UNIVERSITÄT BAYREUTH

Bayceer
Bayreuther Zentrum für Ökologie und Umweltforschung

Sommersemester 2011

Gebäude GEO I
Hörsaal H6

BayCEER Kolloquium

Vortragsreihe Ökologie und Umweltforschung

Donnerstag 21.07.2011, 16:15 Uhr, H6

Anschließend Postkolloquium mit Bier und Brezeln im Foyer H6

Prof. Ken Albrecht

University of Wisconsin-Madison, Dept. of Agriculture

Intercropping Maize and Kura Clover (Trifolium): A sustainable System for Feed and Biofuel Production

Maize silage is a major source of energy for dairy cattle in the northern USA, and crop residues remaining after maize grain harvest is viewed as a promising, low-cost raw material for cellulosic ethanol production. However, removal of essentially all plant residue for either of these purposes results in excessive erosive soil and humus loss, prompting the need for alternative soil conserving production systems. Furthermore, the ever-increasing cost of nitrogen fertilizer encourages the search for cropping systems that rely on biologically fixed nitrogen. Legume living mulches have been tested in the northern USA as a means to meet nitrogen requirements of maize, but perennial legumes evaluated reduced maize yields or failed to recover after maize harvest. Kura clover (Trifolium ambiguum) seems to be ideally suited to serve as living mulch in northern latitudes. It is extremely persistent through frigid winters and produces rhizomes that allow it to fill in gaps that may otherwise be invaded by weeds.

Our research has demonstrated that with adequate suppression, kura clover can be managed to provide minimal competition to maize and that this system results in reduced soil erosion (Schwab and Albrecht, research in progress) and nitrate leaching compared to conventional maize production systems. Furthermore, all of the nitrogen required for maize silage or grain plus straw production appears to be available through the suppressed clover, and kura clover recovers to full production by June the following season. This permanent living mulch could offer farmers a way to keep soil and nutrients on their fields (and out of our surface and ground water), while nearly eliminating the need for commercial nitrogen fertilizer for maize production.

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