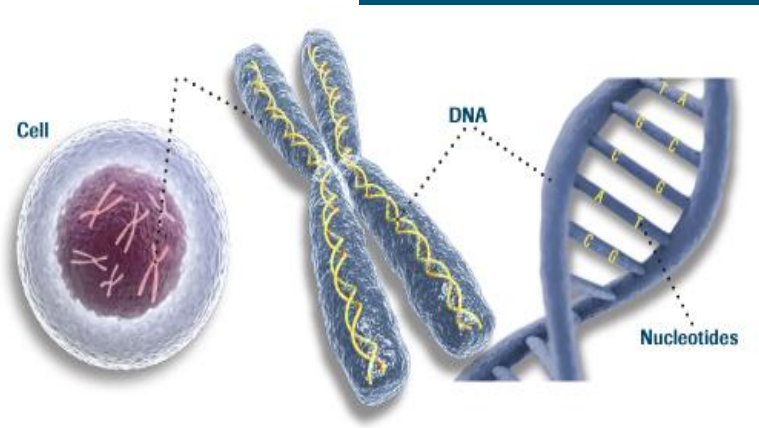
Euribrid

EXPERTS IN BREEDING TECHNOLOGY

Hybro Hybrid

FIRST COMMER

20,000 GENETIK



Genetische selectie

“..most promising application of molecular genetics in livestock production since work began almost 20 years ago” Sellner et al., (2007)

DINSDAG 24 MEI 2011

SITMAP ADVERTEREN

veeteelt

Terug naar de homepage

DE EERSTE KEUS VAN MELKVEEHOUDERS

HOME NIEUWS AGENDA INTERACTIEF NASLAG BEELD LINKS

home > merkers

MERKERS

Selecteren op DNA-niveau

Genomic selection zorgt voor revolutie in fokkerij

10 jaar geleden waren het nog futuristische ideeën, nu is genomic selection in de fokkerijwereld het gesprek van de dag. Maar wat houdt het precies in?

[Reactie toevoegen](#)

[Lees verder](#)



WAGENINGENUR

For quality of life

Genetische selectie: een NL^e uitvinding!

Copyright © 1997 by the Genetics Society of America

Estimation of Effects of Quantitative Trait Loci in Large Complex Pedigrees

T. H. E. Meuwissen and M. E. Goddard*

*Institute for Animal Science and Health, 8200 AB Lelystad, Netherlands and *Animal Genetics and Breeding Unit,
University of New England, Armidale, NSW 2351, Australia*

Meuwissen and Goddard. *Genetics* 1997



Affymetrix
GeneChip® Mapping
Arrays 100k/500k

Huidige genetische selectie
Statistiek toolbox

Interaction NL animal
breeding industry



WAGENINGEN UR

For quality of life

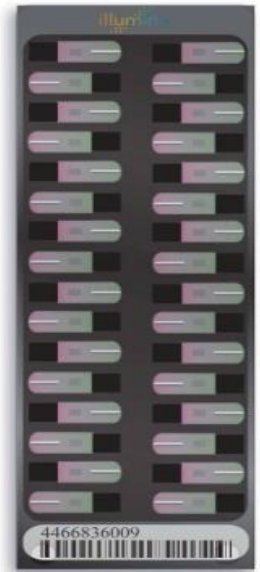
Genetisch selectie proces (I)

- Doel: selecteren van beste eigenschappen
- Nadeel is generatie-interval
- Oplossing → DNA bestuderen voor voorspellen van eigenschappen
- Verschillen in DNA = SNP (verschil op 1 plaats in DNA)

3.000.000.000 baseparen (AGTC)

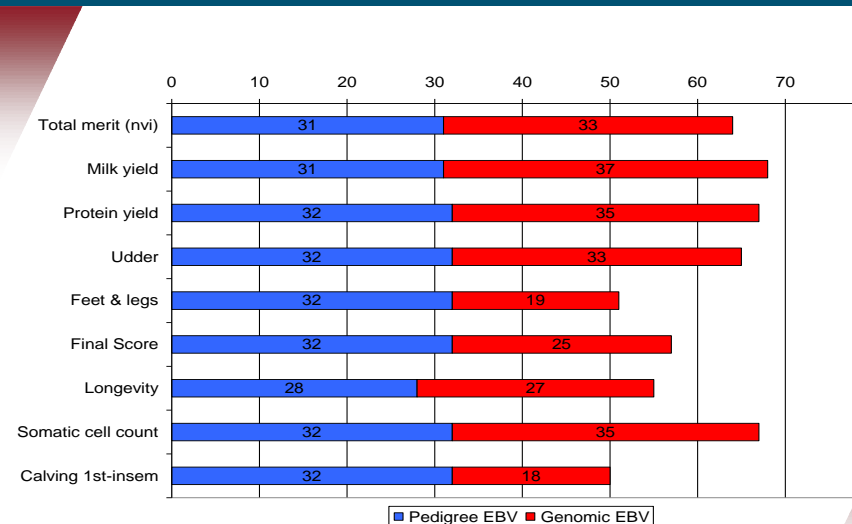
45.000.000 SNP merkers bekend

800.000 SNP op 1 chip



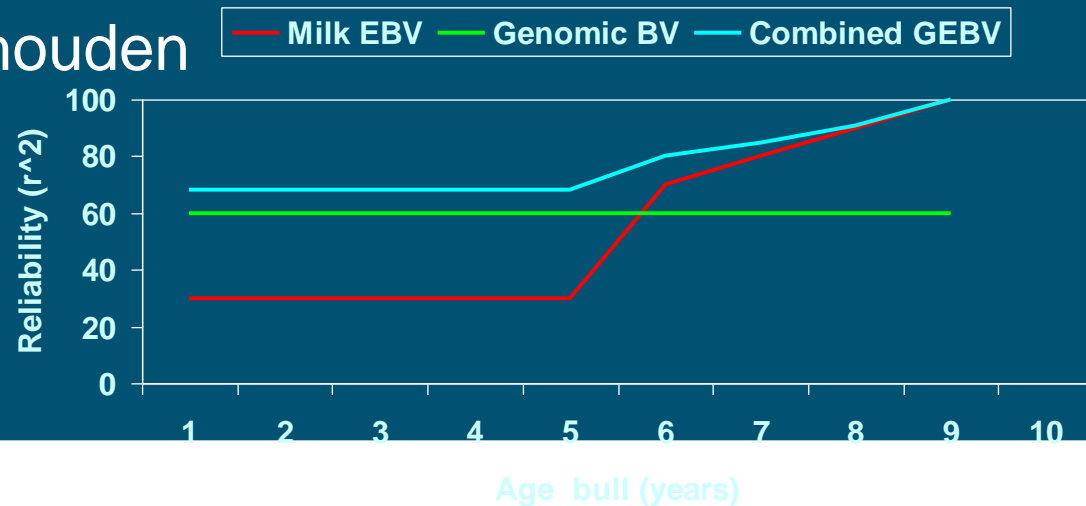
Genetisch selectie proces (II)

- Waarde toekennen aan DNA verschillen
 - Stap 1: door SNP effect te schatten m.b.v. referentiepopulatie (fokwaarde en genotype)
 - Stap 2: berekenen fokwaarde voor jonge dieren op basis van SNP genotypen
 - Stap 3: Beste dier selecteren op fokwaarde



Voordelen genetische selectie

- Snellere screening
 - Kosten fokprogramma verminderen met 92% (!)
 - Tot 150% meer genetische vooruitgang
- Wereldwijde concurrentiepositie bedrijfsleven (20% wereldmarkt in Nederland)
- Selectie andere kenmerken makkelijker bv. methaan-emissie en energie-efficiëntie
- Biodiversiteit beter behouden in fokprogramma's



NovelQ



- Projectleider: Ariette Matser
- KB-05-003-0039
- Partners: Struik Foods, Unilever, Resato, KU Leuven, IFR, INRA, TNO, ... (28 anderen)
- Doel:
 - *“Ontwikkel milieuvriendelijke, nieuwe voedselverwerkingstechnologieën voor een betere productkwaliteit”*

NovelQ resultaten

- “Normale” wetenschappelijke output
 - >125 publicaties
 - ~160 lezingen
 - ~140 poster presentaties
 - PhD's : 18
 - Boeken: 22
 - Prijzen: 15
 - Twee special issues van TIFS start/eind
- High Pressure en Pulsed Electric Fields naar de markt gebracht (technologie en applicaties)



Training & career development

- TCD netwerk van NovelQ
 - 40 jonge studenten uit 11 landen
 - TCD-sectie op website, workshops, nieuwsbrief
 - EFFoST workshop Budapest (2009)
 - PhD conferentie Berlijn (2010)
- Door EC opgepikt: specifieke FP6 call
- Continuering als EFFoST Young Researchers Special Interest Group (SIG)

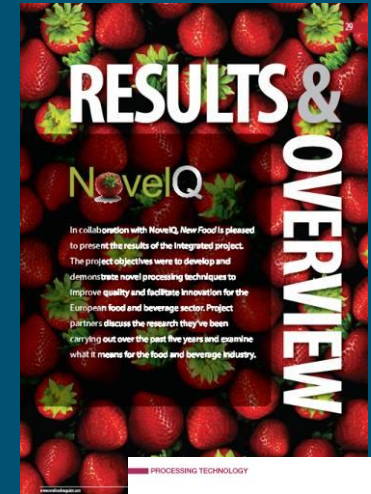


Publicaties gericht op bedrijfsleven

■ Speciale nadruk op vakbladen en workshops

- Vakbladen: ~75
- Presentaties op bedrijfsworkshops: ~100
- Publicaties in e-nieuwsbrieven: ~15
- NovelQ special issue in New Food
- Video's:

- EC film over onderzoek
- Video's: robotica, hoge druk



FOOD
productiondaily.com

Breaking News on Food Processing & Packaging

NovelQ project bears fruit with new HPP packaging

By Jane Byrne, 04-Oct-2010

Related topics: Packaging

Trials are underway at Italian flexible film manufacturer Immaadisa on a newly developed multilayered packaging applicable for high pressure food sterilisation – one of many spin offs initiated under the EU funded NovelQ project, claims its coordinator.

The five year Commission funded project, costing €11.3m and involving leading food manufacturers, universities and research institutes, has reached its conclusion and dissemination stages, with a seminar highlighting key findings set to take place this week in the Netherlands at the facilities of Wageningen UR Food and Biobased Research.

NovelQ coordinator Arlette Mater told FoodProductionDaily.com that the packaging innovation from industry partner, Immaadisa, resulted from the fact that early on funds were put aside to ensure translation of scientific insights from NovelQ into practical and commercially viable applications.

She stressed that when the project was kick-started, plant scale adoption of emerging processing techniques such as cold plasma, pulsed electric field, radio frequency, microwave and high pressure processing, in particular, seemed a long way off.

"Five years on, proofs-of-principle have been demonstrated to show the potential of these methods and there are now over 32 high pressure pasteurisation based installations in Europe and over 72 in use in the US, for fruit, juices, meats, tapes and whole meals.

Moreover, a cold plasma demonstrator has been developed and sold worldwide," said Mater.

The benchmark by all the partners, she continued, has filled the knowledge gap that had existed in 2006 about the effects of HPP, PEF, cold plasma, advanced heating technologies and packaging types on the quality and shelf life of foods.

"We have also been able to perform pilot scale research on the HPP sterilisation method, with pilot scale equipment developed by Dutch equipment supplier Resato allowing the partners to research the effect of HPP sterilisation on real food products and perform the first step towards upscaling to industrial units," she added.

Moreover, explained Mater, the project has set up an efficient support system, through the NovelQ industry advisory platform to promote results and identify bottlenecks to technology adoption. "This aims to ensure equipment manufacturers drive forward the process of implementation at the plant level.

The next six months, she explained, will see the dissemination of NovelQ's results in peer reviewed journals and on the NovelQ website, while workshops over two days, beginning tomorrow, will demonstrate various applications for the various technologies and will also include one-on-one sessions with novel processing experts.

"Participants will also be given the opportunity to debate the future of food research and development in Europe," added Mater.

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PROCESSING TECHNOLOGY

Pulsed electric field: opportunities for healthier tomato juice

Although frequently consumed fresh, over 90% of tomatoes are consumed in processed products such as tomato sauces. Pulsed electric field technology could provide advantages for the processing of tomato juices to retain their nutritional value.

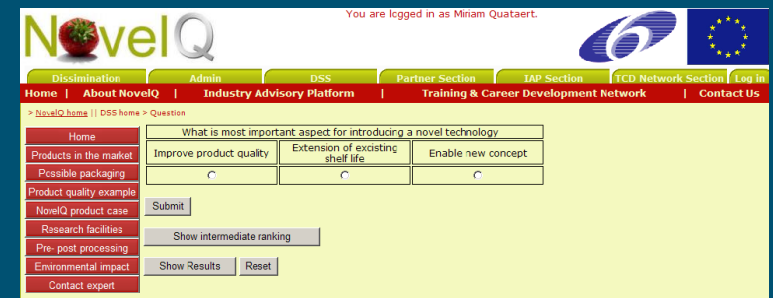
By Isabel Otero-Samanes, Pedro Das Neves, Robert John Fortney and Oleg March-Sabat

Tomatoes are the most commonly consumed vegetable in the world. They are a rich source of vitamins, minerals and antioxidants. However, the processing of tomatoes into tomato juice often involves high-temperature treatments that can lead to the loss of some of these beneficial compounds. Pulsed electric field (PEF) technology offers a promising alternative for the processing of tomatoes, as it can effectively inactivate microorganisms and enzymes without the need for high temperatures. This technology works by applying short, high-voltage pulses to the food, which creates pores in the cell membranes of microorganisms and enzymes, leading to their inactivation. PEF is a non-thermal process, meaning that the natural flavor and color of the tomatoes are preserved. Studies have shown that PEF-treated tomato juice has a higher concentration of lycopene, a powerful antioxidant, compared to heat-treated juice. Additionally, PEF treatment can reduce the energy consumption of the process, making it a more sustainable option. The use of PEF in the food industry is still in its early stages, but it shows great potential for improving the nutritional quality of processed foods. Further research is needed to optimize the PEF process for different types of foods and to ensure its safety and effectiveness on a large scale.

PEF processing has been shown to be an effective method for the inactivation of microorganisms and enzymes in various foods. The technology works by applying short, high-voltage pulses to the food, which creates pores in the cell membranes of microorganisms and enzymes, leading to their inactivation. PEF is a non-thermal process, meaning that the natural flavor and color of the tomatoes are preserved. Studies have shown that PEF-treated tomato juice has a higher concentration of lycopene, a powerful antioxidant, compared to heat-treated juice. Additionally, PEF treatment can reduce the energy consumption of the process, making it a more sustainable option. The use of PEF in the food industry is still in its early stages, but it shows great potential for improving the nutritional quality of processed foods. Further research is needed to optimize the PEF process for different types of foods and to ensure its safety and effectiveness on a large scale.

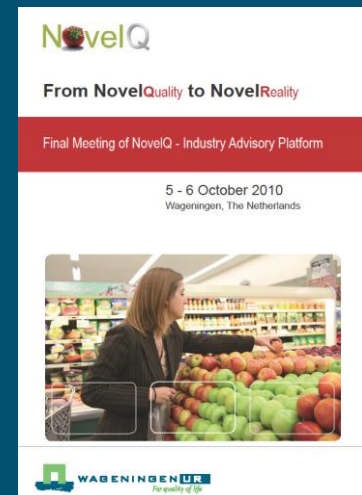
Industry Advisory Platform (IAP)

- 12 industriële partners
- Industry Advisory Platform (88 partijen):
 - Bedrijfsnetwerk (food, apparatuur, branches)
 - Disseminatie van resultaten
 - Input voor project
- Nieuwsbrieven
- Speciale sectie op website
- Decision support tool
- Business cases




IAP meetings en workshops

- > 20 workshops
- Competitive call
- “From Novel Quality to NovelQ Reality”, laatste IAP meeting in Wageningen




Communicatie naar consumenten

- Presentatie voor BEUC food officers
- E-brochure voor consumentenorganisaties



Trends in Food Science & Technology 21 (2010) 464–472



Review

Consumer acceptance of high-pressure processing and pulsed-electric field: a review

Nina Veflen Olsen^{a,*}, Klaus G. Grunert^b and Anne-Mette Sonne^b



^aNofima Mat, Oslove 1, 1430 Ås, Norway
(Tel.: +47 64970100;
e-mail: nina.veflen.olsen@nofima.no)

^bMAPP Centre for Research on Consumer Relations in the Food Sector, University of Aarhus, Denmark

values, and sensory properties are better maintained for products exposed to HPP and PEF treatments (Indrawati, Lille, Van Loey, & Hendrickx, 2008; Indrawati, Plancken, Van Loey, & Hendrickx, 2008; Soliva-Fortuny, Balasa, Knorr, & Martín-Belloso, 2009).

However, such advantages are not enough to ensure acceptance of these technologies in the market place. When introducing new technologies in food processing, consumer opinion plays an increasing role (Lyndhurst, 2009). Consumers form opinions about new technologies, especially when they are applied to food production. Some technologies like organic production are warmly welcomed by many consumers, whereas others like genetic modification and irradiation have been firmly rejected. Novel processing technologies like pulse-electric field conservation and high-pressure processing are probably somewhere between these extremes, but it is important to understand how consumers will form opinions about these technologies before attempting large-scale introductions on the market.

Twenty years ago, nobody regarded consumer opinions about food technologies as important. Consumers were believed to have no opinion to understand the risks and ben



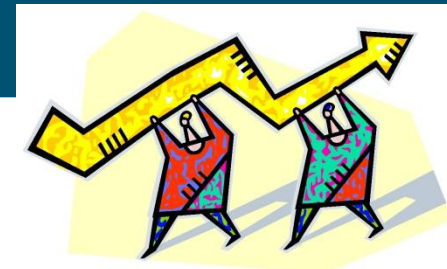
Novel Processing Methods for the Production and Distribution of High-Quality and Safe Foods

European Commission Funded Integrated Project within the Sixth Framework Programme; Priority 5 Food Quality and Safety; EC-Contract No. 015710-2

www.novelq.org

Selectie spin off projecten (2008 e.v.)

- **Johma** met minder Majoh: applicatie hoge druk
- **Foppen** vis: applicatie hoge druk
- **Struik Foods** Innovaties in Koelvers: geavanceerde verhittingstechnieken
- NoE High Tech Europe; FP7 **EU** project
- Agrifoodresults: FP7 CSA **EU** project
- **Hoogesteger**: milde conversering vruchtensappen
- **Stork** Food en Dairy Systems: plasma ontsmetting
- **Natural drinks** (Br): milde conservering vruchtensappen
- **IXL Nederland**: Nutri-Pulse



FOVEA



- Projectleider: Marchel Gorselink
- KB-05-005-027
- Partners: Telematica centrum Twente, Noldus, Sodexo, VGZ, Kampri, Mobihealth, Gld/Overijssel
- Doel:
 - *“Ontwikkeling van een informatiesysteem voor persoonlijk eet- & leefstijladvies”*

FOVEA

■ Achtergrond

- Ik wil graag afvallen, wat is voor mij een gezonde voedselkeuze?
- Ik wil graag variëren, in welke producten zitten evenveel gezonde voedingsstoffen als in mijn normale keuze?
- Ik ben allergisch voor X, welke producten zijn veilig voor me?
- Ik ben een sporter, waarin zitten de goede koolhydraten en hoeveel moet ik eten voor mijn wedstrijd vanmiddag?

FOVEA

■ Aanpak:

- 45 proefpersonen in de studie
- Doel: effectiviteit smart phone applicatie bij het geven van feedback
 - Alleen diëtiste
 - Diëtiste + smart phone (direct)
 - Diëtiste + smart phone + webapplicatie (vertraagd)
- Drie fasen:
 - Nulmeting (afgerond)
 - Interventie: gesprek met diëtiste + feedback
 - Nameting: hoe goed beklijft het gedrag

FOVEA

■ Aanpak:

- Je wilt afvallen
- Je hebt van dietiste advies gekregen over gezonde lunchcomposities
- Je luncht in het RvdT
- Je kiest een lunchcompositie die beschikbaar is die dag
- Per buffet zie je de geschikte en de niet-geschikte lunch-items
- Je stelt je maaltijd samen en krijgt info over de totale kcal ten opzichte van je “budget”



FOVEA

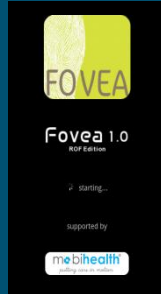
■ Resultaten:



FOVEA

■ Toekomst:

- In juli/augustus vindt de analyse plaats
- In augustus/september bereiden we FOVEA II voor
- Uitdagingen:
 - Type feedback: sturend/coachend, direct/vertraagd
 - Frequentie feedback: eenmalig/regelmatig
 - Manier van feedback: persoonlijk/technisch ondersteund
 - Weegave feedback: smiley/getallen/sterren/stoplicht/...
 - Moment van feedback: vooraf/tijdens/achteraf



Topsector Agrofood en Kennisbasis

■ Primaire productie

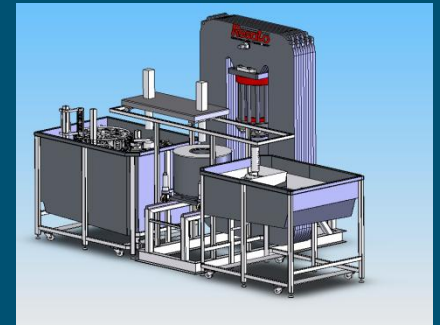
- Fokkerijsector - genetica

■ Verwerking

- B2C bedrijven – food technology

■ Markt

- B2C bedrijven/beleid – consumer insight



Dank u

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