

Toward fruit exploitation based on rainfed conditions or with a low water supply in the Brazilian Semi-arid region

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The Brazilian semi-arid region (BSA) comprises an area of around 900,000 km². The fruit exploitation has been done in irrigated fields, in an estimated area of 600,000 ha. It has been estimated that the potential irrigated area in the BSA is around 2.0 million ha, due to competition to generate electricity and to supply cities with water. On the other hand, it has been identified around 300 species endemic or sub-endemic to the BSA environment, some of them are native fruits species with specific or unique xerophytic mechanisms, which enable a long-term fruit production in the cyclical year water stress or deficit. Indeed, some species have the ability to flower before the first rainfall, showing a complete adaptation to the BSA environment. Some approaches have been pursued by the Embrapa Semi-Arid researchers, at Petrolina, state of Pernambuco: 1) expedition and collection of germplasm, pre-breeding and crop management of native fruits in order to establish managed fields of a specific species; 2) exploitation of a native species as rootstock of another species of the same genus in order to diversify and to increase the option of cultivation of non-water tolerant species; 3) eco-physiological studies to improve crop management and to help future genomic dissection of some xerophytic mechanisms. The overall expected results should be a 2 to 3-fold increase in the potential irrigated area, improving livelihoods through a sustainable fruit production in the poorest region of the country.