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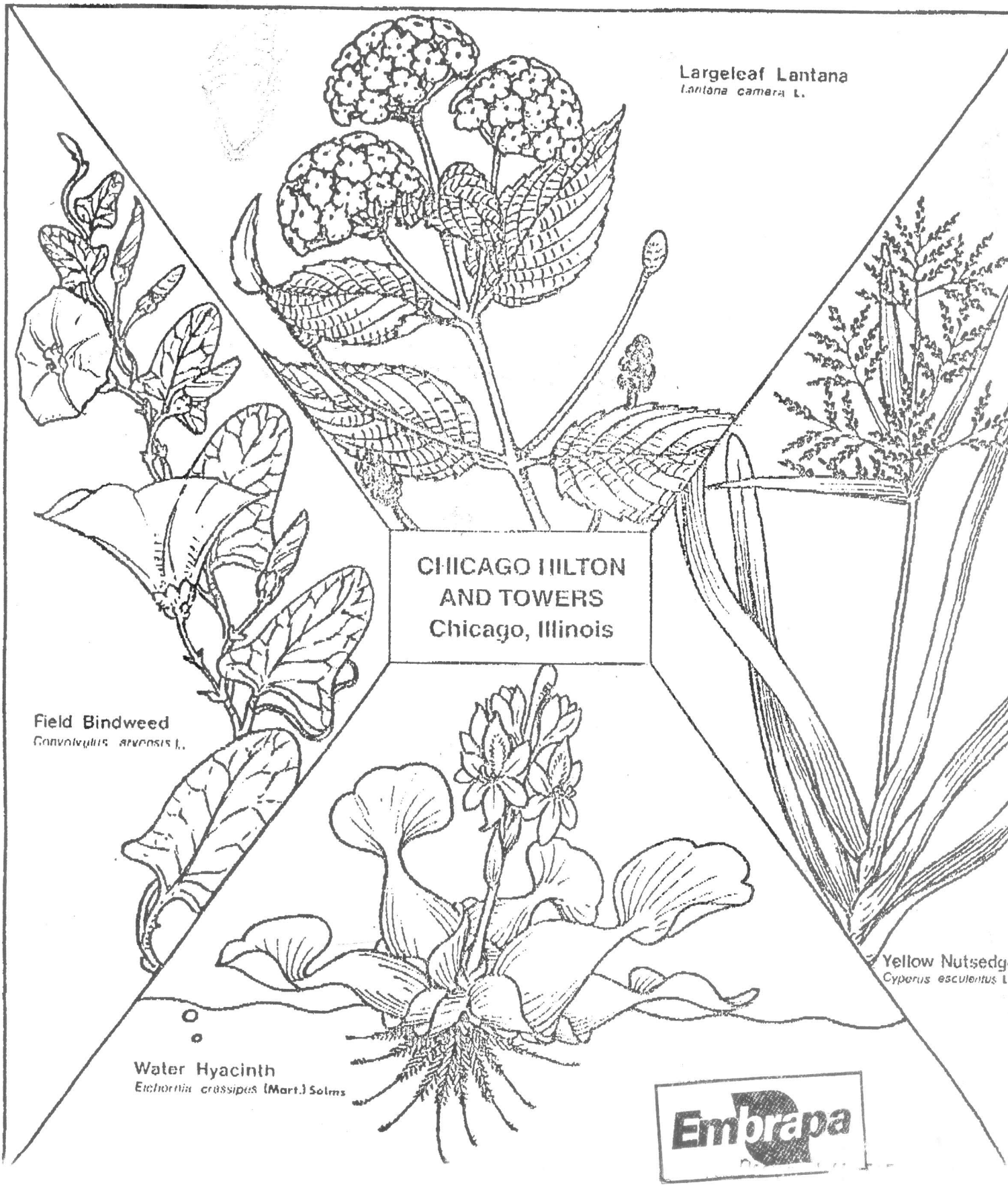

4.4 Growth and nutrient uptake by tropical soda apple (*Solanum viarum* Dunal). S. Bianco, Robinson A. Pitelli*, P.A. Bellingieri, University of the State of Sao Paulo, Jaboticabal, SP, Brazil, J.J. Mullahey, and R. Charudattan, University of Florida, Immokalee and Gainesville.

Tropical soda apple (TSA), native to Brazil, is spreading at an alarming rate in Florida and the nearby states. It is one of the most important weeds in pastures in the southern region of Florida. In order to evaluate its growth and nutrient uptake potentials, a study was carried out in Brazil in which the plants were grown in sand-filled, 10-L pots and irrigated daily with Hoagland's solution. Plant biomass and nutrient concentration were evaluated every 21 days, from the 28th day after plant emergence. On average, the leaves contained the highest concentrations of N, Ca, and Mg, and the fruits contained the highest P and K concentrations. The highest level of S was found in the roots. Throughout the life cycle, TSA plants contained nutrient concentrations varying between 0.69-1.62% N, 0.13-0.36% P, 1.66-3.64% K, 1.12-2.13% Ca, 0.46-0.57% Mg, and 0.11-0.24% S. In adult plants, during fruit-set, most of the dry matter was in the stems and fruits. Most of the N, P, and K were partitioned into leaves and fruits, Ca and Mg into leaves and stems, and S into roots and stems. The maximum accumulations of dry matter (537.98 g/plant), K (11.82 g/plant), and S (1.19 g/plant) occurred at the 31st week. Maximum levels of P (1.14 g/plant), Ca (7.49 g/plant), and Mg (2.7 g/plant) occurred at the 28th week. Maximum N accumulation (4.52 g/plant) occurred at the 37th week.

4.5 Tropical soda apple (*Solanum viarum*) control as influenced by frost and herbicides. P. Mislevy* and F. G. Martin, University of Florida, IFAS, Ona and Gainesville.

Tropical soda apple (TSA) is a perennial broadleaf weed that is spreading across Florida and other southeastern states at a rapid rate. Within the last seven years 200000 ha or 17% of Florida's improved pastures, in addition to numerous hectares of sugarcane and vegetable fields, citrus groves and state lands, have been infested with this weed. Earlier studies indicate excellent control of adult TSA can be obtained, provided plants are mowed to a 7.5 cm stubble, allowed 60 d regrowth, then followed by herbicide treatment. The purpose of these experiments were to utilize the frost (0 °C) and save the cost of a mowing. Two randomized complete block experiments were conducted during 1996 and one experiment in 1997. Herbicide treatments consisting of triclopyr (0.56, 1.12, and 0.56 + 0.56 kg ai/ha 30 d sequential), hexazinone (0.56 and 1.12 kg ai/ha) and 2, 4-D ester (2.24 and 3.36 kg ai/ha) were applied to the regrowth of adult TSA plants 60 d following the last frost. An organo silicone adjuvant was applied with each herbicide treatment at 0.03% v/v. Results from both the 1996 and 1997 experiments indicate >96% adult TSA control were obtained when triclopyr was applied in a single application at 1.12 kg ai/ha or at 0.56 + 0.56 kg ai/ha 30 d sequential. Hexazinone applied at 1.12 kg ai/ha resulted in >95% control for both years. Utilizing the frost to kill photosynthetic material, can replace a mowing treatment at a savings of $25/ha.

4.6 The use of glyphosate as a tool in tropical pasture renovation systems. L.C. Balbino, Embrapa CNPAF, L.A. Bonamigo, L.L. Foloni*, UNICAMP/FEAGRI, M.J. Scalea, Monsanto do Brasil.

Degradation of tropical pastures tend to be a consequence of depletion of soil fertility, caused by continuous nutrient extraction by livestock, low levels of fertilizing practices and severe losses through leaching and/or runoff. Conventional systems of pasture renovation adapted by traditional ranchers, is now under severe restrictions due to intensive labor, equipment and time requirements, besides negative impact to environment. As most of tillages are needed just to kill existent perennial grasses used as forage (mainly *Brachiaria decumbens*), we can consider the use of Glyphosate an interesting alternative to replace those tillage operations, under the concept of a No Till Pasture Renovation Systems. No Till (NT) process encompasses a four step program as listed below: 1 - Soil sampling to determine fertilizer requirements for, at least, five years of grazing, and the presence of compaction layers underneath (October/December); 2 - Broadcast application and incorporation of lime, if needed (October/January); 3 - Broadcast application of Glyphosate to kill established grasses and weeds (November/January); 4 - Planting of an intermediate crop (usually pigeon pea, pearl millet or silage sorghum), and at the same time and operation, the new forage is planted too (November/February). Depending on the Intermediate crop and the time of the season, new pasture is able to receive cattle from 50 to 100 days after planting, meaning at least 250 days of time savings when compared to conventional systems. Evaluations enable us to conclude that: a) former forage grass (*Brachiaria decumbens*) was effectively eliminated by the process; b) weeds were also effectively suppressed by the system; c) no till process provided a successful implantation of new forages; d) well established forages, lack of competition from weeds and adequate fertilization provided an excellent level of dry matter production; e) live weight gain: 17,8%; when evaluated at "per ha" basis, this difference was astonishing, meaning a 721% increase.