Invertebrate and Weed Dynamics under Alternative Rice Straw Management Practices. (A08-hartley141455-Oral)

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Abstract:

Faced with restrictions on residue burning, California rice growers have searched for alternative straw management practices that are both economically viable and agronomically sound. Results from the long-term Rice Straw Management Project and several other sites being studied suggest straw incorporation and winter flooding have radically increased the availability of organic residue, and altered both nutrient availability and the population dynamics of many rice field invertebrates, improving the habitat quality of these agricultural wetlands for migrating waterfowl during the winter months. Of particular interest are observed decreases in rice water weevil (Lissorhoptrus oryzophilus) populations under winter flooding (P=.04) and significant increases in early season plant vigor both under winter flooding and straw incorporation (P=.0007 and P=.0305, respectively). In addition, after 8 years of continuous straw incorporation the ratio of 15N:14N taken up by the plant more closely approximates that of soil N than in plots where the residue was removed, suggesting that residue incorporation increases N availability, decreasing fertilizer N requirements over time.

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