



## M8 - Report on stakeholders

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# Introduction

This Milestone represents the output of the Stakeholder Engagement Plan (SEP; D4.1), a formal document outlining strategies and actions to communicate with stakeholders interested in a project's results. A SEP identifies potential stakeholders and their interest levels and is continually updated to meet stakeholder needs.

SEBASTIEN relies on a stakeholder-driven approach to fine tune its products to the requirements of the livestock sector. Stakeholders can be generally distinct as intermediate and end users, where the former can use raw data and transform them into services (broad sense) for the end users. In contrast, the latter represents users who need the data already processed into tools that are ready to use and provide an easily interpretable output. A further distinction can be applied to end users, which might be 'practical users' rather than 'final stakeholders', depending on whether they actually use the tools, or they are interested in promoting and/or funding further development of the Service itself.

SEBASTIEN stakeholders can range from the breeders or breeder associations to researchers and governments, up to the wider community, each able to enrich the usability of the SEBASTIEN products by inputting their needs as 'real world' users. Hence, as each stakeholder group has unique characteristics, needs and motivations, we identified a set of **guidelines** to engage potential stakeholders, provide a set of **keywords** which can be stressed, and suggest the ideal **communication channels** according to a stakeholder type (e.g., manufacturers, practical or end user). Overall, the purpose of the SEBASTIEN SEP is to ensure that a coordinated, comprehensive, and consistent approach is taken to stakeholder engagement.

Here, we provide the guidelines we applied to engage stakeholders and achieve their support for the project, and the communication strategy and the most relevant keywords we identified to captivate a stakeholder's interest in being part of the project. Finally, we include the list and a brief description of the Stakeholders that, to date, agreed to be part of the SEBASTIEN Stakeholder team.

## Stakeholder categories and list

Different categories of stakeholders have been already identified in the proposal stage:

- cattle, sheep and goat farmers and their associations and assisting practitioners: involved in the direct management of the animals and of the hosting environment in both intensive and extensive systems, and responsible for operational (day-by-day) interventions and short-term planning of action in the field.
- researchers: stimulated in conducting further investigations thanks to the huge amount of acquired and harmonised data.

- educators/teachers: to disseminate the knowledge acquired in terms of data and approaches potential.
- actors of the food/feed industrial processing: stimulated in the choice of raw material providers also based on their commitment for a smarter and more sustainable farm management.
- market operators in the sector downstream chain: for awareness raising and promotion about the virtuous production systems possible by deploying next generation tools like modelling, IoT, Big-Data, Artificial Intelligence and Machine Learning.
- entrepreneurs and private investors: to support complementary data collection and ICT-based farms modernization to nourish the generated and additional services following the SEBASTIEN example.
- policy makers at different levels: to which offer good examples and success stories about the value of interoperable and harmonised data to shape and reinforce their decisions and update directives and laws.
- ICT companies, in particular SMEs: inspired to multiply benefits from harmonised data through their further re-use, also adding value by combining new datasets, for the delivering of additional services for the same sector, e.g., by deploying new approaches and implementing new indicators/indices, or for the fine-tuning of the services issued by SEBASTIEN for farmers of different species/breeds, or even for other sectors.

After confirming the above categories, all SEBASTIEN participants have been asked to populate a longlist of potential stakeholders, starting with those within their professional networks. Stakeholders already involved in SEBASTIEN associated projects, such as Highlander (*High performance computing supporting smart land services*, founded by CEF), LEO (*Livestock Environmental Opendata*, a project led by AIA) and Scala-Medi (*Improving sustainability and quality of Sheep and Chicken production by leveraging the Adaptation of Local breeds in the MEDiterranean*, funded by PRIMA EU program), were also included. For each item suggested, specifics of the stakeholder type, person to contact within the stakeholder organisation and proponent were required. We used the longlist to broadly cover stakeholder types and identify the best candidate to be involved in the next project steps, in particular to evaluate and select the best indices and indicators useful to feed the SEBASTIEN services. The stakeholder longlist is available as Appendix A 1. Importantly, ‘champions’ have been selected among those Stakeholders agreeing to contribute to SEBASTIEN. These champions will be regularly stimulated for feedback towards consolidated tools fitting to their needs, in terms of maximisation of their practicality and verification of their usefulness.

## Stakeholder engagement

The Stakeholder engagement process started as a table, enabling a SEBASTIEN member to quickly browse which communication channels and key messages might be most suited given the target audience (stakeholder type; Table 1). Upon agreement of the stakeholder to be involved in



SEBASTIEN, an email that formally proposes the collaboration was sent. The stakeholder was then required to reply in the form of an acceptance email to confirm the will to contribute. If required by the Stakeholder, a partnership agreement could be issued to further formalise the Stakeholder engagement on the project, with detailed information on data sharing and accessibility.

Table 1. Stakeholder engagement plan, featuring a summary of keywords and communication channels tuned to each stakeholder type.

Target audience	Key messages (ad-hoc points to stress)	Communication channel(s)
Farmers	<ul style="list-style-type: none"> <li>● extension services</li> <li>● technical advice</li> <li>● herd/flock management tools</li> <li>● means for certifications (env/quality/traceability)</li> </ul>	<ul style="list-style-type: none"> <li>● email</li> <li>● face to face</li> <li>● conference call</li> <li>● phone call</li> </ul>
Technical personnel (vets /consultants)	<ul style="list-style-type: none"> <li>● management tools (decision making aid)</li> </ul>	<ul style="list-style-type: none"> <li>● email</li> </ul>
Breeders Association	<ul style="list-style-type: none"> <li>● genetic improvement</li> <li>● new phenotypes</li> </ul>	<ul style="list-style-type: none"> <li>● email</li> <li>● leaflet/flyers</li> </ul>
Researchers	<ul style="list-style-type: none"> <li>● improved understanding biol/physiol</li> </ul>	<ul style="list-style-type: none"> <li>● email</li> <li>● leaflet/flyers</li> </ul>
Actors of food processing (industrial/HORECA)	<ul style="list-style-type: none"> <li>● quality environmentally friendly raw materials</li> <li>● means for certifications (env/quality/traceability)</li> </ul>	<ul style="list-style-type: none"> <li>● email</li> <li>● leaflet/flyers</li> </ul>
Market operators	<ul style="list-style-type: none"> <li>● product added value</li> <li>● means for certifications (env/quality/traceability)</li> </ul>	<ul style="list-style-type: none"> <li>● email</li> <li>● leaflet/flyers</li> </ul>
Private investors / Public funding agencies	<ul style="list-style-type: none"> <li>● innovation</li> <li>● social value</li> </ul>	<ul style="list-style-type: none"> <li>● email</li> <li>● leaflet/flyers</li> </ul>
Policy makers	<ul style="list-style-type: none"> <li>● public health</li> <li>● decision making tools (CAP policies)</li> <li>● food safety /security</li> <li>● social sustainability</li> </ul>	<ul style="list-style-type: none"> <li>● email</li> <li>● leaflet/flyers</li> </ul>
ICT companies, SME	<ul style="list-style-type: none"> <li>● sensors / big data</li> <li>● new services</li> <li>● IoT</li> </ul>	<ul style="list-style-type: none"> <li>● email</li> <li>● leaflet/flyers</li> </ul>
Consumers	<ul style="list-style-type: none"> <li>● environmental sustainability (antibiotics load)</li> <li>● animal welfare</li> <li>● food safety</li> </ul>	<ul style="list-style-type: none"> <li>● email</li> <li>● leaflet/flyers</li> </ul>

## The guidelines

A summary of SEBASTIEN aims and products has been produced and tailored for promoting the project. These guidelines use a clear and concise text to provide an agile overview on SEBASTIEN, highlighting why SEBASTIEN is necessary, what it will achieve and how one can participate and benefit. Such content can be delivered as a paper and digital leaflet and is included in the project website (<https://www.sebastien-project.eu/>). The paper leaflet will be distributed in livestock fairs, exhibitions, and events (e.g., Fiera Agricola di Verona, Agriumbria, Fiera Agricola Zootecnica Italiana -FAZI-Montichiari) as a tool to publicise SEBASTIEN whilst engaging putative stakeholders. The website was suggested as a landing point on the first contact to putative stakeholders to allow the beforehand evaluation of SEBASTIEN. More direct means of contact where specific details can be discussed (e.g., in person or virtual meeting, phone call) followed. The leaflet is available as Appendix A 2.

## Outlook

The engagement process and the further selection step identified a highly motivated and multi-faceted stakeholder team able to provide suggestions and information to help tune the products and meet customer and end-user requirements in a broader sense. Importantly, SEBASTIEN will allow additional actors of the agri-food sector to join the Stakeholders team and provide feedback throughout the development of the project. To evaluate whether the implementation collates the sector needs and expectations, the whole Stakeholders team will be consulted upon any major upgrade to SEBASTIEN tools. We plan to require feedback through a short form, where specific questions are posed, in order to facilitate the form compilation, whilst allowing additional notes and comments, should the Stakeholder find it necessary. On the other hand, interaction with Champions will rely on additional means of communication (when deemed necessary, to gather more detailed information and suggestions e.g., online meetings).

## Stakeholder List

As per the requirements of this Milestone, we provide the list of stakeholders that confirmed their collaboration with SEBASTIEN to date, including the *Champion* identified for each stakeholder type.

### *Research*

- AGRIS - Agenzia per la Ricerca Scientifica
- IZSLT - Istituto Zooprofilattico Sperimentale del Lazio e della Toscana (CHAMPION)

### *Policy makers*

- FAO - Food and Agriculture Organization of the United Nations (CHAMPION)
- ISMEA - Istituto di Servizi per il Mercato Agricolo Alimentare



#### *Entrepreneurs/private investors*

- West Systems Srl (CHAMPION)

#### *Breeders*

- Az.Ag. Gioconda (CHAMPION)
- Az.Ag. Mariotti

#### *Breeders' associations*

- ASSONAPA - Associazione Nazionale della Pastorizia
- ANABIC - Associazione Nazionale Allevatori Bovini Italiani da Carne (CHAMPION)

#### *Actors of the food/feed industrial processing*

- Consorzio del Formaggio Parmigiano-Reggiano (CHAMPION)

## **Stakeholder description**

Each Stakeholders covers a specific aspect of the food and livestock sector (Stakeholder type), can operate at different levels (international, national, local), and has specific expectations on the partnership with SEBASTIEN. What follows is a brief description that we encouraged each Stakeholder to provide as a first feedback exchange.

### ***AGRIS***

The Department for Research on Livestock Production (AGRIS: Agenzia per la Ricerca Scientifica) is the body of the Regional Government of Sardinia in charge of research and innovation for the development of the livestock sector in Sardinia. It consists of 79 employees, 18 of which are permanent researchers. It is in charge of research on livestock and provides scientific and technical support to the Sheep and Goat Farmers Associations. It is a partner of many "Transfer of Knowledge" projects based on the multi-actor approach as Sheepnet, Eurosheep and Smart.

AGRIS is interested in the SEBASTIEN results since they will be transferred to farmers using the AKIS systems developed during the above-mentioned projects.

### ***IZSLT***

The IZSLT (Istituto Zooprofilattico del Lazio e della Toscana) is a national animal health agency that mostly operates at the regional and national level. It operates as a consultant and to provide technical support to breeders and more in general in the veterinary sector. It supports the Italian National Health System with field and lab diagnostics, epidemiology monitoring, research and education on animal health and welfare, according to EU standards. IZSLT provides routinary and emergency services to ensure animal welfare and health and assesses animal feed and human food safety to safeguard consumers health.

IZSLT monitors animal diseases and zoonoses, performs analytical evaluations and provides technical support to animal-related police investigations. It also provides support to eradication, prophylaxis, and recovery plans. IZSLT provides official analysis reports on animal feed, human food, and pharmacovigilance to support local health divisions, Universities and research centres with animal related issues and research. IZSLT also provides education for breeders and health, veterinary, and zootechnical operators. Finally, the IZSLT provides culture media for microbiological investigations and develops and distributes animal vaccines.

IZSLT is particularly interested in the collaboration within SEBASTIEN, as the outputs of this project can be put to use by the institute to direct farm management and help in disease diagnostics.

## **FAO**

The Food and Agriculture Organisation (FAO) is a specialised agency of the United Nations that leads international efforts to defeat hunger. The goal of FAO is to achieve food security for all and make sure that people have regular access to enough high-quality food to lead active, healthy lives. FAO has 195 members - 194 countries and the European Union. FAO has a workforce of more than 10,00 fixed-time and permanent employees and works in more than 130 countries worldwide. FAO's work centres on (i) gathering, analysing, and disseminating information; providing policy support; (iii) bolstering public-private cooperation; and (iv) building capacity in the field.

FAO has interest in SEBASTIEN for the possibility to identify results and methods that can be applied or adapted for application in the field.

## **ISMEA**

ISMEA (Istituto di Servizi per il Mercato Agricolo Alimentare) is an Italian public economic body in Italy that exercises its functions at the regional and National levels. Within the scope of its institutional functions, ISMEA supports the Regions in land reorganisation activities, through the formation and expansion of agricultural property, and promotes generational renewal in agriculture on the basis of a specific aid scheme approved by the European Commission.

ISMEA provides information, insurance and financial services and constitutes forms of credit and financial guarantee for agricultural enterprises and their associated forms, in order to promote information and transparency of the markets, facilitate relations with the banking and insurance system, promote competitiveness and reduce the risks inherent in production and market activities.

ISMEA is interested in providing feedback on the products that will be formulated, tested and promoted across the wide sectoral user community, decision makers and the wider public. In particular, ISMEA is interested in digital technologies to improve the sustainability of the livestock sector with regard to climate mitigation and adaptation policies, as well as in decision support tools to provide a forecast/alert system helping farmers in adopting protection measures against loss of productivity, reproductivity and to increase comfort for animals.

## ***West Systems Srl***

West Systems has been operating for over 30 years in sensor and electronic technologies in the geological and environmental fields. Main activities are:

- sampling and chemical-physical characterization of environmental matrices;
- design and construction of instrumentation for the measurement of chemical-physical parameters of soils, water and atmosphere, of soil-atmosphere gaseous exchanges (in fields such as volcanology, landfills for urban waste, polluted sites), for monitoring natural radioactivity and radionuclide pollution;
- environmental engineering.

West Systems participates in research and development projects at a regional, national and international level in various sectors of environmental monitoring and protection. Collaborations with research bodies such as CNR, INGV, the Universities of Pisa and Florence are particularly relevant.

Recently West Systems has developed the precision zootechnics sector designing innovative Visual Image Analysis instruments for morphological and weight investigations on live animals and carcasses, using algorithms and electro-optical methods on the basis of specific know-how and patents:

- Zoometer prototype tool for distance measurements, based on a mobile device wireless connected to a laser system;
- Android applications for the SEUROP carcass classification and the Greasing Status (SEUROP APP, SEUROP-Scan) and the Body Condition Score (BCS APP), real time data processing starting from a photo.

## ***Azienda agricola Gioconda***

The Azienda agricola Gioconda is a small independent farm. The farm breeds Chianina cattle registered in the ANABIC (National Association of Italian Beef Cattle Breeders) and adheres to the regional animal welfare plan. The agricultural products are all intended for internal use. Further, the farm has been hosting educational activities for about 20 years, collaborating in education and research with Tuscia University. The Chianina breed products are sold at national level within the IGP certification. Additionally, we sell embryos internationally.

By collaborating in the SEBASTIEN project, the Azienda Agricola Gioconda aims to improve productivity and profitability while consolidating the collaboration with the University of Tuscia and other research centres in the livestock sector.

## ***Azienda Agricola Mariotti***

The Azienda Agricola Mariotti is a family-run farm, located in the heart of Maremma in Lazio (Central Italy), characterised by its strict relationship with the history and cultural tradition of the area. The farm breeds ~200 Maremmana cattle using an extensive farming system. The farm

promotes a short chain system, by taking care of both meat production and selling. They apply almost exclusively wild breeding, with a particular care on animal welfare. Additionally, the calves are exclusively fed with the biological feed produced within the farm. The farm also provides a particular care on the post harvesting processing, with dedicated curing times for each half-carcass. The meat produced by Azienda Agricola Mariotti has been enlisted as Slow Food praesidium for the safeguard of biodiversity.

By collaborating in the SEBASTIEN project, the Azienda Agricola Mariotti expects to receive support to identify the best strategies to improve animal welfare, which in turn will positively affect the herd productivity and reproduction.

### **ASSONAPA**

The Italian Sheep and Goats Breeder Association (ASSONAPA) is a non-profit entity, entrusted by the Ministry of Agriculture to keep, maintain, and update the national herdbooks of sheep and goats that include more than 580,000 animals as well as the Register of autochthonous local breeds and populations that help to conserve the biodiversity of 36 goats and 34 sheep local breeds at risk of extinction. Assonapa also runs selection programmes for sheep and goats either on population basis and through its genetic centres.

ASSONAPA is interested in the prediction of persistent periods of high temperatures leading to decreased well-being and drops in milk production and in providing feedback on the products that will be formulated, tested, and promoted by the SEBASTIEN project across the wide sectoral user community, decision makers and the wider public. Further, ASSONAPA can provide useful feedback to refine SEBASTIEN services, foster their mainstreaming into decisional processes and facilitate their uptake well beyond the project boundaries.

### **ANABIC**

The National Association of Italian Beef Cattle Breeders (ANABIC) was founded in 1961 and legally recognized in 1966 with the aim of promoting and implementing all the initiatives to improve, enhance and spread the native Italian cattle breeds: Marchigiana, Chianina, Romagnola, Maremmana and Podolica. The number of employees is less than 20. It is a non-profit, private association recognized as a Breeding Society by the Italian Ministry of Agriculture.

ANABIC core activity is to hold and manage the National Herd Book of Italian Beef Cattle Breeds and perform the related genetic improvement selection activity as stated in the genetic program. In addition to the main activity of genetic improvement, the Association supports several promotional initiatives, communication (press, meetings, etc), collaborates in research and experimentation projects with Governmental agencies and universities and provides technical assistance to foreign operators interested in the breeding of Italian breeds.

The Association is interested in the SEBASTIEN project and expects the project to help its associates to improve the sustainability of their farms and to reduce the carbon footprint.

## ***Consorzio del Formaggio Parmigiano-Reggiano***

The *Consorzio del Formaggio Parmigiano-Reggiano* is a voluntary non-profit association in full compliance with the Italian and EU regulations and the relevant international agreements and treaties, with the following mission:

- a) to protect the designation of origin of the *Parmigiano Reggiano* cheese, in compliance with Article 13 of Regulation (EC) No. 510/06, with the Italian legislation and with the international agreements and treaties;
- b) to control the production and marketing of *Parmigiano Reggiano* cheese, in co-operation with the agri-food product quality protection and anti-fraud Central Body of the Ministry of Agricultural, Food and Forestry Policies;
- c) to enhance the production of *Parmigiano Reggiano* cheese;
- d) to promote, to make circulating and known the Protected Designation of Origin and the marks reserved to it, aiming at the general protection of the interests relating to such designation;
- e) to promote the consumption of *Parmigiano Reggiano* cheese in Italy and abroad, as well as to develop and support any and every initiative, also commercial, aimed at promoting *Parmigiano Reggiano* cheese and at enhancing its image and reputation, including holding shares in and setting up companies or consortium associations;
- f) assist the Consortium members, giving them all appropriate instructions so that they can produce cheese that complies with the highest quality standards of *Parmigiano Reggiano* cheese;
- g) promote and implement all the initiatives aimed at improving every production step, by offering its co-operation, including the provision of technical services;
- h) promote the training of the staff involved in the production of *Parmigiano Reggiano* cheese, also organising specific training courses;
- i) facilitate, organise and take part in initiatives aimed at promoting *Parmigiano Reggiano* cheese, at enhancing its fame, image, reputation, circulation and consumption both in Italy and abroad;

*Parmigiano Reggiano* cheese is a product with the Protected Designation of Origin (PDO). Cheese produced according to the rules contained in the Production Regulation is the only cheese entitled to bear the *Parmigiano Reggiano* mark and, therefore, the wheel must display all the marks required for identifying and distinguishing the product.

The consortium operates in the Provinces of Parma, Reggio Emilia, Modena, Mantua and Bologna.

According to our mission, by interacting with SEBASTIEN we expect solutions, services or tools to support farmers to better cope with global warming and help in the transition toward environmental sustainability.

# Appendix

## A 1. Stakeholders longlist

The stakeholders longlist was populated with putative stakeholders chosen to represent all the stakeholder types (e.g., farmers, breeder associations, SME). It provides the starting point to contact stakeholders. The longlist will also serve to monitor the stakeholder recruitment process.

Stakeholder ID	Category
AGRIS	Researchers
ANAFBIJ	Breeders Association
UNIMI	Researchers
DQA	Actors of the food/feed industrial processing
Slow food	Market operators
FAO	Policy makers
IAEA	Policy makers
EFFAB	Breeders Association
EAAP	Policy makers
UNIPD	Researchers
ANARE	Breeders Association
ANAPRI	Breeders Association
ANABORAVA	Breeders Association
Ass Pastorizia	Breeders Association
3A - Ass. Assegnatari Arborea	Actors of the food/feed industrial processing
Carni sostenibili	Actors of the food/feed industrial processing
Industrie LAGREEN	Entrepreneurs/private investors
UNIPA	Researchers
Esselunga	Market operators
Consulenti	Entrepreneurs/private investors
Consorzio Grana Padano	Actors of the food/feed industrial processing
Consorzio Parmigiano Reggiano	Actors of the food/feed industrial processing
ASPA	Researchers
CAO Sardegna	Actors of the food/feed industrial processing
ASSOLATTE	Actors of the food/feed industrial processing
ASSOCARNI	Actors of the food/feed industrial processing
Invernizzi	Actors of the food/feed industrial processing
CCBI	Actors of the food/feed industrial processing
Latteria Soresina	Actors of the food/feed industrial processing
Ass. consumatori	Actors of the food/feed industrial processing
IZSS	Researchers
IZSVe	Researchers

CREA IZ	Researchers
West Systems	Entrepreneurs/private investors
ANABORAPI	Breeders Association
FAO	Policy makers
ANABIC	Breeders Association
SCR	Entrepreneurs/private investors
IDEAS ENGINEERING	Entrepreneurs/private investors
ANACLI	Breeders Association
ARAS	Policy makers
Azienda Agricola Pratoleva	Breeders
Azienda Agricola Mariotti	Breeders
IZSUM	Researchers
CREA Monterotondo	Researchers
Unipg	Researchers
ASSONAPA	Breeders Association
ISMEA	Policy makers
IZSLT	Researchers
EFSA (european food safety authority)	Policy makers
ANAREAI	Breeders Association
Zootecnica Viterbese	Market operators
Orobix	ICT companies, SME



## A 2. Guidelines/leaflet

The guidelines represent a summary of the aims and products of SEBASTIEN and will be used in the stakeholder engagement process.



### IL PROGETTO

Le produzioni animali producono oltre il 33% delle proteine alimentari del pianeta. Nel nostro Paese le produzioni zootecniche si traducono in una ampia gamma di prodotti DOP e IGP di riconosciuta qualità a livello internazionale. I cambiamenti climatici hanno avuto ed avranno un impatto sempre più importante sugli allevamenti zootecnici influenzando produzioni, salute e fertilità degli animali. Allo stesso tempo gli allevamenti sono fonti di gas serra, alla base del riscaldamento globale. È pertanto necessario sviluppare strategie che aiutino l'intero settore zootecnico a prendere le decisioni migliori per adattarsi a tali cambiamenti e mitigarne gli effetti. Ad esempio: quali decisioni devono essere prese per evitare il calo di produzione e problemi riproduttivi causati da temperature troppo elevate? Oppure, quali strategie devono essere adottate per evitare il pascolamento in aree dove potrebbero emergere nuovi patogeni?

Il progetto SFRASTIEN (Smarter livestock Breeding through Advanced Services Tailoring Innovative and multi-source data to users' Needs) risponderà a queste domande implementando nuovi sistemi e servizi.

### I partner






### SEBASTIEN

Smarter livestock Breeding through  
Advanced Services Tailoring Innovative  
and multi-source data to users' Needs

SEBASTIEN Project  
Coordinator: Fondazione Centro Euro-Mediterraneo sui Cambiamenti Climatici (CMCC)  
Topic: Public Open Data (POD) – Type of action: CEF-TC-2020-2  
Duration: 33 months - Starting date: Jan 2022  
Total budget: € 1.338.652,13 - Total CEF Contribution: € 1.000.714,89  
Agreement number: NEA/CEF/ICT/A2020/20273800  
Action No. 2023-IT-14-0234

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[www.sebastien-project.eu](http://www.sebastien-project.eu)



## A cosa serve

SEBASTIEN svilupperà un Sistema di Supporto alle Decisioni (DSS, Decision Support System) per aumentare l'efficienza e la sostenibilità del sistema zootecnico italiano e supportare allevatori ed operatori della filiera delle produzioni animali con strumenti che li aiutino ad effettuare scelte mirate e consapevoli, evitare perdite economiche e che forniscano supporto tecnico alle aziende. Verranno sviluppate quattro applicazioni gratuite, utilizzabili come app o su browser web, che consentiranno di:



1. Stimare l'adattamento delle diverse specie e razze zootecniche al cambiamento delle condizioni ambientali ed identificare le più adatte alle condizioni climatiche estreme che si verificheranno nei prossimi anni nelle diverse zone d'Italia. Questa applicazione supporterà la pianificazione a lungo termine della composizione di mandrie e greggi;



2. Fornire un sistema di previsione/allarme che consenta agli allevatori di mettere in campo azioni per contrastare condizioni ambientali pericolose (come l'aumento della temperatura) che possano influire sulla produttività, la riproduzione e il comportamento degli animali, in particolare per gli allevamenti al pascolo, mitigando perdite nel breve e nel lungo periodo;



3. Guidare gli allevatori nella scelta dei pascoli migliori. Questa applicazione eviterà il sovra-pascolamento e i conseguenti problemi sul territorio;



4. Monitorare la presenza e lo sviluppo di parassiti e patogeni. L'applicazione fornirà mappe di incidenza, sia correnti che previste in funzione dei cambiamenti climatici, di parassiti e patogeni di interesse zootecnico e dei loro vettori. L'applicazione consentirà agli allevatori e agli enti governativi di mettere in atto azioni tempestive per preservare la salute degli animali e dell'uomo (zoonosi).



## Le sue applicazioni

Le applicazioni prodotte da SEBASTIEN utilizzeranno grandi moli di dati pubblici, di diversa natura, armonizzati ed analizzati usando le più moderne tecniche di analisi quali i metodi di intelligenza artificiale. Il progetto SEBASTIEN svilupperà indicatori sentinella integrando dati ambientali, meteorologici, riproduttivi e di produzione, ottenuti anche tramite l'utilizzo di sensori a basso costo. La novità principale è che gli indicatori saranno creati su misura per diverse categorie di utenti finali, in modo da consentire agli allevatori, alle aziende, agli enti governativi e altri operatori del settore agro-alimentare-zootecnico di poter fronteggiare le loro necessità e problemi lavorativi quotidiani in modo rapido e efficiente.

## Le opportunità

SEBASTIEN vi offre l'opportunità di partecipare allo sviluppo di questi indicatori. Il vostro vantaggio sarà nello sviluppo da parte del progetto di strumenti di cui avete veramente bisogno. D'altro canto, Sebastien avrà il vantaggio di utilizzare la vostra competenza, professionalità e soprattutto esperienza per generare strumenti di cui potranno beneficiare tutte le entità collegate al settore zootecnico italiano nei prossimi anni. Sulla base delle vostre esigenze e indicazioni potrete guidare la selezione degli indicatori e lo sviluppo degli strumenti. Questi ultimi verranno testati da voi in anteprima, in modo da usufruire fin da subito dei loro benefici. Le proposte e le esigenze verranno valutate tramite questionari e incontri. In particolare, verranno organizzati quattro incontri con voi ogni 6 mesi per:

- presentare il progetto e gli indicatori selezionati sulla base delle conoscenze scientifiche e fare una prima discussione con gli utenti finali per la selezione degli indicatori da testare;
- identificare gli indicatori da testare, sulla base dei suggerimenti degli utenti finali;
- presentare e discutere i risultati di un primo test, su scala ridotta, degli indicatori selezionati;
- presentare e discutere i risultati del test su larga scala degli indicatori selezionati.

Gli utenti che vorranno collaborare al successo di SEBASTIEN appariranno con nomi, acronimi e loghi sul sito web del progetto ([www.sebastien-project.eu](http://www.sebastien-project.eu)) oltre che venir menzionati nella sezione dei ringraziamenti delle pubblicazioni scientifiche collegate al progetto.