

Global technical strategy for a successful industrial phytochemical & biotechnological project



S3 THEMATIC WORKSHOP
Key Enable Technologies for
Smart Specialisation Strategies (RIS3) on Agrofood

Science extracted
from **Nature**

Nutrafur S.A.

Naturally Mediterranean

11th April 2013 – DAY 1

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- **Global food chain: opportunities.**
- **Raw materials.**
- **Production Technology:**
extraction, isolation,...
- **Microbiology.....as “food safety mentality”.**
- **Quality Control.**
- **Quality Assurance.**
- **R&D + innovation “as is”.**
- **R&D + innovation: “Applicability”**
- **Global efficacy**

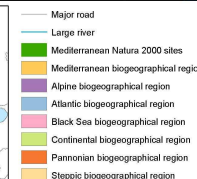
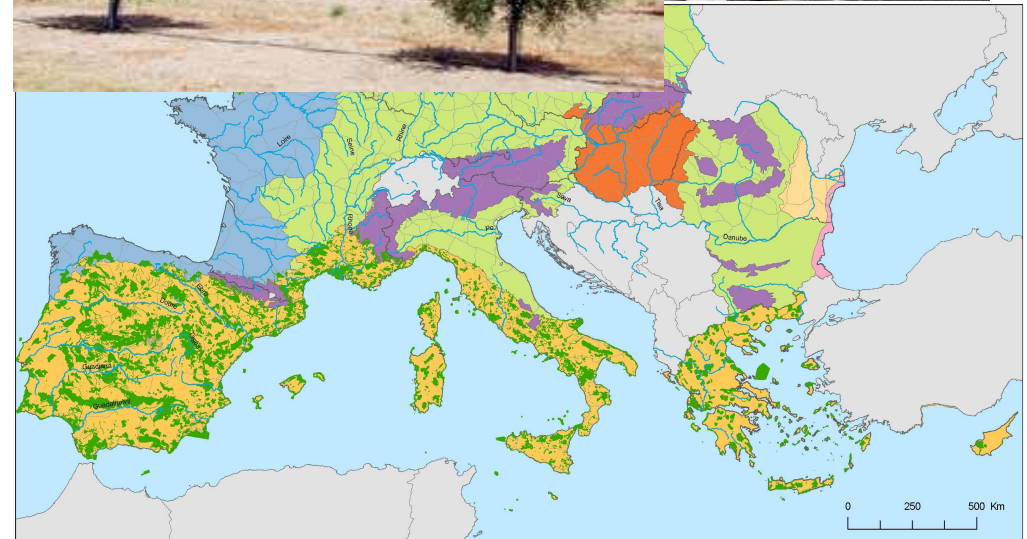
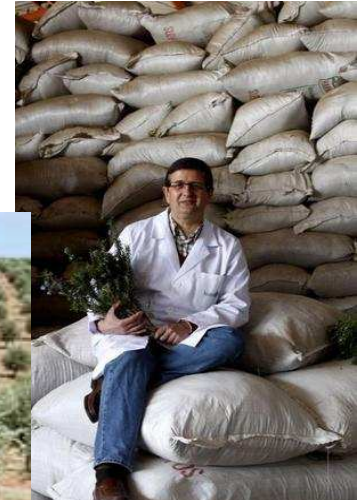




Plant Materials

KEY

- To apply scientific knowledge of the Mediterranean diet.
- The necessary control of plant materials and suppliers. The future of GAP.
- Realistic evaluation of a consistent supply chain (Independently of seasonal production).
- Organic materials: the balance between certification and realistic supply capacity.
- The future of algae as a source of bioactives.
- Be careful with new miracle and fashion plant materials!!!
- The quality of raw materials is the first key in developing the ability to compete in global markets.



Natura 2000 -
Mediterranean biogeographical region



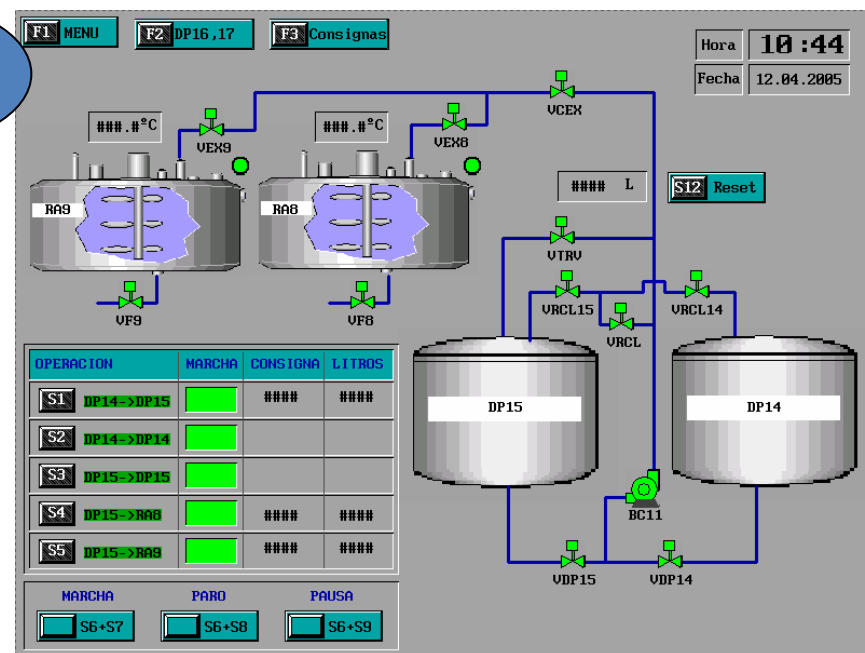
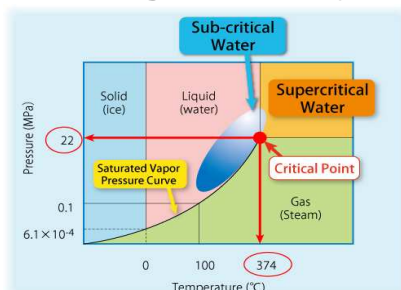
Data as of July 2008

Production Technology

KEY?

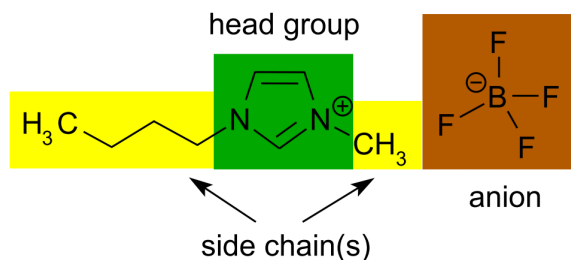
A qualified professional team as well as automated and monitored processes allow us to get total control of manufacturing and end products.

“the necessary technology and the global objective-working together”



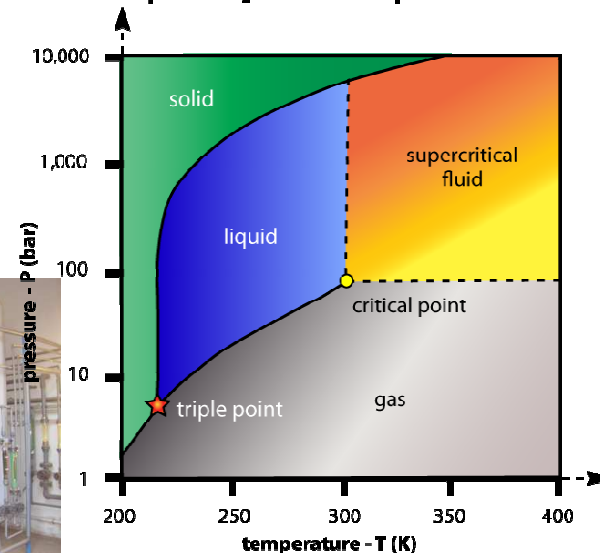
PLANT EXTRACTIONS: physical methods to preserve the “natural” condition and the production environment .

- Only Water???
- Hypercritical conditions
- “Food Solvents” and mixtures
- Supercritical fluids.
- Ionic liquids?????
- Adsorption resins
- Biotechnology



The technology does not create a market, if its result are not competitive on the global situation.

Example of CO₂ Pressure Temperature Phases



Production Technology

Clean Rooms

KEY

The operations of extraction, separation, purification, concentration and drying should be carried out under the strictest quality and hygiene standards.

FINISHED PRODUCT AND CLEAN ROOMS

- Secure the absence of microbiological contamination.
- Filtered Air Certified ISO 14644-1:1999
- Procedures & cleaning registers
- This manufacturing process ensures that the natural products meet strictest microbiological requirements and have not undergone sterilization procedures or irradiation.
- **GLOBAL FOOD SAFETY “CONCEPT”**



Quality Control



A consolidated company clearly need to establish a Quality Lab were to make the analysis of the raw material, process and the finish products.

- Exhaustive Raw material control & analysis
-
- Process Control (HACCP) & final product analysis
-
- HPLC & GC analysis
- Microbiology laboratory
- Stability trials
- External analysis (Certified laboratory): pesticides, heavy metals, etc.



Not only as a necessary “control” tool, also as “technical-marketing” tool.

The analytical capacity of a producer is one of the most important elements to build a solid business image.



KEY

Quality Assurance



A serious effort to reach a preview of seriousness on the markets and, after, to maintain the responsibility and efficacy.

- Quality certificate ISO 9001:2008
- Environmental certificate ISO 14001:2004
- Food Safety Certifications ISO 22000:2005; BRC, ISF..
- Clean Rooms Certified ISO 14644-1:1999
- Critical Points Control HACCP
- Certification FAMI QS; GMP+ (Animal feed additives)
- Certifications GMP (APIs)
- Kosher Certificate (all products)
- Halal Certificate (all products)
- No GMO / No irradiation
- Organic certificates for specific materials
- Technical assistance & consultancy



KEY

Currently, a fundamental tool for the successful industrial development.

Associated with a rapid adequate knowledge of the legal framework of each market: EU (efsa); FDA; KFDA, FOSHU,.....

R & D + innovation: “as is”

KEY



The companies need to believe that an effective and realistic research, development and innovation are the future. It will be necessary a highly qualified R&D team and open mentality to collaborate with Universities and other public Research Centers.

- New Products Development (“solid”/no “fashion” products)
- Global Research Projects (supplier/customer relationship)
- Scientific Papers (as “technical + marketing” tool)
- Scientific Congress and Exhibitions participations (I’m here!!!)
- Validation Assays: (absolutely necessary!!!!)
 - Technological Applications
 - Health Applications
 - Animal Trials (Options: CE, ZF, M,.....)
 - Human Intervention Trials (macroscopic effects and suitable biomarkers)
- Future “legal” status (before and not after).



R & D + innovation: “Applicability”



**Global Customer Technical
Support: “customize products”**

KEY

**“Taylor made”
product design:
Form, blending...**

Low price

**Stability “as is” and applied.
and / or
Suitable organoleptic status
(if required)**

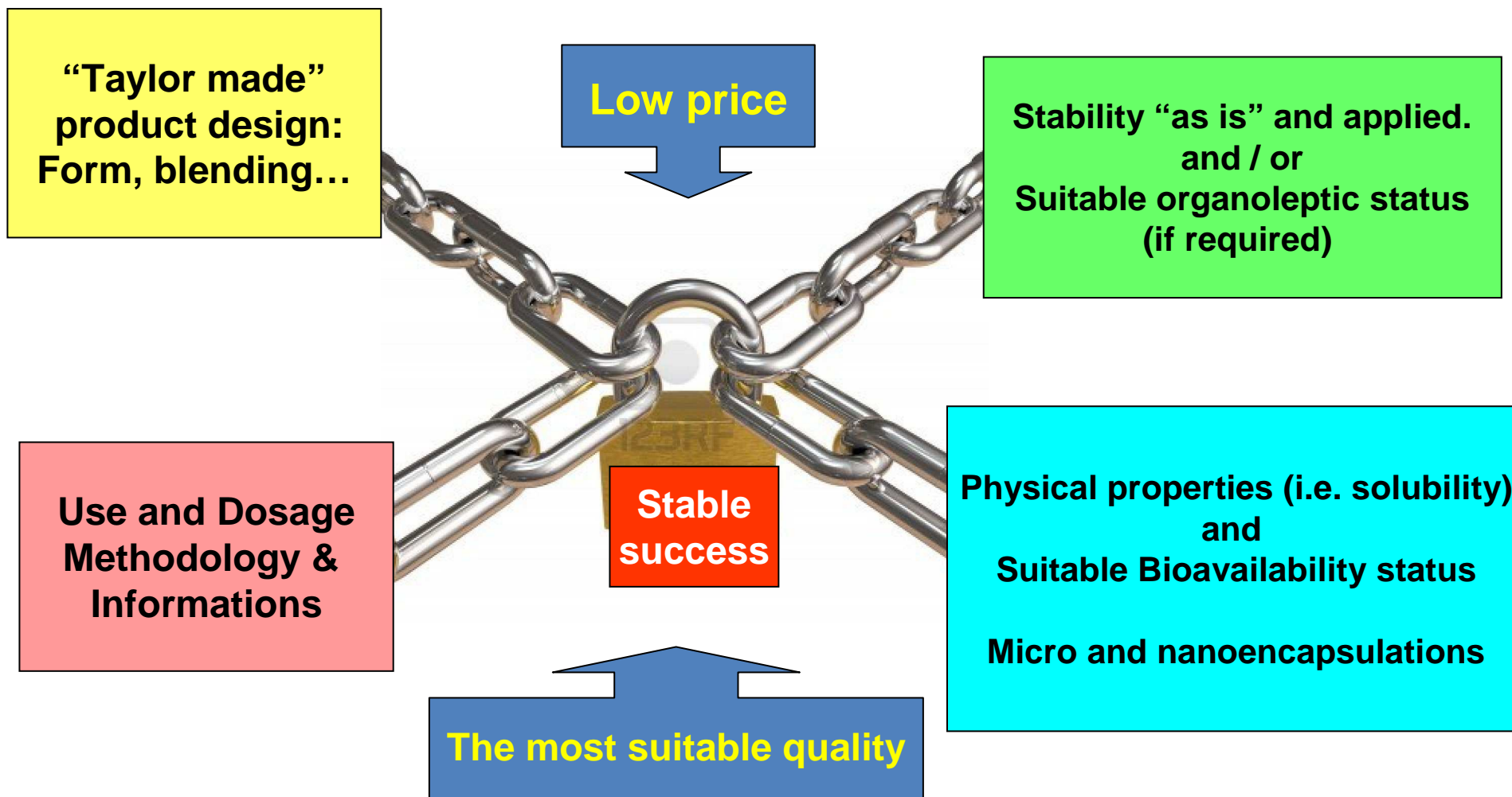
**Use and Dosage
Methodology &
Informations**

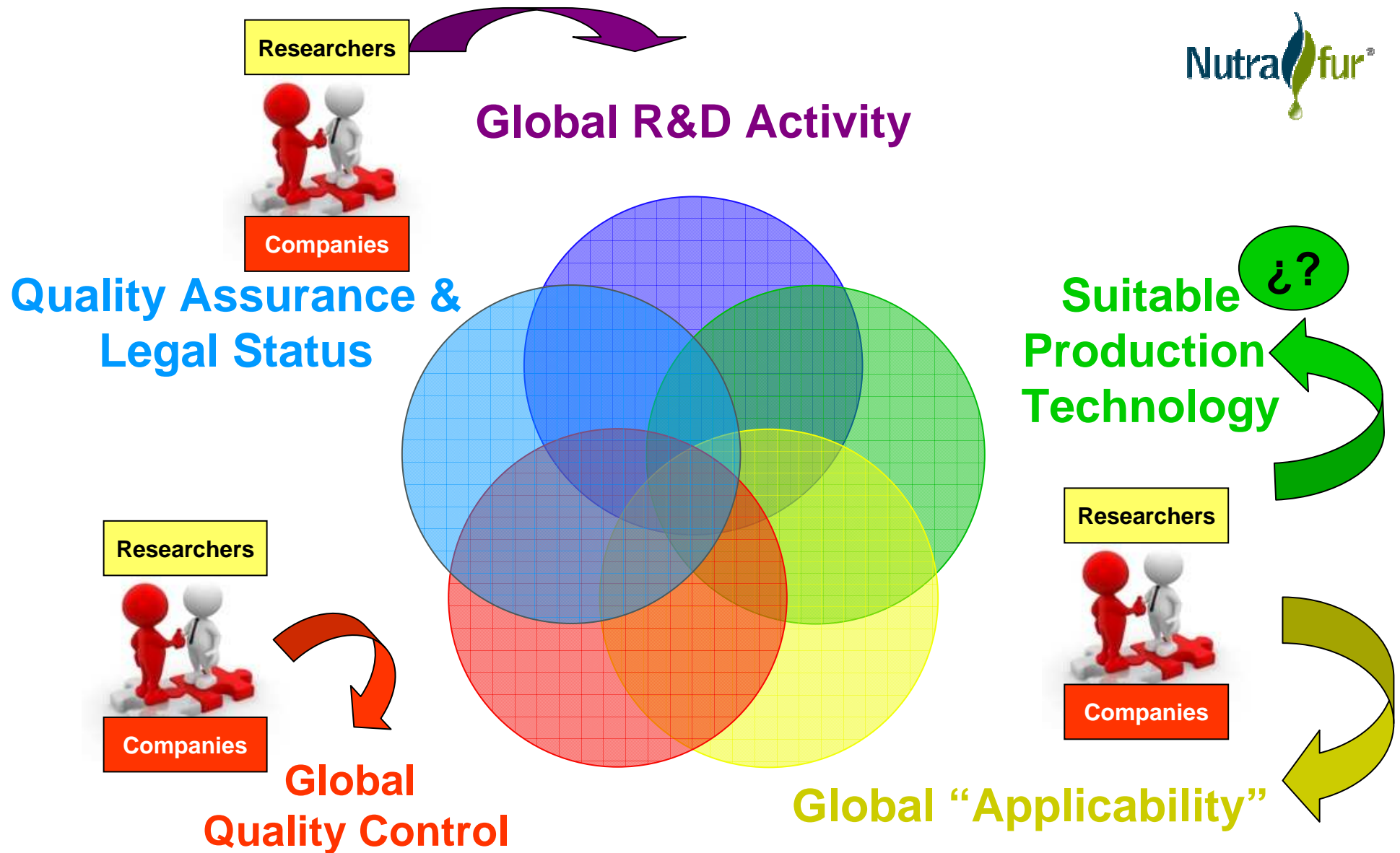
**Stable
success**

**Physical properties (i.e. solubility)
and
Suitable Bioavailability status

Micro and nanoencapsulations**

The most suitable quality





The worldwide market is a fantastic global opportunity, but, also, it's a clear responsibility



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