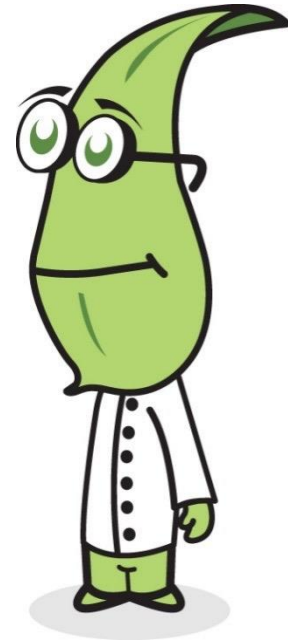


Wales Spring Bulbs for Schools Report 2006-2024



**AMGUEDDFA
CYMRU**

Edina
Trust

Bulb Project



Noddir gan
Lywodraeth Cymru
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INDEX

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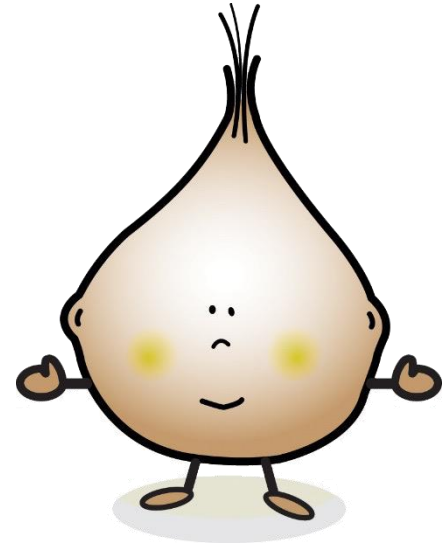
Wales Weather Data 2006-2024

- [Temperature 2006-2024](#)
- [Sunshine 2006-2024](#)
- [Rainfall 2006-2024](#)

Wales Flower Data 2006-2024

- [Daffodil data 2006-2024](#)
- [Crocus data 2006-2024](#)

Further Resources



Summary 2006-2024

- The following summary looks at key patterns and trends evident in the data recorded by schools over the last 19 years.
- Weather readings are taken between November and March, meaning that records for each year include readings from the November and December of the previous year. For example, when the report talks about results for 2006, it's referring to data taken from November 2005 to March 2006.
- You can download the data to study yourself at: [Spring bulbs for schools \(museum.wales\)](https://www.museum.wales/schools/spring-bulbs)

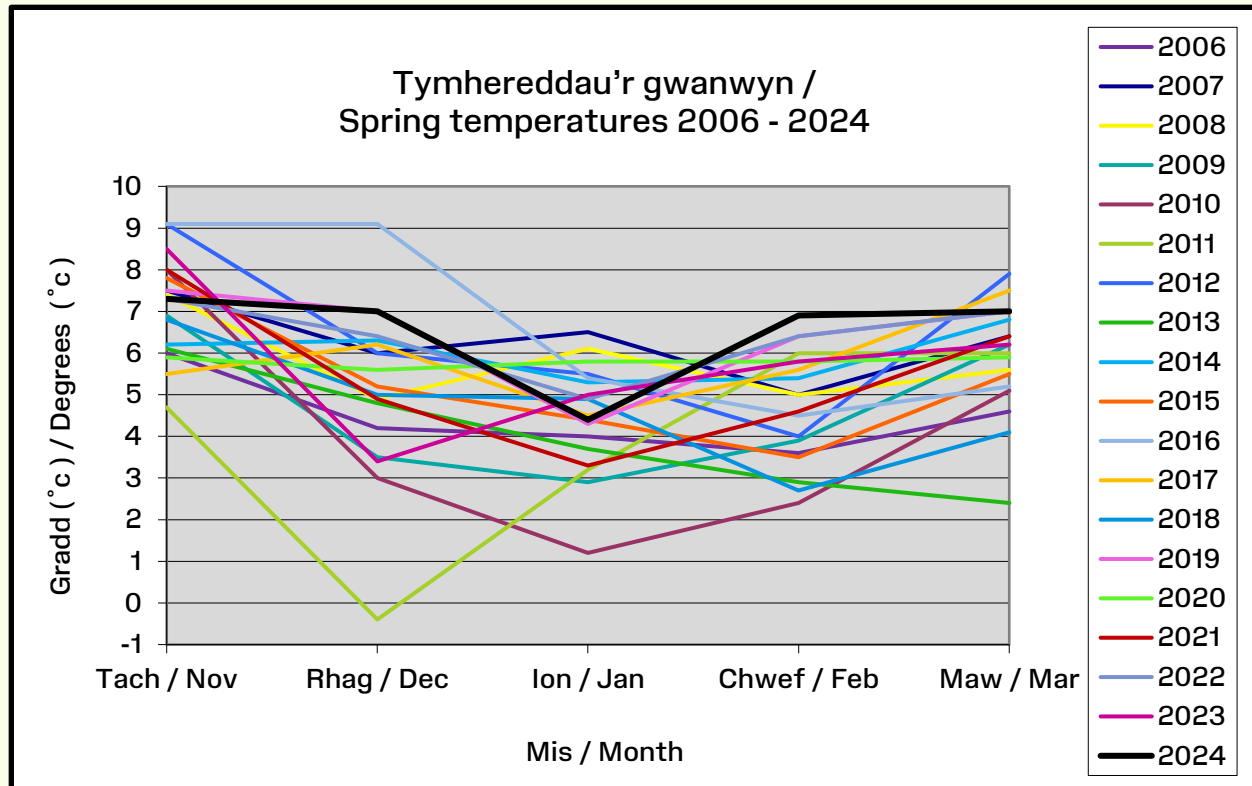


Welsh results table 2006-2024

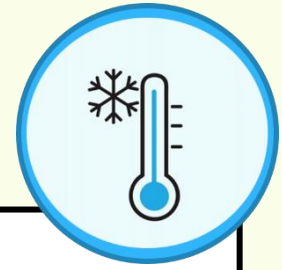
| Blwyddyn/Year | Dyddiad blodeuo'r crocws / Crocus flowering date | Dyddiad blodeuo'r cenin Pedr / Daffodil flowering date | Tymheredd / Temperature (°c) | Glawiad / Rainfall (mm) | Oriau o haul / Hours of sunshine |
|-----------------------------|--|--|------------------------------|-------------------------|----------------------------------|
| 2024 | 09-Mar | 03-Mar | 6.5 | 191.7 | 51.8 |
| 2023 | 06-Mar | 23-Mar | 5.8 | 161.6 | 60.5 |
| 2022 | 02-Mar | 04-Mar | 6.4 | 115.7 | 70.6 |
| 2021 | 03-Mar | 05-Mar | 5.4 | 169.6 | 57.5 |
| 2020 | 29-Feb | 27-Feb | 5.8 | 175.6 | 66.9 |
| 2019 | 21-Feb | 27-Feb | 6.4 | 149.0 | 67.0 |
| 2018 | 01-Mar | 21-Mar | 4.7 | 150.8 | 60.3 |
| 2017 | 05-Mar | 08-Mar | 5.9 | 121.0 | 61.5 |
| 2016 | 05-Mar | 13-Mar | 6.7 | 232.6 | 58.7 |
| 2015 | 02-Mar | 10-Mar | 5.3 | 136.7 | 74.2 |
| 2014 | 09-Mar | 12-Mar | 6.0 | 187.0 | 69.0 |
| 2013 | 19-Mar | 29-Mar | 4.0 | 154.0 | 65.0 |
| 2012 | 05-Mar | 10-Mar | 6.5 | 83.0 | 74.0 |
| 2011 | 03-Mar | 12-Mar | 3.9 | 100.0 | 81.0 |
| 2010 | 06-Mar | 24-Mar | 3.9 | 151.0 | 77.0 |
| 2009 | 13-Mar | 07-Mar | 4.7 | 97.0 | 78.0 |
| 2008 | 16-Feb | 14-Feb | 5.8 | 158.0 | 83.0 |
| 2007 | 16-Feb | 06-Mar | 6.3 | 165.0 | 79.0 |
| 2006 | 25-Feb | 19-Mar | 4.5 | 66.0 | 76.0 |
| Cyfartalog / Average | 2 Mawrth / March | 10 Mawrth / March | 5.5 | 146 | 69 |

2024 saw later than average flowering dates for the crocus and earlier than average flowering dates for the daffodil. Let's look in more detail at the temperature, rainfall and hours of sunshine to see if we can figure out why our plants flowered when they did!

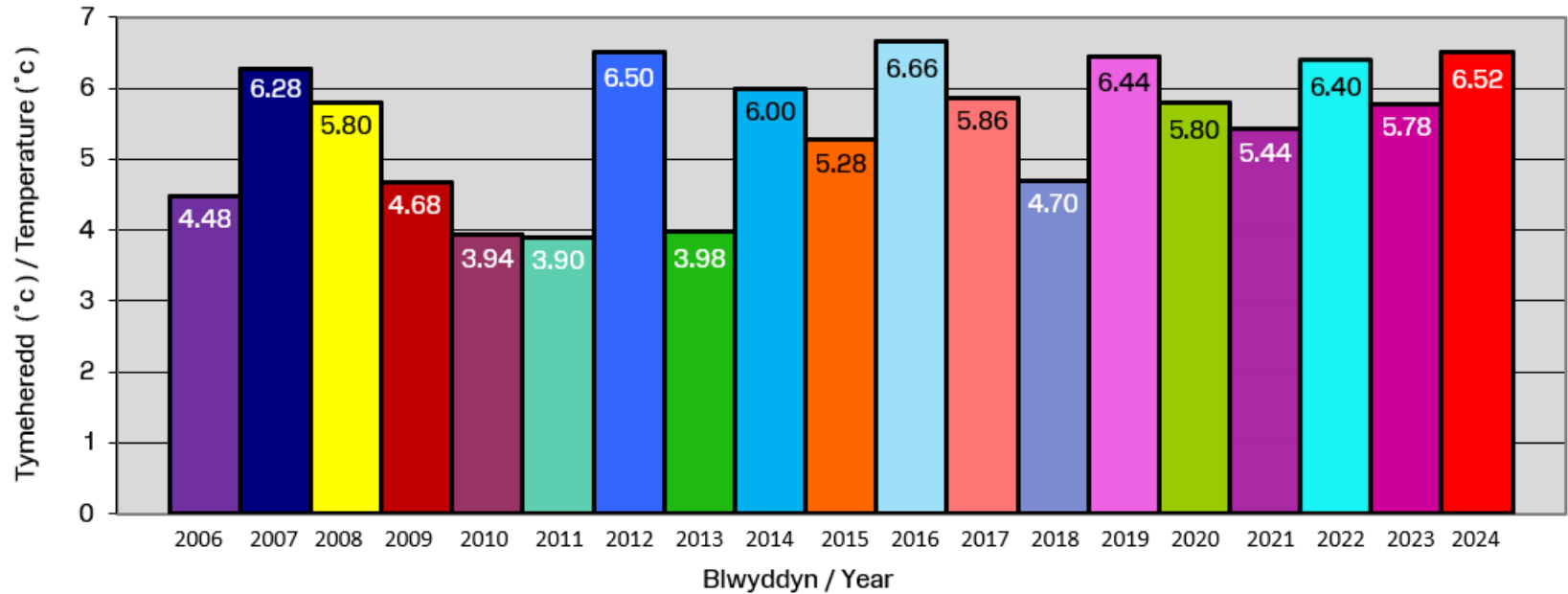
Average temperatures in Wales for the period November-March for the years 2006-2024



The line chart shows average temperatures for the period November to March in Wales since 2006. We can see that 2024 had the highest average temperature for February. The MET Office has reported that it was the warmest February on record for England and Wales!

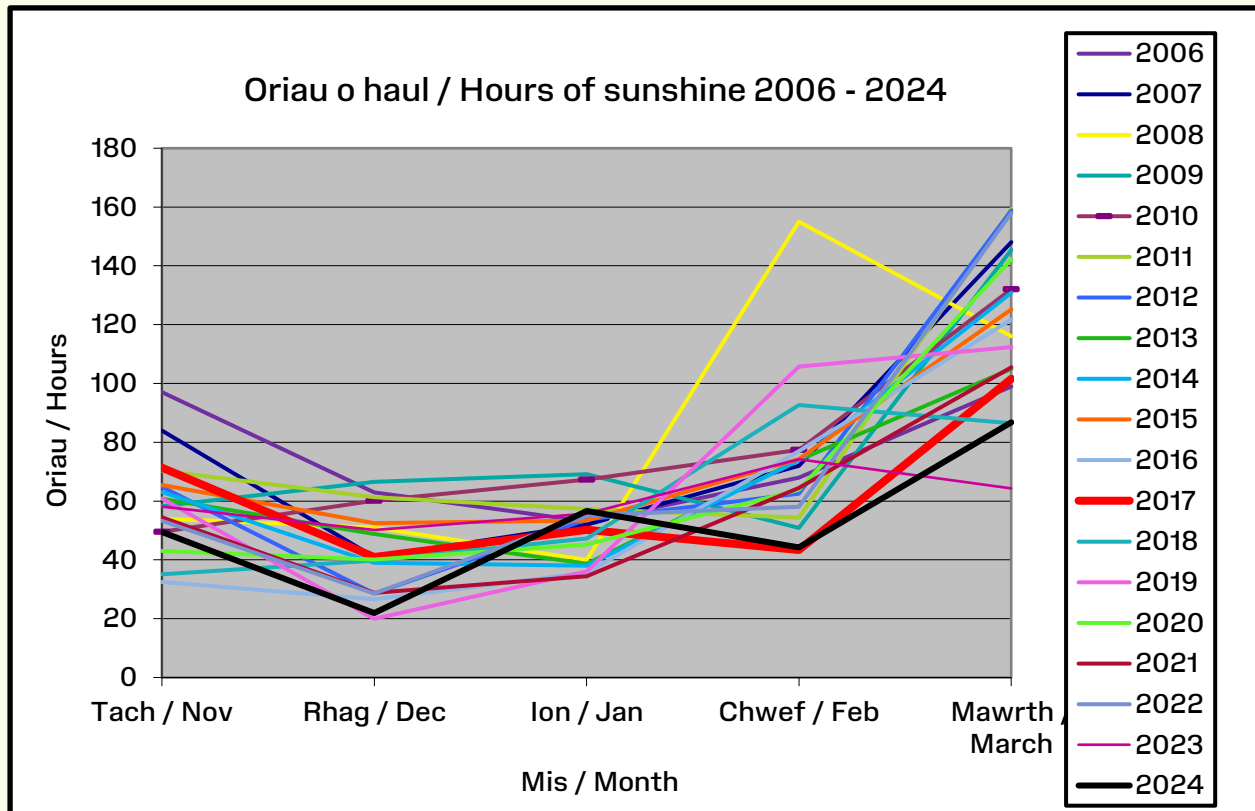


Tymheredd cyfartalog y gwanwyn
Average spring temperatures 2006 - 2024



The bar chart shows average temperatures in Wales for the period November to March for the years 2006 to 2024. We can see that 2024 saw the second highest temperatures since our project began! 2015 was the only year to see higher temperatures.

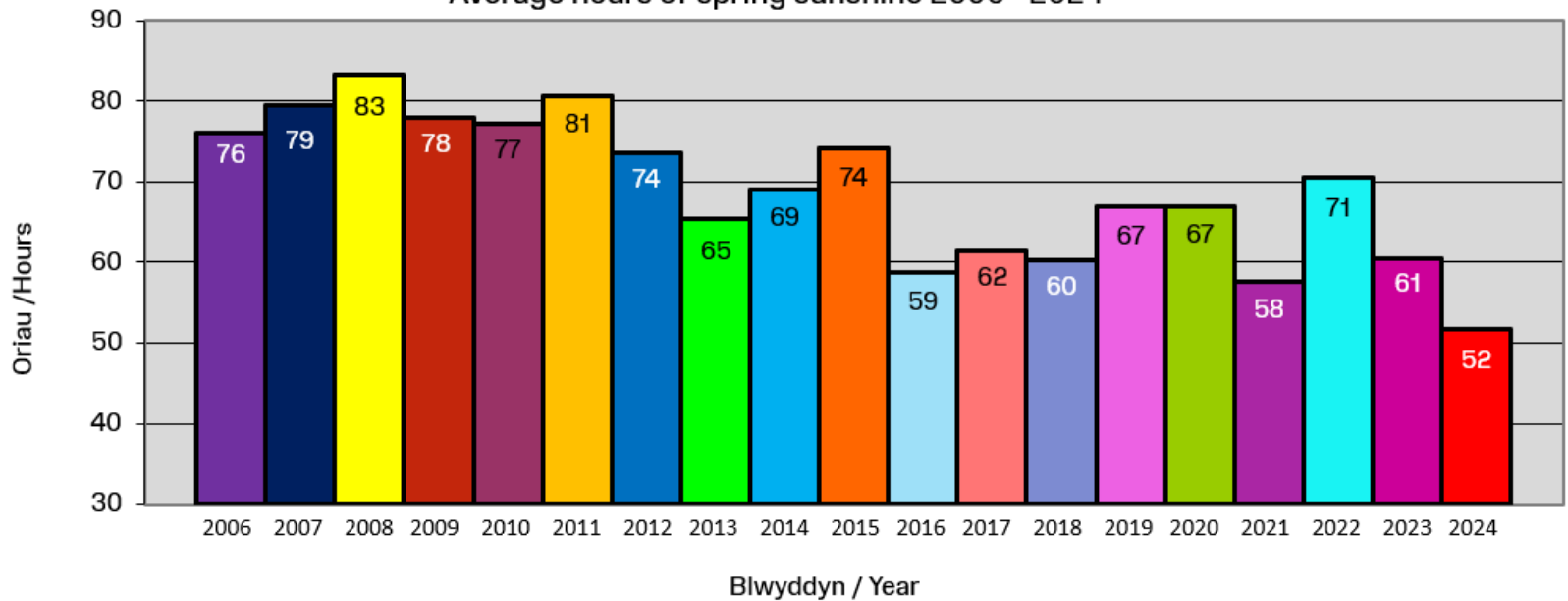
Average hours of sunshine in Wales for the period November-March for the years 2006-2024



We can see from the line chart that 2024 had low average hours of sunshine for most of our period. When we compare the black line for 2024 to other years, it shows us that 2024 saw lower than average hours of sunshine. Even in March the temperatures were lower than for most other years.

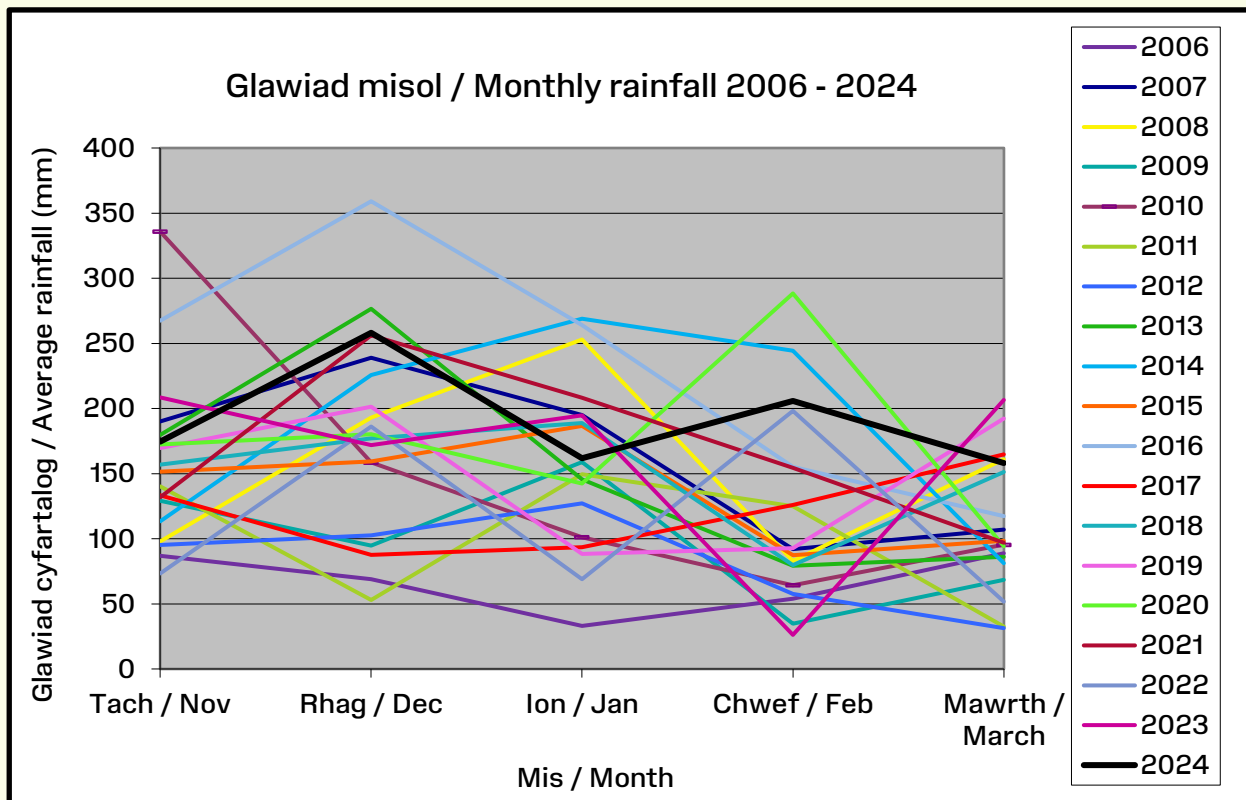


Oriau cyfartalog o haul yn y gwanwyn
Average hours of spring sunshine 2006 - 2024



We can see from the chart that 2024 saw the lowest average hours of sunshine of the investigation at just 52 hours! That's 31 hours less than 2008 which saw the highest average hours of sunshine. It's interesting to note that the years 2006-2012 all saw higher than average hours of sunshine and that since then most years have seen below average hours of sunshine.

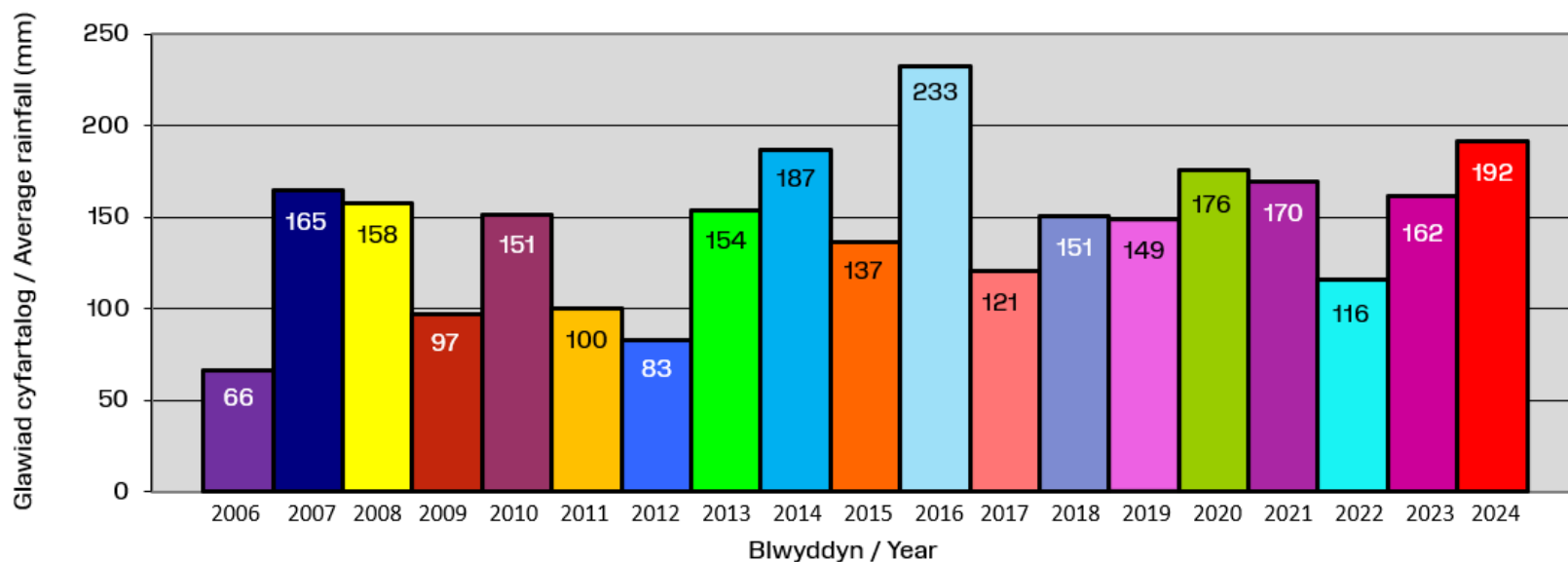
Average monthly rainfall in Wales for the period November to March for the years 2006 - 2024



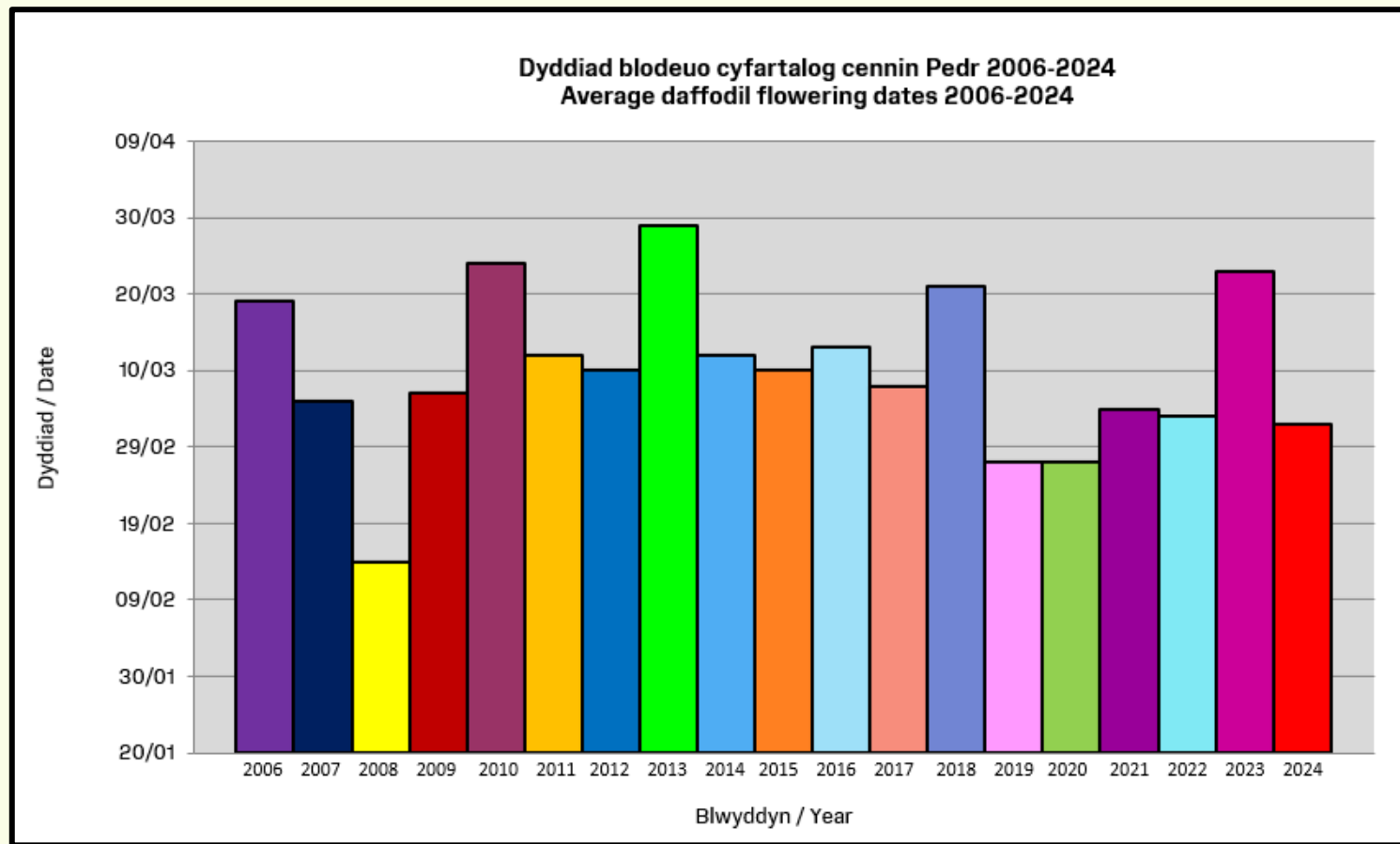
The chart shows that 2024 saw the third highest rainfall of our investigation for December and February. By comparing the black line for 2024 with other years, we can see that 2024 saw higher than average rainfall for our period.



Glawiad cyfartalog y gwanwyn
Average rainfall 2006 - 2024



The bar chart shows average rainfall for the period November-March for the years 2006 to 2024. We can see that 2024 was the second wettest year of our investigation. Only 2016 saw more rain. There's 167mm difference between the year that saw the highest rainfall (2016) and the year that saw the lowest (2006).



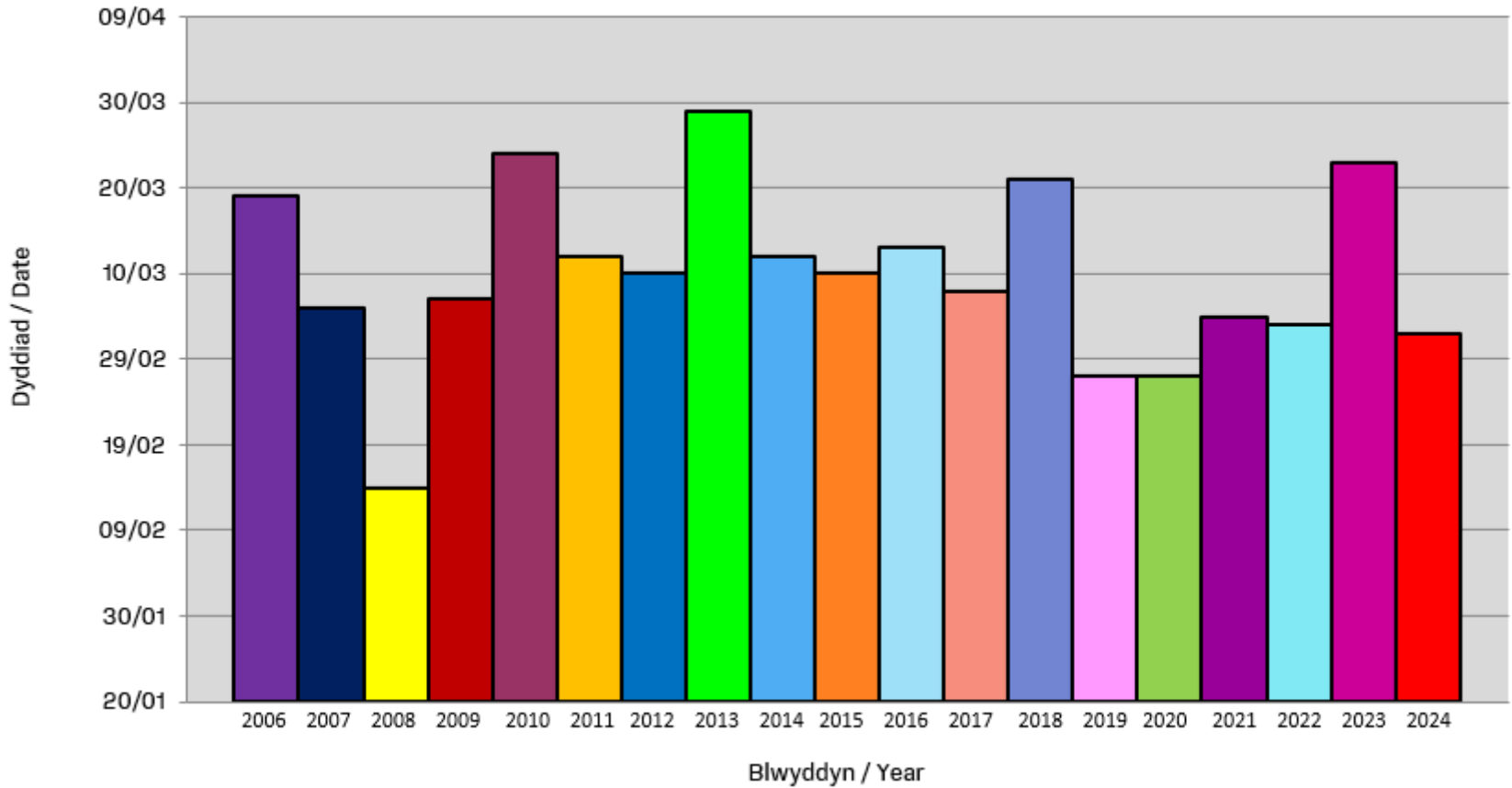
The bar chart shows the average flowering dates for Wales since the project began in 2006. The average flowering date for 2024 for both the crocus and daffodil dates combined is 6 March. Can you see which year saw the earliest flowering date?

[Click here to see if you are right!](#)



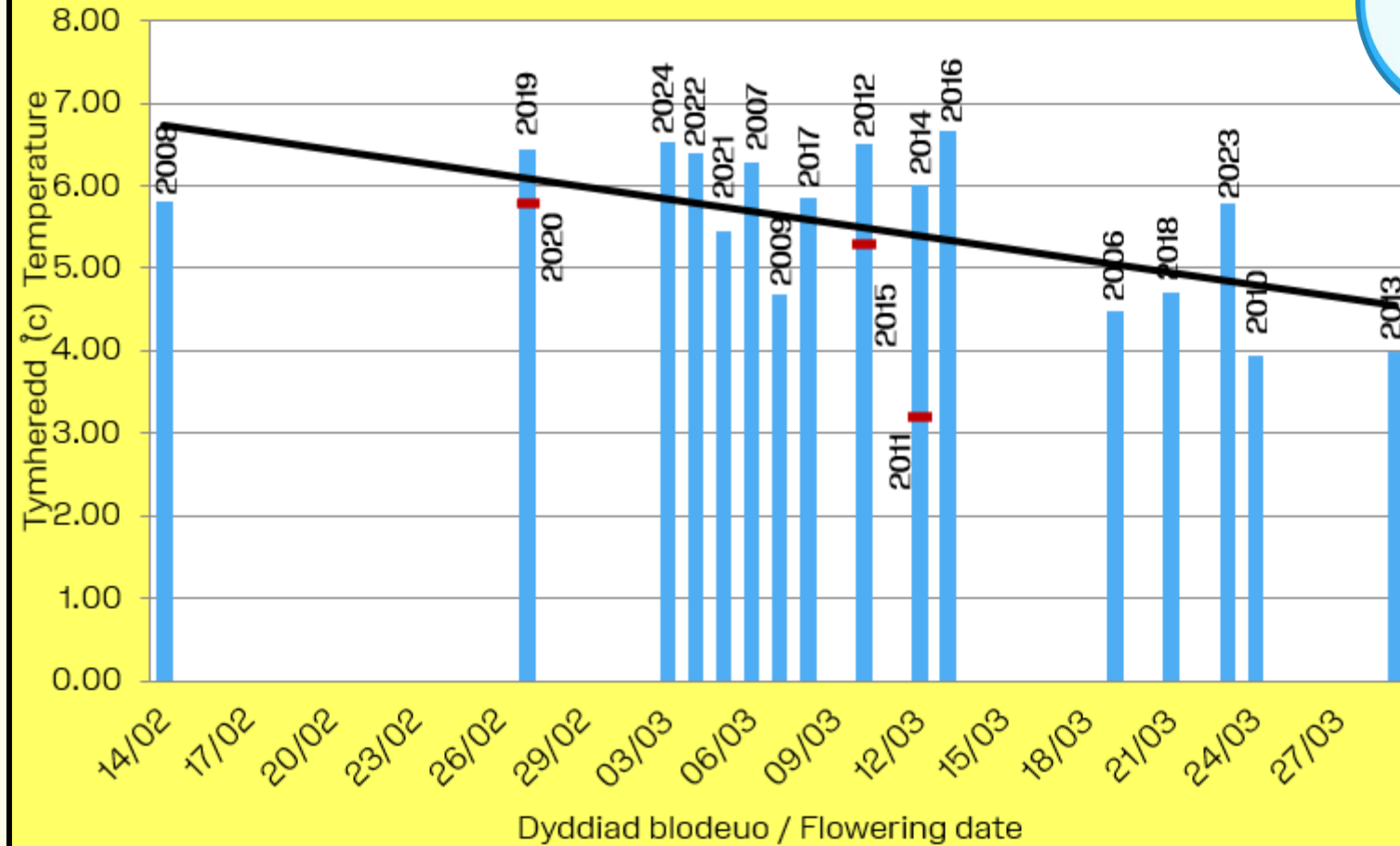
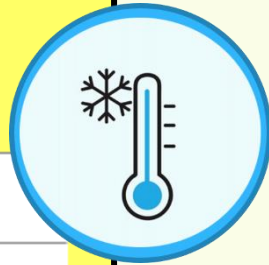
**How does the weather effect
flowering dates for daffodils?**

Dyddiad blodeuo cyfartalog cennin Pedr 2006-2024
Average daffodil flowering dates 2006-2024



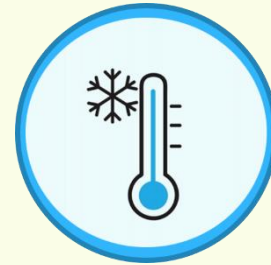
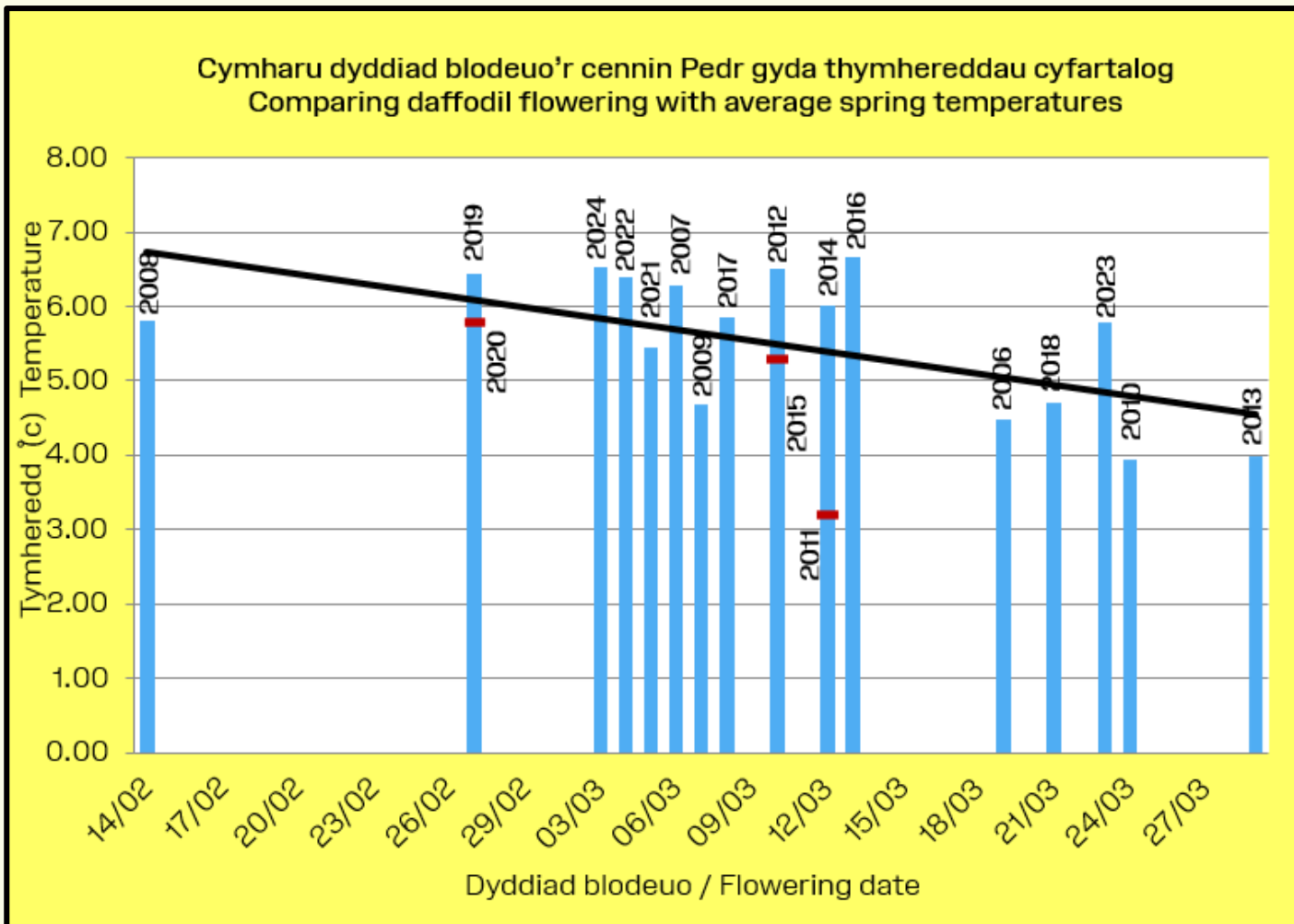
The bar chart shows that 2024 saw the fourth earliest flowering date for the daffodil. Only 2008, 2019 and 2020 saw daffodils flower earlier.

Cymharu dyddiad blodeuo'r cennin Pedr gyda thymhereddau cyfartalog
Comparing daffodil flowering with average spring temperatures



The trend shows that daffodils flower later when temperatures are lower. But there are some exceptions, can you spot them?

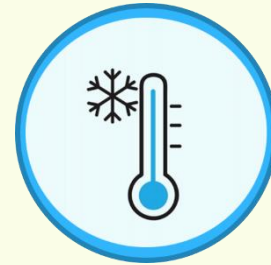
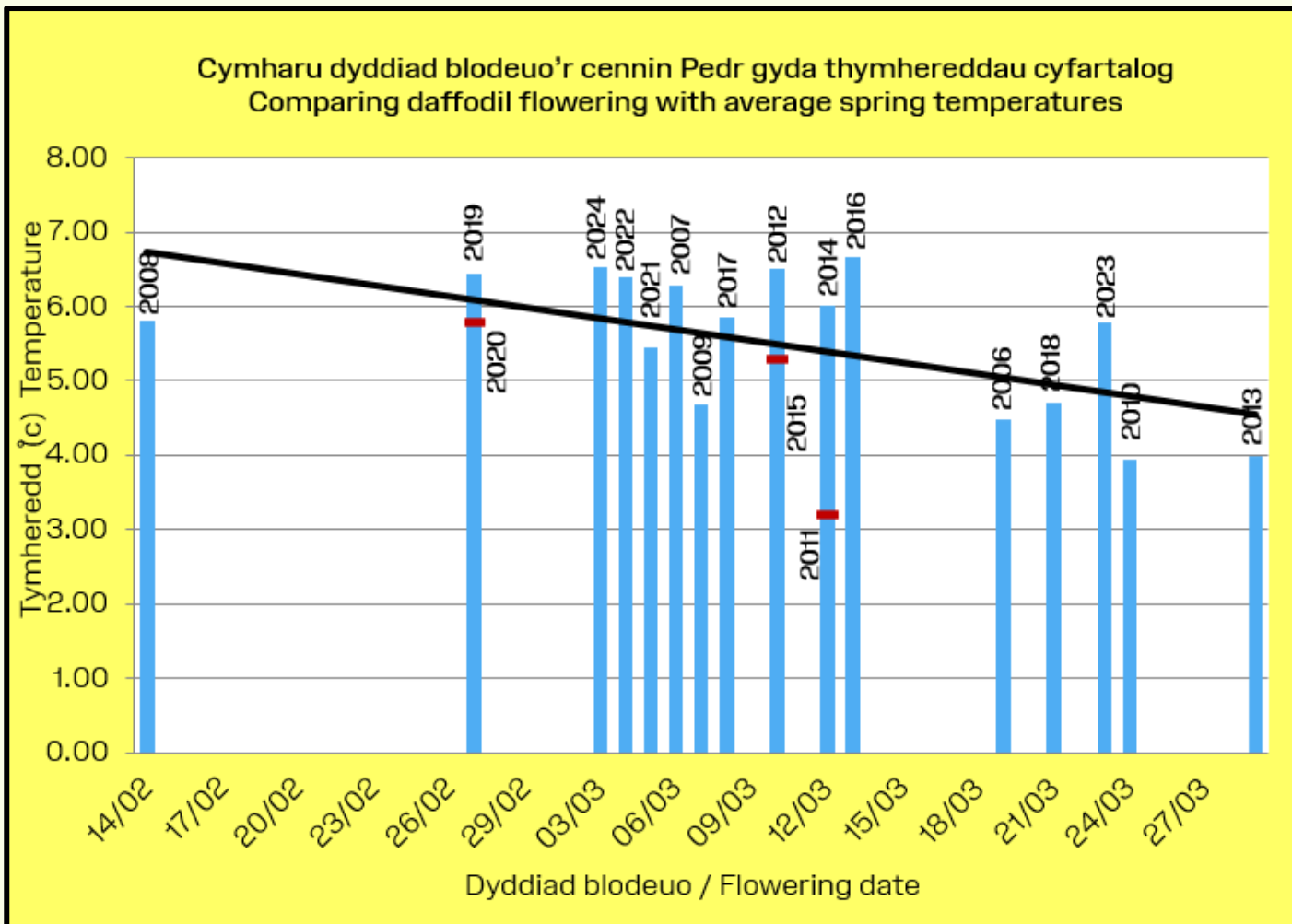
Top tip: The black line is only an indication of the pattern we'd expect to see. Years don't have to meet this line exactly to fit our trend.



Q: What years would we have expected to flower earlier?

A: 2012, 2014, 2016 & 2023

Possible explanation: Although temperatures were high in 2012, 2014 & 2016 flowers did not open early. This is probably because hours of sunshine remained low until March in these years. In 2023, temperatures dipped to the lowest of our project for March.

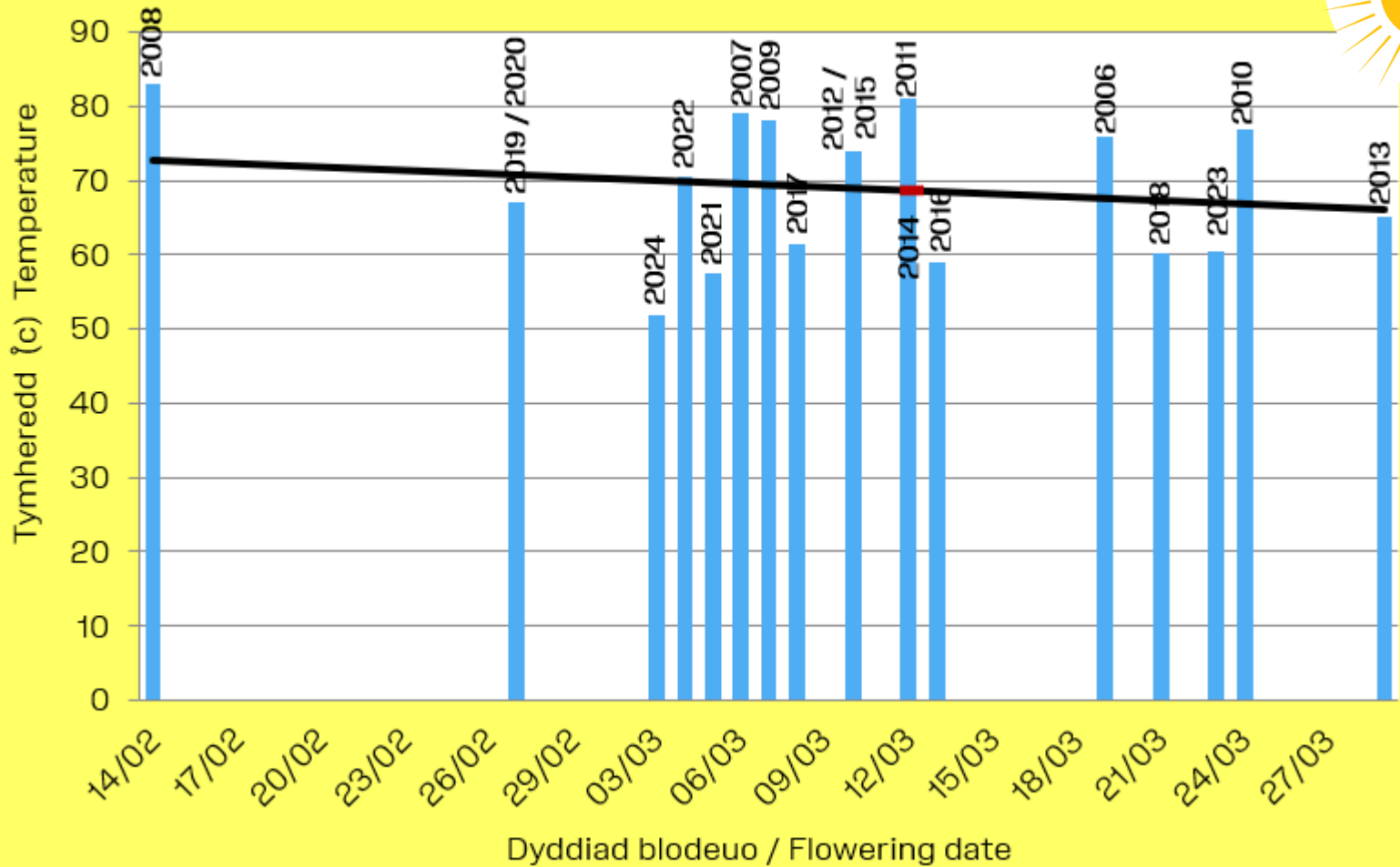


Q: What years would we have expected to flower later?

A: 2008, 2009 & 2011

Possible explanation: 2011 saw the third highest temperatures for February since the project began and 2009 saw a sharp increase in temperature in February and the driest February of the project. Plants may have flowered early in 2008 because this year saw higher than average temperatures (including the second warmest January) and the highest hours of sunshine.

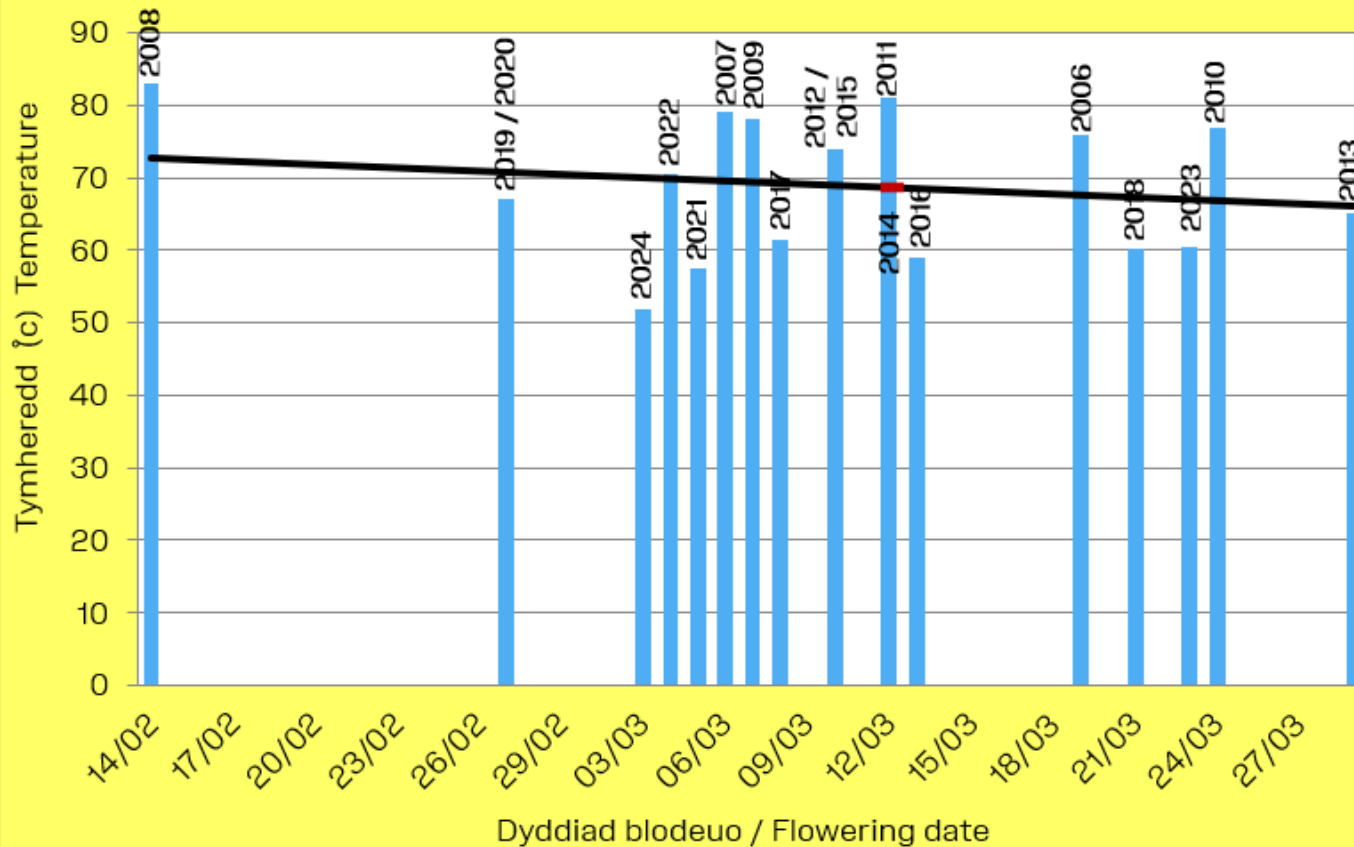
Cymharu dyddiad blodeuo'r cennin Pedr gydag oriau o haul
 Comparing daffodil flowering with hours of sunshine



The trend shows that when hours of sunshine are lower, daffodils open later. But there are some exceptions, can you spot them?



Cymharu dyddiad blodeuo'r cennin Pedr gydag oriau o haul
Comparing daffodil flowering with hours of sunshine



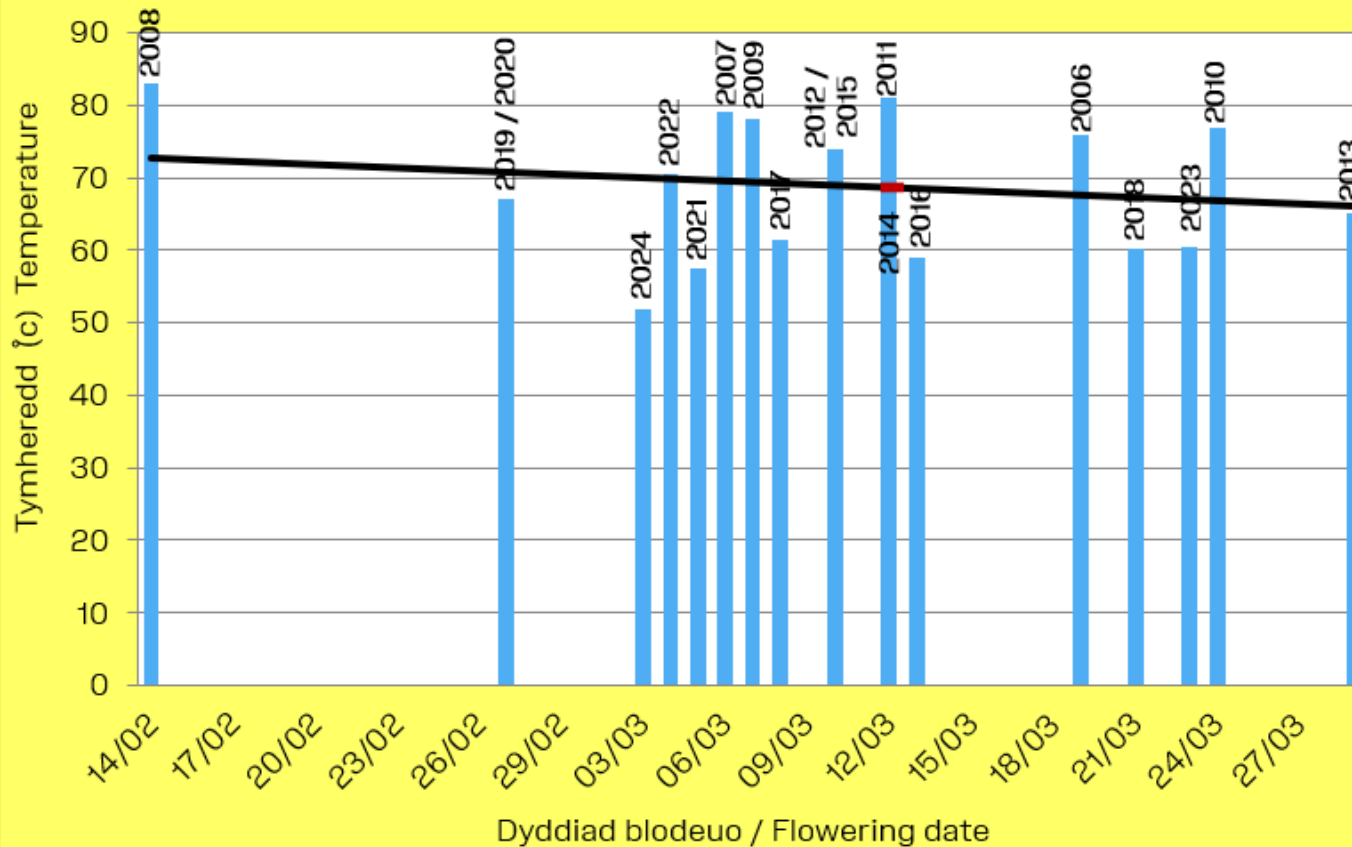
Q: What years would we have expected to flower earlier?

A. 2006, 2010 & 2011

Possible explanation: The average daffodil flowering date was the same in 2011 and 2014, even though 2011 was sunnier. This may be because temperatures were very low in 2011 and quite high in 2014. 2010 saw lower than average temperatures and the lowest temperatures of our study for January and February. 2006 saw the highest hours of sunshine in November, and lower than average hours of sunshine in February and March.



Cymharu dyddiad blodeuo'r cennin Pedr gydag oriau o haul
Comparing daffodil flowering with hours of sunshine



Q: What years would we have expected to flower later?

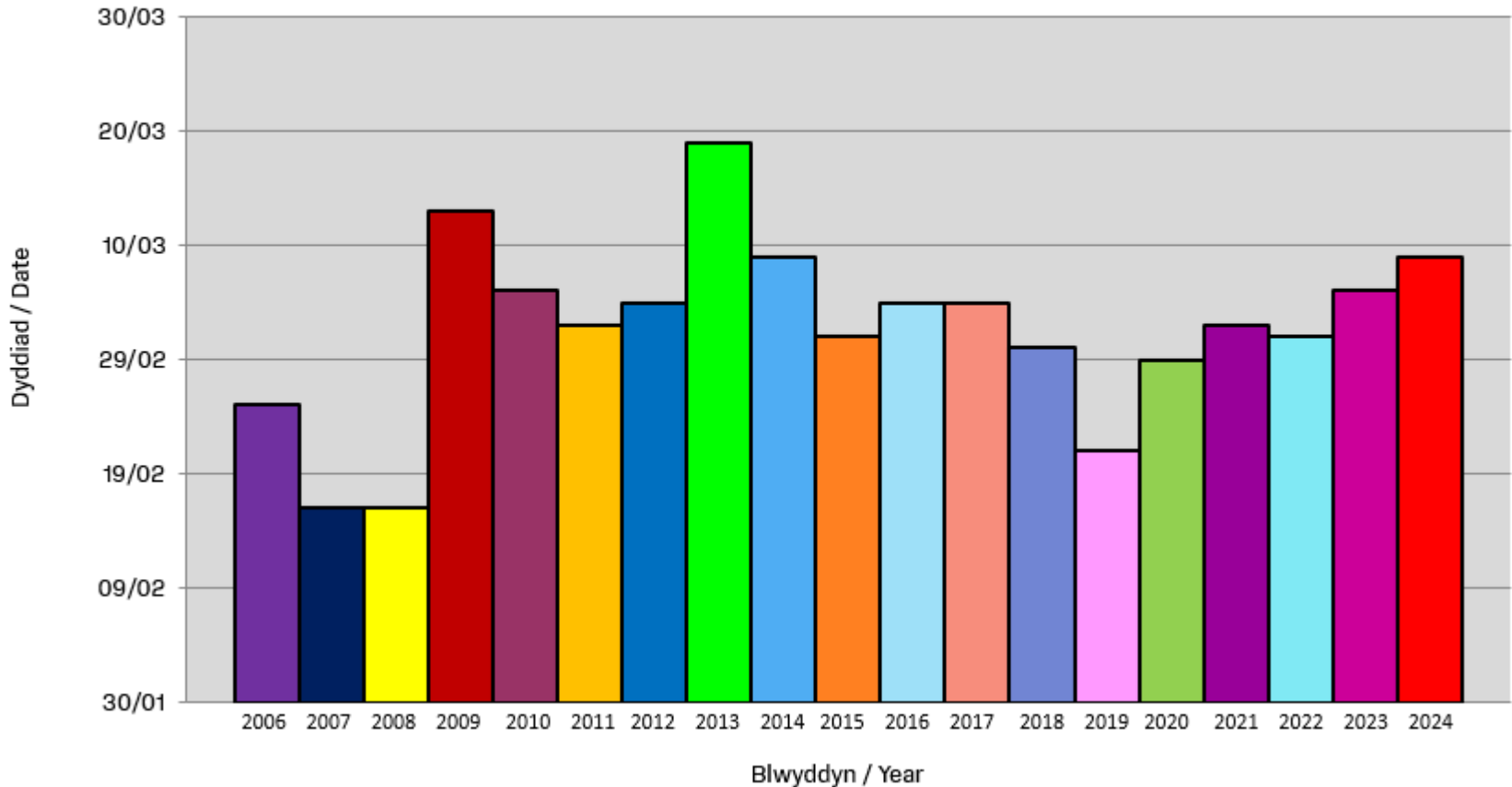
A. 2019, 2020, 2021 & 2024

Possible explanation: We might have expected daffodils to flower later in these years due to low hours of sunshine. Plants may have flowered earlier than we'd have expected in these years because they saw higher than average temperatures for this period. 2019 also had above average hours of sunshine for February and 2020 had above average hours of sunshine for March.



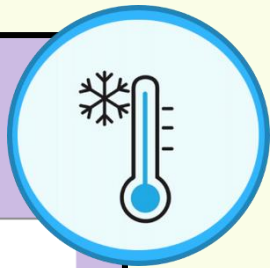
How does the weather effect flowering dates for the crocus?

Dyddiad blodeuo cyfartalog crocs /
Average crocus flowering dates 2006-2024

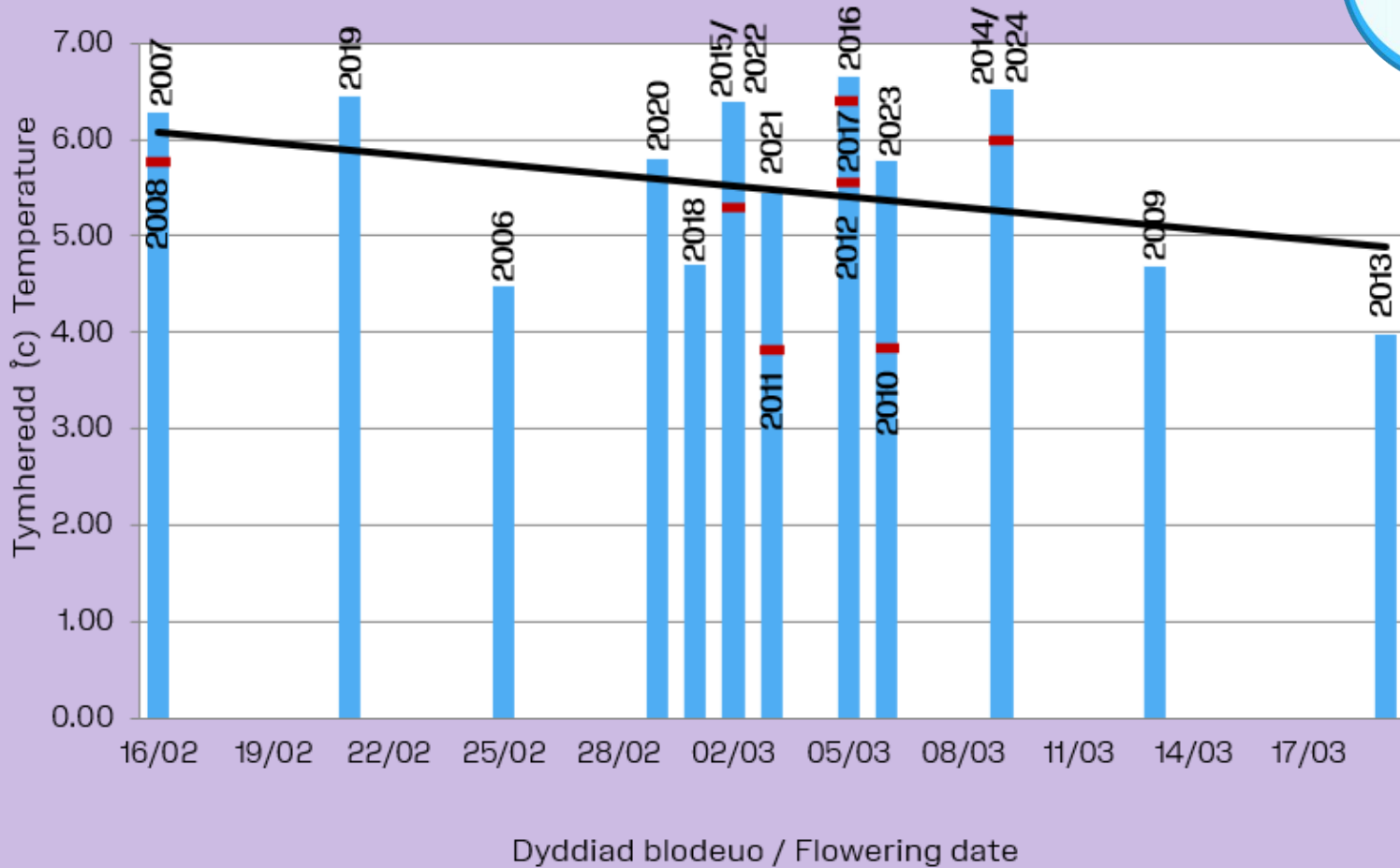


The bar chart shows that 2024 saw the joint third latest flowering date for the crocus. Can you see which year crocus plants flowered latest?

[Click here to see if you are right!](#)



Cymharu dyddiad blodeuo'r crocws gyda thymhereddau cyfartalog
Comparing crocus flowering with average spring temperatures

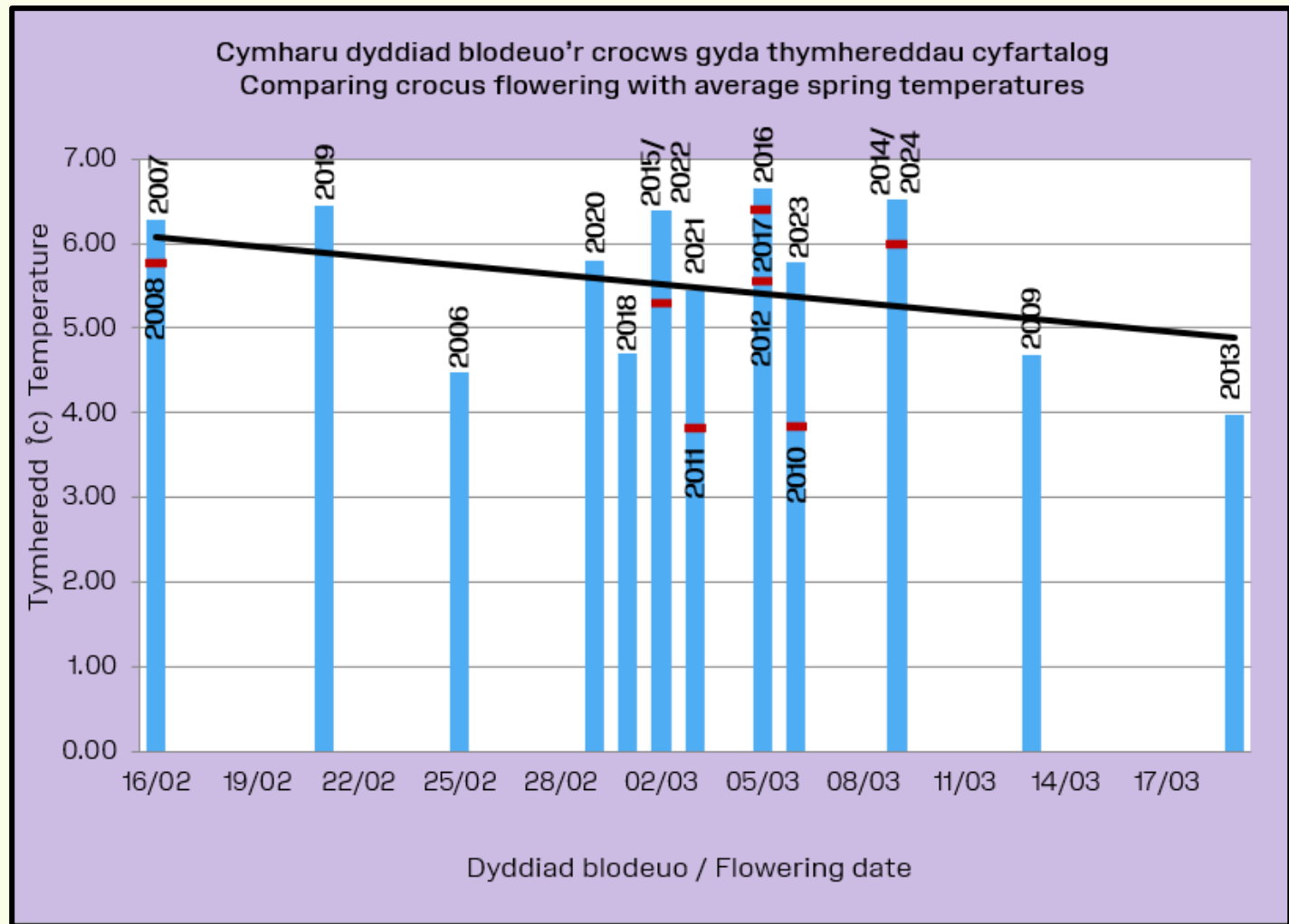


The trend shows that crocus flowers open later when temperatures are lower. There are some exceptions, can you spot them?



Q: What years would we have expected to flower earlier?

A: 2014, 2016, 2017 & 2024

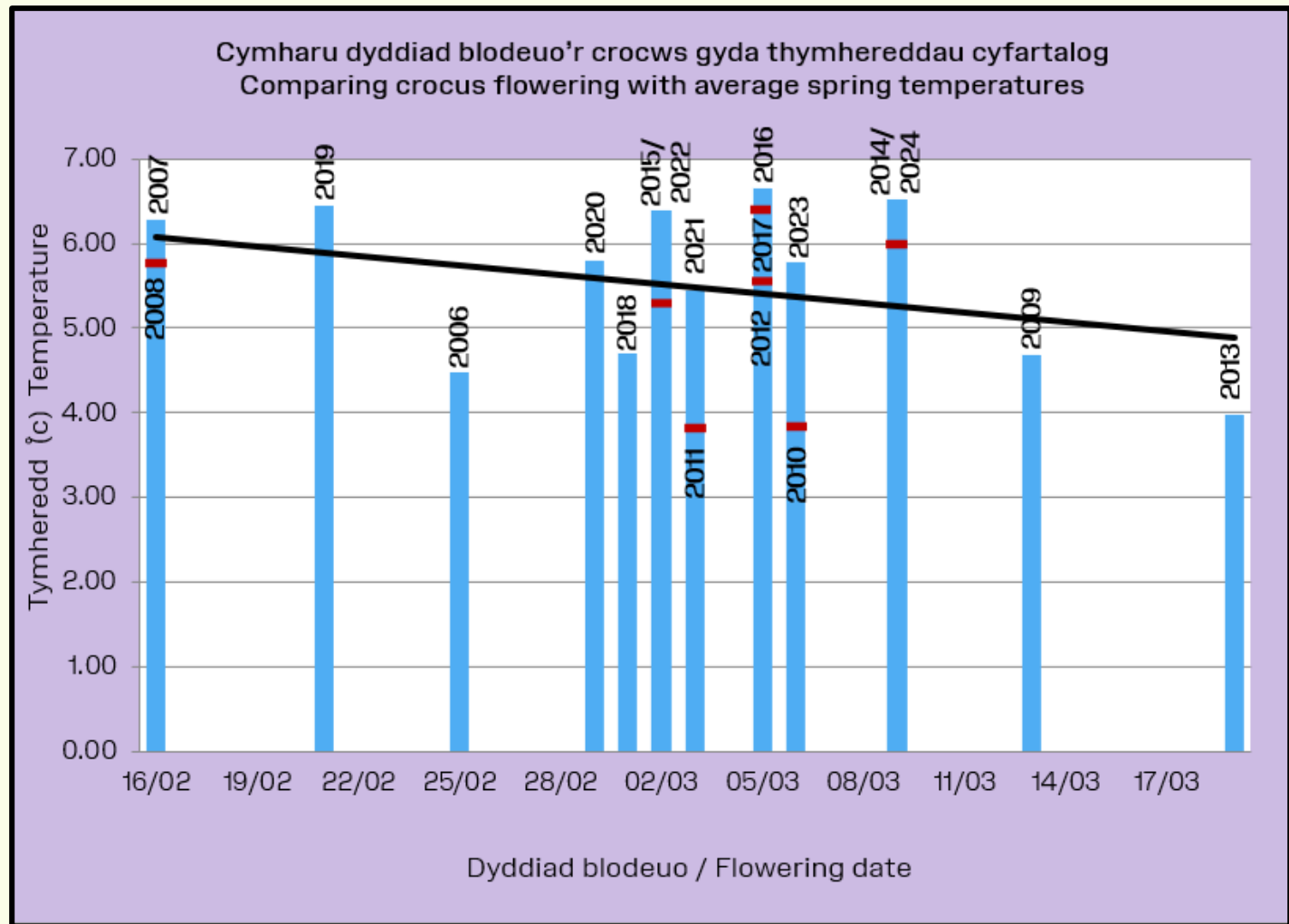


Possible explanation: By looking at our other graphs we can see that 2016 saw a sharp decrease in temperature in February. In 2014 and 2016 it's possible that high levels of rainfall effected the flowering dates of plants. 2016, 2017 and 2024 all saw lower than average hours of sunshine for this period.



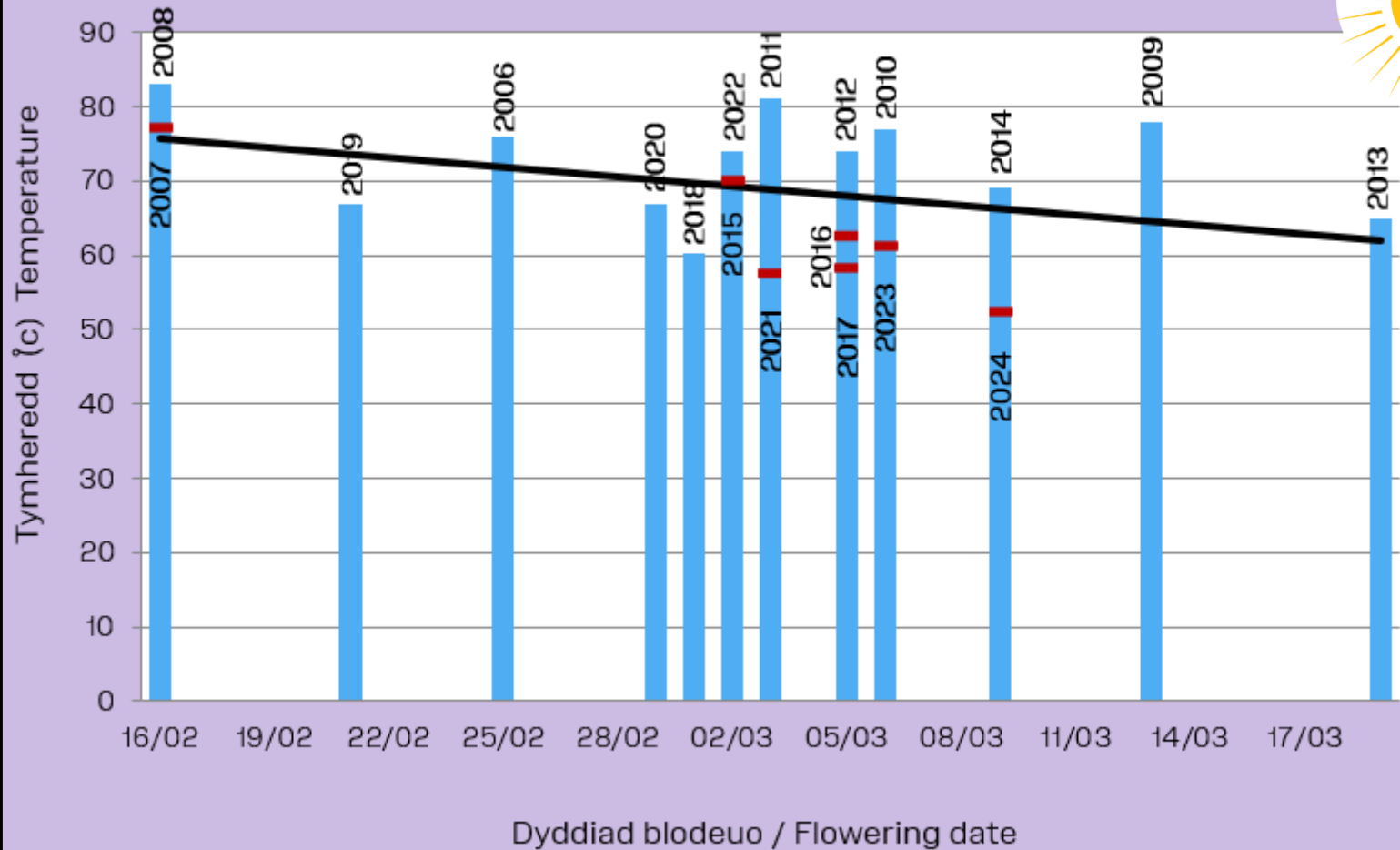
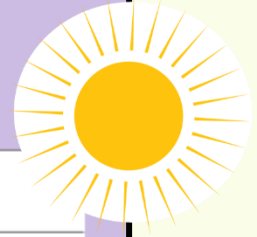
Q: What years would we have expected to flower later?

A: 2006, 2011 & 2018

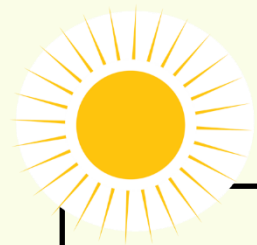


Possible explanation: Crocus flowers opened earlier than we'd have expected in 2006, 2011 & 2018. 2006 saw average temperatures and hours of sunshine, but lower than average rainfall. 2018 saw a sharp increase in hours of sunshine in February and 2011 saw a sharp increase in temperature in February.

Cymharu dyddiad blodeuo'r crocws gydag oriau o haul
Comparing crocus flowering hours of sunshine

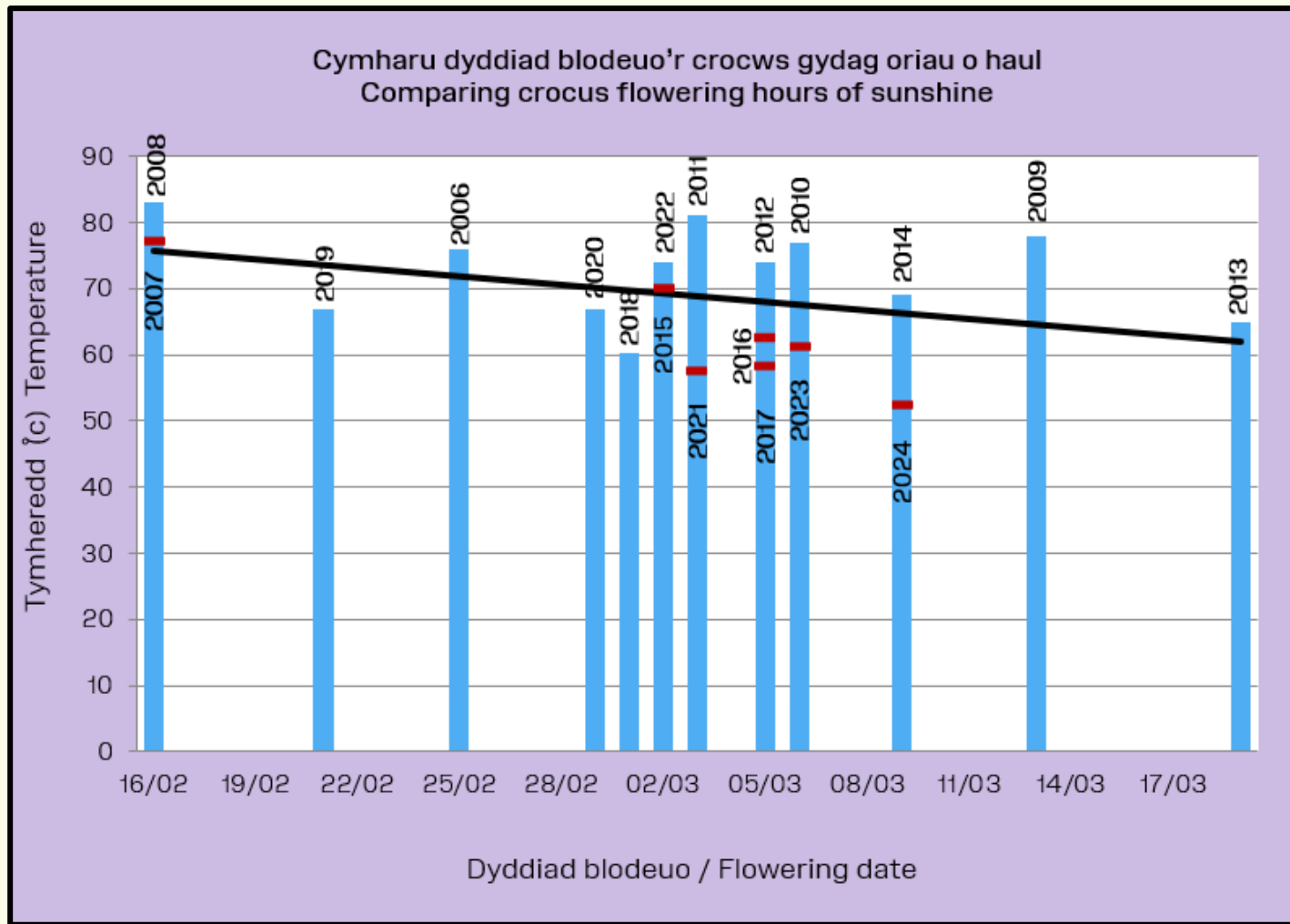


The trend shows that crocus flowers open later when there is less sunshine. There are some exceptions, can you spot them?

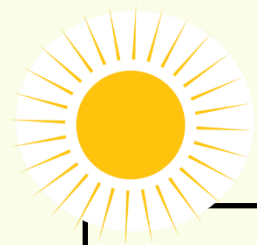


Q: What years would we have expected to flower earlier?

A. 2009, 2010 & 2011

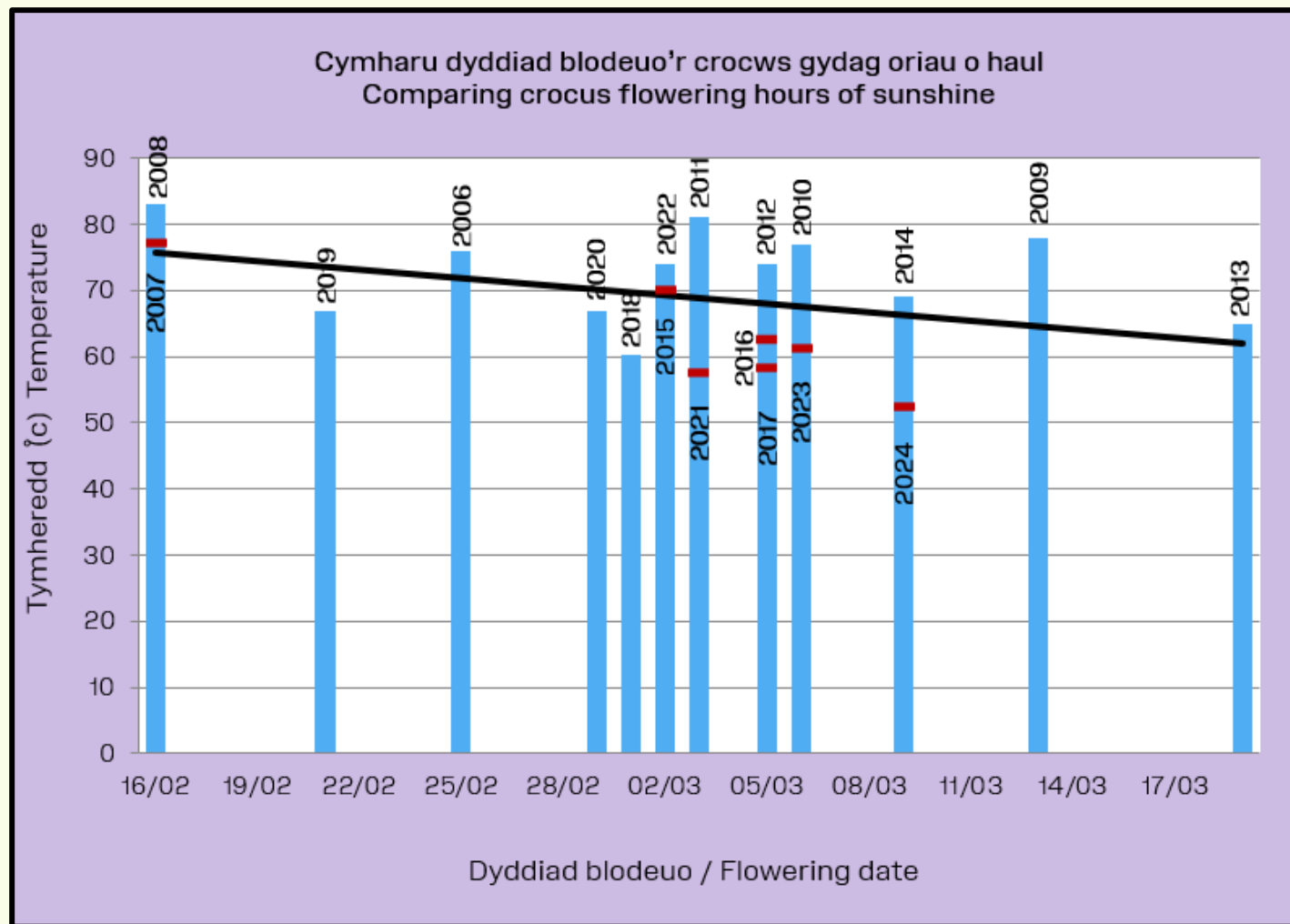


Possible explanation: There were high hours of sunshine but low temperatures in 2011 and 2010. Although 2009 had high temperatures and hours of sunshine overall, it had low hours of sunshine during February. These results show that although overall averages help us to spot trends and analyse data, they can oversimplify the results. Sometimes we need to fill in the gaps by looking at more detailed tables.



Q: What years would we have expected to flower later?

A: 2018, 2019 & 2021



Possible explanation: Crocus flowered earlier than we would have expected in these years based on the average hours of sunshine. Our previous tables show that 2019 and 2021 saw higher than average temperatures while 2018 saw higher than average temperatures for January and higher than average hours of sunshine for February.

What do these graphs tell us about flowering dates?

- By comparing the trends for temperature and hours of sunshine we can see that both are necessary for our plants to flower.
- 2024 saw crocus plants flower later and daffodils flower earlier than the average. It's one of only four years that saw crocus plants flower later than daffodils!
- 2024 saw the second highest temperatures and the lowest hours of sunshine of the entire project. The low hours of sunshine in February will have impacted on the flowering dates of the crocus.
- It's important to look at monthly overviews for temperature, hours of sunshine and rainfall. These can often explain anomalies in our results.



Finding a trend can be difficult, but some things are clear...

- Bulbs rely on both sunshine and warmth to flower.
- The seasons are becoming more unpredictable as the planet warms.



Download the results yourself to...

- ▶ Make graphs and frequency charts to calculate the mean.
- ▶ See if flowers opened later in schools that recorded colder weather.
- ▶ See how temperature, sunshine and rainfall affect average flowering dates.
- ▶ Look for trends between different locations.

Visit:

[Spring bulbs for schools \(museum.wales\)](http://museum.wales)



Digital Resources

Visit the [Spring Bulbs for Schools website](#) and [The Edina Trust website](#) for an array of teaching resources relating to the project.

[Amgueddfa Cymru - National Museum Wales](#) have digital resources that relate to collections across their seven Museums. Schools in Wales can also access resources on the [Hwb website](#).

The above pages all have links to our Kahoot quizzes!

Kahoot!

