

## **Managing Straw Residue Without Burning**

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### **Introduction**

Managing straw residue with fire is an effective tool for growers. However, as tourism thrives and drought becomes more prevalent, increased restrictions and negative publicity surround open field burning. With so many limitations on burning, both legal and weather, it is not unlikely that there will be times when burning fields to control straw residue will not be possible. Therefore, it is imperative that growers have effective and economical alternatives to burning available for straw residue management in fields. Many products are available to producers that claim to aid in residue degradation yet no research is available to validate their efficacy for straw residue management. This project will evaluate straw residue management alternatives in comparison with burning to determine whether these microbial products or other management practices are suitable replacements for burning straw residue.

### **Materials and Methods**

This project is currently being conducted in the greenhouse located at the Central Oregon Agricultural Research Center in Madras, Oregon. The experimental design is a randomized complete block design with three replications and the following treatments:

1. Control (no treatment)
2. Burned
3. N added (60 lb N/a as Urea), watered, not incorporated into soil
4. N added (60 lb N/a as Urea), not watered, not incorporated into soil
5. Accomplish (Loveland Products, Inc.), watered, not incorporated into soil
6. Accomplish, not watered, not incorporated into soil
7. BioDigester (Tainio Technology and Technique, Inc.), watered, not incorporated into soil
8. BioDigester, not watered, not incorporated into soil

Soil was placed into 41 x 58 cm (16 x 23 in) trays to a depth of 5 cm (2 in) and watered to 30% moisture. Trays with soil were weighed and weights of soil recorded. Each tray has grass straw residue placed on the soil surface equivalent to 1 ton of residue per acre. Initial weights of soil plus residue will be recorded so that any change in weight can be determined. Treatments will be evaluated (visual observations, weights) for 90 days for residue degradation. Visual measurements will be conducted using SamplePoint software for residue cover comparisons at the start of the experiment and at the end. At the end of the 90-day monitoring period, final tray weights and residue measurements will be recorded and the results analyzed using a mixed model and LSD for means comparisons. Due to space restrictions in the greenhouse, the wheat residue experiment will be carried out at the completion of the grass residue experiment.

### **Expected Results**

It is anticipated that this project will provide guidance for grass seed and wheat growers for the use of microbial products or N fertilizer to aid in the breakdown of straw residue without burning. This study will help elucidate viable alternatives to burning that should be explored further in field trials to maximize the utility for growers.

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