

Strip Tillage Project

Long-term conventional tillage practices which involve plowing and multiple soil disking in New Mexico have led to very low soil organic matter levels and accelerated wind and water erosion on many farmlands. Reducing tillage is therefore critical to building up of the soil organic matter, reducing erosion and enhancing sustainability of farm lands in the irrigated, arid Southwest. Strip tillage limits soil disturbance to the area of the seedbed, leaving the spaces between the seedbed undisturbed. Apart from soil conservation benefits of strip tillage, the cost of fuel and time for tillage is greatly reduced compared to conventional tillage. Current research have shown that though the corn yields were slightly less in strip tillage compare to conventional tillage, but strip tillage still outperformed conventional tillage in net income after deducting tillage costs. Net income from the strip tillage was about \$20/ac more than in the conventional tillage.

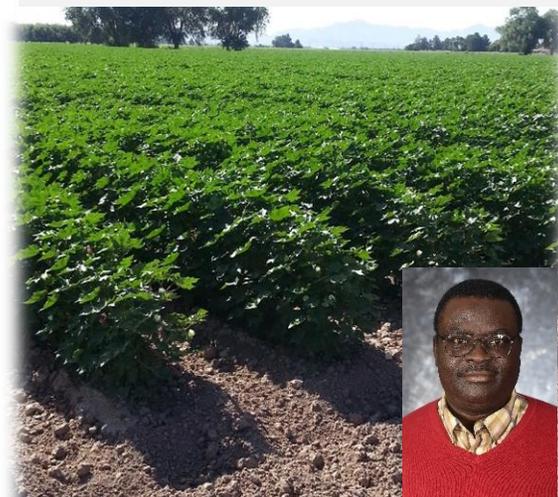
Amending Soils with Biochar

Research is ongoing in which biochars of agricultural biomass wastes such as pecan shells, pecan husks, pecan wood trimmings, cotton gin trash are applied to the soil for soil health improvement. These materials could prove as potential sources of soil organic matter, thus reducing degradation and erosion of agricultural soils and also supplying nutrients for crop growth. Preliminary results show that some of these biochars have significant positive impacts on soil quality but their effects vary with the texture of the soil.



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Integrated Field Crop Production and Management



Mission Statement

Integrated field crop production and management extension program addresses the educational needs of producers across a wide spectrum of stakeholders, ranging from large scale producers to small scale and home gardening clientele. Specifically, needs of growers, extension educators and consultants are addressed through the provision of relevant information related to crop and soil management in New Mexico.

Program Areas

- Field crop management (Cotton, Corn)
- Soil health assessment and management in agricultural systems
- Sustainable crop production systems (including organic agriculture)
- Tillage management of agricultural soils
- Soil amendments using agricultural waste biomass



Strip Tillage Field

Achievements

- Development and management of gossypol-free (glandless) cotton in New Mexico
- Identifying critical indicators of soil health in arid and semi-arid ecosystem
- Identifying suitable cover crops for soil fertility and weed suppression
- Development of strip tillage method for the irrigated arid farming systems
- Utility of pecan waste biomass as soil amendment and biochar effects on soil quality

Some Current Projects

Glandless Cotton Project

Glandless cotton is a cotton variety without gossypol, a toxic substance that limits the feeding of conventional cottonseeds to non-ruminants. New cultivars of glandless cotton are being evaluated in New Mexico.

Glandless cottonseed could create an added value product with a big market for cotton growers in New Mexico, since the seeds of the glandless cotton can serve as a high protein source for humans and other non-ruminant animals. Research have shown that the glandless cottonseed meal can successfully replace fish meal in inland shrimp farming. The current price of conventional cottonseed is about \$300 per ton, however, the potential price estimate of glandless cottonseeds can be up to \$1,500 per ton.