



# IX International Congress on Cactus Pear & Cochineal

*"CAM crops for a hotter and drier world"*

COQUIMBO - CHILE 2017

Book of Abstract and  
Symposium Program





## WELCOME

Dear colleagues, On behalf of the International Society for Horticultural Science (ISHS) and FAO-ICARDA International Technical Cooperation Network on Cactus, the University of Chile honored to receive you at the **IX INTERNATIONAL CONGRESS ON CACTUS PEAR AND COCHINEAL “CAM crops for a hotter and drier world”** and the **General Meeting of the FAO-ICARDA International Cooperation Network on Cactus Pear and cochineal (CACTUSNET)**, in **Coquimbo, Chile, March 26<sup>th</sup> - 30<sup>th</sup>, 2017**.

The University of Chile, with Dr. Fusa Sudzuki as convener, organized the II International Congress on Cactus pear and Cochineal which was hosted in Santiago in 1992. This special opportunity for hosting the IX<sup>th</sup> congress, allows us to bring back the congress to Chile, one of the few countries worldwide where cactus pear fruits (“tunas”) are commonly consumed and form part of the traditional diet. Many things have changed during these 25 years: Chile has consolidated as one of the world leaders in the fresh fruit export industry and, regarding cacti, new CAM-crops (eg. “Copao” [*Eulychnia acida*], pitahaya) are being developed. And the use of *Opuntias* as a source of fodder and energy has grown in the country.

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Now we have the opportunity to share these new developments with the international Cactus community in the beautiful city of Coquimbo, at the southern margin of the driest desert of the world (Atacama) along the Pacific coast and at the feet of the Andes mountain range. The city is surrounded by valley oases which host a third of the Chilean cactus pear growing area. It shall be our pleasure to welcome you back in Chile.

## THE CONVENERS

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IX INTERNATIONAL CONGRESS ON CACTUS PEAR AND COCHINEAL  
“CAM crops for a hotter and drier world”  
Coquimbo, Chile, March 26th - 30th, 2017



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**Edition Book of Abstract**

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Facultad de Ciencias Agronómicas (IHB)

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## SESSION 7: Rural development and marketing

### CACTUS CROP (*OPUNTIA FICUS-INDICA*) TO REHABILITATE RANGELANDS IN SEMI-ARID REGIONS OF TUNISIA

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The area of rangelands in Tunisia is estimated at 4.5 million hectares, or 27.4% of the total area of the country. Currently rangelands contribute 10 to 25% of livestock feed requirements, compared to 65% in the sixties, reflecting the important rangeland degradation and loss. The latter is estimated at about 6,100 ha per year. The area of rangelands affected by severe erosion is estimated at 1.8 million ha. Direct factors are responsible for the loss / degradation of rangelands as rangeland cropping, illicit wood collection, overgrazing and climate change. Among the underlying causes of rangeland degradation are mutations of pastoral systems, the complexity of the land tenure, inappropriate development policies and regulations.

A national strategy of rangeland rehabilitation was launched by the Tunisian Ministry of Agriculture in 1990 and included among others shrubs (*Atriplex*, *Acacia*) and spineless cactus (*Opuntia ficus-indica*) plantations at large scale. This strategy is implemented by the Office of Livestock and Pasture (OEP) focusing on private rangelands and following an innovative approach. A contract is established between OEP and farmers where the role of each partner is clearly specified. OEP provides the cactus pads and the equivalent of 70 \$ US per ha as incentives to cover costs related to planting. This amount is given under the form of improved technologies such as urea treatment of straw, feed blocks etc. In addition, OEP provides technical assistance to farmers. As soon as planted the plot is put under rest for 3 years where grazing is banned; farmer is committed to protect and to take care of the cactus crop including supplemental irrigation if needed. Depending of the climate aridity, cactus is planted in rows spaced 5 to 15 m and 1 m between pads. Thus the planting density varies between 1000 and 8000 pads per ha. From 1990 to 2016, 142,000 ha of rangeland have been improved used spineless cactus. Non improved rangelands produce 0.2 to 0.5 tons dry matter per ha as feed. After cactus plantation, the feed biomass increases to 6 to 12 tons dry matter per ha. In addition to this significant increase of forage production, other benefits should be included such as fruit production for self-consumption or sale, reduction of soil erosion, improvement of biodiversity, shelter for wildlife, and carbon sequestration.

**Keywords:** Semi-arid, rangeland improvement, forage production, Tunisia, improved technologies, rangeland contribution





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