

**SOWING  
THE FUTURE**

**SOWING IDEAS  
FOR A NEW DEVELOPMENT  
MODEL**



**NOVAMONT**



## PROTECTING NATURAL RESOURCES, REGENERATING LOCAL AREAS

Chemistry, agriculture and the environment: these are the ingredients of our bioeconomy model.

We promote a new cultural approach that can reconcile economy and society, business and citizens, and protect natural resources and biodiversity whilst encouraging the use of crops that respect specific local conditions.

Innovation is the driver of our industrial development: we constantly invest in research activities to improve the performance and the environmental profile of our products and to create proprietary technologies that allow us to

redevelop industrial sites that are no longer competitive into biorefineries integrated in the local area.

We build bridges between different sectors and create jobs and new value by working with all stakeholders in the value chain: from agriculture to research, from industry to local institutions.

Bioplastics and bio-based products are the heart of our business. We have created the innovative bioplastic MATER-BI, which is used to make everyday products that are conceived and designed as solutions to specific environmental and social problems.



STARTING FROM LOCAL AREAS  
FOR THE DEVELOPMENT OF STRATEGIC  
PARTNERSHIPS IN THE AGRICULTURAL SECTOR

## THE INNOVATIVE CARDOON INDUSTRY

At NOVAMONT we promote a model of sustainable agriculture based on the cascading use of raw materials and the development of solutions to solve specific environmental problems. Our research, in partnership with academia and with leading Italian and international centres, has enabled us to identify and study oleaginous dryland crops of potential interest for industry to obtain bioproducts with low impact and high added value.

We have identified the cardoon as one of the low-input crops that is well suited to the climate of the Mediterranean region and that can be grown on arid, marginal lands that are unsuitable for traditional crops.

This was the basis for our partnership with Coldiretti, Europe's largest agricultural organisation, for the

dissemination of the cardoon to Sardinian farmers, with the idea of offering them a new potential source of income and to make the most of the specific local conditions.

Consideration for the local area and for the creation of innovative agricultural industries, also confirmed by Coldiretti's interest in the use of our biodegradable products in agriculture, such as bioherbicides and mulch films made of MATER-BI.

**ADDED VALUE FOR  
SUPPLY-CHAIN  
PLAYERS**

**CASCADING  
USE OF  
RESOURCES**

**DEVELOPMENT OF  
INNOVATIVE NEW  
PRODUCTS**



AN INNOVATIVE TECHNIQUE  
FOR MANY DIFFERENT CROPS.  
THE CASE OF INDUSTRIAL TOMATOES

## MULCH FILM MADE OF MATER-BI

MATER-BI mulch films, certified OK Biodegradable Soil, are an example of a successfully used agricultural technique and offer many advantages:

**THEY DO NOT NEED  
TO BE REMOVED**

**THEY ENABLE SAVINGS  
IN TIME AND REMOVAL  
AND TRANSFER COSTS**

**THEY DO NOT POLLUTE  
THE ENVIRONMENT**

**THEY DO NOT PRODUCE  
WASTE AT THEIR  
END OF LIFE**

It is these properties that make MATER-BI mulch films suitable for use on a wide range of vegetable crops, including industrial tomatoes, one of Italy's main crops. In this case the biodegradable film also removes the problem of clogging of the mechanical parts of harvesting machines, which occurs with traditional plastic film,

thus allowing full mechanisation of cultivation.

Italy is the leading European country for production and areas dedicated to industrial tomatoes with around 73,000 hectares (2015), distributed over the main producing regions in the north (Emilia Romagna and Lombardy) and south of the country (Apulia and Campania).

The CIO (Consorzio Interregionale Ortofrutticoli - Interregional Fruit and Vegetable Consortium) was the first major consortium to use MATER-BI mulch films on industrial tomatoes.

MATER-BI films have also been tested for the same crop in other parts of Europe. Since the early 2000s the biodegradable films have been introduced in some regions of Spain, replacing traditional plastic film, with rates reaching 80% of mulched areas.



AT EATALY

## CONSCIOUS SHOPPING WITH MATER-BI PRODUCTS

Our partnership with Eataly - the world's largest food and wine market, dedicated to the sale and consumption of high-quality products of the Italian agri-food tradition - began in 2010 with the idea of finding sustainable and effective solutions for use in foodservice. And so it did.

Eataly started off by replacing the traditional plastic shopping bags used in its many sales stores in Italy and overseas with an integrated system of carrier bags made of MATER-BI and by using disposable, biodegradable and compostable tableware, in its sales and dining areas alike.

In 2015 Eataly also confirmed its vocation for sustainability in all its restaurants located in Expo Milano. Building on this success, in 2016 it decided to use the solutions offered by MATER-BI, which can be disposed of with the separate organic waste

collection, in all its directly managed stores. A choice that fully supports the "zero food waste to landfill" model: the compostable MATER-BI products can indeed be collected with the organic waste and sent for industrial composting.

**Products made of MATER-BI used in Eataly stores**

**CARRIER BAGS**

**GLOVES**

**FRUIT AND VEGETABLE BAGS**

**TABLEWARE FOR THE CONSUMPTION OF FOOD AND DRINK (CUTLERY AND CUPS)**

**PRODUCTS FOR THE SECONDARY PACKAGING OF FRESH MEAT AND FISH PRODUCTS**



MILAN IS WASTE RECYCLING CHAMPION,  
THANKS ALSO TO MATER-BI

## WASTE AS A RESOURCE

Italy has always been at the forefront of organic waste collection. With growth of 9.5% compared to 2014, organic waste is continuing its path towards consolidation as the main component of urban waste separately collected in Italy.

Milan has not remained on the sidelines and has contributed effectively and concretely to the achievement of these results. Since 2012, when the year door-to-door collection of wet waste began, Milan has proved itself to be a virtuous example of separate waste collection and wet waste collection in particular. The city currently collects over twice as much organic waste than any other European city with its door-to-door system. The adoption of this model has enabled it to exceed 50% of the separate collection, putting Milan in first place among European cities.

One of the strengths of the waste management system in Milan is the

collection of wet waste, through the use of fully biodegradable and compostable bags that are suitable for processing in composting and anaerobic digestion facilities. One of the most successful factors is precisely the compostability of the bags, since this ensures both the quality of the organic waste and its conversion into compost, a valuable resource to fertilise the land. Milan has thus become a successful case study at an international level which can be replicated in other contexts, of different sizes and locations.

**MILAN  
FIRST EUROPEAN CITY  
WITH OVER 1,500,000  
INHABITANTS FOR  
SEPARATE COLLECTION**

**FOOD WASTE:  
1.85 KG/WEEK  
PER CAPITA =  
98 KG/YEAR  
PER CAPITA**

**>95% ORGANIC  
QUALITY**



## WASTE-FREE COFFEE

# EVEN THE CAPSULE BECOMES COMPOST

We have worked together with the Italian excellences in designing a product that is able to change the way we produce and consume espresso coffee: a fully biodegradable and compostable coffee capsule, Italian and made of MATER-BI.

The capsule, which is the result of years of research and development with major Italian businesses and the retail trade, came about through the application of the circular economy principle of zero waste, according to which nothing is waste, but everything goes back to being a resource for the environment.

After use, the capsule can be thrown away with the organic waste and sent for industrial composting where, together with the coffee grounds, it is recycled into compost, a natural

soil fertiliser. Disposing of the capsule in the wet waste is a simple gesture whereby consumers can close the loop, allowing the coffee grounds to be turned into fertile compost, at the same time offering consumers the opportunity to experience the potential of the circular economy every day.

### Capsule made of MATER-BI

**OVER 5 YEARS  
OF RESEARCH  
AND DEVELOPMENT**

**100% ITALIAN**

**RENEWABLE  
CONTENT >50%**

**RESISTANT TO  
HIGH PRESSURE (10 BAR)  
AND SUPPLY  
TEMPERATURES  
(95 -100°)**



## FRUIT AND VEGETABLE BAGS AND GLOVES MADE OF MATER-BI FOR UNICOOP FIRENZE

# SHOPPING WITHOUT PLASTIC

Unicoop was the first Italian retailer to replace traditional plastic carrier bags with bags made of MATER-BI. Unicoop Firenze has confirmed its environmental leadership by using bioplastic fruit and vegetables bags and gloves for the fruit and vegetable section in all of its 104 stores.

By adopting MATER-BI bags for its fruit and vegetable section, Unicoop has given further impetus to the reduction of waste which is not easily recyclable, thus increasing the collection of wet waste which can be used to produce quality compost and renewable energy (biogas). The bags can indeed become a resource because of their dual use: in the store for groceries and at home to separate the organic waste fraction. Fruit and vegetable bags made of MATER-BI

are an innovative application with a huge impact: in one year an average of 360 tonnes of conventional plastic is used to produce the gloves used to choose loose products and the bags used to carry them home.

**104 STORES**

**110 MLN FRUIT  
AND VEGETABLE BAGS  
MADE OF MATER-BI**

**35 MLN GLOVES  
MADE OF MATER-BI**

A winning model with application not only in the Italian retail trade but also abroad: in Britain, for example, The Co-operative Food has adopted the use of compostable carrier bags throughout its 399 stores, which can be reused by British citizens for their organic waste.





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