**Cellular integration in Cultivation**

**ABSTRACT**

Sensors present in the current time usually monitors parameters at the macro-scale like soil moisture and light intensity. But cellular parameters like nutrient deficiency of soil, pathogen invasion in both plants and livestock and resistance to extreme environmental conditions are forsaken.

To solve this, **Bio chips** can be indulged in *Smart Farming system.* Biochip capsules can be scattered under soil in farm. They consist of organic nano- fragments attached to the surface which are in direct contact with transducer. Bio reporter secrete enzymes or synthesize protein to express reporter function on stimulus like luminescence that can be detected. Transducer converts these signals and analyse interaction into measurable radio signals which can be collected by reader and uploaded on central database on cloud. After proper investigation farmers can be instructed via SMS or alert about the results and the measures necessary.

Bio chips capsule size is very small that it can be installed under the skin layer of livestock, which can be also be used in livestock tracing. It can also be used in precise drug delivery in specific area of body and at specific times for better treatment. Types of bio chip are Electrochemical micro-array and GMR and MJT micro- array. The later prove even more beneficiary as they are fast, economical, user-friendly and of acceptable high sensitivity.