

THE MEAT PRODUCTION ECOSYSTEM

Circularity, Bioeconomy and Supply Chain Integration

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2023



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For over 25 years, INALCA has developed a systemic approach to the world of meat. By setting up an innovative and intelligent network of production facilities, it has achieved the highest valorisation and utilisation hierarchy from every part of the cattle. A production ecosystem that transforms every waste or by-product through innovative processes is the basis of sustainable development and an effective response to the global demand for food security. This path has led INALCA to integrate its processes, both vertically from breeding to the finished product - and horizontally, interacting on the territory with other economic entities and developing forms of industrial symbiosis in the various sectors of product use. While the meat market has been INALCA's historical root for over 60 years, the circular bio-economy model the company has adopted now allows it to collaborate and create synergies in all related sectors: biomedical, animal feed, fertilisers, pet food and bioenergy. For an economy that nurtures territory and sustainability.

Let's start with the principles

INALCA, aware of its role as a leading company in the beef sector, has always been careful to environmental. social and economic sustainability issues and for more than 25 years has been pursuing a policy in support of the principles on which its future is focused on: an integrated and sustainable supply chain, control of consumption and impacts, sharing of value with the farming world, and management and transparency in company processes.

1963 fondation year Italy's millenary agricultural tradition has inspired and continues to underpin the development model of INALCA, a company that recognises itself in the vast heritage of values linked to our country's rural civilisation.

Since its foundation in the province of Modena in 1963, INALCA's history has been one of continuous and steady growth, through a business model based on a long-term vision and strong territorial integration. This model has also proved effective in overcoming difficult and unpredictable situations (such as the recent Covid-19 crises, the war in Ukraine, and inflation) through the high flexibility of the group's managerial organisation, which is capable of adapting to sociocultural and market changes at any time. The company's goal is the implementation

of an increasingly integrated and circular cattle supply chain, particularly attentive to the social context, the protection of the environment and the demands of the agricultural world and its stakeholders, in order to meet the global challenge of ensuring accessible food for all.



A company's success derives from its ability to combine efficiency and economic performance to ensure growth, employment and income redistribution along all links in the chain. The values on which it bases its production are in line with the objectives defined by the United Nations in Agenda 2030 for sustainable development, based on the integration and fair balance of the three different dimensions: environmental, economic and social. For INALCA, the fight against climate change and poverty, responsible production and consumption models, clean and accessible energy and the conscious use of natural resources are the fundamental pillars on which production is based. INALCA's sustainable development is therefore based on four principles: integrated and sustainable supply chain; control of consumption and impacts; sharing value with the farming world; and management and transparency in business processes.

INALCA's Sustainable Development Goals







Value sharing with the agricultural world



Annual production

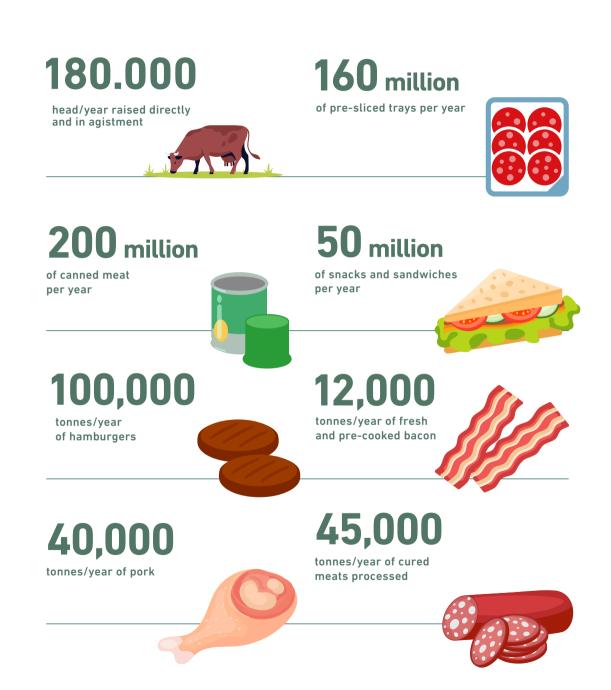
Group identity

Today, the INALCA group is the absolute leader in Italy, it is one of the largest European players in the beef sector and is also among the top Italian players in the pork, bacon, cured meats and snacks sectors. The company also operates in a leading position in the distribution of food products abroad with its own distribution platforms in several emerging countries. In Italy, the industrial structure consists of 16 plants specialised by type of processing, of which **11** are dedicated to meat processing and **5** to the production of sausages, snacks and bacon. Precisely with a view to integration with the reference territory, the company structures are located in the areas where 65.6% of the Italian cattle herd is concentrated, where the group has over time increased the proportion of herds controlled directly

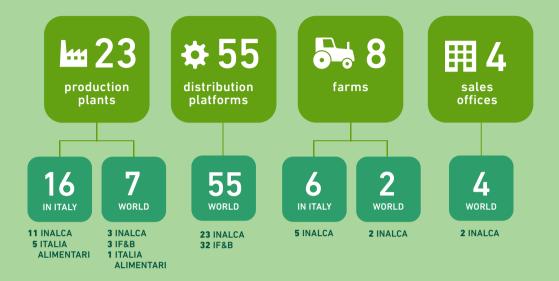
or in succession. INALCA today boasts a capacity of 180,000 cattle per year. There is also a strong and significant presence abroad, with **7** production plants located in **6** countries: Russia, Poland, Canada, the Canary Islands, the United States and Hong Kong. In addition, INALCA directly manages **23** distribution centres located in Russia, Kazakhstan and several African countries. On the other hand, the subsidiary Inalca Food & Beverage (IF&B), with **29** platforms, specialises in the marketing and distribution of Made in Italy food products worldwide. Today, the import-export business involves more than 70 countries on all continents.

Brands

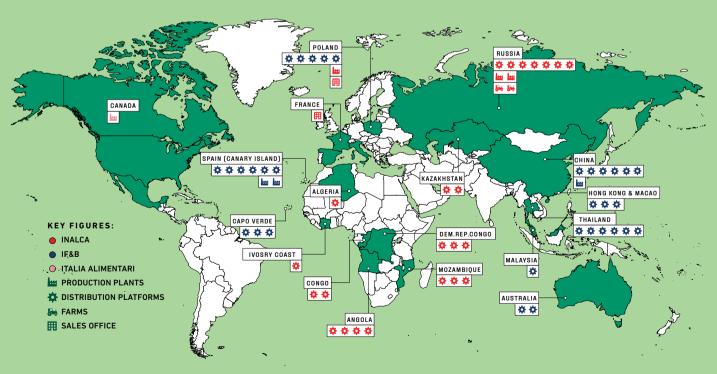




The INALCA Group



Worldwide





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THE MEAT PRODUCTION ECOSYSTEM

LET'S START WITH THE PRINCIPLES

INALCA business model

The activity developed by INALCA consists in the realisation of an integrated and sustainable supply chain according to the "From farm to fork" model in Italy, and the "From fork to farm" model abroad.

In a virtuous circuit that enhances all the agricultural and industrial activities involved. For years, INALCA has been committed to building an increasingly sustainable business model by presiding over the entire beef supply chain. Historically, in Italy, the group has made a supply chain according to a downstream approach also defined as "From farm to fork". This model starts from the "upstream" activities of the field (with the livestock farms) and then extends to the "downstream" activities (slaughtering and processing and, finally, meat distribution). Abroad - where development has been concentrated particularly in emerging economies, such as in several African countries. Central Asian Republics and Russia - an upstream model, also referred to as "From fork to farm". has been followed. The latter initially provides for the sale of food products to local companies operating in the catering, hotel and retail sectors.

This first phase is followed by the construction of logistics and distribution infrastructure. After developing an in-depth knowledge of the target markets, the company then proceeds to build industrial plants dedicated to the production of processed goods that can meet local consumption needs. It is only later that upstream industrial activities such as processing, slaughtering and cattle breeding are finally introduced.

Both development models are united by the **progressive integration of the supply chain.** The result is a company that is fully integrated at the production level and fully embedded in the social context of the place where it operates.

Not only because of duty, but because of belief

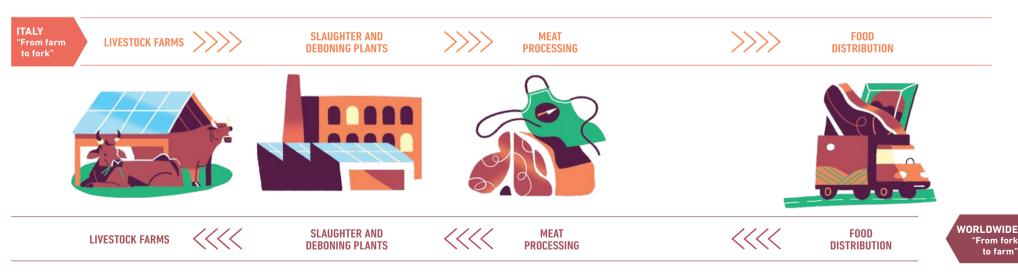
INALCA plans, manages and controls activities at all levels through the extensive use of technical standards in the fields of quality, safety and social responsibility. The group is not content with complying with the laws and regulations in all the countries in which it operates, but is also committed to observing high ethical standards in the daily conduct of its work.

These standards, and the principles that inspired them, are collected in the **Code of Ethics**, which is a supplementary instrument to the standards of behavior set by the lawmakers. All corporate decisions and personnel conduct must comply with ethical rules, even in cases where they are not specifically codified by law.

Doing more on this front, even without having specific legal obligations, is one of the cardinal principles on which the company vision is based.

All stakeholders are required to refer to the Code of Ethics: capital owners, employees, collaborators and external consultants, suppliers, customers.

Evolution of the INALCA supply chain





Environment, recovery, regeneration

Pursuing "sustainable development" means monitoring, governing and constantly improving the environmental impact of one's economic activity, and defining the actions necessary to reduce it.

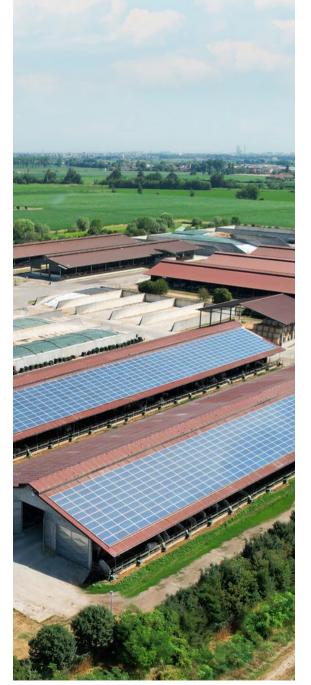
ENERGY

76% Energy self-produced of which 29%

Energy from renewable sources

From the involvement of farmers, to waste recovery and reuse activities, to energy self-production, INALCA is at the forefront of doing its part to respect the environment along the entire supply chain, from breeding to the finished product. The company works on continuously improving production efficiency while ensuring the highest levels of food safety.

The main environmental aspects on which INAL-CA focuses its activities concern: **agriculture**, **livestock farming**, **water consumption**, **packaging**, **energy**, **emissions**, **waste management and by-products**.



Self-production of energy

INALCA pays particular attention to livestock farming, actively involving farmers in mitigating environmental impact through the responsible use of primary resources and good agricultural practices, such as self-production of energy.

On livestock farms, green energy production is based on the use of manure and agricultural processing waste as input for the anaerobic digestion process, through which biogas is produced and used for the production of thermal and electrical energy. From the same process, it is possible to obtain digestate, an important residue that can be used as such by the same farms for fertilising self-produced fodder for animal feed. Alternatively, due to its high organic carbon content, digestate is a particularly suitable matrix for the group's or third-party composting plants to produce high quality compost.

As far as the **industrial side** is concerned, on the energy front, the company has activated a path of self-production, which began already in the mid-1990s: today INALCA generates a part of the energy needs of its plants autonomously, both from renewable sources and from natural gas cogeneration. Like agricultural biogas, **industrial biogas plants**, which use waste from meat processing, are also capable of **producing thermal energy and electricity**. In addition to this, a **cogeneration plant** powered by **casted fats** provides a further source of **green energy**.

INALCA has installed **photovoltaic panels** on most of its production plants and on its farms, thus further contributing to the **self-production of energy from renewable sources.**

PHOTOVOLTAIC

20,519 peak KW installed on

20 plants

8.53 MW produced by photovoltaics

WATER

87,918 mc/year of purified water

WASTE

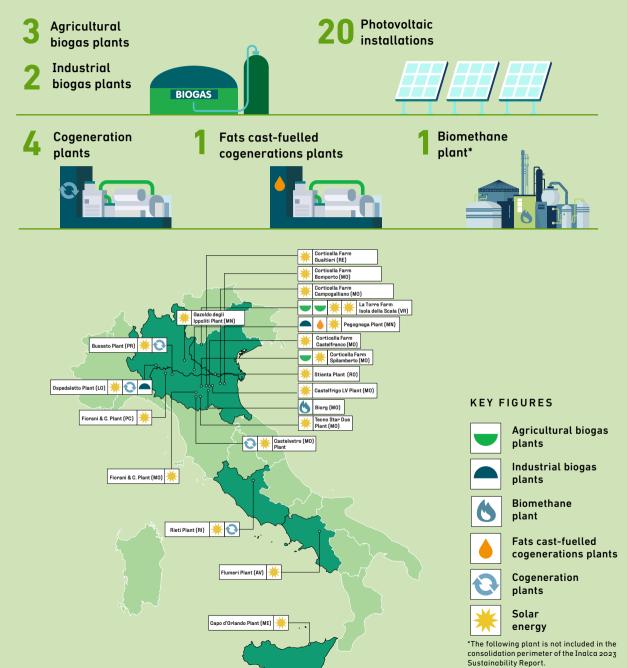
96% of waste sent to recovery Thanks to this energy infrastructure, INALCA is now able to **self-produce 76% of its requirements**, of which **29% from energy from renewable sources**.

From cattle to biomethane: the latest technological frontier to produce renewable energy

The latest frontier for the development of green energy is the partnership with HeraAmbiente for the production of **biomethane**, **a 100% renewable fuel** that can be used by the **urban network** and will also be used in the near future to **power goods transport vehicles and agricultural vehicles**.



INALCA'S ENERGY INFRASTRUCTURE. Cogeneration, photovoltaics and self-generation of energy



ENVIRONMENT, RECOVERY, REGENERATION

The circular economy of the beef supply chain

Compared to other industries, the agri-food sector is certainly the most complex because it is conditioned by the **many interactions between the different production chains** that are substantially integrated in a model that can be defined as **circular**. This term has come "back into fashion" in recent years, when one of the main challenges for the sustainability of industrial systems has become precisely that of changing the growth model: from **linear** (extraction of raw materials, processing and disposal of waste) **to circular, with the maximisation therefore of reuse and recovery of waste**.

Focusing on the meat sector, a quick glance at the figure opposite shows how cattle breeding and its processing chain is one of the most articulated and circular systems in existence. In fact, in addition to foodstuffs such as **meat**. milk and its derivatives (cheese, yoghurt, etc.), a large number of co-products generated in the processing phase are also produced from the cattle chain for a wide variety of uses. In the latter field, research and industrial innovation are certainly important to maximise the possibility of reuse. In fact, there are many interconnections of meat processing with other supply chains: from biomedical where biological heart valves are produced, to pharmaceuticals (drug capsules, heparin and antipyretics), leather goods (leather accessories, leather, etc.), cosmetics (creams, soaps, detergents), animal feed, pet food and pet toys. A direct consequence of this consideration is the fact that calculating the environmental impacts of one food product and then comparing it with those of a second food product without considering its context, inte-

raction with the various production chains and nutritional characteristics is a logical error that leads to partial and often misleading conclusions.

By-product valorisation and waste regeneration

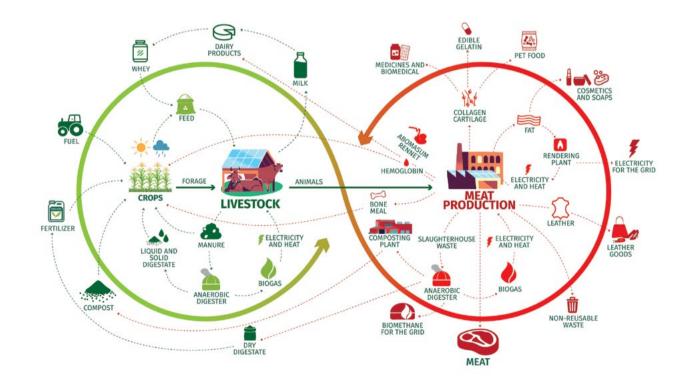
All INALCA's production processes are based on the principles of the circular economy. Part of this strategy is the investment in a **new food plant**, within the Castelvetro di Modena factory, for casted fats and bone processing, which were previously sent to non-food uses and disposal.

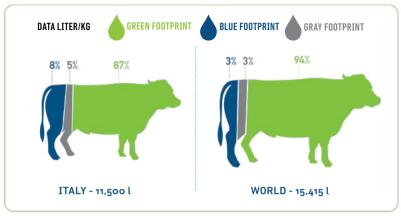
The new plant will allow the raw material (fat and bones) to be exploited as products **for the feed and petfood industry,** as well as for **food use** (for the production of cracklings, ingredients and flavourings) and **pharmaceutical use** (collagen for medicinal capsules).

Resources regeneration and waste reduction

For more than 25 years, INALCA has built its own integrated and circular cattle supply chain. INALCA is one of the very few companies in Italy capable of processing all bovine products and by-products and is able to valorise them, placing them at their best on national and international markets. The industrial structure is based on a circular economy model that regenerates resources and limits waste.

For example, animal manure and waste from agricultural and industrial activities, thanks to **biogas plants integrated with cogeneration**, constitute a valuable biomass for the production of **energy from renewable sources** and for the production of **organic fertilisers** that are reused in the agricultural cycle, particularly in organic farming.





Water: the sustainable use of a precious resource

In Italy, on average only 790 liters of water are needed to produce 1 kg of beef. Source: Mekonnen and Hoekstra, 2010.

The water footprint of cattle

The water footprint of animal husbandry systems is the aggregate of the components of **green** water (rainwater), **blue** water (drawn from groundwater or other water bodies) and **grey** water (sewage water): the green component that accounts for **94%**, however, is **rainwater** that is part of the evapotranspiration cycle and returns to the environment. The water actually consumed and attributable to cattle is **blue** water **(3%)** and **grey** water **(3%)**, corresponding to less than 1,000 litres per kg of meat (15 times less than reported). In Italy, compared to the world average, 25% less water is used to produce one kilogram of beef.

Water management in INALCA's production activities

In the **primary activity of animal husbandry**, INALCA promotes the use of voluntary standards and good agricultural practices for the responsible and efficient use of primary resources, including of course water.

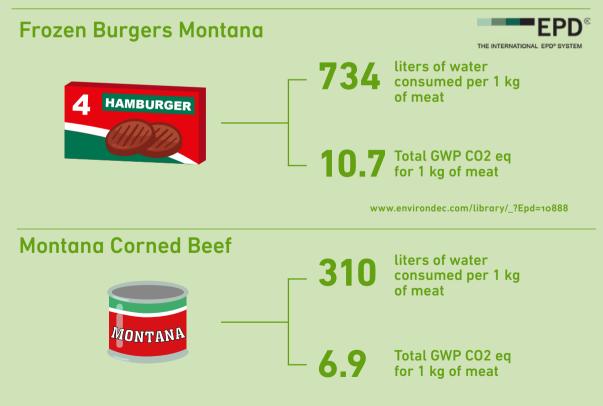
On the industrial side, the company works on the constant reduction of consumption, but also on the correct supply: in fact, it uses only groundwater, which offers greater guarantees in terms of quality, with more than 90% of supplies managed directly, in an integrated cycle that ensures the reduction of waste.

The waste water from INALCA's industrial processes does not contain any particularly environmentally hazardous substances, but the **purification plants** are capable of very high yields. In addition, for the Castelvetro di Modena and Ospedaletto Lodigiano plants - the largest in the group - INALCA has long since set discharge limits that are more restrictive than those required by environmental authorisations and, when sector regulations permit, the company recovers process water: in the last three years, INALCA has sent an average of **over 87,918 cubic metres/year of purified water to recovery.**

Environmental impact of products

The Environmental Product Declaration for the beef industry is the quantification of the environmental performance of a product by means of appropriate categories of parameters, calculated using the "Life Cycle Assessment" (LCA) methodology and thus following the standards of the ISO 14040 series. It makes it possible to analyse and quantify how much **energy and natural resources** are used during production and distribution processes, how much **CO2** is emitted into the atmosphere, what **materials** are used for **packaging, how much waste is generated.** INALCA has embarked on a path to further improve the sustainability of its

Montana-branded products through the **EPD** (Enviroment Product Declaration), a fundamental knowledge tool to achieve the priority objective: to make the meat production chain more sustainable every day. A commitment that stems from the awareness of being a reference point in the creation of a new sector culture. A responsibility that is an integral part of the company's mission: to make available to an increasing number of consumers a food that is important for human life and health, promoting a correct consumption style and contributing to the protection of the planet.



www.environdec.com/library/_?Epd=13981

The carbon footprint

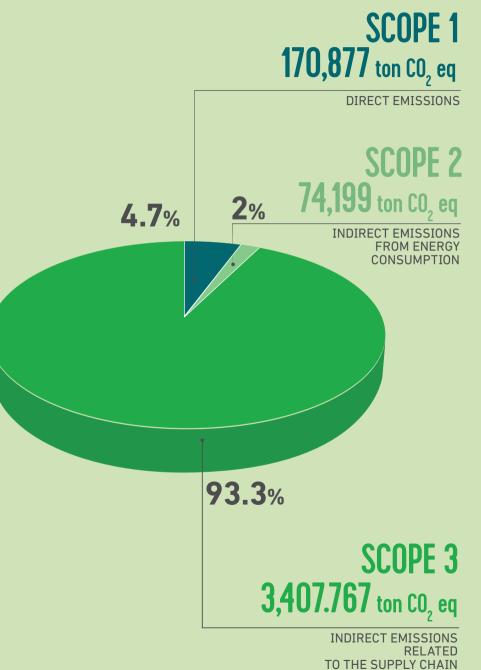
Animal products supply chains are to be seen as part of a new sustainable balance. Man, nature and animal husbandry can act together to contain emissions.

In order to measure its carbon footprint, the INALCA group collected all the necessary data to estimate its greenhouse gas emissions, considering both the group's direct emissions (i.e. emissions from the use of fuels for energy production, company vehicles and the production process) and emissions from animals on its own farms (**6.7**% of the total), as well as indirect emissions from the use of purchased electricity (Scope 1 and 2).

From 2021 onwards, this will also include data on emissions that are not directly controlled by the group but are produced in INALCA's value chain. (Scope 3, or **93.3%**). As a result of its emissions mapping exercise, INALCA has officially signed the SBTi (Science Based Target initiative) commitment for the establishment of a near term target.

The current challenge at global level is to produce more but at the same time containing as much as possible **the impact of food production on the environment in order to produce meat at a fair price affordable to all.**

Direct and indirect GHG emissions





OB Supply chain

Monitoring the whole supply chain is a strategic element for sustainable sourcing, supplier engagement and the achievement of ESG goals.

SUPPLIER

51% of suppliers is located in Emilia-Romagna and Lombardy INALCA's supply chain is broad, articulated and varies according to the product and geographical area of production. And the commitment to increasing the value of local supply chains is also evident in the high percentage of local sourcing by the main production sites. In addition, INALCA, with a view to sustainability, **prefers local suppliers, about 51%** of whom are located close to the production plants to make the sharing of best practices more functional and facilitate paths of technological innovation. This has allowed the company to have an increasingly integrated supply chain over the years, as well as a consolidated loyalty and historicity of its suppliers. The supplier selection criterion, assessed at the beginning of the collaboration and constantly monitored, takes into account the competence of the company, the food safety management system, the presence of certified standards and the technical characteristics of the products.

The signing of the **Code of Ethics** and **Code of Business Conduct by suppliers** is a prerequisite for entering into a relationship with the Group.

These codes guarantee the suppliers' respect for human rights, the environment and labour laws, and they are also subjected to an initial and preventive risk assessment and periodic monitoring in order to be able to identify possible critical issues and verify their operational results.

INALCA is a global operator and meat suppliers are selected on every continent. With foreign suppliers INALCA has developed strong relationships over time, helping them to align with the quality standards and specific regulatory requirements of the countries to which the products are destined.

In its role as a supplier, however, INALCA has a commitment throughout the supply chain to improve the transparency of its activities. Since 2019, it has been a member of the **Sedex** (Sedex Information Exchange) system: the UK-based, globally dispersed association provides companies with a responsible procurement platform. Currently, the four main production plants located in Italy are registered on the platform, namely Castelvetro (Modena), Rieti, Ospedaletto (Lodi) and Pegognaga. The main areas assessed by Sedex are: **gender equality and equal opportunities, child labour and forced labour, working conditions and safety, sustainable livelihoods, labour relations and worker representation.**

In addition, INALCA also subjects its main production sites in Italy and abroad to ethical and social audits. The controls are entrusted to independent third-party companies and are drawn up taking into account human rights, the fundamental principles of proper environmental and corporate management and respect for the values adopted by the group.



Social, health and well-being

Social sustainability is one of the main assets for doing business with awareness, looking to the future and with the aim of creating value to share it. For INALCA, social sustainability also translates into the concept of One Health: an integrated approach that considers the links between human health, product wholesomeness and animal welfare as indispensable.

EMPLOYEE HEALTH AND SAFETY

Human resources are the true asset of every com- system. During 2023, a total of **17,916 hours** of traipany: **7,107** employees work in the group, of which **4,608** are in Italy, or **64.8%**; the remainder, **35,2%**, Occupational health and safety are top of the company's priorities and both are ensured with the ISO 45001 certification standard in all plants. Medical mising workplace risks and also serve to assess a worker's suitability for a specific task or the occurrence of any contraindications.

For workers, the company's initiative is also aimed at medical benefits extended to family members, to protect the health of the entire family with medical care supplementary to that of the national health

ning were carried out in Italy, which are provided at all company levels by experienced teams who is divided between **Europe and non-EU countries.** also work on the induction of new recruits with important information on health, safety at work and environmental protection; work hygiene and quality principles, ethical principles, codes of conduct examinations are aimed at identifying and mini- adopted in the company context and human rights.

EMPLOYEES 7.107 employees of which 4,608 in Italy

26% woman

30% young new hires under the age of 30

TRAINING 17.916 hours of training





Food Safety and Health

Speaking of social sustainability. INALCA is not only concerned about the health of its employees but also the food safety of its consumers.

Food quality and safety depend on the efforts of all actors involved in the agricultural supply chain: breeding, processing, distribution, storage and also at the consumption stage. In a nutshell, food safety is a shared responsibility from field to fork.

The company's long presence in markets that are strictly regulated in this respect and the adoption of the main voluntary **food safety standards** have enabled INALCA to develop, over time, the most modern and advanced hygiene and risk prevention techniques - food safety - in the food sector and an integrated management system that covers all the group's production plants.

The overall system is therefore based on the identification, within each process, of critical control points and provides for the actions necessary for the elimination or reduction to an acceptable level of hazards significant to food safety, according to the HACCP (Hazard Analysis and Critical Control Points) model. The issue of food safety is closely linked to that of animal welfare. Maintaining a state of good psycho-physical health in animals is in fact a prerequisite for guaranteeing them adequate living conditions, but it is also a crucial element in guaranteeing the safety and guality of the food derived from them.

INALCA cow-calf line project: a tool for the rebirth of rural communities

Italian livestock industry for farmers in Calabria, Sicily and Sardinia: it involves repopulating traditionally given over to grazing where there has been a sharp abandonment of the land and a ars. This is the so-called "**cow-calf line**" project: according to this model, the calf stays on pastu- of a territory.

INALCA has launched a project to revitalize the re with its mother for the first 10-12 months and then continues its growth in the barn with a more energetic feed. The great advantage of this sywith cattle herds the areas of the South of Italy stem is to increase the biodiversity of the various cattle breeds and to improve the integration between man, animal and environment. In decline in livestock numbers over the past 40 ye- this way, beef is no longer a simple food product, but once again becomes the cultural expression

Animal welfare

re conditions on farms is an element of growing awareness and attention on the part of consumers and stakeholders. INALCA has developed a set of principles, values and operational rules to control and measure animal welfare conditions on its far- the basic principles of the group, which constantly ms where the guiding principle and basic criterion monitors this aspect and works with research orof inspiration is the 5 Freedoms. The main criteria ganisations to find alternative solutions to ensure established to date to ascertain the welfare of an animal welfare. animal are: freedom from hunger, thirst, access In order to counteract the antibiotic resistance to a comfortable resting area with a suitable en- phenomenon, INALCA is committed to disseminavironmental temperature and the possibility of movement and expression of behaviour typical cultural practices that lead to a reduction in the of the species, freedom from fear, pain and di- use of antibiotics, especially in the category defisease. Based on these general principles of inspi- ned as "critical" by the World Health Organisation: ration, INALCA has developed its animal welfare antibiotics must therefore be used only according techniques using a team of veterinarians engaged in controls along the entire supply chain: breeding, tor and must be purchased following a veterinary transport and slaughter. On this basis, INALCA pu- prescription. In order to limit the use of drugs as blished its own text in 2020, the "Manuale del Buon Allevatore" (Manual of the Good Breeder) in colla-



The control and improvement of animal welfa- boration with the University of Milan FCSR (Fondazione CRPA Studi Ricerche), which has already been adopted by the entire chain. In the area of welfare, an important aspect is veterinary care, when necessary: limiting the use of drugs is one of

> ting correct drug use practices and promotes agrito the indications provided by the veterinary docmuch as possible, INALCA is also engaged in collaboration with institutions in the research for alternative treatment solutions for animals. Thanks to this commitment, the company has reduced the use of antibiotics in its supply chain by 8.5% in the three-year period 2021-2023 and has created production chains in which no antibiotics are used in the last four months of farming, expecting to further extend this period.

ANIMAL WELFARE

Reduce to the use of antibiotics (period 2021-2023)

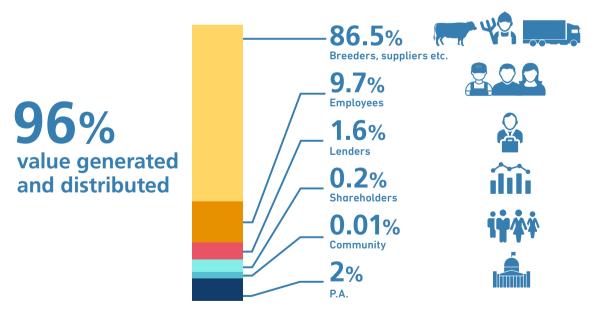
THE MEAT PRODUCTION ECOSYSTEM

Sharing the value created

The value generated and distributed (EVG&D) is the In other words, INALCA's business activity is confirst basic indicator of the value a company creates for its stakeholders. In the food sector, due to the to the high **redistributed value**. This amounted to the profit and loss account, **the value transferred** externally is particularly significant.

sidered to be **highly economically sustainable** due high incidence of raw materials and personnel in **94.4%** in 2022, of which 88.1% to farmers and suppliers, 9.3% to staff and the remainder to the public administration, the local community and the financial world.

Economic value generated and distributed



Economic value retained is 4%.

Inalca and local communities

INALCA's economic activity in a given territory is fully integrated with the social dimension of the community, starting with its direct contribution in terms of employment and local tax payments. But social responsibility also drives direct support for institutions or initiatives of a social nature, in line with SDG goals 4 (Quality Education), 10 (Reducing Inequalities) and 11 (Sustainable Cities and Communities).

There are countless interventions in support of local communities through ongoing or emergency donations of foodstuffs, contributions for scientific research in the medical field, support for the education and training of young people, with a focus on developing countries.





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