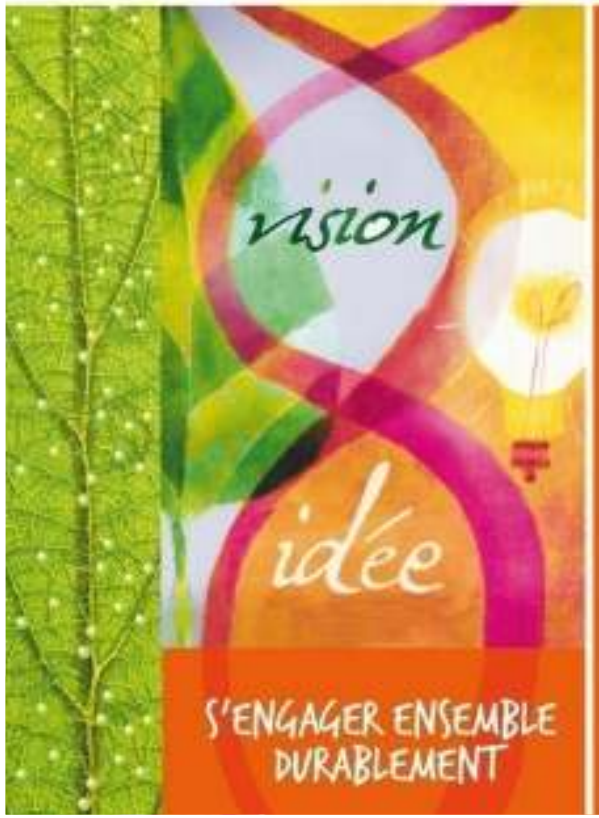
Association Chimie du Végétal



Agrosourced Products :
Successes in Chemicals Specialties
Opportunities for the Future

Biosourced Chemicals : Positive Trend for Sustainability

- Limited fossil resources
  - mainly located in sensitive countries
  - strong price variations with a trend to higher prices
- A societal request
- Financial support from governments
  - development of local resources
  - diversification of energy sources
  - reduce global warming from CO_2
- Chemical companies engaged in sustainable development

Creation of ACDV 2008:

Identify a Sustainable Alternative for the Development of the Chemistry of the Future

- "Chemistry and agro-resources", a current subject:
  - chemicals companies planed to use 15 % of biosources raw materials in 2017 during Grenelle Environment Agreemennt.

- Use more renewable resources and less fossil resources

- Speed up the industrial development for biosourced chemicals in France and in Europe

  - gather major economic actors from agro-industries, chemical industries and downstream companies

  - represent and promote biosourced chemicals
  - identify major stakes for industries
  - set up a competitive intelligence economic and technical survey
  - organize a strategic analysis for action plans on selected markets

ACDV for Promotion of Biobased Chemicals

Association of chemicals and agroresources industries

AJINOMOTO. Archimex A·R·D ARKEMA AXELERA

BASF Biométhodes cimv Biomass technologies cognis. COPACEL drt

IAR metabolic explorer NOVANCE novozymes Rethink Tomorrow

LA PLASTURGIE FEDERATION Rhodia ROQUETTE SEPPIC

PROLEA SOFIPROTEOL SOLVAY GROUPE SOUFFLET SYRAL

Sicos TOTAL PETROCHEMICALS TOTAL UIC UNIGRAINS usipa

Organization

ACDV actions at the service of its members organized around 6 working groups with more than 60 people

These groups aim to create a dynamic stream based on sharing expertises and knowledge towards political and industrial decisions

1. References : Definitions, standards, labels
2. Life Cycle Analysis
3. Technico-economical database (external network and information)
4. Strategic Analysis
5. Regulation and incentives
6. Communication and coordination

Associated Work Groups

WG 1 : definitions, standards, labels

Objective : Contribute to the definition of standards and certification related to biosourced products

Achievements

- recommendation analysis C^{14}
- propositions for biosourced label

Actions

Participation to several European Working Groups for :

- Creation of a standard on biosourced products
- Identification of standards de sustainability for these products
- Definition of a methodology and a certification process
- Evaluate the usefulness of a European label

Associated Work Groups

WG 2 : Life Cycle Analysis LCA

Objective : Define a methodology and recommendations to conduct LCA, necessary tools to evaluate the environmental impact of biobased products

Achievements

- Work with ADEME to develop a methodology specific to biobased products (different from biofuels)

Actions

- Analyses using the methodology
- Active survey on LCA practices
- Presentations during symposiums

Associated Working Groups

WG 3 : Technico-economic Database

Objective : Give access for members to a database on market information, technology information on chemical intermediates from biomass origin

Achievement

- Study with members to define their priorities
- Synergy with Competitivity Cluster IAR

Actions

- Development of a survey platform for members on 5 key topics:
  - biomass,
  - raw materials,
  - prices,
  - scientific information,
  - technology information.

Associated Work Groups

WG4 : Strategic Analysis

Objective : Identify hurdles, levers and measures to develop economic viability of biosourced products

Achievements

- Study agricultural surfaces used today and prospectives
- List of intermediates used in chemistry and needs

Actions

- Refocus toward the identification of common interest to members and analysis of common competition

Associated Work Groups

WG 5 : Regulations and Incentives

Objective : Follow national and European regulations to identify incentives for the development of bio-based chemicals

Achievements

- List regulations impacting biobased products.

- 6 datasheet prepared :
  - regulated manufacturing,
  - REACH,
  - taxes and economy,
  - global warming,
  - innovation,
  - access to bioresources

Actions

- Prepare recommendations for tax credits
- Prepare position papers on societal debates around biosourced products (ex : food vs non food use, GMO, biofuels)

Associated Work Groups

WG 6 Communication

Objective :

Strengthen ACDV positionning

Achievement

- **Operational and reactive**
- **Communication tools,** : Q&A, internet site, information letter

Actions

- **Communication on WG results**

Associated Expertise

REBBIO Project

(Expertise Network on Needs in Biosourced Products)

Objective : Accelerate the alignment between offer and needs, to translate downstream needs in development opportunities for agro-industries and chemical industries

Creation of a network with downstream industries

- Collaboration with Plasturgie Federation to identify intermediates that can be substituted.

- Follow with other sector federations (cosmetics, automotive, packaging…)

WG1 : Definitions, Standards, Labels

➢Participation to the WG of Lead Market Initiative CE
Objective is to foster the development of biosourced products (regulation, funding)

Regulation will be one of driver for biosourced chemicals
Propositions presented:

- lower taxes (reduced VAT for biosourced products),
- credit for CO2 decrease,
- public funding for industrial development,
- labelling biosourced products,
- definition of a substitution objective by sector,
- facilitate market introduction for biosourced products.

➢Use ^{14}C analysis to define plant based product origin

➢Define a biosourced indicator

ACDV: Each Working Group with its Clear Mission

- WG2 Life Cycle Analysis
  - organize and follow a study with ADEME to define a tool adapted to the field of biosourced products (different from biofuels),

- WG3 Technico economic database
  - market information, technologies and scientific information, raw material prices,

- GT4 Strategic Analysis
  - technico-economic analysis for substitution potential in chemical intermediates from fossil origin by chemical intermediates from plant origin,

- GT5 Regulations and Incentives
  - guide for members and recommendation for decision organizations,

- GT6 Communication
  - www.chimieduvegetal.com, newsletter,

Roadmap 2010

- identify economic interests common to members and analyze common competition,
- define innovation axes with competivity clusters IAR and Axelera with a workshop ACDV-Axelera-IAR, exchange on strategic feedstocks,
- recommend tax incentives, national and European, establish recommendation for carbon tax, LMI European,
- prepare indicators biosource,
- finalize recommandation on LCA methodology

Organization

Governance ACDV

Conseil d'administratio

- C. RUPP DAHLEM – J.M. PUJOL – J.L. PELLETIER – T. STADLER J.L. BARET – Y. LE HENAFF – P. BORG– D. MARINI – F. MONNET - M. NAM J.F. ROUS – C. ROUX
- P. BARTHELEMY - D. GRONIER (membres d'honneur)

Bureau

- C. RUPP DAHLEM – J.M. PUJOL – J.L. PELLETIER – T. STADLER- D. MARINI
- V. LUCAS

- *Pilotage des groupes de travail*
- *Pilotage des réseaux et de la communication*
- *Organisation de manifestations publiques*
- *Coordination*

GT

- 2 coleaders par groupe de travail
- Six groupes de travail sur des missions collectives visant des actions concrètes (60 personnes)

ACDV Network for its members
Influence et Partnership

MEIE DGICS
financeur

MAP DGPAAT
financeur

MEEDDM CGDD
recommandations filières vertes

ADEME
Analyse Cycle de Vie bioproduits

AFNOR
Normes produits biosourcés

Pôle de Compétitivité
besoins en innovation et développements de rupture

SUSCHEM
contribution feuille de route bioéconomie

Bioplastiques
affichage indicateur environnemental

CE LMI
initiative européenne pour les marchés porteurs sur les produits bio-sourcés

Europa Bio
recommandations sur bio-based economy

ERRMA
recommandation produits biosourcés

European Bioplastics
indicateur biosourcé

*
Ministère Economie Industrie et Emploi
Ministère Agricuture Pêche
Ministère Ecologie Energie Développement Durable Mer
Agence Environnement Maîtrise Energie
Association Française de Normalisation
Commission Européenne - Lead Market Initiative
European Bioplastics Association
European Renewable Resources & Materials Association
European Association for Bioindustries
Sustainable Chemistry
European Assoxiation for Bioindustries
Club Bioplastiques

ACDV – COMPETIVITY CLUSTERS
COMPLEMENTARITIES and SYNERGIES

COMPETITIVITE CLUSTERS IAR - Axelera	⟺	BIOPRODUCTS	⟺	ASSOCIATION CHIMIE DU VEGETAL

DRIVERS	COMPETITIVITY OF ENTERPRISES THROUGH INNOVATION	⟺	DEVELOPMENT and PROMOTION MARKETS
ACTORS	ENTERPRISES ALL SECTORS, RESEARCH PUBLIC and PRIVATE	⟺	ENTERPRISES AGRO and CHEMICAL INDUSTRIES
FIELD OF ACTION	VALORIZATION NON FOOD BIOMASS: BIOENERGIES, BIOMOLECULES…	⟺	INTERMEDIATES CHEMICALS BIOSOURCED and PRODUCTS
REPRESENTATIVITY	ACTION TERRITORIAL REPRESENTATIVITY NATIONALE FOR GLOBAL CLUSTERS	⟺	NATIONAL CONNECTIONS EUROPEAN & USA
ACTIONS	■ ENGINEERING OF RDT PROJECTS ■ FINANCING PROJECTS ■ ATTRACTIVITY TERRITORIAL ■ MISSIONS -COLLABORATIONS INTERNATIONAL ■ « STRUCTURATION THEMES RESEARCH» ON CLUSTERS THEMES	⟺	■ LOBBYING (NATIONAL and EUROPEAN) ■ REGULATIONS ■ STRATEGY FOR MARKET DEVELOPMENT ■ COMMUNICATION

Rhodia : One of the Founding Members for ACDV

- ACDV objective is to promote the feedstocks for biosourced chemical intermediates.

- The ambition for Rhodia is to favor development of feedstocks of sustainable products for its businesses.

- Participation allows :

  - **identify 3 drivers to contribute to development of biosourced intermediates :**
    - **economics,**
    - **regulation and standards,**
    - **breakthrough innovation.**

  - **focus participation to :**
    - **a lobbying tool**
      - **to define and fund collaborative projects,**
      - **for regulations and standards,**
    - **a partnership tool**
      - **to define breakthrough tools.**

Chemistry is our world, Responsibility is our way

Rhodia Engaged in Chemistry of Several Plant Feedstocks


eucalyptus


spruce


pine


coconutr

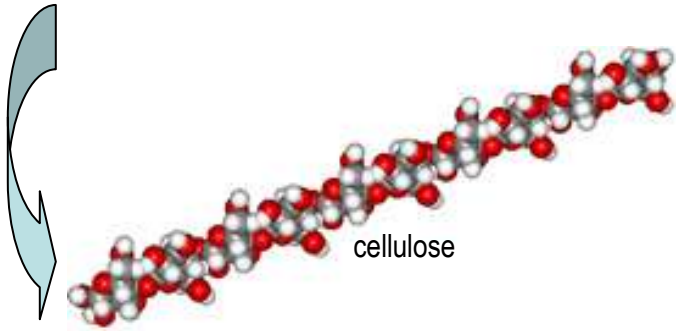

palmr

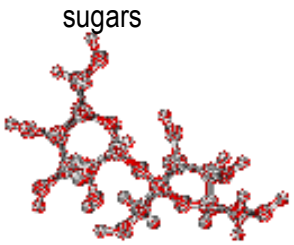

soybean


rapeseed


peanut


castor bean





Plants: a source of natural molecules and polymers


sugar cane

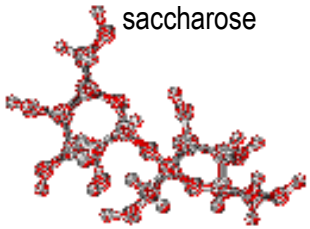

corn

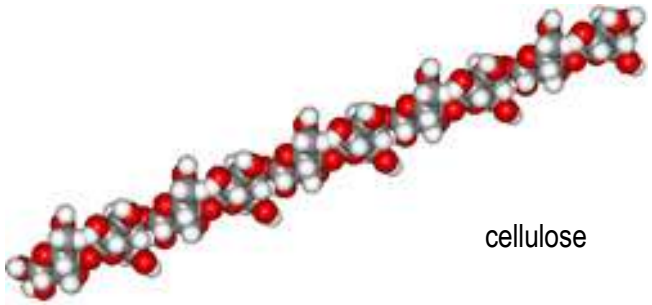

wheat


rice


guar

Rhodia Engaged in Chemistry with Plants for Growing Applications





Natural molecules and polymers for numerous applications

solvents for inks, paints, coatings

soaps, surfactants for shampoos and body wash

plastics for automotive

cables for filters

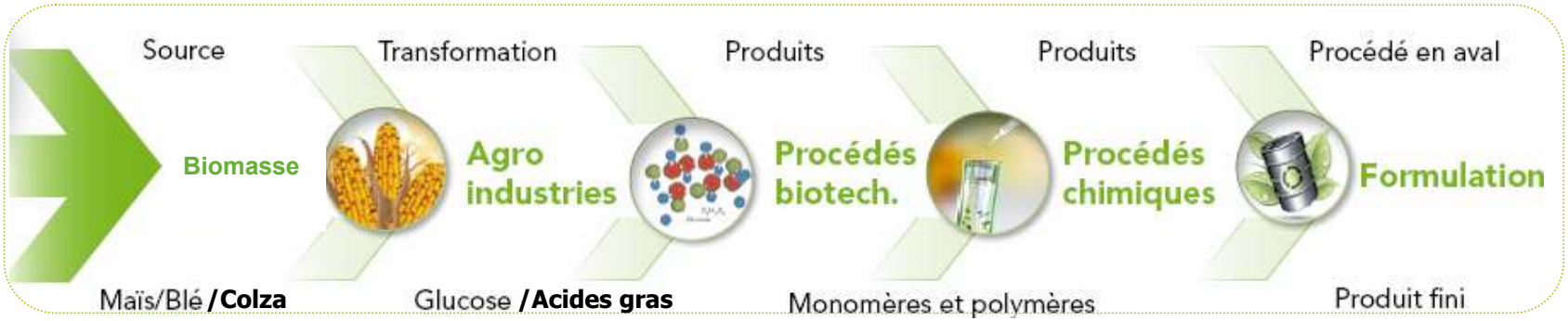
additives for crop protection

Augeo® Mirataine® Alkamuls® Miranol® Rhodasurf ® Rhodameen ® Geropon® Acetol Jaguar® Rhodopol® Rheozan®

Towards an industrial chain, complementary of classic chemistry

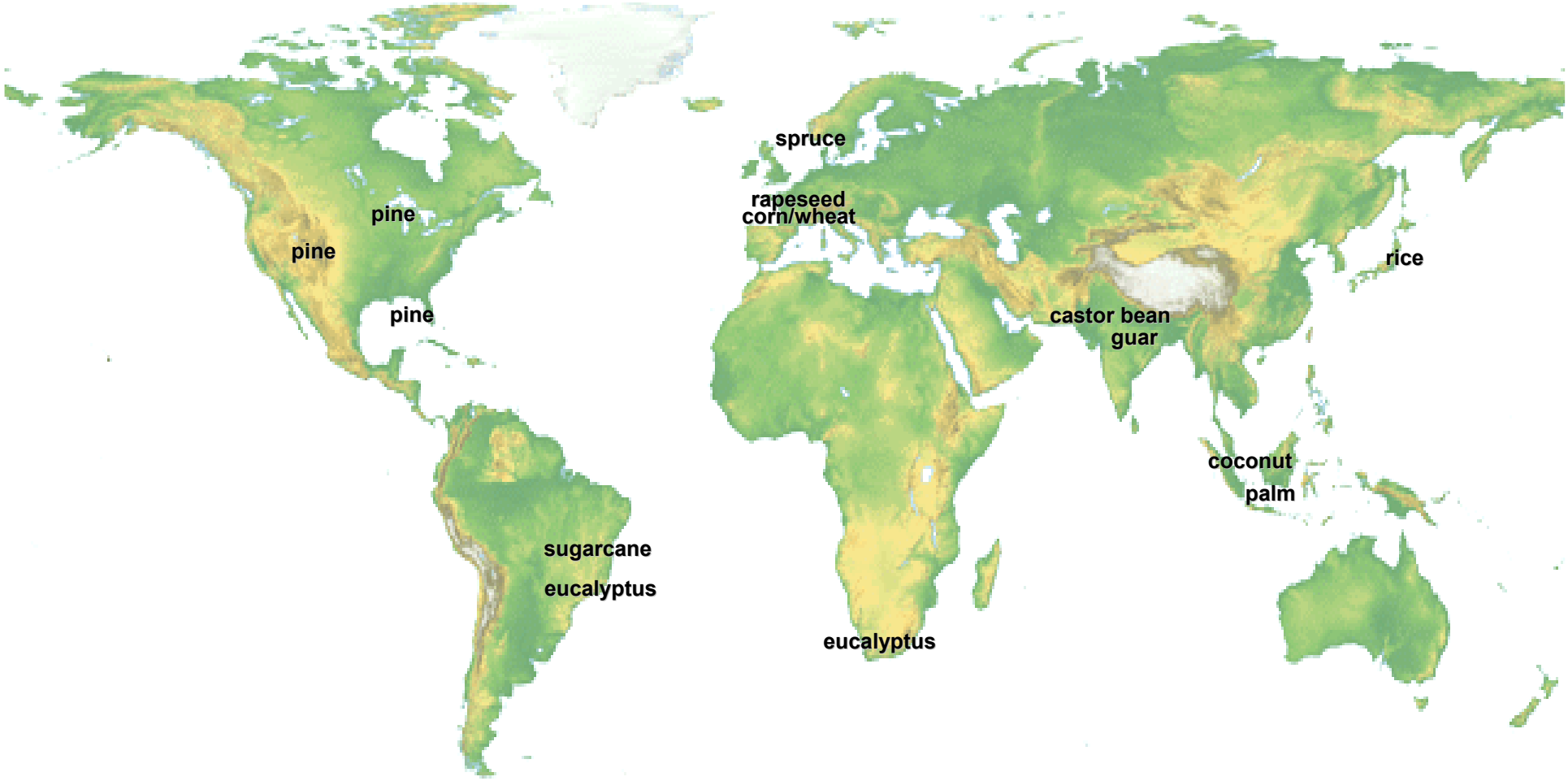
Refinery petrochemical from oil, coal and gas

Biorefinery : biomass conversion (corn, rapeseed, wheat , wood etc.)



Agrosourced Raw Materials

European feedstocks still to develop for chemical use



Situation :
Successes and Potential

- Current situation
  - many examples of products coming from biosources,
  - for diverse applications including high performance.

- Report
  - Europe a leader in agro production,
  - Europe a leader in chemicals production,
  - european raw materials from biomass still to develop for chemical use.

- The future
  - A positive trend,
  - Drivers: economics, regulation, innovation,
  - Opportunities to create.

Backup

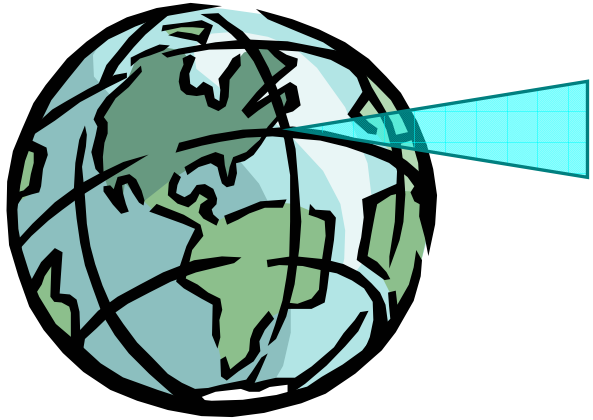
Use of renewable resources for chemicals

WORLD RENEWABLE RESOURCES (BIOMASS) PRODUCTION

95% unutilized

75 % carbohydrates
20 % lignin
5 % other
(oil, fats, proteins…)

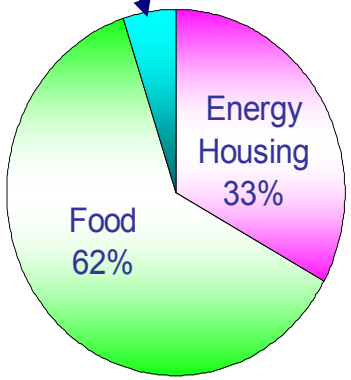
120.10^9 t



5 % utilized (6.10^9 t)

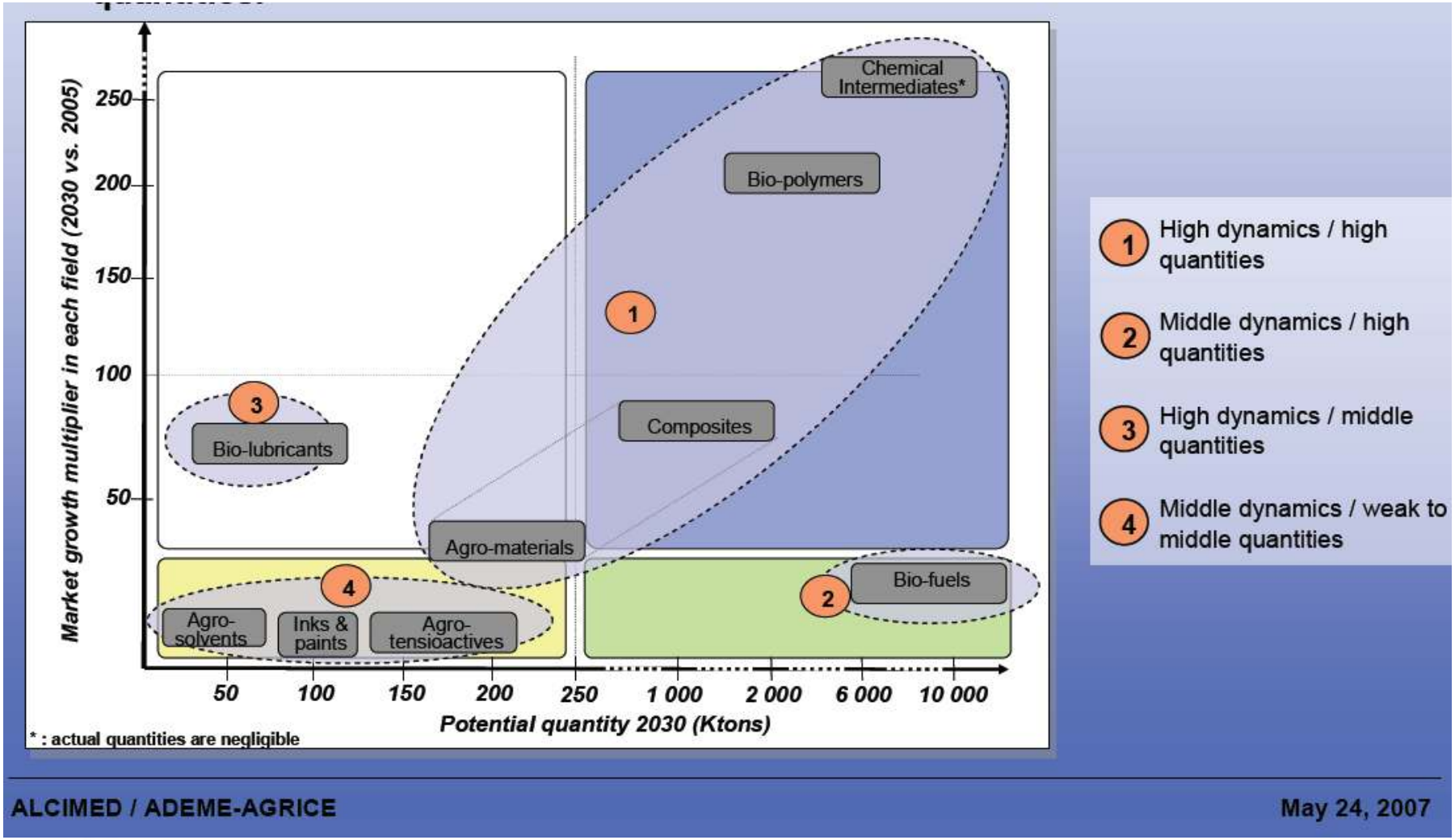
Which 5% is for Non-Food =

300 million t

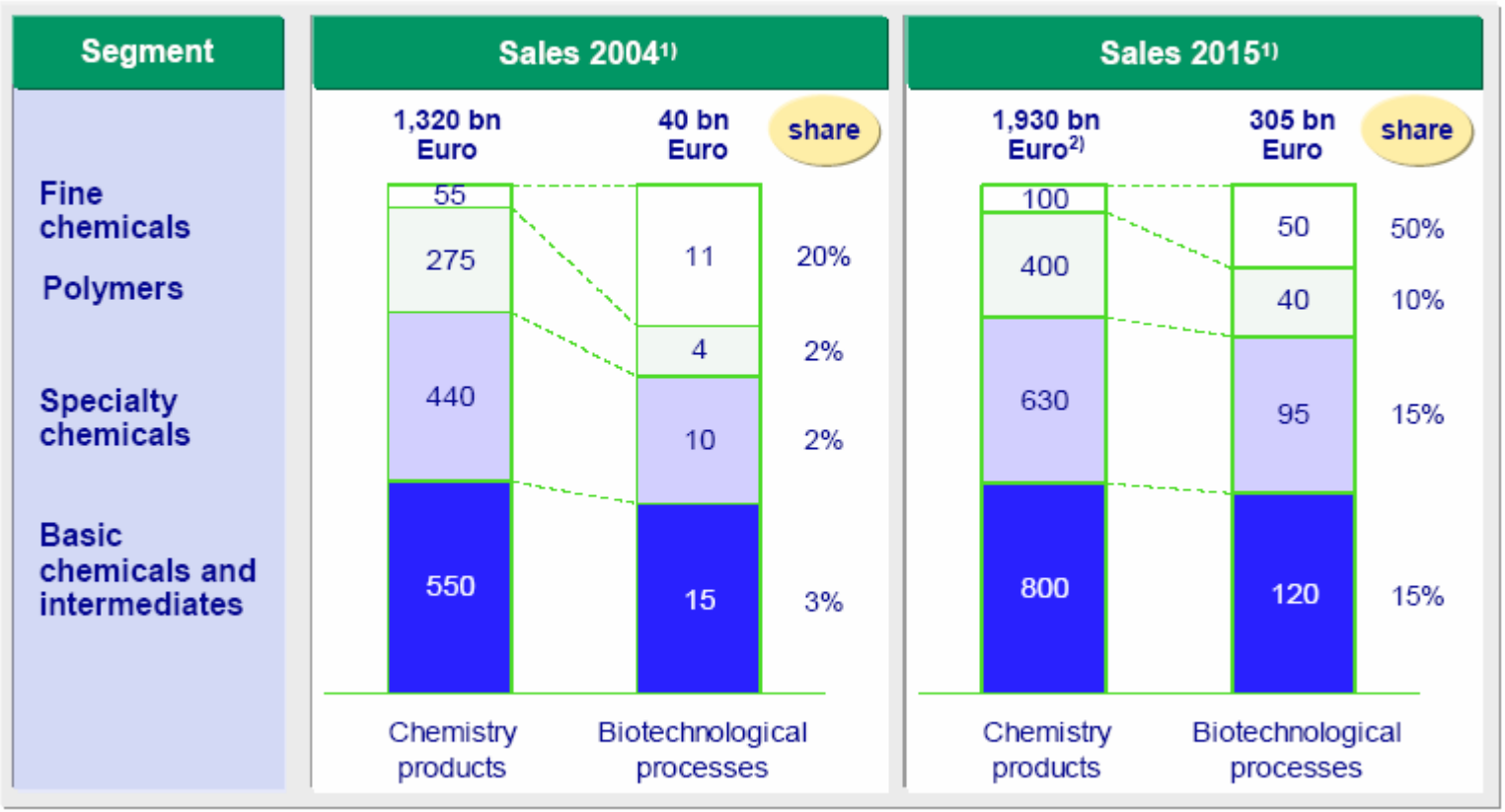


(Source : M.L. Imhoff & al. 2004)

Possible Scenario 2030



According to a present estimation, by 2015 more than 15% of all chemical products will be produced via biotechnological processes



1) Worldwide chemical revenues without revenues from pharmaceuticals but incl. intermediates produced by chemical enterprises (source: CEFIC)
2) Extrapolation for an average growth of the worldwide chemical revenues of 3.5% p.a.

Source : FESTEL CAPITAL, July 2005

Evolution des Sources d'Approvisionnement de la Chimie en Europe