

## First live novIGRain project Consortium meeting

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Members of the Consortium at Babolna with the newly erected 2.5 tonne silos for demonstrations and small-scale trials. Photo: novIGRain

Since the novIGRain project first kicked-off on October 1st 2020 the international participants had been unable to meet each other face-to-face. The two-year long COVID pandemic was characterised by strict quarantine measures and the team's only means of face-to-face communication was via videoconferencing. The COVID outbreak has now entered its endemic stage in Europe, due in part to the positive outcome of national vaccination programmes, so all the novIGRain participants decided to have their first in-person meeting in Budapest at the end of September 2022.

Since October 2020 the political, economic, and emotional situation have all changed enormously. The ongoing Ukraine war and its potential for escalation, the devaluation of currencies, the shortage of certain goods, immense price increases and the European energy crisis have resulted in a general air of pessimism. People began to fear losing the achievements or the work

done. It was under such circumstances that we had our first non-official meeting at the historical Centrál Grand Café on the evening of September 27 for all those who had already arrived in Budapest.

Despite the difficulties, spirits were high, and the talk was about food price increases and the changes to life in the different Member States. But despite – or perhaps because of – the economic and political challenges, the increased importance of protecting harvested grain meant that all those present felt an even more urgent need to carry on with the project with a deeper commitment to the outcomes. We all know that the average loss of stored grain is around 30% and when the loss of the Ukrainian grain harvest is factored in it is not surprising the world's food situation is worsening by the day. If our novel insecticide and technology can save a part of the harvest, then we need to focus on our efforts and work.

The following day the participants gathered at the headquarters of Babolna Bio in Budapest's 10th district, the chemical and pharmaceutical centre of Hungary. The meeting had a strict agenda and timeline.

### Team members present

- Frederic Verwilghen (Maxiline - Belgium),
- Dr Daniel Bajomi, Anna Kosa-Tass, Janos Szilagyi, Janos Daru - (Babolna Bio - Hungary),
- Krisztina Posvari (UBM - Hungary),
- Vaclac Stejskal, Thomas Vendl (CRI – Czech Rep.)
- Arnaud Poyelle, Dominique Tournel, (Sojam - France)
- Veerle Verlinden, Reindert Heuts (ILVO - Belgium),
- Anko Arissen (LINGE – The Netherlands)
- Gabor Hirka, Noémi Varro, Adél Vértési (Toxi-Coop- Hungary),
- Lies Bamelis and Astrid Croes (United Experts - Belgium).

The meeting started with a welcome by Mr Verwilghen, our Coordinator, followed by a "Tour de table". The only new company joining the novIGRain Consortium was Linge Agro Consultancy, a service company from The Netherlands specialising in Plant Protection and Biocide registration.

The introduction was followed by the accounts of the Work Programme leaders. Even under the difficult circumstances and many obstacles there were considerable achievements to report.

### Working Programme One

This working programme (WP) is led by Mr Vaclav Stejskal, a very well-known and recognised scientist. His team's main task is to determine the resistance status of insects, primarily against deltamethrin and pirimiphos-methyl, in the project's different geographical regions. To date they have collected 238 samples, visited 52 stores and more than 85% of those were infested with pests. Numbers of *Sitophilus oryzae* have increased by 30%, but *Sitophilus granaries* – that was previously the main pest in Europe – is interestingly reducing in number.

On the other hand, resistance is a rapidly growing phenomena especially in grain fumigated with phosphine. One of the problems is that grain store operators still

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think fumigation will achieve 100% control, which might not be the case anymore.

Upcoming tasks include further sampling, drawing up an EU map of stored pest resistance (the first of its kind) and preparing the draft of both a decision tree and storage manual of possible interventions. It was also mentioned that new emerging pest species are to be expected due to climatic changes and that S-methoprene IGR based formulations might be a solution that can impact on larval stages.

## Working Programme Two

The main aim of this WP was to develop a ULV formulation for pest control. After several attempts “Version 11” was defined as the “final product” while allowing for future changes if required. As a temporary solution we have called this formulation “Methograin IGR 30 ULV”. Initial studies (stability, analytics, efficacy) have shown good results. On the other hand, a difficulty has been identified as only 4 litres of the ULV formulation is sprayed onto 100 tonnes of grain and to achieve the same proportionality under laboratory conditions is a real challenge.

Babolna Bio has purchased five 2.5-tonne fiberglass silos, three were mounted at Babolna Bio’ site in Babolna, one at UBM and one at Siklós, a town in the south of Hungary. These are to be used for demonstrations, efficacy trials and prototype testing.

Several other tests had been ongoing with the aim of putting together an active substance and a formulation dossier for approval for agricultural uses in the EU. Determination of resistance and efficacy trials with the formulation are also well ahead and formulation upscaling to semi-manufacturing production was also successful.

## Working Programme Three

Sojam, the French expert and member of the Consortium has prepared the mobile prototype of the sprayer equipment and had delivered it to Hungary prior the meeting, together with one of their experts to help with fine-tuning.

On a wet, grey and relatively cold 29th September the Consortium members left the Budapest hotel to travel by bus to Babolna, which is some 100 kms from the capital, next to the highway that leads to Vienna.

The elevator, the big bag of wheat and corn (1 tonne) were prepared together with Sojam’s prototype sprayer. 25 litres of Methograin IGR 30 ULV was also prepared and delivered. Everything was ready for the demonstration. And at that moment the sun began to show itself and from then onwards we had a beautiful, memorable day with sunshine, a successful trial and happy people!

The speed of the elevator delivering the grain from the big bag was an issue as we needed the ULV sprayer heads to give very homogenous spraying. Machines will need to be tailor made for each site, but still need to be very adjustable. The initial trial was a mobile installation and interaction was needed at the top (sprayer head) and at the bottom of the elevator. These will become unnecessary when treating huge silos containing hundreds of tonnes of grain.

One of the aims of the development and the requirement of the sprayer equipment was to be able to spray two different insecticides/larvicides in parallel and with separate control. The essence is to treat the non-infested grain with an insect growth regulator to prevent the development of eggs and larvae potentially hidden and to spray an adulticide against pests potentially reinfesting the grain in the silo. This spraying in parallel has been a success.

The noviGRain team agreed that further adjustment, development, and fine-tuning will be necessary to better serve the very different demands and physical conditions of different stores.

## Working Programme Four

During our meeting it was decided that the impact of the changed European situation must be seriously addressed. The previously prepared Market Study must be reviewed as the variables, such as grain volumes, harvest yields, delivery methods and times, storage volumes and market prices are now considerably different, and have also changed significantly region by region across Europe.

Stakeholders must be more engaged and those experts indirectly involved but supporting the project must be asked to provide their best advice.

An environmental and social LCA (life cycle analysis) must be prepared soon and

a team brainstorm is a must in order to have a better understanding of the changing situation across Europe and where it will lead us.

The remaining Working Programmes deal with administrative issues and do not directly impact on pest control.

More interestingly, this has been the first year when members of our industry began to attend exhibitions, conferences, and presentations. In spite of the numerous difficulties, we have tried our best to engage with the professional community and maintain visibility of the project. To date we have:

- Published three articles to International Pest Control
- Published a scientific article: “Synthetic and Natural Insecticides: Gas, Liquid, Gel and Solid Formulations for Stored-Product and Food-Industry Pest Control”
- Published five newsletters
- Distributed flyers
- Attended conferences, exhibitions and given presentations (Pestex-London, Pest Protect-Berlin, ICUP-Barcelona)
- Attended Barcelona – 13th Conference on the Integrated Protection of Stored Products

The latter was interesting, because the noviGRain project was represented by Sojam - France, VURV – Czech Republic, Babolna Bio – Hungary and Christos G. Athanassiou (the Greek expert of the Consortium). Presentations and posters were given.

In summary we can say that the Consortium, in spite of the numerous difficulties, has fulfilled all of its obligations and undertakings. We are slowly heading towards the accomplishment of novel tools in grain protection, based on S-methoprene insect growth regulator as a ULV larvicide, a novel, multi-adjustment dual spraying equipment suitable for simultaneously spraying two different classes of insecticides and hence, to contribute to reduce and lessen the loss of grain in the European Union. ■

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