

THE TECHNOLOGIES OF COEXISTENCE WITH THE SEMI-ARID ENVIRONMENT IN RESEARCH, TEACHING AND EXTENSION^{1*}

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108

Abstract: The following report provides a series of studies carried out in the semi-arid environment by researchers involved in the Semi-Arid Research and Extension Network, registered on the CNPq platform and which develops its research with the support of development agencies at the federal and state levels. , which we quote: CNPq N° 4/2021 - Study of soil erosion based on the relationship relief x soil x water through the use of hydrogel polymers. NOTICE CAPES 1931097 - Agroindustry in the Semiarid Region. Sup project: Biotechnology applied to animal health and production in the semi-arid region. Public Notice FUNCAP 02/2019 - Education, Technologies and Coexistence Techniques in the Semi-Arid Environment. CNPq Science Fair Notices: 2012, 2017, 2018

Keywords: social technology; semiarid; sustainability

AS TECNOLOGIAS DE CONVIVÊNCIA COM O AMBIENTE SEMIÁRIDO NA PESQUISA, NO ENSINO E NA EXTENSÃO

Resumo: O relato a seguir propicia uma série de estudos realizados no ambiente semiárido através de pesquisadores envolvidos na Rede de Pesquisa e Extensão do Semiárido, cadastrada na plataforma do CNPq e que desenvolve as suas pesquisas com apoio de órgãos de fomento em nível federal e estadual, os quais citamos: CNPq N° 4/2021 - Estudo da erosão do solo com base na relação relevo x solo x água através do uso de polímeros hidrogel. EDITAL CAPES 1931097 - Agroindustria no Semiárido. Sup projeto: Biotecnologia aplicada à saúde e produção animal na região semiárida. Edital FUNCAP 02/2019 – Educação, Tecnologias e Técnicas de Convivência no Ambiente Semiárido. Editais Feira de Ciência do CNPq: 2012, 2017, 2018

Palavra-chaves: tecnologia social; semiárido; sustentabilidade

Technical report:

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The project “Coexistence Technology with the Semi-Arid Environment” involves research, teaching and extension actions and aims to study, develop and disseminate social technologies that enable the sustainable use and harmonious coexistence of communities with the semi-arid environment.

In the context of research, it develops the Projects: Biotechnology applied to health and animal production in the semi-arid region: Production of hydrogel based on rice husk ash and its use in fodder cultivation and for the conservation of Ceará semi-arid soil and the Implantation Project of Soil Conservation Techniques in an Agricultural Community of Sobral/CE



Hydrogels are polymers with the potential to increase water storage in semi-arid soils; reduce the water stress of plants and

contribute to the reduction of soil erosion.



During the research, the retention potential of the isolated polymer and when applied to the soil were evaluated in the laboratory and in a greenhouse.

Experiments with the hydrogel in the field aim to evaluate its direct effect on the production of forage species; in the generation of runoff and soil losses.



The construction of level stone cords has represented an alternative to sediment retention and the natural stoniness of the soil. The viability of this technique is such that it was expanded to non-experimental production areas, which shows the performance of the project also in

extension.



In the town of São Domingos, in Sobral, Ce, specifically in the community production site, experiments are being implemented comparing soil losses between areas with contour planting; with stone cords, and conventional management.

Among the methodologies used to determine soil losses are erosion plots and erosion pins.



110



In the same place, sustainable crops are developed, supported by social technologies such as: PAIS system

– Sustainable Integrated Agroecological Production and cultivation in Mandalas.



The project also operates in research integrated with teaching and extension, where it monitors social technologies such as: plate and runoff cisterns, underground dams and biodigesters.

The cisterns guarantee the storage of drinking water for family supply and for food production during the dry season. With this, they contribute to water and food security in the semi-arid region.



Underground dams make it possible to store rainwater within the soil profile and use it for irrigation of agricultural and forage crops, being considered an effective instrument for complementing water needs in regions with a semi-arid climate.



The Biodigesters generate the biogas that ensures food is cooked in the homes of many low-income families in the semi-arid region. The gas is produced from the fermentation of organic matter from animal husbandry waste. In addition to being cheap, the technique is sustainable and reduces the removal of firewood from native vegetation areas.



In teaching, the presentation of models representing the aforementioned social technologies during classes, lectures and events, enables the dissemination of this knowledge among public school students, educational institutions and the community in general.



112

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