

Novamont presentation:



NOVAMONT

Novamont key facts (I)

THE ORIGINS (1989)

A strategic Research Centre within Montedison Group with the aim of **integrating chemicals and agriculture**

Combining Eridania - Beghin Say's agricultural raw materials and Montecatini's chemical technologies

DEVELOPMENT MODEL

Transition **from a product-based economy to a system-based economy**

Biorefinery integrated in the local area:

- primarily dedicated to the production of chemicals and high added-value products
 - different local raw materials (low-input crops, scraps, etc.) – respect for local biodiversity
 - use of marginal lands and redevelopment of deindustrialized sites
 - integration of a wide and rising range of low-impact technologies and plants
 - based on the close collaboration with the world of farming, research and with local institutions
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Innovative **bioplastics based on renewable resources**, which are **biodegradable and compostable** according to the most important international standards.

Solutions economically and environmentally sustainable in specific application sectors with a view to **rethinking the overall system**.

Mater-Bi®



MATER-BI

- ④ **Mater-Bi®** is a family of innovative bioplastics alloys based on biodegradable polymers totally or partially obtained from renewable resources. Under the trademark Mater-Bi® Novamont produces and sells various kinds (“grades”) of biopolymers. The plant components are of various kinds (cellulose, natural fillers and non-genetically modified starch obtained from various crops) and are all extracted from plantations that **do not exploit virgin or deforested land**.
- ④ One of the components involved in the process of realization of Mater-Bi® are **Origo-Bi®**, the family of polyesters obtained from vegetable oils through a Novamont technology. Origo-Bi® help to improve the technical, economic and environmental impacts of Mater-Bi® and to increase the range of properties.

Novamont bio-products

Novamont bioproducts mean:



VEGETABLE ORIGIN

Novamont bioproducts are obtained from **renewable feedstocks respecting local biodiversity**. Novamont realizes in this way a virtuous system based on **integration between agriculture and industry** that enhances the whole agroindustrial supply-chain starting from the **selection of vegetable and European raw materials**.



INTEGRATED EUROPEAN SUPPLY-CHAIN

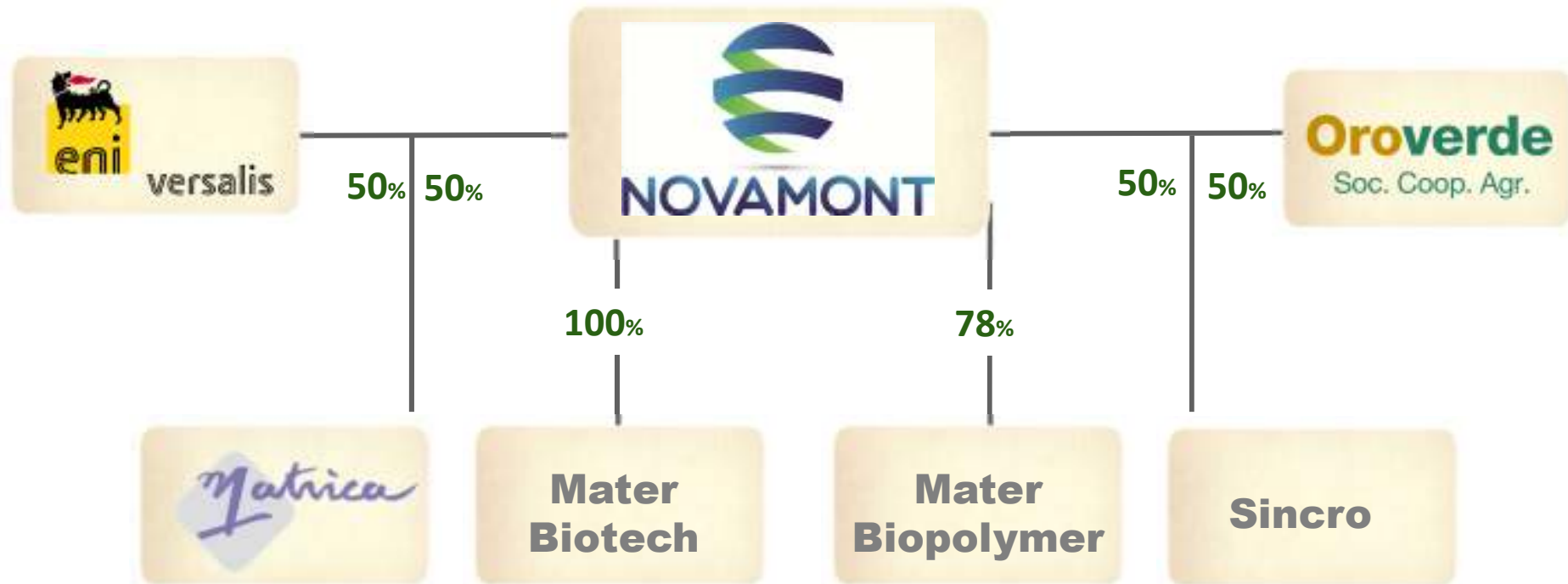
Novamont pursues an innovative development model based on the creation of an **integrated agroindustrial supply-chain** rooted in the local area and with a low environmental impact.



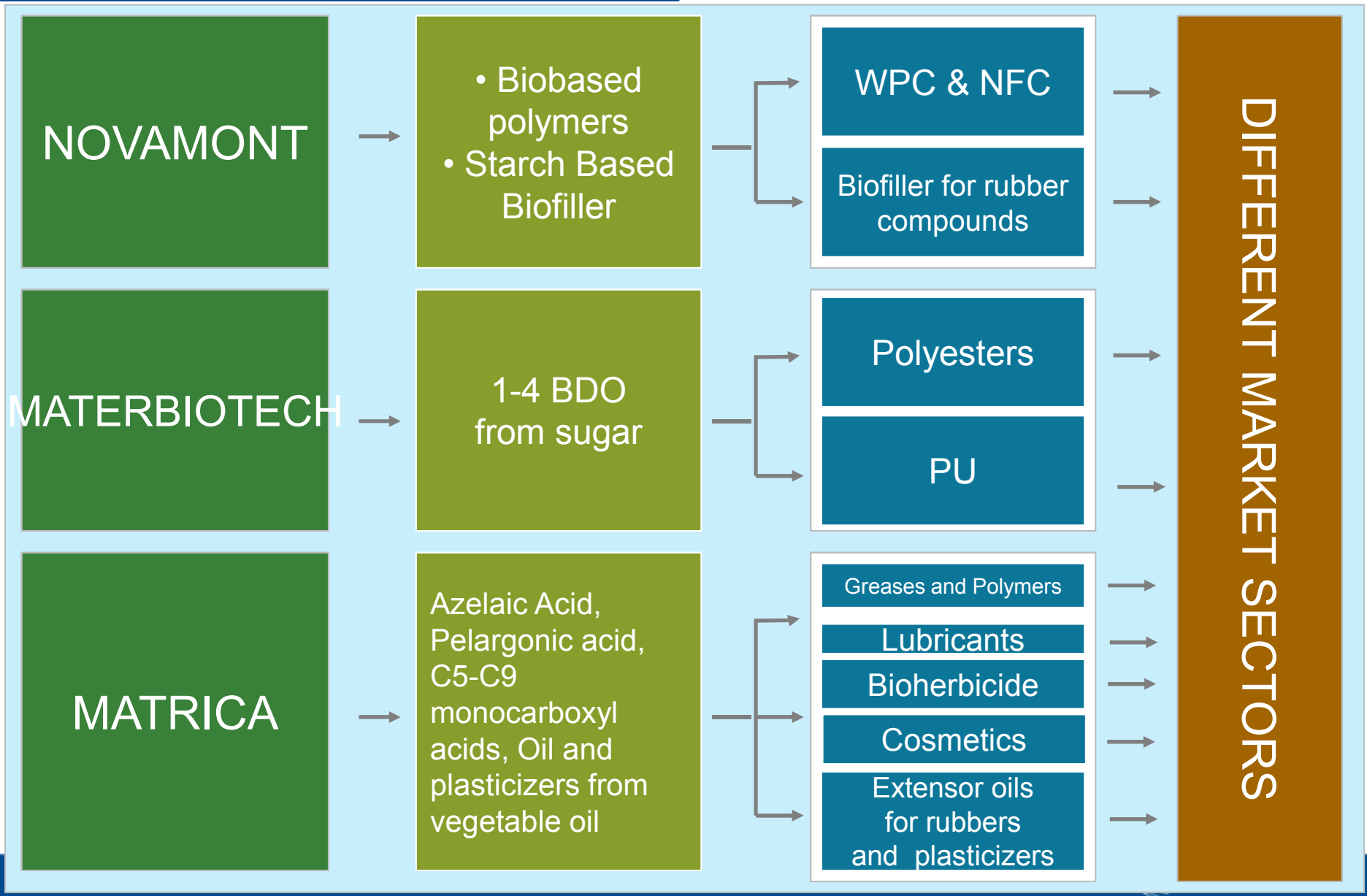
SUSTAINABLE PRODUCTION PROCESSES

All the bioproducts production processes are designed to **minimize the environmental impact**. Vegetable Raw materials are processed into azelaic acid, pelargonic acid and 1-4 BDO that can be used in several fields of application.

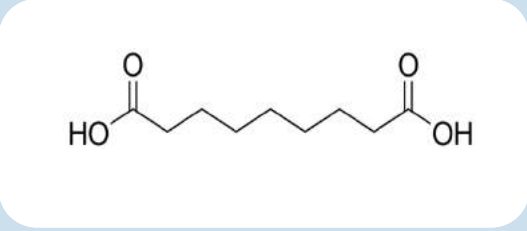
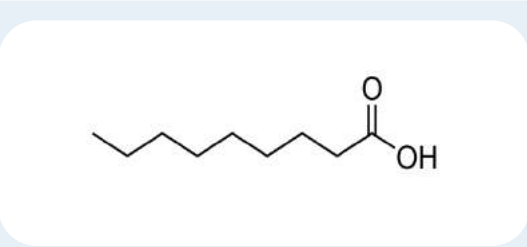
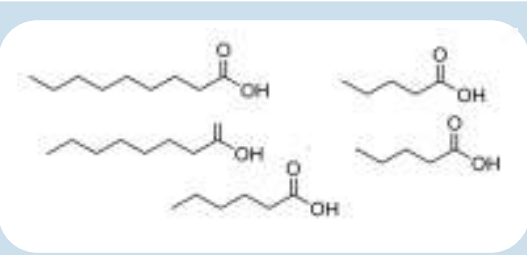
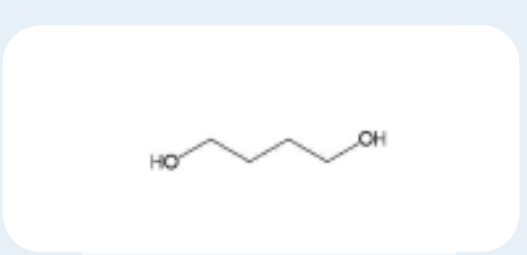
Novamont network



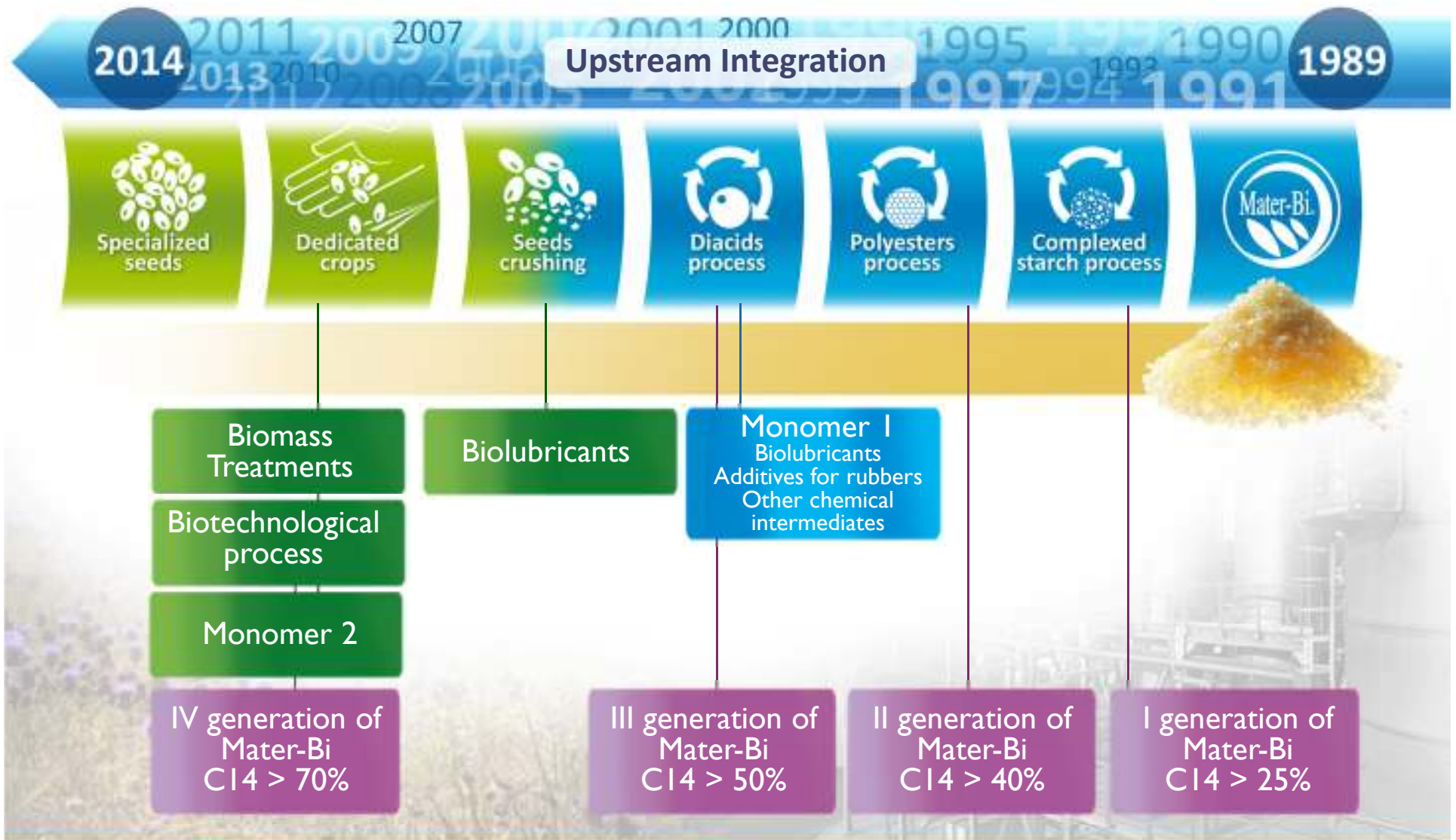
Novamont & markets



Bio-monomers

	Azelaic acid	Production of diesters and complex esters. Complexing agent for complex greases. Corrosion inhibitors. Building block for many products
	Pelargonic acid	Alternative to C8/C10 acid blend from palm oil for ester production. Corrosion inhibitors
	C5-C9 monocarboxylic acids blends	Raw material for high performance esters
	1-4 Butandiol from sugar	Raw material for the productions of polyesters and PU

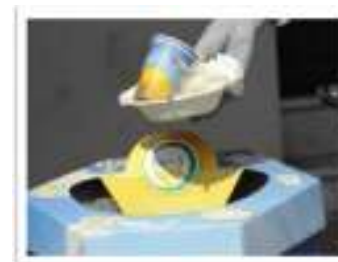
Novamont technologies and development scheme



CONFIDENZIALE

Mater-Bi®: applications

Tailor-made applications where biodegradability and compostability present added value



Thistle harvesting



New Biochemicals: Sectors where Matrìca Products will Contribute to the Quality of the Environment



BIOPLASTICS: PROPRIETARY MATER-BI OF THIRD GENERATION (WITH AZELAIC ACID)



PLASTICIZERS FOR PVC AND OTHER POLYMERS AS REPLACEMENT OF PHTALATES

BIOLUBRICANTS FOR AGRICULTURE, MARINE AND INDUSTRIAL APPLICATIONS (HIGH LUBRICITY, BIODEGRADABILITY, LOW FLAMMABILITY)



PALM OIL FREE COMPONENTS FOR COSMETICS

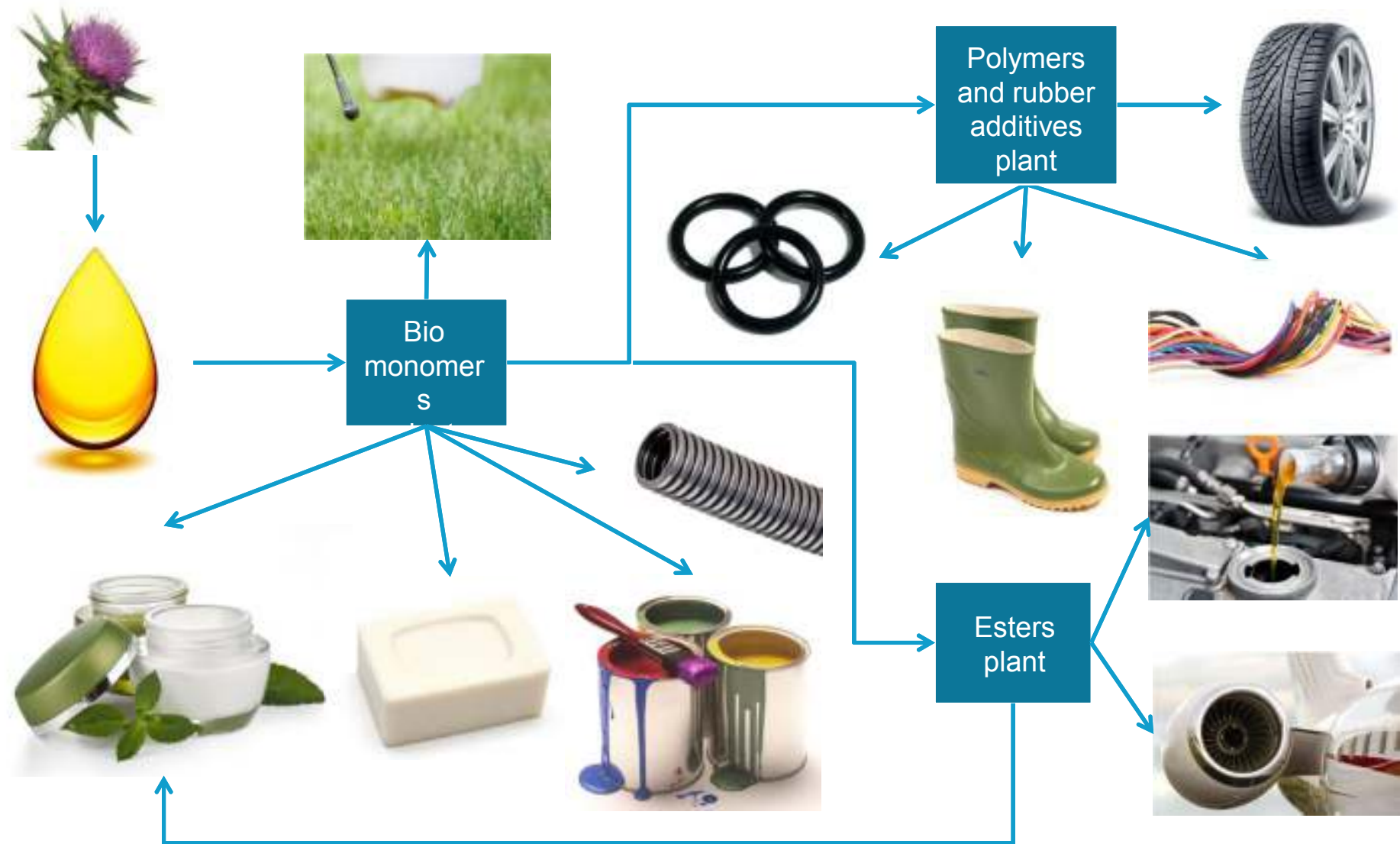


OIL EXTENDERS FOR RUBBER



BIO-HERBICIDES FOR INTEGRATED AGRICULTURE

From oil to applications



Rubber and plastic additives

Products for 'green tires'

- New renewable extensor oils for partial or complete replacement of fossil-based additives currently used in tires manufacturing
- New generation of complexed starch biofiller for partially/fully replacement of silica and carbon black
- **Better performances** in terms of rolling resistance and wet grip (reduction of fuel consumption)
- Especially indicated for winter tires

Green process:

- Easier processability of the mix
- Lower emissions

Renewable raw materials:

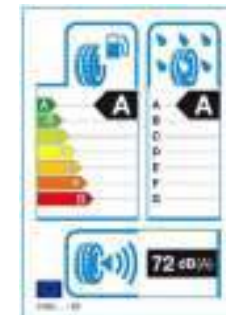
- Low *carbon-footprint*
- No *food competition*



Top performance:

- Low rolling resistance
- Lower fuel consumption
- Lower emissions
- Longer durability

Tyre Label



Thank you!



« The challenge of our millennium is in the balance between the technical means that humanity possesses and the wisdom in how we will make use of them »

Umberto Colombo