

Valorising European Research for Innovation in Agriculture and Forestry



VALERIE Stakeholder Trials:

Evaluation of biostimulants in the bread wheat value-chain, Alessandria, Italy

The problem

Recently, problems for farmers with quality during the production of local bread wheat have increased. Firstly, this is due to a continuous decline in prices on the global and local market. Secondly, the national authorities have reduced the number of available and permitted pesticides to control pest and disease. Moreover, atypical weather conditions are increasing stress on plants during the most important crop stages for ensuring yield and quality. This is particularly important for farmers with producer contracts that ensure premium prices, but specify conditions for the grain quality. In addition, the customer, and therefore the industry, is more interested in alternative ways of farming, especially if they help reduce the use of chemicals.

The proposed solution

Some products called “biostimulants”, derived from seaweeds and micronutrients, can be a helpful solution to the issue. They are not classified as pesticides as they enhance the natural defence of the plants. In the market, many products with promising results are sold and advertised and it is difficult for farmers to understand if these products are useful or not, as declared. It is also important to understand and show if their use is economically viable.

Stakeholders

The stakeholders comprised a broad group of farmers, supply chain players, cooperatives offering storage, millers, input suppliers, retailers and processors concerned with producing high quality bread wheat. This knowledge gap was not mentioned during initial discussions in the project with the stakeholders in 2014, since biostimulants were not popular on the market. The trial topic emerged during later discussions in 2015 as a possible innovation for the value-chain. In fact, these products are now required by the official guidelines of the value-chains that are followed by some of the farmers in the area.



Aims and Method

This experimental activity should be considered a farm demonstration aiming to:

- Show the farmer the existence of this type of product
- Support them on the correct use
- Assess the effect of the biostimulants on the crop
- Calculate the cost benefit balance of the use of biostimulants on bread wheat
- Help the farmer to save money from unnecessary expenses

The data collected are as follows:

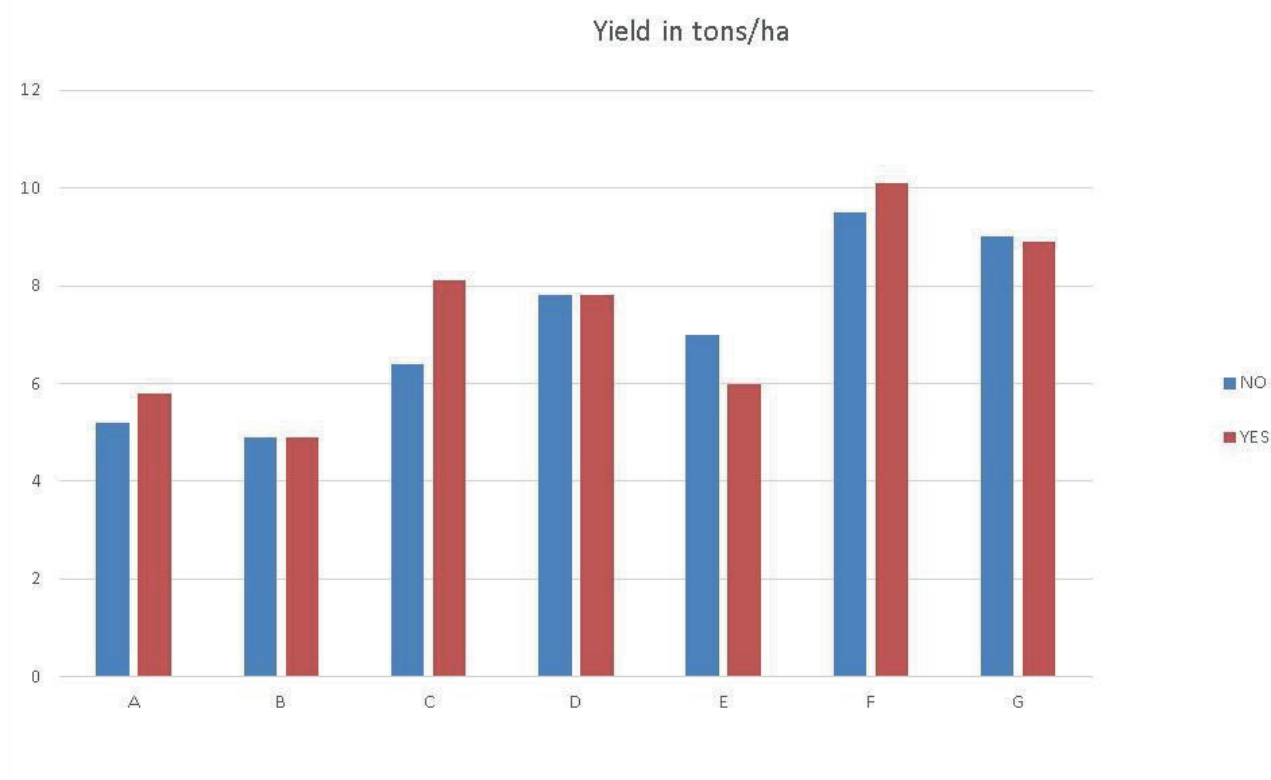
- Yield for each field;
- Main quality parameters that are assessed during grain collection (and therefore, influencing the price of the lot).

In 2016, a biostimulant based on the component “GEA 249” was tested for bread wheat varieties. The product contains low concentrations of Nitrogen, Micronutrients and seaweed extracts. According to the product information, it helps the plant to tolerate stress provoked by environmental conditions and pathogens.

The product was distributed to seven farmers in the Harmony value-chain¹. Each farmer had to choose two fields with the same wheat variety with similar soil conditions. They used the biostimulant in one field, and the second field was a control test for comparison. The product was applied during flowering/earring crop stage.

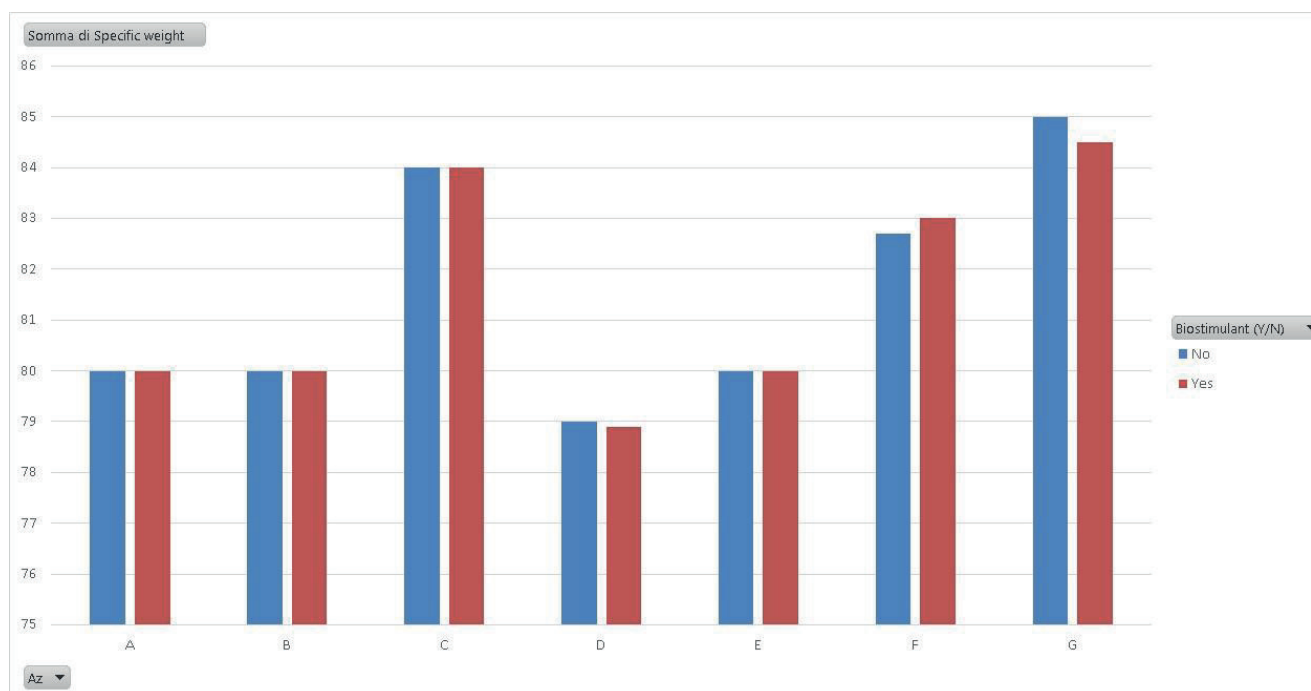
Results

In the figure below, we show the results for yield in tons/ha. Each farm is represented with a letter (A to G).



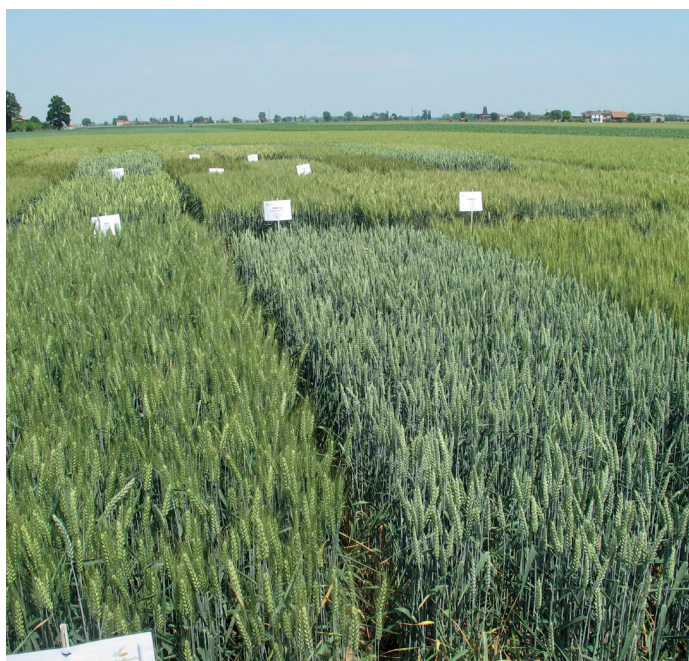
¹The Sustainable wheat **Harmony** value-chain, trademarked from Mondelez International, that has been developing in Alessandria county since 2014.

Similarly, the figure below shows results for specific weight, expressed in kg/hl.



Overall stakeholder involvement and feedback

The stakeholders were directly involved in the trial as they applied the product on their own fields. They were really eager to test the product by themselves, but ultimately it was very difficult to observe a difference. For this reason, the trial lasted only one season (2016).



Key findings

- Biostimulants can be used for more intensive crop systems, such as fruit and vegetable production or for extensive crops with higher values (strong wheat, processing tomato).
- Within the bread wheat value-chain context, the viability of the crop is very low and it is more important for farmers to concentrate on the quality parameters that help ensure the price (yield and specific weight).



Further reading

VALERIE trial leaflet: Sampling for quality assessment and improvement for a wheat supply chain in Alessandria, Italy.

Acknowledgements

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