Emergency Authorisation Number: 0394 of 2022

EMERGENCY AUTHORISATION FOR A MINOR USE OF A PLANT PROTECTION PRODUCT

PLANT PROTECTION PRODUCTS REGULATION (EC) No 1107/2009

Extent of authorisation: England

Product name*:* Cruiser SB

Active ingredient*:* 600 g / l thiamethoxam

Emergency authorisation holders*:* NFU Sugar and British Sugar plc

This Emergency Authorisation starts: 18 February 2022

This Emergency authorisation ends:

a) 18 June 2022 for placing the product on the market, use, storage and disposal of unused stocks.

This emergency authorisation can be withdrawn or amended before its end date if the requirements of authorisation under Regulation 1107/2009 are no longer met. The requirements may no longer be met as a result of, for example, new information brought to the attention of the competent authority on the danger necessitating the use of the PPP, the effects of the PPP, or whether use of the PPP is limited and controlled. These examples are not exhaustive.

Digitally signed by: Stephen Thornley
Date: 2022.02.18 12:24:48 Z

HSE Digital Signature

This and the attached Appendices 1 and 2 are signed by the Health and Safety Executive for and on behalf of the Secretary of State.

Date of issue: 18 February 2022

EXPLANATORY NOTES

1. This is Emergency authorisation number 0394 of 2022.

2. This Emergency authorisation will be published on HSE's website.

3. Application reference number: COP 2021/01344.

4. Persons using the product to which this Emergency authorisation applies should acquaint themselves with and observe all requirements contained in the Regulation (EC) No 1107/2009.

5. The efficacy of the product for which this Emergency authorisation has been granted has not been assessed and, as such, the user bears the risk in respect of failures concerning its efficacy.

6. In this notice Regulation (EC) No 1107/2009 means:
   In relation to Great Britain, Regulation (EC) No 1107/2009 as it has effect in Great Britain.

ADVISORY INFORMATION

This Emergency Authorisation relates to the use of 'Cruiser SB' for the control of Peach potato aphid (*Myzus persicae*) to prevent virus yellows infection.

This emergency authorisation relates to use as a seed coating. This use shall only be performed in professional seed treatment facilities. Those facilities must apply the best available techniques in order to ensure that the release of dust during application to the seed, storage and transport is minimised.

IMPORTANT: 'Cruiser SB' contains thiamethoxam a neonicotinoid insecticide (IRAC 4a). There are no known cases of resistance to thiamethoxam or other neonicotinoid insecticides in the UK to date for *peach-potato aphid (Myzus persicae)*. However, the possible development of resistance cannot be excluded or predicted and control may be reduced if strains of pest resistant to thiamethoxam or other neonicotinoids develop.

Use of this product should form part of a resistance management strategy. Subsequent foliar sprays against peach-potato aphid (Myzus persicae) should be made with a product containing a different active substance and from a different mode of action class.
Consult the UK IRAG website for further information on a particular management strategy.

APPENDIX 1: CONDITIONS OF EMERGENCY AUTHORISATION

The conditions below are obligatory. They must be complied with when the product is placed on the market and used pursuant to this Emergency authorisation. Failure to comply with the following conditions is likely to result in the withdrawal or amendment of the emergency authorisation under Regulation (EC) No 1107/2009 and may result in other enforcement action, including prosecution.

Packaging: The product may only be placed on the market in the following containers:

5 to 25 litre high density polyethylene container.

100 to 200 litre high density polyethylene returnable container.

1000 litre high density polyethylene container with a top-mounted discharge valve for use with a closed transfer system (the container must not be fitted with any other type of outlet).

Label: The product may only be sold or supplied with the agreed labels (for product and seed bag), which were the labels submitted on 26 October 2020 (HSE ref.: W001980922) and label amendments as specified in Annex A to HSE's letter dated 18 February 2022 sent to Syngenta UK Limited.

Use:

Field of use: **ONLY AS A SEED TREATMENT**

User: Professional

Crops/situations:	Maximum individual dose: (ml product / 100,000 seeds)	Maximum total dose:	Maximum number of treatments: (per batch)	Latest time of application:
Seed sugar beet	75	-	1	Before drilling

Operator Protection:

(1) Engineering control of operator exposure must be used where reasonably practicable in addition to the following personal protective equipment:

(a) Operators must wear suitable protective clothing (coveralls) and suitable protective gloves when handling the concentrate or handling contaminated surfaces.

(b) Operators must wear suitable protective clothing (coveralls), suitable protective gloves and suitable respiratory protective equipment* when cleaning machinery. *Disposable filtering facepiece respirator to at least EN149 FFP3 or equivalent.

(c) Operators must wear suitable protective clothing (coveralls) when bagging treated seed.

(d) Workers must wear suitable protective clothing (coveralls) and suitable protective gloves when handling treated seed and contaminated seed sowing equipment.

(2) However, engineering controls may replace personal protective equipment if a COSHH assessment shows that they provide an equal or higher standard of protection.

Environmental protection:

(1) To protect birds and mammals treated seed must be entirely incorporated in the soil; ensure that the product is also fully incorporated at the end of rows.

(2) To protect birds and mammals treated seed should not be left on the soil surface. Bury or remove spillages.

(3) To minimise the number of flowering weeds in treated sugar beet crops and reduce the risk of indirect exposure of pollinators to neonicotinoids BASIS recommended herbicide programmes must be adopted by growers and their agronomists. This applies in treated fields only. (Not field margins or the surrounding area).

(4) In order to reduce the risk of exposure to pollinators a minimum 32 month interval must be observed between drilling ‘Cruiser SB’ treated sugar beet seed and planting any restricted crop* on the same area of land.

*Refer to agreed stewardship document for details of restricted/ non-restricted crops.

(5) A minimum 46 month interval must be observed between drilling ‘Cruiser SB’ treated sugar beet seed and planting any other seed treated with thiamethoxam on the same area of land.

Other specific restrictions:

(1) This product must only be applied for the control of peach-potato aphid (Myzus persicae) in accordance with the terms of this Emergency Authorisation, the product label and/or leaflet and the agreed stewardship document (see Appendix 3).

(2) Sugar beet seed must only be treated in accordance with this authorisation under the direction of British Sugar, and only if the agreed 19% threshold of virus levels is met based on the Rothamsted Research 2022 virus yellows forecast.

(3) Seed coating shall only be performed in professional seed treatment facilities. Those facilities must apply the best available techniques in order to ensure that the release of dust during application to the seed, storage and transport can be minimised.

(4) Treated seed must be labelled with the appropriate precautions using printed sacks, labels or bag tags (refer to label for agreed text).

(5) Treated seed must not be used for food or feed.

(6) Sacks containing treated seed must not be re-used for food or feed.

(7) Treated seed must be drilled (broadcasting and aerial spreading of coated seed is forbidden).

(8) Adequate seed drilling equipment shall be used to ensure a high degree of incorporation in soil, minimisation of spillage and minimisation of dust emission.

(9) The drilling rate for Cruiser SB treated sugar beet seed must not exceed 115,000 seeds/ha.

(10) Returnable containers must not be re-used for any other purpose.

(11) Returnable containers must be returned to the supplier.

(12) Records must be kept of the fields sown with ‘Cruiser SB’ treated seed and monitoring in accordance with the agreed stewardship document.

APPENDIX 2: GENERAL CONDITIONS FOR AN EMERGENCY AUTHORISATION

Failure to comply with the following conditions is likely to result in the withdrawal or amendment of the Emergency authorisation under Regulation (EC) No 1107/2009 and may result in other enforcement action, including prosecution.

Adverse effects:

The authorisation holder must immediately notify the Secretary of State, if they have any new information on the potentially adverse effects of the authorised product, or of residues of an active substance in that product when used in accordance with the conditions of this authorisation. Failure to comply with this requirement is an offence.

Provision of information:

The authorisation holder must comply with all requests for information required by, or on behalf of, the Secretary of State, in accordance with Regulation (EC) No 1107/2009.

APPENDIX 3: Cruiser SB Neonicotinoid Stewardship Document

2022 Cruiser SB Neonicotinoid Stewardship Document

For Growers/Operators/Agronomists

Purpose

This document is prepared in accordance with the specific conditions of the **EMERGENCY AUTHORISATION OF 'CRUISER SB'.** It must be followed, as a condition of the authorisation, by individuals in the sugar beet industry that have opted to grow Cruiser SB treated sugar beet in 2022, subject to the specified threshold being met as a condition of the emergency authorisation being used

Outcome

Effective stewardship to clearly explain the conditions of the emergency authorisation to ensure understanding and compliance. A specific stewardship group was set-up to manage this.

Structure

The document is broken down into specific sections starting with the Virus Yellows forecast in 2022 through to drilling the crop and subsequent sugar beet agronomy and production. It also highlights other stewardship activities that will be covered by BBRO outside of the grower/operator/agronomist base.

Timing

This Stewardship Document is issued as part of the Cruiser SB Emergency Authorisation for 2022.

Contents

1. **The Virus Yellows Forecast**
2. **Reducing potential sources of VY infection**
3. **Drill Operator guidance and seed rates**
4. **Pesticide spill kits**
5. **Late drilling/re-drilling of sugar beet**
6. **Weed control in sugar beet fields**
7. **Aphid monitoring, thresholds and subsequent aphicide applications**
8. **Integrated crop management to boost beneficial insects**
9. **Following crop restrictions**
10. **BBRO soil and plant residue monitoring**
11. **BBRO liaison with relevant water companies/organisations**
12. **Knowledge Exchange (KE) activities**

1. The 2022 Virus Yellows Forecast

The Cruiser SB EA requires the submission of the 2022 Virus Yellows forecast to HSE at the beginning of March 2022.

Annually Rothamsted Research conducts a Virus Yellows forecast for sugar beet under contract to BBRO. This provides an indication of the incidence and abundance of aphids and Virus Yellows. The Virus Yellows forecast has been in operation for the UK sugar beet crop since 1965 and is one of the longest running predictive models available anywhere in the world, used to indicate the level and potential impact of an economically important plant disease. The 2022 VY incidence threshold for justifying the use of neonicotinoid seed treatments for virus yellows is 19%.

The forecast is issued at the beginning of March and is based on the relationship between virus incidence and winter temperature (January and February mean temperatures being critical to the analysis), the timing and size of the spring aphid migration (as recorded by the suction traps managed by the Insect Survey group at Rothamsted Research) and crop emergence date.

Alongside the forecasted VY levels for the forthcoming crop, the model also predicts the timing of aphid first flights, which is key in monitoring aphids in the field and helping growers to be prepared for when they may reach their foliar spray thresholds.

2. Reducing potential sources of VY infection

The sugar beet industry is committed to communicating grower best practice for infection control. Whilst aphid vector activity will be reduced following spells of very cold/freezing weather, it remains critical to ensure potential sources of virus on the farm are removed, especially before temperatures start to rise as we go into late spring and early summer. As soon as conditions allow, growers will be reminded to remove, or manage sources of potential virus-infected material.

Good farm hygiene is key, follow these top tips:

- Monitor harvesting closely in order to minimise the number of roots left in the soil
- Regularly re-check fields and remove any groundkeepers
- Carefully dispose of all crop debris under cleaner loaders and around clamps
- Clear and destroy any remaining spoil heaps before the new crop emerges
- Control any leaf growth on beet clamps
- Keep crop volunteers and weed species under control with well-timed, comprehensive herbicide programmes. This standard best practice applies in field, **not** next to or around sugar beet fields, i.e. field margins.
- Be aware of energy/AD beet or unharvested sugar beet still in the ground on neighbouring fields/farms

Overwintered cover crops can also be a source of VY infection for following sugar beet crops and should be destroyed ahead of sugar beet being drilled. Cover crops may still be under-sown in sugar beet crops for managing wind-blow but it is recommended to avoid the use of brassica-based cover crops to help reduce the potential build-up of aphid numbers. Ensure that cover crops are destroyed thoroughly, so no green material is left, on which aphids can survive. Target to destroy cover crops a minimum of 5-6 weeks ahead of drilling sugar beet. Where possible, timing cover crop destruction, particularly mechanical destruction and grazing to coincide with predicted spells of cold weather as this will help reduce aphid numbers even further.

Additional information can be found at:

- Controlling the Green Bridge, June 2020
- Brilliant Basic 5: Don't keep virus yellows alive
- Sugar Beet Review, Feb 2021, Vol 89, No.1, P 11-15 – Virus Feature

3. Drill Operator guidance and seed rates

The sugar beet industry is committed to targeting Cruiser SB stewardship information to all growers and drill operators therefore we have created a drill operator guidance document.

BBRO is aware that farm operators do not always receive the information that is sent directly to growers as the contract decision maker (this is the contact person on the database for receipt of emails etc.). Therefore, in recognition of this, the stewardship group has developed a specific and targeted guidance document for drill operators (see Annex 1) to be distributed on farm. The drilling rate for Cruiser SB treated sugar beet seed **must not exceed 115,000 seeds/ha**. It is each grower's responsibility to ensure this seed rate is adopted to ensure the terms of the emergency authorisation are adhered to. However, where rates above 1.15 units/ha are required to establish robust plant populations, this should be made up with seed that has NOT been treated with 'Cruiser SB'.

A drill set-up check list and maintenance information can be found in the BBRO Sugar Beet Drill Maintenance Guide. This also explains the importance of tillage options, efficient drilling to ensure seeds are buried effectively, the benefits of drill testing, understanding seed rates and optimising plant populations. It is critical that drills are checked and set up accurately to ensure 100,000 plants per hectare are achieved as expected. Further information can also be found in the BBRO Crop Establishment Guide.

4. Pesticide spill kits

The use of Cruiser SB treated seed requires growers to have access to a spill kit.

As part of the industry due diligence spill kits will be provided to all growers (to be passed onto the drill operator) in case of any accidental spillage of Cruiser SB treated seed. The kits will be sent to growers directly by the company providing them to ensure speedy delivery as soon as the Cruiser SB trigger is reached and seed processing begins.

Each spill kit includes the following items:

- 25kg polythene sack (450 x 650mm OT Welded base 90mu)
- Cable tie (300mm x 3.6mm)

In addition to the spill kits drill operators are advised to ensure they have appropriate PPE (e.g. face mask & gloves) and a small shovel/scoop in their drill cab to clean up any spilled seed. All spillages should be cleaned up using the spill kit provided, bags should be tied up appropriately and taken to an approved disposal contractor. Whilst this should be standard practice for operators the importance of this will be highlighted for Cruiser SB seed as its use is only allowed under the derogation.

5. Late drilling/re-drilling of sugar beet

No thiamethoxam seed treatment i.e. Cruiser SB may be used on the same field area for 46 months from the date of sowing treated sugar beet seed in 2022.

No Cruiser SB treated seed can be used after the 18 June 2022, this includes placing the product on the market, use, storage and disposal of unused stocks-. This is regardless of any unfavourable weather conditions, e.g. extreme wet, that may result in a delay to drilling and also includes any re-drilling of treated sugar beet from crop loss (due to wind blow or capping) on the same field area for 46 months from the date of sowing treated sugar beet seed in 2022. This is to minimise the risk of residues being acquired by succeeding flowering crops or weeds and hence exposing bees and/or other pollinators to neonicotinoid seed treatments. This was communicated by British Sugar to all

growers in January 2022, ahead of Cruiser SB seed being available on-farm. Information will also be sent out directly to all British Sugar Contract Managers reiterating the 120-approval period, crop restrictions and redrilling restrictions and it is also covered in the Drill Operators Guidance, ensuring that the stewardship information is received by drill operators, growers and other individuals speaking to growers e.g. agronomists.

6. Weed control in sugar beet fields

Alongside the use of Cruiser SB treated seed, it is a condition of use that usual robust BASIS recommended herbicide programmes must be adopted by growers and their agronomists to minimise the number of flowering weeds in treated sugar beet crops to reduce the risk of indirect exposure of pollinators to neonicotinoids. This applies in treated fields only (NOT next to or around sugar beet field drilled with Cruiser SB seed).

BBRO will issue Advisory Bulletins to all growers clarifying the herbicide conditions of use requirement for effective weed control in the sugar beet crop, particularly emphasising that this requirement does not include areas outside or next to the crop such as field margins. This will also be re-emphasised in the BBRO winter technical events for agronomists and growers in February/March 2022.

As is standard practice in the sugar beet sector weed control must be carried out in accordance with recommendations from a BASIS qualified agronomist. Guidelines and further information are also provided in the grower facing BBRO Reference Book. The 2022 Reference Book has an expanded section on weed control to provide further information. This is sent out to all growers February 2022 in hard copy and is also available on the BBRO website. Recognising weed control can be challenging in sugar beet, with the loss of some key herbicides in recent years, BBRO commissioned a 6-page technical feature in the February 2021 Beet Review, pulling in expertise from three industry experts on weed control to help growers. Sugar Beet Review, Feb 2021, Vol 89, No.1, P 16-21 – Weeds Feature

The key basics of weed control are also covered in Brilliant Basic 3: Keep your plants growing strong, don't get your spray mix or timing wrong, growers will be reminded of this again in 2022.

Here are the 10 top tips for weed control in sugar beet which will be communicated to growers by BBRO in the spring, they will also be reminded of these during the season:

1. Greater monitoring of weeds and weed growth stages
2. First spray timing is critical
3. Consider a pre-emergence herbicide where conditions allow
4. Monitor the crop carefully for growth stage and stress levels to minimise herbicide damage. Be wary of large diurnal fluctuations in temperatures
5. Be flexible on your approach to the choice of actives and rates of use
6. Consider 'tailoring' your herbicides to 'problem' fields
7. Don't delay in controlling fat hen
8. Select rates of phenmedipham carefully in relation to weeds and conditions
9. Consider use of adjuvants, but be mindful of conditions of use
10. Mechanical hoeing may be an option – be prepared!

7. Aphid monitoring, thresholds and subsequent aphicide applications

Product use Monitoring

The Cruiser SB EA requires all treated crops and associated field-areas to be recorded. All treated crops and associated field-areas will be recorded via the British Sugar CRM database and monitored by their team of agricultural contract managers.

Aphid Monitoring

BBRO runs an annual yellow water pan network to provide a large amount of data across numerous sites in order to provide UK sugar beet growers with a clearer view to aphid activity in their area. Monitoring aphid numbers is also done in the field by BBRO, British Sugar and a range of agronomists and growers. Aphid numbers are recorded in an annual survey and also a representative sample of aphids are tested in the laboratory to confirm the presence/absence of virus yellows throughout the season.

Growers and agronomists are also encouraged to regularly check their crops for aphids from crop emergence and for the following 10-week period, when the crop is at its most susceptible to aphid attack. Previous scientific research has identified an aphid threshold, above which foliar insecticides should be applied to protect the crop – the thresholds are explained below, Cruiser SB will run out of residual activity around 10-weeks after drilling so crop monitoring for aphids will be necessary up until the 16-leaf stage, previous work has shown that treatments after the 16-leaf stage are uneconomic.

Foliar Sprays

Growers will continue to have the option to drill untreated seed, regardless of whether the 'Cruiser SB' treated seed becomes available and employ a foliar spray programme as an alternative control strategy.

Cruiser SB is expected to provide good efficacy for up to 10 weeks after drilling reducing the need for any further foliar sprays. If however, aphid thresholds are met when Cruiser SB treated crops remain at the susceptible growth stages, foliar aphicide sprays may be appropriate. The spray thresholds are:

- The threshold for foliar insecticide applications is **1 green wingless aphid per 4 plants up to the 12-leaf stage (or 5 aphids per 20 plants)**.
- Between 12-16 leaves the treatment threshold is **1 green wingless aphid per plant**.

Foliar sprays should be applied as soon as the above thresholds are met and not delayed. High temperatures and drought stress can reduce efficacy of insecticides. The current available authorised foliar sprays are one application of flonicamid (either 'Teppeki' (MAPP 12402) or 'Afinto' (MAPP 19622)), and one application of 'Insyst' containing the neonicotinoid acetamiprid (MAPP 13414).

Where Cruiser SB seed treatment has been used, it is anticipated that this will provide sufficient control during the most susceptible stages of the crop. Even if the foliar threshold for treatment is met, 'Insyst' must not be used as the first foliar spray on the Cruiser-treated crop as this would jeopardise resistance management. If the Virus Yellows pressure is low further spray applications should not be necessary but every field/farm is different and hence the importance of crop monitoring at the field level.

A detailed article on crop monitoring can be found in the Sugar Beet Review, Feb 2021, Vol 89, No.1, P 11-15 – Virus Feature. Magnifying glasses were provided to all growers in 2021 with the Beet

Review publication to help growers identify aphids in the crop during regular checks. An aphid identification clinic will also be provided to agronomists and growers in the BBRO BeetTech22 winter technical events (8th and 10th February 2022). Any ground-truth data provided by growers and agronomists will be double checked by BBRO.

8. Integrated crop management to boost beneficial insects

Although not a complete solution, the industry is committed to maximising beneficial insects as part of our commitment to integrated pest management.

Hedgerows and field margins have been shown to support beneficials and to contribute to reducing aphid numbers in crops. Beneficial insects can increase when prey numbers e.g. aphids are high. There are a number of different things growers can do to encourage beneficial insects into their crops and the following points are key:

- Consider establishing field margins or drill strips with plant species which encourage beneficial insects such as ladybirds, ground beetles, lacewings, hover flies and parasitic wasps.
- Early establishment of field margins will help build beneficial numbers earlier in the season and have more impact.
- Use a mix of grasses and wild flowers in field margins to provide ground cover and sources of pollen and nectar. Mixes including some of the following flowering species are considered to be effective – oxeye daisy, buckwheat, bird's foot trefoil, yarrow, common knapweed, wild carrot, chamomile, sainfoin, wild red clover, selfheal, phacelia and borage. *NB. This applies to margins only; following crop restrictions detailed in section 9 apply in the cropped area where Cruiser seed has been used.*
- Some growers have released beneficial insects into crops to predate on aphids but the number and the timing of release is critical to success. BBRO continues to look into this approach further in 2022.
- It is essential to avoid using pyrethroid foliar insecticides for aphid control as aphids are widely resistant to these insecticides and they can reduce the number of beneficials which is counter productive, leading to an increase in aphids in the longer-term.

This was reported in the Sugar Beet Review, Feb 2021, Vol 89, No.1, P 11-15 – Virus Feature and further information can be found in Sugar Beet Review, May 2020, Vol 88, No. 2, P16-23 – The Good, The Bad and The Ugly and the Sugar Beet Review, May 2021, Vol 89, No. 2, P26-29 – What's in your crop? These messages will be reiterated during the growing season via BBRO Bulletins issued regularly to growers and agronomists.

9. Following crop restrictions

The Cruiser SB EA requires growers to follow strict rotational requirements.

The Inter Professional Agreement (IPA) is an extensive document governing the relationship between NFU Sugar (growers) and British Sugar (processor), the terms of the IPA are incorporated into each grower's contract. A grower may not sell sugar beet to British Sugar without a contract and complying with the accompanying IPA agreement. Growers must follow the following crop restrictions stated in the table below. If a grower is in non-compliance, then they are breaking the law and in breach of their contract.

Table 5 will be shared with growers, operators and agronomists on multiple occasions by British Sugar, NFU Sugar and BBRO. Growers will place their seed orders, plan future rotations and evaluated their future growing sugar beet in response to the information contained in the table below.

The following-crop restrictions apply for subsequent crops planted on the same area of land as Cruiser SB sugar beet drilled in 2022.

- **Any crop excluded from the below table should be considered 'restricted' i.e. a minimum of 32 months from drilling of Sugar Beet.**
- **The 32-month restriction applies to those agri-environment options that allow flowers to grow or appear on the same ground on which Cruiser SB treated seed was sown in 2022.**
- **Cover crops (including mixes) must also follow the 32-month restrictions.**

	Non-restricted	*Restricted*
Rules	*No restrictions following Sugar Beet*	*A minimum of 32 months from drilling of Sugar Beet*
Crops	1. *Wheat (including Durum Wheat)* 2. *Barley* 3. *Millet* 4. *Sorghum* 5. *Oat* 6. *Maize / Corn* 7. *Rye* 8. *Triticale* 9. *Canary seed* 10. *Spelt* 11. *Potato* 12. *Cabbage* 13. *Kale* 14. *Swede* 15. *Lettuce / Babyleaf / Spinach* 16. *Onions* 17. *Leeks* 18. *Carrots* 19. *Parsnips* 20. *Cauliflower* 21. *Broccoli* 22. *Turnip*	23. *Oilseed Rape* 24. *Linseed* 25. *Mustard* 26. *Soya Bean* 27. *Pea* 28. *Bean* 29. *Buckwheat* 30. *Clover* 31. *Phacelia* 32. *Chicory* 33. *Radish* 34. *Vetch* 35. *False Flax* 36. *Lucerne* 37. *Sunflower* 38. *Borage* 39. *Sainfoin* 40. *Nyger* 41. *Lupins*

Fodder, energy, and red beet are not included as part of the derogation to ensure the 'controlled and limited' element of the Emergency Authorisation.

It has also been made very clear that no further use of thiamethoxam seed treatments (including any re-drilling of treated sugar beet if crop lost due to wind blow or capping) on the same field area for 46 months from the date of sowing treated sugar beet seed in 2022 – a requirement of the Cruiser SB EA. This is to minimise the risk of any residues being acquired by succeeding bee-attractive crops or weeds and hence exposing bees and/or other pollinators to the neonicotinoid seed treatment.

10. BBRO soil and plant residue monitoring

A programme of sampling of neonicotinoid-treated sugar beet fields in 2022 onwards to determine any neonicotinoid seed treatment residue levels in soil and plants will be established.

Annex 2 details the 2022 Neonicotinoid Residue Monitoring Protocol that has been approved.

11. BBRO liaison with relevant water companies/organisations

As part of the industry due diligence contact will be made with relevant water companies to understand what monitoring they are doing and review any data they hold regarding neonicotinoids in water. Companies that will be contacted are: Anglia Water, Cambridge Water, Yorkshire Water, Severn Trent, Suffolk & Essex Water, Affinity Water, and the Environment Agency.

Alongside water companies operating in the sugar beet growing areas, we will also liaise with other relevant organisations e.g. Norfolk Rivers Trust, who operate in these areas and often have grower groups/meetings.

12. Knowledge Exchange (KE) activities

BBRO, NFU Sugar and British Sugar are all jointly involved in communicating the importance of good stewardship to the sugar beet industry, with BBRO taking the lead on KE technical information to the grower and agronomy base. Many different KE channels are used, this list below highlights BBRO's regular activities carried out every year.

Activity	Format	Audience	Frequency
Advisory Bulletin	Electronic	Growers/Operators/ Agronomists	Every 2-3 weeks during growing key season
Beet Review	Hard copy & electronic	Growers/Operators/ Agronomists	3 times p.a.
BBRO Reference Book	Hard copy & electronic	Growers/Operators/ Agronomists	Annual update Feb
News & Opinions pieces	Electronic	Growers/Operators/ Agronomists	When topical
BeetTech	Webinar/face2face	Growers/Operators/ Agronomists	Annual update Feb
BeetField	Webinar/face2face	Growers/Operators/ Agronomists	Annual update July/Sept
Agronomist Company Briefings	webinar	Agronomists	Annual update Feb/Mar
Demonstration Farms	Face2face	Growers/Operators/ Agronomists	When topical
YouTube videos	online	Growers/Operators/ Agronomists	When topical
BeetCast	audio	Growers/Operators/ Agronomists	Monthly topical updates
Brilliant Basics	Variety of different channels per topic	Growers/Operators/ Agronomists	*c.* 4-5 times p.a.
Breakfast meetings	Webinar Q&A	British Sugar Contract Managers	Every 2 weeks during growing key season
NFU Regional meetings	Webinar/face2face	Growers	Every 2-3 months or as invited
***Ad hoc* technical requests**	Webinar/face2face	Growers/Operators/ Agronomists	As requested
Training events	Webinar/face2face	Growers/Operators	2-3 times p.a.

In addition, BBRO will respond to any requests to provide technical information outside of its routine activities highlighted above. BBRO will proactively and reactively communicate with growers and agronomists to respond to any issues that arise during the season.

A draft KE plan for 2022 is presented in Annex 3 highlighting different channel and timelines. This will evolve during the year.

Annex 1 - Cruiser SB Drill Operator Guidance

In accordance with the requirements of the Cruiser SB Emergency Authorisation for the 2022 sugar beet crop, the industry is required to follow strict conditions. This card outlines the on-farm requirements that must be followed when using Cruiser SB treated sugar beet seed – please ensure it is seen by drill operators. **The drilling rate for Cruiser SB treated sugar beet seed must not exceed 115,000 seeds/ha**. It is each grower's responsibility to ensure this seed rate is adopted to ensure the terms of the emergency authorisation are adhered to. In some cases, 1.15 units/ha will be lower than the recommended rate as stated in the BBRO Reference Book. Where rates above 1.15 units/ha are required to establish robust plant populations, this should be made up with seed that has NOT been treated with 'Cruiser SB'.

Conditions of the Cruiser SB Emergency Authorisation

- **Cruiser SB is available for use under Emergency Authorisation for 120 days – the Emergency Authorisation ends 18 June 2022. All treated seed must be drilled within these dates.**
- The neonicotinoid seed treatment available is: Cruiser SB (45g ai/unit), Force ST (8g ai/unit).
- If a field is drilled with Cruiser SB treated seed, any re-drilled beet in that field **must not** be treated with Cruiser SB due to loading limits on any given area. There can be no further use of thiamethoxam seed treatments on the same field within 46 months. If you need to plant sugar beet in the same field *within* 46 months, it will have to be **a non-neonicotinoid treated seed**. This is important if any future Cruiser SB derogations are granted.
- **There are strict following crop rules attached to the Emergency Authorisation. Refer to table overleaf.**
- Only sugar beet contracted with British Sugar plc is included in the Emergency Authorisation. Fodder, energy and red beet are not included.

Drilling

- Handle seed carefully and wear PPE such as gloves and a mask
- Store seed securely in a dry and frost-free area
- Ensure the drill has been checked and tested
- Set the drill to deliver a **maximum seed rate of 115,000 seeds/ha**, this may not deliver the optimum final field population of 100,000 plants/ha in some cases (see below)
- All spillages should be cleaned up using the spillage kit provided. Label and tie up bags appropriately and use an approved disposal contractor to destroy the treated seed (Details can be found at the Environment Agency website https://www.wastedirectory.org.uk if you do not know an approved disposal contractor)
- Ensure that all seed is well covered with soil including the drill row ends
- Empty all units at the end of the drilling season and importantly, before moving to seeds which have not been treated with Cruiser
- Records must be kept of the fields sown with 'Cruiser SB' treated seed for a minimum or 3 years.

Herbicides

As part of the Emergency Authorisation growers and industry partners must observe standard best practice, industry-recommended herbicide programmes, applicable only to **in field** weeds. Please adopt the programme recommended by your BASIS-qualified agronomist/adviser and BBRO guidance contained in Advisory Bulletins and the BBRO Reference Book. Also ensure that all weed beet and bolters are adequately controlled to prevent any following that may attract insects.

Insecticides

- The threshold for foliar insecticide applications is **1 green wingless aphid per 4 plants up to the 12-leaf stage (or 5 aphids per 20 plants)**.
- Between 12-16 leaves the treatment threshold is **1 green wingless aphid per plant**.

- Foliar sprays should be applied as soon as the above thresholds are met and not delayed. The current available authorised foliar sprays are one application of flonicamid (either 'Teppeki' (MAPP 12402) or 'Afinto' (MAPP 19622)), and one application of 'Insyst' containing the neonicotinoid acetamiprid (MAPP 13414).

Seed rate and optimum plant populations

The crop is referred to as established once it reaches the 6-leaf stage. Most sugar beet is drilled using 50cm or 45cm row widths. The ideal row spacing is 16cm but use your predicted establishment to choose the required seed spacing for your establishment conditions. **Please be aware the maximum seed rate you can go to when using Cruiser SB treated seed, under the terms of the Emergency Authorisation, is 1.15 units/Ha.** Any seed rates above 1.15 units/ha required to establish robust plant populations, can only be made up with seed that has NOT been treated with 'Cruiser SB'.

The following-crop restrictions apply for subsequent crops planted on the same area of land as Cruiser SB sugar beet drilled in 2022.

- **Any crop excluded from the below table should be considered 'restricted' i.e. a minimum of 32 months from drilling of Sugar Beet.**
- **The 32-month restriction applies to those agri-environment options that allow flowers to grow or appear on the same ground on which Cruiser SB treated seed was sown in 2022.**
- **Cover crops (including mixes) must also follow the 32-month restrictions.**

	Non-restricted	**Restricted**
Rules	**No restrictions** following Sugar Beet	A **minimum of 32 months** from drilling of Sugar Beet
Crops	1. Wheat (including Durum Wheat) 2. Barley 3. Millet 4. Sorghum 5. Oat 6. Maize / Corn 7. Rye 8. Triticale 9. Canary seed 10. Spelt 11. Potato 12. Cabbage 13. Kale 14. Swede 15. Lettuce / Babyleaf / Spinach 16. Onions 17. Leeks 18. Carrots 19. Parsnips 20. Cauliflower 21. Broccoli 22. Turnip	23. Oilseed Rape 24. Linseed 25. Mustard 26. Soya Bean 27. Pea 28. Bean 29. Buckwheat 30. Clover 31. Phacelia 32. Chicory 33. Radish 34. Vetch 35. False Flax 36. Lucerne 37. Sunflower 38. Borage 39. Sainfoin 40. Nyger 41. Lupins

No further use of thiamethoxam seed treatments (including any re-drilling of treated sugar beet if crop lost due to wind blow or capping) on the same field area for 46 months from the date of sowing treated sugar beet seed in 2022 – a requirement of the Cruiser SB EA. This is to minimise the risk of any residues being acquired by succeeding bee-attractive crops or weeds and hence exposing bees and/or other pollinators to the neonicotinoid seed treatment.

Annex 2 - 2022 Neonicotinoid Residue Monitoring Protocol

Background

If the sugar beet industry is granted an Emergency Authorisation for the use of a neonicotinoid seed treatment (Formulated product 'Cruiser', containing the active ingredient thiamethoxam) on sugar beet grown in the UK under contract to British Sugar in 2022, treated seed will only be available for use where the Rothamsted Virus Yellows Risk Forecast model predicts a high risk and the economic threshold being met. Once treated seed is drilled several other criteria will be met including a programme of monitoring in soil and vegetation for neonicotinoid residues. Potential issues include the build-up of residues in the soil profile as a result of the relative persistence of the compounds, migration of residues from the area of use, and translocation to non-target flowering plants that could be a source of food for bees.

Objectives of the study

To provide robust data on thiamethoxam residues in soil and non-crop vegetation to support the continued use of neonicotinoid seed treatments if required by the sugar beet industry until more sustainable solutions are available.

A targeted soil monitoring programme would need to establish a baseline preceding drilling of treated sugar beet seed, with monitoring extending to post harvest, and through the following crop due to the reported persistence of neonicotinoids. Vegetation sampling should also be conducted e.g. from field margins.

The OECD guidance document for conducting pesticide terrestrial field dissipation studies and for determination of vegetative residues (applicable to studies destined for submission to regulatory authorities) suggest the number of individual trials to be undertaken (per region) for determination of soil residues should be 4 to 6, and in vegetation 6 to 10.

Considerations

- Six sites will be selected for monitoring
- Representative of soil type (BBRO data suggests roughly 60% cropping occurs on sandy soils, 30% on clay soils, and 10% on silty soils)
- Geographical location
- Climatic conditions e.g. low/high rainfall areas
- Number of repeat samples
- A full pesticide use history (5 years) of the selected sites must be available

Sampling

- The OECD guidance for TFD studies mentioned above will be followed to ensure sufficient replication in sampling. For each site, and on each sampling occasion, 15 soil cores will be taken in-field and edge of field (outside of the cropped area) to give replicated bulk samples (N=3) at each of 2 depths (0-20, 20-40 cm). This regime will generate 12 samples (6 in-field, 6 edge of field) for each trial site, and a **total of 72 soil samples per sampling occasion**.
- It is suggested that a minimum of 3 sampling occasions be considered, e.g., before drilling (baseline), during the growing season, and post-harvest. This would generate a **total of 216 soil samples for analysis**.

- In addition to the soil sampling regime, samples of field margin vegetation (outside of the cropped area) will be taken from each of the field sites on two occasions, firstly when the majority of plants are in flower, and secondly in the Autumn in advance of harvest. At each site/sampling occasion three samples will be taken and analysed for neonicotinoid residues (whole of plant), giving a **total of 36 samples**. In advance of analysis, plant species and abundance within the sample will be identified and documented.
- The sampling, as described, will be carried out following Good laboratory Practice (GLP) practices and principles, although GLP will not be claimed for this phase.

Analysis

- Soil and vegetation residue analysis will be carried out by an appropriate laboratory operating to GLP.

Reporting

- Interim data will be provided to the Stewardship Group after each sampling occasion.
- A final report will be provided to the Stewardship Group following analysis of the final set of samples, with a target date of 30 November 2022.

Annex 3 – BBRO Knowledge Exchange Plan for 2022

Activity	Jan	Feb early	Feb late	Mar early	Mar late	Apr	May
Advisory Bulletin	Hygeine, clear spoil	Hygeine	Beneficials	VY forecast	Drilling	Crop monitoring	Crop monitoring
Reference Book		Expanded VY info					
Beet Review	VY model, VY 2021 review, 5 key targets for 2022						VY 2022 forecast, aphid control
BeetCast		Seedbed prep		VY forecast			
BeetTech Growers live		Operation Emerald, key VY take-homes, future VY solutions					
Agronomist mtgs live			Operation Emerald, key VY take-homes, future VY solutions				
Website				Cruiser FAQ, VY forecast, beneficials			
Social Media		Hygeine, destroy cover crops	Beneficials	seed bed prep	Stewardship & crop restrictions	crop monitoring	spray thresholds
Brilliant Basics		Hygeine		seed bed prep	seed placement		

For the latest information keep checking the BBRO website: www.bbro.co.uk