

## Asian Pacific Weed Science Society

The 20<sup>th</sup> Asian-Pacific Weed Science Society Conference

### SIX DECADES OF WEED SCIENCE FROM THE DISCOVERY OF 2,4-D (1945-2005)

7-11 November 2005

Rex Hotel in Ho Chi Minh City, Vietnam.

Chairman: Dr. Duong Van Chin

Secretary: Dr. Tran Thi Ngoc Son

Contact email addresses

[duongvanchin@hcm.vnn.vn](mailto:duongvanchin@hcm.vnn.vn) or [duongchin@hotmail.com](mailto:duongchin@hotmail.com)

[ngocson.ct@hcm.vnn.vn](mailto:ngocson.ct@hcm.vnn.vn) or [science@hcm.vnn.vn](mailto:science@hcm.vnn.vn)

#### DETAILS FOR MANUSCRIPT PREPARATION

Papers must be original reports of research or reviews that have not been previously published elsewhere in any scientific or technical journals.

Manuscripts should be submitted to the Editorial board of the proceedings (Dr. Martin Mortimer <<[A.M.Mortimer@liverpool.ac.uk](mailto:A.M.Mortimer@liverpool.ac.uk)>>) no later than 31<sup>st</sup> March 2005 on paper and electrically as a Microsoft Word Document on a floppy disk. Submission of manuscripts is also encouraged as attachment files through email.

Manuscripts of full papers should be supplied photo-ready and written in clear, concise, grammatical English (authors should consult with a local specialist in English language if needed). In length, a manuscript must not be more than 6 pages for an original paper and 10 pages for a review. They must be produced on single-sided A4 paper in Times New Roman font of 12 point size and single spaced throughout, leaving side, bottom and top margins of 3 cm. Figures and Tables should be inserted in suitable locations in the text and additionally supplied individually, on separate sheets.

**Format:** Manuscripts should be assembled in the following order: title, author(s) and affiliation, abstract, key words, introduction, materials and methods, results and discussion, acknowledgement, literature cited.

1. **TITLE.** Capitalize only the first letter of all words. Use the scientific name without the authority for all plants.
2. **AUTHORS and AFFILIATION.** Name (s) of author (s) should be followed by their complete current addresses and the corresponding authors' e-mail address.
3. **ABSTRACT.** The abstract must be written as a single paragraph not exceeding 300 words.
4. **KEY WORDS.** Not more than six in alphabetical order, including words not in the title that describe the manuscript's content.
5. **TEXT.** The manuscript should be prepared with the following headings, Introduction, Materials and Methods, Results and Discussion. Literature citations in the manuscript text should be made by author name followed by year in parentheses. For citations with more than two authors, the name of the first author should be given followed by << et al. >>.
6. **TABLES and FIGURES.** Tables and figures should be numbered consecutively with Arabic numerals, respectively and referred in the text. Tables should be formatted in three-line form. Figures should be of publishable quality.
7. **LITERATURE CITED.** Literature cited should be listed in alphabetical order, by the author's last name. Full citations of all authors should be given.

**An example format is given below.**

#### **Rice (*Oryza sativa*) Plant Traits Conferring Competitive Ability Against Weeds**

H. Author<sup>1</sup>, K. Author<sup>2</sup>, R. Author<sup>3</sup>

<sup>1</sup>Department of Agronomy, Agricultural University, City, Country, ZIP/Postal Code  
[person@mail.edu.sw](mailto:person@mail.edu.sw)

<sup>2</sup>International Institute, City, Country, ZIP/Postal Code.

<sup>3</sup>Departement of Weed Science, University of Country, City, Country, ZIP/Postal Code.

**Abstract:** This study was conducted in lowland fields at the Well Known Crop Research Institution in the 1994 wet season and the 1995 dry season to determine rice plant traits that confer competitive ability against weeds when pre-germinated seeds are sown on paddled soil.

Key words: Interference, rice phenotype, weed suppression.

## INTRODUCTION

Weeds are one of the most important biological constraints in rice production. Recently, researchers have paid more attention to...

Determination of rice plant characters that contribute to competitiveness is difficult ... and increased root size (Gaudet and Keddy 1988; Grace 1990). There are many research papers (Grime 1977; Authora et al.1974) dealing with weed-crop competitiveness.

## MATERIALS AND METHODS

This study was conducted in lowland fields in the 1994 wet season and the 1995 dry season. Soil properties of the experimental fields...

Rice plants were sampled from two 50 by 50 cm quadrants in each plot at 2 and 5 weeks after sowing (WAS). Thirty rice plants were randomly selected from each sample to count...

## RESULTS AND DISCUSSION

### Effects of cultivars and seeding rate on rice plant traits, weed biomass and rice grain yield.

ANOVA showed that there were no interaction effects between cultivar and seeding rate on...

### Correlation analysis

Rice initial biomass (IB), leaf area index (LAI) at 2-5 WAS were negatively correlated with biomass (Table 1).

Table 1. Correlation between rice plant traits and weed biomass.

| Rice plant trait  | Correlation coefficient(r) |            |
|---|----------------------------|------------|
|   | Wet season                 | Dry season |
| Initial biomass ( $\text{g m}^{-2}$ )                     | -0.83**                    | -0.71*     |
| Biomass at tillering ( $\text{gm}^{-2}$ )                 | -0.87**                    | -0.81**    |
| Leaf area index   | -0.80**                    | -0.74*     |
| Crop growth rate ( $\text{gm}^{-2}\text{d}^{-1}$ )        | -0.85**                    | -0.79*     |
| Relative growth rate ( $\text{g kg}^{-1} \text{d}^{-1}$ ) | 0.01                       | 0.60       |
| Net assimilation rate ( $\text{g m}^{-2} \text{d}^{-1}$ ) | 0.35                       | 0.75*      |
| Tillering capacity (tiller per plant)                     | -0.35                      | -0.05      |

\*\* and \* indicate significance at 0.01 and 0.05 levels , respectively .

### Path analysis

Based on the results of the stepwise multiple linear regression analysis, weed biomass was considered to be directly affected only by rice biomass at tillering. IB, LAI, CGR, RGR, NAR, and TC seemed to affect weed biomass through rice biomass (Figure 1). The effect of rice biomass on weed biomass was -0.87 in the wet season and -0.81 in the dry season (Table). Its residual effects in the wet and dry seasons were only 0.49 and 0.59, respectively

[DRAWN FIGURE]

Figure 1. Path diagram on the relationship between weed biomass and some rice plant traits. LAI=leaf area index, CGR=crop growth rate, RGR= relative growth rate, NAR=net assimilation rate, TC= tillering capacity.

## ACKNOWLEDGEMENTS

We thank many donors for funding and facilities needed in the study

#### **LITERATURE CITED**

- Authora A., Authorb B. and Authorc C. 1974. Weed- crop competition in soybeans. *Journal of New Science*, 44: 4-40.
- Gaudet C.L. and Keddy P.L. 1998. A comparative approach to predicting competitive ability from plant traits. *Nature*, 334:242-243.
- Grace J.B. 1990. On the relationship between plant traits and competitive ability. In J.B. Grace and Tilman, (eds). *Perspectives on Plant Competition*. Academic Press, San Diego, California. Pages 51-65.
- Grime J.P. 1977. Evidence for existence of the three primary strategies in plants and its relevance to ecological and evolutionary theory. *American Naturalist*, 111:1169-1194.