# **Determining the Timing for Using LAI and NDVI to Estimate Rice Yield. (A03-yang225540-Oral)**

#### Authors:

- C.M.Yang Taiwan Agricultural Research Institute, Taiwan
- R.K.Chen Taiwan Agricultural Research Institute, Taiwan

## Abstract:

The objectives were to monitor changes of leaf area index (LAI) and normalized difference vegetation index (NDVI) during rice growth so as to determine their relationships and the timing to use them for estimating yield. Field experiments were conducted in the 1st and the 2nd cropping seasons of 2001. Seven scales of nitrogen fertilizer, from 0 to 180 kg/ha with 30 kg/ha interval, were applied to produce various levels of yield and LAI and NDVI during rice growth. Differential weather conditions were observed between cropping seasons and caused better growth and yield in the 1st crop. Both LAI and NDVI were curvilinearly distributed during the growing periods with the maximum values occurred before heading in First crop and after heading in Second crop. Correlation between yield and LAI was best fitted to a nonlinear function, with the highest determining factor at 90 days after transplanting (DAT) for First crop and at 64 DAT for Second crop, respectively. The value of LAI for maximal yield decreased as rice plants aged, and plants grown in the 1st crop had greater LAI to support a higher yield. On 90 DAT in the 1st crop and 64 DAT in the 2nd crop, NDVI was linearly correlated with LAI and yield and provided the best estimation of yield.

Corresponding Author Information:	
Chwen-Ming Yang	phone: +886-4-2339-6057
Taiwan Agricultural Research	fax: +886-4-2330-2806
Institute	e-mail:
189 Chung-Cheng Road, Wufeng	cmyang@wufeng.tari.gov.tw
Taichung Hsien 41301	
Taiwan (ROC)	

## **Presentation Information:**

Presentation Date: Thursday, November 14, 2002 Presentation Time: 8:45 am

**Keywords:** Rice, LAI, NDVI, Yield