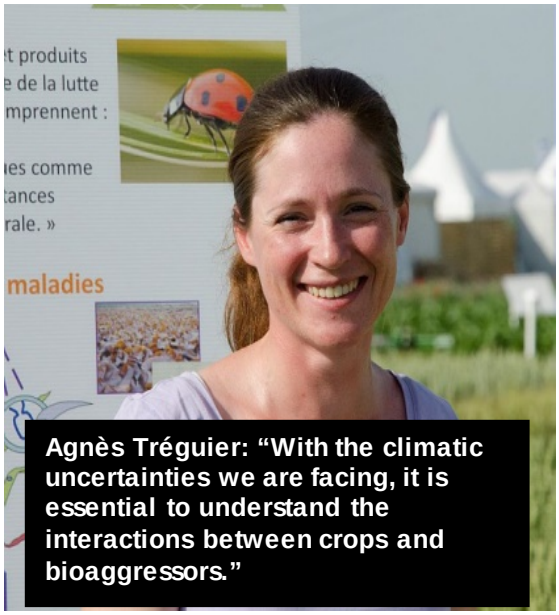
Agnès Tréguier, from ARVALIS - Institut du végétal, shares her views

HOW CAN WE PREPARE FOR THE WAY bioaggressors are going to evolve?

Cropping technique management, and in particular bioaggressor control, requires a minimum of preparedness. According to Agnès Tréguier, an Arvalis scientist based in central France, this starts with a farm-specific assessment.



Agnès Tréguier: "With the climatic uncertainties we are facing, it is essential to understand the interactions between crops and bioaggressors."

Perspectives Agricoles: **What risks are crops exposed to?**

Agnès Tréguier: Bioaggressors are sensitive to climate change. Some unusual case scenarios have been observed in recent years. They can occur cumulatively over a single season and lead to over or underestimating risks. This was the case, for example, with yellow rust in 2014 and with the pressure from aphids and then fusarium in wheat in 2016. In addition, ways of adapting crop protection may be limited in the short term by regulatory uncertainties. Faced with a high risk of weed presence, herbicide investment can be significant as early as in the autumn. If this is not effective enough, the question arises as to whether or not another treatment should be applied, depending on the weeds' level of resistance.

P. A.: **What solutions are available to farmers?**

A. T.: The primary focus is on identifying key risks and assessing practices at farm level in order to prevent these risks from increasing. The solutions are mostly agronomic (soil cultivation, rotations, etc.) and have been known for a long time. In the past, cereals were sown later than now, to avoid a significant risk from insects in the autumn. The introduction of effective chemical solutions against these bioaggressors made it possible to bring sowing dates forward in order to increase productivity. With the disappearance of these products, it is worth examining the merits of later sowing again, without losing sight of the need for profitable production. Similarly, the evolution of agricultural equipment can sometimes see techniques such as cereal crop hoeing back at the heart of research work. Being linked to plant development, which itself depends on weather conditions, these agronomic solutions are often slower to implement, do not guarantee regular efficacy and can be more expensive. It is therefore necessary to consider carefully what happens earlier in the season. Some adjustments are more immediate, such as diversifying the varietal profiles according to the risks encountered.

P. A.: **What tools can be used?**

A. T.: In the first instance, field observations should be carried out and recorded to assess the situation more

easily, to obtain a global diagnosis of both the season and over several years. Plant health bulletins(1), or technical bulletins from professional organisations, provide an overview of the local context and clues as to how it is likely to evolve. They are especially useful to ascertain whether a particular problem was encountered because of the weather or of crop practices(2). It is essential to collect information on the state of crops. Digital tools under development, such as connected traps or photographic recognition, should make crop monitoring easier. Work is also focusing on establishing forecasting models to refine risk assessment. Their effectiveness remains linked to the quality of the observations that collective tools can feed.

(1) Available for example on www.arvalis-infos.fr, under "Regions".
(2) Other sources of information: http://www.infloweb.fr (weeds); http://www.ecophytopic.fr (integrated crop protection); https://arena-auximore.fr (biological control agents).

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