



Bandera Geomembrane

Our history

1947

Luigi Bandera officially established the company and started the history of extrusion in Italy

1950

Costruzioni Meccaniche Luigi Bandera became a joint stock company, scaling up its activities to become an industrial concern

1960/70

Costruzioni Meccaniche Luigi Bandera experienced a remarkable industrial growth developing a wide and diversified range of extrusion products

1980/90

Costruzioni Meccaniche Luigi Bandera was acknowledged as one of the leading companies in the extrusion sector of both Blown Film and Sheet, in Italy and worldwide

2015/2016

Opening of the House of Extrusion, 3000 m² housing R&D and test-running activities on complete production lines

Today

Bandera focuses on Blown Film and Flat Die extrusion technologies, offering customized engineering services and an after-sales global network

Bandera top numbers

since 1947

experts in extrusion

15,500

active clients
all over the world

35,000

extruders installed
running worldwide

100%

in house design
and manufacturing

55,000

m² production sites

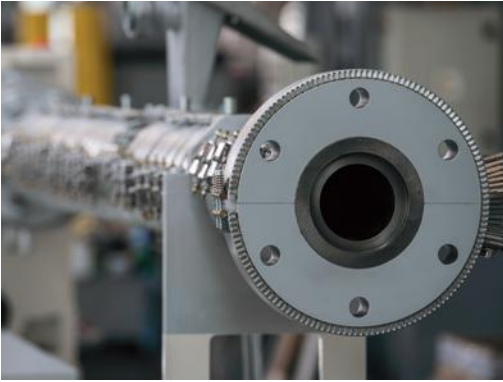
54,000 †

of extruded polymers
per day

205 employees

75% technical
background

Bandera: highest quality in extrusion



Product line shares



Blown
Film lines



Rigid Film
and Sheet
lines



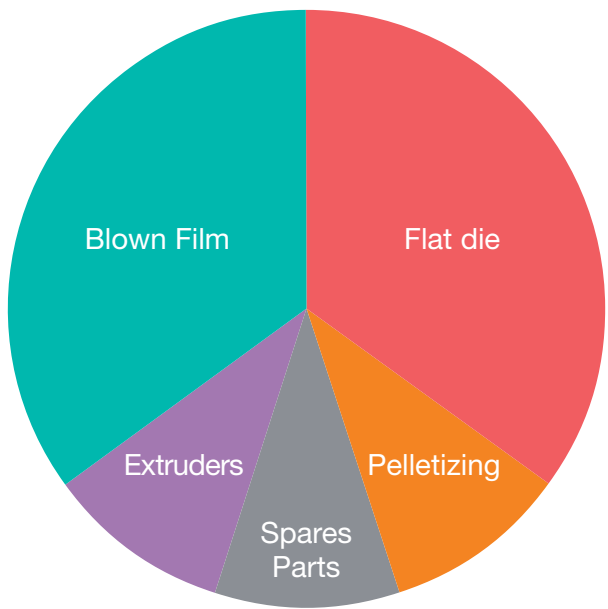
Extrusion
lines



Spare
Parts



Pelletizing



Source: internal data as of January 2019

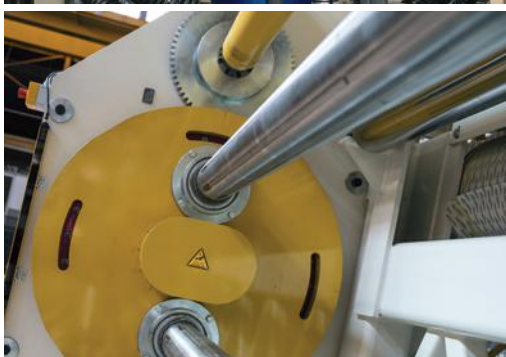
Bandera Blown Film Technology for flexible packaging and converting

Smart Flex® lines (1 and 5 layers) competitive investment, maximised flexibility, power consumption reduction, functional and compact layout

Techno Flex® lines for multi-layer film (3 and 5 layers) with top performances

Barrier Flex® lines for the high-barrier film (7, 9 and 11 layers)

HDB Flex® lines for the production of FFS industrial bags



Geo and Agri lines

Bandera is worldwide leader in the production of
complete multilayer Blown Film big plants
dedicated to **Agricultural Film** and **geomembrane**.

Geo FutureFilm® Blown Film lines for geomembrane
Agri FutureFilm® Blown Film lines for agricultural film

GEO
FUTUREFILM® 

AGRI
FUTUREFILM® 

Geomembranes



Function

To work as a durable containment liner or cover in a specific system, to prevent gas or liquids migration



Properties

These are required to be waterproof, chemically inert, non-porous and barrier



Wide variety of geomembrane applications

Water management

Ponds for fish farming

Water treatment

Infrastructures

Waterproofing for building industry

Flexi tanks

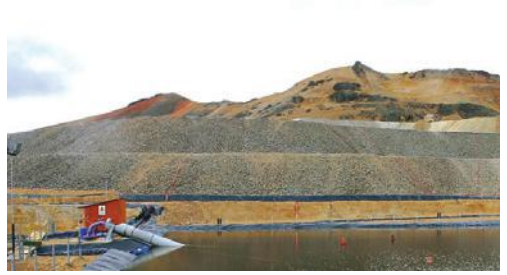
Water ponds and reservoir linings

Solid waste landfill

Water reservoir

Copper mining

Water treatment



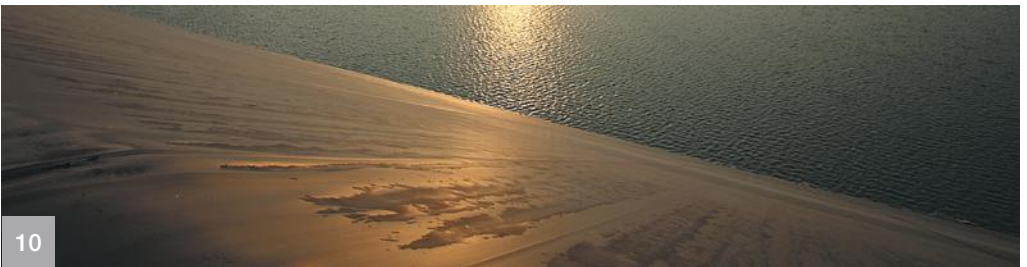
Ponds for fish farming



Water reservoir



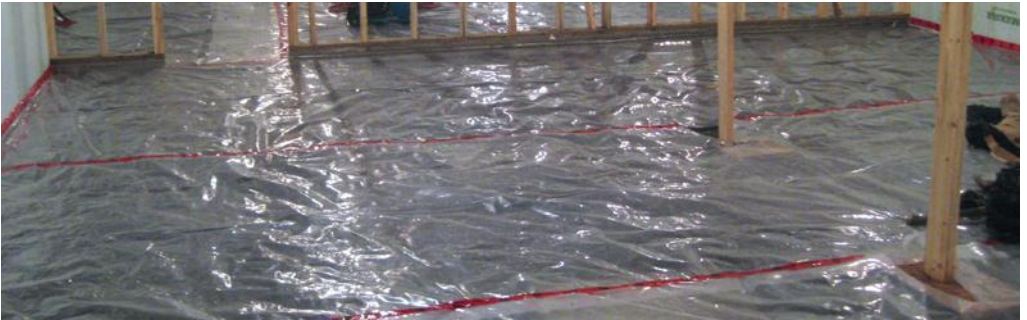
Water management



Infrastructures



Waterproofing for building industry



Water ponds and reservoir linings



Solid waste landfill



Copper mining



**Flexi tank, to contain
and transport liquids**



Geomembrane production technologies

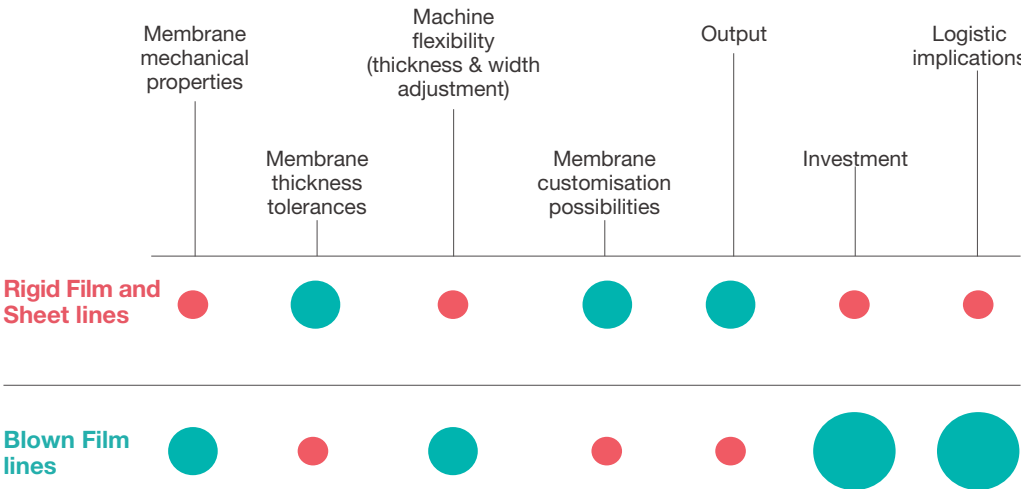
Extrusion technologies for geomembranes



Rigid Film and Sheet lines



Blown Film lines



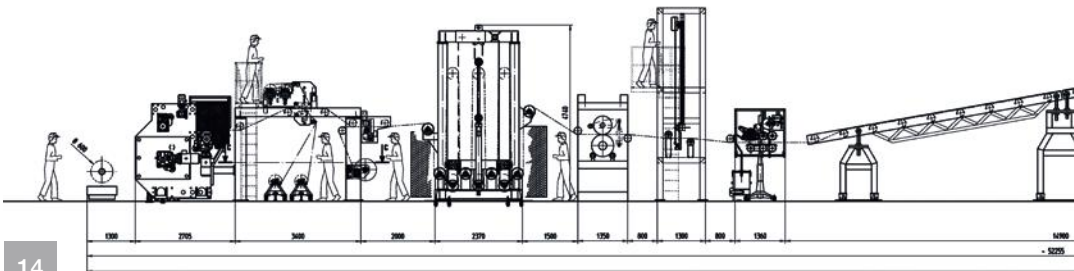
Flat Die Technology

Sheet extrusion lines for geomembranes

High throughput (up to 2500 kg/h) and **total** flexibility (enhanced mixing and self-cleaning properties).

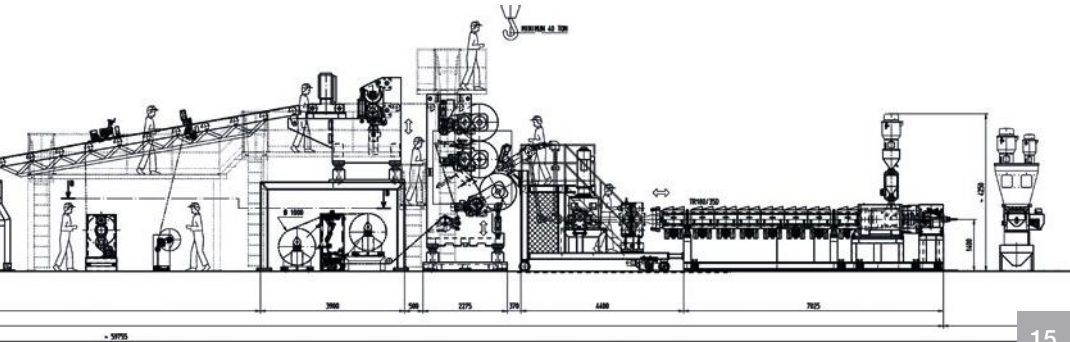
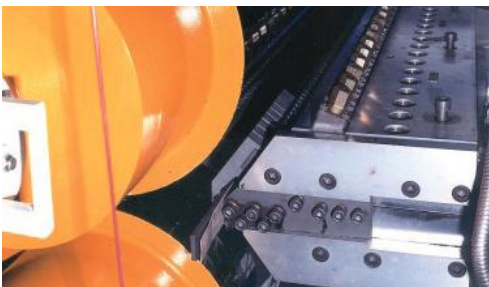
For these reasons,

twin screw co-rotating extrusion technology or **specially engineered single screw extruders** are usually



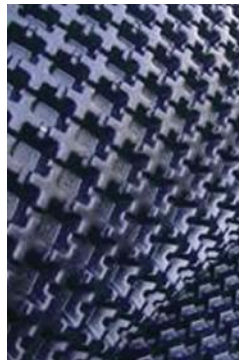
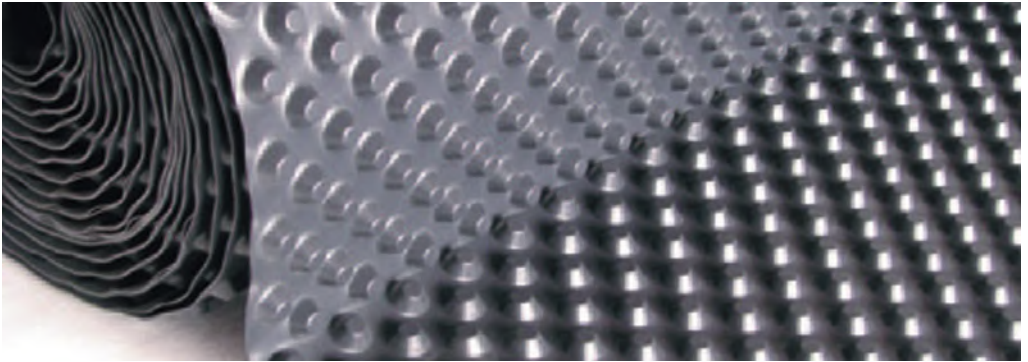
Bandera solution

Special projects, our daily job

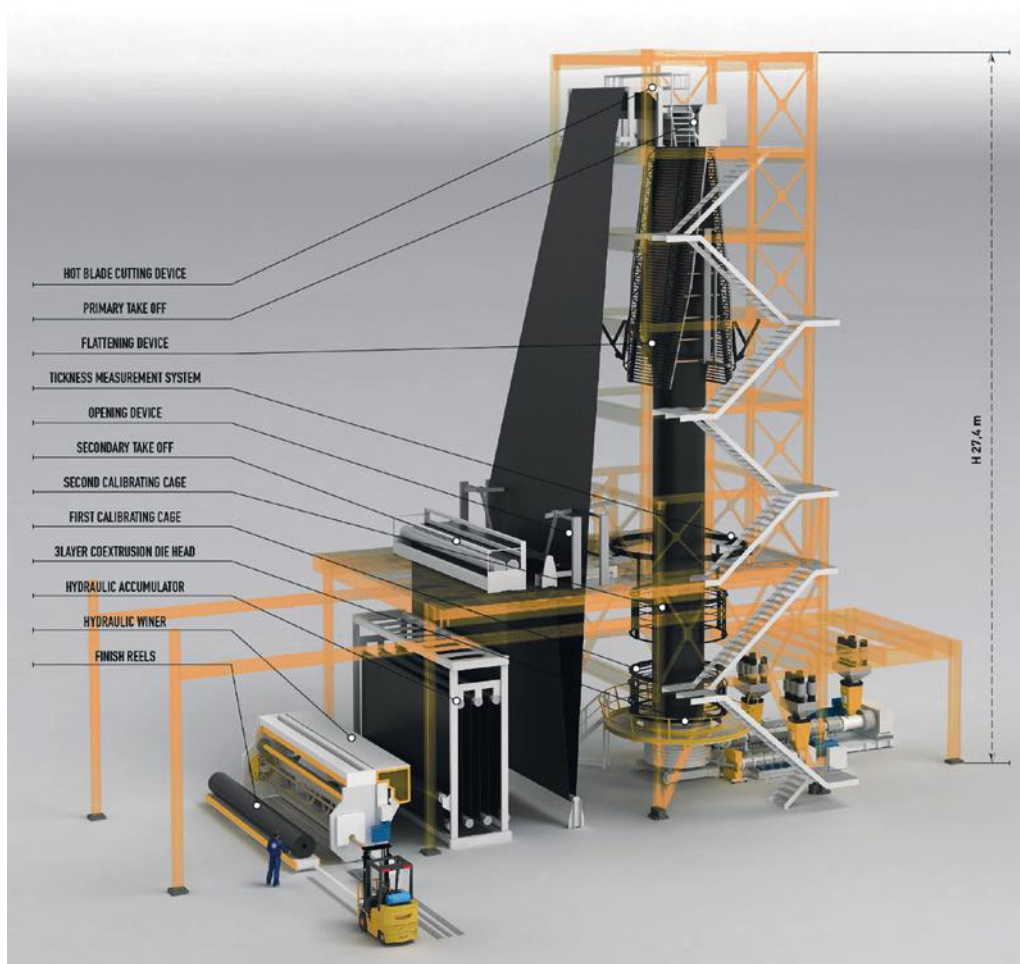


Rigid Film and Sheet lines

Examples of different surface patterns



Blown Film lines, Bandera solution



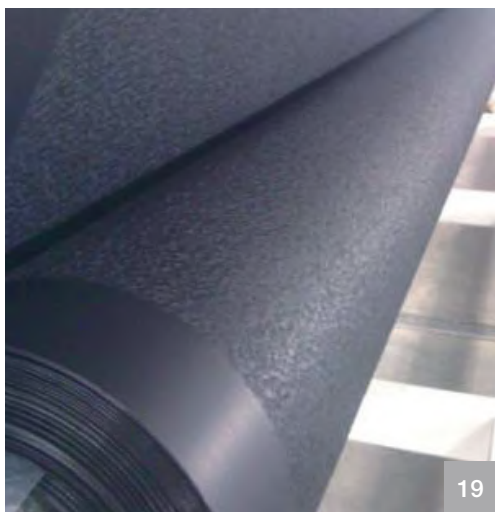
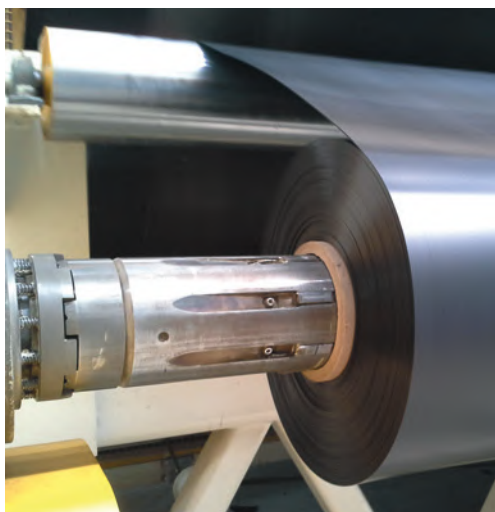
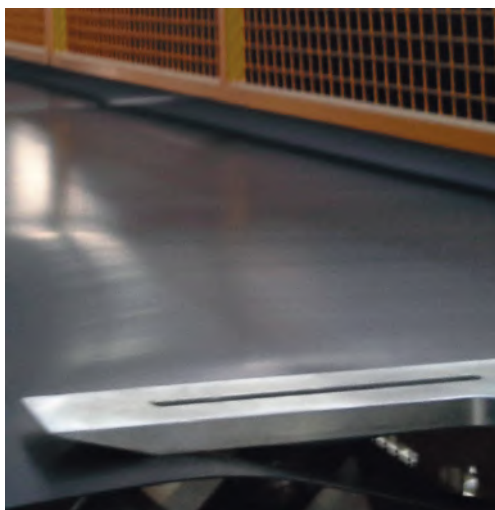
Blown Film lines, Bandera solution

Extrusion die-head and opening device,
hole detector and accumulator



Blown Film lines, Bandera solution

Cutting edge trims, rewinder
and finished rolls



Two possible production sizes



5.8 m for export,
to fit into 20 feet
container



8 m for local markets,
to reduce the number
of weldings on the field

5.8 m

8 m

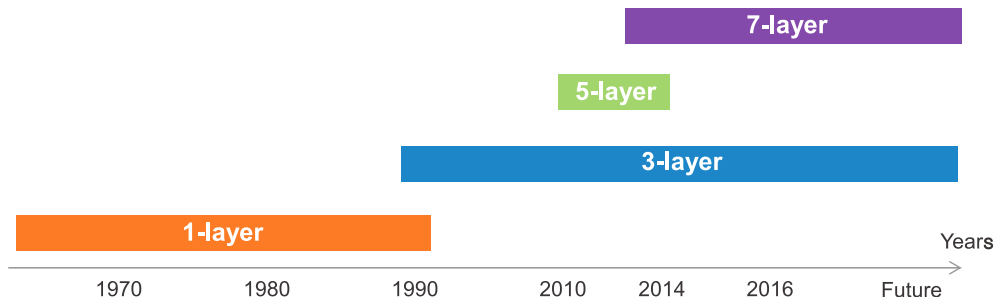
Geomembrane, latest market trends

A

Increasing number of layers



To achieve **wide choice on raw material formulation**
and optimising production costs.



B

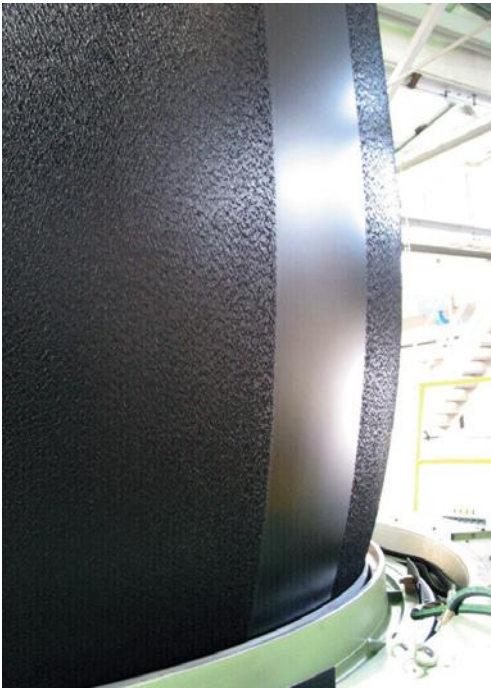
Continuous research
for improving performances



Geomembrane surfaces

Geomembrane surface
has the possibility to:

- be **smooth**
- be texturized (one side or both sides)
- have adjustable texture roughness
- go with **smooth stripe** for enhancing in-field welding operation



Example of different roughness

Maximum flexibility, also for Agrifilm

Agrifilm production can be processed with **the same extrusion head used for Geomembrane**

Agrifilm target market growth is ongoing,
especially in emerging economies

With a dedicated downstream it is possible to run wide film
(16 - 24 m) suitable for the **production of greenhouses covers**

Output around 2 tons/h



Bandera innovation for nitrogen injection



Bandera, unique know-how

**Bandera delivers turn-key projects, thanks to its
long-term expertise and know-how**

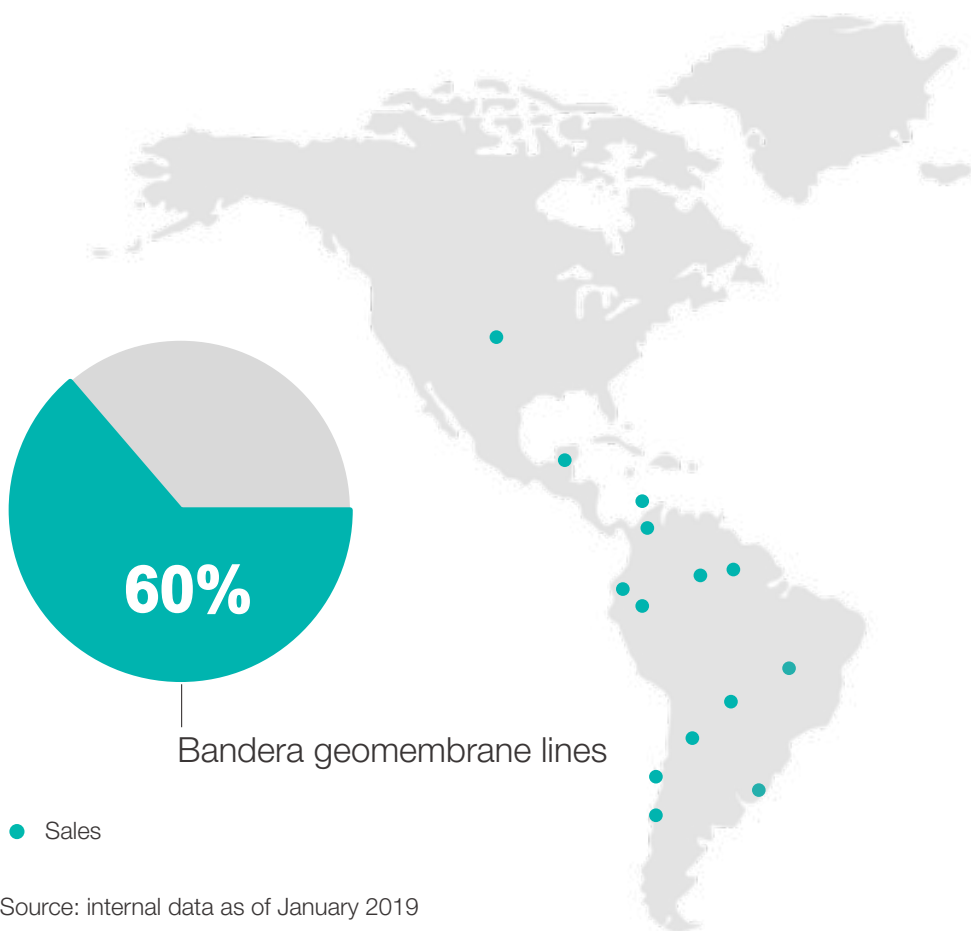
Besides engineering and manufacturing Agricultural Film lines,
Bandera's technical department is skilled and experienced
to provide a top level consultancy service: projecting
the factory hosting the plant itself



Make visions possible

Geomembrane

Over the last 10 years **Bandera has sold worldwide about 60% of the total amount of geomembrane lines** for the production of 7÷8 m width geomembrane



Source: internal data as of January 2019

customers



Bandera reference list

COUNTRY	LINE TYPE	INSTALLATION YEAR	N° LINES
ARGENTINA	AGRI	2013	1
	AGRI	2002	1
	AGRI-GEO	2005-2012	4
	AGRI	2009-2015	2
	AGRI-GEO	2013	1
	AGRI	2012-2013	2
BELGIUM	AGRI-GEO	2011-2017	2
BRAZIL	AGRI	2010	1
	GEO	2009	1
	AGRI-GEO	2011	2
	GEO	2019	1
CHILE	GEO	2001	1
	AGRI-GEO	2007-2012	2
CHINA	AGRI	2014	1
	GEO	2014	1
	AGRI	2011	1
COLOMBIA	AGRI-GEO	2007-2016	6
CUBA	AGRI	2016	1
EGYPT	AGRI-GEO	2007-2013	2
	AGRI-GEO	2013-2016	2
FINLAND	AGRI	2000	2
FRANCE	AGRI	2010-2015	2
	AGRI	2018	1
GERMANY	AGRI	2000	1
GREECE	AGRI	2004-2016	2
INDIA	GEO	2013	1
	AGRI	2016	1
	AGRI	2016	1
INDONESIA	AGRI-GEO	2019	1
ISRAEL	AGRI-GEO	2000-2016	5
ITALY	AGRI	2003-2018	6
	AGRI+GEO	2006-2019	8
	AGRI	2006-2018	4
	AGRI	2009-2011	2
	AGRI	2006-2018	7
	AGRI	2007	1
	AGRI-GEO	2006	2
	AGRI	2009-2016	2

From 2000 to April 2019

COUNTRY	LINE TYPE	INSTALLATION YEAR	N° LINES
ITALY	AGRI	2010-2016	2
JORDAN	AGRI	2000	1
KOREA	AGRI	2006	1
LEBANON	AGRI	2005	1
MALAYSIA	AGRI	2011	1
MEXICO	AGRI	2009-2012	2
	AGRI	2006-2016	2
	AGRI-GEO	2007-2009	3
	GEO	2017	1
MOROCCO	AGRI	2002	1
	AGRI	2003	1
	AGRI	2004	1
PERU	GEO	2011-2016	3
POLAND	AGRI	2016	1
	AGRI	2001	1
	AGRI	2000	2
	AGRI-GEO	2011	1
	AGRI	2016	1
PORTUGAL	AGRI-GEO	2009	2
SAUDI ARABIA	GEO	2013	1
	AGRI-GEO	2013	1
SLOVENIA	AGRI	2001	1
SPAIN	AGRI	2010-2017	3
	AGRI	2015-2017	2
SYRIA	AGRI	2011	1
TAIWAN	GEO	2006-2009	2
THAILAND	AGRI	2019	1
TURKEY	AGRI	2005	1
	AGRI	2010	1
	AGRI	2008	1
U.K.	AGRI	2009-2016	2
UNITED ARAB EMIRATES	AGRI-GEO	2007-2010	3
USA	AGRI	2017	1
	GEO	2018	2

100% Bandera

In-house engineering of complete extrusion plants.

In-house manufacturing of the extrusion system's most important parts.

They both ensure **high level quality** and fast supply of spare parts, including parts for non-standard machinery.

Over the years the company has built a **detailed understanding of rheology** for all thermoplastic materials, resulting in state-of-the-art finished products.

Digital **simulation and design allow** apre-project check on any system performance.



Manufacturing departments

3 production sites covering a total area of 55,000 m².

Mechanical and electrical assembly area of extruders and complete lines.

Specialised in the production of screws, cylinders and extrusion heads.

The House of Extrusion®, the brand new R&D centre, fully dedicated to wet tests.

Extensive use of CNC machine tools for the manufacture of screws, cylinders and extrusion heads.



Quality as an asset

Quality is a state of mind, our is subject to constant review, ensuring **customer satisfaction**.

Quality is crucial to us in every stage of **design**, **manufacturing** and **technical support**.

ISO 9001 from 1998.



Quality control

Top quality control **procedures**.

Prior **verification of materials** and constant monitoring of suppliers.

Checking the product during the manufacturing stages.

Quality control of **finished products**.

Identification and **tracking** of materials and products.

Constant **review of instruments** for measuring and tests.



We do local,



Headquarters



Service centres



Sales office

we act global



Source: internal data as of January 2019

The House of Extrusion[®]

Brand **new centre housing R&D** activities and wet tests on complete production lines just launched in May 2015, with an investment of € 4 million.



A responsive and efficient Customer Service

6 After-sale service centres for a worldwide assistance

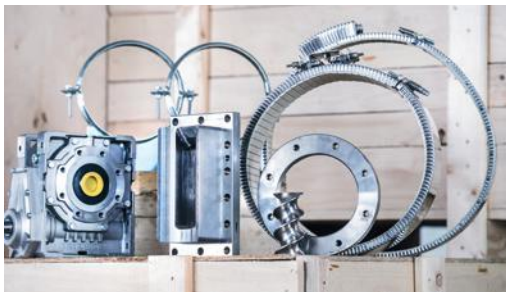
Top class on-site technicians specialised in installation and start-up

Customised procedures training for new applications

Scheduled interventions for extraordinary maintenance

Cost effective **spare parts packages**

Reclaiming of existing machines and **revamping** of complete extrusion lines



Bandera: a synonym for excellence



Worldwide reputation for **trustworthiness**,
integrity and **high standards** of business context.

Extrusion knowledge®

In-house design and production

Guaranteed line **performance output**

Customer requirements
full satisfaction

Competitive and cost-effective lines

Reliable and robust **equipment**

Experienced & **Innovative**

Flexibility in project engineering

Future-oriented

Sound-proficient and **well-organised**

Top-level performances



BANDERA

EXTRUSION INTELLIGENCE®

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Visit our website and learn about our products

luigibandera.com/products/blown-film/geomembrane