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*“The Role of Weed Science  
in Supporting Food Security by 2020”*

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Denny Kurniadie  
and Soekisman Tjitrosoedirdjo  
(Editors)*

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## PREFACE

Very warm welcome to the 24<sup>th</sup> APWSS Conference, Bandung, Indonesia. We sincerely hope that you will have a very productive and intellectually stimulating conference week. With delegates from 17 countries, and a wide range of presentation topics and materials, we are confident that this conference will serve as an excellent platform to exchange ideas and develop research links and promote cooperation among delegates within the weed science fraternity.

The conference theme "The Role of Weed Science in Supporting Food Security by 2020" should display a strong bond and meaningful tri-partite cooperation between the Asian Pacific Weed Science Society (APWSS), Faculty of Agriculture, Padjadjaran University, Bandung and the Weed Science Society of Indonesia (WSSI). We are all aware that food security, or rather food insecurity and food safety are high on the agenda among the key issues and priorities among policy makers, food industry players, agriculturalists and agriculturists alike globally, and in the Asia Pacific, in particular. This is the 3<sup>rd</sup> time that Indonesia is hosting the APWSS conference, since the last one in 1991 in Jakarta

We also hope that you will make effort to maximize opportunities for networking, for the benefit of weed science development in region.

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## WEED IDENTIFICATION ON RICE CULTIVATION OF SOBARI SYSTEM

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**ABSTRACT** The experiment was aimed to identify the dominant weed species in order to determine the weed control program on rice cropping System Organik Base Controlled Aerob Rice Intensification Technology (SOBARI). Application of combination four water level management on two plant spacings were performed. The water level managements were - 20 cm, -15 cm, -10 cm, - 5 cm water level below the soil surface and plant spacing were 30 x 25 cm and 30 x 30 cm. The weed control in each treatment was carried out both mechanic and manually by hand. The result of the weed inventory indicated that six species weeds were found at the land prior to the treatment, there were of four species of broad leaf groups, namely: *Monochoria vaginalis*, *Ludwigia octovalvis*, *Alternanthera* sp dan *Marsilea crenata* and two species of the grasses groups namely : *Ischaemum rugosum*, and *Cynodon dactylon*. At the beginning of the experiment the land was dominated by *Ischaemum rugosum* (12.62%), *Cynodon dactylon* (31.55%), *Monochoria vaginalis* (32.62%), 30 days after planting (DAP) in all treatment combinations of level water management and plant spacing showed that the dominant weed were, *Monochoria vaginalis*, *Ludwigia octovalvis*, *Alternanthera sessilis* (L) from the class of broad leaves, *Echinochloa crus-galli*, *Ischaemum rugosum*, and *Panicum repens* from the class of the grass.

**Keywords:** Water level management, plant spacing, Sobari

### INTRODUCTION

System Organic Based on Controlled Aerobic Rice Intensification Technology (SOBARI) is a holistic rice production system by using and integrating the soil biological power, plant, fertilizers and water management according to the plan and design (by design) (Simarmata 2008). SOBARI also implements a wide spacing plant. The more extensive root zone, and field studies based on minimum spacing is 30 cm X 30 cm and a maximum of 50 cm x 50 cm spacing on the other hand can play an important role in minimizing weed pressure on the rice in aerobic soil conditions. Plant spacing showed a negative correlation with weed biomass but positively associated with grain yield, because according Norhidayati Bt. Sunyob, et al., (2012), narrower spacing can be adopted to obtain a high yield of rice and better weed suppression in an integrated weed management program for aerobic rice. Therefore in this experiment the aim is to look for weed control system that can be applied to rice cultivation in SOBARI.

Most of the population of weed species decreases with increasing water depth. At the flooding weed growth will be depressed but will not disturb the growth of rice plants, it shows that the flooding significantly affected to the rice crop and weed growth, whereas in rice cultivation technology based SOBARI the muddy level water only, this is sure to cause more weed growth either type or amount. If unchecked it will lead to a relatively large yield losses, because the weeds grow since the beginning of the growth of rice plants, so that the competition started earlier and longer. Rice plants are not necessarily aquatic plants, but can grow in flooding conditions because it has the ability to supply oxygen to the root system. In flooded conditions, plants utilize the energy to supply oxygen to the root system.