INTERACTION OF SPACE RADIATION WITH AGRICULTURE ON THE MOON. Dr. U. Guven[1] and E. Goel[2], [1]UN CSSTEAP, United States (drguven@live.com), [2]University of Petroleum and Energy Studies, India (enagoel269@gmail.com).

Introduction: The Moon has been a celestial body of immense interest since the Luna 2 landed on it in 1959. Experiments, findings and our understandings about the Moon have long persuaded scientists for colonization plans on the Moon. With the Chandrayaan mission, we have even come to discovering presence of water on the Moon. Devoid of atmosphere, the Moon is mostly vacuum and funds a channel for the Galactic Cosmic Radiations (GCR) and the Solar Energetic Particles (SEP). These radiations have drastic impacts not only in the region above the surface but also deep into the soil of the lunar crust. The effects of these radiations need to be addressed in order to establish an agricultural layout to support colonization missions on the Moon. Since the Moon has no magnetic field, there is no magnetic blanket or channel to deviate the solar radiations. This has affected the regolith to depths. This paper proposes to understand the effects of GCR and SEP on the plants and agriculture which is the primary step to colonization at any celestial site. Light is an important ingredient for this process and looking at the albedo on the lunar regolith, a smart balance in exposure as well as shielding of plants against the sun's rays is critical to understand. This paper is dedicated to achieve this understanding in order to aid plantation missions on the moon. This endeavor shall encourage smart manifestation of solar technology for settlement missions on celestial spheres.

GCR and SEP: These are the energetic charged particles travelling at a fraction of the speed of light. They are much faster than the ambient particles in space plasma [3]. GCR are remnants of a supernova and contain various element ions and high energy gamma rays. "SEP" refers to protons usually. They are born are the flares and coronal mass ejections in the Sun. They have severe effects on biological, satellite and other systems. The flux and hence effective dose rate on the Moon from these sources in space are about half of that in deep space due to the self-shielding by the Moon [2].

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