

post-germination experiment. The seedlings were irrigated every third day with: 250 mg-liter⁻¹ solution of ASA, Captan (N-trichlorometilto) ciclohex-4-eno-1,2 dicarboximida) (2 g-liter⁻¹) and water. The application of ASA and Captan allowed a higher growth rate (0.73 and 0.70 mm-day⁻¹, respectively); the application of ASA decreased the number of leaves in contrast with the other treatments. The fresh weight of plant showed the highest values using Captan in the irrigation water (596.0 mg) followed by irrigation (249.5 mg) and finally irrigation with ASA (59.4 mg). The results showed that the application of ASA as pre-germination treatment increased the rate and percentage speed of germination, while in post-germination stages the effect was not favorable for both cultivars

S18.254

The Effect of Spiral Girdling on the Fruit Setting and Development of Young Litchi Trees

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Nuomici and Guiwei litchi young trees were tend to shy- or even non-bearing and the poor fruit quality. The authors carried out the trunk spiral girdling experiment during early flower bud differentiation consecutive six years, using the 3-year litchi trees as the experimental materials. The girdling width is 4mm, angle 16-19°, circle 1.2-1.8. When harvesting the fruits, the wound healed basically. The results showed as the following: during the reproductive growth, the spiral girdling at appropriate time and degree, had the significant promoting effects on flower formation, fruit setting, crop yield and quality. Young trees of cvs. Nuomici and Guiwei showed vigorous root and shoot growth during the physiological fruit drop period, but the root and shoot growth were significant reduced by spiral girdling. The spiral girdling was beneficial to the fruit to get the advantage in the competition with the root and shoot growth, so is good for the fruit setting and development.

S18.255

Dynamic Growth and Development of Banana (*Musa* AAA Simmonds cvs. Gran Enano and Valery)

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Banana is the first fruit for exportation in Colombia generating considerable currencies and employment, for this reason the study of the development and growth dynamics contributes to maintain its productivity and quality. The aim of this work was to study and to analyze the dynamic of the dry matter accumulation and its partition. An experiment was done in Urabá, Colombia during September 2003 to June 2004 where monthly measures of dry matter and foliar area were done in three plants of each variety: Gran Enano and Valery. For each variety, growth curves were fitted to dry matter and the leaf area index (IAF) was calculated to derive net assimilation rate (NET), relative growth rate (RGR) and crop growth rate (CGR). Sigmoid logistic curve was fitted to dry matter and Gaussian curve to leaf area. After two months of sowing, Gran Enano variety accumulated more dry matter than Valery and also had less duration of the reproductive phase. Dry matter difference was caused by the accumulation in bunch and pseudostem. At the end of the experiment, the difference was near 1 kg. Both materials needed to make around 3.000 g of dry matter in order to finish the reproductive phase and begin the productive one. Corm was the main source of assimilates during the growing season, although the pseudostem was also an important source after the first phase of growing and development. Close to development phase of floral differentiation, the greater values of (IAF), (NET), (RGR) and (CGR) was found. After flowering phase a second peak of the below indexes was established as a result of the fruit growing which reached around 50% of the total dry matter at the harvest time. Results found allow to understand physiological changes during the growing season and to determine their influence over productive performance.

S18.256

The Importance of Raising Pollinators for Assuring High Mango Yield

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Pollination is essential for fruit set in mango. Pollination in mango is mainly entomophilous. It has been argued that pollination is inadequate in the mango and it is just possible that more adequate pollination may result in a better fruit set. However, the raising of pollinators had not been tried in the commercial mango production. Insufficient pollinators result in low fruit set and low yield which is a constraint for mango production. Subtropical Taiwan expanded mango plantation during 1950s and 1960s. More than 20 mt/ha of fruits were harvested initially but decreased to less than 50% of the original yield after one or two decades of planting. Low temperature during anthesis period, mutual tree shading, or abnormal mineral nutrition was argued to be the cause of the crop failure. Several methods had been tried to increase fruit set but without success. Finally the raising of pollinators, green-bottle fly (*Chrysomya megacephala*), in the commercial mango orchard during flowering period increased the yield significantly from less than 10 to 25-30 mt/ha in late 1980s. Since then fruit thinning has been practiced annually in this orchard and fruit yield has always maintained at this high level. These results suggested that the native pollinators decreased dramatically due to the clearing of wild habitat for mango planting and the frequent application of pesticides. Also, the raising of pollinators is essential for assuring good fruit set and high yield of mango in places like Taiwan. Appropriate species of pollinators for mango pollination must be urgently studied because green-bottle fly may disseminate infectious diseases. It is interesting to note that few honey bees were observed visiting mango flowers in mixed plant stands.

S18.257

Potencial Use of Cashew Tree (*Anacardium occidentale* L.) as Raw Material for the Pulp Industry

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The Northeast region of Brazil has a planted area with cashew estimated in more than 680,000 ha, where about 90% of the orchards are composed of common cashew type, with low productivity. In the next three years will be recovered about 15,000 ha of these orchards, using the technique of topworking. This represents a supply of approximately 1.2 million m³ of wood, besides the quantity produced in the annual pruning of the plants. The main use of this biomass is as fuelwood. However, it is possible to use this raw material in other purposes with higher value added. The objective of this study was to characterize the wood of cashew tree, to know about its chemical composition and to evaluate its utilization in the pulp industry. In this work, 15 samples of wood and bark were collected, from three different positions, in five common cashew trees, in the Experimental Field of Embrapa Tropical Agroindustry, in Pacajus / Ceará / Brazil. The samples were sent to the Laboratory of Pulp and Paper from Institute of Technology Research (IPT), where were made the analysis of lignin (soluble and insoluble), total extracts and holocellulose. According to results of chemical analysis and comparison with the literature, it was found that individuals of the species *Anacardium occidentale* L. presented similar results to clones of Eucalyptus. For wood, the average content of holocellulose was 78.62%, lignin 20.46%, total extractives 0.92% and ash 0.99%. For the bark were found 70.08%, 29.31%, 0.61% and 2.64%, respectively. These results show that there is potential use of these species, especially the wood, for use as raw material for the pulp industry. However, further studies of this species planted in different geographic regions are recommended to make sure the potential of the cashew tree for the pulp industry.