

BALANCE FERTILIZATION SUPPORTING SUSTAINABLE RICE SELF SUFFICIENCY IN INDONESIA *)

by

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INTRODUCTION

- **1. (1970-1984) Rice self Sufficiency**
 - **over exploitation of Rice intensification**
 - **liberal use of Rice fertilization**
- **2. (1984-2006)**
 - **Rice Production Levelling off**
 - **Unbalance of input/output farming**
- **3. (2007-)**
 - **Neglected rice production technology**
 - **NEW STRATEGY of rice self sufficiency program (RSSP)**

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TERMINOLOGY

- **INTEGRATED CROP MANAGEMENT** : is the effort to maintain the rice production faces to various challenges : physical , biological ; socio-economical as well as agricultural pollution . The efforts include to Varieties , Fertilizers use, irrigation , integrated pest managements , harvest and post harvest etc. FBMPs is the one of the components .
- **FERTILIZERS MANAGEMENT** : is the effort of maintaining fertilizers efficiency and effectivity . = **FBMPs** (1) subject to commercializing of crop farming (2) Reversing Trends of declining productivity of crops (3) maximizing the synergies (+) components technologies and minimizing antagonistic(--) component technologies , e.g. **Fertilizer (nutrients) efficiency and effectivity** : that concern with dosages of nutrition , time of application , methods of application , synchron with climate and biological and physical environments .
- **BALANCE FERTILIZATION** : is an accurate fertilizer application that equal to plant need and soil nutrients content used in FBMPs rice fertilization recommendation .

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PRINCIPAL DIFFERENCES BETWEEN STRATEGY OF “SUPRA INSUS” AND “PTT” ON RICE INTENSIFICATION IN INDONESIA

CHARACTERISTICS	SUPRA INSUS STRATEGY (< 2000)	PTT STRATEGY (> 2004)
• Objective	Technical , social economy and POLITICS	Technical and Social Economy
• Choice of package of technology	Top Down (repressive)	Bottom-up (partisipatif)
• Technology recommendation	General	Specific location (SSNM)
• Status of technology package	Neglected the synergistic among technology components	Considering the synergistic among thechnology components in/among the packages as well as growth /environment
• Method of development and extention	*nasional /massal movement * Non scientific base * Non holistic	*modelling (zoning) * Scientific base * Holistic base

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RICE SELF SUFFICIENCY PROGRAM IN INDONESIA 2007

- A. 1. Integrated Rice Crop Management (“PTT”) → 1.94 Million ha - (5.31 t/ha= 10.300 M t/year)
- 2. Non integrated Rice Crop Management → 9.91 Million ha - (4.80 t/ha= 47.600 M t/year)
- 3. Hybride Rice → 0.019 Million ha (6.55 t/ha= 0.125 Million ton/year)

TOTAL 11.860 M ha-/4.90 t/ha -/ 58,025 M t/year

- B. BALANCE OF RICE FERTILIZATION INCLUDED BY MEAN OF FBMPs (SUPORTING) IN THE THREE PROGRAMS CALLED INTEGRATED RICE CROP MANAGEMENT .

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X. RICE PRODUCTION LEVELLING OFF

1979-1983 : 7.7 %
 1984-1988 : 2.4 %
 1989-1995 : 1.9 %
 1995-2006 : ? %

X. RICE IMPORT & SELF SUFFICIENCY

Target 2007 = 58.18 MILLION TON
 2006 = 56.18 MILLION TON
 —————
 IMPORT 2.00 MILLION TON /
 YEAR

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PRESSENT STATUS OF P AND K NUTRIENT IN INDONESIAN PADDY RICE SOIL

7.507 000 HA LOWLAND RICE OF 18 PROVINCES
(TOTAL INDONESIA = 29 PROVINCES)

- **P-STATUS** -- 40 % HIGH
-- 43 % MEDIUM
-- 17 % L O W
The loose of liberal used P-fertilization was :
-- \$ US 82,189,000 / anum
- **K-STATUS** -- 51 % HIGH
-- 37 % MEDIUM
-- 12 % L O W
The loose of liberal used K-fertilization was :
-- \$ US 116,200.000 / anum

A GREAT POTENTIAL FOR SAVING IN P AND K FERTILIZATION

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ERA OF SOIL TEST KIT IN INDONESIA

- **< 2003** THE BASIC OF RICE FERTILIZATION :
 1. GENERAL RECOMMENDATION
 2. FIELD EXPERIMENTAL WORKS
 3. OMISSION PLOTS (IRRI)
- **>2003** IFI PIONEERING ON P & K NUTRIENTS SOIL ANALISIS PROGRAM (PADDY SOIL TEST KIT BASIS = STK)
- **2003-2006** : IFI TRAINING AND SOCIALIZATION OF STK (**300 PARTICIPANTS**) AND IFI DONATION **85 STKs**
- **2007** : **2000 STKs DONATED BY MOA** FOR INDO NESIA RICE SELF SUFFICIENCY PROGRAM

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Class of nutrient status in paddy rice soil

Soil nutrient status	KCl 25 % Extract	
	P (mg P ₂ O ₅ /100g)	K (Mg K ₂ O/100g)
L o w	< 20	< 10
Medium	20-40	10-20
High	>40	>20

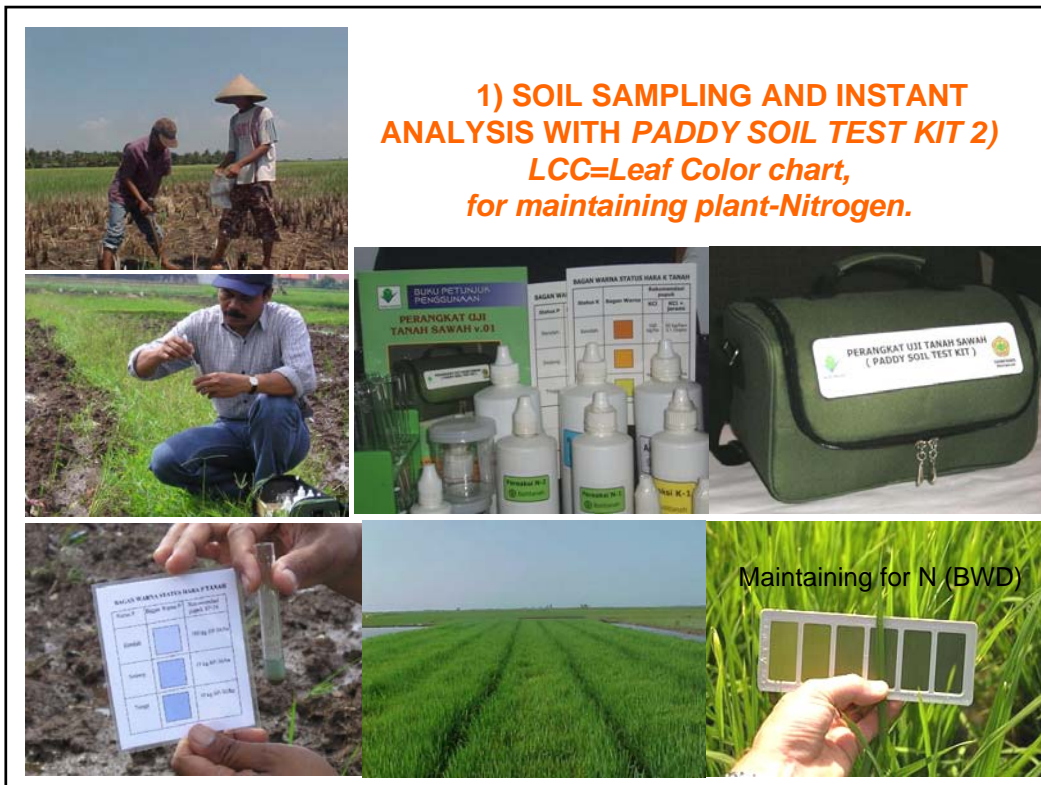
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A CONCEPT OF BALANCE OF RICE FERTILIZATION IN INDONESIA

- NUTRIENT AT HARVEST = SOIL NUTRIENT + FERTILIZER NUTRIENT (LIEBIG'S)
- RECOMMENDATION FOR N , P & K DOSAGES BASE ON SOIL TEST KIT :

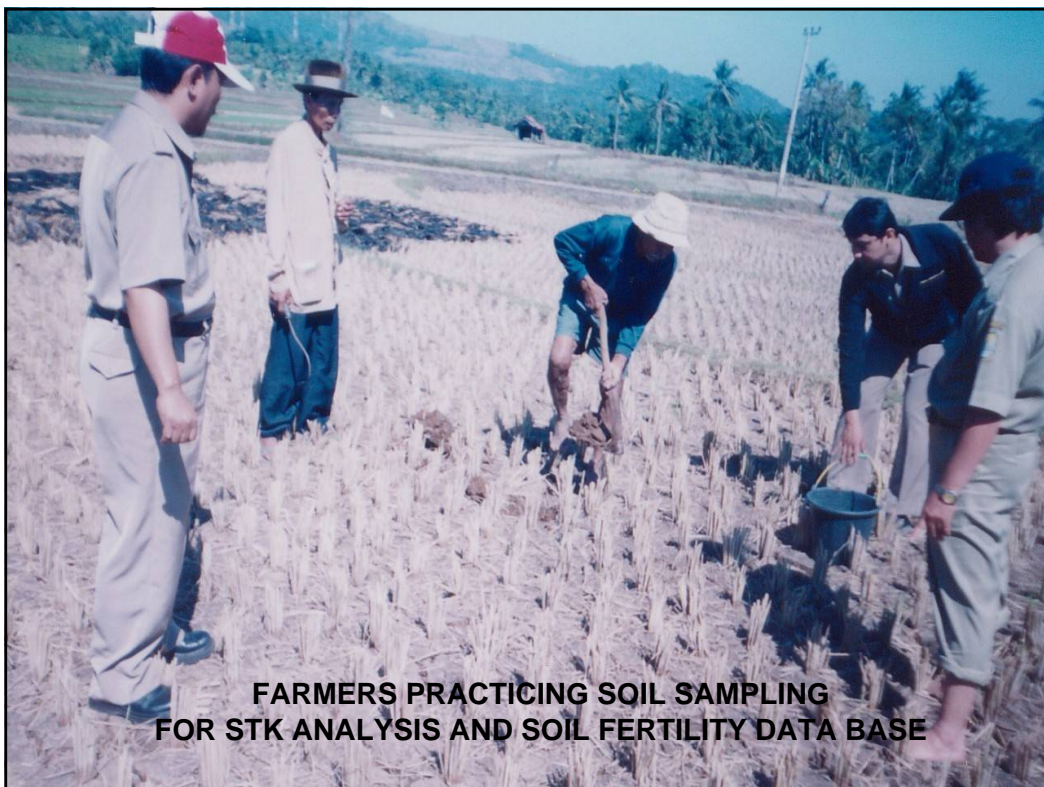
Plant nutrients	Soil nutrient status		
	L o w	Medium	High
• N from Urea kg/ha	250 (use L C C)		
• P from SP-36 kg/ha	100	75	50
• K from KCl kg/ha	100	50	50

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STK training alumnae practicing soil analysis at his own subdistrict .



FARMERS PRACTICING SOIL SAMPLING FOR STK ANALYSIS AND SOIL FERTILITY DATA BASE

**RICE YIELD OF THE DEMONSTRATION PLOT
OF FBMP DRY SEASON 2004 , DARMAGA-
BOGOR - WEST JAVA - INDONESIA**

	TREATMENT	
	FBMP *)	FARMER
• Status of Soil P	High	
• Status of Soil K	Low	
• Urea kg/ha	250	
• KCl kg/ha	100	
• SP-36 kg/ha	50	100
• Yield t/ha	6,7 (121%)	5, 4 (100%)

- NOTE : † INTEGRATED RICE CROP MANAGEMENT

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IFI ACTIVITIES IN 2002-2006

- Preliminary Consultation to AARD / SRI / SRRI/IRRI.
- 300 Participants of Indonesian FBMPs
- IFI donated of 85 STKs
- Data base collection from districts
- 15 quarterly bulletins published
- Cooperation with MOA of STKs distribution
- Cooperation with Agricultural Faculty
- Cooperation with Farmer groups / demplots
- Attended IPHOS/FAO/NFDC workshop in Pakistan .

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IFI ACTIVITIES FOR 2007

- R&D consultation with AARD and its institutes (SRI ; SRRI) and IRRI
- FBMP-training for sub-districts STK-operators .
- Data base collection of Rice Soil Fertility
- Supervise Farmer Groups FBMP demonstration plots .
- Bulletin and publications .
- Collaboration with 1) MOA and its Directorates / AARD ; SRI and Institutes concern ; 2) Agricultural Faculties ; 3). I R R I ; 4). Fertilizer producers
- Cooperation with : 1) IFA; 2) IMPHOS ; 3)PPI & PPIC ; 4) F A O .

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FBMPs in the integrated rice-fish crop



FBMPs Local specific

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FBMPs in the integrated
rice estate crop



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CONCLUSIONS

- IFI (Indonesian Fertilizer Institute) activities concern with existing problems of either liberal and un-balance use of paddy rice fertilization in Rice Self Sufficiency Program RESULTING IN RICE PRODUCTION LEVELING OFF..
- IFI pioneering on application of Paddy Rice Soil Test Kit (2002-2006) had been good responded by rice farmers and MOA (Ministry of Agriculture of Indonesia) for 2007 balance rice fertilization program .
- IFI Continuous and increase FBMP-programs for 2007 either domestic or international .

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