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## **August 2014 Newsletter**

Climate change is helping Tasmania become an international source of seeds for vegetable crop production supplying farmers typically looked after by traditional European growers: “The production areas in some other parts of the World have decreased due to climate change.”

*ABC Tasmanian Country Hour August 2014.  
Interview by Rosemary Grant.*

Welcome to [vegetableseeds.net.au](http://vegetableseeds.net.au) newsletter. This newsletter is about bee pollination. As this is being written, one of the biggest commercial seed companies in the world is building a \$5,000,000 seed cleaning plant minutes away from our work at Cressy research station in Tasmania, they are investing in the future.

In 2014 there is a worldwide shortage of kale seed due to poor pollination in growing regions, growing populations consuming more of some varieties, and climate change making crop growing in some regions unpredictable... food for thought.

Have a look at [vegetableseeds.net.au](http://vegetableseeds.net.au) current 2014 catalogue to see the diversity of vegetable seeds that we offer. Our Garden Centre displays a rich diversity of flowering plants for your garden.



## **A bit about bees**

### **The Bumble Bee (*Bombus terrestris* Family Apoidae).**

These are important pollinators of plants. They visit specific flowers and collect different sources of nectar. The flower pollen attaches to their bodies and gets transferred from flower to flower.

**The Queen Bee:** Selected by worker bees from the larvae stage and fed to become sexually mature, she



hibernates over winter in warm cosy material, an old log, for example. She emerges in the spring.

**The Colony:** The Queen lays eggs and collects nectar for her grubs and spins cocoons around them. This is the beginning of a new nest and colony.

**The Workers:** These are females but lack the full reproductive capacity of the Queen bee, up to 20 daughters emerge and begin building the colony. The Queen lays eggs well into the summer.

**The Hive:** The first bumble bees are small. As food supplies become more available the next bumble bees are larger.

**The Drones:** Male bees from eggs that have not been fertilised appear in late summer.

**The young Queens:** The Queen produces these which are fertilised by the drones. The young queens leave the nest and hibernate in a different area and repeat the cycle.

The original Colony's remaining drones and workers die over winter.

## **The Honey Bee (*Apis mellifera* Family Apoidea)**

An important and managed commercial plant pollinator and producer of honey approx. 25,000 species.

Honey is one of the purest foods available and it does not spoil.

Honey bee colonies do survive the winter even though they are small.

The egg, pupa, larva are collectively known as the brood.

The Queen is fed on royal jelly a high quality food. She can live from two to four years in the hive.

There are many good books, blogs, websites, professional and amateur organisations about bees.



### **Be alert**

Pests, pathogens and parasites threaten the health and survival of bee colonies. The varroa mite is a nasty parasite that has wiped out billions of honey bees.

It sucks the blood and reproduces on the brood. A team studying honey bees in Hawaii found that the varroa mite spread a virus strain called deformed wing virus.

If a colony has a warm winter and an early spring, lots of pollen and nectar make for a strong colony and long brood rearing which are unfortunately also ideal conditions for the varroa mite too. Large colony losses can occur in such a season and lack of pollination of crops can occur. This happened in 2013. There are also many other viruses; for example Black Queen virus and slow paralysis virus.

## **Do Insecticides kill bees? The clue could be in the question.**

This is a very difficult question. Chemists, plant scientists, zoologists, botanists, apiarists are all searching for the answers. Neonicotinoids are a group of insecticides that attack the nervous system of insect pests, white fly for example. An active ingredient called imidacloprid is one neonicotinoid that farmers, horticulturalists and home gardeners currently use to control pest infestations.

When plants get stressed due to lack of water and experience long unseasonably warm periods insect populations are not killed off by colder weather and their numbers increase dramatically.

The concern is that neonicotinoids could harm beneficial honey bees. Some laboratory trials have shown that the mobility, navigation, feeding of bees and hive activity are affected. Neonicotinoids have been banned in some countries.

The chemical can stay in the plant throughout its life and probably moves into the pollen and flower. However it's not quite as simple as that and far more work has to be done in larger field trials over longer periods of time for evidence to be conclusive.

The CSIRO in Tasmania is doing a trial by tracking bees to investigate a deeper understanding of bee pollination and colony collapse disorder. As world population grows the demand for high yielding food crops will rise how to do this is the challenge agriculturalists have.

## **The solutions...**

### **A patch of garden**

This is our connection with nature, and a chance to encourage all types of bees by having brightly coloured and scented flowered bee attracting plants; lavender, thyme, rosemary, blue pacific, and natives for example.

Grow plants that flower at different times throughout the spring and summer.



If you have a landscaped concrete and gravel garden buy a few pots and start a herb garden on the gravel areas.

If you live in an apartment with a balcony, even a pot of thyme or a geranium will attract bees. Bees can travel about 1km from the hives, that's a long way when you think about it.

We have all seen suburban back yards and witnessed their extraordinarily rich plant diversity. You will find many bee attracting plants for your patch at Inspirations Garden Centre.

## Every plant deserves a chance

We love them or hate them and we are responsible for spreading them all over the world. Some call them weeds others wild flowers. They are part of that fantastic plant fabric that covers our planet and many are beneficial to bees. In return they give masses of seeds. We have to manage them as best as we can and live with them.

## Vegetable plants



Let a few vegetable plants go to seed like basil, mustard green elk, mibuna, mizuna, and broccollette.

Plant bee attracting vegetable plants like cucumbers, pumpkins, squash, water melons and broad beans.

They will have cross pollinated so saving seeds will not result in pure lines when grown the next year. See our complete range at [vegetableseeds.net.au](http://vegetableseeds.net.au)

## Behaviour

Bees can't resist annual flowering plants with the bright sweet flowers like marigolds, petunias, sweet peas. Our variety of sunflower is a commercial highly nutritious variety that originates from Canada. See our [catalogue](#).



## A piece of nature's jigsaw

Some plants are wind pollinated, wheat, barley, hazelnut trees for example. They produce huge amounts of pollen to increase their success of survival, that's why we see yellow dust on pavements and cars in the spring. Some of these plants can also be insect pollinated.



Bee pollinated flowers often have bright colours, less pollen and strong scents. Most fruit, vegetable, and nut plants are bee pollinated. The pollen sticks to the insect's body parts as they travel from flower to flower searching for nectar. Timing of pollination is crucial; too early and seeds will not form.

You can tell when flowers are receptive by gently touching them with your finger. The pollen will stick to it. Bees are the most important pollinators and honey bees are the only insects that can be managed, but flies, butterflies, moths, beetles and ants are also important and we could possibly use these insects if there is a decline in bee populations in the future. That is what some researchers are currently working on. All researchers in

large seed companies are currently working on solutions to bee pathogens and parasites.

Birds, bats and some animals can also pollinate some plants.

## **Bee farmers**

There are a growing number of amateur bee keepers, lectures on bee keeping, open days at agricultural colleges promoting bee keeping, field events, honey factories, lavender farms. Several of our customers have started keeping their own bees.

## **The world is a merry-go-round**

We don't have to grow seed crops in traditional growing regions just because they have always been grown there. We can look at new seed growing regions and new seed crops.

Tasmania is a good example. International seed companies are investing a lot of time and money in growing seed crops here now. The traditional larger seed growing regions like North America for example have experienced poor pollination in some seasons due to lack of bees.



## **Us**

We are home gardeners not farmers who have been on countless chemical spray courses and it is not worth dressing up in protective clothing just to spray a few cabbages. We can safely use low toxicity controls according to the product labels for food crops and spray in the early morning or late afternoon when bee activity is at its lowest. Spray on calm dry days.

We can use pheromone traps, practise good plant hygiene, remove weeds and dead leaves and maintain a balanced, nutrient rich, healthy soil. We feed plants regularly and plant vegetable plants at wider spacings because insect pests love warm cosy places to breed; they don't like places where there is good air flow.

We can remove small infestations of pests by hand, cabbage moth eggs for example. Beneficial insects will find and feed on plant pests in a healthy garden. At Inspirations Garden Centre we have a wide range of organic pest controls.

## **Climate - ALL CHANGE!**

Many seed businesses see climate changes as an advantage as new growing regions emerge and agriculturalists work out what new seed crops can be grown there. Edamame beans, for example may be grown widely in what we now consider short growing cold season areas.

Extreme weather events could see the growing of seed crops in large protected environments with controlled pollination programmes.



Variety selection for crops with short strong stems, for example, which don't break in high winds before flowering would be an advantage.

## Buzzing with excitement

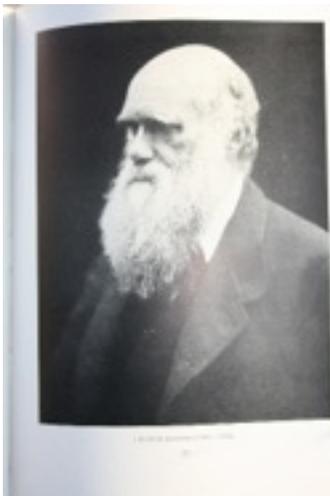
Professional bee keepers are in contact with farming communities all over the world looking for solutions to bee related problems.

Some precautions include not over-crowding the hives, reducing unnecessary breeding work which may breed out beneficial traits, avoiding brood transfers, cleaning and sterilizing all equipment before use, exercising caution bringing things into the apiary which could bring in diseases.



It was a beautiful sight at the Cressy research station last week when the day temperatures hit 16 degrees Celsius and the sunny day saw thousands of bees pollinating the first flowers of our rare kale plants; see photos.

## And now for a Charles Darwin finale



Darwin: *'How many humble bees have you seen today?'*

Daughter: *'I don't think I've seen any.'*

Darwin: *'I saw one or two, but that's because the honey suckle is in flower, they are very fond of that. Now why don't you think there are more humble bees in the garden?'*

Daughter: *'I don't know.'*

Darwin: *'I'll tell you. Because the field mice come out at night and destroy the nests of humble bees. Do you know why there are so many field mice?'*

Daughter: *'No, but you're going to tell me aren't you, papa?'*

Darwin: *'Because the Darwin family, us, keep a dog, not a cat.'*

Daughter: *'You're teasing me.'*

Darwin: *'No I'm not, you see dogs don't hunt field mice, but cats do, so there are lots of field mice that hunt for the nests and that's why there aren't many humble bees.'*

Daughter: *'Why must it all be so cruel papa?'*

Darwin: *'I'm afraid I don't know the answer to that.'*

The above conversation about bees between Charles Darwin and his daughter was from one of the best TV drama series ever made to date about the life and work of Darwin. It was called 'The Voyage of Charles Darwin' BBC TV drama 1978.

The series was thought to be lost from the archives until a few years ago. The series was regarded as light entertainment and we missed the point of the Darwinian journey that we could have been on. Darwin's conversation alludes to natural selection.

**Happy gardening wherever you may be.**



**Remember:**

**FREE POSTAGE**

**on all our seeds, check our Catalogue**