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Carlo Boutton on advancing precision biologicals in crop protection

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Carlo Boutton, interim CEO of Biotalys, highlights that transitioning from lab to field remains a key hurdle, particularly in scaling protein-based crop protection solutions while maintaining efficacy, safety, and cost efficiency. He notes that the companyâ??s AGROBODY platform, developed in collaboration with Syngenta, reflects a broader industry shift toward integrating biologicals as a core pillar of future crop protection strategies rather than niche alternatives.

Boutton emphasizes that while protein-based biocontrols offer novel modes of action and strong potential in resistance management, they will complement rather than fully replace chemical solutions within integrated pest management systems. He adds that long-term growth will depend on platform-driven innovation, regulatory support, and advances in scalable production to make sustainable biologicals both effective and affordable for farmers.

Early lab success is encouraging, but the real test lies in field performance. What are the biggest scientific or operational hurdles you anticipate as you move from in vitro to in vivo and eventually to commercialization ?

Syngenta and Biotalys will now test the novel active ingredients on living organisms and then evaluate results. Moving from in vitro to in vivo and ultimately to field development is always a critical transition point for any new crop protection technology.

Operationally, scaling a novel protein-based active ingredient also requires ensuring manufacturing capabilities at commercial scale, while maintaining efficacy and safety. This is why Biotalys follows a staged development approach, combining laboratory screening with progressive in vivo validation and close collaboration with industrial partners that have deep expertise in strain engineering, precision fermentation, field development and commercialisation.

Your collaboration with Syngenta is a strong signal of industry alignment. What does this partnership reveal about how large incumbents are rethinking biologicals within their long-term crop protection strategies?

The collaboration between Biotalys and Syngenta reflects a broader strategic shift among large incumbents toward integrating biologicals more deeply into future crop protection portfolios. Rather than viewing biologicals as niche or standalone alternatives, leading players are increasingly looking at platforms that can deliver differentiated modes of action, compatibility with existing practices, and scalability comparable to conventional solutions.

By combining Biotalysâ?? proprietary AGROBODY technology with Syngentaâ??s global development and market expertise, the collaboration aims to accelerate the translation of breakthrough biology into solutions that can be deployed at scale. This signals that biologicals are increasingly seen as a strategic pillar in addressing resistance management, regulatory pressure, and sustainability demands across major crop systems.

Biologicals have long struggled to match the consistency of synthetic chemistries. How does AGROBODY meaningfully shift that equation, and where do its limitations still remain?

One of the historical challenges for biological crop protection products has been achieving consistency comparable to synthetic chemistries, particularly under variable environmental conditions. The AGROBODY platform of Biotalys is designed to address this by leveraging highly specific, antibodyâ??derived proteins that bind precisely to their biological targets. That is why we call these â??precision biocontrolsâ?•, offering a clear and novel mode of action.

At the same time, Biotalys is transparent that protein-based solutions are not a oneâ??sizeâ??fitsâ??all replacement for chemistry. Like any technology, AGROBODYâ??based products must be optimized for formulation, application timing, and integration into broader spray rotation programs. Today, their greatest value lies in complementing existing tools, particularly where resistance or regulatory constraints limit chemical options, while offering a favourable safety and sustainability profile.

As resistance to conventional insecticides accelerates, do you see protein-based solutions becoming a primary line of defense, or will they remain complementary within integrated pest management systems?

As resistance to conventional pesticides continues to accelerate, there is growing interest in protein-based solutions with novel modes of action as part of the resistance management toolbox. Biotalys sees these technologies as an increasingly important component of integrated pest management (IPM) programs.

In this respect, our first developed AGROBODY biocontrol, EVOCA, has been recognised as having a totally new mode of action by the Fungicide Resistance Action Committee (FRAC), a renown industry panel of scientists in the field. No resistance is known to our mode of action. This shows that our technology is able to develop novel and effective products that fit into the toolbox of growers.

Investors often question whether biologicals can deliver venture-scale returns. What is the commercial model that makes this platform not just viable, but scalable and profitable?

Biotalys addresses this through a platform-driven business model rather than singleâ??product development. The AGROBODY technology enables the generation of multiple product candidates against different targets, allowing Biotalys to build a diversified pipeline and pursue partnerships that share development risk while expanding commercial reach.

Strategic collaborations, such as the one with Syngenta, provide nonâ??dilutive funding through milestones and potential royalties. Combined with advances in protein production and formulation, this approach is designed to support scalable, capitalâ??efficient growth. The objective is not only to bring differentiated products to market, but to do so in a way that can sustain longâ??term value creation for both partners and investors.

With tightening global regulations on chemical pesticides, are policymakers moving fast enough to enable innovation, or is regulatory friction still a bottleneck for next-generation bioinsecticides?

Globally, regulatory frameworks are evolving in response to the need for more sustainable crop protection solutions, but progress remains uneven. In some regions, policymakers are actively seeking to encourage innovation in biologicals, while in others, regulatory processes originally designed for chemical actives still slow down approval pathways for biological products.

Biotalys engages proactively with regulators to help ensure that protein-based biocontrols are assessed in a scienceâ??based and proportionate manner. We are for exploring options for a fast-track procedure for biological products such as our AGROBODY biocontrols. Continued dialogue between innovators, regulators, and policymakers will be critical to unlocking the full potential of sustainable crop protection technologies.

The agri-inputs market is highly price sensitive. How do you plan to bridge the gap between sustainability and affordability without relying on premium positioning alone?

Affordability is a central consideration in the agriâ??inputs market, and sustainability alone is not sufficient to drive adoption. Biotalysâ?? strategy focuses on designing products that deliver clear agronomic value, such as efficacy against resistant pests or compatibility with spray rotation programs, while working toward costâ??competitive production at scale. Advances in strain engineering, precision-fermentation, and formulation are key levers in narrowing the cost gap between biologicals and conventional solutions.

Rather than relying solely on premium positioning, Biotalys aims to compete on total value delivered to the grower, including yield protection, resistance management, and regulatory robustness.

Looking ahead, does this milestone mark incremental progress, or are we at the early stages of a structural shift in how crop protection products are discovered, developed, and deployed?

This first research milestone with Syngenta represents more than an isolated research success; it points to a broader evolution in how new, safe and effective crop protection products are discovered and developed. Technologies like the AGROBODY platform enable a more targeted approach to biocontrol discovery.

That said, I expect the transformation of crop protection to be gradual. Chemistry, biologicals, and good agronomic practices will continue to coexist on the short term and will gradually evolve to a more biologics centered approach over time. Companies like Biotalys that are driving innovation are of critical importance to accelerate shaping the future of a sustainable agriculture.

--- Suchetana Choudhury (suchetana.choudhuri@agrospectrumindia.com)