**Poultry manure (PM) must be disposed of from poultry farms, but is a potentially valuable source of macro- and micronutrients for plant growth. The objective of this study was to examine the effects of poultry manure on the growth of tomato (*Lycopersicon esculentum*) plants. Yields of fruits and vegetative material of plants grown in soil with 0, 10, 20 and 40 g kg$^{-1}$ PM added were measured. Concentrations of N, P, K, Ca, Mg, S, Fe, Zn, Cu, Mn, Mo, Cl, Si, Br, Rb, Sr and Ba in leaves at flowering and at final harvest and in fruits were determined by polarized energy dispersive X-ray fluorescence (PEDXRF). Poultry manure fertilization improved tomato shoot growth and also fruit yield and increased leaf N concentrations at the harvest stage. In addition, P concentrations of the leaves and fruits were increased as the application rate of PM was increased. Fruit Ca and Mg were significantly reduced by increased rate of PM application, but not to the extent to cause the calcium deficiency disorder blossom end rot. Applied high levels of PM slightly increased the concentrations of leaf Mo and Br at the harvest stage. Poultry manure applications had a positive effect on the concentrations of leaf Zn, Cu, Cl and Rb at both sampling stages, but leaf Si concentration was reduced by PM treatments. The concentrations of Zn and Rb were increased in the fruits by PM treatments, but the concentrations of Br were decreased. Applied PM levels had no significant effects on the concentrations of K, S, Fe, Sr or Ba in tomato plants. It is concluded that the increased fruit yield, and the increased concentration of Zn (an element required in the human diet) and the lowered concentration of potentially harmful Br in the fruit make poultry manure a valuable growing medium for tomato production (Demir, O. Sahin, Y.K. Kadioglu, D.J. Pilbeam and A. Gunes* (Ankara University, Faculty of Agriculture, Department of Soil Science and Plant Nutrition, TR-06110 Ankara, Turkey), *Scientia Horticulturae*, 2010, **127**(1), 16-22).**

**Carotenoids and flavonoids are the main tomatoes antioxidants, having an important role for human health. This study investigates the effects of different water regime and of the industrial processing on the concentration of these compounds in tomato fruits and in tomato products. Two biotypes of Corbarini small tomatoes were cultivated in the Sarno valley (Salerno, Italy) using three different water regimes. A biochemical characterization of the fresh and of the corresponding canned products was performed. Results show that water regime influenced the antioxidant profile of tomato fruits, with marked differences between the two biotypes. Data obtained highlight that water regime markedly influenced the productivity and the quality of the tomatoes. Results also demonstrated that industrial process increased carotenoids content without causing a significant flavonoids degradation [Rita Pernice, Mario Parisi, Italo Giordano, Alfonso Pentangelo, Giulia Graziani, Monica Gallo, Vincenzo Fogliano and Alberto Ritiieni* (Department of Food Science, University of Naples Federico II, Via Università 100, Parco Gussone, Portici 80055, Napoli Italy), *Scientia Horticulturae*, 2010, **126**(2), 156-163].**

**The course of delignification of *Eucalyptus globulus* fibers during neutral semi-chemical sulfite pulping (NSSC) was studied by universal microspectrophotometry (UMSP 80, ZEISS). UV-investigation into a cellular level enables the topochemical analyses of delignification within individual cell wall layers during cooking. Cooks were carried out in a laboratory seven liter digester with liquor circulation and electrical heating device. Chip samples were taken throughout the cooking for chemical and UV microscopic analyses. UV microscopy analysis revealed for *Eucalyptus globulus* chips a preferred lignin removal during NSSC**
cooking in cell corner and compound middle lamella regions [Mathias Rehbein*, Miguel Pereira, Gerald Koch and Othar Kordsachia (Institute of Wood Technology and Wood Biology, Federal Research Institute for Rural Areas, Forestry and Fisheries (vTI), Leuschnerstr. 91, 21031 Hamburg, Germany), Wood Science and Technology, 2010, 44(3), 435-449].

NPARR 1(4), 2010-0675, Exploratory study on the impregnation of Scots pine sapwood (Pinus sylvestris Linn.) and European beech (Fagus sylvatica Linn.) with different hot melting waxes

Scots pine sapwood (Pinus sylvestris Linn.) and beech (Fagus sylvatica Linn.) were impregnated with five waxes. The experiments indicate deep penetration into pine sapwood. Besides the viscosity, an influence of the wax polarity is presumed. Wax penetrates pine wood deeply via the cross-section, but not sufficiently enough to impregnate longer construction elements. However, the radial wax uptake exceeds the uptake via the tangential orientation and guarantees complete soaking of the sapwood tissue. The lateral wax penetration within beech is quite low and irregular. In addition to the temperature, a prolonged process procedure is decisive for an increasing wax uptake. As such, beech wood vessel elements seem to be fully impregnable via the longitudinal surface after a longer process procedure [G. Scholz, A. Krause and H. Militz* (Department of Wood Biology and Wood Products, Georg—August—University Göttingen, Büsgenweg 4, 37077, Göttingen, Germany). Wood Science and Technology, 2010, 44(3), 379-388].

NPARR 1(4), 2010-0676, Kernel regression methods for the prediction of wood properties of Pinus taeda using near infrared spectroscopy

Near infrared diffuse reflectance spectra collected in 10-mm sections were used for the estimation of air-dry density (AD), microfibril angle (MFA), stiffness (MOE), tracheid coarseness (COARS), and tracheid wall thickness (WTHICK) in wood radial strip samples obtained at breast height (1.4 m) from 60 Pinus taeda trees. Calibration models were developed using traditional partial least squares (PLS) and kernel regression. The kernel methods included radial basis functions-partial least squares (RBF-PLS) and least-squares support vector machines (LS-SVM). RBF-PLS and LS-SVM models outperformed PLS-CV calibrations in terms of fit statistics. MFA and MOE, two properties that exhibited nonlinearity, showed the most significant improvements compared to PLS. In terms of predictive ability RBF-PLS performed better than PLS for the prediction of MFA, MOE, and COARS. LS-SVM showed better prediction statistics in all cases, except for WTHICK that gave similar statistics compared to PLS and was superior to RBF-PLS. By adding statistically significant factors to the PLS regressions, it was possible to capture some of the nonlinear features of the data and improve the predictive ability of the PLS models [Christian R.Mora and LaurenceR Schimleck (Wood Quality Consortium, The University of Georgia, Athens, GA 30602, USA), Wood Science and Technology, 2010, 44(4), 561-578].

NPARR 1(4), 2010-0677, Thermoplastic flow behavior of steamed wood flour under heat and compression

In this study the thermoplastic flow behavior of steamed wood flour was investigated. First it was demonstrated that steamed Japanese beech flour flowed out of the nozzle under compression at high temperature in a thermal flow test with a capillary rheometer. The effects of the steaming temperature, steaming time, compressive pressure, and moisture content of wood flour on the thermal flow temperature were examined. It was shown that the higher the steaming temperature and compressive pressure, the lower the thermal flow temperature. Also, the thermal flow temperature of the sample steamed at 200°C for 20 min became lowest and increasingly higher over time. Furthermore, the thermal flow temperature became linearly low with increasing moisture content of the sample under 15%, whereas it became essentially constant over 15%. It is clarified that compressive pressure and moisture content as well as the steaming conditions profoundly affect the thermoplastic flow behavior of steamed wood flour [Isoko Takahashi*, Yasuo Takasu, Takanori Sugimoto, Youji Kikata and Yasutoshi Sasaki (Aichi Industrial Technology Institute, Kariya
CULTIVATION

NPARR 1(4), 2010-0678, In Vitro Clonal Propogation of Coleus forskohlii via Direct Shoot Organogenesis from Selected Leaf Explants

Present study provides an easy and efficient protocol for large scale clonal propagation of Coleus forskohlii, a threatened medicinal plant of commercial importance. Basal leaf lamina excised from upper three nodes of shoot was used as explant and its size, position, orientation and season of collection were initially optimized to select the most responsive explant condition. Enhanced shoot production and proliferation has been achieved on medium containing 2 µM BA + 0.1 µM NAA wherein, a highest number of 35 shoots/explant were produced. The regenerated shoots of varied length (3–5 cm) were transferred to root induction medium comprising of IBA, NAA and IAA (1–5 µM) in half-strength MS medium to determine the most suitable shoot length for proper root induction. Rooted plantlets were acclimatized in field conditions after proper hardening. Histological analysis was also carried out to confirm the nature of origin of shoot buds from leaf explants [Sahai Aastha and Shahzad Anwar* (Plant Biotechnology Laboratory, Department of Botany, Aligarh Muslim University, Aligarh, 202 002, Uttar Pradesh, India), Journal of Plant Biochemistry and Biotechnology, 2010, 19(2)].

NPARR 1(4), 2010-0679, Parthenocarpic fruit production in loquat (Eriobotrya japonica Lindl.) by using gibberellic acid

This study evaluates the effect of gibberellic acid (GA3) in inducing parthenocarpy in ‘Algerie’ loquat, as well as the optimum treatment conditions and associated techniques, hand thinning and ringing, to produce seedless fruit with high enough quality for fresh consumption. GA3 applied in the course of the phenological growth stages 504-508 of the BBCH-scale produced seedless fruits, with the magnitude of the response depending on the concentration applied and number of treatments. Percentage of panicles bearing seedless fruitlets significantly increased with increasing GA3 concentrations up to 100 mgl−1 and significantly and positively correlated with the number of treatments applied. Trees treated three times with 100mgl−1 developed more than 90% of panicles bearing almost 7 seedless fruits per panicle, which were smaller in size, drier and slightly acid but similar in TSS concentration and skin colour than seeded fruits from untreated trees. Fruit thinning to 3 fruits per panicle did not increase seedless fruit size, but ringing performed at the onset of cell enlargement stage, growth stage 702 of the BBCH-scale, significantly increased fruit size by 12-15%, depending on the year. Trees treated three times with 100 mgl−1 of GA3 and ringed produced 26kg, on average, of seeded fruit of suitable commercial quality [C. Mesejo, C. Reig, A. Martínez-Fuentes and M. Agustí* (Instituto Agroforestal Mediterráneo, Universidad Politécnica de Valencia, Camino de Vera s/n, 46022 Valencia, Spain), Scientia Horticulturae, 2010, 126(1), 37-41].

NPARR 1(4), 2010-0680, Soil and water conservation techniques in cashew grown along steep hill slopes

Cashew (Anacardium occidentale Linn.), the highest foreign exchange earning perennial horticultural crop in India is generally grown as a rainfed crop along steep slopes of hills or on neglected land unsuitable for any other crop. In India, cashew experiences severe moisture stress from January to May, adversely affects its flowering and fruit set. In order to harvest the rainwater and to make it available to the cashew plant during critical period, an in situ soil and water conservation experiment was conducted at Directorate of Cashew Research, Puttur, Karnataka, India during 2003-2010. This experiment was laid along contour with five treatments namely, modified crescent bunds, coconut husk burial, reverse terraces, catch pits and control plot without any soil and water conservation. Among the treatments, modified crescent bund and coconut husk burial were superior. These two treatments reduced the annual