

July 2022



Dear Club Members,

In 1822, on July 20th Gregor Mendel died. Now known as the father of modern genetics, Mendel was an Austro-German monk who spent years breeding pea plants, and meticulously recording the results of his experiments.

Farmers has known for millennia that they could cross-breed certain individuals to create more desirable traits in future generations. Sheep had slowly been selectively bred to change from a hair coat to a wool coat which wasn't shed each year. Cows were bred to produce more milk, or increased meat with a desirable amount of fat. Grain crops were bred to produce more yield, and to be more resistant to disease, or less likely to be damaged by weather.

What set Mendel apart was the extreme rigour of his cross breeding experiments, and the way in which he recorded the results. Before entering the monastery Mendel has studied philosophy and physics at the University of Olmutz (now Olomouc in Czechia). During his studies he suffered with ill health, taking time off from his students, and as a result struggled financially. This largely influenced his decision to become a monk, he could now carry on with his education with no financial worries.

Between 1853 and 1863 Mendel grew and tested over 28,000 plants, studying them with a focus on traits like seed shape, flower colour, seed colour, pod shape, pod colour, flower location and plant height. His experiments are the foundation of the simple genetic cross that students now learn in school to understand genetic inheritance. He showed that if he took a true-breeding yellow pea and crossed it with a true-breeding green pea the first generation offspring always produced yellow peas. In the next generation however, green peas now appeared again at a ratio of 1 green to every 3 yellow. It is from this he coined the terms recessive and dominant, still used today in genetics. Yellow is dominant over the recessive green for pea colour.

In many ways Mendel stumbled upon a lucky choice to study. There are many traits in many species that are controlled by more than one factor (gene in modern terminology), making it very complex to unpick the results of the crosses. His chosen traits in peas only have one gene controlling the chosen characteristics.

Mendel did write up his work, and published it as a scientific paper at the Natural History Society of Brno in Moravia in 1865. It didn't attract the attention of the scientific community, despite it being in the same period of time as Charles Darwin writing *On The Origin of Species*, Mendel even sent a copy of his paper to Darwin, it was found unopened on a shelf in his study. Darwin also had periods of poor health, as did many members of his family, and the arrival of Mendel's paper probably coincided with one of the periods of time when Darwin was unable to work.

It took until after Mendel's death for his work to be rediscovered. In 1900 Hugo de Vries and Carl Correns duplicated Mendel's work, and acknowledged Mendel's priority of understanding. This brought the work to the attention of the wider scientific community, and in time led to the founding of the branch of Biology known as Genetics.

Peas by themselves don't make for a very interesting fibre colour, but a member of the family does exhibit an interesting scientific characteristic, that makes it very pretty. The Butterfly Pea is an Asian native, and is usually brewed in to a tea that's bright blue in colour. What makes this blue colour all the more magical is that it will turn purple when an acid like lemon juice is added. The flower is an indicator, it has the capacity to show whether something is acid or neutral on the pH scale. It's also used to colour other liquids like gin. . .

Happy Spinning

Katie

Fibre Content- In case your parcel is missing the label
12.5% Llama, 12.5% Sari Silk,
12.5% Mulberry Silk,
62.5% Merino

Further Reading-

The book that inspired the title of your fibre-

https://www.goodreads.com/book/show/1494347.A_Monk_and_Two_Peas

More information about Mendel-

<https://www.newscientist.com/people/gregor-mendel/>

<https://www.forbes.com/sites/kionasmith/2018/02/08/why-everyone-overlooked-gregor-mendels-groundbreaking-paper/?sh=5c6a8e7c7d76>

<https://www.bbc.co.uk/bitesize/guides/z3thmsg/revision/2>

<https://www.youtube.com/watch?v=GTiOETaZg4w>

<https://www.youtube.com/watch?v=c9dckbh15g4>

<https://www.youtube.com/watch?v=Mehz7tCxiSE>

Butterfly pea tea-

https://en.wikipedia.org/wiki/Butterfly_pea_flower_tea

<https://www.bonappetit.com/drinks/non-alcoholic/article/butterfly-pea-flower-color-changing-tea>