

Realising the potential of Integrated Pest Management: Alex Krick, CIBE

IPM has been widely practiced by sugar beet growers for decades

This applies especially with regards to the IPM principles/practices of crop rotation, choice of varieties, seed treatment and crop monitoring



European
Commission

"For some crops such as fruit, tomato, sugar beet, pepper, cereals, and oilseed the degree of cooperation and sharing of information is higher compared to other sectors. In these sectors, the strategies for the reduction of pesticides and the application of IPM practices for these crops is consolidated and already in place."

[Farmer's toolbox for integrated pest management](#), Nov. 2022

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IPM WIDELY PRACTICED



CROP ROTATION

Sugar beet, for over 200 years, have been grown in rotation with cereals, potatoes and other crops, preventing naturally the build up of host-specific pests and disease-causing pathogens.

“Sugar beet farmers” is in fact a misnomer as there is no farmer who grows only sugar beet. Sugar beet is generally grown in the same field only every 1 in 3 to 1 in 8 years, with 1 in every 4-5 years being the most common practice.



CHOICE OF VARIETIES

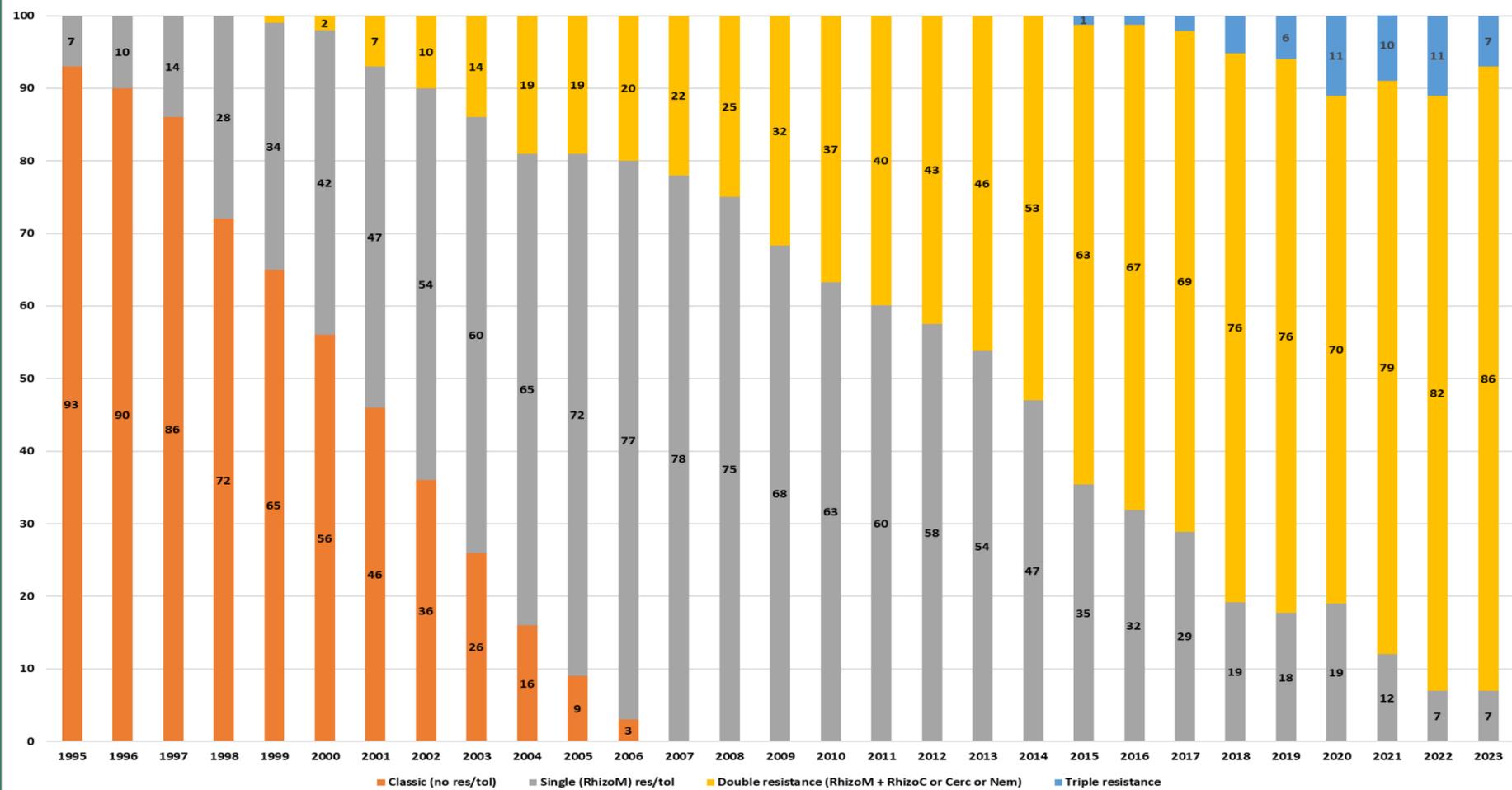
So far, around 50% of yield progress has come from improved varieties. Every sugar beet variety grown in the EU is resistant/tolerant to at least one major disease. The number of double tolerant varieties is increasing.

EU farmers have great expectations from breeding: their future depends on new varieties and resistance to respond to climate change, new pests & diseases and reduced availability PPPs.

More progress needs to be made rapidly, hopefully with the use of New Genomic Techniques (NGTs).



Adoption (% of area sown) of resistant/tolerant beet varieties in the Netherlands since 1995



Varieties with two (or even more) tolerance/resistance traits have increased their share of acreage sown to a level (>85%) that "single-tolerant/resistant" varieties never reached.

Other tolerance/resistance traits, either already existing or in the course of being obtained (for the time being, through conventional breeding), include:

- aphanomyces,
- AYPR (very aggressive strain of rhizomania which started "busting" classic rhizomania resistance some 10 years ago)
- cercospora,
- nematodes,
- rhizoctonia,
- ALS herbicides (CONVISO SMART system)

At early stage of development:

- virus yellows: considerable research ongoing, but availability of commercially viable tolerant/resistant varieties unlikely before 2030,
- SBR (low sugar content syndrome) et al.: a huge threat!

Even more progress possible with NGTs...



SEED TREATMENT

"A prophylactic measure in IPM, which represents an important control option, especially for regulating diseases and pests at emergence, and should therefore be used." (Guidelines for integrated plant protection in sugar beet cultivation, 3rd revised edition, 2023, Leitlinien IPS Zuckerrübe 2017)

Seeds are treated with very low doses of fungicide and/or insecticide to achieve satisfactory control of harmful organisms at a very early stage of crop growth. This leads to fewer treatments being necessary during later stages of the crop cycle.

Seed treatment is a good practice in case of systematic infestation when treatment thresholds are inevitably reached.

This tool is increasingly removed from the toolbox (e.g. neonicotinoid seed treatment).



MONITORING

Constant observations in the field as well as through regional pest and disease monitoring systems are very well established in sugar beet growing, especially for foliar diseases (cercospora, mildew, rust, ramularia).

In the 1970s: warning cards sent to growers.

In the 2020s: monitoring of observation plots communicated & updated online.

The continuation and development of monitoring in terms of detail and performance raises the question of research and, above all, the cost of equipment and training.





WEED CONTROL

Weed infestations can reduce yields by up to 90% in untreated fields. It is essential to control weeds before crop establishment.

Mechanical weeding is used when feasible (technical & economic limitations) but its effectiveness remains dependent on a good combination of chemical and mechanical weed control. It can contribute to reducing number of herbicide applications, but difficulties remain, such as the extra time needed for localised weed control and the high cost of precision equipment.

In France, out of 500 farmers surveyed, 60% of respondents had carried out mechanical weeding in 2022 on 80% of their beet acreage.



PRECISION AGRICULTURE & BIO-CONTROLS

- Weeding robots, spot-spraying are being tested and effective, but still manage a relatively limited area and are very costly. The EU's sugar beet acreage alone would require some 4 800 weeding/spot spraying robots/machines !
- Bio-controls: no effective sustainable products available yet: for example, the PPP Serenade is not considered effective against cercospora.

Their use must not lead to more inputs, leading to an increased treatment frequency index and higher costs ! They could be adopted if they provide satisfactory (i.e. effective and economically viable) control of harmful organisms.

CIBE – Food Chain partner view – Sugar Beet Growers

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HOW CAN SUGAR BEET GROWERS CONTINUE TO WIDELY IMPLEMENT IPM ?

Annual CLE Conference
5-6 March 2024

Going forward

To continue IPM (with innovative and combined strategies while entering the digital age), growers need flexibility, effective tools and far more effective alternatives.

No to arbitrary binding targets, additional administrative burden & restrictions!

Yes to incentives and to support for new investments!

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EU SHRINKING TOOLBOX...

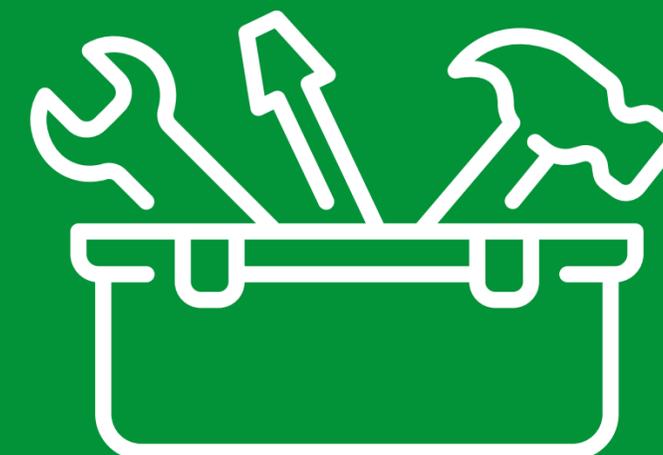
To protect their crops and continue to practice IPM, farmers need tools !

LACK OF VISIBILITY

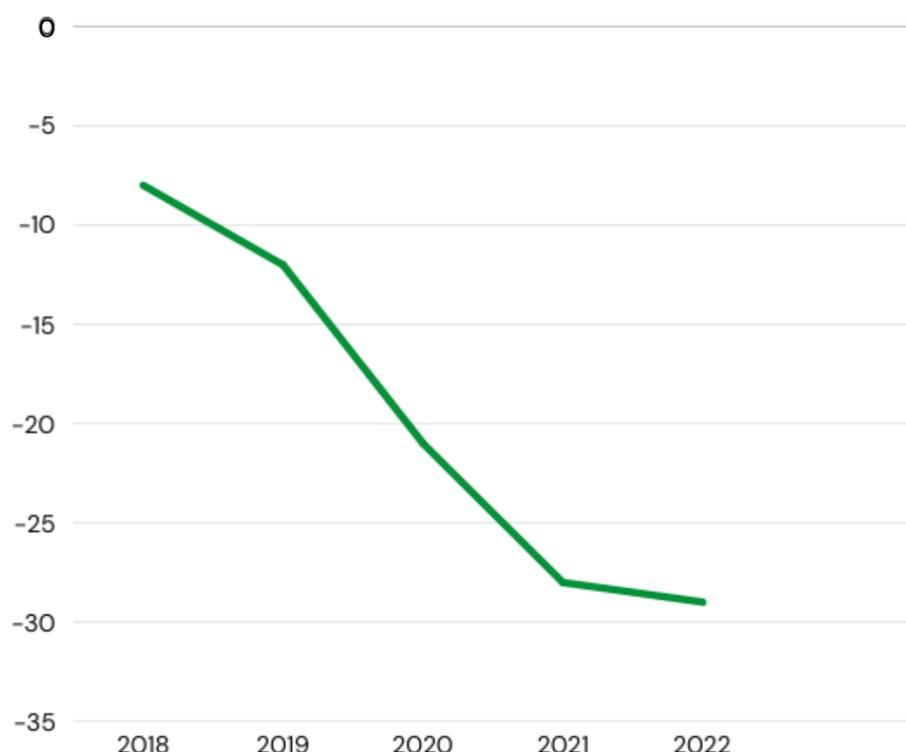
In the coming 4 years, sugar beet growers can currently be certain about only a small number (<15) of chemical active substances (AS).

Around 50 chemical AS currently available for use on sugar beet (but not in all MS) will come up for renewal (or not) of approval in the next 4 years.

13 of those are Candidates for Substitution.



Loss of active substances for use on sugar beet in the EU since 2018



LACK OF IMMEDIATE & EFFECTIVE ALTERNATIVES

Regarding effective alternatives, there may be one herbicide AS coming onstream in late 2024 to 2026, one insecticide AS in 2026 and one fungicide AS (no estimate as to when).

Two bio-controls are "in the pipeline", one being expected to be launched in the EU in 2025 at the earliest, the other was submitted for registration in the EU last year – so beet growers are not holding their breath.

The shrinking toolbox is impacting the implementation of IPM and the productivity of European sugar beet !



FACING NON-LEVEL PLAYING FIELD WITH SUGAR IMPORTS



HERBICIDE AS Authorised for use on sugar cane in Brazil

- Ametryn
- Aryloxyalkanoic acid
- Atrazine
- Diuron
- Ethoxysulfuron
- Glufosinate
- Haloxifop-P-methyl
- Hexazinone
- Imazapic
- Imazapir
- Metsulfuron-Methyl
- MSMA
- Oxadiazon
- Oxyfluorfen
- S-Metolachlor
- Tebuthiuron
- Trifluralin

Source: [PPPs database Brazil](#)



HERBICIDE AS Status in EU

- Approval expired in 2002
- Alkyloxy & aryl mercury compounds are banned in the EU
- Approval expired in 2004
- Approval expired 30/09/2020
- Approval expired 31/03/2014
- Approval expired 31/07/2018
- Approval expired 31/12/2020
- Essential use only/used until 2004
- Not approved
- Approval expired on 31 December 2007
- Approved until 31/8/2026, as a Candidate for Substitution
- Approval expired in 2002
- Approval expired 31/12/2018
- Approved until 31/12/2024, as a CFS
- Approval not renewed: grace period expires 23/7/2024
- Approval expired 31/12/2007
- Non inclusion voted May 2010

Source: [EU pesticides database](#)

COMPETITIVNESS OF EUROPEAN SUGAR BEET GROWERS & EUROPEAN SUGAR

DANGER

IPM FUTURE FOR EU SUGAR BEET GROWERS

DANGER

IPM IMPLEMENTATION PER SE DEPENDS ON VARIOUS CONDITIONS AND ITS PRACTICES ARE HIGHLY FLEXIBLE → It cannot be set in stone and should not be defined with legally and impracticable binding rules, leading to:

- an administrative nightmare
- an increase in inputs and input costs and possibly a stagnation/drop in yields

The proposed implementation of IPM via crop-specific rules “designed to ensure that chemical crop protection is only used after all other non-chemical methods have been exhausted and when a threshold for intervention is reached” would have imposed a double conditionality “last resort when everything else has been tried and failed”. This would have risked leading to situations where, when the use of chemical PPPs is finally allowed, it will be too late to provide satisfactory control of harmful organisms, be they pests, diseases or weeds. This double conditionality is not feasible. It is unrealistic and likely to lead to serious risk of yield reduction and even crop failure.

For IPM to work in practice, intervention with chemical control and seed treatment should also be possible before all other non-chemical methods have been envisaged (let alone “exhausted”) when it is clear from crop monitoring and/or weather data that a threshold for chemical intervention will inevitably be reached.

Effective & practicable IPM requires available, affordable and efficient tools!



Going forward

To continue IPM (with innovative & combined strategies while entering the digital age), growers need flexibility, effective tools and **far more effective alternatives.**

No to arbitrary binding targets, additional administrative burden & restrictions!

Yes to incentives and to support for new investments!

In sugar beet growing, strategies for the reduction of pesticides and the application of IPM practices are consolidated and already in place. Potential of IPM is being realised.

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Thank you for your attention!



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