

## AGRICULTURE

## Wild field edges keep yields up

Setting aside some farmland as wildlife habitat might not reduce crop yields.

Richard Pywell at the Natural Environment Research Council's Centre for Ecology and Hydrology in Wallingford, UK, and his team studied 56 fields at a farm growing wheat, oilseed rape and field beans over 6 years. Along field edges, 0%, 3% or 8% of the total cropped area was set aside as habitat for birds, pollinators and other wildlife. None of the crop yields in the three experiments decreased, despite the difference in crop area. In fields without any habitat set aside, yields at the edges were poor, whereas in fields with habitat margins, the wildlife seemed to boost yields by increasing the productivity per unit area.

For beans, the yield was 35% higher in the fields where the most land was set aside.

*Proc. R. Soc. B* 282, 20151740 (2015)

## DEVELOPMENTAL BIOLOGY

## Limb and phallus share gene circuits

Limbed animals use the same genetic elements to regulate the development of their limbs and genitalia.

Douglas Menke and his colleagues at the University of Georgia in Athens studied the genomes and embryos of mice, *Anolis* lizards and snakes (pictured). They found that



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in mice and lizards, many genetic regulatory elements are similarly active in the development of the limbs and the phallus. They also saw this pattern of activity in the external genitalia of the snake embryo (pictured, arrow).

Even though snakes lost their limbs during evolution, they probably retained the relevant genetic elements because of their importance for phallus development.

*Dev. Cell* <http://doi.org/743> (2015)

## HYDROLOGY

## Volcanoes change river flow

Tiny particles that are ejected into the atmosphere by volcanic eruptions can change the water cycle enough to alter the amount of water in nearby rivers for several years.

Carley Iles and Gabriele Hegerl at the University of Edinburgh, UK, looked at records of streamflow for 50 major rivers after volcanic eruptions dating back to 1883. Following an eruption, the amount of water flowing through the Amazon, Nile and other rivers in many tropical areas dropped for up to three years. In other areas, such as southwestern North America, streamflow increased.

Volcanic particles in the air reflect sunlight back into space, which cools the surface below, shifting patterns of evaporation and precipitation.

Water managers may need to plan for such interruptions, because of the importance of rivers for water supplies.

*Nature Geosci.* <http://dx.doi.org/10.1038/ngeo2545> (2015)

## CANCER

## How infection can cause leukaemia

Infection can trigger leukaemia in genetically susceptible mice, suggesting an environmental cause for the most common type of childhood cancer.

Children with precursor B-cell acute lymphoblastic leukaemia often have

## SOCIAL SELECTION

Popular topics on social media

## Campaign name draws criticism

Scientists generally laud attempts to get young people interested in careers in science, technology, engineering and mathematics (STEM). But an initiative to encourage girls to study science — launched by EDF Energy, a London-based power company — has met much scepticism and ridicule online, mostly because of the campaign's name: 'Pretty Curious' ([go.nature.com/irjijls](http://go.nature.com/irjijls)). Michelle Kline, an anthropologist at Arizona State University in Tempe, tweeted: "#Prettycurious would be a good name for a dress line that uses science prints. But not for #womeninscience where science comes first." The company responded to one critic by tweeting: "we deliberately chose the word 'pretty' to tackle the stereotype head on, #STEM careers should be accessible to all."

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mutations in the *PAX5* gene, which is involved in immune-cell development, but the mutations alone do not cause the disease. To see whether infection might be the trigger, Arndt Borkhardt at the University of Düsseldorf in Germany, Isidro Sanchez-Garcia at the University of Salamanca in Spain and their colleagues exposed mice with *Pax5* mutations to common pathogens. The mice developed cancer, whereas *Pax5* mutant mice kept in a sterile environment did not.

By sequencing tumour DNA from the diseased mice, the team found extra mutations — probably caused by infection — in genes encoding signalling proteins that help to regulate cell growth. Treating mice with molecules that inhibit these proteins lowered the number of cancer cells, suggesting a new avenue for treatment.

*Cancer Discov.* <http://doi.org/73j> (2015)

## PLANT SCIENCE

## Dung-like seeds dupe dung beetles

The seeds of a South African plant (pictured, top) trick dung beetles into dispersing



them by mimicking the appearance and odour of antelope faeces (pictured, bottom).

Jeremy Midgley at the University of Cape Town in South Africa and his colleagues observed dung beetles (*Epirinus flagellatus*) rolling seeds from the plant *Ceratocaryum argenteum* and burying them underground.

The authors then placed 195 seeds at 31 separate spots, and returned later to find that nearly half of the seeds had been dispersed.

Chemical analysis showed that the seeds emit volatile molecules similar to those in antelope dung.

The beetles had not nibbled on the seeds or deposited any eggs on them, suggesting that the insects are not aware of the deception until after they have planted the seeds. The beetles receive no apparent reward from this activity, the authors report.

*Nature Plants* <http://dx.doi.org/10.1038/nplants.2015.141> (2015)

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