

The mobilisation of agricultural solid biomass for local energy

Brussels, 15th February 2017

**Awakening the interest on the valorisation of
own agricultural residues in Spanish
cooperatives**



Co-funded by the Intelligent Energy Europe
Programme of the European Union

○ Spanish Cooperatives leitmotif:

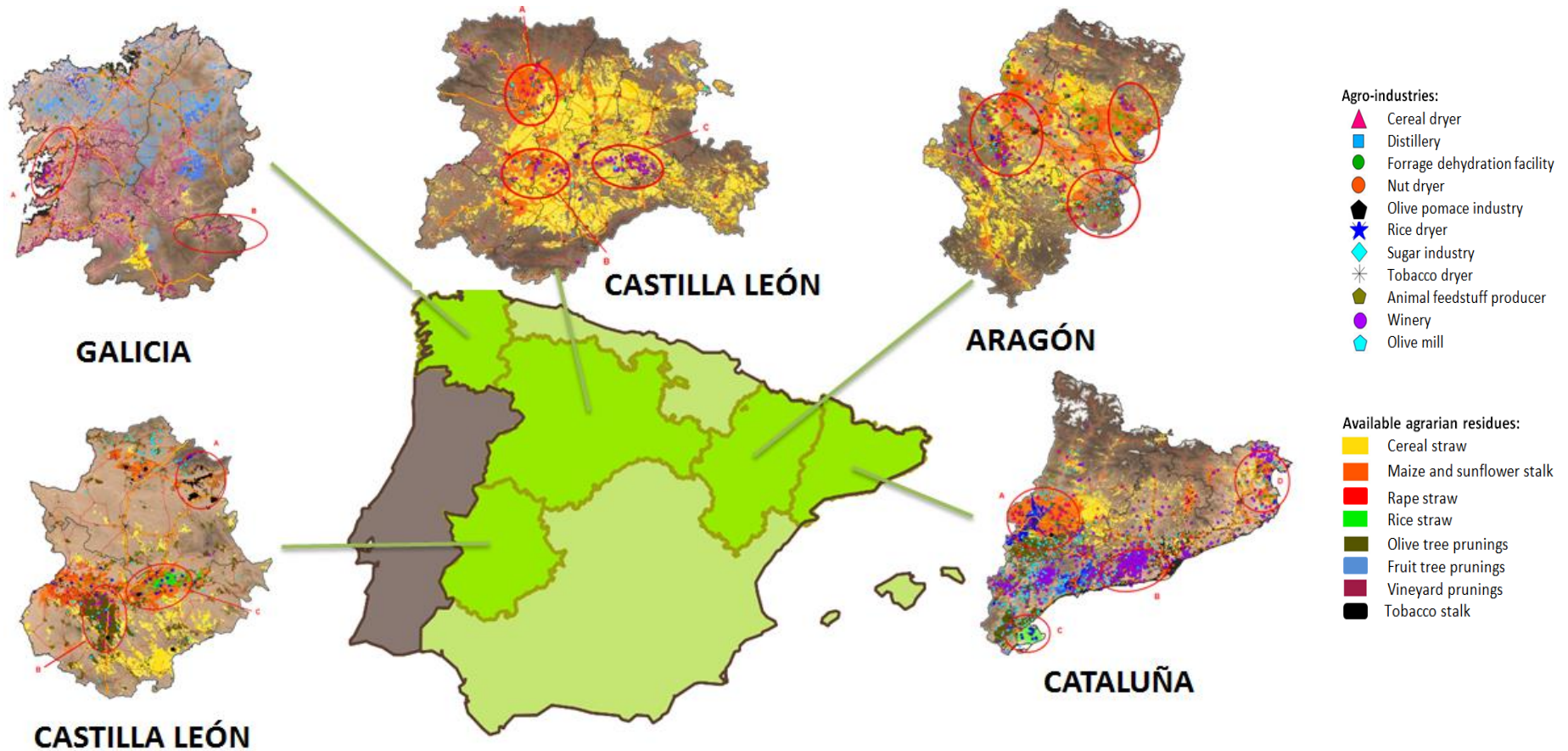
The project has found that the most interesting opportunity to implement logistic centres inside the agro-industries is when this activity is strictly linked to their main activity as food product producer:

- The agro-industry faces a problem linked to the disposal of a “residue” generated in their own process or from their members cultivation
- Needs to fulfill a demand of energy for their main activity.

SUCELLOG has been focus on demonstrating the feasibility of this new line promoting:

- the involvement of key stakeholders inside the project approach.
- change the mentality of the agriculture sector to transform the “residue” into a “sub-product”.

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Agro-industries supported:

- Lucerne dehydration facilities.
- Cereal drying.
- Animal feed factories.
- Distilleries.
- Wineries.
- Olive pomace industries.

SUCELLOG has triggered the use of:

- Straw from cereal or lavender.
- Olive and vineyard prunings.
- Corn cobs.
- Grape stem.

mostly for self-consumption

Achievements:

21 agro-industries diagnosed

18 agro-industries supported (9 feasibility studies)

300 participants in workshops

42 stakeholders engaged in local meetings

23 meetings with policy makers

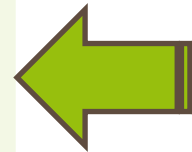
170 contacts with stakeholders during the project

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BARRIERS

for the development of SUCELLOG concept:

1. Fossil fuel prices
2. High logistic efforts
3. Large excess of wood biomass in the market.
4. Existing farming practices
5. Lack of political commitment
6. Lack of information at biomass users.



ACTIONS

we have taken:

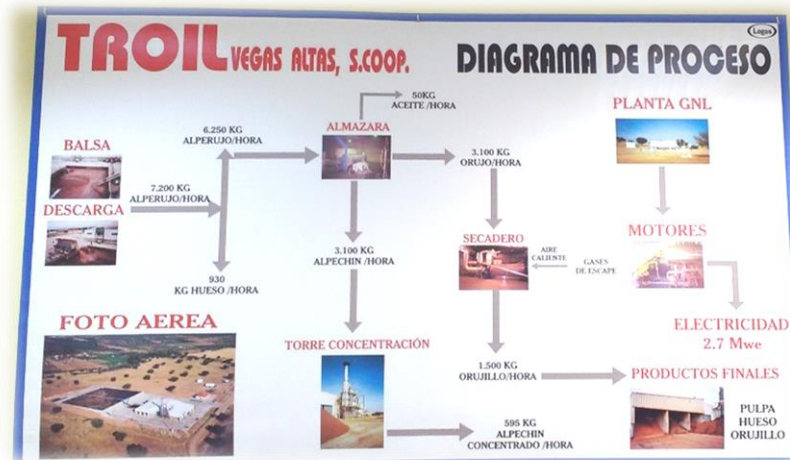
1. Work together with an energy project developer.
2. Introduce personally to companies providing the service of harvesting and supplying the resources.
3. Technical support for the adaptation of existing equipment.
4. Provide information about public aids/financing for purchase of equipment
5. Show successful initiatives of utilization or production of solid biomass from agriculture products.

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TROIL Vegas Altas

Region: Extremadura (Spain)

Sector: Olive pomace industry (transformation of the by-products coming from olive oil mills)



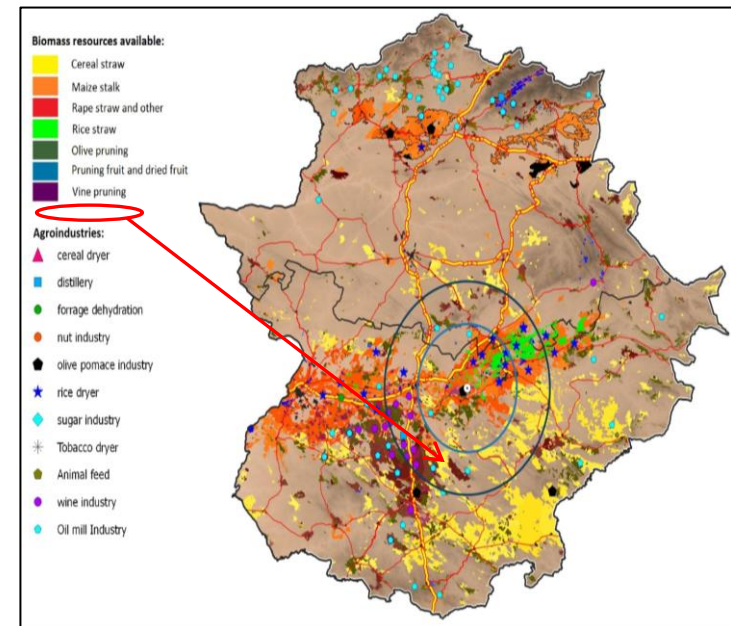
Interest of TROIL in concept and support of SUCELLOG:

- New activity directly linked with its role of valorization of the by-products coming from olive oil mills.
- Covering the future heating demands of its process.
- Environmental and agronomical measure useful for the members of their cooperatives.

TROIL Vegas Altas

PROJECT: Self-consumption of 3,071.25 t/year of olive prunings (shredded) and 2,573 t/year of dry pomace.

- **Resources:**
 - 3,071.25 t/year of olive prunings
- ❖ **Investments required:**
 - Multi – fuel burner: 260,000 €**
 - Horizontal dryer: 380,000 €**
- ❖ **Self-consumption: 297,043 €/yr saved**
- ❖ **Storage facilities and personnel.**
- ❖ **To derive some material from the prunings to the compost plant they are currently building.**



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Extra support actions:

- Related to the resources:
 - Introduce personally to:
 - manufacturers of equipment for the pre-treatment of resources in the agro-industry
 - companies providing the service of harvesting and supplying the resources
- Related to the combustion equipment:
 - Introduce personally to manufacturers of energy systems
- Show successful initiatives and public funds.

Steps triggered by SUCELLOG :

- Sinergies with companies providing the service of harvesting: visit their facilities.
- Present the new initiative as a strategic line for the cooperative in a formal meeting

State of the project: SUCELLOG has joined these two necessities, in a perfect example of circular economy. In one hand showing to TROIL the economic viability of mobilizing more than 3000 t/yr of prunings to be consumed in their new line and, on the other hand, promoting a discussion and future on-field tests involving farmers and a specialized logistics company in order to make real the opportunity they are facing.

Cooperativa Agraria San Miguel de Tauste

Region: Aragón (Spain)

Sector: Cereal drying, feed production, fodder pellets and alfalfa bales production



Interest of Cooperativa San Miguel in concept and support of SUCELLOG:

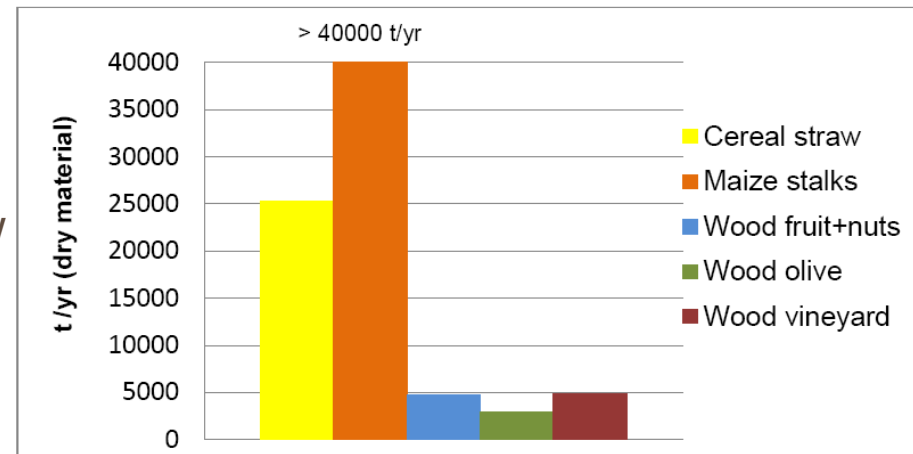
- Idle period of production in the activity of fodder dehydration (from November to March).
- Environmental and agronomical measure useful for its associated members.

Cooperativa Agraria San Miguel de Tauste

PROJECT: Production of 1,626 t/year of Class B agro-pellet (70% cereal straw and 30% wood).

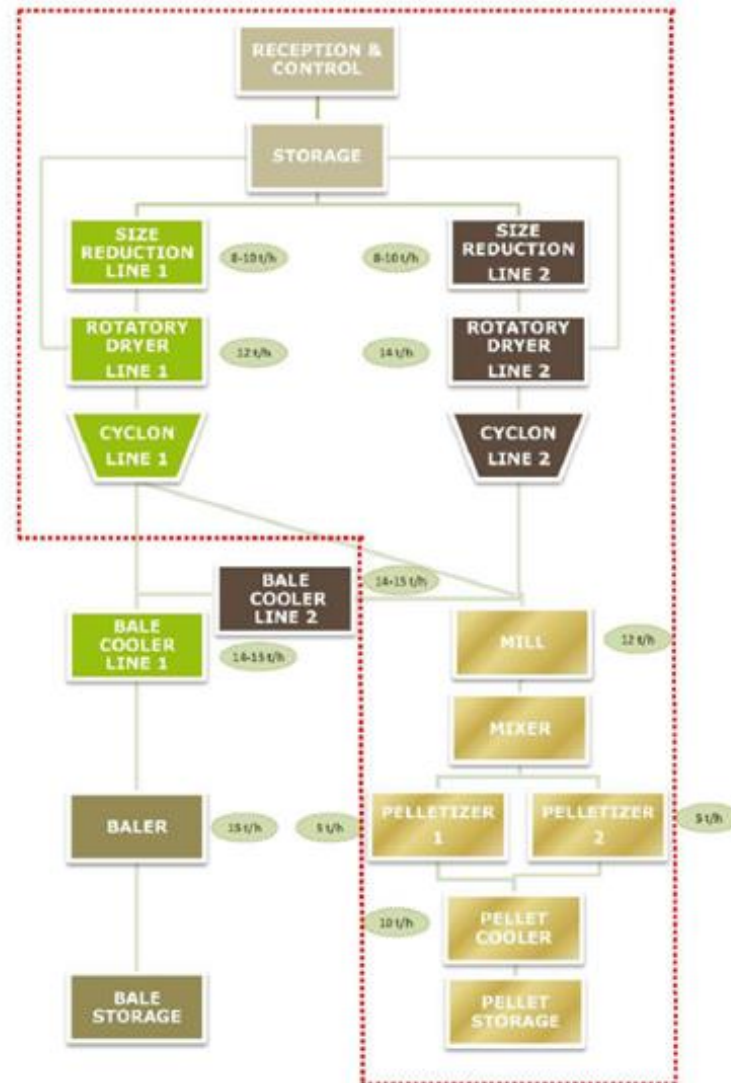
Resources:

- 11,000 t/year of cereal straw
- 8,000 t/year of maize stalk



- Market:** pig farmers (members of the cooperative) as target consumers.
- Existing facilities for the new business line:** alfalfa production lines can be used for the pre-treatment of the solid biomass (particle size reduction, drying, milling, pelletizing and storage)

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PROJECT: Production of 1,626 t/year of Class B agro-pellet (70% cereal straw and 30% wood).

❖ **Investments required:**

Multi-fuel biomass burner: 434,190 €. 6 years of pay-back period.

❖ **Self-consumption: 59,088 €/yr saved**

Recommended business strategy:

○ Development of internal self-consumption chain targeted on the pig farmers (*covering 10% of their heating demand within a radius of 50 km*) being the suppliers of the straw and the consumers of the solid biomass. Biomass logistic centre should purchase the straw from pig farmers only under the condition that as well the annual or plurennial agro-pellet sale contracts are made.

State of the project: After chemical analysis of the product and several combustion tests performed by the project, a request for funds from the Rural Development Programme was accepted in order to open a research line where to evaluate the areas around the cooperative where the straw can have a lower Chlorine content and therefore less problems during combustion performance.

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COCOPE Sociedad Cooperativa

Region: Castilla León (Spain)

Sector: Winery and distillery of aromatic plants, (nursery home).



Interest of COCOPE in concept and support of SUCELLOG:

- Environmental and agronomical measure useful for its associated members.
- Covering the future heating demands of its nursery home.

COCOPE Sociedad Cooperativa

PROJECT: Self-consumption of 200 t/year of mixed briquettes (90% lavender straw and 10% vine stem)

- **Resources:**
 - 500 t/year of lavender straw and 45 t/year of grape stem
- **Market:** nearby facilities as targeted consumers.
- ❖ **Investments required:**
 - Multi – fuel boiler:** 131,000 €
- ❖ **Self-consumption:** 59,022 €/yr saved
- ❖ **Storage facilities and personnel.**
- ❖ **Contract the briquetting service to another company.**



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Extra support actions:

- Related to the resources:
 - Show successful initiatives about vineyard pruning logistic chains.
 - Information to the agro-industry about the briquetting service.
- Related to the combustion equipment:
 - Work together with an energy project developer to implement a project of auto-consumption
- Introduce personally to technological centres promoting innovation actions on agriculture and associations promoting innovation actions on energy.

Steps triggered by SUCELLOG :

- Present the new initiative as a strategic line for the cooperative in a formal meeting.
- Evaluating the viability of consuming the residues of their activities in other nearby facilities creating a heating network.

State of the project: SUCELLOG has awoken the interest of COCOPE about the use of biomass. Despite the fact they have decided to postpone the start-up of this scenario (self-consumption), since the investment in the boiler of the nursing home has not been yet amortized, they are planning to offer their resources (lavender straw and vine stem) to the annexes facilities as an alternative fuel and as starting point of future collaboration actions.

Contribution from SUCELLOG to Spanish Agri-food Cooperatives:

- Increase knowledge and skills on biomass issues
- Start working on different aspects from the biomass field that we have not worked with up to the project development
- Generate a new line on activities dealing with agriculture sub-products
- Widen the network of contacts and stakeholders for future business/projects in our country
- Provide a valuable service for our associates
- Promote sustainable energy in our associates

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SUCELLOG impact:

In SPAIN, SUCELLOG has triggered the mobilisation of almost 3 ktoe of resources for energy production and an expected investment of more than 1.2 M€ in a short-term

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