

# ALGAE WITHIN GALICIAN FARMLANDS: POPULAR KNOWLEDGE AND SCIENCE FOR SUSTAINABLE DEVELOPMENT

Rural wisdom and scientific research play a key role for the use of seaweeds as fertilizers within organic agriculture



*“This has always been done here”*, avers **Pura Rivera**, resident in **Canduas**, while she collects the seaweed that, wet, lie on the sands. As the tide falls, a dark thick rug covering the Anllón’s river shore in its final kilometers becomes visible. **Martín Senande**, the husband, helps her carrying the pannier, full of *Laminaria*, a brown algae which often appears in the menus of Japanese restaurants. But in this parish, which belongs to the community of Cabana, its destination is different: it will be used fresh to fertilize the family orchard. Martín reports the fast regeneration of this resource. *“It has being collected just recently, before harvesting the potatoes, and see how it looks now, it seems a prairie”*.

VIDEO 1 - <https://www.youtube.com/watch?v=F7CmHeXBTxA>

*“Alga on the sand comes to the farmland”*, says the proverb. And certainly not so long ago, seaweed was much more than simply waste besmirching the beaches until the municipality had them withdrawn, usually during summer time. *“Even the Church illegalized harvesting them on Sundays and festive days with the purpose of exploiting them themselves”*, asserted **Emilio Fernández Lema**, a researcher who has further studied this issue, specially focused on **San Simón Bay**. *“If the Church got into it...”*, he says sarcastically, referring to the importance that

this resource had for coastal communities. But today, as many other issues in a land subjected to a continuous and accelerated transition, the outlook has changed drastically. “The countryside was neglected, the difficulties when algae harvesting, the arrival of other fertilizers... Everything was connected”, justified Emilio. The role of farmlands in coastal areas as well as traditional applications became less important, in contrast with the incoming economic activities. “What is important for the State? Tourism. Hence if tourists are disturbed by seaweed on the beaches, they don’t hesitate in having it removed”, reflects Emilio. “Imagine if someone wants to roam through the countryside and not encounter furze and brooms...”.

## Science confirms what peasants already knew

Algae hold a key place in rural Galician history, not just because of their function as fertilizers, but also because a huge percentage of local lifestyle in coastal villages revolved around them. “Even the figure of the algae harvester did exist”, highlights **Elvira López Mosquera**, while she shows a picture of a man with a harvesting outfit. Elvira is a professor of Vegetal Production and heads the Institute of Agriculture Biodiversity and Rural Development (IBADER), at the University of Santiago de Compostela. During the last years, together with other colleagues such as Emilio Fernández, she has been focusing most of her research on this theme. “The first chemical compost arrived in Galicia in 1904; previously, fertilizing was carried out with other stuff”, explains Elvira. And there were, obviously, the algae, which are also characterized by extensive biodiversity on the Galician shoreline, higher than in the rest of the Peninsula. “Peasants empirically demonstrated that algae worked as compost. Nowadays, we can scientifically explain this fact”, states.

The *arribazóns* (i.e. the set of algae that are deposited on the shoreline) possess certain properties that make them a natural fertilizer of great value. They include, for instance, high potassium index, as well as other micronutrients, fundamental elements for an efficient vegetal production. Nevertheless, what makes them especially valuable is their richness in a sort of polysaccharides which belong to the group of ficocoloides, named alginates. They play a key role in strengthening soil physical properties: protection against erosion and against an excessive compaction, improve water retention... Moreover, these alginates react with aluminum, very abundant within Galician soils, and releasing certain associated nutrients that are now freely accessible for cultivation. On the other hand, the *arribazóns* have a set of vegetal hormones that improve the resistance of crops against external perturbations, such as plagues, fungi, cool or wind. And as if all this was not enough, they are also efficient biostimulants of crop growth.



Women carrying algae. Noia, 1924. Photograph taken by Ruth Matilda Anderson.

“This is an organic product, easy to get and common on our shoreline, which is not being exploited”, assert Elvira López, whereas she highlights the fact that a high-valued product in the past has now come to be considered “waste”. Actually, waste management was the starting point that led **Marta Illera** to develop her PhD, directed by Elvira herself, which is now ready to be presented. “We decided to cooperate with Pescados Rubén, an enterprise from Foz which was seeking to obtain an added value to their fish and algae remains and wastes that they were producing”, explains Marta. “With those wastes, throughout composting, we developed an optimal fertilizer for organic agriculture”, she adds, as she remarks the “lack of quality composts” occurring within this field.

## **Looking back for taking a step forward**

The potential of rural Galicia is, according to the IBADER headmistress, undeniable, and in the case of algae, analyzing their evolution during the last century, seems to be necessary for understanding the development of the Galician primary sector. On one hand, says Elvira López, “a peasant a hundred years ago knew how space was organized, where to cultivate this or that; this wisdom has been progressively lost”. On the other hand, she bemoans, “we usually don’t benefit from what we have”. Nonetheless, not everything seems that negative. “People are progressively returning to work in agriculture; day by day the number of experiences demonstrating that it’s possible to live in rural areas is growing”, states the researcher. “We have resources of great quality; what it’s lacking is their proper utilization and give them an added value”, she concludes.

VIDEO 2 - <https://www.youtube.com/watch?v=R8Vdcv7LJx4>

Algae constitute in the end and without forgetting the rest of their possible applications, a way of enhancing sustainable development within agriculture and revitalizing Galician rural areas. From being wastes they can be converted into a subproduct with a high added value and fill the empty space of eco-sustainable market. And recovering the use of algae as quality compost does not imply, according to Elvira López, the necessity of moving back to the past. It means that “we can benefit from our knowledge that comes from behind” and implement them “with the techniques that we have at the present time for thus live from our own resources”. Consequently, looking back to the past and understanding where we come from, is how we can build the future. It is in our hands.

VIDEO 3 - <https://www.youtube.com/watch?v=yQAXFtm-PL4>