



CSIR BIODEGRADABLE MULCH FILMS



science, technology
& innovation

Department:
Science, Technology and Innovation
REPUBLIC OF SOUTH AFRICA



CSIR
Touching lives through innovation



In a world grappling with environmental concerns, a groundbreaking innovation is set to transform agricultural practices. Scientists at the Council for Scientific and Industrial Research (CSIR) have developed biodegradable mulches, an eco-friendly alternative to conventional plastic mulches.

This advancement is expected to mitigate environmental pollution while enhancing agricultural productivity.

TYPES OF BIODEGRADABLE MULCH FILMS DEVELOPED

The CSIR research team has developed three types of BDMs tailored for different crop lifespans:

- **Short-term crops:** Designed for crops with a lifespan of one to three months.
- **Medium-term crops:** Suitable for crops with a lifespan of up to nine months.
- **Long-term crops:** Intended for crops that last more than a year.

Industrial manufacturability has been demonstrated, and field trials in South Africa and Ghana are now underway to assess the films' efficiency.

BENEFITS OF THE SOLUTION

The AgriBioMulch BDMs offer several advantages:

- **Full biodegradability:** The films degrade into biogenic CO₂, water and biomass, addressing microplastic pollution.
- **Soil regeneration:** The degradation process enriches the soil with organic matter.
- **Tailored solutions:** BDMs are designed for specific crop lifespans, ensuring optimal performance.

TRIALS AND TESTING

The CSIR is conducting trials to evaluate the performance of BDMs in the field, including the feasibility of a reuse model for long-lasting BDMs. These trials aim to gather data on factors such as crop productivity, weed control, mechanical integrity of BDMs, and the environmental conditions necessary for biodegradation at the end of the crop lifecycle.

The full biodegradability of BDMs ensures that they do not leave toxic residues in the soil.

TARGET BENEFICIARIES

Farmers utilising mulch films to enhance crop yield through weed control, water retention, reduced herbicide use, and prevention of soil erosion will benefit from this solution.

BUSINESS OPPORTUNITY

The AgriBioMulch Project is seeking partnerships with manufacturers of key raw materials and commercialisation partners to bring the technology to the market. Additionally, the project is looking for funding partners to support field trials across various product categories and environments.





WORK WITH US:

FOR TO EXPLORE PARTNERSHIP OPPORTUNITIES, PLEASE CONTACT:

DR VINCENT OJJO - Research Group Leader and Principal Researcher:
Advanced Polymer Composites | CSIR Future Production: Chemicals

✉ vojjo@csir.co.za

☎ 012 841 3360

📍 CSIR, 1 Meiring Naude Road, Pretoria

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