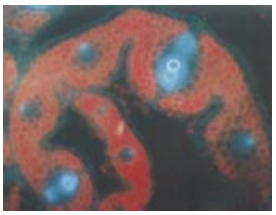
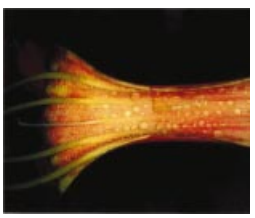
# Content*Snapshots*



### Leaf cell expansion in cereals

Treatments that affect leaf growth must do so through biophysical means at the cell level. **Fricke (pp. 157–167)** examines the growth zone of grass leaves, and proposes that the rate of water supply to peripheral cells is a likely candidate to limit growth. Bundle sheaths and aquaporin function have a key role in controlling this flow.



### Capacity of nectar secretion lost, and re-acquired during evolution

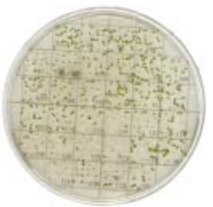
Most members of the Bignoniaceae offer nectar produced by a perigynous disc as a floral reward. A few derived genera, such as *Lundia*, which has a nectar-sterile disc, adopt an alternative strategy of attraction by deceit. **Lopes *et al.* (pp. 169–174)** demonstrate that during its history, at least one species of *Lundia* has returned to true rewarding, but by producing nectar from corolla-borne trichomes rather than from the perigynous disc.

### Root nodule structure

**Gross *et al.* (pp. 175–183)** examine the anatomy and ultrastructure of rhizobium-induced indeterminate nodules of a Brazilian savanna woody legume that produces xylopodia. The impact of rhizobium inoculation on the initial growth of the plant is also described.

### Re-sprouting in mallee eucalypts

Coppicing tree crops harvested on short rotations depend on vigorous rootstocks for continued success. **Wildy and Pate (pp. 185–197)** show *Eucalyptus kochii* is well adapted to repeated production of shoot meristems. However, over-frequent cutting results in a decline in productivity. This is linked to photosynthate starvation of rootstocks and consequential decrease in starch reserves.



### Phenotypic plasticity to flooding in arabidopsis

Flexibility in the face of environmental change is crucial for plant survival. **Pigliucci and Kolodynska (pp. 199–207)** show that although selection type and intensity change with environment, the overall structure of the arabidopsis phenotype remains the same.

### New DNA amounts (C-values) for pteridophytes

Although C-values are important biodiversity characters, data for pteridophytes remain scarce. **Obermayer *et al.* (pp. 209–217)** estimate C-values for 30 species, increasing the number by 93 % and doubling familial representation. C-values vary 450-fold from 0.16 to 72.7 pg. Superimposing data onto a robust pteridophyte phylogeny suggests possible trends in C-value evolution.

### Morphometry of Brazilian fly-pollinated orchids

Results of morphometric and phylogenetic analyses of five *Pleurothallis* species (**Borba *et al.*, pp. 219–230**) support the hypothesis of a previous allozyme study that floral similarities are due to convergence driven by similar pollination mechanisms. This indicates that floral traits may not be good indicators of phylogenetic relationships in this group.

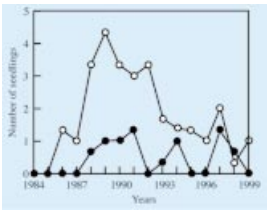
### Validity of *Musa* sections

As more *Musa* species are described, the delimitation of the current four sections of *Musa* breaks down as some new species cannot be placed on morphological grounds alone. **Wong *et al.* (pp. 231–238)** use AFLP to resolve the position of these species, and support the view that only two sections, sect. *Musa* (including sect. *Rhodochlamys*) and sect. *Callimusa* (including sect. *Australimusa*), should be recognized.

### Leaf mannitol content in response to drought

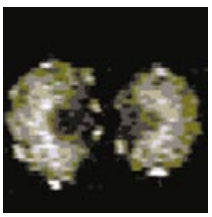
Mannitol is one of the compatible solutes that may accumulate under stress. **Oddo *et al.* (pp. 239–243)** show that leaf mannitol content of four deciduous and evergreen Mediterranean tree species differs throughout the seasons. When mannitol does accumulate, its occurrence is negatively correlated to rainfall.

*Continued overleaf*



### Litter, weather and seedling recruitment in woodland

The recruitment of seedlings has a marked effect on the local dynamics of vegetation within woodlands. **Dzwonko and Gawroński (pp. 245–251)** examine how inter-annual variation in seedling recruitment is related to fluctuations in air temperature and precipitation, and to what degree the spatial variability in seedling recruitment is determined by litter.

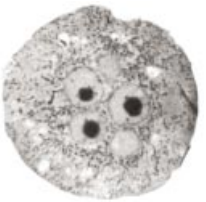


### Non-invasive localization of thymol

The fruits of many plants in the family Apiaceae accumulate essential oil in canals of the fruit wall. Using chemical shift selective MRI, **Gersbach and Reddy** (**pp. 253–257**) identify accumulation sites of thymol and other components from NMR images of *Carum copticum* fruits. The technique is non-invasive, and provides a significant advantage over conventional histochemical methods involving embedding, cutting and staining.

### Plants in geothermally heated soils

Little is known about flowering plants that have adapted to the extreme temperatures and soil conditions often found in Yellowstone's active geyser basins. **Stout and Al-Niemi (pp. 259–267)** survey the most common plant species in such environments and examine heat shock protein expression elicited by the prevalent high rhizosphere temperatures.

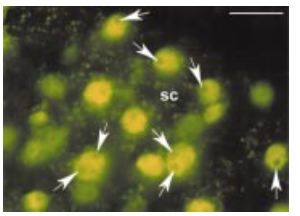


### Structural and ultrastructural analysis of protoplasts during diploid plant regeneration

Avoiding somaclonal variation is a prerequisite for producing uniform and genetically stable plants from protoplasts. Using diploid plants generated from a heterogeneous *Solanum lycopersicoides* protoplast culture, **Tylicki *et al.* (pp. 269–278)** perform structural and ultrastructural analyses of their development to help identify causes of somaclonal variation.

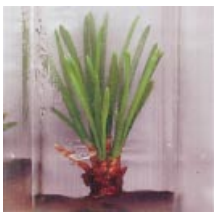
### Supplementary flowering induced by wet weather

In Mediterranean regions, longer than normal wet conditions can induce supplementary flowering of some species as an adaptation. **Ruiz de Clavijo (pp. 279–286)** shows that, in *Centaurea eriophora*, these secondary flowers develop from smaller than normal capitula and provide an additional crop of small but viable fruits. The response is seen as one that optimizes resources.




### PCD during maize embryogenesis

Programmed cell death is an integral part of development, both in animals and in plants. **Giuliani *et al.* (pp. 287–292)** demonstrate by *in situ* TUNEL assays and by genomic ladder detection that during embryo formation in maize, programmed cell death occurs at specific locations in time and space.



### Initiation of mature *Pinus sylvestris* in *in vitro* culture

Mature Scots pine is especially difficult to deal with in culture. **Andersone and Ievinsh (pp. 293–298)** show that morphogenic competence of pine buds can be improved by choosing the most suitable time for taking plant material or by using cold storage before introduction *in vitro*.