The Bee Friendly Monmouthshire pollinator-friendly flower beds at the Eisteddfod have been set up to show how easy it is to support pollinating insects and create a beautiful display of flowers in your garden at the same time. We hope some of you will be able to visit the Eisteddfod site and see our plant displays near the main entrance. If not, this report will also provide you with useful guidance on planting for pollinators in your own garden.

The pollinator-friendly plant displays have provided a great opportunity to showcase the work of Bee Friendly Monmouthshire and spread the pollinator-friendly message to an audience of potentially 150,000 visitors. They are positioned directly at the main entrance to the Maes. One visitor said they represented a small oasis in an otherwise rather sterile environment.
Our choice of plants
We chose examples of traditional cottage garden plants - perennial herbaceous plants and herbs that flower in late summer. There are also many annuals that are of value to pollinators, such as Nasturtiums, Cosmos, Nicotiana and Nigella, but many so-called “bedding” plants such as Begonias, Busy Lizzies, Pelargoniums (annual Geraniums) and Petunias, are of no use whatsoever to pollinating insects. They are sterile and contain no accessible nectar or pollen. Our flower beds present a snapshot of some of the pollinator-friendly flowers that are in bloom at this time of the year.
It is of course of benefit to provide a succession of flowers all year round for pollinating insects. And ideally pollinators benefit from large planting groups of the same flower but this is not practical in such small beds, nor in the average small garden. It was also our aim to display plants that are easy to obtain from local garden centres rather than specialist nurseries. This is after all where most of us buy our garden plants. All our plants were bought from local garden centres. Availability and plant size limited our choices - for example Buddleia is too big for a raised bed!
Ivy has been included in the beds although not flowering in August as we wish to underline its importance as a late Autumn nectar plant. We also included one not-yet-flowering Fennel plant as this is such a brilliant plant for small bees, hoverflies, wasps and other flies and beetles. No expert gardening knowledge is required to grow these plants: perennials will come back year after year. Just let them die back in winter: cut them back in early spring and feed and water them.
Details of the flowers we planted and the pollinators they attract are in the Eisteddfod Beds Plant List.

Flowers need pollinators and pollinators need flowers
Flowering plants and pollinating insects have evolved alongside each other over millions of years. They have a mutually beneficial relationship. Flowering plants cannot reproduce without pollinating insects and the insects rely on the plants for food. Most flowering plants need pollinating insects to carry out pollination: to produce the seeds, (often contained in berries, nuts and fruits that are food for animals) that enable the next generation of plants to grow. They need insect go-betweens to transport the male pollen from one plant to the female ovaries of the next. The insects depend on flowering plants for their food, for themselves and for their young.
Flowers provide two types of food – nectar (a complex mixture of water and sugars) and pollen (containing protein, fats, minerals and vitamins) that is mostly fed to the larvae. Pollinators such as bees collect pollen systematically as food; other pollinators such as butterflies and moths feed on nectar. But all pollinating insects transfer pollen as they fly from flower to flower. Bees are by far the most efficient pollinators.

Grow flowers that are attractive to pollinating insects as well as human beings-
Flowering plants advertise their wares to insects through colour, scent and flower shape. Flowers have evolved to attract pollinating insects and not humankind. What we find beautiful does not necessarily correspond to what attracts pollinating insects but our tastes often overlap, as shown hopefully in our lovely flower beds. However many hybrid plants,
although attractive to us, have absolutely no food value to pollinators. Double blooms, in dahlias and roses for example, provide no food for pollinators. Choose single flowers: they are just as beautiful. Native wild flowers provide excellent food for pollinators: they have co-evolved with the pollinators and are best raised from seed. We have sown some of our own “Monmouthshire Mix” in small troughs to illustrate the value of native wild flowers. It is advisable to select native plants that grow naturally in your area. We have also chosen plants that are cultivated varieties of wild flowers such as Salvias (sage), Coreopsis (tickseed) and Achillea (yarrow). These garden cultivars are also beneficial to pollinators. Plants of UK and European origin are generally more suited to our native pollinators. However many plants from outside Europe, such as Verbenas which are natives of America, are of equal benefit. Some popular exotic plants from the Southern Hemisphere have very long flower tubes, many pollinated by humming birds in their countries of origin. Most of our pollinators find it impossible to reach the nectar. We have chosen one such plant, Kniphofia (Red Hot Poker). Although the pollen is accessible, the nectar is out of reach. But look out for small holes in the base of the flower tubes. These are made by clever bees who have worked out a way of getting at the nectar. They chew holes which are then also used by other pollinators.

**Why do flowers all look so different?**
Flowers vary enormously in flower size and shape, colour and scent. This huge variety illustrates the enormous biodiversity of plants and also reflects physical differences in pollinating insects themselves: in size (especially length of tongue) and strength (watch a large bumblebee struggling to get inside a snapdragon and you will see what we mean), colour vision (bees see more of the violet end of the spectrum and less of the red) and sense of smell (far superior to our own). The flower shapes have evolved to provide a suitable landing platform for their associated insect pollinators and the petals often incorporate guidelines (only visible to the insects) to steer them towards the nectar. Even the pollen is carefully positioned to dust off onto the insects’ hairy bodies.

**Bespoke flower designs for different pollinator species.**
Honeybees feed from a wide range of plants as the length of their tongue varies quite considerably. They are so-called generalist feeders. Bumblebees have either short or long tongues according to their species and consequently feed on plants with varying flower shapes. For example long-tongued bumblebees can feed more easily on plants with long tubular flowers such as Foxglove, Snapdragon, Penstemon and Fuchsia. Short-tongued bumblebees like plants with flower spikes such as Veronica spicata or Buddleia, or dense clusters of flowers like Lavender, Catmint, Hyssop and Purple Loosestrife. Butterflies and moths have very long slender tongues which can reach deep into the daintiest of florets such as Buddleia. Hoverflies and other small flies have very small mouthparts and prefer plants with very small flowers such as Umbellifers – plants that have large flower heads consisting of tiny florets. Examples in our beds include Achillea, Sedum, Fennel (not in flower) and Verbena bonariensis. They also prefer flowers of the daisy family which have tiny florets in their centres – for example Coreopteris, Leucanthemum and Gaillardia. You will notice a wide variety of flower shapes in our flower beds.
We hope our flower beds have inspired you to grow more pollinator-friendly plants in your own garden. There are hundreds of common garden plants and native plants to choose from that not only look and smell wonderful but provide desperately needed food for our pollinating insects.

For lots more information we recommend the following websites:-

Royal Horticultural Society: www.rhs.org  Invaluable plant lists - Three “Perfect for Pollinators” lists: Garden plants; Plants of the world; Wildflowers.

Bumblebee Conservation Trust: www.bumblebeeconservation.org (http://bumblebeeconservation.org/get-involved/gardening-for-bees)

Plantlife: www.plantlife.org.uk/wildflower_garden

Butterfly Conservation: http://butterfly-conservation.org/11908/gardening.html

The Pollinator Garden (Marc Carlton): www.foxleas.com/planting-for-pollinators.asp  Highly recommended website that is full of information about pollinators and plants based on detailed research, gardening experience and keen observation.

Buglife: www.buglife.org.uk/activities-for-you/wildlife-gardening

The Wildlife gardening forum: www.wlgf.org/wlgf_website_047.htm  Highly recommended organisation that promotes gardening for the benefit of all wildlife.

Bees for Development: www.beesfordevelopment.org  Visit Bees for Development’s unique bee-themed shop in Monmouth for information about bees and beekeeping in Monmouthshire and world-wide

Monmouthshire Meadows www.monmouthshiremeadows.org.uk  Working to ensure the good care, protection and understanding of these crucial habitats

The Bees, Wasps and Ants Recording Society (BWARS): www.bwars.com

The British Beekeepers Association:
www.bbbka.org.uk/learn/gardening_for_bees

The Welsh Beekeepers Association: www.wbka.com

Footnote
The Bee-Friendly Monmouthshire Eisteddfod displays were the result of a committed team effort. Our striking bilingual display panels were translated into Welsh by Eleri Straker and designed by ArtMatters of Abergavenny. The photographs were kindly provided by Maggie Ffos James (Butterfly Conservation) and Roger Ruston. Nicola Bradbear worked on the design for our new bilingual leaflet, translated into Welsh by Eleri Straker. Jon Prince constructed the raised beds and the display supports; Sue Harrison grew the plants and John Harrison helped with transport and planting; Ian Vicary liaised with the Eisteddfod team, organised the leaflet holders and the new bilingual garden signs and sowed the “Monmouthshire Mix” seeds for the display troughs. Monmouthshire County Council kindly displayed our leaflets and sold our seeds in the MCC Pavilion. Last but not least the
Abergavenny Community Dinner in October 2015 raised well over £300 which helped to fund this project.

A big Thank You to everyone who supported us.