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High environmental quality label proposal

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Abstract

Our idea aims to evolve agricultural models and face the growing challenge of resilience of agricultural systems. We offer a high environmental quality label that encourages farmers in developing countries to optimize inputs. It will encourage them to reduce the consumption of pesticides, fertilizers and irrigation water. At present, many decision support tools are widely used in modern agriculture, notably soil tensiometers to control irrigation, the nitrogen balance in the management of fertilization and the I-PHY indicator of pesticide use in the field of plant protection. The use of these three tools is inexpensive and technically affordable by farmers. We offer a framework based on these decision-making tools and agricultural techniques which will allow farmers to have a High Environmental Quality Label.

Keywords: Label; Sustainable Agriculture; Phytosanitary Treatment; Management of Fertilization; Control Irrigation; Chamber of Agriculture

1. Introduction

Agriculture in developing countries faces a major challenge, that of reconciling food security and sustainable development. Today, it is accepted by the scientific community that any sustainable development must meet the needs of the present without compromising the ability of future generations to meet theirs [1, 2]. This is why the agricultural models developed must not only guarantee food self-sufficiency, but also preserve human health and protect the environment.

Agricultural systems in developing countries are exposed to several problems related to the use of inputs. Indeed, the abusive use of pesticides and the lack of control of the methods used for the treatment of agricultural products harm on the one hand the health of consumers of agricultural products having undergone phytosanitary treatments and on the other hand to ecosystems [3]. Concerning fertilization, excess use of fertilizers by farmers leads to water pollution by a high concentration of nitrates and phosphates [4]. Furthermore, the scarcity of water resources has always been a characteristic of several developing countries [5, 6].

Many of the farmers we met expressed their need for an agronomic model that simultaneously ensures agricultural development, health protection and environmental preservation. It has become urgent to change the agricultural system in favor of a sustainable model. Like European countries, developing countries, through chambers of agriculture, must implement a benchmark for the use of inputs and associate it with a label which will be synonymous with more respectful agriculture, health and the environment. We offer a High Environmental Quality Label. This label means that the product comes from a farm in which the principles of agro-ecology are respected.

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2. Material and methods

In order to succeed in this project, we will adopt the "Living Lab" method which is a participatory innovation approach including the user [7]. Farmers and agricultural operators must collaborate to guarantee the success of the labeling project. In order to earn the High Environmental Quality Label, the operator must follow a two-level approach.

Level 1: This initiation level aims to assess the situation of the farm with regard to the environmental performance required at the second level of the labeling system. The farmer must carry out an assessment of the following three areas: irrigation, use of phytosanitary products, fertilization. Each area will be controlled by a certain number of points. Example of irrigation: the control points are the possession of authorization to withdraw water, the possession of an appropriate means of counting the volumes used, the condition of the irrigation equipment.... At the end from this level, a record book will be established, compliance with all the points in each area will have been verified.

Level 2: Compliance with the criteria required for level two results in the label.

This second level consists of meeting three requirements:

- Phytosanitary strategy
- Fertilization management
- Irrigation management

Each requirement can be satisfied by an indicator from the first category (decision support tool) or an indicator from the second category (good agronomic practices).

For eachrequirement, the operator must meet the criteria of an indicator of the first category or combine twoindicators, in the entireused agricultural area (UAA).

The indicators of the first category (decision support tools) that we offer are the tensiometer probes to control irrigation, the nitrogen residue in the management of fertilization and the I-PHY indicator of pesticide use in the field of plant protection [8]. The indicators of the second category (good agronomic practices) are implemented to save water, minimize the use of fertilizers and pesticides, they can be offered by farmers [9].

3. Result and Discussion

3.1. Expected results

The label that we will propose is based on simple criteria, not requiring complicated material resources or a high level of knowledge on the part of farmers, but effective and measurable in time and space. It is realistic, adapted to the situation of agricultural systems and the socio-economic context of developing countries. The product of our project can be used in several sectors, notably those of agriculture and commerce. The label will constitute an effective tool which, on the one hand, will contribute to the protection of the environment and public health. As in developed countries, it will help improve yields and exports of agricultural products [10].

3.2. Socio-economic partner who will benefit from the expected results

The chambers of agriculture are the institutions responsible for promoting agriculture. They constitute the place of consultation and dialogue between administrative authorities and representatives of the professional interests of farmers [11].

Indeed, the chambers of agriculture participate in:

- Organize the agricultural profession. – Implement training programs for farmers and breeders. – Facilitate the dissemination of scientific, technical and economic information to agricultural product export operations.
- Contribute to promoting agricultural products and labels. In this context, the Chamber of Agriculture will define the labeling procedure according to the reality on the ground.

4. Conclusion

The High Environmental Quality Label that we are offering will have numerous impacts on sustainable agriculture.

- For farmers: improvement in agricultural yields through the use of decision support tools.
- For consumers: they will be assured that their food is of better health quality and respects the environment.

In addition, our project will result in the creation of startups specializing in supporting farmers in the use of decision-making tools and agricultural techniques which allows them to have the High Environmental Quality label.

References

[1] Traiche A, Belhaouari B, Rouen-Hacen O. Study of macroalgae biodiversity in the western algerian coast, Ténès. Current Botany. 2018. 9: 28–32.

[2] Belhaouari B, Si-hamdi F, Belguermi B. Study of the benthic macrofauna and application of AMBI index in the coastal waters of Algeria, Egyptian Journal of Aquatic Biology and Fisheries. 2019. 23 (3) : 321 -328.

[3] Andrivon D, Bardin M, Bertrand C, Brun L, Daire X, Decognet V, Fabre F, Gary C, Grenier A S, Montarry J, Nicot P, Reignault P, Tamm L. Can we do without copper in organic crop protection? Collective scientific expert report. INRA Edition ; 2018.

[4] Zhuang Y,Ruan S,Zhang L,Chen J,Li S,Wen W,Liu H. Effects and potential of optimized fertilization practices for rice production in ChinaAgronomy for Sustainable Development. 2022. 42: 02-16.

[5] Biswas A K. Water Development in Developing Countries: Problems and Prospects. GeoJournal. 1979. 3 (5) :445-456.

[6] Belhaouari B, Setti M, Abdeli K. Monitoring of phytoplankton on coast of Ténès (Algeria). Journal of Water Science and Environment Technologies (JOWSET). 2017. 02 (1) : 159-163.

[7] Doyon M, Rochman J, Fontan J, Klein J, Ducruc S, Xiao J, Yorn C, Fortin J, Dugré S.Living Lab approach and agricultural open space planning. An example in the Montreal metropolitan region. Jurnal of urban research. 2015. 6 :02-15.

[8] Le Bellec F, Vélu A, Le Squin S, Michels T. Use of the I-PHY indicator as a decision-making tool in citrus orchards in Réunion - The case of lambda-cyhalothrin. Agronomic Innovations. 2013. 31 : 61-73

[9] MAA. Ministry of agriculture, food. Environmental certification of agricultural operations. Edition Ministry of Agriculture and Food. 2011.

[10] FAO. Handbook on food labelling to protect consumers. Edition Food and Agriculture Organization of the United Nations Rome. 2014.

[11] Ferrah A, OubelliM'Hamed A,Berni P.Algeria: Analysis of Food, Agriculture and Water research and innovation priorities, needs and capacities. Edition National Institute of Agronomic Research of Algeria.2013.