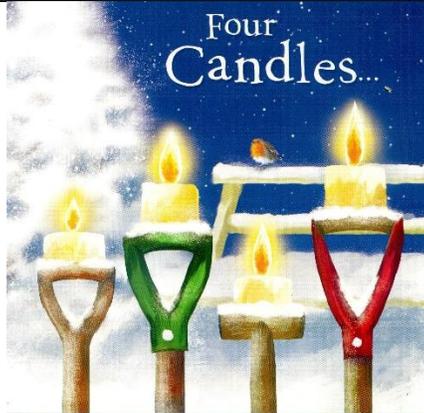




Newsletter January 2022

www.californiagardenersclub.co.uk



From the Committee, may we wish all our club members a
**HAPPY AND HEALTHY
NEW YEAR**

If you are as old as me, you will remember the famous two Ronnies sketch. So what do you see on the left?
Four candles or fork handles.

Things to note

1. Our next meeting is on the 7th February when we will be having our AGM **We do not know if this will be in the hall or over Zoom. We will let you know closer to the date.**
2. **Trading Hut** – Now closed for the winter.
3. **Member's articles.** See in newsletter for more details. If you have an interesting story, then send it in for publication.
4. Remember to email Hermione if there is a particular subject you would like a speaker for. Hermione's email is at the end of this newsletter

January Meeting

Jamie Claxton is the Director of Plant Breeding at Tozer Seeds and he gave us a truly fascinating insight into the many complicated processes behind the development of new F1 hybrid seed varieties.

(NOTE: I have included an explanation of some of the terms used at the end of the article - JG)

Tozer Seeds was set up during the Second World War to aid with the war effort, developing reliable new varieties and working to ensure a continuous supply of seed. Nowadays, they supply in bulk to commercial vegetable growers as well as to companies supplying seed packets for amateur gardeners.

Plant breeding is needed to improve varieties with features such as improved yields, better flavour, longer shelf life, different growing conditions and increased disease resistance. In addition, consumer demand evolves and seed companies need to try to predict what customers are going to want. Since it can take up to 15 years to bring a new F1 hybrid* to the market, this can be difficult.

F1 hybrids are often preferred by commercial growers over open-pollinated* varieties as they are more vigorous, more uniform, more stable, produce more yields and can be selected for desirable characteristics such as being able to grow well in different climates around the world. An example of this is Cavolo Nero, a kale originally from Italy and diverse in its features, so not ideally suited for large-scale commercial growth in this country. Tozer seeds got ahead of the breeding 10 years ago and this is a vegetable that is now a regular feature on supermarket shelves.

Jamie took us through the processes involved in developing F1 hybrids. These are scientific and technical. For example, gene editing (not the same as genetic modification) is a new technology at the level of molecular biology used to select for particular features such as disease resistance.

Speed breeding has been developed to save a few years on the breeding programme. Seeds have to be carefully tested for pathogens before being sold.

- need to be meticulous
Plant-labelling and record-keeping, for example, need to be extremely accurate. All the different techniques need to be rigorous.
- are very time-consuming
It can take up to 10 years to breed a desirable new variety, then up to 5 years to bring it to the market
- need to be constantly evolving and developing
As well as consumer demand, they need to keep an eye on how food companies are starting to process vegetables for sale to consumers, for example veggie waffles. This requires suitable varieties.
- involve continuous investment in new research and technology
An example is a new culture technique enabling the production of a plantlet from a grain of pollen.
- require co-operation with outside agencies
 - ❖ Government departments need to be satisfied through thorough testing before the certification of new varieties.
 - ❖ University research departments work with the seed companies looking at aspects such as flavour and nutrition
- can be precarious
If not enough viable seed can be produced commercially, then the many years of development and investment can be wasted.

For the F1 breeding programme, firstly stable parent plants with the desired characteristics need to be produced over 10 generations before hybridisation can begin. This is done by carefully controlling pollination and with brassicas, is often done by hand, so it is very labour-intensive. A new technique sometimes used involves blasting the plants with CO₂ before sending in flies to pollinate. A speed breeding programme can be used to reduce the 10-year timescale by a couple of years.

Once a stable generation of parent plants is produced, they can be crossed and the offspring grown on. Out of hundreds of new varieties, only a very small number will make the final grade.

The next step is registration, trialling and certification which can take 2 to 3 years, as several generations of the new variety need to be grown to satisfy the company and government agencies that the new variety is viable. After that, seed needs to be produced on a commercial scale and is sent to specialist commercial seed growers in the UK and around the globe.



They often need to employ special techniques such as producing male-only plants. All this adds another couple of years to the timescale which can be up to 15 years. It becomes easier to see why F1 hybrid seeds are more expensive than open-pollinated ones.

Fun facts:

Tozer sent some rocket seeds into space with Tim Peake. These were then grown on in schools along with control seeds. It was found that the space rockets were slightly less vigorous.

They are developing an extremely hot chilli pepper called Armageddon.

Mildew is constantly evolving. It is a race to produce resistant varieties of susceptible plants such as basil and lettuce.

They have their own fly hatchery from thousands of maggots. Flies are good for cross pollinating as they fly in a random pattern. Bees are more methodical.

The company are developing new varieties that can cope with vertical gardening and being grown in tunnels under artificial light, such as microgreens.

Tozer developed kalettes, a cross between red curly kale and Brussels sprouts. They produce mini red kale heads growing up a tall stalk like Brussels. I have tried them and enjoyed them.

*What is a hybrid?

It is the result of cross-pollinating genetically dissimilar parent plants. The pollen of one variety is transferred to the flower of another. It can happen spontaneously in nature, for example peppermint is a naturally occurring hybrid of spearmint and watermint. Breeders aim to produce particular desirable characteristics from both of the parent plants in the offspring. It can take many generations before the desired result is achieved, by continual crossings of the 'babies'. This is because the parent plants often have hidden random genes which make it all hard to control.

*What is an F1 hybrid?

An F1 hybrid is a first generation plant produced by crossing two stable parents so that the offspring are uniform and reliable. These two stable parent seed lines are called inbred lines and take usually 10 generations to produce. It is a very carefully controlled operation.

*What is open pollination?

This term is often used to refer to seeds that are allowed to freely pollinate each other, without intervention. They will breed 'true' meaning that the seeds produced will be roughly identical to their parents. Many of these are saved over generations by gardeners and farmers, becoming known as 'heirloom' varieties. A disadvantage is that they are open to pollen from other strains being introduced and that they do not have the capacity for improvements, such as disease resistance, for example.

If you would like to know more:

- ❖ For Tozer's key F1 varieties go to: www.tozerseeds.com/uk/vegetable-breeding/keyproducts
- ❖ For an overview of F1 hybrids: www.thompson-morgan.com/f1-hybrid-what-is-it
- ❖ Wikipedia has a comprehensive section on Plant Breeding:
www.wikipedia.org/wiki/Plant_breeding
- ❖ Also look at the RHS: www.rhs.org.uk/vegetables/f1-hybrids
- ❖ For more about the Tim Peake space seeds experiment:
www.bbc.co.uk/news/science-environment-36038508
www.bbc.co.uk/news/science-environment-37826704

Julia Goodall Publicity Officer

Seed orders

Congratulations to all those who ordered seeds from last year's Mr Fothergill catalogue.

The total of seeds ordered was £655.31. However, after the discounts were applied, our members only paid a total of £285.21. A great saving of £370.10 Well worth the effort!

Peter Radband

January Table Competition



1st
Roland Cundy



2nd
Geoff Sutton



3rd
Margaret Wade

There were fourteen entries in the January competition. In my opinion, they were all very nice. You can see all of the entries if you click on <https://www.californiagardenersclub.co.uk/xmas-trees.html>

Well done and thank you to all those who entered.

Topical Tip –January 2022

SWEET PEA TIPS

If you've managed to keep hungry mice away from your sweet pea seedlings, then they've probably reached a reasonable size by now. Once they have grown to around 10cm (4 inches) tall, use your thumb and forefinger to pinch out the growing tip of each young plant.

As a seedling grows, most of its energy goes into that shoot tip, which becomes dominant. By removing the shoot tip, growth hormones are forced into all the other shoots which will encourage the young sweet pea to branch and grow a number of side shoots - and more shoots will give you many more flowers next year. ALTERNATIVELY, WAIT TILL SPRING AND BUY THEM FROM YOUR CLUB'S SPRING PLANT SALE.

WEEDING

There is a temptation to think that in winter the garden goes to sleep and growth stops so we can forget about some of our routines.

Sadly, however, during mild spells, pesky annual weeds can grow and in some cases flower and set seed. On dry, sunny days, carefully survey the garden and pull up any annual weeds before they can seed and cause a problem next year. Weeds are successful plants because they grow rapidly and can flower and seed many times during the year. But if you stay on the ball you'll put yourself in a much stronger position next spring.

Membership this year

2022 subs are due from February. They remain at £5 per person per year. If you would like to pay now, and spend some of your Christmas present money, you can do so through BACS. The sort code is Sort Code: 40-47-09, Account Number 71301608.

Please use your full name as the reference.

Facebook Group News

Lynne Potts recently posted some photos of nibbled plants with the caption 'Oh deer!'



What seemed interesting was that the pots of pansies had clearly been a tasty feast but not the chrysanthemums. This started a thread (conversation) about other deer-proof plants and daffodils and hydrangeas were mentioned. Do members have other suggestions for plants that deer do not find so appetising?

Please contact the club email address:
californiagardenersclub@gmail.com

You are most welcome to join the club Facebook group.

It is a private group which means that only club members can join and post. You can join it at: www.facebook.com/groups/207934410581605/

You will need to first read and agree to the group guidelines. We really would like more members in this group to make it a lively forum. We are looking for gardening related posts and club news.

Julia Goodall

Publicity Officer

RHS card

Our club has a RHS Card.

It enables two people to gain entry to all RHS gardens throughout the country (this includes RHS Bridgewater from Sept).

Presentation of this card will give you and your friend a 30% discount on the entry fee.

You can borrow the card by contacting Chris Spinks (number at the end of newsletter) and arranging to pick it up.

Monthly talks

This is a call to all members:

If you have any ideas/requests for the subjects of the monthly talks, please let us know. Either reply to this email or give Hermione a ring (number below).

Chairman: Dick Hawes 0118 979 3730	Hon. Treasurer: Peter Radband 07976 640989	Programmes: Hermione Lewis 0118 989 1671	Committee Member:
Deputy Chairman: Ian Gillott 0118 9892649	Trading Hut: Stuart Slocombe 0118 9734531	Membership: Jayne Male 07967639808	Co-opted Member: Marise Radband 01344 774310
Hon. Secretary: Chris Spinks 0118 978 1432	Show Secretaries: Daryl & Katie Phillips 07980 160169	Publicity: Julia Goodall	Table Competition Linda Garrett