# Statement of reasons for the decision on the application for emergency authorisation for the use of Cruiser SB on sugar beet crops in 2024

## Summary

In 2018 the government supported new rules which prohibit the outdoor use of three neonicotinoids – clothianidin, imidacloprid and thiamethoxam.

In taking that position, the government made it clear that it could consider emergency authorisations (in accordance with the relevant legislation) in special circumstances where authorisation for limited and controlled use appears necessary because of a danger that cannot be contained by any other reasonable means.

After careful consideration of all the issues, the government has decided to grant an application for emergency authorisation to allow the limited and controlled use of the product Cruiser SB, which contains the neonicotinoid thiamethoxam, for the treatment of sugar beet seed in 2024. This is in recognition of the potential danger posed to the 2024 crop by yellows virus.

This note:

* outlines the legal requirements applying to the application
* explains the process followed
* summarises the key evidence and the assessment made against each of the requirements (highlighting where the evidence or assessment is changed from 2023)

## The decision

The Right Honourable Mark Spencer MP, Minister for Food, Farming and Fisheries, has considered an application from the National Farmers Union and British Sugar for emergency authorisation to use the product Cruiser SB on sugar beet crops in 2024 (‘the Application’). The product is a seed treatment which can protect the crop from yellows virus (YV, a group of three damaging viruses) carried by aphids.

The Minister has considered the application in line with the relevant legal requirements for plant protection products and has decided that emergency authorisation should be granted subject to a number of strict conditions, designed to maximise the benefits and minimise the risks from use of the product.

## The requirements and process for emergency authorisation

Emergency authorisation is established by Article 53 of Regulation (EC) No. 1107/2009 as retained in UK law (‘the Regulation’).

This allows the short-term emergency authorisation for a specific use of a plant protection product that is not otherwise permitted providing that, on the facts of the particular case, all of the following tests are met:

* there must be a danger
* there must be special circumstances which make it appropriate to derogate from the standard approach to authorisations
* the danger must not be capable of being contained by any other reasonable means
* an emergency authorisation must appear necessary because of that danger
* an emergency authorisation may allow only limited and controlled use of the plant protection product

The emergency authorisation process provides an exemption from the standard plant protection product authorisation requirements under the Regulation. The decision-taker should still, however, take account of the overall objectives of the Regulation, including securing a high level of protection for human health, animal health and the environment while improving agricultural production.

Following the normal process for emergency authorisations, the Application was considered by the Health and Safety Executive (HSE), which sought advice from the UK Expert Committee on Pesticides (ECP) on specific scientific questions. Defra’s Chief Scientific Adviser (CSA) and Defra economists also provided advice.

The Minister considered the advice from the HSE, the ECP, the CSA, and Defra officials. In reaching his decision, the Minister considered whether each of the above tests for granting an emergency authorisation were met.

## The Minister’s conclusions

### First test: a danger

The Minister finds that this test is met.

The Regulation does not define the term ‘danger’, but the Minister considered that it had to be more than an insignificant or minor threat or inconvenience.

The Minister considered the nature of the danger to be financial costs falling on growers as a consequence of damage caused by YV to the sugar beet crop. Sugar beet plants infected with YV can be significantly reduced in size and can have a lower sugar content, and higher impurities. This leads to a lower overall yield of sugar beet and a reduced output of sugar resulting in financial losses to growers.

YV presents a significant threat to sugar beet production in years with high levels of virus infection. The year 2020 illustrates the threat. That year no neonicotinoid seed treatments were used and 25% of the national sugar beet crop was lost, which resulted in approximately £67 million of total economic loss across the industry, including losses of £43 million for growers.

However, in other years the threat from YV may not materialise to anything like the same extent. Indeed, the damage caused by YV in 2019 and 2021 (the other 2 recent years in which neonicotinoid seed treatments were not used) was far less than in 2020. In these years, YV did not turn out to be a significant problem at the national level.

The Minister noted that the impact of YV on growers will be highly variable and that this has several dimensions. Some growers will face greater virus pressures due to local differences in the timing and numbers of infected aphids entering the crop. There will also be differences in the development of the crop meaning that some growers’ fields will be less well able than others to resist a given level of virus infection. These factors together means that yield losses caused by YV will vary substantially around the mean, with some growers losing more than the average.

Individual growers will also be subject to a different range of other factors affecting the performance of their sugar beet crop (including weather and other pests and diseases) and so two growers with similar virus pressures may differ significantly in their overall yield loss. Finally, different farm businesses will have different abilities to weather financial losses if their sugar beet crop under-performs.

The Minister accepted the conclusions of an analysis carried out by Defra economists which considered how variation in virus pressures may feed into different financial outcomes. They estimated the range in yield losses that is likely to be seen at different average yield losses. The analysis suggests that there is considerable variability. Therefore, even at low average virus incidence, the worst-affected growers will suffer losses significantly greater than the average. As an example, the losses of the worst-affected 10% of growers when the average virus incidence is 3% are estimated to be similar to or greater than the losses of the least affected 10% when the average incidence is 57%.

To be effective, Cruiser SB needs to be applied as a seed treatment before the crop is planted and before any virus threat has materialised. It is therefore not possible to identify the precise magnitude of the threat before deciding whether to treat the crop. The variability in YV incidence year-to-year therefore poses the risk that, if authorised, the seed treatment could be used when the threat posed by YV does not materialise to any significant degree.

There is a means to predict the scale of threat. That is through the YV incidence prediction model developed and run by Rothamsted Research. This provides, on 1 March each year, a forecast of the level of YV infection that will be reached in August in the absence of any plant protection intervention. Making the prediction on 1 March allows the model to take account of preceding winter temperatures, which are important in determining the likely incidence of YV.

It has become clear that, since neonicotinoids stopped being used routinely, the model has significantly overpredicted YV incidence relative to actual incidence later in the year. This is understandable, because the model assumes no crop protection whereas growers have control tools available, albeit tools that are less effective than Cruiser SB.

As more years elapse, more information about the performance of the Rothamsted model is available. Using this, Defra economists are able to estimate the level of virus incidence that is likely to be realised for any level of incidence predicted by the model.

As set out above, the Minister has characterised the nature of the danger as financial costs falling on growers as a consequence of damage caused by YV to the sugar beet crop. Having considered the analysis of the impacts of YV on crop yields and consequent financial impacts on growers, the Minister has decided to set a threshold of predicted overall virus incidence at the level where there is expected to be an overall economic benefit from using Cruiser. At this level, the average grower is financially better off from using treated seed and the losses suffered by the worst-affected growers are limited.

There is expected to be an overall economic benefit if a threshold is set that only allows the use of Cruiser SB to go ahead if the Rothamsted model predicts a virus incidence above 64%. The Minister considers that the same threshold is effective in limiting the losses of the worst-affected growers.

He has therefore decided that there is a danger, and the use of Cruiser SB can therefore be permitted, only if the Rothamsted model predicts a virus incidence of 65% or more.

### Second test: Special circumstances

The Minister finds that this test is met.

As with ‘danger’, the Regulation does not define what is meant by ‘special circumstances’. The Minister considered that it means circumstances in which it would, exceptionally, be appropriate not to adopt the standard approach taken to other types of authorisation, bearing in mind the fact that to do so would potentially lose some of the safeguards to which the standard approach is subject.

The Minister considers sugar beet to be an economically important domestic crop. The sugar beet industry provides half of the UK sugar supply. British Sugar employs about 1,400 skilled workers and claim a total of 9,500 jobs created by the UK beet sugar industry. The industry is a significant contributor to the UK food and drink industry, working with over 170 industrial partners. It is also a key part of the rural economy in East Anglia and Eastern England.

The Minister also notes that UK sugar beet production has declined over a 20-year period and that crop losses this year might result in more growers turning their back on the crop.

For over 25 years, YV was effectively controlled by a regime centred on neonicotinoid seed treatments. There were then 3 years in which neonicotinoids were not used, followed by 2 years in which they were used according to the terms of emergency authorisations. This recent experience has indicated that without these seed treatments the sugar beet crop faces serious damage in some, but not all, years.

It follows from the adoption of a threshold that circumstances are only considered to justify the use of Cruiser SB in years where the expected level of virus incidence in untreated crops meets or exceeds the threshold. It is not yet known what the likely virus incidence and resultant losses will be for the 2024 season. If the model predicts a virus incidence at the break-even level, yield losses are expected to be significantly lower than 2020 levels but higher than those experienced in most years in the past 50.

Although the implication of the special circumstances test is that the need for the emergency authorisation should not be open-ended, each application for emergency authorisation does need to be assessed on the merits of the particular case and in line with the requirements of the Regulation.

In this case, the applicants and others in the sector have a plan for moving to a situation where emergency authorisations are no longer needed. The plan, known as the Virus Yellows Pathway, is taking forward the development of a range of measures to tackle virus damage. The Minister notes that this is a complex process and will take time, as no single measure will replace seed treatments.

The work includes the development of resistant sugar beet varieties (which is challenging as the YV complex consists of 3 viruses, and no single trait confers resistance to the virus). There is also work to develop various integrated pest management approaches to reduce levels of aphids in the crop and there is also the prospect of further pesticide sprays. These are expected to start to contribute to a solution in another 2 years. The Minister urges the applicants and others in the sector to drive forward these plans, so that their outputs can be implemented in the field at pace.

### Third test: the identified danger ‘cannot be contained by any other reasonable means’

The Minister concludes that this test is met.

There are control measures (both chemical and non-chemical) that can be used instead of Cruiser SB. However, even when used in combination, they are not as effective in containing YV infection and are not considered to be reasonable alternatives.

There are no alternative seed treatments but there are insecticides that can be applied as foliar sprays. The crop is most susceptible to YV for its first 12 to 16 weeks. When conditions are favourable to a danger from YV, pesticide sprays are less effective than the seed treatment, particularly in the emerging crop because much of the spray will not reach the crop seedlings. Each spray has limits on how often it can be applied and so collectively they are only able to provide up to 6 weeks’ protection. The sprays do not, therefore, provide effective cover for the full 12 to 16-week period where sugar beet is most susceptible to YV. The sprays are also slower to kill aphids, giving more time for the virus to transmit to sugar beet plants.

As discussed above, outcomes depend on a range of factors, many of them local. There will be variation across farms, and it is expected that for some individual farmers YV-infected aphids will enter the crop over a sufficiently prolonged period that control using foliar sprays alone will be significantly less effective than control using Cruiser SB. The likelihood of this occurring will increase as the national incidence level rises.

Work is underway to develop YV-resistant crop varieties. There is currently only one commercial variety that provides resistance to some YV. However, this carries a yield penalty; the Applicants cite an assessment by the British Beet Research Organisation that the choice of this variety only becomes economically viable if virus incidence in the field reaches 62%.

There are other techniques that can be helpful. These include early sowing of the crop and plant hygiene measures to remove potential sources of infection. These are insufficient to control YV when aphid populations are high in the young crop. Natural predators do not control aphids rapidly enough to prevent virus transmission and physical barriers are not economically or practically viable.

### Fourth test: authorisation is ‘necessary’ because of the danger

The Minister concludes that this test is met.

The test involves considering whether granting the emergency authorisation constitutes a proportionate means of addressing the identified danger. In considering the necessity test, the Minister weighed the possible adverse effects of the proposed use of the product (taking into account any proposed mitigations) with the potential benefits of the use of the product in addressing the danger, recognising that there is some uncertainty in both the adverse effects and the benefits.

In carrying out this balancing exercise, the Minister considered whether to apply the precautionary principle, which underpins the Regulation. He concluded that the precautionary principle did not need to be applied in the case of Cruiser because, taking into account the assessment of HSE, the additional information from the CSA and the proposed mitigations/conditions, the risks were sufficiently low and were outweighed by the benefits.

The Minister first considered potential risks to human health and the environment from using Cruiser SB. The risk assessments identify no concerns about human health (providing that operators use appropriate protective equipment).

In its environmental assessment, HSE noted a theoretical risk to birds using treated seed as grit but did not expect that birds would take pelleted treated seed as a source of grit.

HSE considered risks to aquatic life acceptable. They noted that exposure above the Predicted No-Effect Concentration (PNEC) set under the Water Framework Directive would be expected in some small, edge of field water bodies. This PNEC is set to support monitoring of levels of thiamethoxam in water and exceedance of the PNEC is therefore not in itself a cause for concern.

The expert evaluation discusses the potential risk to bees. The assessment carried out by HSE focuses on honeybees. It considers:

* the potential for acute (single exposure) and chronic lethal effects
* effects that are sub-lethal but, by impairing the functioning of individual bees, carry a threat of harm to the hive
* risks to larvae

It also considers a range of routes through which bees can be exposed to thiamethoxam, taking account of the fact that thiamethoxam can remain active in the soil for a period of time and can be taken up not only by the sugar beet crop itself, but also by subsequent crops on the same field, by other plants in the field and potentially by plants in field margins.

This risk to bees in subsequent years depends on the extent to which thiamethoxam and its active metabolites remain in soil and are available to be taken up by plants. Thiamethoxam breaks down over time and so the amounts in soil will reduce year on year.

HSE concluded that a number of potential risks to bees, including acute risks to bees from all routes of exposure, were not of concern for this use of thiamethoxam with the proposed conditions of use. These conclusions drew on new evidence on chronic toxicity which enabled HSE to conclude that chronic lethal risks to bees from flowering plants in field margins are unlikely to occur. The CSA agrees with these conclusions and the Minister accepts this advice.

HSE considered the chronic lethal and sub-lethal risk arising from bees foraging on pollen and nectar from flowering crops following the treated sugar beet crop to pose a potential concern. However, the CSA advised that, taking account of the rate of breakdown of thiamethoxam in soil, exposure levels from these sources are expected to be well below those required for chronic and sub-lethal toxicity if a 32-month minimum period is observed during which only crops that do not carry risk of exposure of bees are planted in the same field as the treated sugar beet crop. The Minister accepts this advice and has set a 32-month planting restriction on a range of mostly flowering crops as a condition of the emergency authorisation.

HSE also consider guttation fluid (fluids secreted by certain plants) from succeeding crops to pose a potential concern, in terms of both chronic lethal and sub-lethal risks to adult bees and risks to larvae. They find that likely exposure is lower than the level required for either chronic toxicity or sub-lethal effects, but that the margin by which the likely exposure is lower than these levels is less than normally required for a standard authorisation. These conclusions are based on a study on maize, which shows higher concentrations of pesticide in guttation fluid than sugar beet or other crops normally planted after sugar beet (such as wheat and barley). For this reason, the CSA believes that the use of data from maize is likely to over-estimate the risk of exposure of bees to thiamethoxam.

Monitoring was carried out in 2022 and 2023 for neonicotinoid residues in soils and field margin vegetation/pollen from fields where treated sugar beet was sown. The datasets are small and the results are variable but some raise the possibility that the breakdown of neonicotinoids in certain soils may be slower than reported in previous studies. The CSA advises that monitoring should continue to develop the evidence base. At the present time, the limited evidence does not yet enable new understanding about risks from Cruiser SB to be drawn.

The Minister accepted the conclusion of HSE that many environmental risks are low for the proposed limited and controlled use of Cruiser SB. HSE raised concerns about risks to honeybees, specifically chronic lethal and sub-lethal risks to bees arising from pollen, nectar and guttation fluid from crops following the treated sugar beet crop. These risks were considered further by Defra’s CSA and the Minister accepted his advice that risks from pollen and nectar were addressed by the restrictions on following crops and that risks from guttation fluid were likely to be over-estimated. The Minister therefore concluded that the mitigated risks appeared likely to be low.

In terms of benefits, the Minister considers that the use of Cruiser SB is expected to be effective in addressing the danger described above, which is not effectively dealt with by the available alternatives. At and above the proposed threshold of 65% predicted virus incidence, the Minister noted that the benefits for the worst-affected growers are higher than the average. He concluded that these benefits outweigh the mitigated risks and therefore decided that the balance is in favour of allowing the limited and controlled use of Cruiser SB in 2024.

In taking his decision, the Minister has taken into consideration that there is a degree of uncertainty as to the benefits of using Cruiser SB to address the identified danger (given the uncertainty as to the virus incidence at this stage) and a degree of uncertainty in relation to the risks to bees (as outlined above).

In order to address this uncertainty, the emergency authorisation incorporates a number of conditions and safeguards. These provide the limitation and control required by the legislation and specifically aim to secure the benefits and reduce, where possible, the residual risks of the use of Cruiser SB.

Specifically, the threshold discussed above will ensure that Cruiser is only used if the YV threat is predicted to constitute a danger to sugar beet production. Risks to bees will be reduced by proposed measures. Limitations on the amount of seed treatment applied and on the sowing density of the crop and a ban on further use of thiamethoxam seed treatments on the same field within 46 months will limit the quantity of thiamethoxam in the environment. A ban on planting flowering crops within 32 months of the treated sugar beet and a requirement for the control of weeds in the crop will reduce risks from pollen and nectar from flowering weeds and from flowering crops following treated sugar beet in the same field.

### Fifth test: ‘limited’ and ‘controlled’ use

The Minister concludes that this test is met.

In terms of limited use, there is a degree of limitation from the fact that Cruiser SB will only be used on sugar beet, which is only grown in a region dictated by proximity to the 4 processing factories in West Norfolk, East Norfolk, West Suffolk and East Nottinghamshire.

Further limitations will be applied as conditions of the emergency authorisation. These are listed in full below and include a reduced application rate of the product, a maximum drilling rate and the imposition of the threshold discussed above.

In terms of controlled use, the application proposes a stewardship scheme underpinned by industry commercial contracting arrangements. Additionally, the Minister may remove or withdraw the emergency authorisation at any time if the conditions are not met/followed.

The stewardship scheme includes several measures, each of which will be set as conditions of the authorisation, to address risks to pollinating insects.

The Minister has concluded that the proposed conditions set out in full below are sufficient, in combination, to ensure that use of the product will be limited and controlled.

## Overall conclusion on the 5 tests

The Minister finds that the 5 tests are met and has therefore decided to grant the emergency authorisation, with strict conditions as detailed below.

## Conditions to be attached to the emergency authorisation

The Minister has directed that the following key conditions should be attached to the emergency authorisation (in addition to standard requirements that HSE would apply to the product):

* use is only permitted if the predicted virus incidence level is 65% or above, as determined on 1 March 2024 by the Rothamsted YV forecast model
* Only a specific list of crops, none of which flower before harvest, are permitted to be planted in the same field as treated sugar beet within 32 months
* no further use of thiamethoxam seed treatments on the same field within 46 months
* application rate of Cruiser SB reduced from 100 ml per 100,000 seeds to 75 ml per 100,000 seeds (this reduces the application rate of thiamethoxam from 60g per 100,000 seeds to 45g per 100,000 seeds)
* observance of industry-recommended herbicide programmes for weeds growing in treated fields
* a maximum drilling rate for treated seed of 115,000 seeds per hectare
* treated seed must be entirely incorporated in the soil and fully incorporated at the end of rows
* treated seed should not be left on the soil surface. Spillages should be buried or removed
* compliance with a stewardship scheme including a number of requirements for monitoring levels of neonicotinoids in the environment.
* the authorisation can be withdrawn or amended at any time if the conditions are not adhered to, or if the requirements under retained Regulation 1107/2009 are no longer met (including if new information becomes available that is relevant to consideration of the tests for emergency authorisation)
* a number of requirements for data to be collected/generated and submitted to government

The Minister has decided that it is appropriate to grant the authorisation for a 120-day period to cover the period from treatment of seed until the end of the season for seed drilling.