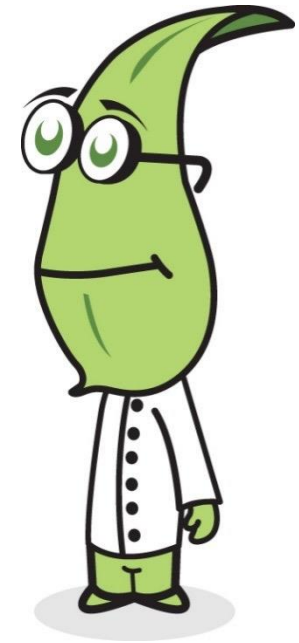


UK Spring Bulbs for Schools Report 2012-2024



**AMGUEDDFA
CYMRU**

**Edina
Trust**

Bulb Project



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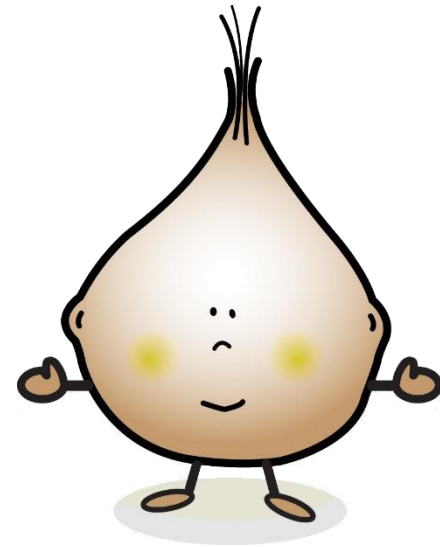
UK Weather data 2012-2024

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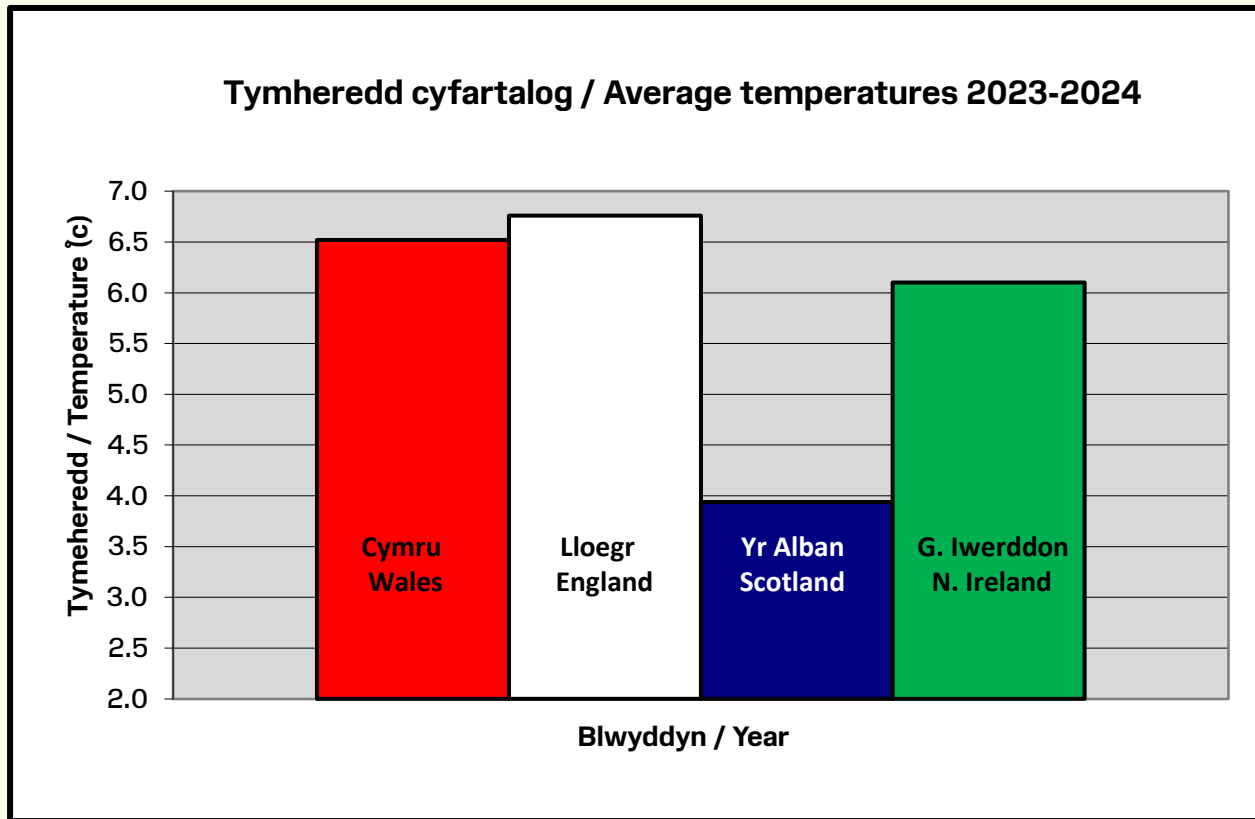


Summary 2012-2024

- The following summary looks at key patterns and trends evident in the data recorded by schools over the last 12 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 2012 it's referring to data taken from November 2011 to March 2012.
- You can download the data to study yourself at:
[Spring bulbs for schools \(museums.wales\)](http://museums.wales)

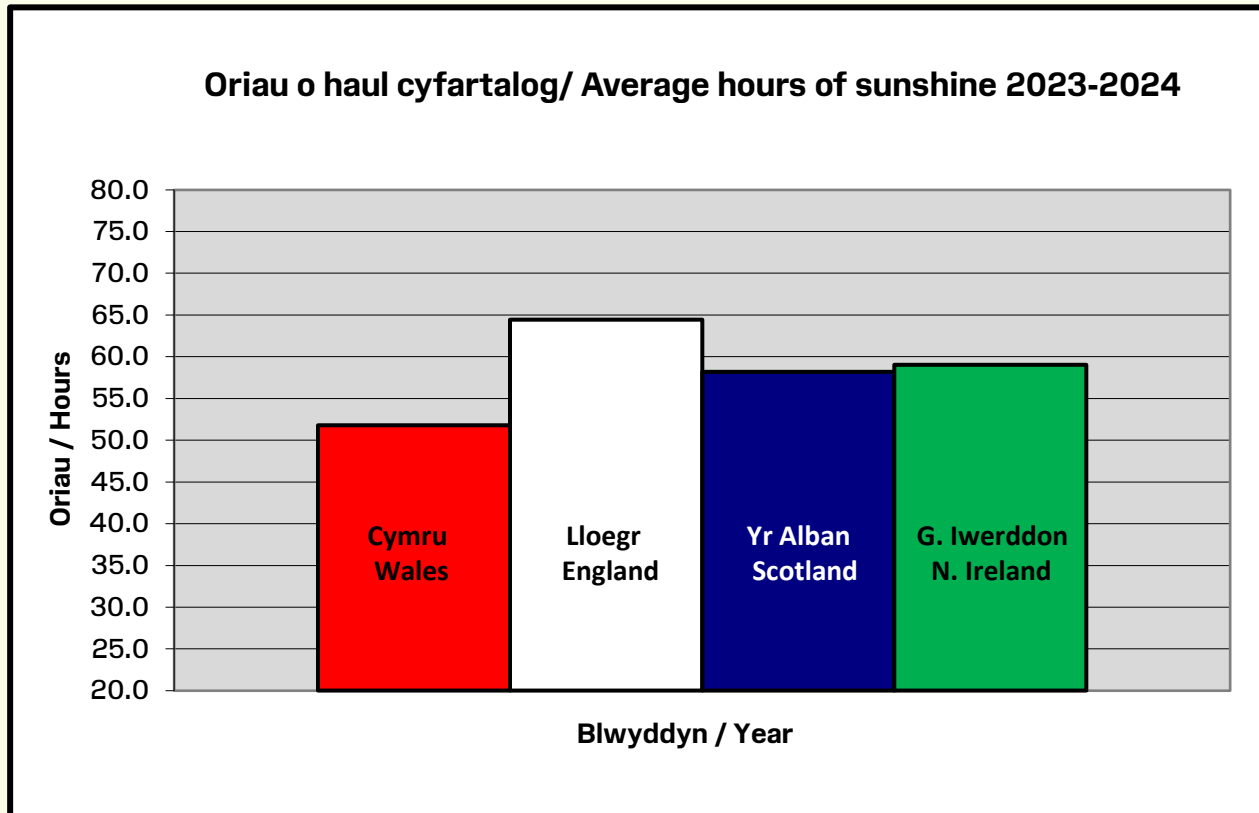


Which country was the warmest / coldest?



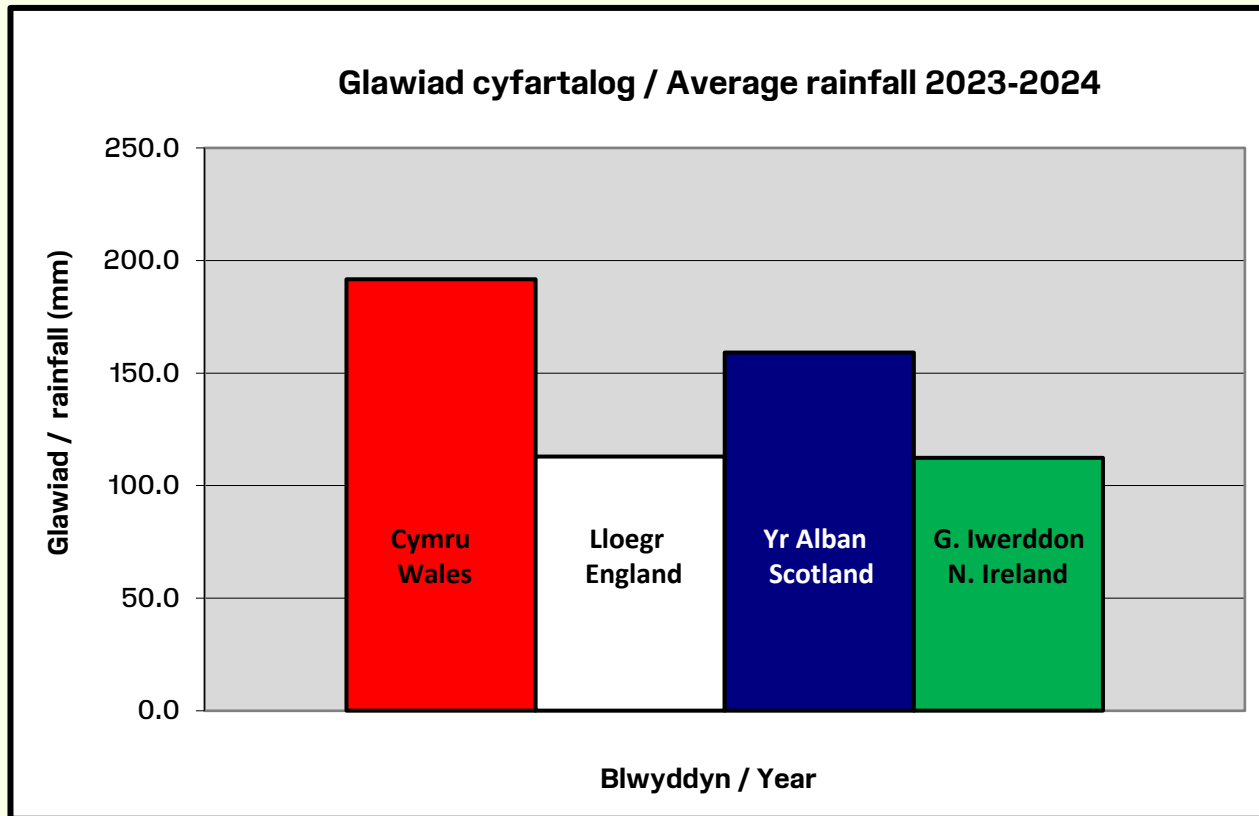
The bar chart shows the average overall temperatures for Wales, England, Scotland and Northern Ireland from November 2023 to March 2024. We can see that England had the highest average overall temperature at 6.8°C. Scotland was by far the coldest, with an average temperature of 3.9°C.

Which country had the most / least sunshine?



The bar chart shows the average hours of sunshine for Wales, England, Scotland and Northern Ireland from November 2023 to March 2024. England had the most hours of sunshine for this period, with an average of 64.4 hours. Wales had the least hours of sunshine with an average of 51.8 hours.

Which country had the most / least rain?



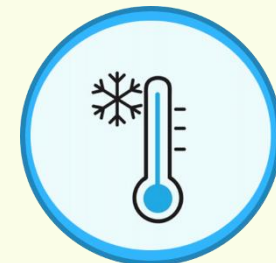
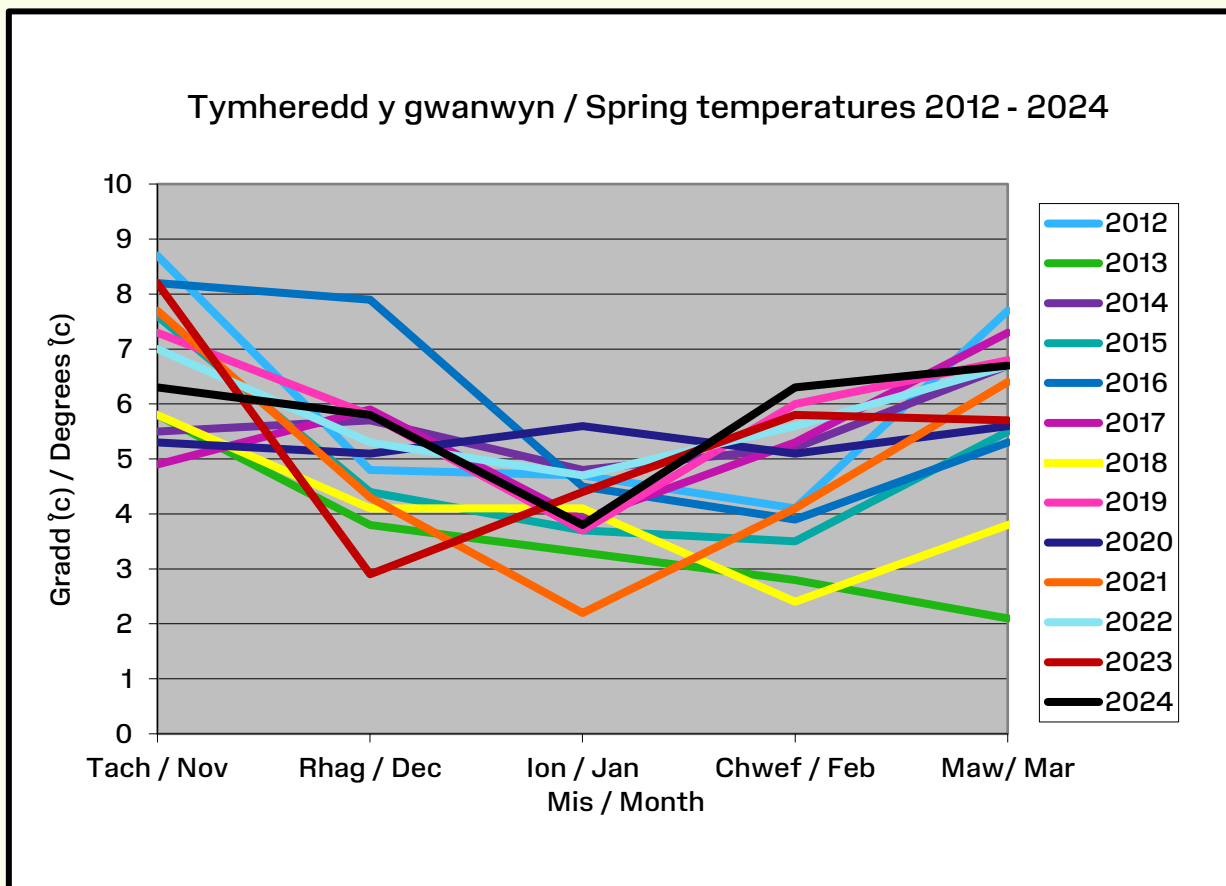
The bar chart shows the average rainfall for Wales, England, Scotland and Northern Ireland from November 2023 to March 2024. We can see from this graph that Wales was the wettest country for this period, with an average rainfall of 191.7mm and Northern Ireland was the driest with an average rainfall of 112.3mm.

We've looked closely at the averages for temperature, hours of sunshine and rainfall and have compared results from Wales, England, Scotland and Northern Ireland.

Now, let's see how this year's findings compare to those of previous years! Do you think the weather has been warmer or colder than last year? Have we had more hours of sunshine or less? Has it been wetter or drier?

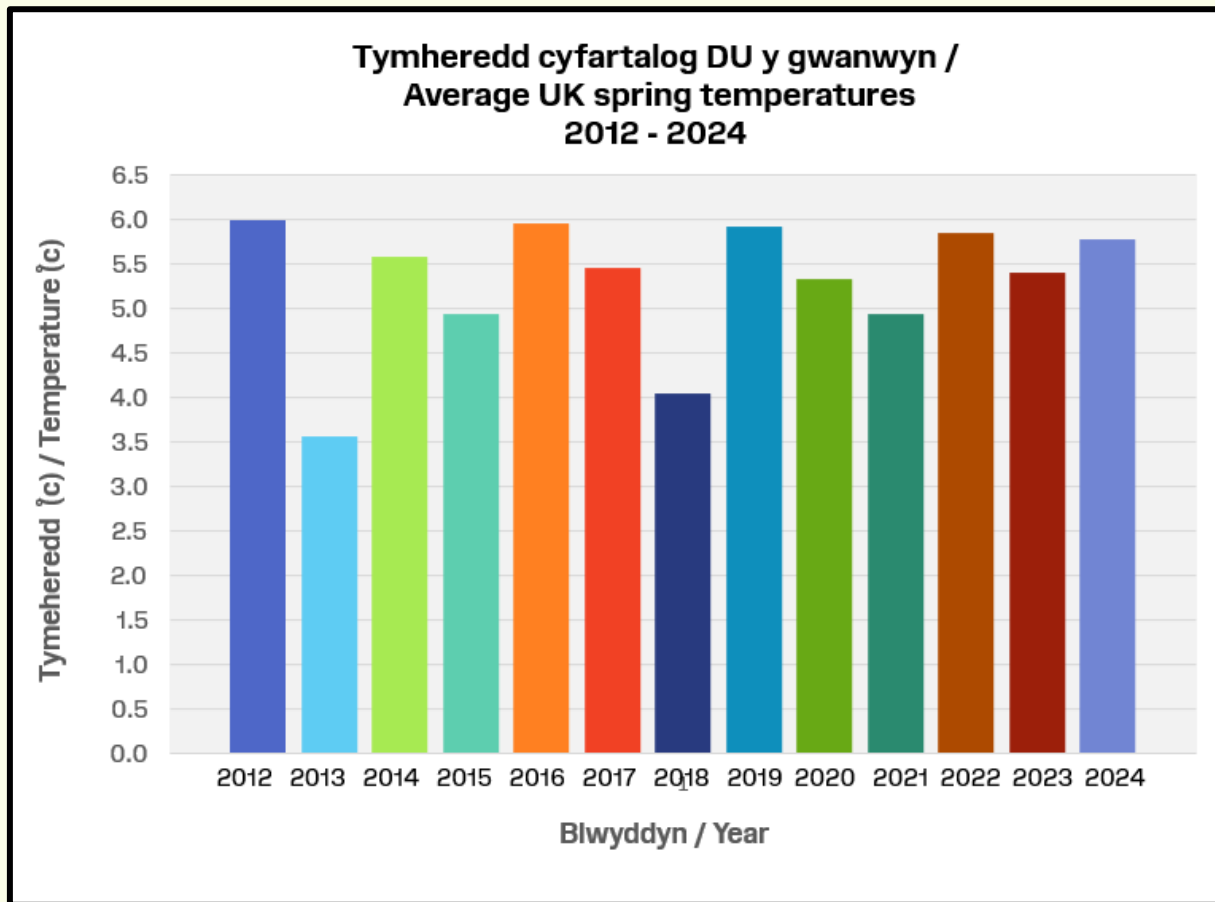
Let's find out...

The line chart shows average monthly temperatures for the period November-March for the years 2012-2024.



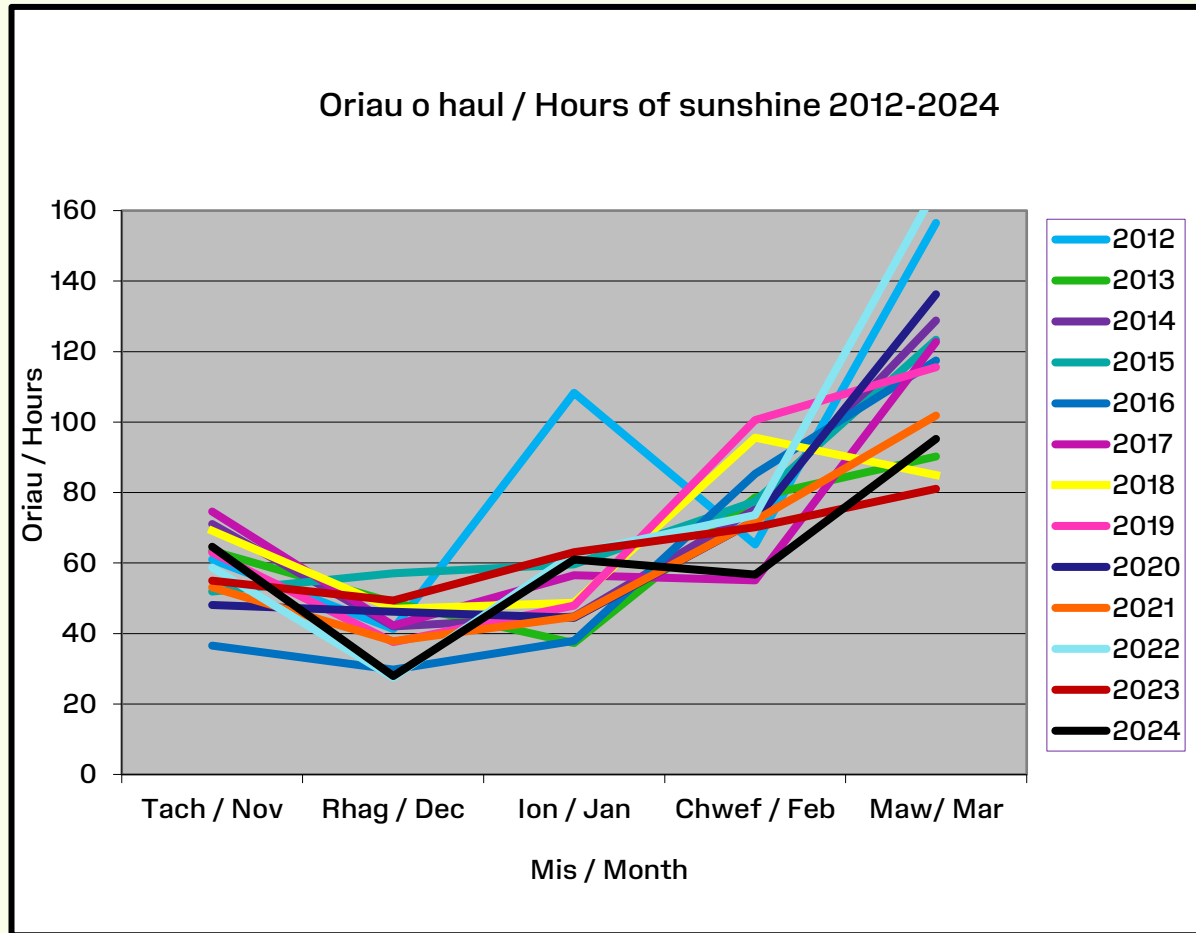
We can see from the chart that 2024 saw the warmest February of our investigation. The MET Office has stated that February 2024 was the second warmest February on record for the UK (in a series dating back to 1884).

The bar chart shows the average temperatures for the period November-March for the years 2012 - 2024.



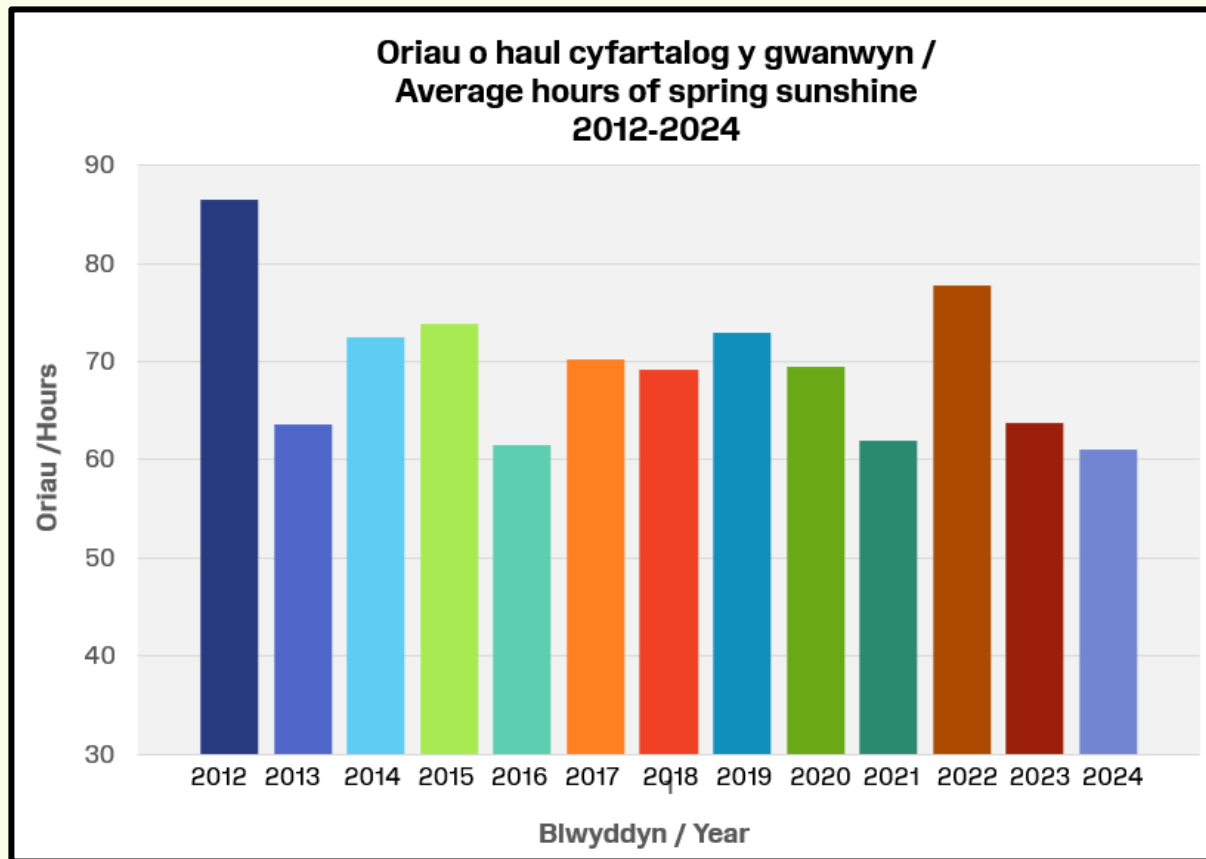
The average temperature for this period was 5.3°C. We can see from the chart that 2024 saw higher than average temperatures for our period at 5.8°C. There are 2.44°C between the warmest (2012) and coldest (2013) years.

The line chart shows average hours of sunshine for the period November-March for the years 2012-2024.



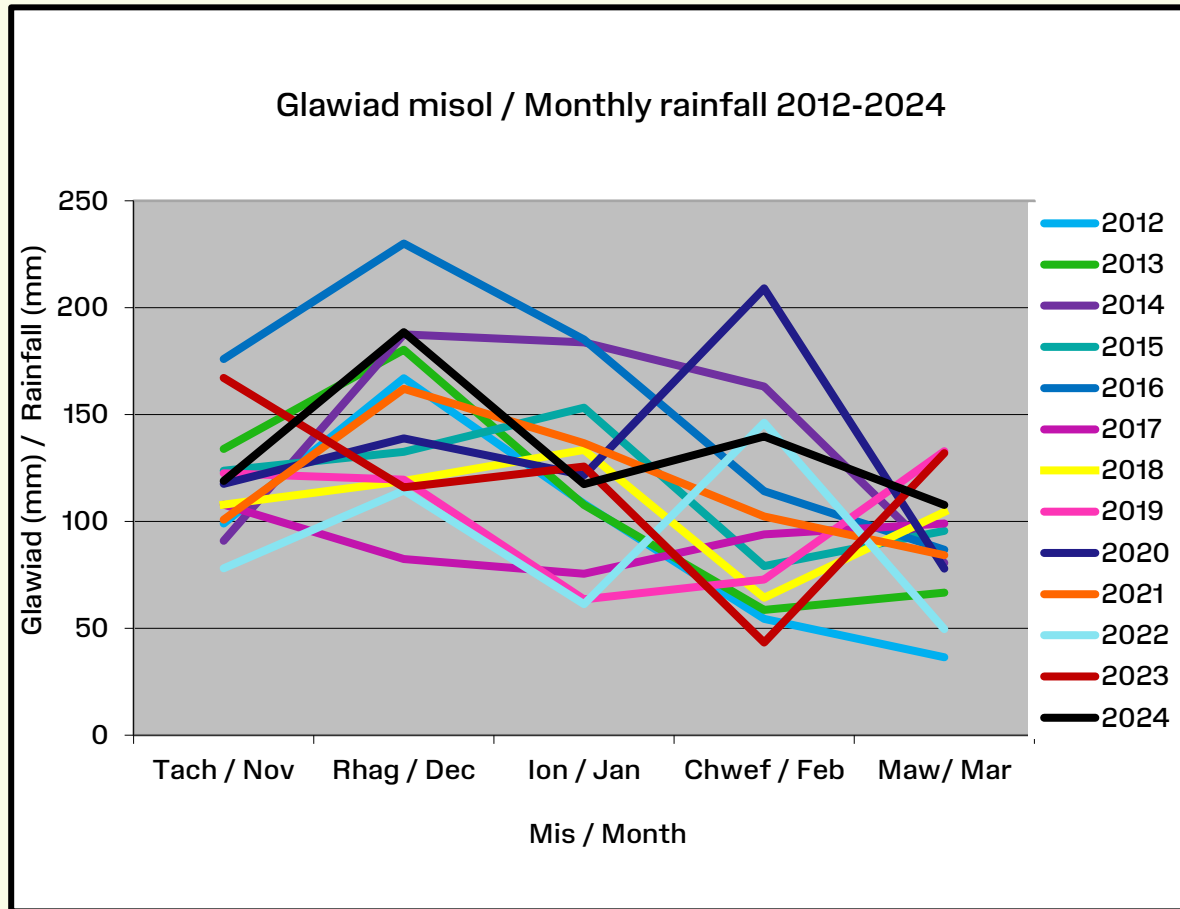
The chart shows that 2024 saw lower than average hours of sunshine for every month except January, where it was the fourth warmest of our project. I wonder what that will mean for our bulbs!

The bar chart shows average hours of sunshine for the period November-March for the years 2012-2024.



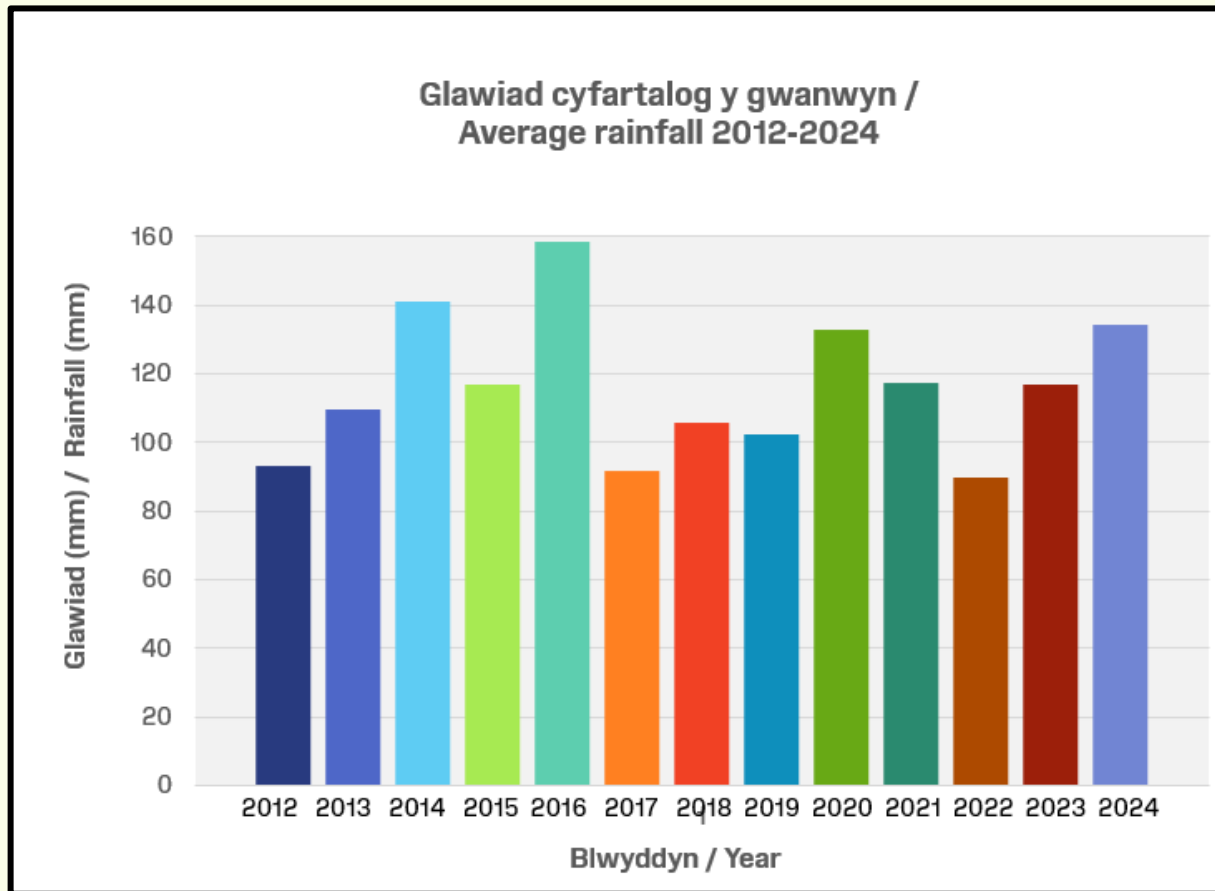
2024 saw the lowest hours of sunshine since our project began. 2012 saw the highest hours of sunshine of the project. I wonder if our bulbs will flower earlier or later than they did in 2012? There are 25 hours difference between the year that saw the highest average hours of sunshine (2012) and the year that saw the lowest (2024).

The line chart shows the average rainfall for the period November-March in the years 2012-2024.



We can see from the chart that 2024 saw higher than average rainfall for our period. The MET Office reported record daily downfalls for some of their weather stations over this time. This period also saw eight storms that were severe enough to be named!

The bar chart shows average rainfall for the period November-March for the years 2012 - 2024.



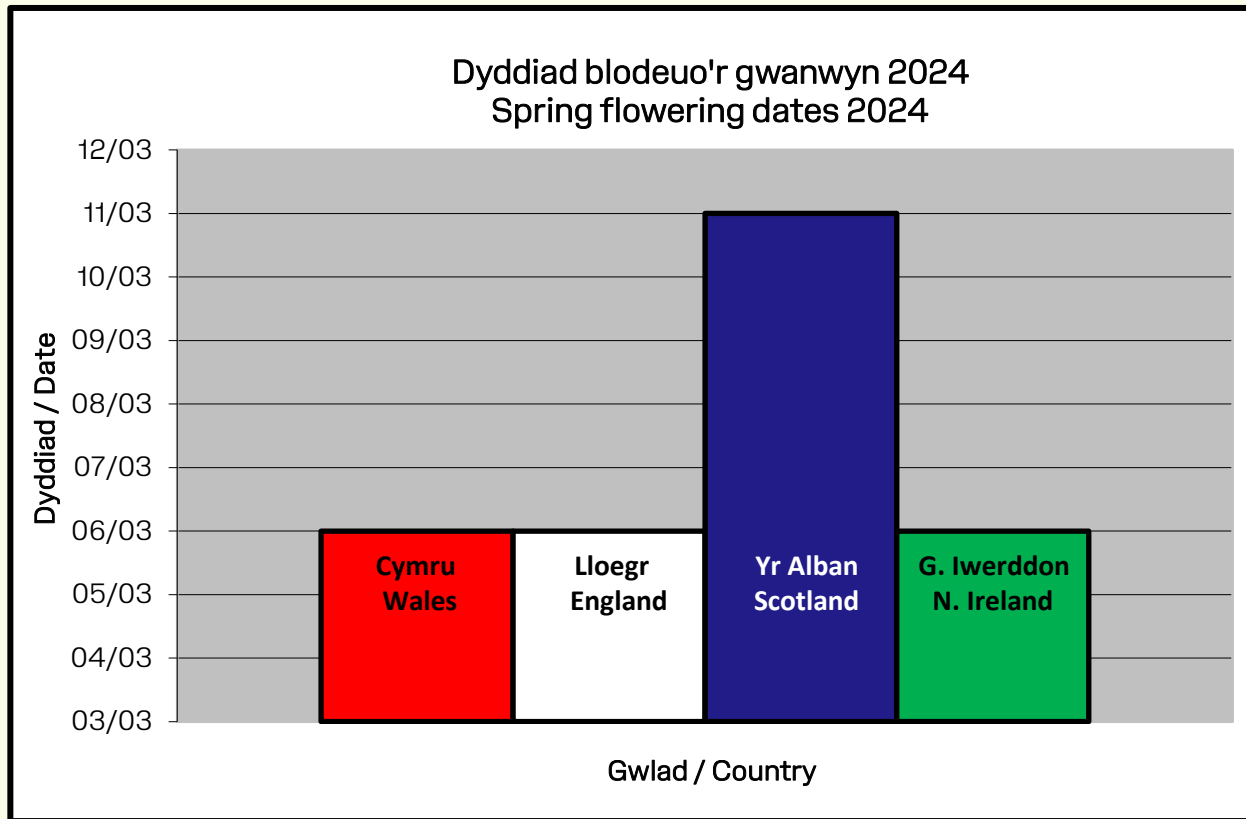
The bar chart shows that 2024 saw the third highest average rainfall of our investigation at 135mm. 2016 was the wettest year of the project, with an average rainfall of 158mm.

Plants need air,
light, warmth,
water and
nutrients to
grow.



England was the warmest country with the most hours of sunshine but with low average rainfall. Scotland was the coldest country and Northern Ireland was the wettest. Wales saw the lowest average hours of sunshine and the most rain. What does this mean for our results?

Which country saw plants flower earliest?

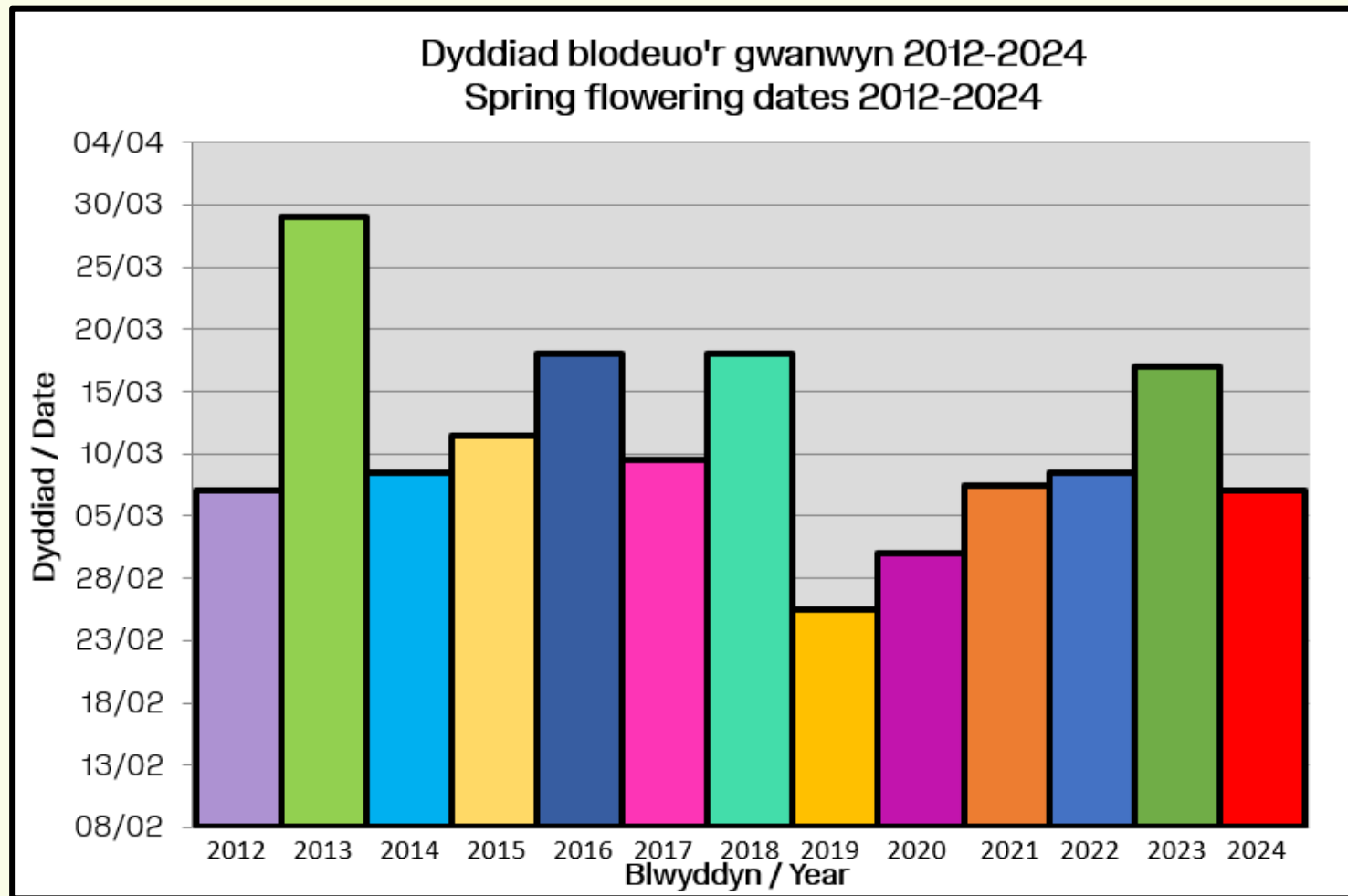


Our results show that the average flowering dates for crocus and daffodils combined were the same in Wales, England and Northern Ireland! Plants flowered later in Scotland. This is probably because Scotland saw the lowest temperatures. Our flower graphs will look in more detail at this later in the report.

Results table for the UK 2012-2024

Blwyddyn / Year	Dyddiad blodeuo'r crocws / Crocus flowering date	Dyddiad blodeuo'r cenin Pedr / Daffodil flowering date	Tymheredd / Temp (°C)	Glawiad cymedrig / Average rainfall (mm)	Oriau o haul / Hours of sunshine
2024	08/03/2023	06/03/2024	5.8	135	61.1
2023	11/03/2023	23/03/2023	5.4	117	63.8
2022	05/03/2022	12/03/2022	5.86	90	77.72
2021	07/03/2021	08/03/2021	4.9	117	61.9
2020	03/03/2020	01/03/2020	5.3	133	69.4
2019	22/02/2019	01/03/2019	5.92	102	72.94
2018	11/03/2018	25/03/2018	4.04	106	69.1
2017	08/03/2017	11/03/2017	5.46	92	70.24
2016	15/03/2016	21/03/2016	5.96	158	61.42
2015	07/03/2015	16/03/2015	4.94	116.9	73.9
2014	05/03/2014	12/03/2014	5.58	141	72.4
2013	25/03/2013	02/04/2013	3.6	109	63.7
2012	05/03/2012	09/03/2012	6	93	86.48
Average	8th March	14th March	5.2	114.58	70.25

2024 saw average flowering dates for the crocus and earlier than average flowering dates for the daffodils. This was the third earliest flowering date for the daffodils and it's interesting that this is only the second year to see crocus plants flower later than daffodils! 2017 saw the same average flowering date for the crocus. We'll look in more detail at the weather over these years to see if there are any patterns.



The bar chart shows the average flowering dates since our UK wide investigation began in 2012. The average flowering date for 2024 for both the crocus and daffodil dates combined is 7 March. Which years saw earlier flowering dates?

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

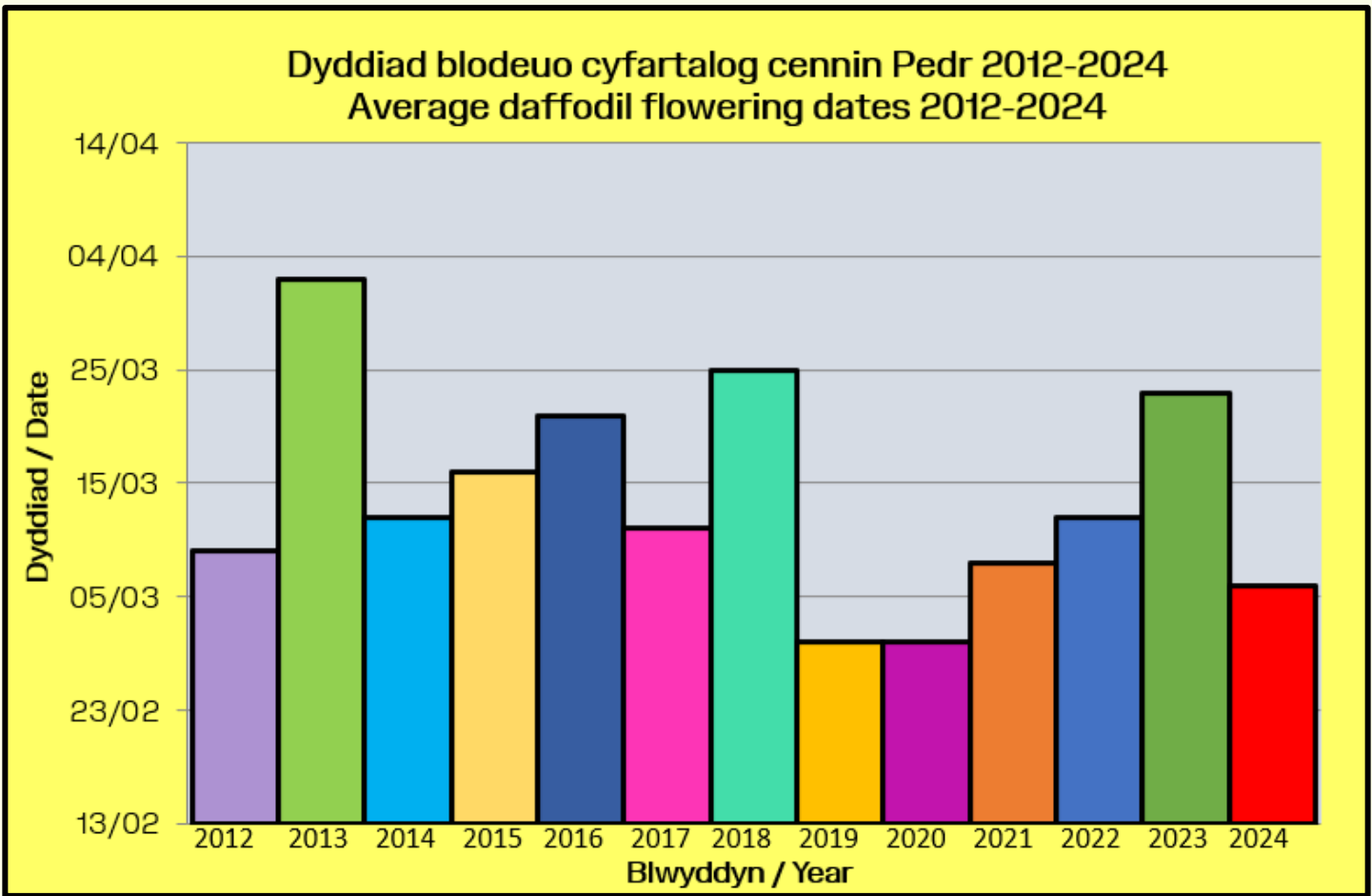
Why did our plants flower earlier this year?

- 2024 saw the fifth highest temperatures, third highest rainfall and lowest hours of sunshine of our investigation. Higher than average temperatures may be one reason that our plants flowered early. It will be interesting to look at this in more detail in our flower graphs.
- Our data shows a direct correlation between average temperatures and hours of sunshine and the flowering dates of our bulbs.
- There are a lot of elements that can affect the flowering dates of our plants. It's important to not only look at the overall temperatures, rainfall and sunshine, but to explore how these altered over the period in which our plants were growing.



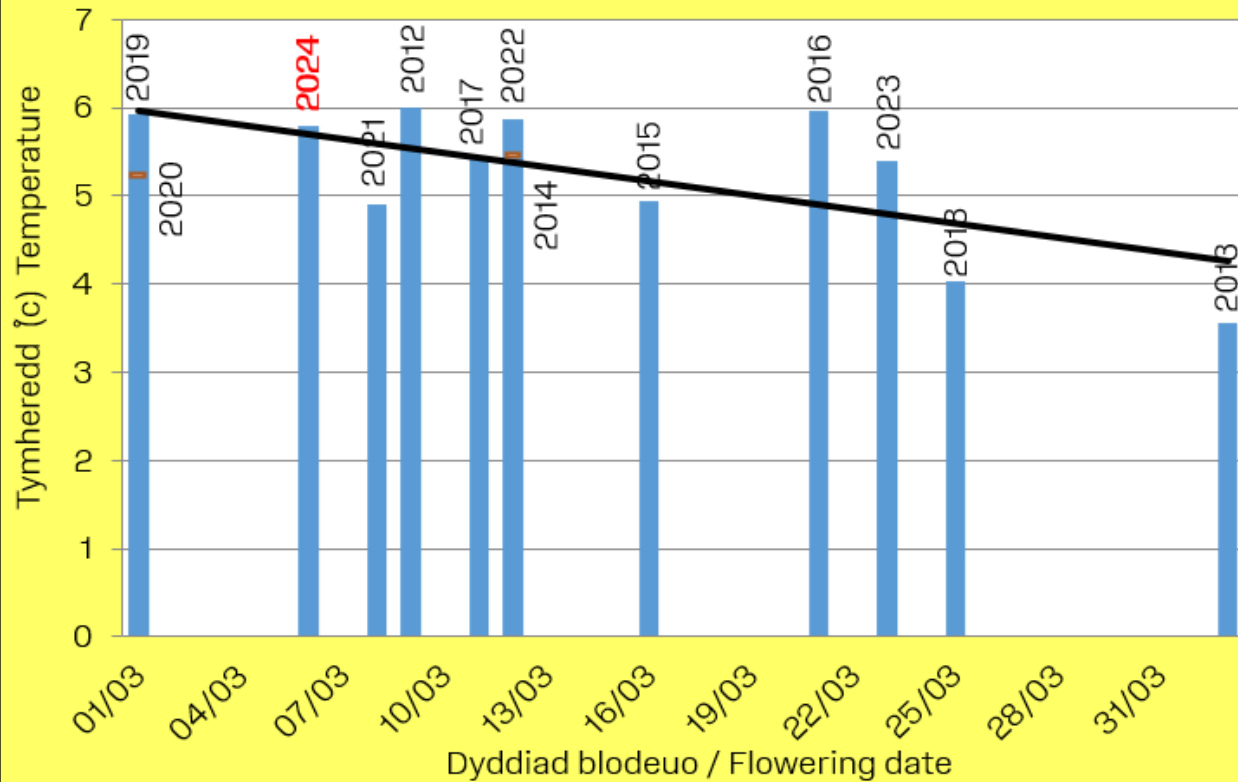


**How does the weather effect
flowering dates for daffodils?**

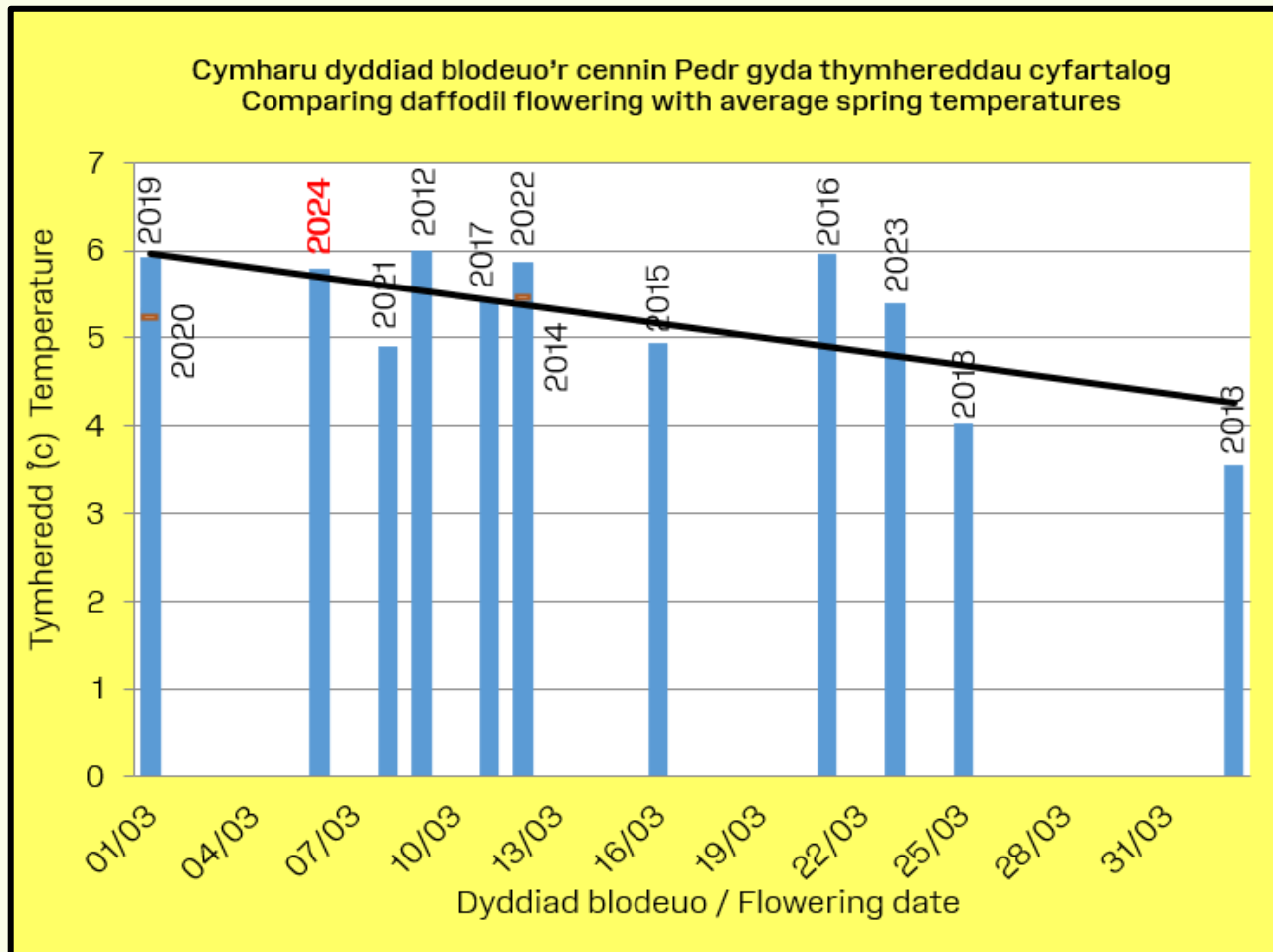


The bar chart shows that 2024 saw earlier than average flowering dates for the daffodil when compared to previous years.

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



The chart shows the effects of temperature on flowering dates for the daffodil. The height of the blue lines illustrates the temperature and where they are on the graph relates to the average flowering date for that year. The black line running across the graph shows the trend, this tells us the pattern we would expect to see from our results.



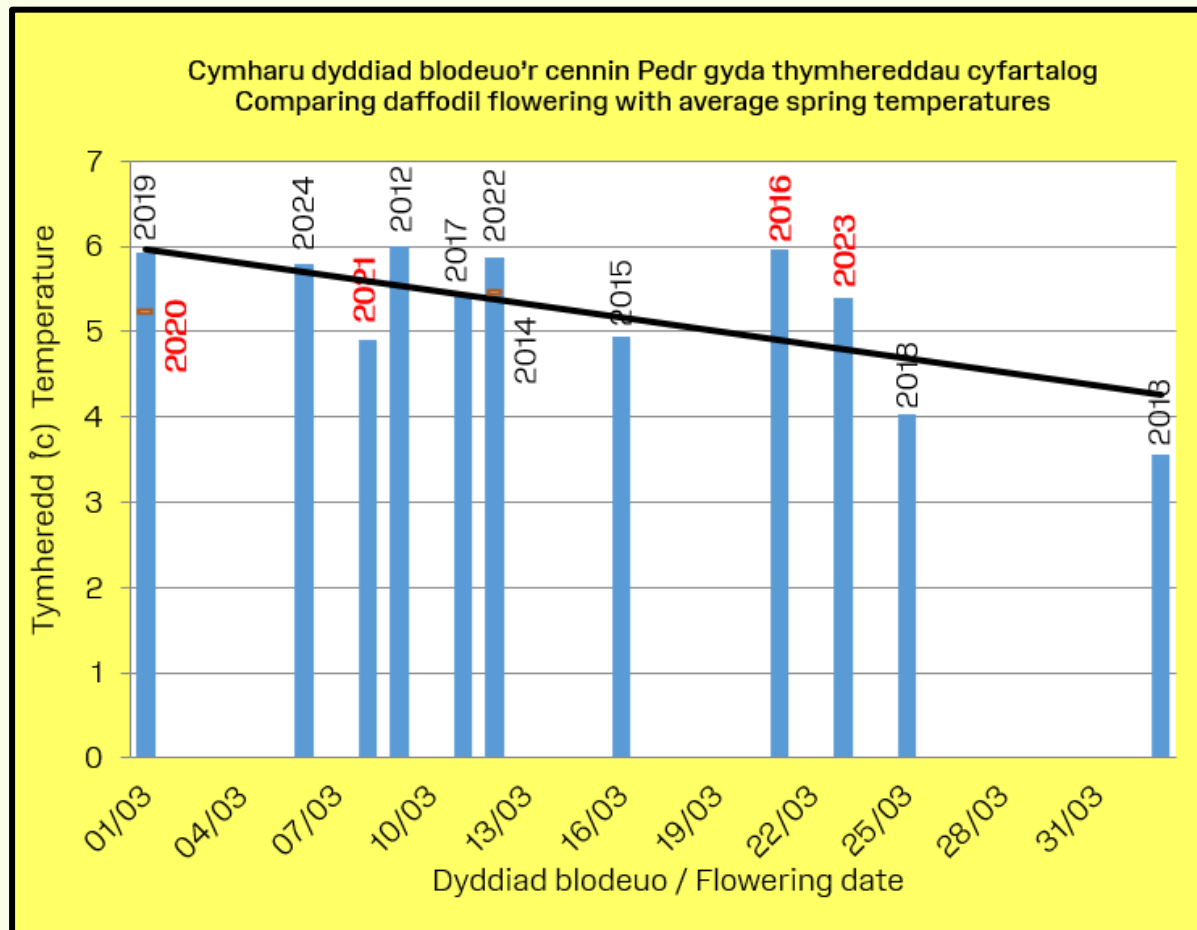
The trend shows that daffodils flower later when temperatures are lower. But there are some exceptions, can you spot them?

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.



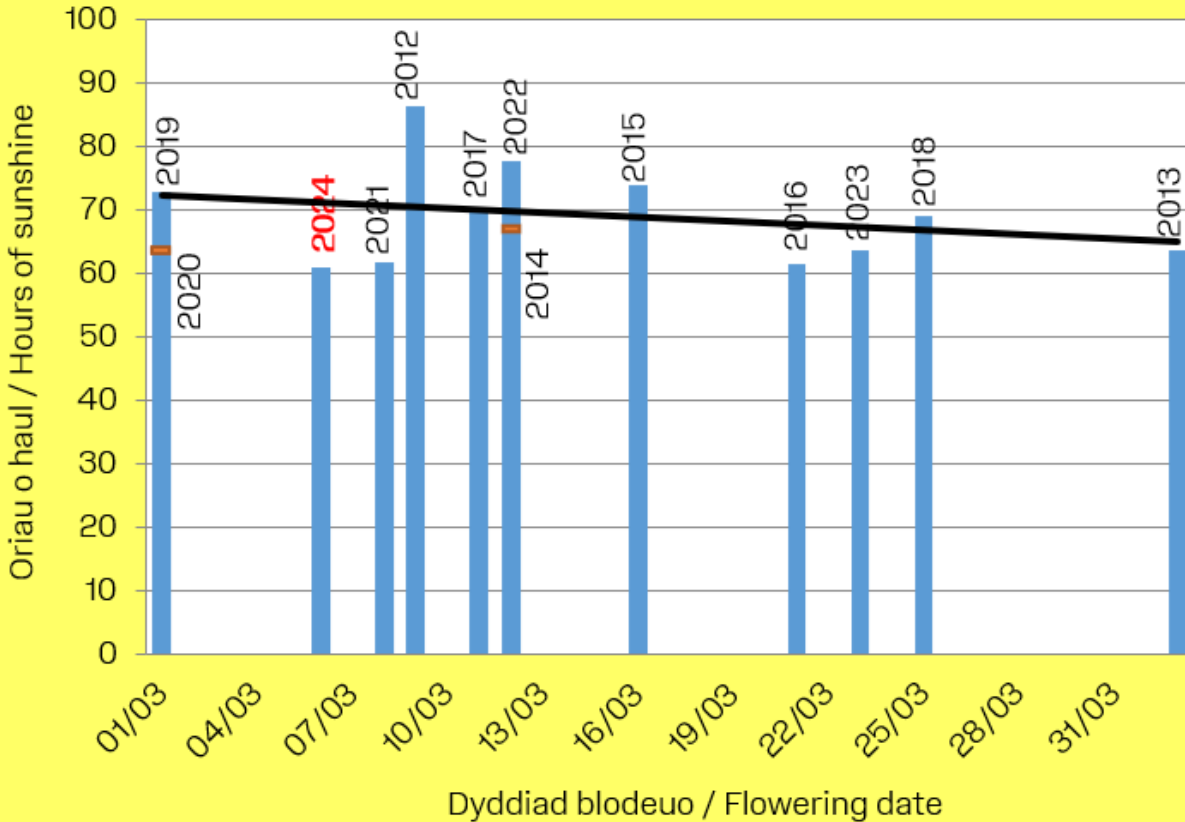
Q: What years don't fit the trend?

A: 2016, 2020, 2021 & 2023



We would have expected daffodils to flower earlier than they did in 2016 and 2023. However, 2016 saw lower than average temperatures for February and March and 2023 saw lower than average temperatures for December. We would have expected daffodils to flower later in 2020 and 2021. However, 2020 saw the highest temperatures of our project for January and above average temperatures for February and 2021 saw above average temperatures for March.

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

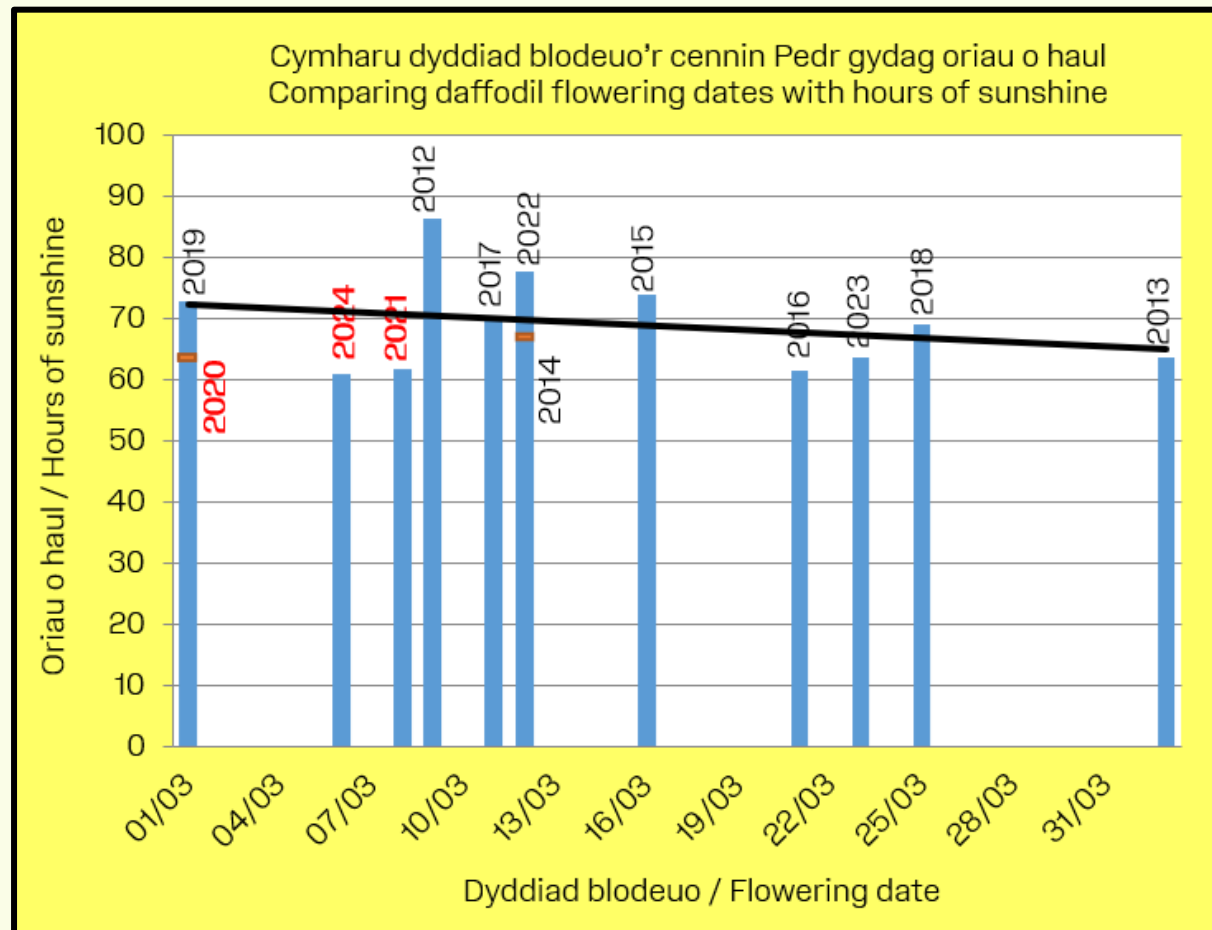


The trend shows that when hours of sunshine are lower, daffodils open later. But there are some exceptions, can you spot them?
Top tip: The black line is only an indication of the pattern we'd expect to see. Years don't have to meet this line exactly to fit our trend.



Q: What years don't fit the trend?

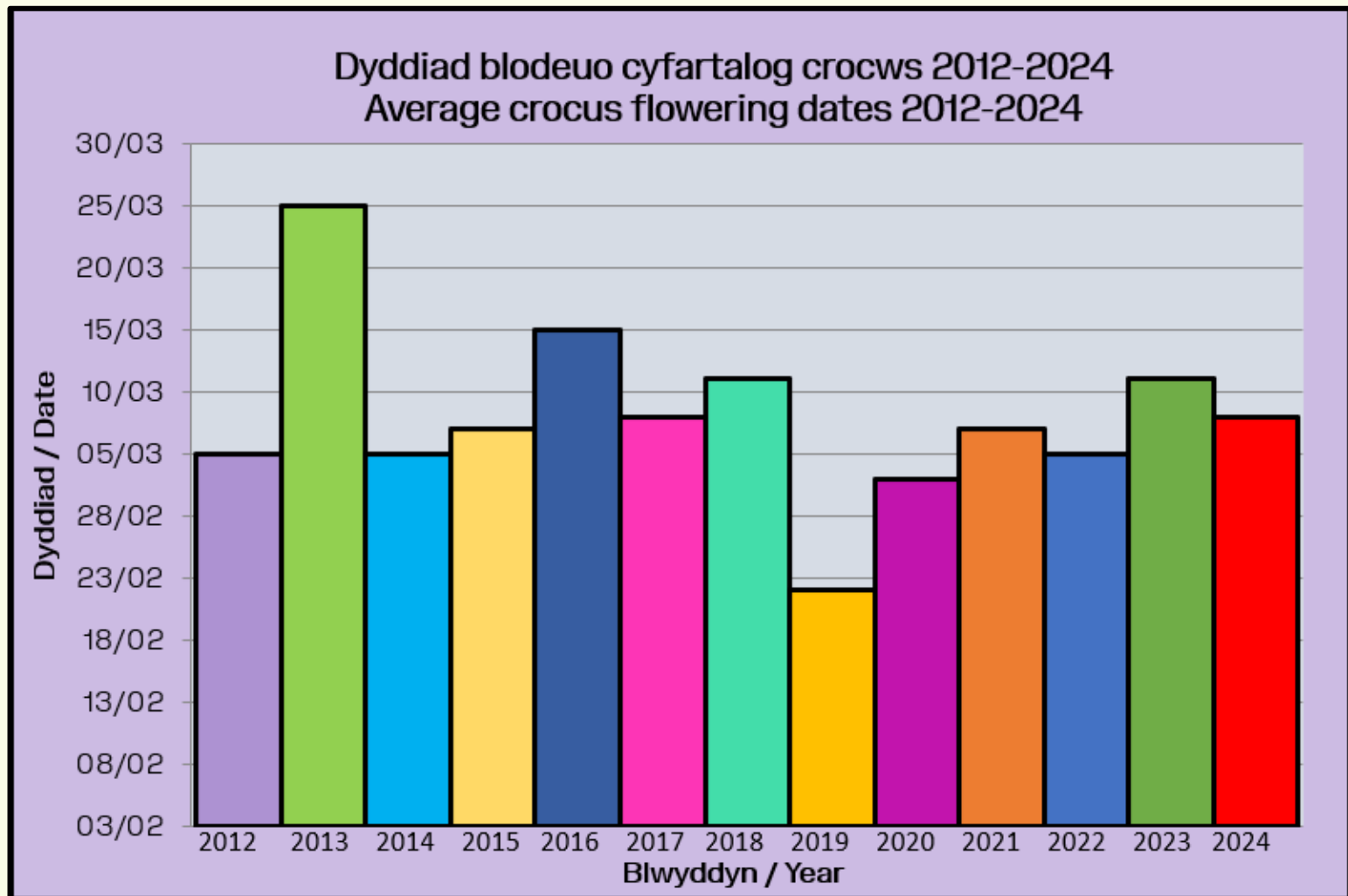
A: 2020, 2021 & 2024



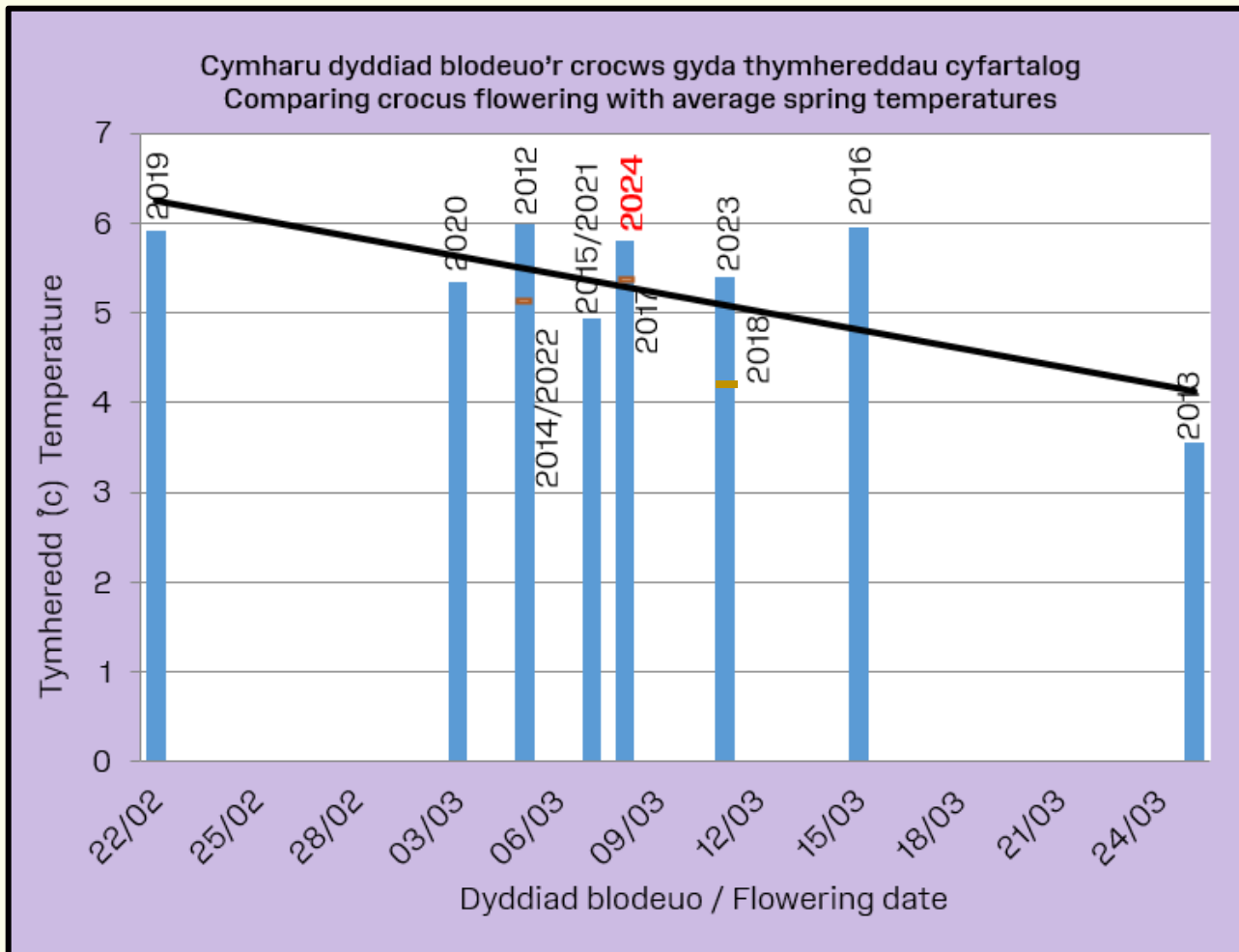
Possible explanation: We might have expected plants to flower later in 2020, 2021 and 2024. But 2020 saw the warmest January of the project, 2024 saw the warmest February and 2021 saw temperatures and hours of sunshine increase sharply for February and March.



How does the weather effect flowering dates for the crocus?



We can see from the bar chart that crocus plants flowered earliest in 2019 and latest in 2013. 2024 saw average flowering dates for the crocus.

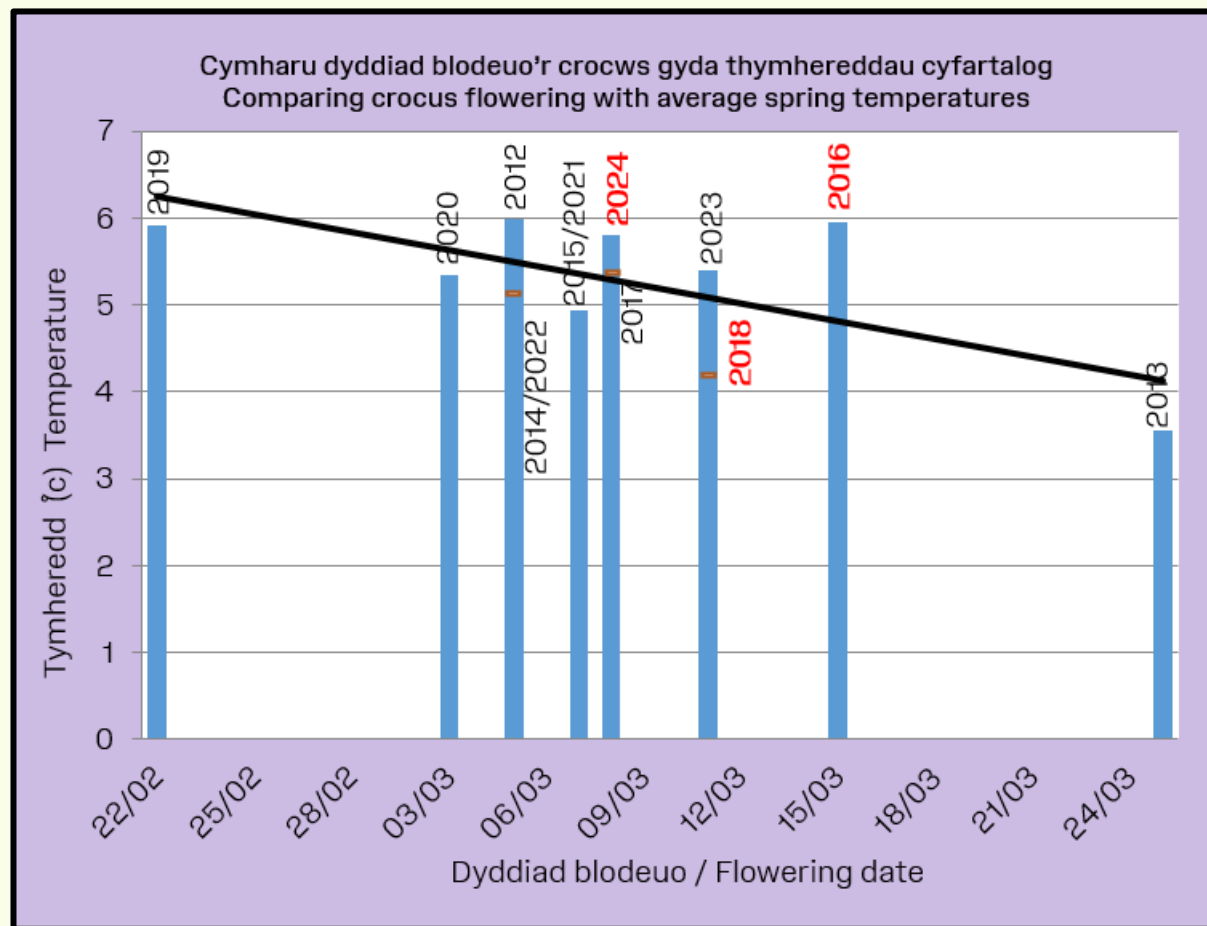


The trend shows that crocus flowers open later when temperatures are lower. There are some exceptions, can you spot them? What might be the cause?



Q: What years don't fit the trend?

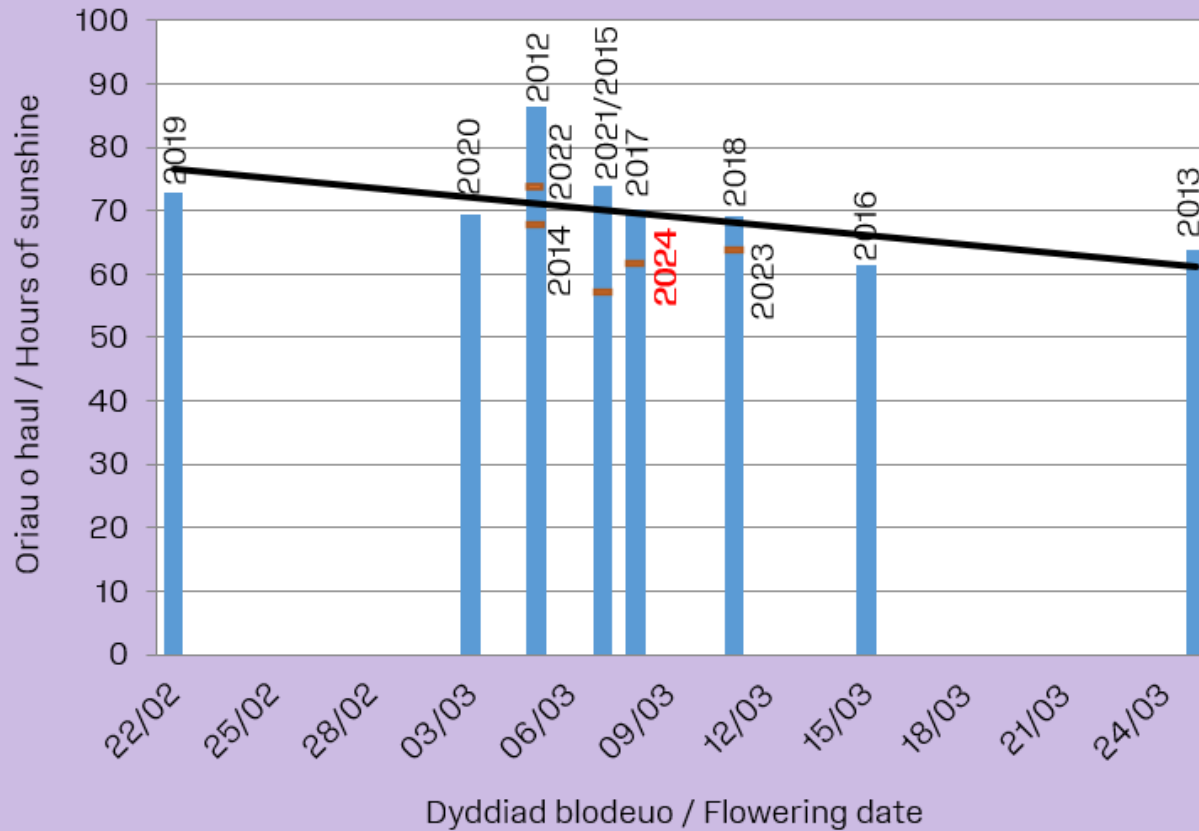
A: 2016, 2018 & 2024



Possible explanation: We might have expected plants to flower earlier in 2016 & 2024. By looking at our other graphs we can see that 2016 saw a sharp decrease in temperature in February and that 2024 saw the coldest February of the investigation.

We might have expected plants to flower later in 2018. However, this year saw the highest hours of sunshine for January. This may have impacted on the flowering dates of our plants.

Cymharu dyddiad blodeuo'r crocs gydag oriau o haul
Comparing crocus flowering dates with hours of sunshine

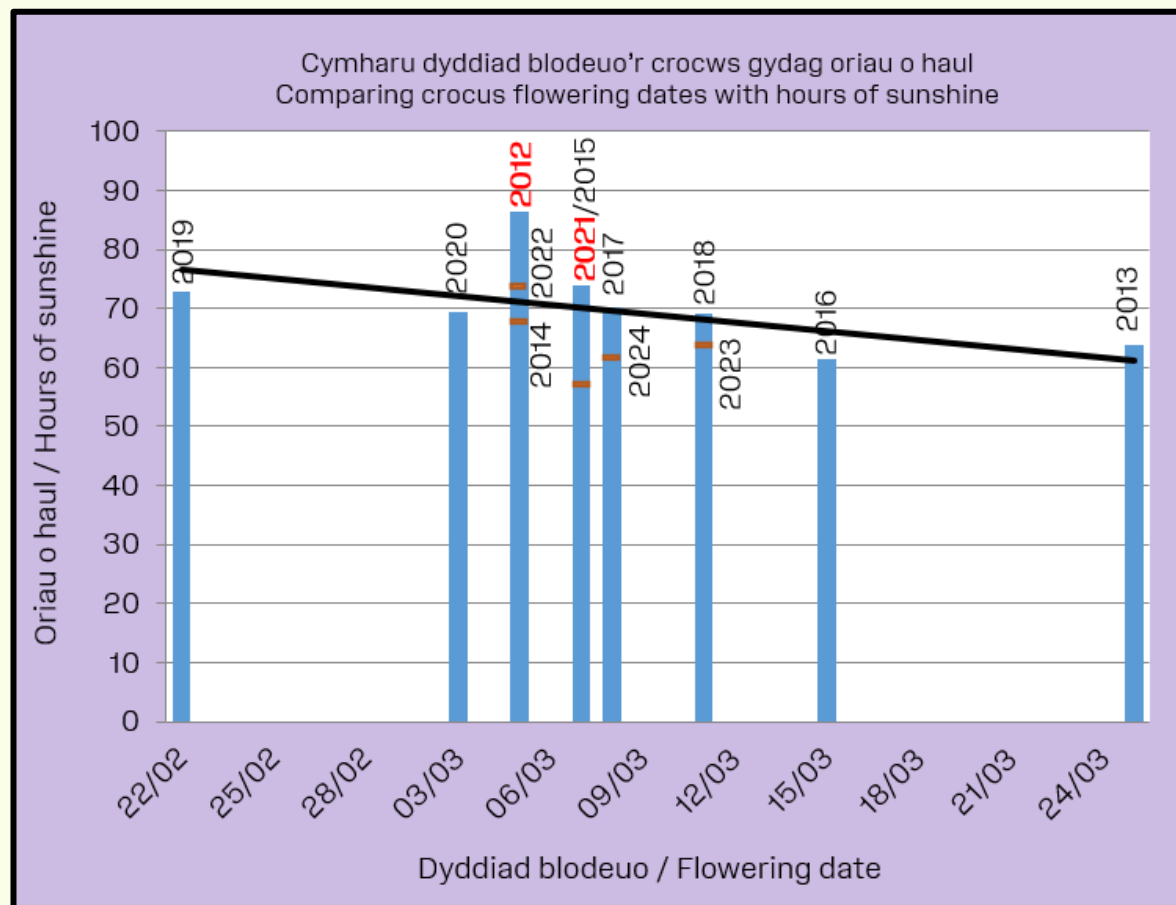


The trend shows that crocus flowers open later when there is less sunshine. There are some exceptions, can you spot them?



Q: What years
don't fit the
trend?

A. 2012 & 2021



Possible explanation: We might have expected plants to flower earlier in 2012 as it had high overall temperatures and hours of sunshine. However, it had low average temperatures and hours of sunshine for February.

We might have expected plants to flower later in 2021. However, a look at our earlier graphs shows that this year saw higher than average temperatures for January & March. It's likely that this impacted on the flowering dates of our plants.

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 \(museu.wales\)](http://museu.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!

