〔付　録〕

CROPS RESEARCH DIVISION
RESEARCH CONCENTRATION
1982 2nd crop (Dry Season)

Compiled By: H. HORIKOSHI
April 13, 1983

CIADP-APC
Minanga Norte, Iguig, Cagayan

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PROJECT LEADER : Helen Taja

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TITLE : TESTING/EVALUATION OF EARLY MATURING RICE VARIETIES/LINES UNDER RAINFED CONDITIONS

JUSTIFICATION:

A wide rice area in Cagayan remain to be unirrigated up to the present time. Rice crop in this areas depends entirely on rainfall for water supply. With this particular situation, not all rice varieties can be grown. Therefore, this study is proposed to identify adaptable, rice varieties or lines under rainfed condition.

OBJECTIVES :

1. To identify varieties/lines adopted to rainfed condition; and
2. To assess their performance in terms of yield and resistance to pests and diseases.

METHODOLOGY :

Location : Dumpao, Iguig

Duration : October 1982 - February 1983 (Dry season)

Experimental Design: The Randomized Complete Block Design with Three (3) Replication

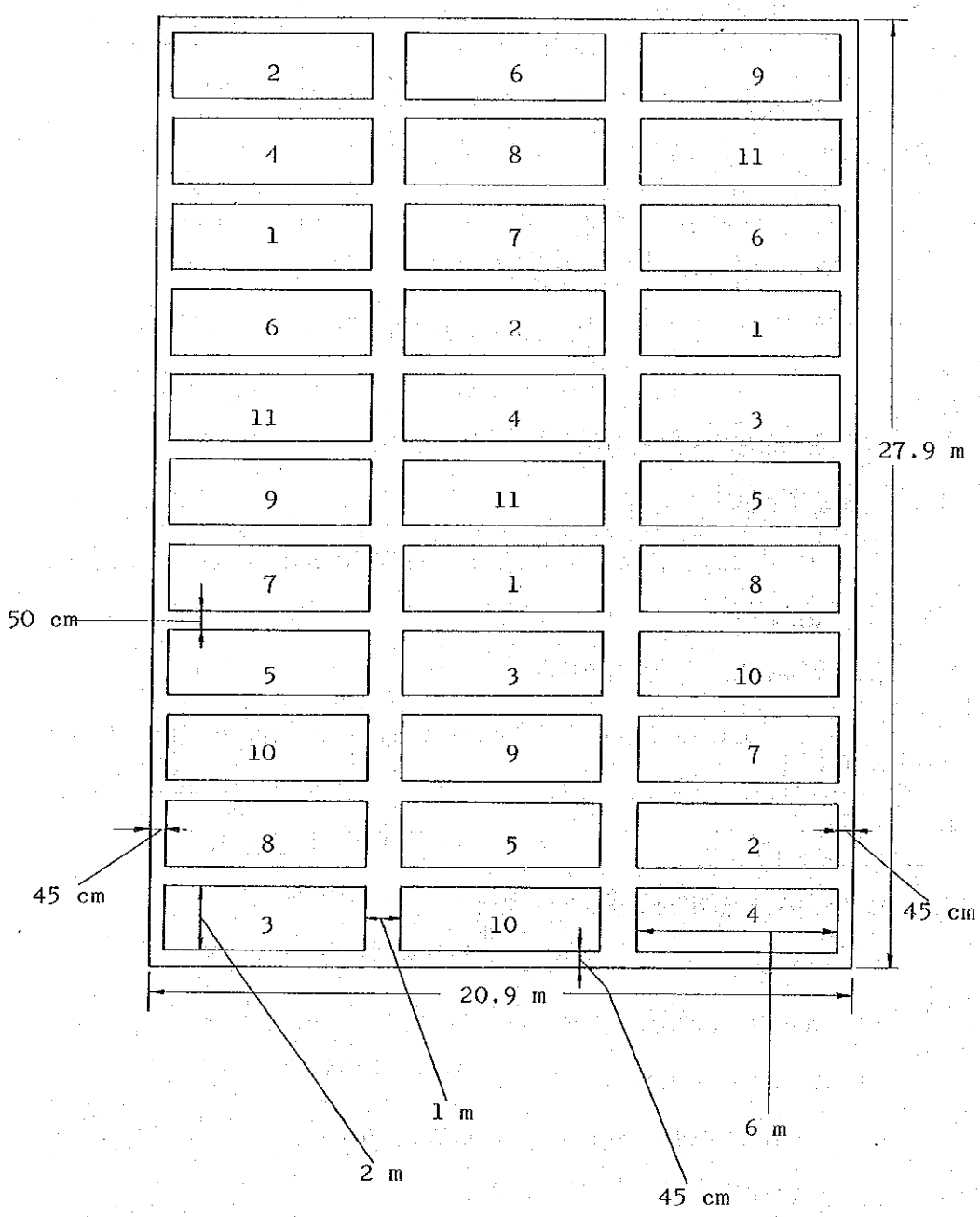
Treatments :

1. IR13240-82-2-3-2-3-1
2. IR19743-25-2-2-3-1
3. IR19746-28-2-2-3
4. IR8455-78-1-3-3
5. IR8608-167-1-2
6. IR-50
7. IR9209-217-1-2-2
8. IR-36
9. IR9752-71-3-2
10. IR9729-67-3
11. IR19735-5-2-3-2-1

Spacing : 20 x 20 cm

Age of seedlings : 18 - 20 days old seedlings

Layout :



Plot size : 2 x 6 m = 12 m^2

Pathways/alleyways : 50 cm between treatment
1 m between replication
45 cm between treatment plots and levees

Total area : 20.9 x 27.9 m = 583.11 m^2

Rate of seedlings : 2 - 3 seedlings per hill

Fertilization : 70 - 50 - 0

The whole amount of fertilizer required shall be applied basally before transplanting.

Insect Control :

Furadan 3G at 1.0 kg a.i/ha shall be basally applied before transplanting.

Sevin at 0.75 kg a.i/ha shall be sprayed at 65 DAT

Alternate spraying of Azodrin and Malathion at 1.0 kg a.i/ha shall be done if necessary.

Disease Control :

Dithane M-45 shall be sprayed when disease symptoms appear.

Weed Control :

Machete 5G at 1.5kg a.i/ha shall be applied 4 days after transplanting.

DATA TO BE GATHERED:

1. Insect and disease rating
2. Lodging
3. Days to heading
4. Days to maturity
5. Plant height (cm) - just before harvest
6. Tiller count
7. Panicle count
8. Filled and unfilled grains
9. Moisture content
10. Weight of 1,000 grains (g)
11. Yield (kg/ha)

TITLE : TESTING/EVALUATION OF EARLY AND MEDIUM MATURING RICE VARIETIES/LINES UNDER FULLY IRRIGATED CONDITION

JUSTIFICATION :

The performance of the newly developed rice lines should be evaluated in comparison with the existing varieties previously recommended by the Philippines Seed Board.

Of all the latest seed board varieties, IR-36 (early maturing) and IR-42 (medium maturing) are the most widely planted in the locality.

These trials therefore are proposed to determine which of the new rice lines are comparable or even better than IR-36 and IR-42 in terms of agronomic performace under the existing condition of the area. The result of these trials will be a good basis in selecting varieties suited for Cagayan conditions especially in irrigated fields.

OBJECTIVES :

1. To determine promising varieties/lines of early and medium maturing rice in the province in terms of yield, pests and diseases resistance.
2. To know varieties/lines appropriate to the pattern being used in the locality.

METHODOLOGY :

Location : APC Iguig, Cagayan

Duration : November 1982 - March 1983

Experimental Design: The Randomized Complete Block Design with three (3) replication

Treatments:

Early Maturing Rice

1. IR 13240-82-3-3-2-3-1
2. IR 19743-25-2-2-3-1
3. IR 19746-28-2-2-3
4. IR 8455 - 78-1-3-2
5. IR 8608-167-1-2
6. IR-50
7. IR 9209-217-1-2-2
8. IR-36
9. IR 9752-71-3-2
10. IR 9729-67-3
11. IR 19735-5-2-3-2-1

Medium Maturing Rice

1. IR 15318-2-2-2-2
2. IR-42
3. IR 13423-10-2-3
4. IR-54
5. IR 8192-200-3-3-1
6. IR-52
7. IR 13540-56-3-2-1
8. IR 13423-17-1-2-1
9. IR 11248-3-2-3-3
10. IR 17494-32-1-1-3-2
11. IR 19661-131-3-3

Spacing : 20 x 20cm

Age of seedlings : 18-20 days old seedlings

Rate of seedlings: 2-3 seedlings per hill

Fertilization : 60-0-0

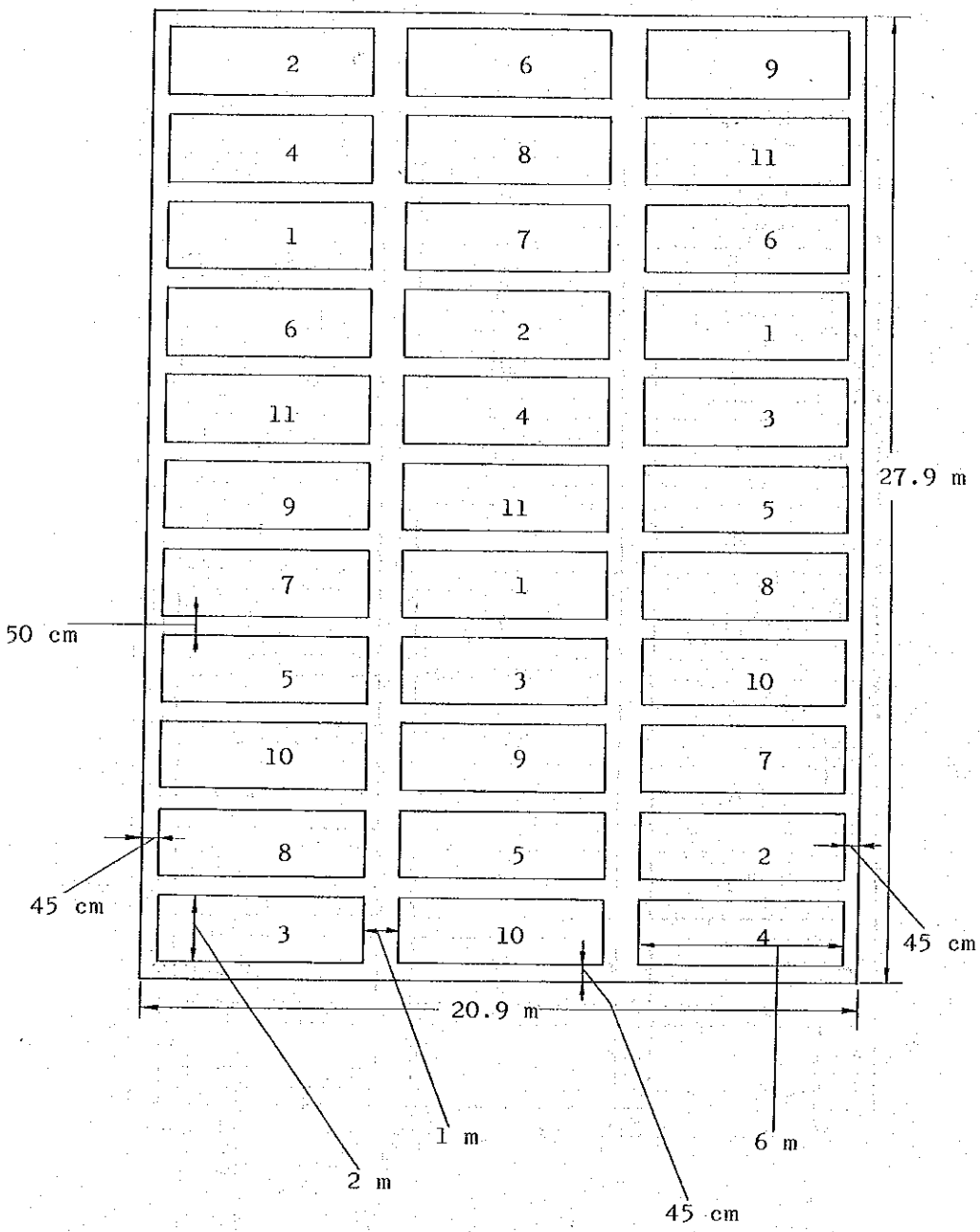
Fifty percent of the nitrogen fertilizer shall be applied basally and the remaining half be topdressed at 25 and 35 DAT for early and medium maturing rice, respectively.

Insect Control :

Furadan 3G at a rate of 1.0 kg a.i/ha shall be broadcasted before transplanting.

Sevin at 0.75kg a.i/ha shall be sprayed at 65 DAT for early maturing and 75 DAT for medium maturing rice.

Layout : Early maturing rice

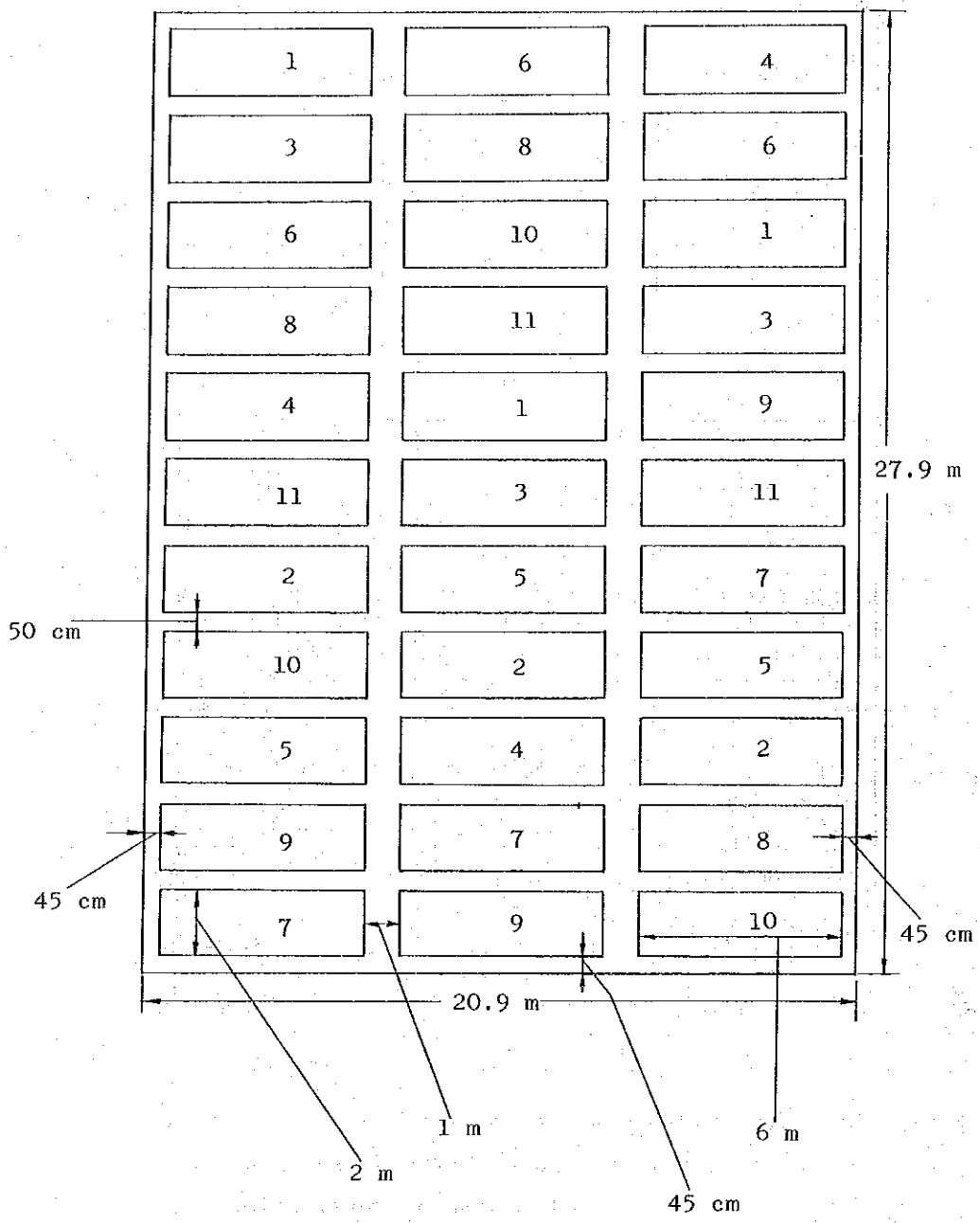


Plot size : 2 x 6 m = 12 m^2

Pathways/alleyways : 50 cm between treatment
1 m between replication
45 cm between treatment plots and levees

Total area : 20.9 x 27.9 m = 583.11 m^2

Layout : Early maturing rice



Plot size : 2 x 6 m = 12 m^2

Pathways/alleyways : 50 cm between treatment
1 m between replication
45 cm between treatment plots and levees

Total area : 20.9 x 27.9 m = 583.11 m^2

Weed control :

Machete 5G at 1.5kg a.i/ha shall be applied 4 days after transplanting.

DATA TO BE GATHERED:

1. Days to heading
2. Days to maturity
3. Plant height (cm) - Just before harvest
4. Tiller count
5. Panicle count
6. Loding
7. Insect and disease rating
8. Filled and unfilled grains
9. Moisture content
10. Weight of 1000 seeds (g)
11. Yield (kg/ha)

TITLE : EVALUATION OF RICE (ORYZA SATIVA L.) LINES FOR SALINITY TOLERANCE

JUSTIFICATION :

In Cagayan, specifically in the coastal towns, exists a wide saline area. A part of this area is devoted to rice production, however, because of the lands condition, production is relatively low.

To increase yields in these areas, it is very important to identify cultivars which can withstand the soil salinity.

OBJECTIVES :

To identify varieties adaptable to saline soil condition.

METHODOLOGY :

Location : APC Model Infra. Iguig, Cagayan

Duration : December 1982 - March 1983

Experimental Design: The Randomized Complete Block Design with three (3) replication.

Treatments :

1. IR 17491-5-4-3-3
2. IR 5657-33-2
3. IR 4630-22-2-17
4. IR 1929-136-2-2-1-2
5. IR 2153-26-3-5-2
6. IR-54
7. IR 19660-23-2-1
8. IR 2863-35-3-3
9. IR 4227-28-3-2
10. IR 8241-B-B-86-2
11. IR 11248-3-2-3-3
12. IR 13423-10-2-3
13. IR 9752-71-3-2
14. IR 13540-56-3-2-1
15. IR 19746-28-2-2-3

Size of pot : 1/2000 are Wagner Pot

Fertilization : One (1) gram each of N, P_2O_5 and K_2O per pot.

Seedling rate : Two (2) seedlings per pot

Water Management:

Water in the pots shall be maintained at 1 cm below the brim of the pots and the water containing 2,500 ppm NaCL shall be prepared.

DATA TO BE GATHERED:

1. Days to heading
2. Days to maturity
3. Plant height (cm)
4. Tiller count
5. Panicle count
6. Filled and Unfilled grains
7. Weight of 1,000 grains (g)
8. Yield (kg/ha)

TITLE : ADAPTABILITY TRIAL OF COMMERCIAL HYBRID AND SEEDBOARD CORN (ZEA MAYS L.) IN CAGAYAN

JUSTIFICATION :

The introduction of commercial hybrid corn in the country is a striking advantage to corn growers considering their yield potentials. However, the performance of these hybrid corn may vary from location to location depending upon the existing agro-ecological situation. This study intends to determine the performance and adaptability of three (3) hybrid and two (2) seedboard corn under Cagayan condition.

OBJECTIVES :

1. To identify an appropriate hybrid or variety of corn for Cagayan; and
2. To compare the yield performance and resistance to pest and diseases of hybrid corn from seedboard varieties of the same crop.

METHODOLOGY :

Location : Tapel, Gonzaga (rolling terrain) and Pared, Alcala (riverflood plain)

Duration : November 1982 - February 1983

Experimental Design : The Randomized Complete Block Design with three (3) Replication

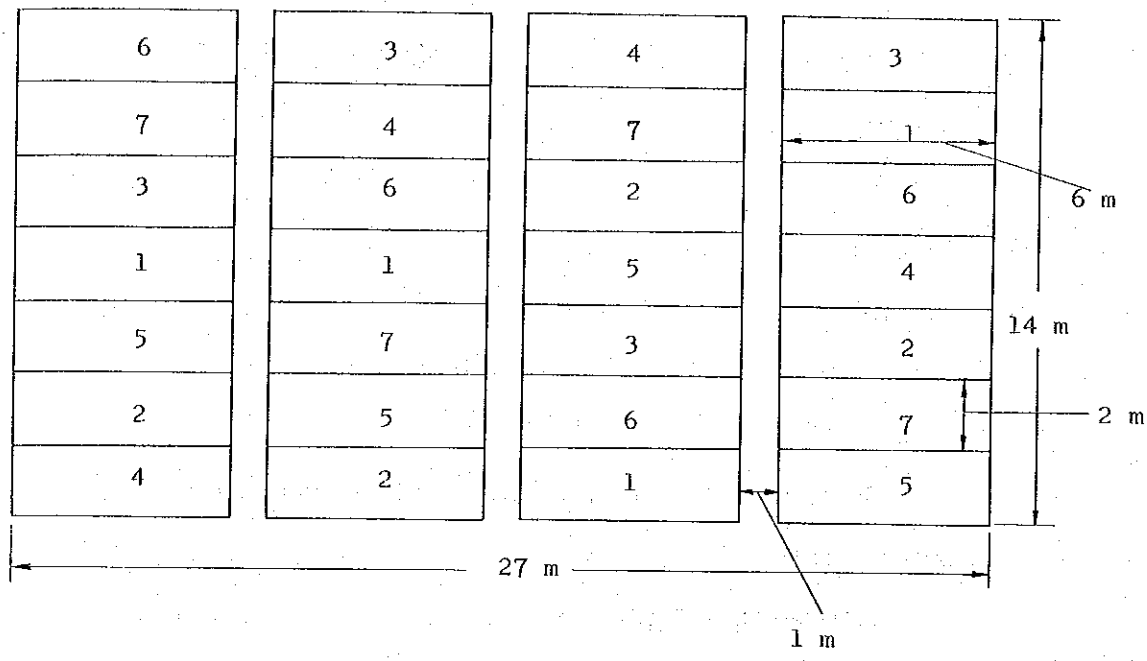
Treatments :

1. SMC high yield
2. Cargil 100
3. Pioneer
4. IPB Var. 1
5. DMR 2
6. Hycorn
7. Local check

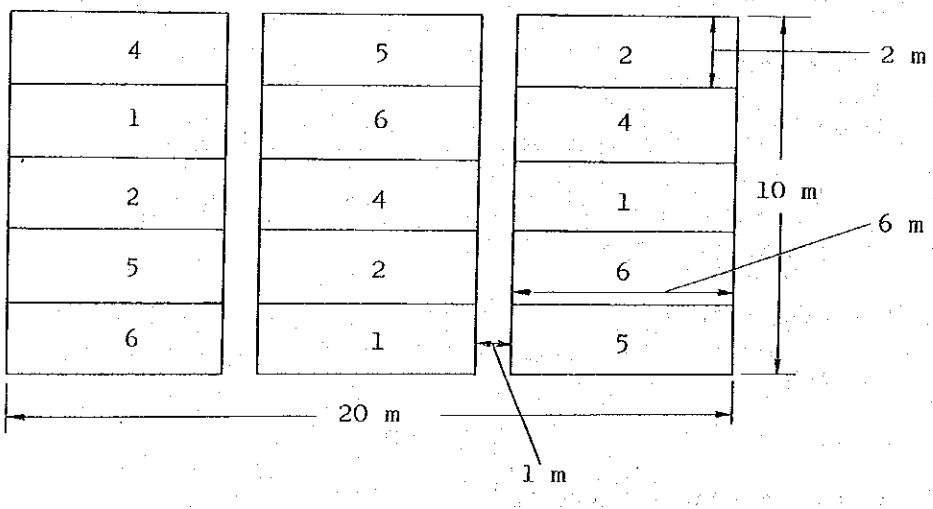
Spacing : 50 x 75cm

Rate of seeding : 2 - 3 seeds per hill

Layout : Corn (Tapel, Gonzaga)



Layout : Corn (Pared, Alcala)



Fertilization : 75-30-30 (Gonzaga)

60-20-0 (Alcala)

One half of the amount of N and all amount of P_2O_5 and K_2O will be applied basally. The other half of N will be sidedressed at 21 DAP.

Cultivation :

Off-barring between rows will be done 3 weeks after emergence.

Weed Control :

Butachlor EC 1.5 kg. a.i./ha will be sprayed 2 DAP.

Insect Control :

Furadan 3G 10kg a.i/ha will be applied basally just before planting.

DATA TO BE GATHERED :

1. Seedling vigor
2. Silking date
3. Maturity
4. Downy mildew
5. Plant height (cm)
6. Ear height (cm)
7. lodging
8. Disease rating
9. Number of plants harvested
10. Number of ears harvested
11. Field weight - weigh all husked ears harvested
12. Shelling percentage
13. Moisture content
14. Grain yield (kg/ha)

TITLE : VARIETAL/ADAPTABILITY TESTING OF PEANUT (ARACHIS HYPOGAEA L.) VARIETIES/CULTIVARS

JUSTIFICATION :

Peanut commands a favorable price in the market. However, the provincial average yield per hectare is considered low, 330kg per hectare, compared to the national average yield which is 650kg per hectare (Peanut Technoguide, 1980). This low yield is greatly attributed to farmers employing a low level of technology, wherein variety selection is one of the most important component. To solve this problem, a study on the adaptability of promising peanut varieties in the province is proposed to increase yield.

OBJECTIVES :

To identify varieties which are adaptable to the locality in terms of yield and resistance to insect pests and diseases.

METHODOLOGY :

Location : Tapel, Gonzaga (rolling terrain) and Pared, Alcala (riverflood plain)

Duration : November 1982 - February 1983 (dry season)

Experimental Design: The Randomized Complete Design with three (3) Replication

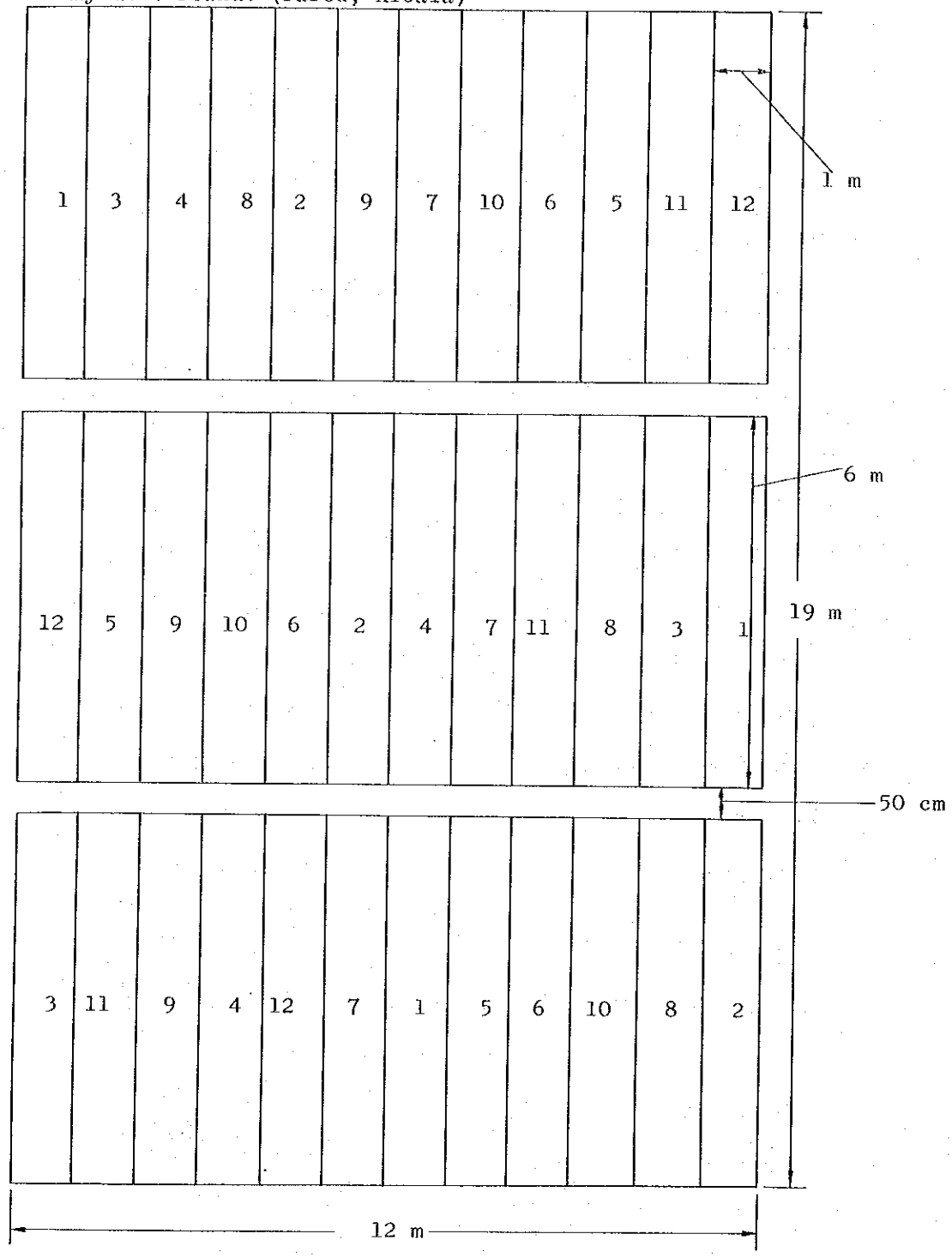
Treatments :

1. CES 101	7. PI - 118200
2. Kidang	8. UPL Pn-4
3. F 334-33	9. M 10
4. CES 102	10. CES 103
5. UPL Pn 2	11 BPI 9
6. CES 2 - 25	12. Local check

Spacing : 20 x 50 cm

Rate of seeding : 3 seeds per hill

Layout : Peanut (Pared, Alcala)



Plot size : 1 x 6 m

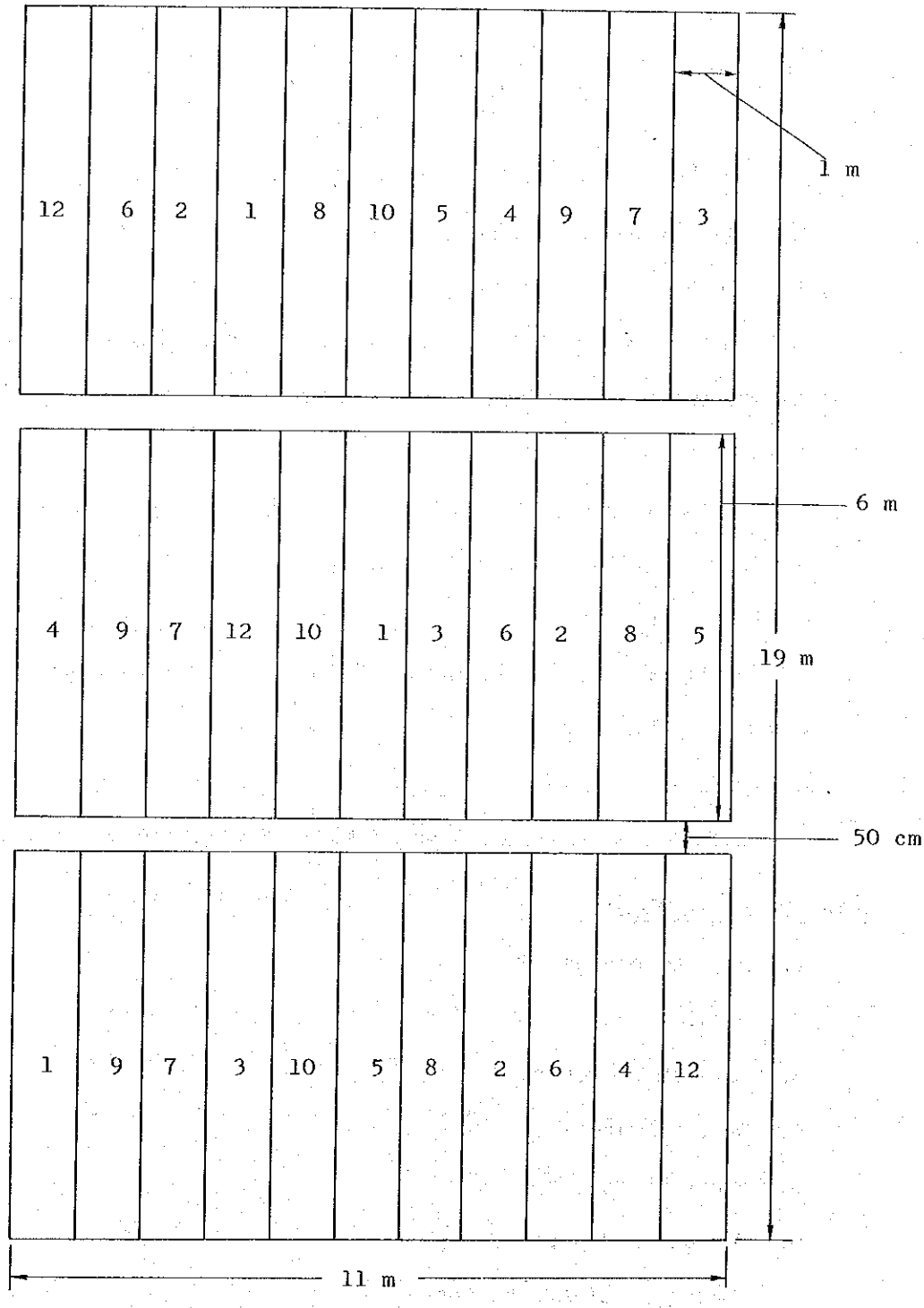
Two (2) rows per plot, Fifty (50) cm between rows

Twenty (20) cm between hills, Six meters long.

Fifty (50) cm between replication

Total area : 12 x 19 m = 228 m^2

Layout : Peenut (Tapel, Gonzaga)



Plot size : 1 x 6 m

Two (2) rows per plot, Fifty (50) cm between rows

Twenty (20) cm between hills, Six meters long.

Fifty (50) cm between replication

Total area : 11 x 19 m = 209 m^2

Fertilization : 10-0-30 (Alcala)

10-20-30 (Gonzaga)

The whole amount of fertilizer required shall be basally applied bedore planting.

Seed Inoculation:

The seeds shall be inoculated before planting with CB 756 at a rate of 100g/25-30kg seeds.

Insect Control :

Furadan 3G at a rate of 1.0kg a.i/ha shall be applied before planting.

Weed Control :

Machete 600EC at 1.0 kg a.i/ha shall be sprayed one day after planting.

Cultivation :

Hilling-up shall be done 25 to 30 days after emergence.

DATA TO BE GATHERED:

1. Days to emergence
2. Seedling vigor
3. Days to flowering
4. Days to maturity
5. Plant height (cm)
6. Disease and pest rating
7. Number of plants harvested
8. Number of pods per plant
9. Shelling percentage
10. Weight of 100 seeds (g)
11. Moisture content
12. Yield (kg/ha)

TITLE : ADAPTABILITY TESTING OF SOYBEAN (GLYCINE MAX) CULTIVARS

JUSTIFICATION :

Soybean has not yet gained popularity among farmers in Cagayan. However, though it is not presently cultivated in a wide scale in the province, it is expected to become an important crop in the near future owing to the pressing demand for feed grains.

It is therefore necessary to know some of the adaptable varieties for the province for ready recommendation.

OBJECTIVES :

1. To identify promising soybean cultivars for intensive cropping; and
2. To determine the agronomic characteristics of the different cultivars under Cagayan Agro-ecological situation particularly on upland hilly areas.

METHODOLOGY :

Location : Tapel, Gonzaga

Duration : November 1982 - February 1983

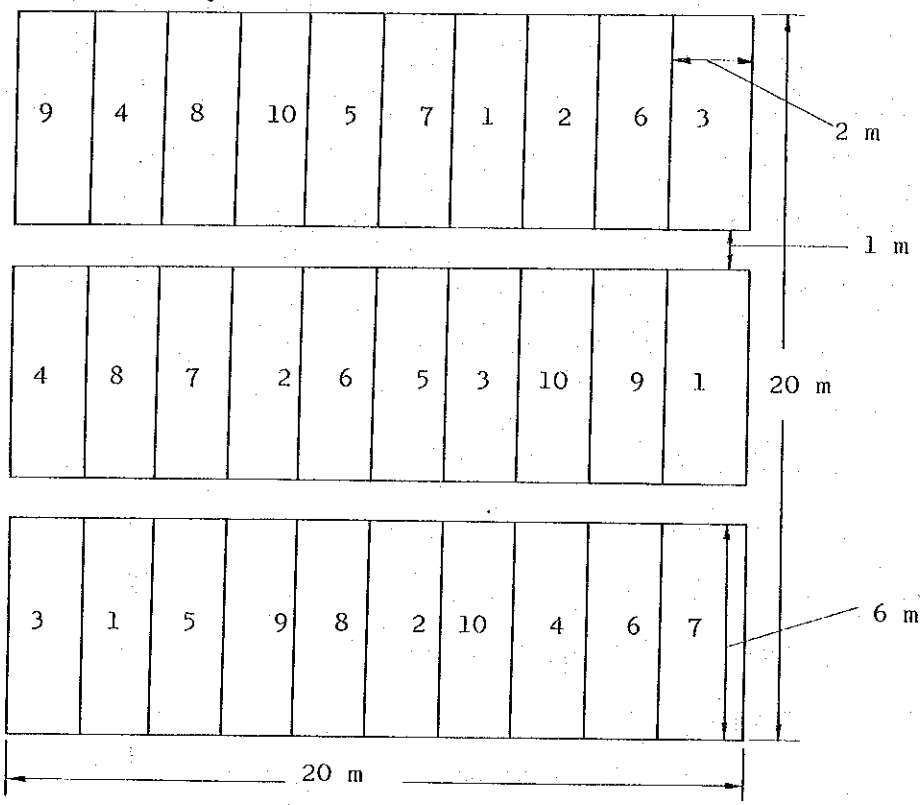
Experimental Design : The Randomized Complete Block Design with three (3) Replication

Treatments :

1. UPL Sy-2
2. 30290-11-11
3. 50106-4-7
4. 7024-3
5. Multivar 80
6. 7207-1
7. 30050-2-17
8. Clark 63
9. 7024-2
10. 11-4

Spacing : 10 x 50cm

Layout : Soybean



Plot size : 2 x 6 m

Four (4) rows per plot, Fifty (50) cm between rows

Ten (10) cm between hills. Six (6) meters long.

One (1) m between replication

Total area : 20 x 20 m = 400 mm^2

Rate of seeding : 3 seeds per hill

Fertilization : 30-60-60

The whole amount of fertilizer required shall be applied basally.

Insect Control :

Furadan 3G at 1.0kg a.i/ha before planting plus alternate spraying of Malathion, Thiodan and Azodrin.

Disease Control :

Spray Benlate 1.5g/gal of water. Spray twice at 15 days interval.

Weed Control :

Butachlor 60EC at 1.2kg a.i/ha applied after planting.

DATA TO BE GATHERED:

1. Seedling vigor
2. Days to flowering
3. Days to maturity
4. Plant height (cm)
5. Disease rating
6. Lodging
7. Number of pods per plant
8. Weight of 100 seeds (g)
9. Moisture content
10. Yield (kg/ha)

TITLE : ADAPTABILITY TESTING OF YARDLONG BEAN AND COWPEA CULTIVARS IN CAGAYAN

JUSTIFICATION:

Bush sitao and Cowpea are being cultivated in most areas of the province. Productivity of these crops however, has consistently been low to cope with demand. Low production stems from various factors, but frequently attributed to low quality varieties.

It is therefore necessary to test and screen varieties of these two crops to point out adaptable varieties for the province.

OBJECTIVES :

1. To identify the most promising bush sitao cultivars with reference to yield capacity, adaptability and resistance to pests and diseases.
2. To identify the most promising cowpea cultivars under Cagayan conditions in terms of yield capacity, adaptability and resistance to pests and diseases.

METHODOLOGY :

Location : Tapel, Gonzaga

Duration : November 1982 - February 1983

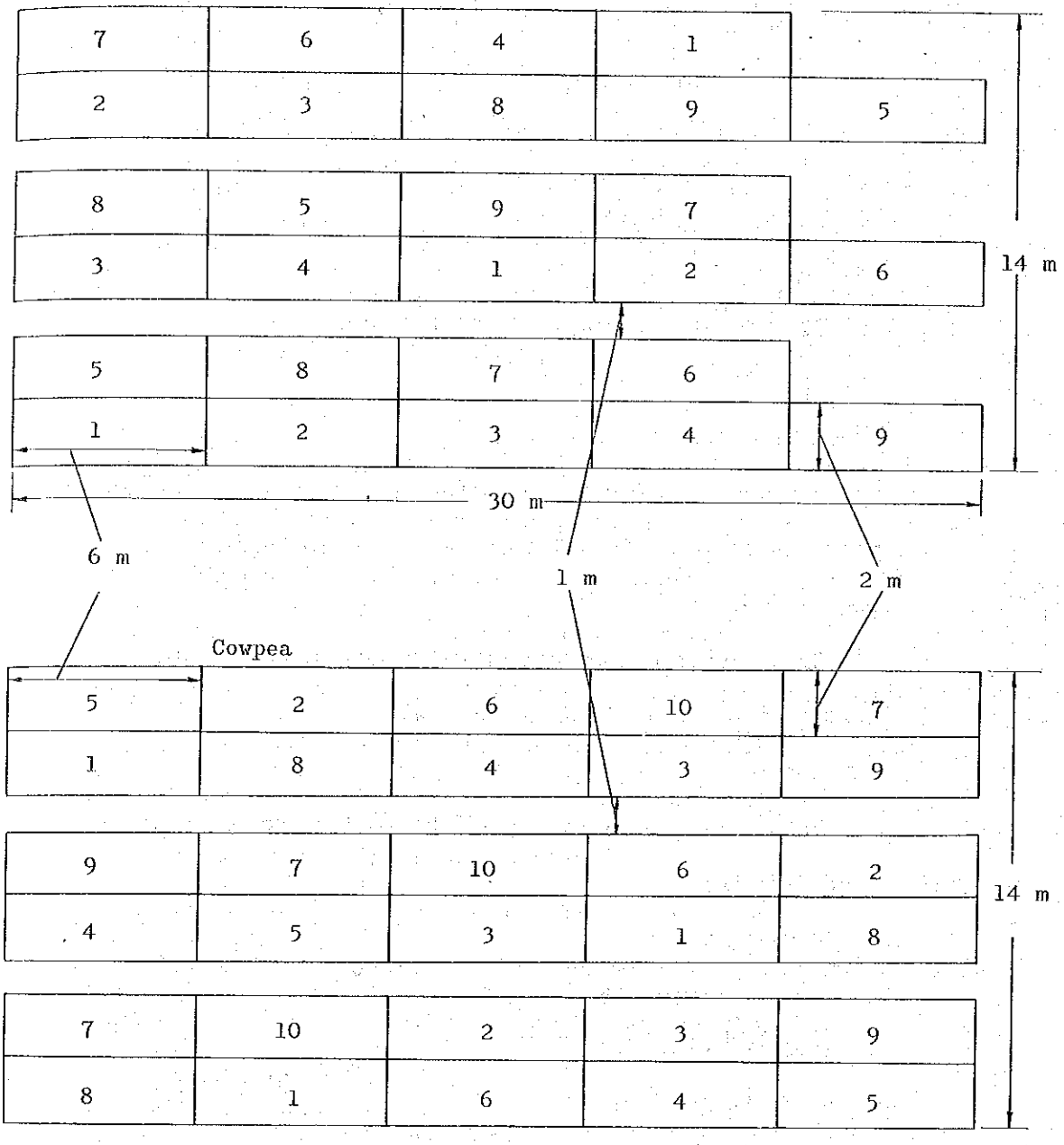
Experimental Design: The Randomized Complete Block Design with three (3) Replication.

Treatments :

Bush Sitao

1. BS 1
2. EG BS 2
3. BS 7
4. LB BS 1
5. BS 4
6. UPL Bs 2
7. BS 6
8. UPL Bs 4
9. BS 3

Layout : Bush Sitao



Plot size : 2 x 6 m = 12 m^2

Four (4) rows per plot, Fifty (50) cm between rows

Ten (10) cm between hills, Six (6) meters long

One (1) m between replication

Cowpea

1. All season
2. TV x 7 - 5H
3. TV x 1850 - 01E
4. TV x 1836 - 19E
5. Pelungga
6. CP 2-3-1
7. Pelungthay
8. CP 4-2-3-1
9. V59-41
10. Local check

Spacing : 10 x 50 cm

Seeding Rate : 20kg/ha. One (1) plant per hill

Fertilization : 30-60-60

Insect Control:

Furadan 3G 1.0kg a.i/ha before planting and alternate sprayings of Malathion, Thiodan and Azodrin thereafter.

Disease Control:

Spray Benlate 1.5g/gal of water and Dithane M-45. 10g/gal of water at 15 days interval.

Weed Control:

Butachlor 60EC at 1.2kg a.i/ha applied before planting.

DATA TO BE GATHERED:

1. Seedling vigor
2. Days to flowering
3. Days to maturity
4. Plant height (cm)
5. Lodging
6. Disease rating
7. Pod length
8. Pods per plant
9. Number of seeds per pod
10. Weight of 100 seeds
11. Moisture content
12. Yield (kg/ha)

TITLE : VARIETY TRIAL ON MUNGBEAN (PHASEOLUS RADIATUS L.)

JUSTIFICATION :

Mungbean is one of the most important crops in Cagayan for intensive cropping. Being so, it is included in the alternative cropping pattern designed for the upland areas of Gonzaga.

This study is proposed therefore to identify the most suitable mungbean variety for the specific pattern and agro-ecological environment under study.

OBJECTIVES :

To identify appropriate mungbean variety (ies) to be planted in the upland hilly areas of Gonzaga and transfer results to other areas in Cagayan with similar agro-climatic condition.

To determine the yield performance and pest and disease resistance of various mungbean varieties under Gonzaga condition.

METHODOLOGY :

Location : Tapel, Gonzaga

Duration : December 1982 - March 1983

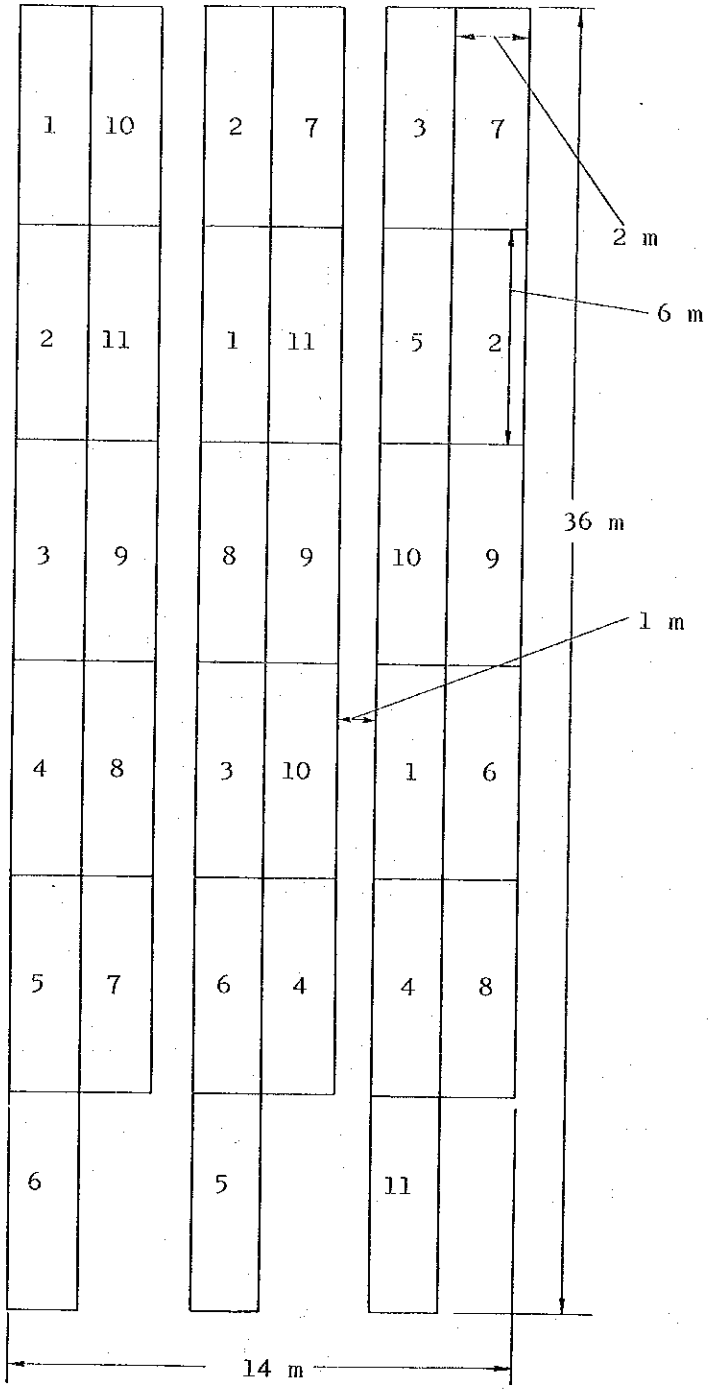
Experimental Design : The Randomized Complete Block Design with three (3) Replication.

Treatments :

1. EG Mg 174-3
2. CES 55
3. MG 50-10 A (G)
4. CES U-1
5. CES 2N-4
6. CES 1D-21
7. CES 3N-1
8. CES 2G-4
9. CES 2F-1
10. CES 1T-2
11. Local Check

Spacing : Fifty (50) cms. between rows
Fifteen (15) plants per linear meter

Layout : Mungbean



Plot size : 2 x 6 m = 12 m^2

Four (4) rows per plot, Fifty (50) cm between rows

Fifteen (15) plants per linear meter, Six (6) meters long.

One (1) m between replication

Fertilization : 16-20-0

Insect Control :

Spraying Azodrin 202 R 0.25kg a.i/ha shall be done at 5 DAE and Kafil 10 EC 0.04 kg a.i/ha at 100% flowering.

Weed Control :

Selective handweeding shall be done at 14 DAP.

DATA TO BE GATHERED:

1. Seedling vigor
2. Days to flowering
3. Days to maturity
4. Plant height (cm)
5. Lodging index
6. Pest and disease rating
7. Number of pods per plant
8. Number of seeds per pod
9. Weight of 1,000 seeds (g)
10. Moisture content
11. Yield (kg/ha)

TITLE : SCREENING OF POTATO (SOLANUM TUBEROSUM L.) CULTIVARS IN CAGAYAN

JUSTIFICATION :

The province of Cagayan is a lowland area with relatively high temperature. Not all potato cultivars are adaptable to this area. Hence, a study to determine a cultivar (s) that grow well in Cagayan is necessary to improve potato yields.

OBJECTIVE :

To identify promising cultivars for the province of Cagayan and for other areas in South East Asia with similar eco-climatic conditions.

METHODOLOGY :

Location : Lusong, Gonzaga
Baybayog, Alcala

Duration : September 1982 - March 1983

Experimental Design : The Randomized Complete Block Design with four (4) Replication.

Treatments :

1. 800938	11. 800922	21. Gineke
2. 573079	12. 720087	22. DTO-33
3. 800144	13. 720088	23. DTO-2
4. 377258.1	14. 800226	24. R. Lasoda
5. 377850.1	15. R. Pontiac	25. Netted gem
6. Desiree	16. 800301	26. 377257.1
7. 720125	17. 720055	27. R. Burbank
8. Cosima	18. 800174	28. Sebago
9. UTD	19. 720057	29. Coliban
10. 720091	20. 378597	30. Spunta
		31. 573275

Layout : Potato (Lusong, Gonzaga)

Border
1
15
16
13
12
6
2
31
Border

Border
10
7
11
19
3
8
5
17
Border

Border
1
15
12
19
3
31
11
13
Border

Border
10 & 6
3 & 11
2 & 16
8 & 17
7
6
1
31
Border

75 cm

50 cm

Border
31
12
6
13
17
11
1
19
10
8
16
7
15
5
2
3
Border

Border
2
1
7
8
17
10
5
12
11
15
3
13
19
6
16
31
Border

3 m

Plot size : 0.75 x 3 m

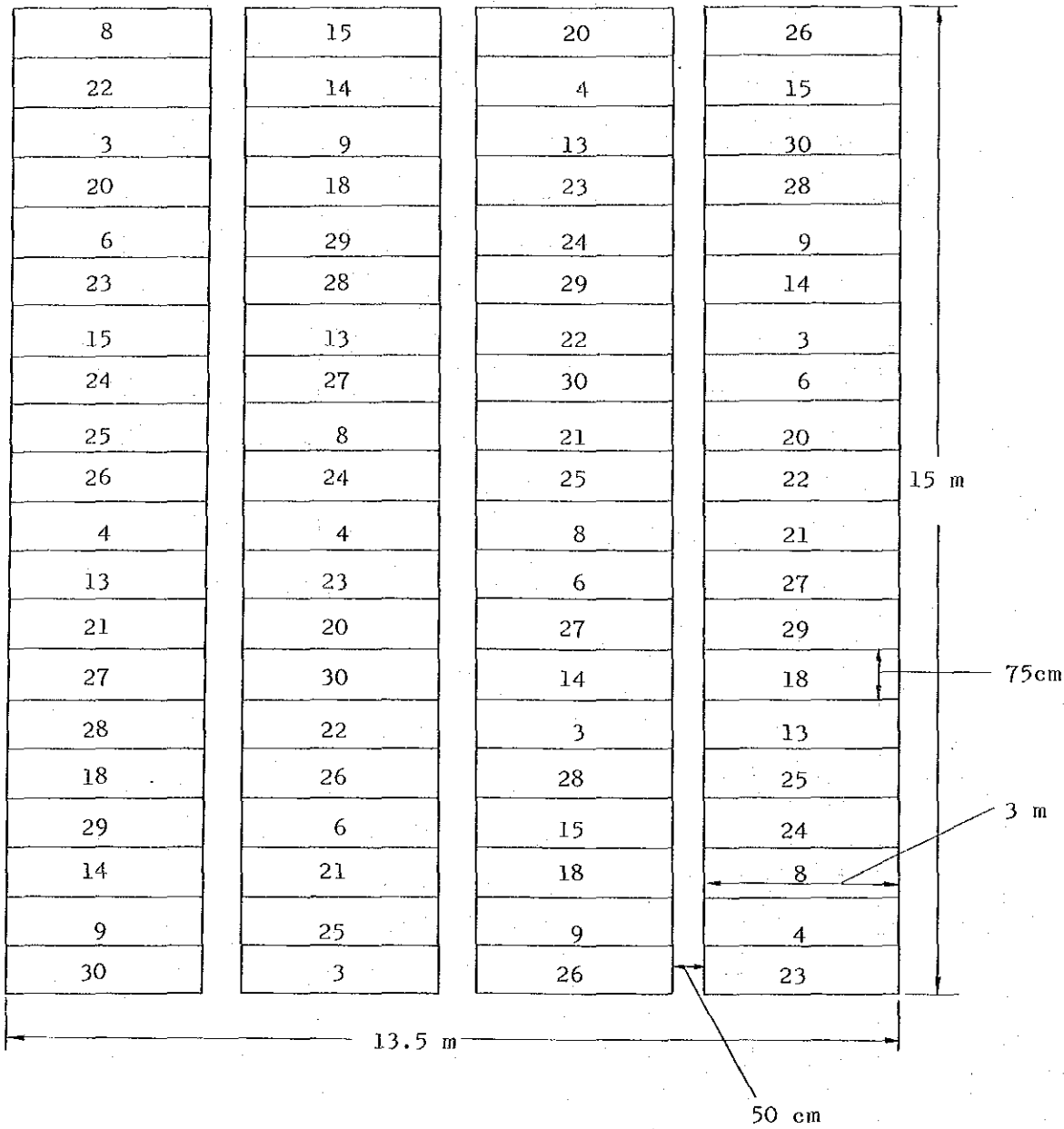
One (1) row per polot

Three (3) meters long

Seventy five (75) cm between rows

Thirty (30) cm between hills

Layout : Poteto (Baybayog, Alcala)



Plot size : 0.75 x 3 m

One (1) now per plot, Three (3) meters long

Seventy five (75) cm between rows

Thirty (30) cm between hills

Fifty (50) cm between replication

Spacing : 30 x 75 cm

Fertilization : 120-120-120 and

fully decomposed chicken manure 3 tons/ha.

Insect Control:

Furadan 3G shall be applied basally.

Hilling up :

Hilling up shall be done 4 weeks after planting or when the plants reaches a height of 20 cm.

DATA TO BE GATHERED:

1. Number of stems at 60 DAP
2. Number of tubers and tuber weight
3. Yield (marketable/non-marketable)
4. Specific gravity
5. Diseases and pests
6. Soil and air temperature
7. Days to maturity

PROJECT TITLE : SOIL AND FERTILIZER TRIAL

PROJECT LEADER : Nenita Mamauag

STUDY TITLE (Study Leader)

1. Fertilizer trial for transplanted rice under irrigated condition. (Rosendo Ventura and Norma Abana)
2. Evaluation of different fertilizer levels on Wag-Wag and IR - 36 Transplanted on rainfed bunded rice area. (Emmanuel Pacis)
3. Long term NPK fertilizer trial on rice. (Nenita Mamauag)
4. On-farm trial on Nitrogen fertilizer efficiency.(Abraham Suetos, Silvino Tejada and Rosendo Ventura)
5. Fertilizer trial on Corn. (Robert Marcaida and Manuel Gaspar)
6. Fertilizer trial on Peanut. (Manuel Gaspar)
7. Fertilizer trial on Mungbean. (Norma Abana and Nenita Mamauag)

TITLE : FERTILIZER TRIAL FOR TRANSPLANTED RICE UNDER IRRIGATED CONDITION

JUSTIFICATION :

The Agricultural Pilot Center of the Cagayan Integrated Agricultural Development Project has the Cropping Systems Program as one of its main thrusts in research. This program aims to develop cropping patterns fitted for different agro-ecological situations in Cagayan.

Appropriate fertilizer recommendation for specific location is one of the most important component technologies to fit in the cropping pattern. At present, however, no available appropriate fertilizer recommendation could be given to a specific agro-ecological situation. It is therefore important to conduct fertilizer experiments in order to determine what fertilizer elements the soil needs to nourish optimum plant growth and development.

OBJECTIVES :

To determine the most suitable and economical fertilizer for a specific crop under a specific agro-ecological situation in Cagayan.

METHODOLOGY :

Location : Buguey Pilot Farm and Tabungao, Gonzaga

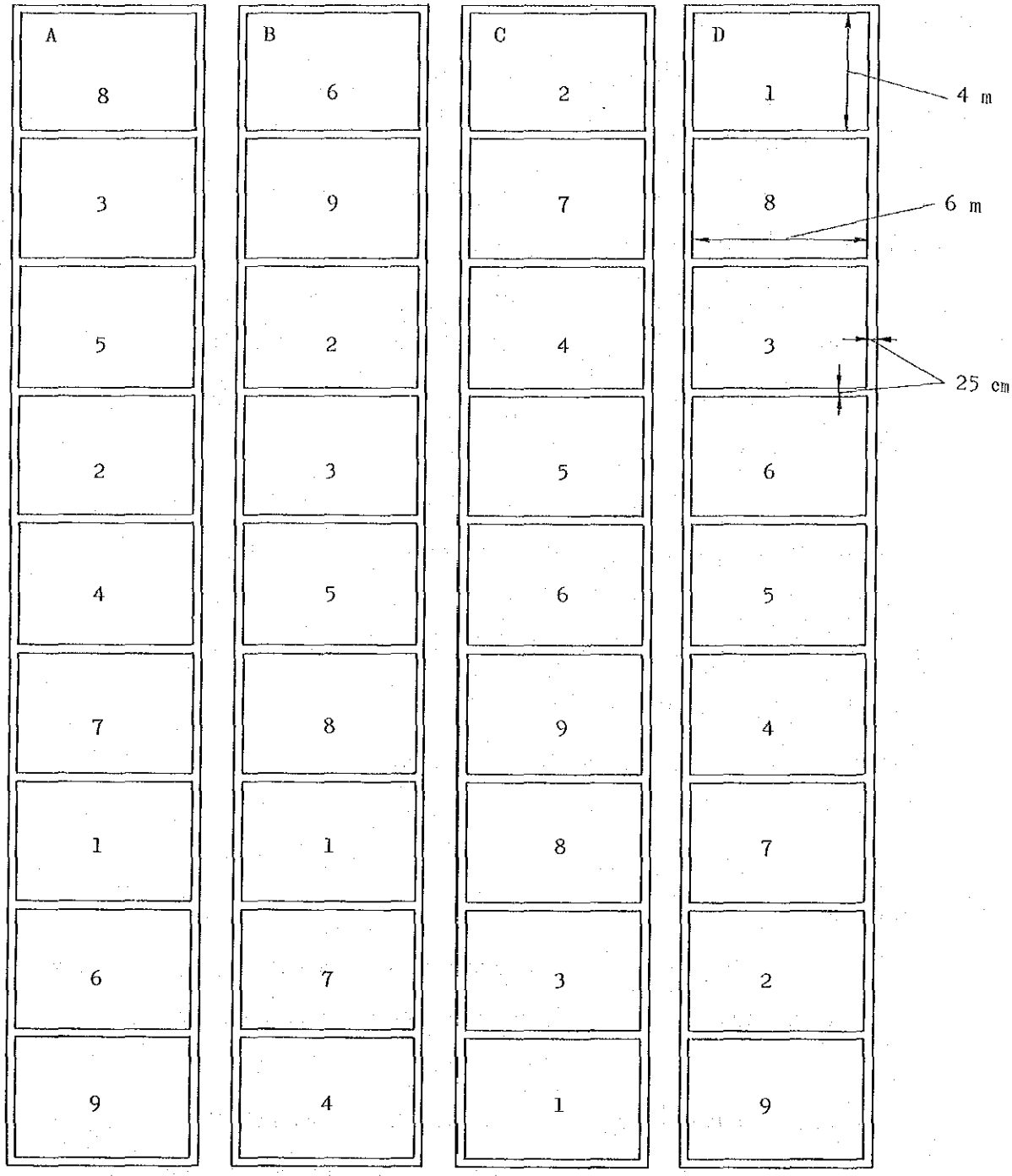
Duration : November 1982 - February 1983 and June 1983 - October 1983

Experimental Design : The Randomized Complete Block Design with Three (3) Replication,however, for Buguey Pilto Farm replication will be done across fields.

Treatments :

1. 0-0-0	4. 70-30-30	7. 70-30-0
2. 0-30-30	5. 105-30-30	8. 70-60-30
3. 35-30-30	6. 70-0-30	9. 70-30-60

Layout : Bugvey Pilot Farm



Plot size : 4 x 6 m

Dimension of levees : 25 cm wide, 20 cm high

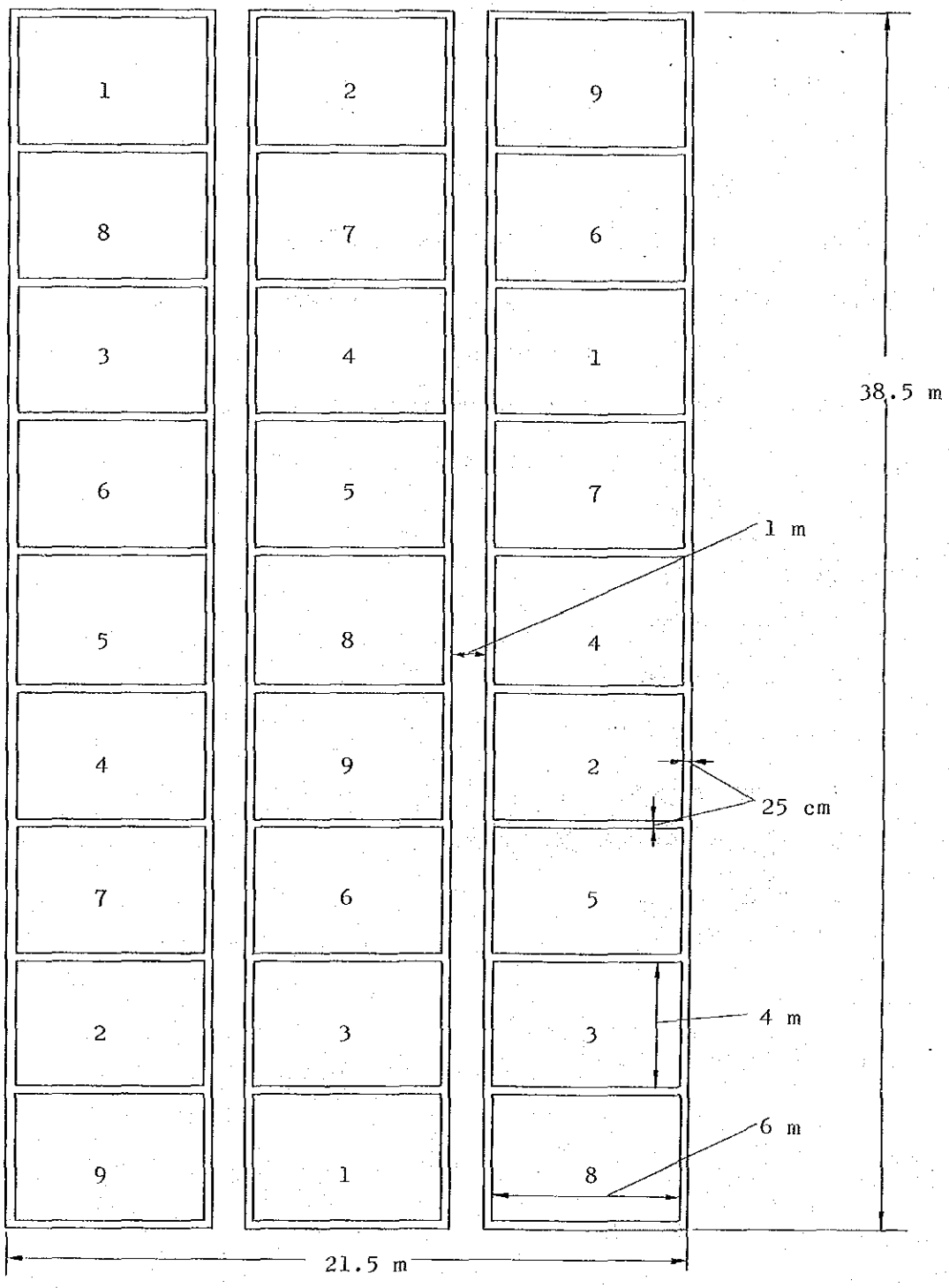
Farmer Cooperator A : Angel Cabote

Farmer Cooperator B : Leon Manzano

Farmer Cooperator C : Tederico Arzadon

Farmer Cooperator D : Benjamin Bautista

Layout : Tabungao, Gonzaga



Plot size : 4 x 6 m

Dimension of levees : 25 cm wide, 20cm high

Distance between replications : 1 m

Total area : 21.5 x 38. 5 m = 827.75 m^2

Apply one-half of N and the whole amount of P_2O_5 and K_2O basally and topdress the remaining half of N at 30-35 DAT.

Variety : IR-36

Spacing : 20 x 20 cm

Age of seedling : 21 day old seedling

Rate of seedlings : 2-3 seedlings per hill

Insect Control : Broadcast Furadan 3G at 1.0 kg. a.i/ha before final harrowing.

Weed Control : Broadcast Machete 5G at 1.5 kg a.i/ha 3-4 days after transplanting. Do additional handweeding 20-25 DAT.

DATA TO BE GATHERED:

1. Plant height
2. Tiller count
3. Panicle count
4. Lodging rate
5. Filled and Unfilled grains
6. Yield (kg/ha)

TITLE : EVALUATION OF DIFFERENT FERTILIZER LEVELS ON WAG-WAG AND IR-36 TRANSPLANTED ON RAINFED BUNDED RICE AREA

JUSTIFICATION:

The Agricultural Pilot Center of the Cagayan Integrated Agricultural Development Project has the Cropping Systems Program as one of its main thrusts in research. This program aims to develop cropping patterns fitted for different agro-ecological situations in Cagayan.

Appropriate fertilizer recommendation for specific location is one of the most important component technologies to fit in the cropping pattern. At present, however, no available appropriate fertilizer recommendation could be given to a specific agro-ecological situation. It is therefore important to conduct fertilizer experiments in order to determine what fertilizer elements the soil needs to nourish optimum plant growth and development.

OBJECTIVES :

To determine the most suitable and economical fertilizer for a specific crop under a specific agro-ecological situation in Cagayan.

METHODOLOGY :

Location : Dumpao, Iguig

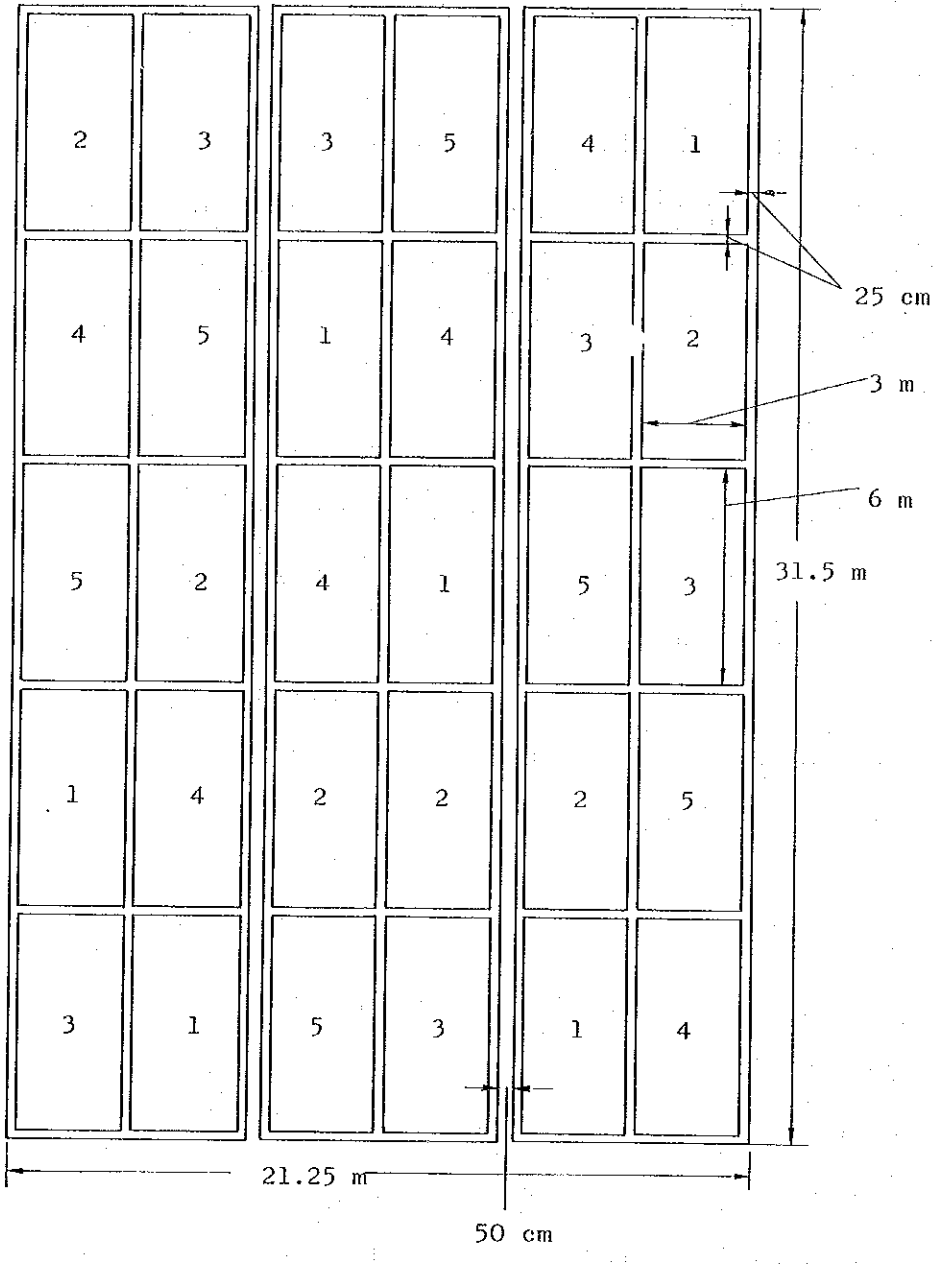
Duration : October 1982 - February 1983

Experimental Design : The Randomized Complete Block Design with Three (3) Replication

Treatments :

1. 0-0-0
2. 30-30-30
3. 50-30-0
4. 70-50-0
5. 90-70-0

Layout :



Plot size : 3 x 6 m

Dimension of levees : 25 cm wide, 20 cm high

Distance between replications : 50 cm

Total area : 21.25 x 31.5 m = 669.375 m^2

Apply one-half of N and the whole amount of P_2O_5 and K_2O basally and topdress the remaining half of N at panicle initiation (25-30 DAT for IR-36 and 40-45 DAT for Wag-Wag)

Variety : Wag-Wag and IR -36

Spacing : 20 x20 cm

Age of seedling : 21 day old seedling

Rate of seedling: 2-3 seedlings per hill

Weed Control :

Keep the field free from weeds 20-25 DAT by rotary weeding and handweeding.

DATA TO BE GATHERED:

1. Plant height
2. Number of tiller count
3. Length of panicle
4. Number of filled and unfilled grains
5. Yield (kg/ha)

TITLE : LONG TERM NPK FERTILIZER TRIAL ON RICE

JUSTIFICATION :

Most of the rice soils in the country have been used for a very long time, traditional varieties being planted, such that the so-called natural fertility has become low. To obtain maximum yield from these soils, high yielding varieties must be planted and they need to be fertilized either with organic or inorganic fertilizers.

Due to the limited supply of organic fertilizers, their low content of elements and their bulkiness, the farmers prefer to use the inorganic commercial fertilizers because they contain relatively higher nutrient elements (N.P.K.) which are readily soluble and available to the rice crop. However, thesefertilizers may have an adverse effects on the chemical and physical properties of soil which in turn may affect plant growth and development.

OBJECTIVES :

1. To determine the effects of continuous application of commercial fertilizers on the chemical and physical properties of soil.
2. To determine the effects of continuous application of commercial fertilizers on the growth and yield of high yielding lowland rice.
3. To demonstrate the effect of NPK fertilizer.

METHODOLOGY :

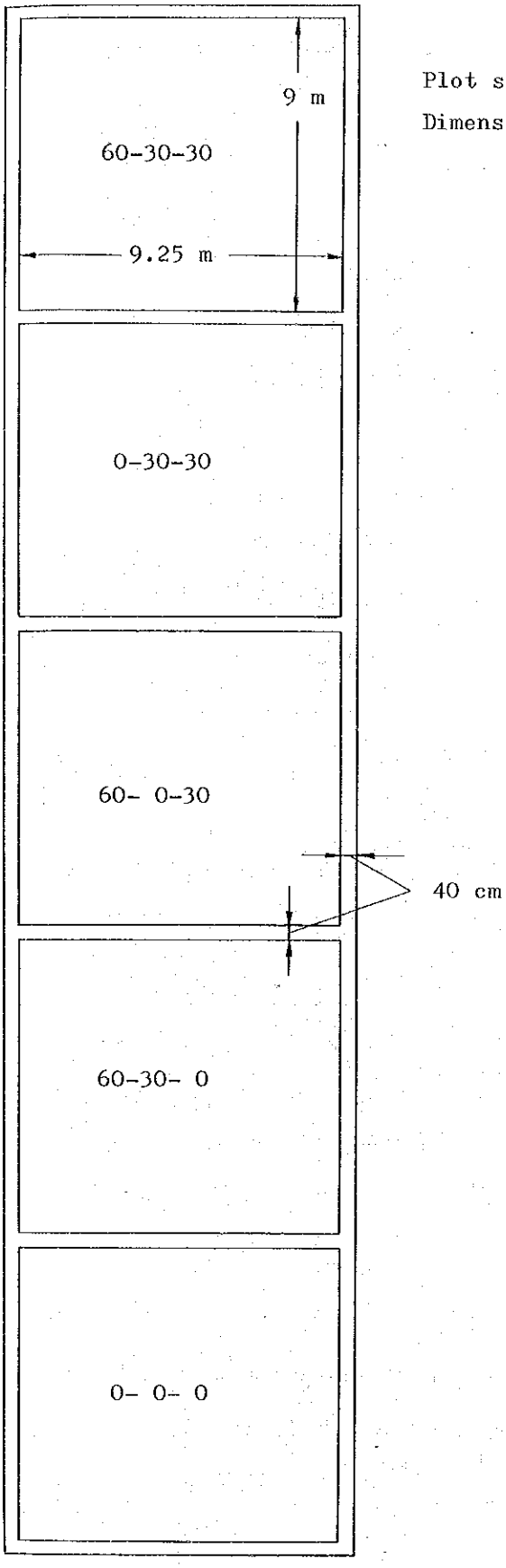
Location : APC Iguig, Cagayan

Duration : Starting from November 1982

Treatments :

1. 60-30-30
2. 0-30-30
3. 60-0-30
4. 60-30-0
5. 0-0-0

Layout :



Plot size : 9 x 9.25 m

Dimension of levees : 40 cm wide

30 cm high

Apply one-half of N and the whole amount of P_2O_5 and K_2O basally and topdress the remaining half of N at panicle initiation (30-35 DAT)

Variety : IR-36

Spacing : 25 x 25 cm

Age of seedling : 21 day old seedling

Rate of seedling : 2-3 seedlings per hill

Weed Control : Keep the field free from weeds.

DATA TO BE GATHERED :

1. Height and tiller count - 40 DAT and at harvest
2. Grain yield (kg/ha)
3. Straw yield (kg/ha)
4. Soilanalysis (NPK)

TITLE : ON-FARM TRIAL ON NITROGEN FERTILIZER EFFICIENCY

JUSTIFICATION :

Urea is the most dominant source of nitrogen in Asia. Low fertilizer efficiency has compounded the problem of high cost of nitrogen for small farmers. Studies at IRRI have shown that up to two-thirds of added nitrogen is lost, through volatilization and denitrification, when applied by broadcasting. Two ways to reduce such losses are deep placement and slow release.

To reduce nitrogen losses, researchers at IRRI recommend splitting the nitrogen application into two-thirds basally incorporated and one-third applied 5 to 7 days before panicle initiation. Despite this apparently viable technology, most farmers prefer to delay the first nitrogen application until 2 to 3 weeks after transplanting. Recently more attention has been given to the urea supergranules (USG). The USG was built on the "mud-ball" concept. In the INSFFER trials, which have been conducted throughout Asia, up to 40% yield advantage has been demonstrated by USG compared with researcher's "best split" method.

This on-farm trial on nitrogen fertilizer efficiency is designed to verify the technical advantage of researcher's "best split" and USG over farmer's current practices. To understand the conditions under which this technical advantage exists (or does not exist), the trial will be conducted at several locations and supplemented with detailed site characterization.

OBJECTIVES :

To compare the effectiveness of urea supergranules and the conventional prilled urea applied in "best split" method on the growth and yield.

METHODOLOGY :

Location : Iguig Pilot Farm, Gattaran, Abulug,Lal-lo Pilot Farm and Buguey Pilot Farm

Duration : November 1982 - March 1983

Treatments :

1. 0-30-30
2. 29-30-30 (Farmer's split)
3. 58-30-30 (Farmer's split)
4. 87-30-30 (Farmer's split)
5. 29-30-30 (Researcher's split)
6. 58-30-30 (Researcher's split)
7. 87-30-30 (Researcher's split)
8. 29-30-30 (USG)
9. 58-30-30 (USG)
10. 87-30-30 (USG)

Farmer's split ------2/3 N applied 15 days after transplanting, 1/3 N applied 5 days before panicle initiation.

Researcher's split- 2/3 N applied basal and incorporated before transplanting, 1/3 N applied 5 days before panicle initiation.

USG----------All Urea Supergranules applied 7 days after transplanting.

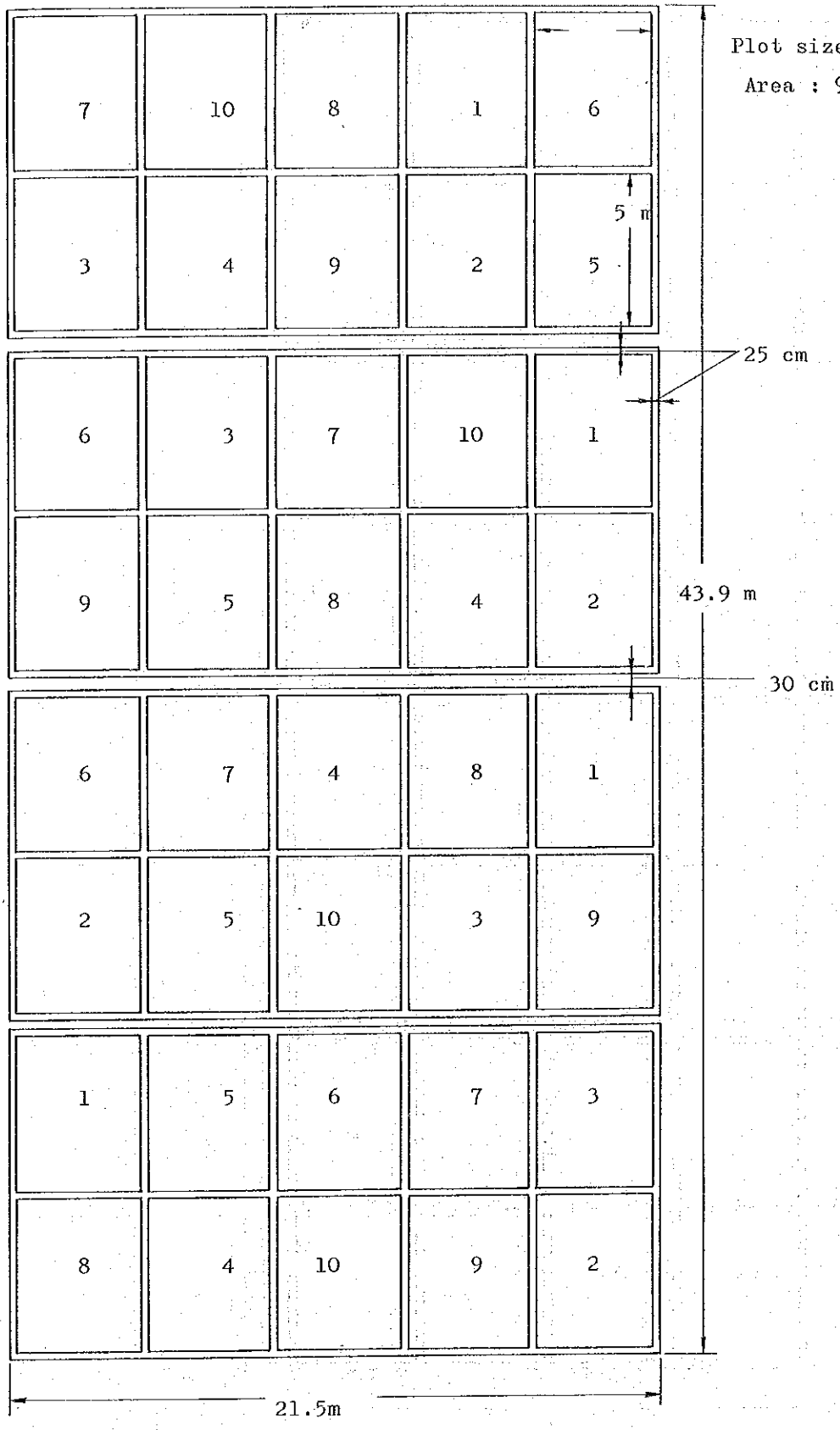
30 kg/ha P_2O_5 and 30 kg/ha K_2O are to be applied to all treatments as basal.

Variety : IR-36

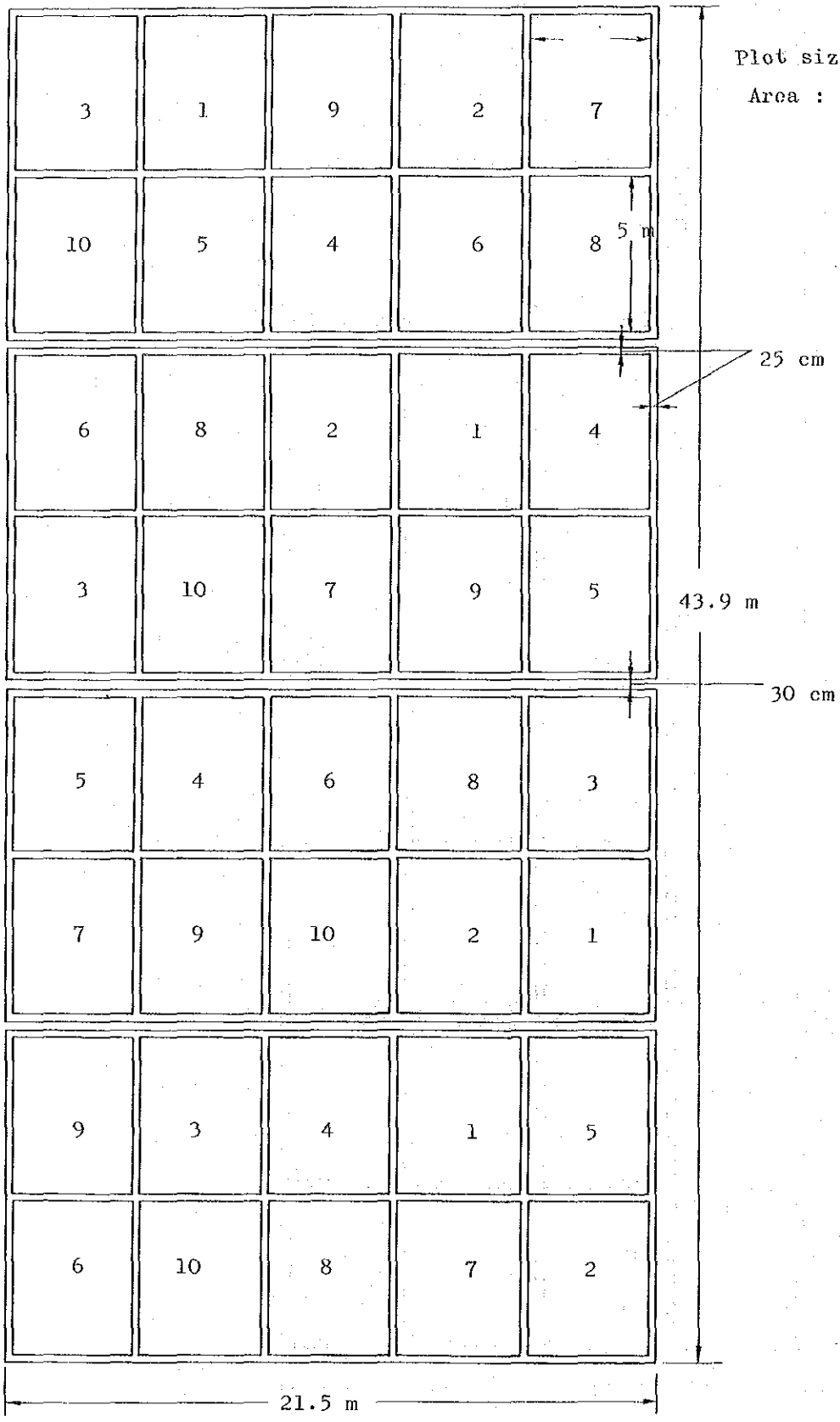
Spacing : 20 x 20 cm

Age of seedling : 20 day old seedling

Layout : Iguig Pilot Farm



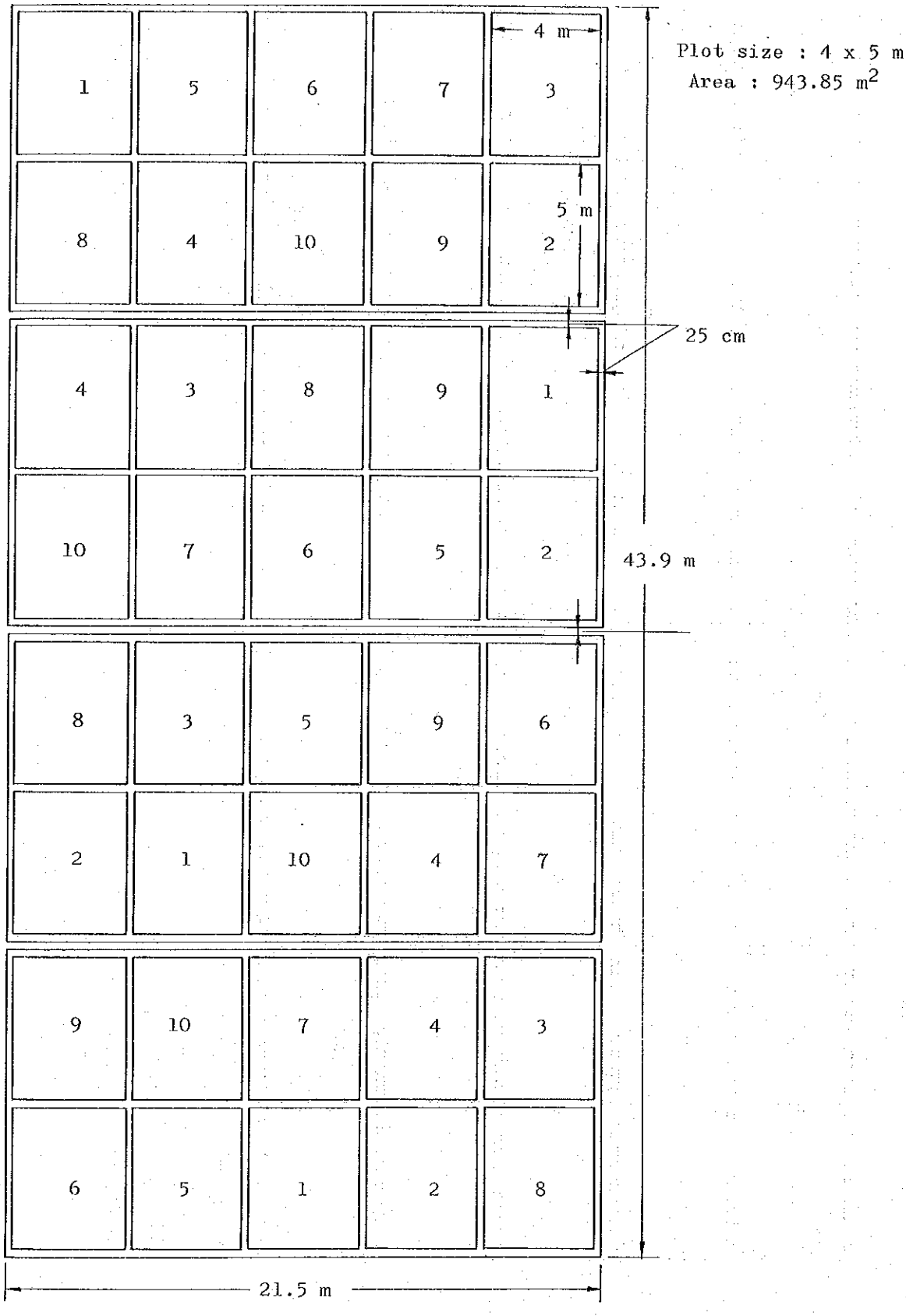
Layout : Gattaran



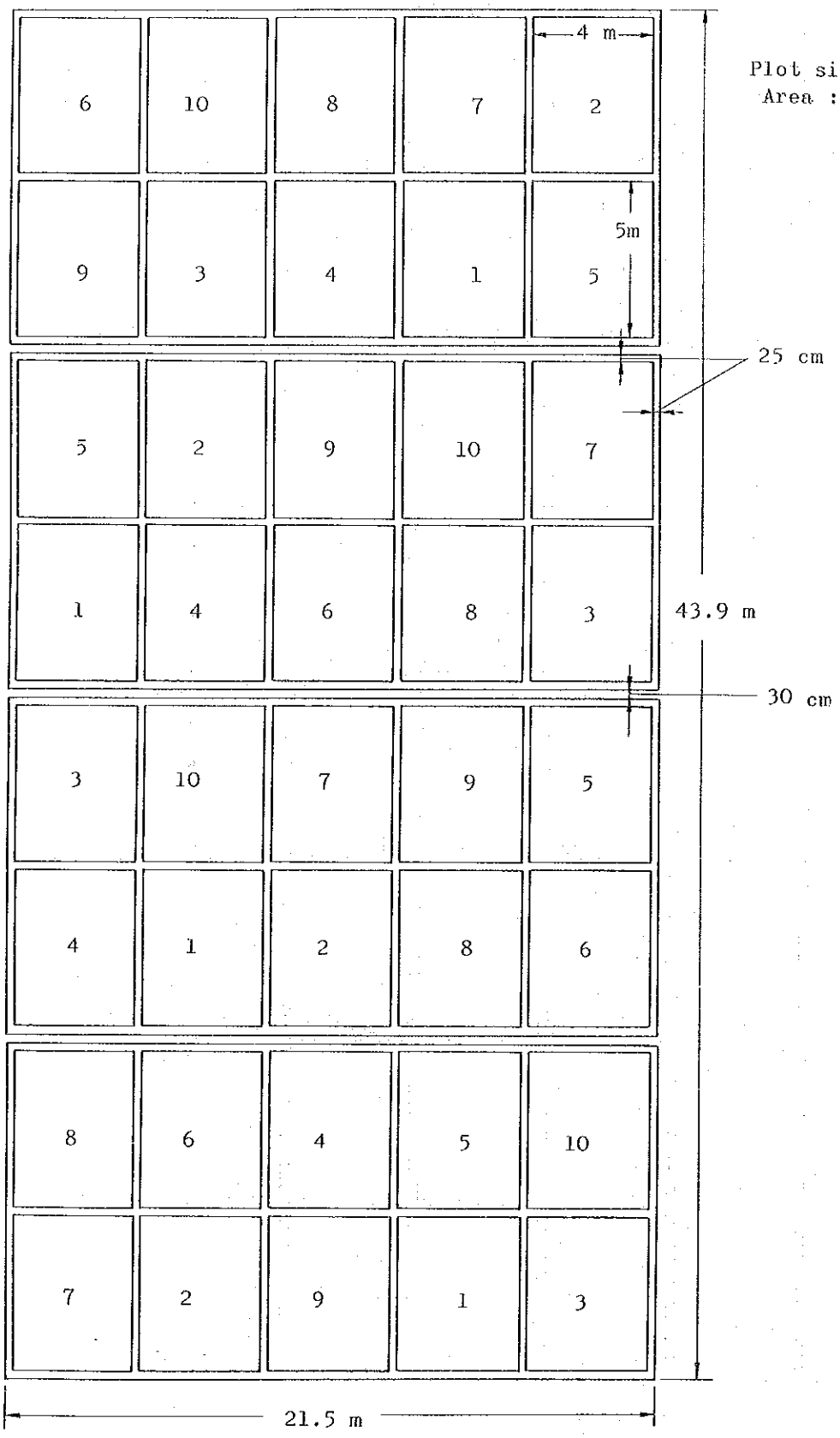
Plot size : 4 x 5 m

Area : 943.85 m^2

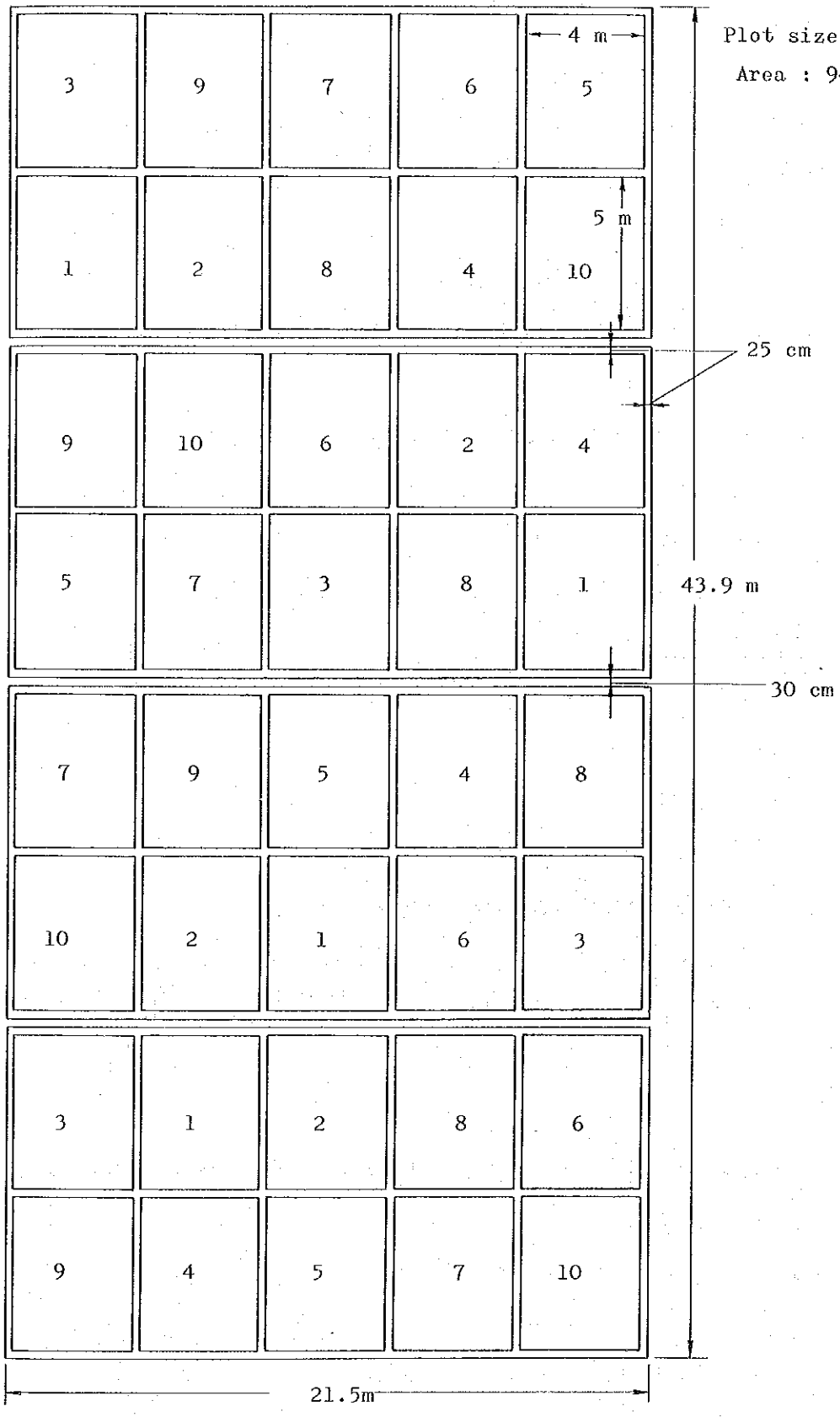
Layout : Lal-10 Pilot Farm



Layout : Buguey Pilot Farm



Layout : Abulug



Plot size : 4 x 5 m

Area : 943.85 m^2

Rate of seedling : 2 - 3 seedlings per hill

Weed Control :

Broadcast Machete 5G at 1.0 kg a.i/ha 3 - 4 days after transplanting. Additional Handweeding will be done 20-25 days after transplanting.

Insect Control :

1. Soak seeds in 0.06% Furadan 3G solution for 24 hours.
2. Seedbed spray with Azodrin 168 EC at 0.75 kg a.i/ha at 10 and 17 DAS.
3. Broadcast Furadan 3G at 1.0 kg a.i/ha before final harrowing.
4. Spray Azodrin 168 EC at 15,30 and 50 DAT at 1.0kg a.i/ha.
5. Spray Sevin at 65 -70 DAT at the rate of 0.75 kg a.i/ha.

DATA TO BE GATHERED :

1. Plant height
2. Tiller count
3. Panicle count
4. Moisture content
5. Number of filled and unfilled grians
6. 1000Grain weight (g)
7. Yield (kg/ha)

TITLE : FERTILIZER TRIAL ON CORN

JUSTIFICATION :

Due to the unavailability of appropriate fertilizer recommendation for the wide area planted to corn in different agro-ecological situations, this proposal is made.

OBJECTIVE :

To determine the most suitable and economical fertilizer recommendation for corn under a specific agro-ecological situation.

METHODOLOGY :

Location : Pared, Alcala and Tapel, Gonzaga

Duration : November 1982 - March 1983

Experimental Design : The Randomized Complete Block Design with Four (4) Replication

Treatments :

1. 0 - 0 - 0
2. 30 - 0 - 0
3. 60 - 0 - 0
4. 60 - 0 -30
5. 60 - 30 - 0
6. 60 - 30 - 30
7. 60 - 60 - 30
8. 60 - 30 - 60

The fertilizer required for each treatment applied as basal along the furrows. Cover these with 2 - 3 cm of fine soil.

Variety ; I B P Var 1

Spacing : 25 x 75 cm

Rate of seeding : 2 - 3 seeds /hill

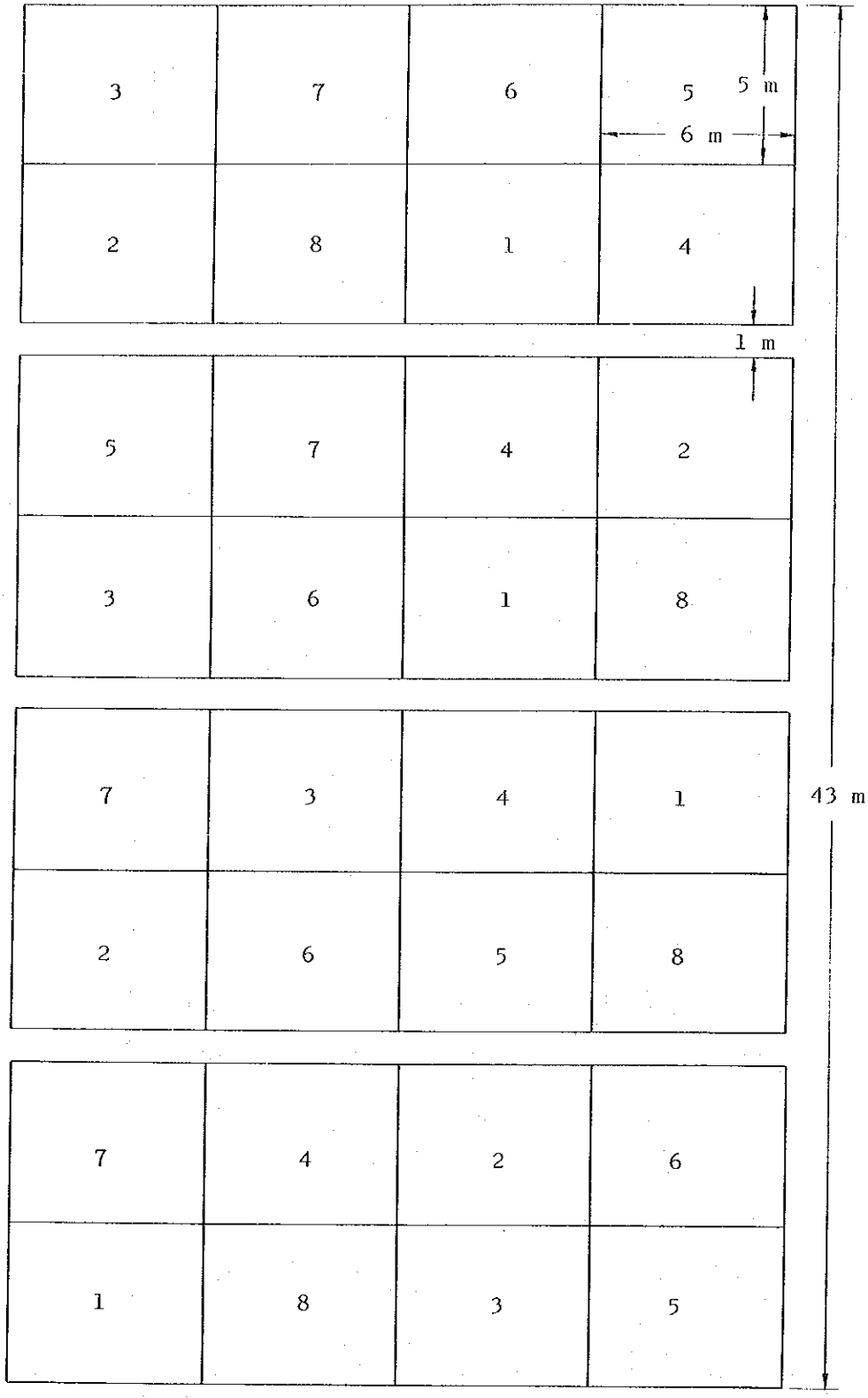
Number of plant per hill : 1 plant/hill (14 DAE)

Insect Control : Apply Furadan 3G at basal

Disease Control : Treat the seeds with Apron 35 SD at 2g/kg seed.

Weed Control : Do off-barring 14 DAE and hilling up 25 DAE

Layout :



Plot size : 5 x 6 m

Total area : 24 x 43 m = 1032 m^2

DATA TO BE GATHERED :

1. Plant height (cm)
2. Ear height (cm)
3. Number of plants harvested
4. Number of ears harvested (Marketable and Non-Marketable)
5. Weight of kernels of marketable and non-marketable ears.
6. Shelling Percentage
7. Moisture content
8. Grain Yield (kg/ha)
9. Economic data which includes the labor (man-hour) of applying fertilizer and the current cost of applied fertilizer materials in the locality including fare.

TITLE : FERTILIZER TRIAL ON PEANUT

JUSTIFICATION :

Due to the unavailability of appropriate fertilizer recommendation for the wide area planted peanut in different agro-ecological situations, this proposal is made.

OBJECTIVE :

To determine the most suitable and economical fertilizer recommendation for peanut under a specific agro-economical situation.

METHODOLOGY :

Location : Pared, Alcala

Duration : November 1982 - March 1983

Experimental Design : The Randomized Complete Block Design with Three (3) Replication.

Treatment :

1. 0 - 0 - 0
2. 20 - 0 - 0
3. 20 -10 - 0
4. 20 - 20 - 0
5. 20 - 20 -20
6. 40 - 10 - 0

The fertilizer required for each treatment applied as basal along the furrows. Cover these with 2-3 cm of fine soil.

Variety : UPL Pn -2

Spacing : 20 x 50 cm

Rate of seed ing : 2 seeds / hill

Number of plant/hill : 1 plant / hill (7 DAE)

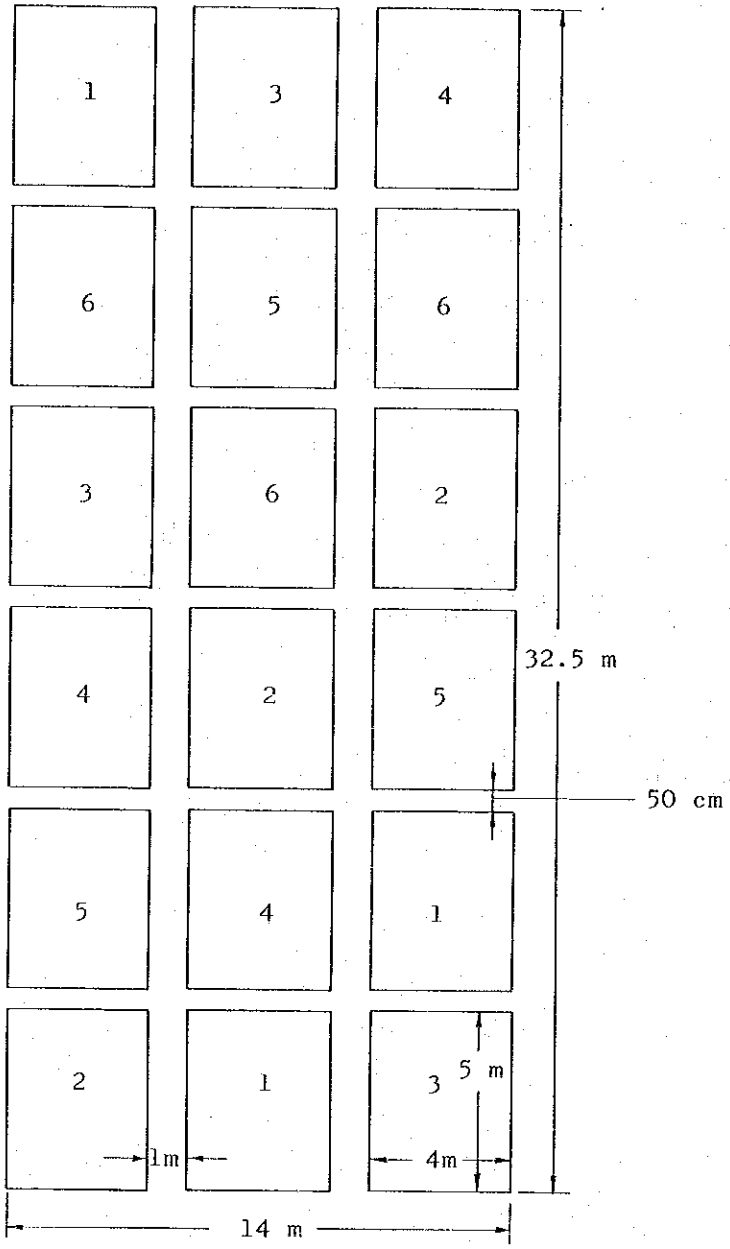
Insect Control :

Application of Furadan 3G at basal together with the fertilizer treatments at 1.0 kg a.i/ha

Disease Control :

Application of Daconil at a rate of 0.5 kg a.i/ha when

Layout :



Plot size : 4 x 5 m

Total area : 14 x 32.5 m = 455 m^2

Cercospora leaf spot occurs.

Weed Control :

Apply Machete 60 EC at 1.2 kg a.i/ha (60ml/15 liters of water) if soil is moist to wet at 1 day after planting (1DAP) or do interrow cultivation at 14 DAT.

Hilling up the plants at 25-30 DAE to ensure proper pod formation and ensure penetration of pegs into the soil and to control late weeds occurence.

DATA TO BE GATHERED :

1. Plant height (cm)
2. NUmber of plants harvested
3. Number of pods per plant
4. Shelling percentage
5. Yield (kg/ha)
6. Moisture content

TITLE : FERTILIZER TRIAL ON MUNGBEAN

JUSTIFICATION :

The Agricultural Pilot Center of the Cagayan Integrated Agricultural Development Project has the Cropping Systems Program as one of its main thrust in research. This program aims to develop cropping pattern fitted for different agro-ecological situations in Cagayan.

Appropriate fertilizer recommendation for specific location is one of the most important component technologies to fit in the cropping pattern. At present, however, no available appropriate fertilizer recommendation could be given to a specific agro-ecological situation. It is therefore important to conduct fertilizer experiments in order to determine what fertilizer elements the soil needs to nourish optimum plant growth and development.

OBJECTIVES :

To determine the most suitable and economical fertilizer for Mungbean.

METHODOLOGY :

Location : Dumpao, Iguig and Tabungao,Gonzaga

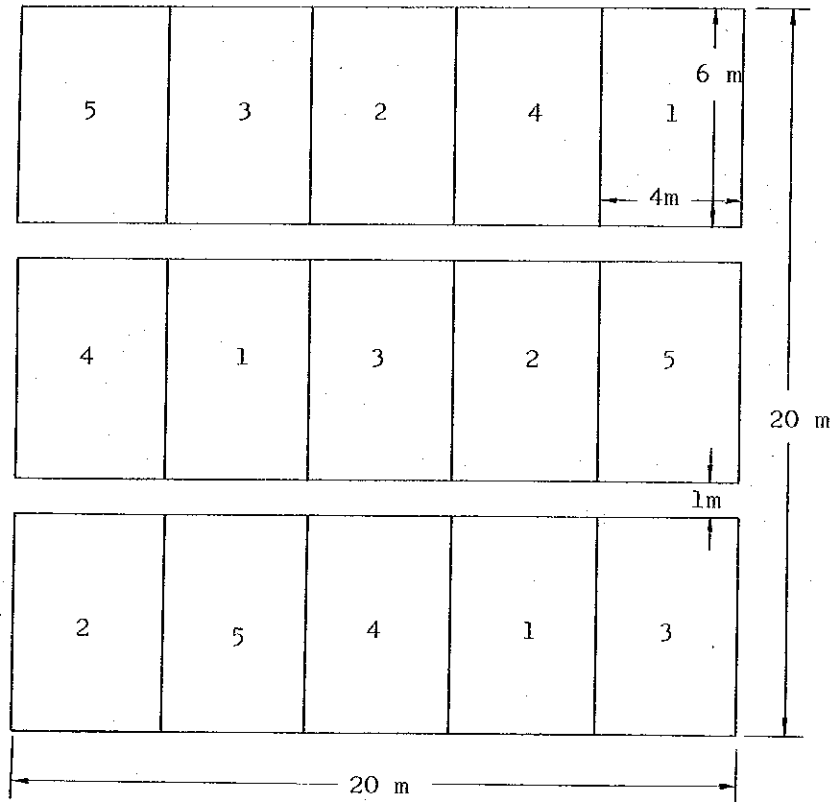
Duration : March 1983 - May 1983

Experimental Design : The Randomized Complete Block Design with Three (3) Replication.

Treatment :

1. 0-0-0
2. 20-30-30
3. 20-30-30 + Inoculate
4. 0-30-30 + Inoculate
5. Inoculate only

Layout :



Plot size : 4 x 6 m

Total area : 20 x 20 m = 400 m^2

Variety : CES 1D -21

Spacing : 20 x 50 cm

Rate of Seeding : 2-4 seeds per hill

Number of plant per hill : 2 plants /hill

Insect Control : Basal application of Furadan 3G

Weed Control :

Off-barring shall be done 2 - 4 weeks after emergence and hilling up shall be done 4 weeks after emergence.

DATA TO BE GATHERED :

1. Plant height (cm)
2. Number of pod per plant
3. Number of seed per pod
4. Weight of 1000 seeds (g)
5. Number of plant harvested
6. Moisture content
7. Yield (kg/ha)

PROJECT TITLE : DISEASE, INSECT PEST AND WEED CONTROL TRIAL

PROJECT LEADER : Manuel Gaspar

STUDY TITLE (Study Leader)

1. Development of chemical insect control recommendations for the province of Cagayan using the partition growth yield less method. (Lovelyn Gaspar)
2. Evaluation of alternative weed control method for transplanted lowland rice in the CIADP irrigation project areas. (Alfredo Tamargo and Mariano Martin)
3. Development of insect and weed control recommendations for mungbean in rice and corn-based cropping patterns. (Lovelyn Gaspar and Alfredo Tamargo)
4. Development of insect and weed control recommendation for corn. (Samuel Guimmayen and Alfredo Tamargo)
5. Screening of 36 rice varieties/lines against rice blast. (Samuel Guimmayen)
6. Screening and evaluation of five commercial fungicides against rice blast. (Samuel Guimmayen)
7. Preliminary study of the biology and distribution of "bilid-bilid" sedge. (Manuel Gaspar)
8. Preliminary evaluation of herbicides in the control of "bilid-bilid" sedge. (Manuel Gaspar)
9. A study on the ecology of major insect pests, diseases and weeds of irrigated rice-based cropping pattern commonly practiced at pilot farm. (Lovelyn Gaspar, Alfredo Tamargo. Mariano Martin and Samuel Guimmayen)

TITLE : DEVELOPMENT OF CHEMICAL INSECT CONTROL RECOMMENDATIONS FOR THE PROVINCE OF CAGAYAN USING THE PARTITION GROWTH YIELD LESS METHOD

JUSTIFICATION :

Insecticide usage, particularly if it is based on economic threshold, is a complex technology involving broad knowledge encompassing insect identification and population assessment methods as well as on the appropriate control procedures. The ever changing wide array of choices of chemicals, formulation, prices, dosages, timing, and application of methods of presents a challenge to even experienced field workers (Litsinger, 1982).

Insecticides are costly and even one application is a financial burden for most small-scale farmers. Therefore each application in a recommendation must be based on economic factors (Litsinger, 1982).

A tested insect control technology to suit the socio-economic condition of Cagayan farmers is lacking. Locally, chemical insect control practices are still mainly based on dealers or national level of recommendations. Thus, there is a need to develop or identify, specific recommendations suited for various areas in the province.

OBJECTIVES :

1. To assess the yield loss due to insects at different growth stages of rice.
2. To identify the insects causing yield loss at each stage of the crop.
3. To determine the most profitable/suitable insect control recommendations for rice production.

METHODOLOGY :

Location : APC Model Infrastructure

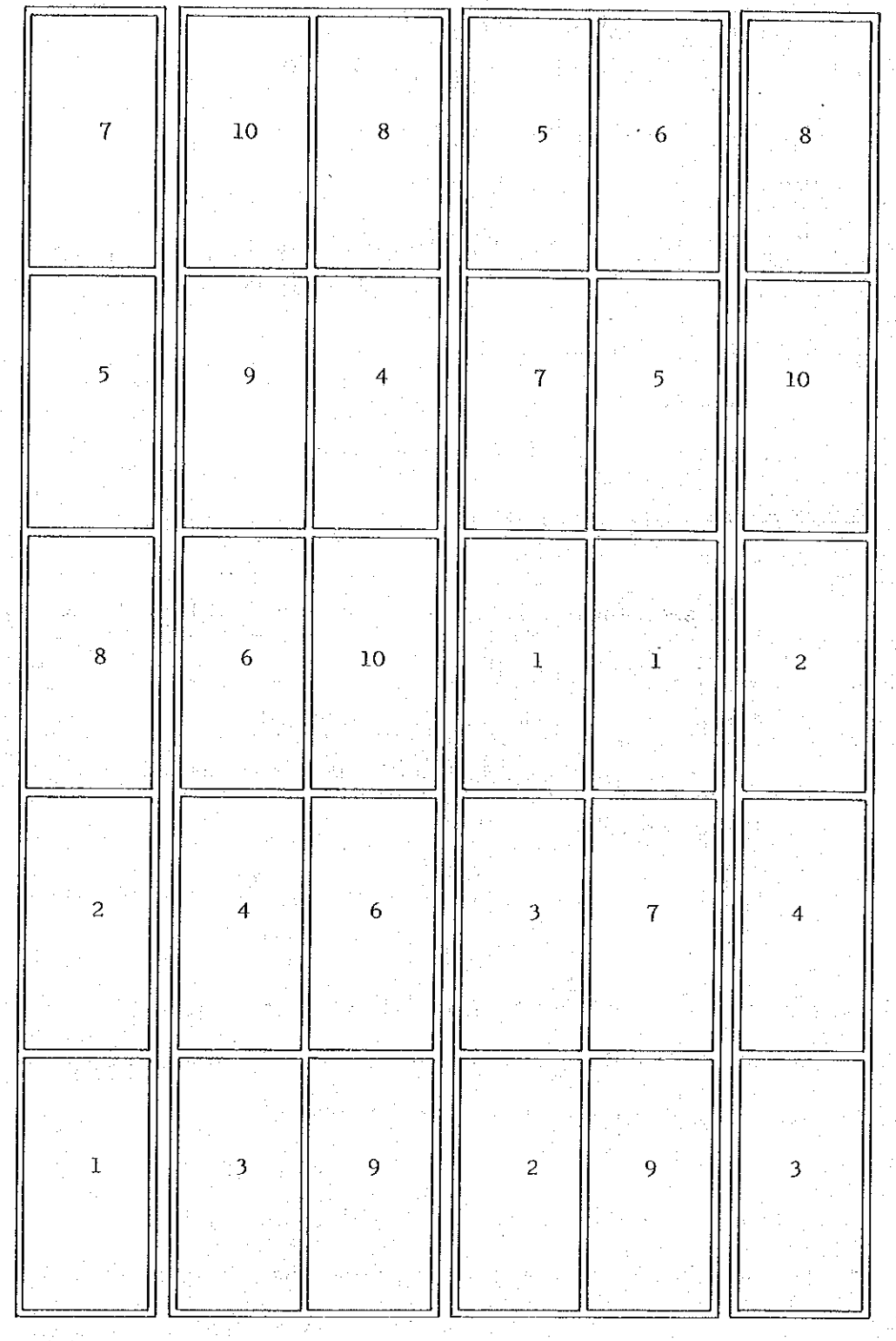
Duration : October 1982 - February 1983

Experimental Design : The Randomized Complete Block Design with Three (3) Replication

Treatments :

1. Maximum Protection
   a. Seedbed - 0.75 kg a.i Azodrin 168 EC/ha
      7 and 14 days after emergence (DAE)
   b. Vegetative - 1.0 kg a.i Azodrin 168 EC/ha
      5, 15 and 25 days after transplanting (DAT)
   c. Reproductive - 1.0 kg a.i Sevin 85 S/ha
      35, 45 and 55 DAT.
   d. Ripening - 0.75 kg a.i Thiodan 35 EC/ha
      weekly interval after flowering
      65, 72 and 79 DAT.
2. Without seedbed protection
3. Without vegetative protection
4. Without reproductive protection
5. Without ripening protection
6. Untreated control
7. Recommended practice
   1 kg a.i Furadan 3G/ha basal and economic threshold level
8. Alternative practice I
   1 kg a.i Furadan 3G/ha basal and Azodrin 168 EC at 0.75 kg a.i/ha at 25 and 45 DAT.

Layout :



Plot size : 4 x 8 m

Levees : 30 cm wide 20 cm height

Irrigation canal : 50 cm wide

Total area : 28.5 x 41.8 m = 1191.3 m^2

9. Alternative practice II

1 kg a.i Furadan 3G/ha basal

10. Economic threshold level

Variety : IR - 36

Fertilization : 60 - 0 - 0

½ basal and ½ topdressed at 30 - 35 DAT

Spacing : 20 x 20 cm

Rate of seedlings : 3 seedlings/hill

Weed control : Broadcast Machete 5G at 3 - 5 DAT.

DATA TO BE GATHERED :

1. Insect population -

sweeping (10 sweeps/plot) at 6 and 13 DAS. 10, 20, 30, 40, 50,60 and 70 DAT.

2. Degree of insect damage (IRRI Standard) -

6 and 13 DAS. 10, 17, 24, 38, 52,66 and 80 DAT.

3. Yield (kg/ha)

TITLE : EVALUATION OF ALTERNATIVE WEED CONTROL METHOD FOR TRANSPLANTED LOWLAND RICE IN THE CIADP IRRIGATION PROJECT AREAS

JUSTIFICATION :

Transplanting is the usual method of rice establishment in both irrigated and rainfed lowland farms in Cagayan Valley Farmers' level of management of the transplanted rice, however, is often low such that weed control, an important factor for high yield, is often neglected.

Many effective weed control measures have been developed in various research stations all over the world. However, de Datta (1979) has ruled-out that there is no weed control method that is best suited for all situations and locations due to varying growth habits and life cycles of weeds. As such and so as to convince farmers to adopt appropriate weed control practices in the CIADP irrigation project areas, the effectiveness, economics, compatibility and/or adaptability of various weed control recommendations or practices should be evaluated under specific local conditions.

OBJECTIVES :

To evaluate the effectiveness, compatibility and/or adaptability and economics of alternative weed control methods or practices for transplanted rice in selected irrigated lowland farms within the CIADP irrigation project areas.

To identify or develop alternative weed control recommendations for rice, transplanted during the dry and wet season in the Buguey and Lal-lo Pilot Farms.

METHODOLOGY :

Location : Buguey Pilot Farm and Lal-lo Pilot Farm

Duration : November 1982 - September 1983

Experimental Design : The Randomized Complete Block Design with Three (3) Replication

Treatments:

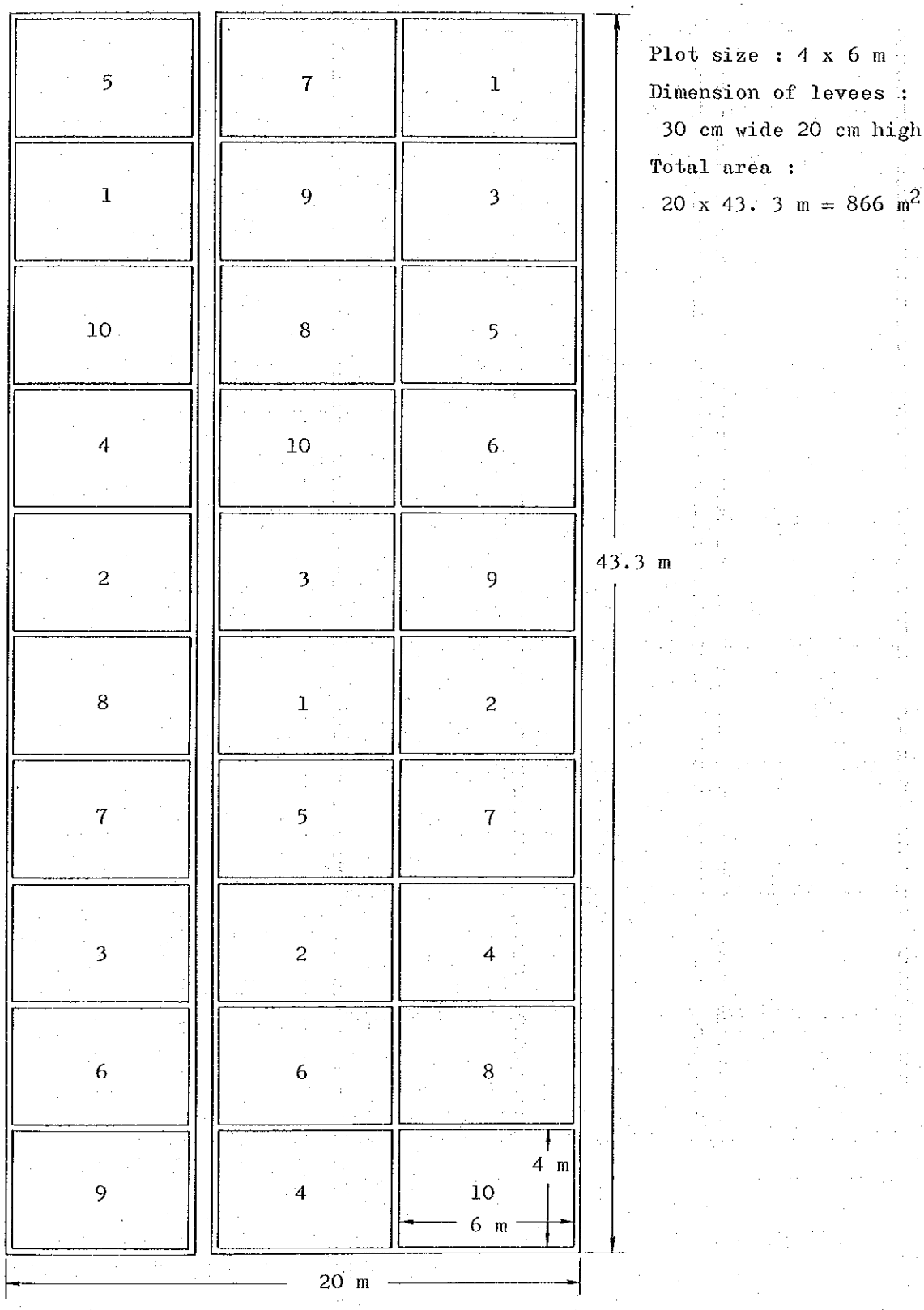
BUGUEY PILOT FARM

1. Unweeded check
2. Propanil (Rogue) 1.0 kg a.i/ha 2 - 4 DAT.
3. 2,4 - D EC 0.75 kg a.i/ha 21 - 25 DAT.
4. Glyphosate 0.75 kg a.i/ha 35 DBT.
5. Rotary Weeding 21 - 25 DAT.
6. Handweeding 21 - 25 DAT.
7. 2,4 - D EC 0.5 kg a.i/ha 21 - 25 DAT followed by Handweeding 41 - 45 DAT.
8. Handweeding 21 - 25 DAT and 40 - 45 DAT.
9. 2,4 - D G 1.0 kg a.i/ha 3 - 6 DAT.
10. Machete 5G 1.0 kg a.i/ha 0 - 4 DAT.

LAL-LO PILOT FARM

1. Unweeded check
2. Propanil (Rogue) 1.0 kg a.i/ha 2 - 4 DAT.
3. Butachlor 1.0 kg a.i/ha 0 - 6 DAT.
4. Rotary weeding 21 - 25 DAT.
5. Handweeding 21 - 25 DAT.
6. 2,4 - D EC 0.75 kg a.i/ha 21 - 25 DAT.
7. 2,4 - D EC 0.5 kg a.i/ha 21 - 25 DAT followed by Handweeding 41 - 45 DAT.

Layout : Bugvey Pilot Farm

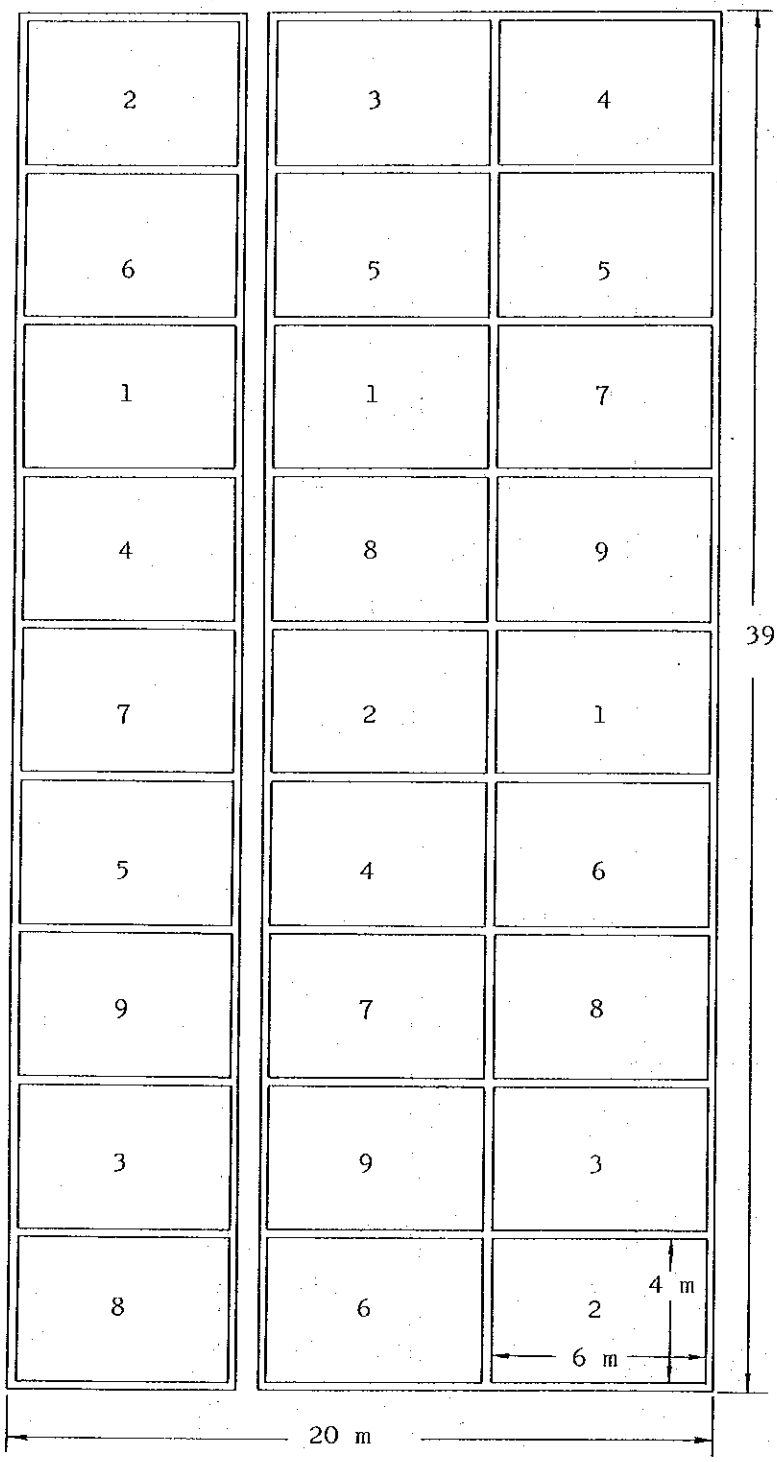


Plot size : 4 x 6 m

Dimension of levees :
30 cm wide 20 cm high

Total area :
20 x 43. 3 m = 866 m^2

Layout : Lal-10 Pilot Farm



Plot size : 4 x 6 m

Dimension of levees :
30 cm wide 20 cm high

Total area :
20 x 39 m = 780 m^2

8. Butachlor 0.5 kg a.i/ha 0 - 6 DAT followed by Handweeding 35 DAT.
9. Two handweeding 21 - 25 DAT and 41 - 45 DAT.

Variety : IR - 36

Spacing : 20 x 20 cm (for dry season)
25 x 25 cm (for wet season)

Rate of seedlings : 2 - 3 seedlings/hill

Fertilization :

DATA TO BE GATHERED :

1. Phytotoxicity rating of herbicides taken at 5 - 10 days after application.
2. Dry weed weight (g)
3. Number of productive and unproductive tillers
4. Yield (kg/ha)
5. Cost and Return analysis of each weed control method.

TITLE : DEVELOPMENT OF INSECT AND WEED CONTROL RECOMMENDATIONS FOR MUNGBEAN IN RICE AND CORN-BASED CROPPING PATTERNS

JUSTIFICATION :

Mungbean is an important cash crop adaptable to various growing conditions. The crop is cultivated mainly for food due to high calorie and protein content. It is also a cheap source of vitamins and minerals.

Mungbean is a short maturing and a relatively drought tolerant crop, thus, it can easily be fitted as a second or third crop in rice and corn-based cropping patterns. Initial production trials, however, show that this crop is prone to insect damage and weed competition resulting to very low yield and/or poor quality harvest. In view of this situation it is necessary to develop or determine appropriate methods of insect and weed control which can be recommended to farmers in Cagayan. Since the crop is planted by farmers in various agro-ecological conditions wherein weed flora and insect populations may widely differ, studies have to be conducted for each applicable situation and location.

OBJECTIVES :

To develop insect and weed control recommendations for Mungbean in rice and corn-based cropping patterns at various relevant agro-ecological conditions.

1. Insect Pests
   a. To identify major insect pests attacking mungbean crop at various agro-ecological situations/locations.
   b. To determine the degree of damage and yield loss caused by insect pests.

c. To develop alternative insect control recommendations for different agro-ecological situtions/locations.

2. Weeds

a. To identify the different weed species associated with mungbean production at various agro-ecological situations /locations.

b. To determine the yield loss of mungbean due to weed competition.

c. To develop alternative weed control recommendations for different agro-ecological situations/locations.

3. To find out the combined yield loss of mungbean caused by major insect pests and weeds.

4. To determine the cost and returns of alternative insect and weed control methods tested.

METHODOLOGY :

Location : Pared, Alcala; Tapel, Gonzaga; Dumpao, Iguig; Tabungao, Gonzaga and APC

Duration : November 1982 - July 1983

Experimental Design : Split plot design replicated three (3) times

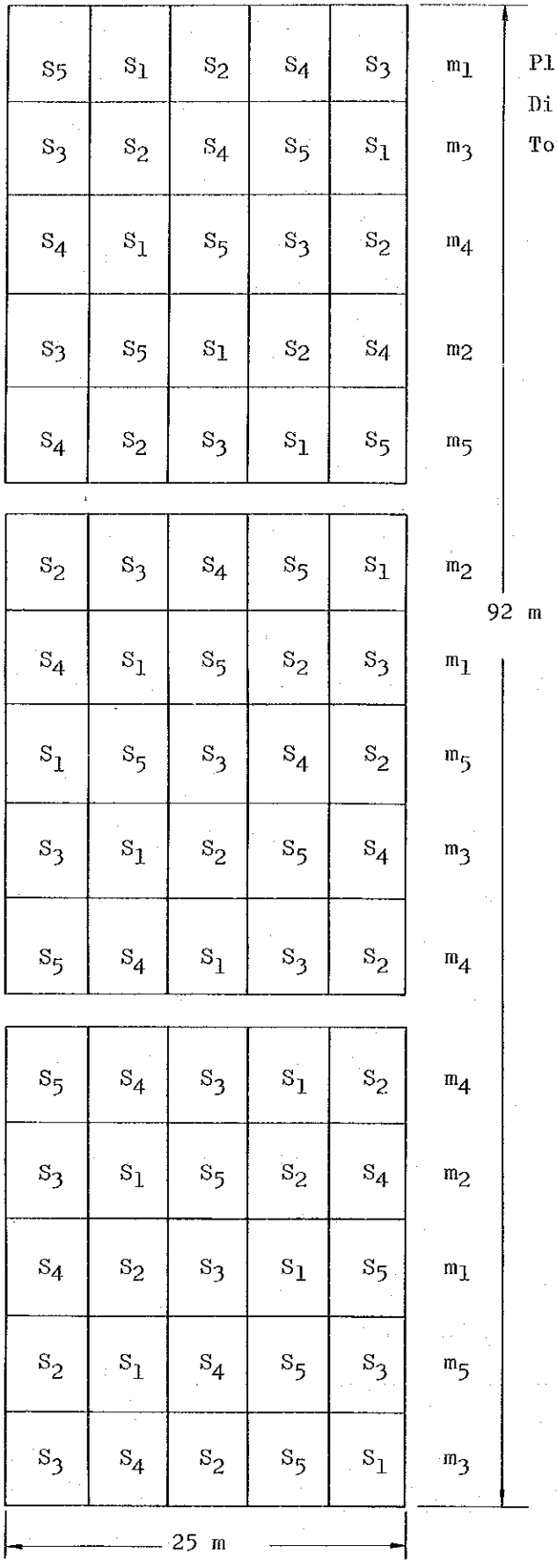
Treatments :

Main treatment (Insect Control)

M1. Basal application of Furadan 3G Spraying of Thiodan 35EC 30 and 40 DAE.

M2. Azodrin 168 EC 3, 10 and 17 DAE
Sevin 85 WP 30 and 40 DAE

Layout



Plot size : 5 x 6 m

Distance between replication : 1 m

Total area : 25 x 92 m = 2300 m^2

M3. Azodrin 168 EC 5 DAE

Thiodan 30 and 40 DAE

M4. Economic threshold level (Azodrin 168, Sevin and Thiodan)

M5. Control (Untreated check)

Sub-Treatment (Weed Control)

S1. Unweeded check

S2. Butachlor EC 3 DAE

S3. Machete 5G pre-emergence

S4. Trifluralin pre-emergence

S5. Hilling-up 15 - 20 DAE

Note: All rates of pesticides at manufacturer's recommendation.

Variety : CES 1 D - 21 (Pag-asa)

Seeding rate : 22 kg/ha.

Thinning will be done one (1) week after emergence maintaining eighteen (18) plants per linear meter.

DATA TO BE GATHERED :

1. Photograph of different major insect pests and weeds
2. Yield (kg/ha)
3. Economic analysis

INSECT PESTS

4. Weekly population of insect pest from 3 DAE up to flowering stage. This will be done through 10 sweeps per subplot at 180^{o} angle/sweep. Sweeping will be done between 7:00 and 10:00 in the morning.

5. Direct observation on the mode and degree of insect damage from 3 DAE and every week thereafter up to maturity.
6. Percent pod damage
7. Percent Seed Damage

WEEDS

8. Predominant weed species before land preparation with relative percentage occurence of each. This will be estimated visually.
9. Total dry weed weight - 35 DAE 0.25 M^2

TITLE : DEVELOPMENT OF INSECT AND WEED CONTROL RECOMMENDATION FOR CORN

JUSTIFICATION :

In Cagayan, corn ranks second to rice in area cultivated among cereal crops grown. (Cagayan Technoguide for Corn, 1981) It is the alternative staple food of the Cagayanos.

Corn, like any other crops is prone to attack of insect pests and competition from weeds. Degree of infestation and competition vary for every location and from season to season.

For this, insect and weed control recommendation has to be developed which are suited to a specific location and can be used by farmers in the locality.

OBJECTIVES :

To develop insect and weed control recommendations for corn under riverflood plains and higher elevation upland areas.

1. To identify the different insect pests attacking corn and the yield loss caused by them under different agro-ecological situation.
2. To develop an economical insect control recommendation at two ecological situations.
3. To identify the different weed species associated with corn and the corresponding yield loss under the different agro-ecological situations.
4. To develop a profitable weed control recommendations for corn at two ecological situations.
5. To find out the combined yield loss caused by insect pest and weeds on corn.

METHODOLOGY :

Location : Pared,Alcala and Tapel, Gonzaga

Duration : November 1982 - September 1983

Experimental Design : Split plot design replicated four (4) times across field.

Treatments :

Main treatment (Insect Control)

M1. Control (Untreated check)

M2. Basal application of Furadan 3G 1 kg a.i/ha
Whorl application of Furadan 3G at 30 DAE
Spraying of Sevin 85 WP 1.5 kg a.i/ha at 60 and 75 DAE.

M3. Basal application of Furadan 3G 1 kg a.i/ha
Spraying of Sevin 85 WP 1.5 kg a.i/ha at 60 and 75 DAE.

M4. Spraying of Thiodan 35 EC 0.75 kg a.i/ha at 10 and 20 DAE.
Spraying of Sevin 85 WP 1.5 kg a.i/ha at 60 and 75 DAE.

M5. Spraying of Sevin 85 WP or Thiodan when necessary.

Sub-treatment (Weed Control)

S1. Untreated check

S2. Completely weed free check

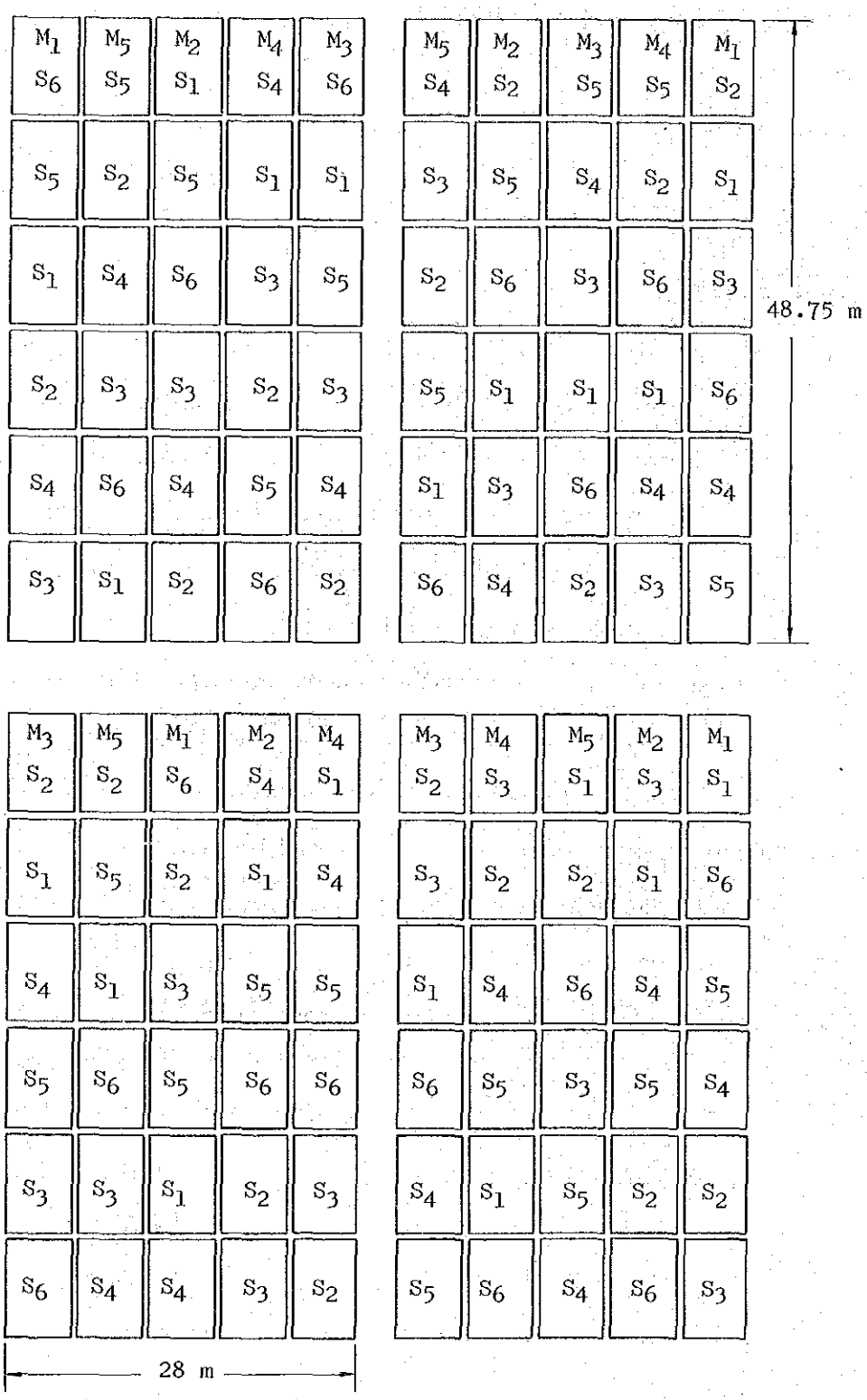
S3. Hilling-up at 30 DAE

S4. 2,4 - D EC 0.75 kg a.i/ha 21 DAE.

S5. 2,4 - D EC 0.50 kg a.i/ha 14 DAE. followed by hilling-up 21 DAE.

S6. Butachlor at 1.5 kg a.i/ha pre-emergence followed by hilling-up 21 DAE.

Layout :



Plot size : 5 x 7 m

Distance between treatment : 75 cm

Total area : 28 x 48.75 x 4 = 5460 m^2

Variety : IPB Var 1

Spacing : 50 x 75 cm

Seeding rate : 3 - 4 seeds/hill

thinned to 2 plants/hill 14 DAE

Fertilization :

DATA TO BE GATHERED :

1. Number of insect pests/subplot - This will be done by sweeping of insect net 10 times in each subplot. Sweeping will be done at 5, 12, 19, 28, and 35 DAE. Collected insects will be identified by species. Direct observation will be done starting 5 DAE and every two weeks thereafter up to maturity.
2. Weed biomass - Dry weight of weeds shall be taken by collecting weeds samples from a 0.5 M^2 sampling area per sub-plot. Collection of weed sample will be done at 75 DAE.
3. Number of marketable and non-marketable ears.
4. Economic data per treatment like manpower, man hours etc.
5. Weather condition.
6. Current cost of insecticides and herbicides in the locality.

TITLE : SCREENING OF 36 RICE VARIETIES/LINES AGAINST RICE BLAST

JUSTIFICATION :

Greater use of fertilizer for modern varieties is a must for higher yields. However, as a consequence,this favors the development of rice blast disease. At present, the disease is a threat in the APC Model Infrastructure and in the Iguig Pilot Farm.

Several control measures has been developed in other research stations. Among them is the use of resistant varieties and spraying of fungicides. However, conditions in those areas vary greatly in Cagayan as per environment and microclimate. Furthermore, the fungus causing rice blast has many pathogenic races which differ in their ability to infect rice varieties per-locality and per season. Resistant varieties also has different adaptability to a given environment which sometimes render them susceptible varieties for the reason that they have better eating quality than the resistant varieties. To have higher yields, the use of fungicides is the best insurance.

OBJECTIVE :

To evaluate the resistance/susceptibility of 23 recommended rice varieties and promising lines to rice blast during the wet and dry season under Iguig ,Cagayan condition.

METHODOLOGY :

Location : APC

Duration : October 1982 - October 1983

Experimental Design : The Randomized Complete Block Design with four (4) Replication.

Treatment :

1. IR - 5	13. IR - 40	25. 5173
2. IR - 8	14. IR - 42	26. IR1416 - 142 - 2 - 3 - 3
3. IR - 20	15. IR - 43	27. IR1905 - 81 - 3 - 1
4. IR - 22	16. IR - 44	28. IR3259 - PP11 - 182 - 4
5. IR - 24	17. IR - 45	29. IR3273 - 289 - 2 - 1473
6. IR - 26	18. IR - 46	30. IR4547 - 4 - 1 - 2
7. IR - 28	19. IR - 48	31. IR4547 - 16 - 1 - 7
8. IR - 29	20. IR - 50	32. IR5533 - PP855 - 1
9. IR - 30	21. IR - 52	33. IR9559 - PP889 - 1
10. IR - 32	22. IR - 54	34. IR9660 - 50 - 3 - 1 - 1
11. IR - 36	23. IR - 56	35. IR9669 - PP836 - 1
12. IR - 38	24. 5167	36. IR442 - 2 - 58

Type of seedbed : Dry-bed

Size of seedbed : 1 x 4m

Distance between treatment : 10 cm

Sowing : Pre-germinated dry seeded drilled

Fertilization : 160 - 0 - 0 All basal.

DATA TO BE GATHERED :

1. Disease severity rating - to be taken at weekly interval from 2 - 3 leaf stage to 6 leaf stage.
2. Degree of susceptibility or resistance
3. Weather condition

TITLE : SCREENING AND EVALUATION OF FIVE COMMERCIAL FUNGICIDES AGAINST RICE BLAST

JUSTIFICATION :

Greater use of fertilizer for modern varieties is a must for higher yield. However, as a consequence, this favors the development of rice blast disease. At present, the disease is a threat in the APC Model Infrastructure and in the Iguig Pilot Farm.

Several control measures has been developed in other research stations. Among them is the use of resistant varieties and spraying of fungicides. However, conditions in those areas vary greatly in Cagayan as per environment and microclimate. Furthermore, the fungus causing rice blast has many pathogenic races which differ in their ability to infect rice varieties per locality and per season. Resistant varieties also has different adaptability to a given environment which sometimes render them susceptible varieties for the reason that they have better eating quality than the resistant verieties. To have higher yields, the use of fungicides is the best insurance.

OBJECTIVE :

To test and evaluate the effectiveness of five (5) commercially available fungicide against rice blast during the wet and dry season under Iguig, Cagayan condition.

METHODOLOGY :

Location : APC

Duration : December 1982 - December 1983

Replication : Three (3)

Treatments :

1. Benlate
2. Fungitox
3. Hinosan
4. Dithane M -45
5. Ridomil MZ58

Variety : IR - 442 - 2 - 58

Size of Pot : 1/2000 are wagner pot

Seeding rate : 5 seeds per pot to be tinned to 3 seedlings per pot.

DATA TO BE GATHERED :

1. Disease severity rating to be taken weekly starting a day before first fungicide application (12 DAS) up to 47 DAS.
2. Weather condition every observation day
3. Date of appearance of symptoms

TITLE : PRELIMINARY STUDY OF THE BIOLOGY AND DISTRIBUTION OF " BILID - BILID" SEDGE

JUSTIFICATION :

At the CIADP Lower Cagayan irrigation project area, a weed locally known as "bilid-bilid" is observed to grow vigorously specially in water logged and poorly drained fields. This weed is the most dominant species in several hundred hectares of rice farms that farmers find it very difficult to control before, during and after the rice crop season.

Preliminary observation of the weeds' natural growth indicate a maximum height of about two meters. It is further observed that just a few weeks after transplanting rice, the weed can outgrow the rice crop. The weed produces a definite type of inflorescence at maturity which extends from a triangular main stem. Positive identification up to species level has not been done by APC-CIADP researchers, although weed scientists may have already identified the weed.

Since "bilid-bilid" is at present a serious weed problem in lower Cagayan irrigation project area, it is important to identify it or at least know its growth patterns, how it reproduces (types, rate and magnitude of reproduction and other related characteristics) that make it a good competition of the rice crop. Sufficient knowledge on the characteristics of bilid-bilid is necessary for developing effective control measures for the weed.

OBJECTIVES :

1. To study the vegetative growth and developmental pattern and determine the reproduction mechanism of the "bilid-bilid" when grown in container under Iguig condition.
2. To study the vegetative and reproductive characteristics of the "bilid-bilid" at its natural environment.

3. To determine the distribution and relative abundance of the "bilid-bilid" in rice farms at the CIADP Lower Cagayan irrigation project area.

METHODOLOGY :

Location : APC and Lower Cagayan (Lal-lo, Camalaniugan, Buguey and Aparri)

Duration : August 1982 - August 1983

Size of Pot : ½ drum with a diameter of about 55cm and height of 45cm with approximate 100 liters.

Seedling : Emerged leafless shoots of almost uniform growth stage shall be collected from the base of the mature "bilid-bilid" for planting materials.

One leafless shoot will be transplanted in each containers leaving about a centimeter of the shoot or part which has emerged during collection, protruding above the soil surface.

DATA TO BE GATHERED:

1. Height (cm) - collected every week starting a week after planting up to maturity.
2. Number of leaves - weekly number of leaves of mother plants and first five shoots.
3. Number of shoot - weekly number of produced shoots.
4. Days to flowering
5. Days to seed maturation
6. Number of seeds/inflorescence
7. Percent germination of seeds
8. Number of tubers produced
9. Fresh and dry weight of the weed at maturity

10. Length and width (cm) of leaves at maturity.

11. Monitor and observe - Biology of "bilid-bilid" in its natural environment in Lower Cagayan.

Distribution and relative abundance of "bilid-bilid" sedge.

Extensive photo documentation and supplementary interview of farmers. Includes beliefs and customs/traditions where in the "bilid-bilid" sedge is involved. (Lal-lo, Camalaniugan, Buguey, Aparri, Gonzaga, Sta. Teresita and Allacapan).

TITLE : PRELIMINARY EVALUATION OF HERBICIDES IN THE CONTROL OF BILID-BILID SEDGE

JUSTIFICATION :

Herbicide splay an important role in the control of weeds. The use of herbicides is often the most practical means of reducing weed population. However, Moody (1980) quoted that in most parts of tropical Asia, farmers are reluctant to use herbicides. Although generally, these offers many advantages, these are however expensive and difficult to apply since these have to be applied precisely to obtain the desired results and to avoid damage to the crops.

The weed locally known as bilid - bilid is observed to have heavily infested several hundred hectares of rice farms especially in the water logged or poorly drained fields. Farmers find it difficult to control this weed before, during and after the crop season.

For this reason, the evaluation of some locally available herbicides for the control of "bilid - bilid" sedge is important.

OBJECTIVE :

To determine the most effective herbicide to control "bilid-bilid" sedge at different growth stages in drums at the APC Model Infrastructure.

METHODOLOGY :

Location : APC

Duration : August 1982 - April 1983

Experimental Design : The Randomized Complete Block Design with three (3) Replication

Treatments :

1. Control (Untreated check)
2. 2,4 - D G
3. 2,4 - D EC

4. Propanil (Rogue)
5. Glyphosate (Round-up)
6. Thiobencarb (Saturn)
7. Butachlor (Machete)
8. Gramxone

All rates of herbicides at manufacturer's recommendation.

a. In trial I, upon fall vegetative growth is attained (determined when the florets shatter), cut the sedges 7-10cm above the soil level. Apply the treatments accordingly 3-5 days after cutting.

b. Apply the treatments of trial II accordingly when full vegetative stage is attained.

c. When full vegetative stage is attained, the weeds will be cut and incorporated to the soil through cultivation by the use of a garden hoe or bolo. Incorporation will be done twice at a week interval.

In trial III - a. apply treatments accordinly 2-3 days after last incorporation or cultivation.

For tiral III- b. apply tretaments accordingly 15 - 21 days after last incorporation or cultivation.

Size of pot: Big drum with a diameter of about 60cm and height of 90cm with approximate 200 liters.

DATA TO BE GATHERED:

1. Number of days before the effect (symptoms) of herbicides appear on the weeds.
2. Number of days before total damage of weeds (if any) could be observed.
3. Number of days before the regrowth of weeds.

4. Toxicity rating of each herbicide.
5. Number of days before emergence of shoots after apply of treatment.
6. Number of days before emergence of shoots after incorporation.
7. Dry weed weight at 2-4 WAE/pot.

TITLE : A STUDY ON THE ECOLOGY OF MAJOR INSECT PESTS, DISEASES AND WEEDS OF IRRIGATED RICE-BASED CROPPING PATTERN COMMONLY PRACTICED AT PILOT FARM.

JUSTIFICATION :

Cagayan rice fields are proved to the infestations of various pests. However, there is no comprehensive reports regarding the population of major insect pests, weeds and diseases and the factors that favor their occurence.

In the APC Pilot Farm a study on the ecology of major insect pests, weeds and diseases should be conducted in order to have a ready reference which wull be used in formulating timely and appropriate control measure recommendation.

OBJECTIVES :

General

1. To monitor and determine the distribution, relative abundance and seasonal occurence of major insect pests, diseases together with their causal organisms, and weeds in the different APC Pilot Farms and Model Infrastrcuture in correlation with agro-climatological conditions under irrigated rice-based cropping patterns.
2. To be able to recommend timely, appropriate and economical control measures against various pests in the pilot farms right on the spot.

Specific

1. To determine the population of vigor insect pests and the different factors affecting their relative abundance, seasonal occurence, population fluctuation and distribution under irrigated rice-based cropping patterns.

2. To determine the degree of damage of plant pathogen and the different factors that favors the incidence of diseases of rice and other crops under the irrigated rice-based cropping pattern.
3. To determine the population of the different weed species and the different factors affecting weed growth in the different pilot areas and in APC Model Infrastructure under irrigated rice-based cropping pattern.

METHODOLOGY :

I. Monitoring on the occurence of major insect pests, weeds and diseases of rice.

Location: Iguig Pilot Farm, Alcala-Amulung Pilot Farm, Lallo Pilot Farm and Buguey Pilot Farm

Duration: October 1982 - February 1984

Detailed procedure:

Insect Pests

1. Monitoring of major insect pests will be done weekly from seedling at one week old up to maturity. This will be done through light trapping, sweeping and direct observations.
2. Omnidirectional Electric Light traps should be set at six o'clock in the afternoon and switch off automatically at six o'clock in the morning in order to collect nocturnal and crepuscular insects. Light trapping however will only be done in Buguey to present Lower Cagayan and APC to represent upper Cagayan.
3. Selection of 2-3 observation station/zone of every pilot farms will be done at random every monitoring day for sweeping and direct observation.

4. Sweeping for 30 times will be done per observation station at approximately 180^{o} angle per sweep.
5. Mode and degree of damage of major insect pests will be taken from 10 sample hills at random from various observation station. Rating per insect pest damage will be based on the rating scale of the standard evaluation system for rice published by IRRI.
6. Climatological Data such as Rainfall, Wind velocity and direction, Humidity, Air temperature and Solar Radiation will be taken every monitoring day from different agro-met station nearest to every pilot farm.
7. Population of major insect pests/ species will be graphed per month to determine the seasonal population fluctuation of major insect pests.
8. Correlation and regression analysis will be used to evaluate the relationship between climatological factors and insect pests population.
9. Major insect pests and their damage will be photographed for reference purposes.
10. Any insecticide or methods of control applied in the Pilot Farms will be monitored too by interviewing farmers present in their fields during the pest surveillance or after the cropping season.
11. Preservation of insect specimens. A representative of major insect pests species will be preserved for training and other reference purposes.

Diseases

1. Monitoring of diseases and their causal organisms will be done weekly from one week old seedlings up to maturity through direct observations/hill.
2. Selection of 2 - 3 observation stations/zone of every pilot farm will be done at random every monitoring day for direct observation.
3. Direct observation will be done on 10 sample hills selected at random/observation station.
4. Diseases observed/hill will be rated following the standard evaluation system for rice published by IRRI.
5. Fresh specimens of diseases with unidentified causal organisms will be brought to the laboratory to be cultured in an artificial media for identification under the electric microscope.
6. Typical example of diseases will be photographed for reference.
7. Preservation of Plant Diseases Specimen.

Weeds

1. Monitoring of weed population shall be done weekly, starting a week after transplanting up to flowering stage of the crop.
2. Two to three observation stations/zone of the pilot farm will be randomly selected every monitoring day, monitoring of weeds shall be done at 5 locations/observation station at 1 M^2 per location using a $1M^2$ quadrats.
3. Collection of weeds for dry weight analysis will be taken at panicle initiation of the crop and at flowering stage of the weeds from five locations/observation station at $1M^2$ location.

4. Any weed control applied in the area will be monitored by interviewing cultivators present in their fields during pest surveillance or after the cropping season.
5. Average yield per observation station shall be taken from the Farm Extension officer.
6. Typical example of weeds should be photographed for reference purposes.
7. Preservation of weeds.

II. A study on the succesion of Insect Pests, Diseases and Weeds on Rice - Rice - Mungbean Cropping Pattern.

Location : APC

Duration : October 1982 - May 1984

Variety : IR - 36 for Rice and
CES 1D - 21 for Mungbean

Plot size : 1000 M^2

Methods of planting :

RICE - Transplanting will be done at 2 - 3 seedlings per hill at 20 x 20 cm spacing

MUNGBEAN - Drilling will be done at 15 - 21 hills per linear meter at 50 cm between furrows.

Fertilization : 60 - 0 - 0 for Rice and
28 - 28 - 28 for Mungbean
One - half of fertilizer for rice will be applied at basal and another half will be topdressed at 50 DAS. All recommended rates for Mungbean will be applied before planting.

DATA TO BE GATHERED :

1. Weekly observation on the population of major insect pest through 30 sweepings within the field at 180^{o} angle/sweep.
2. Seedling insect pests at 7 and 14 days after sowing through sweeping and direct observation.
3. Direct observation on the mode and degree of insect pest damage on 30 sample hills assigned at random starting 7 days after transplanting up to maturity which will be done once in every two weeks.
4. Climatological data.
5. Yield (kg/ha)
6. Percent grain/seed damage.
7. Percent pod damage.
8. Percent incidence of diseases.
9. Weight of 1000 seeds.
10. Statistical analysis of the yields obtained from insect pests, weeds and diseases ecological plots, to determine which among these pests really affects yield losses for that season.
11. Regression and correlation anlysis between the insect pests population and climatological data.
12. Degree of disease incidence at seedling stage. 7 and 14 DAS.
13. Visual observation on the degree of damage of diseases.
14. Identification of unidentified causal organism through culturing the fresh disease specimen in the laboratory with artificial media and be studies under electric microscope.
15. Weekly monitoring of weeds starting 7 days after transplanting or crop emergence up to maturity.

16. Weed collection for dry weight analysis. This will be done during Panicle initiation of the rice crops and at flowering stage of the weeds.

17. Dry weight per species.

PROJECT TITLE : CROP ESTABLISHMENT AND MANAGEMENT

PROJECT LEADER : Dominador Suetos

STUDY TITLE (Study Leader)

1. Response of IPB Var.1 yellow corn to different hill spacing at specified plant population per hill under river-flood plains and rolling terrains. (Silvino Tejada and Robert Marcaida)

2. Performance of IR - 36 under four methods of crop establishments. ( )

3. Testing and evaluation of different levels of management under varying conditions of four CIADP - APC Pilot Farms. (Manuel Gaspar, Abraham Suetos, and)

4. Nitrogen level and population density trial on Mungbean. (Vicente Garduque)

5. Methods of planting and rate of seeding trial on Mungbean. (Vicente Garduque)

TITLE : RESPONSE OF IPB VAR. 1 YELLOW CORN TO DIFFERENT HILL SPACING AT SPECIFIED PLANT POPULATION PER HILL UNDER RIVER-FLOOD PLAINS AND ROLLING TERRAINS SITUATIONS

JUSTIFICATION :

Correct spacing and population density are some of the factors to consider to increase corn yield. Spacing affects the size of corn ears. Decreasing distance between hills reduces plant height. Increasing the number of plants per hill or by close spacing in the row delays maturity and increases the number of barren ears. The number of corn ears per plant and ear weight decrease if the population is increased too much.(Knott and Deanon, 1979).

Farmers in Cagayan use different plant spacing and population density for field corn. Some of them use wider distance between rows and between hills while others use closer with no distinct measurement. Number of plants maybe constant in some areas while others areas use varying rates. This is through to be a reflection of limited information on correct plant spacing and population density specific for corn areas.

Based on these factors, therefore, the Agricultural Pilot Center aim to study the proper plant spacing and population density on field corn at farmer's field under rainfed condition.

OBJECTIVES :

1. To determine the optimum plant spacing and population density for IPB Var.1 yellow corn during the dry and wet seasons under rainfed condition.
2. To determine the economic profitability of each treatment during the dry and wet seasons under rainfed condition.

METHODOLOGY :

Location : Pared, Alcala and Tapel, Gonzaga

Duration : November 1982 - September 1983

Experimental Design : The Randomized Complete Block Design with Three (3) Replication

Treatments :

	Spacing	Seed/hill	Density (Plant/ha)
1.	75 x 20 cm	1	66,667
2.	75 x 25 cm	1	53,333
3.	75 x 30 cm	1	44,444
4.	75 x 50 cm	2	53,333
5.	75 x 75 cm	2	35,556

DATA TO BE GATHERED :

1. Plant height (cm) - 30 and 80 DAE
2. Ear height (cm) - 75 DAE
3. Number of plants harvested
4. Number of ears harvested
5. Weight of ears (kg)
6. Yield (kg/ha) - shelled and unshelled
7. Economic analysis.

TITLE : PERFORMANCE OF IR - 36 UNDER FOUR METHODS OF CROP ESTABLISHMENTS

JUSTIFICATION :

Transplanting is the most widely used method of crop establishment in irrigated lowland rice areas. In the Philippines or the whole of Asia, rice grown under this method usually gives higher yield than any other method of rice growing (Chandler, 1979). However, during the peak of the planting season, the availability of hired labor to do the operation becomes a problem and this often delay the transplanting operation of the majority of the farmers.

Considering the very wide area to be irrigated after the completion of the irrigation project of the NIA - CIADP - IC in the lower Cagayan areas, it can be foreseen that similar problem could be met after the project becomes a system. Hence it is necessary that other methods of crop establishment be evolved and tried to minimize if not to eliminate some of the operations in rice farming such as seedbed preparation, pulling of seedlings and transplanting, where labor for these operations during the peak of the planting season is a problem.

In some rainfed areas in the tropics, particularly in the Philippines the use of direct seeding method of crop establishment whether wet or dry is being tried to intensify crop production. In this method seedbed preparation, pulling of seedlings and transplanting are eliminated. However, this required a higher rate of seedings and a more through land preparation. Although proven success ful in some areas, more research and testing is necessary before this method could be recommended to the farmers.

OBJECTIVES :

1. To compare the yield of IR - 36 grown under four different methods of crop establishment.
2. To determine the most economical method of rice establishment.
3. To compare the yield of the four method of planting.

METHODOLOGY :

Location : Buguey Pilot Farm

Duration : November 1982 - February 1983

Experimental Design : The Randomized Complete Block Design with Three(3) Replication.

Treatments :

1. Transplanted (Random)
2. Transplanted (Straight)
3. Direct seeded (Row drill)
4. Direct seeded (Broadcast)

Variety : IR - 36

Rate of seedling : 3 seedlings/ hill (transplanting)

Age of seedling : 18 - 20 day-old seedling

Spacing : 20 x 20 cm (straight transplanting)

Distance between row : 20 cm (Row drill Direct seeded)

DATA TO BE GATHERED :

1. For cost and returns analysis, record labor requirements, materials and time for each activity.
2. Grain Yield (kg/ha)
3. Incidence of pests and lodging.

TITLE : TESTING AND EVALUATION OF DIFFERENT LEVELS OF MANAGEMENT UNDER VARYING CONDITIONS OF FOUR CIADP - APC PILOT FARMS

JUSTIFICATION :

Numerous studies have been conducted at the national and even to the international level to improve rice productivity but invariable recommendations based on these results are not fully reliable in specific locations due to the wide variations among farms and to the natural, social and economic environments. In Cagayan, farmers are relatively responsive to the introduction of modern high yielding rice varieties. They, however, often fail to achieve the maximum of optimum yields and profits since they have to rely on general technology recommendations in the absence of appropriate technology packages which have been fine tuned to their specific conditions and requirements.

This study attempts to identify or develop alternative technology packages for transplanted rice in irrigated lowland farms at the four CIADP - APC Pilot Farm. It hopes to eventually make available to farmers in four Pilot farms several locally tested options on what technology package to follow for both wet and dry plantings based on their capabilities and desires.

OBJECTIVES :

1. To compare the yield of IR - 50 grown under different levels of management at four CIADP - APC Pilot Farms for the wet and dry seasons plantings.
2. To determine the optimum levels of management in terms of yield and net return to farmers for each location.

METHODOLOGY :

Location : Iguig Pilot Farm, Lal-lo Pilot Farm and Buguey Pilot Farm

Duration : November 1982 - August 1983

Treatments :

FERTILIZER

F1 0 - 0 - 0

F2 80 - 0 - 0

F3 40 - 0 - 0

INSECT CONTROL

I1 No insect protection

I2 Furadan 3G at basal followed ETL

WEED CONTROL

W1 Machete 5G at 1.5 kg a.i/ha at 4 - 5 DAT

W2 Machete 60EC at 1.5 kg a.i/ha at 4 - 5 DAT

W3 No weed control

Replication : Three (3)

Variety : IR - 50

DATA TO BE GATHERED :

1. Weed control ratings at 14 DAT, 29 DAT and Harvest
2. Record pest and disease damages at 20 DAT, 40 DAT and Harvest.
3. Yield (kg/ha)
4. Current cost of material inputs
5. Current cost of labor

Layout :

F_2 W_3 I_1	F_2 W_1 I_1	F_2 W_2 I_1	F_3 W_3 I_2	F_3 W_2 I_2	F_3 W_1 I_2	F_1 W_1 I_2	F_1 W_2 I_2	F_1 W_3 I_2
F_2 W_3 I_2	F_2 W_1 I_2	F_2 W_2 I_2	F_3 W_3 I_1	F_3 W_2 I_1	F_3 W_1 I_1	F_1 W_1 I_1	F_1 W_2 I_1	F_1 W_3 I_1

F_1 W_3 I_2	F_1 W_2 I_2	F_1 W_1 I_2	F_2 W_2 I_1	F_2 W_3 I_1	F_2 W_1 I_1	F_3 W_3 I_2	F_3 W_2 I_2	F_3 W_1 I_2
F_1 W_3 I_1	F_1 W_2 I_1	F_1 W_1 I_1	F_2 W_2 I_2	F_2 W_3 I_2	F_2 W_1 I_2	F_3 W_3 I_1	F_3 W_2 I_1	F_3 W_1 I_1

F_1 W_2 I_2	F_1 W_3 I_2	F_1 W_1 I_2	F_3 W_3 I_1	F_3 W_2 I_1	F_3 W_1 I_1	F_2 W_2 I_2	F_2 W_1 I_2	F_2 W_3 I_2
F_1 W_2 I_1	F_1 W_3 I_1	F_1 W_1 I_1	F_3 W_3 I_2	F_3 W_2 I_2	F_3 W_1 I_2	F_2 W_2 I_1	F_2 W_1 I_1	F_2 W_3 I_1

Plot size : Main plot - 9 x 12 m

Sub plot - 3 x 12 m

Sub-subplot - 3 x 6 m

Levees : 20 cm wide 18 cm height

Distance between replication : 40 cm

Total area : 29 x 38.6 m = 1119.4 m^2

TITLE : NITROGEN LEVEL AND POPULATION DENSITY TRIAL ON MUNGBEAN

Location : Solana

TITLE : METHODS OF PLANTING AND RATE OF SEEDING TRIAL ON MUNGBEAN

Location : Solana

b. Test Pattern (Improved Technology)

1. WSR - TPR - Mungbean

2. TPR - TPR - Mungbean

Buguey Pilot Farm (Fully-Irrigated)

a. Traditional Pattern (Monitoring Only)

1. TPR - TPR

2. TPR

b. Test Pattern (Improved Technology)

1. WSR - WSR

2. TPR - WSR

3. TPR - TPR

Alcala - Amulung Pilot Farm (Partially-Irrigated)

a. Traditional Patterns (Monitoring Only)

1. TPR

2. Mungbean - TPR

b. Test Patterns (Improved Technology)

1. TPR - TPR - Mungbean

2. Mungbean - TPR - Mungbean

3. DSR - TPR - Mungbean

Gadu, Solana (Partially-irrigated)

a. Traditional Pattern (Monitoring Only)

1. TPR -TPR

b. Test Patterns (Improved Technology)

1. TPR - TPR - Mungbean

2. WSR - TPR - Mungbean

Dumpao, Iguig (Rainfed)

a. Traditional Patterns (Monitoring Only)

1. Mungbean - TPR

2. TPR

b. Test Patterns (Improved Technology)

1. Mungbean - TPR - Mungbean

2. DSR - TPR - Mungbean

3. DSR - TPR - Watermelon

Cultural practices to be followed will be based from the Cagayan Technoguides and national recommendations.

DATA TO BE GATHERED :

1. CLIMATE - Rainfall and other weather data will be collected from the nearest meteorological station.

2. LAND - Record on the area of the plots will be used for cropping pattern trial. Study in detail the characteristics of the plot like soil texture, source and availability of irrigation, water depth and previous cropping pattern.

3. CROP RECORD - For each crop in the cropping pattern, a set of data needs to be collected to clearly identify crop type, variety, establishment methods, seeding rates or plant spacing, crop management and crop performance.

4. LABOR HOURS - Record the starting and finishing time of all operations in the field.

a. Cleaning of residues - record hours required to clear the field and charge it to the next crop.

b. Plowing, harrowing, seedbed preparation - record the actual hour including normal rest period.

PROJECT TITLE : RICE - BASED CROPPING PATTERN TESTING

PROJECT LEADER : Abraham Suetos

STUDY TITLE (Study Leader)

1. Fully-irrigated rice area " Centro, Gonzaga". (Rosendo Ventura)
2. Fully-irrigated rice area "Buguey Pilot Farm". (Sabas Tomas)
3. Partially-irrigated rice area "Alcala-Amulung Pilot Farm". (Mayda Callueng)
4. Partially-irrigated rice area "Gadu, Solana". (Mariano Martin)
5. Rainfed rice area "Dumpao, Iguig". (Samuel Guimmayen)

JUSTIFICATION :

The annual food production of Cagayan is far below from the national average of production (BAEcon. 1979). Productions of crops from a given area of land can be increase by improving the yield of a crop or by growing an extra crops during a year. Long growing seasons, small landholdings and high labor-land ratios makes multicrop production system possible (Zandatra, et al 1981).

On fully-irrigated rice area, farmers usually grows two crop of rice (TPR-TPR) while on partially irrigated and rainfed rice areas were only one crop of rice a year. Farmers on these areas sometimes plant leguminuous crops before or after rice.

However, the present availability of new crop varieties, crop establishment techniques, fertilizer and pest management methods allows possibilities to have an additional crops in sequence or combination on specific cropping patterns/locations. Testing on alternative cropping systems and comparing their performance with the traditional ones on specific locations therefore require careful study of the factors that determine crop production at the farm level.

OBJECTIVES :

To test and compare the agronomic and economic performance of the traditional and alternative cropping pattern on fully-irrigated, partially-irrigated and rainfed rice farms at five locations of Cagayan.

1. To improve or generate specific cropping pattern adopted to fully-irrigated rice farm, partially-irrigated rice farms and rainfed rice farm.
2. To develop Improved crop production and management technique for specific cropping pattern per location.
3. To obtain estimates of labor and power profile of traditional and alternative patterns per location.
4. To determine farmers present use of resources and economic returns of the traditional and alternative pattern per locations for comparative purposes.

METHODOLOGY :

Location : Centro, Gonzaga. Buguey Pilot Farm. Alcala- Amulung Pilot Farm. Gadu, Solana and Dumpao, Iguig.

Duration : May 1982 - April 1984 (2 years)

Replication : Four (4) - across the fields

Plot size : 1000 M^2

Treatment :

Centro, Gonzaga (Fully-irrigated)

a. Traditional Pattern (Monitoring Only)

1. TPR - TPR

b. Test Pattern (Improved Technology)

1. WSR - TPR - Mungbean

2. TPR - TPR - Mungbean

Buguey Pilot Farm (Fully-Irrigated)

a. Traditional Pattern (Monitoring Only)

1. TPR - TPR

2. TPR

b. Test Pattern (Improved Technology)

1. WSR - WSR

2. TPR - WSR

3. TPR - TPR

Alcala - Amulung Pilot Farm (Partially-Irrigated)

a. Traditional Patterns (Monitoring Only)

1. TPR

2. Mungbean - TPR

b. Test Patterns (Improved Technology)

1. TPR - TPR - Mungbean

2. Mungbean - TPR - Mungbean

3. DSR - TPR - Mungbean

Gadu, Solana (Partially-irrigated)

a. Traditional Pattern (Monitoring Only)

1. TPR -TPR

b. Test Patterns (Improved Technology)

1. TPR - TPR - Mungbean

2. WSR - TPR - Mungbean

Dumpao, Iguig (Rainfed)

a. Traditional Patterns (Monitoring Only)

1. Mungbean - TPR

2. TPR

b. Test Patterns (Improved Technology)

1. Mungbean - TPR - Mungbean

2. DSR - TPR - Mungbean

3. DSR - TPR - Watermelon

Cultural practices to be followed will be based from the Cagayan Technoguides and national recommendations.

DATA TO BE GATHERED :

1. CLIMATE - Rainfall and other weather data will be collected from the nearest meteorological station.

2. LAND - Record on the area of the plots will be used for cropping pattern trial. Study in detail the characteristics of the plot like soil texture, source and availability of irrigation, water depth and previous cropping pattern.

3. CROP RECORD - For each crop in the cropping pattern, a set of data needs to be collected to clearly identify crop type, variety, establishment methods, seeding rates or plant spacing, crop management and crop performance.

4. LABOR HOURS - Record the starting and finishing time of all operations in the field.

a. Cleaning of residues - record hours required to clear the field and charge it to the next crop.

b. Plowing, harrowing, seedbed preparation - record the actual hour including normal rest period.

c. Planting and transplanting - record the time required and operation in planting and transplanting.

d. Replanting and thinning - Record the actual time needed/required per plot.

e. Fertilization - record the time spent in applying fertilizers (basal , topdress)

f. Application of chemical for pest control - record all the actual labor hours.

g. Harvesting time - record the time from cutting and carrying the product from the field.

5. MATERIALS - this will be recorded to determine the kind and unit of measurement used for each cropping pattern.

6. POWER - the number of hours will include rest time of animals but not the travelling time to and from field. It will be noted whether power source is animal or tractor.

7. PRODUCTION OR YIELD - Record all products that have value because they should be considered as part of the gross return.

8. PRICES - Prices used in the analysis will be farm gate prices.

9. LABOR WAGES - Record the wage rate used in all operation per location.

10. AGRONOMIC PERFORMANCE- To be recorded in order to compare the number and type of executed patterns to that actually designed.

11.	ECONOMIC EVALUATION OF PATTERN PERFORMANCE	- This section describes the methods of comparing experimental cropping pattern to existing patterns that will be used to evaluate the acceptability of research results to farmers.
12.	YEARLY SUMMARY REPORT OF CROPPING PATTERN TESTING RESULT	- This consist of weather summary, a land type description, a cropping pattern management summary, an individual cropping pattern performance summary and summary of cropping pattern performance of all pattern tested in a land type.

PROJECT TITLE : CORN - BASED CROPPING PATTERN TESTING

PROJECT LEADER : Silvino Q. Tejada

STUDY TITLE (Study Leader)

1. River-flood plains corn area "Bangag, Solana". (Vicente Garduque)
2. River-flood plains corn area "Pared, Alcala". (Silvino Tejada)
3. Higher-elevation/rolling terrain corn area "Tapel, Gonzaga". (Robert Marcaida)

JUSTIFICATION :

Various crops are grown in Cagayan showing the diversity of the cropping systems presently practiced by farmers. Field crops like rice, corn, tobacco, legumes and vegetables were grown in a given parcel of land at the same time or in sequences. Area allocated to the growing of these crops vary and the combination of cropping pattern are not properly ascertained. This may pinpoint the possibility of inefficient and uneconomical use of land resources. Farmers, however, are merely contented with what they produce and not by what their farms may potentially give them.

Annual production from a given area of land being marginal or sub-marginal can be increased by improving the yield of a crop and/or by growing an extra crop during the year. Research to develop these improved crop production methods has to recognize existing trade-offs between the different farm enterprises or parts of these. The simple replacement of one management component of a crop with another is seldomacceptable to farmers. This may be due to the major disturbances elsewhere in the management of that crop, crop growing in another field or even the succeeding crop.

The limited adoption by farmers of new production techniques reflects the weakness in the ability of government planners to formulate production methods that compete favorably with the ones farmers

can already choose from.

One way of approaching the problem of increasing crop production per unit area per unit time, the Agricultural Pilot Center of the Cagayan Integrated Agricultural Development Project aim to examine and test how efficiency the farmers coordinate and utilize available resources in such manner the together they yield the highest net returns. Through these undertakings, it is hope that the big potential of the river-flood plains and higher elevation/rolling terrain farms in Cagayan will be fully enhanced provided the farmers in these areas continue to adhere strictly to the modern production techniques.

The project is envisioned to satisfy three primary needs, namely:

1. Bridging the protein gap in the nutrition of the Cagayanos by increasing production in;
    a. Corn, mungbean, peanut and other legume crops, the principal ingredients of animal feeds, subsequenlty converted into protein-rich foods like pork, poultry, beef and milk,and
    b. Vegetable which are rich in protein and vitamins; tobacco for local market exports and upland rice for additional carbohydrates.
2. Production of raw materials for industry, sizeable quantities of which are being imported. This is oriented to both saving and earning precious foreign exchange with which to procure the tools of industry.
3. Raising the living standard of the corn farmer by increasing his farm income. Marginal and sub-marginal corn land does not provide the tiller any degree of comfortable living.

The project is expected to pave the way to expanding crop production and diversification so badly needed to update local agriculture.

OBJECTIVES :

To develop/evaluate alternative cropping patterns for traditional corn areas of varying agro-ecological and socio-economic conditions in the province of Cagayan.

1. To improve and evaluate the profitability of farmer's traditional cropping patterns in the river-flood plains and higher elevations/rolling terrains;
2. To develop and identify low-cost but profitable alternative cropping patterns within specific season and situation ;
3. To compare the economic profitability of traditional and alternative cropping patterns in the same situations;
4. To determine farmer's present use of resources and obtain estimates of labor and power profiles of traditional and alternative cropping patterns;
5. To study the production constraints in the river-flood plains and higher elevation/rolling terrains.

METHODOLOGY :

Location : Bangkag, Solana: Pared, Alcala and Tapel, Gonzaga

Duration : May 1982 - April 1984 (2 years)

Replication : Four (4) - across the fields

Plot size 1000 M^2

Treatments :

Bangkag, Solana (River-flood plains)

a. Traditional Pattern (Monitoring Only)
   1. Corn - Corn

b. Test Pattern (Improved Technology)
   1. Corn - Corn
   2. Corn - Mungbean

3. Mungbean – Corn

4. Corn – DSR – Mungbean

5. Mungbean – DSR – Corn

Pared, Alcala (River-flood plains)

a. Traditional Pattern (Monitoring Only)

1. Corn – Corn

2. Corn – Tobacco

b. Test Pattern (Improved Technology)

1. Corn – Corn

2. Corn – Tobacco

3. Corn – Peanut

4. Mungbean – Corn

5. Corn – Mungbean

6. Mungbean – corn – Peanut

7. Corn – Peanut – Corn

Tapel, Gonzaga (Rolling Terrain)

a. Traditional Pattern (Monitoring Only)

1. Corn – Corn

b. Test Pattern (Improved Technology)

1. Corn – Corn

2. Corn – Mungbean

3. Mungbean – Corn

4. Corn – DSR – Mungbean

5. Mungbean – DSR – Corn

6. Mungbean – Corn – Mungbean

7. Corn – Mungbean – Corn

Cultural practices to be followed will be based from the Cagayan Technoguides (corn, peanut, mungbean) IRRI - Solana Results and national recommendations for tabacco and dry seeded rice.

DATA TO BE GATHERED :

Same as Rice- based cropping pattern testing.

SPECIAL PROJECT

PROJECT TITLE (Project Leader)

1. Influence of storage system and seed source on potato yield in Cagayan. (Helen Taja)

2. The effect of mulch and planting time on the growth of potatoes. (Helen Taja)

3. Phosphorus fertilizer trial on Potato. "The phosphorus requirements on the two representative soils of Cagayan". (Helen Taja)

4. Potato production demonstration. (Helen Taja)

5. Evaluation of urea placement machines. (Silvino Tejada)

6. Cropping pattern applied research trial on "bed" and "sinks" of the Sorjan under rainfed conditions. (Silvino Tejada)

7. Studies to develop and improve the direct sowing rice technology. (Vicente Miguel)

8. Israel - CIADP Peanut variety demonstration project. (Silvino Tejada and Juan Lasam)

TITLE : INFLUENCE OF STORAGE SYSTEM AND SEED SOURCE ON POTATO YIELD IN CAGAYAN

JUSTIFICATION :

Previous experiment indicated that potato can be grown in Cagayan. The unavailability of seeds in the locality, however, maybe a limiting factor in as much that it would be too expensive to import seeds from the highlands.

It would, therefore, be necessary to determine whether farmers could keep some of their produce for planting to using diffuse light storage or cold storage.

OBJECTIVES :

1. To determine the storability of seeds in diffuse light during a hot humid 7 - 9 month period and to seed their viability as seed planted in the same location compared to seed of the same source stored in cold store.
2. Study the influence of seed from Cagayan stored for 7 - 9 months with freshly harvested and sprouted seeds from the highlands.

METHODOLOGY :

Location : Minanga Norte, Iguig and Calayan, Gonzaga

Duration : September 1982 -

Experimental Design : The Randomized Complete Block Design with Four (4) Replication

Treatments :

1. Seeds bought from BPI Baguio
2. Diffuse light storage seeds (kept in local stores)

3. Cold storage seeds

Variety : Cosima and Isola

Spacing : 30 x 75 cm

DATA TO BE GATHERED :

1. Number of stems
2. Percent of emergence
3. Yield (kg/ha)
4. Cost of seeds

TITLE : THE EFFECT OF MULCH AND PLANTING TIME ON THE GROWTH OF POTATOES

JUSTIFICATION :

There is enough rain during the earlier months of September and October but soil temperature is considered high for potato production. On the contrary, December is a cool month but with limited rain to supply the water needs of the crop for its whole life span. Mulch may reduce the soil temperature in September and October and conserves soil moisture in the month of December - January - February.

OBJECTIVES :

1. To determine the influence of Mulch on the soil temperature and soil moisture as it affects the potato.
2. To determine the optimum planting data from an agronomic and economic perspective.

METHODOLOGY :

Location : CSU Lal-lo and Lusong, Gonzaga

Duration : September 1982 - March 1983

Experimental Design : Split plot

Replication : Four (4)

Treatments :

1. No mulch Sept. 28 - 30
2. No mulch Oct. 13 - 15
3. No mulch Oct. 28 - 30
4. No mulch Nov. 13 - 15
5. No mulch Nov. 28 - 30
6. No mulch Dec. 13 - 15
7. Mulch Sept. 28 - 30
8. Mulch Oct. 13 - 15
9. Mulch Oct. 28 - 30
10. Mulch Nov. 13 - 15
11. Mulch Nov. 28 - 30
12. Mulch Dec. 13 - 15

Mulch should be made 5 cm thick.

Variety : Cosima

Plot size : 3 x 4 M

DATA TO BE GATHERED :

1. Number of stems
2. Percent of emergence
3. Yield (kg/ha)
4. Diseases and pests observed
5. Specific gravity

TITLE : PHOSPHORUS FERTILIZER TRIAL ON POTATO
(THE PHOSPHORUS REQUIREMENT ON TWO REPRESENTATIVE SOILS OF CAGAYAN)

JUSTIFICATION :

Potatoes are sensitive to low P levels. This is augmented by low soil temperatures. In Cagayan, soil types do vary and it is thus essential to know the P requirements for two (2) of the major soil types (Sandy loam and clayey).

OBJECTIVES :

1. To determine the external P (Soil P Level) requirements for potatoes.
2. To Determine the internal P requirement (Plant tissue level)

METHODOLOGY :

Location : CSU, Lal-lo and Calayan, Gonzaga

Duration : November 1982 - March 1983

Experimental Design : The Randomized Complete Block Design with Three (3) Replication.

Treatment :

1. 0 kg/ha P_2O_5
2. 12.5
3. 25
4. 50
5. 100
6. 200

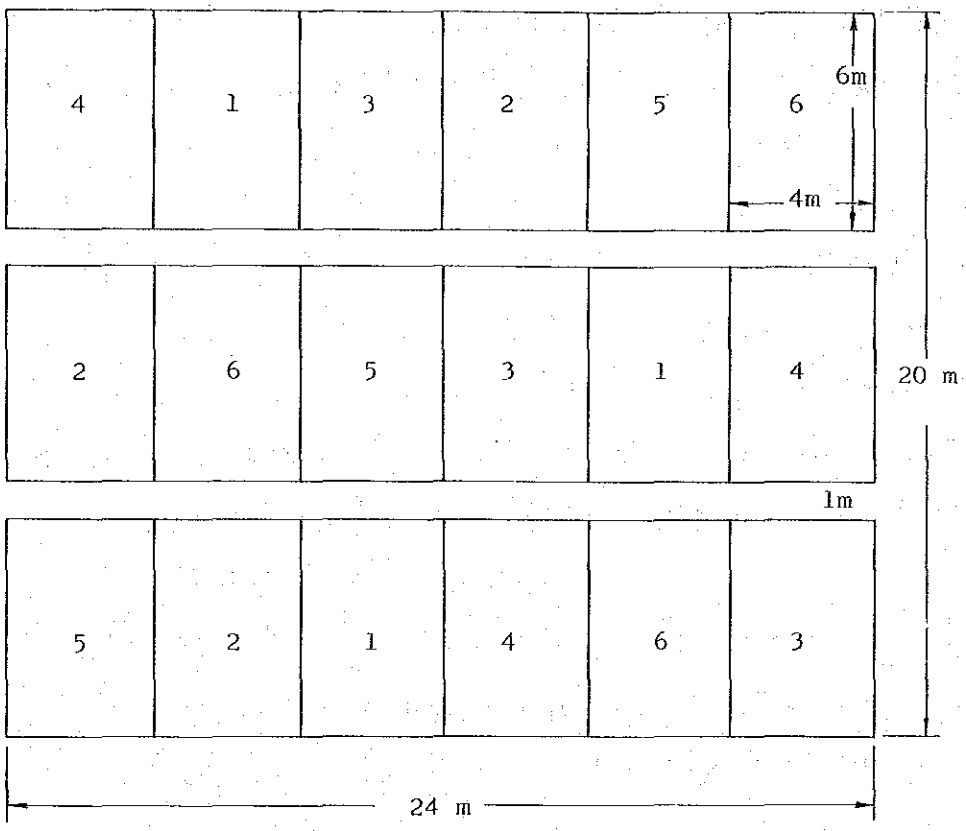
Variety : Cosima

Spacing : 30 x 67 cm

DATA TO BE GATHERED :

1. Number of plant emerged
2. Leaf samples shall be collected 45 DAT for P analysis
3. Tuber yield (kg/ha)
4. Tuber samples shall be collected for P analysis

Layout :



Plot size : 4 x 6 m

Distance between replication : 1 m

Total area : 20 x 24 m = 480 m^2

TITLE : POTATO PRODUCTION DEMONSTRATION

METHODOLOGY :

Location : Pared, Alcala; Centro, Solana and Cabiraoan, Gonzaga

Duration : November 1982 - March 1983

Area : Alcala - 1000M^2

Solana - 1000M^2

Gonzaga - 2500M^2

Seeding rate : 20 t/ha

Spacing : 30 x 75 cm

Variety : Cosima

Fertilization :

	N	P_2O_5	K_2O	kg/ha
Alcala	140	310	140	
Solana	140	170	140	
Gonzaga	140	170	140	+ chicken dung 3t/ha

TITLE : EVALUATION OF UREA PLACEMENT MACHINES

JUSTIFICATION :

Urea is the dominant source of nitrogen in Asia. Low fertilizer efficiency has compounded the problem of high cost of nitrogen for small farmers. Recent studies at IRRI have showed that up to two thirds of added nitrogen is lost, through volatolization and denitrification when applied by traditional means. Two ways to reduce such losses are deep placement and slow release.

It is likely that urea supergranules (USG) will become commercially available to farmers in the next 2 to 3 years. However, conventional prilled urea is likely to remain a commonly used nitrogen fertilizer. Deep placement of both USG and prilled urea is believed to substantially reduce N losses.

The Agricultural Engineering Department of IRRI has developed two machines to enable deep placement of USG and prilled urea. These are now at the stage of field evaluation by farmers, and testing under different environmental conditions.

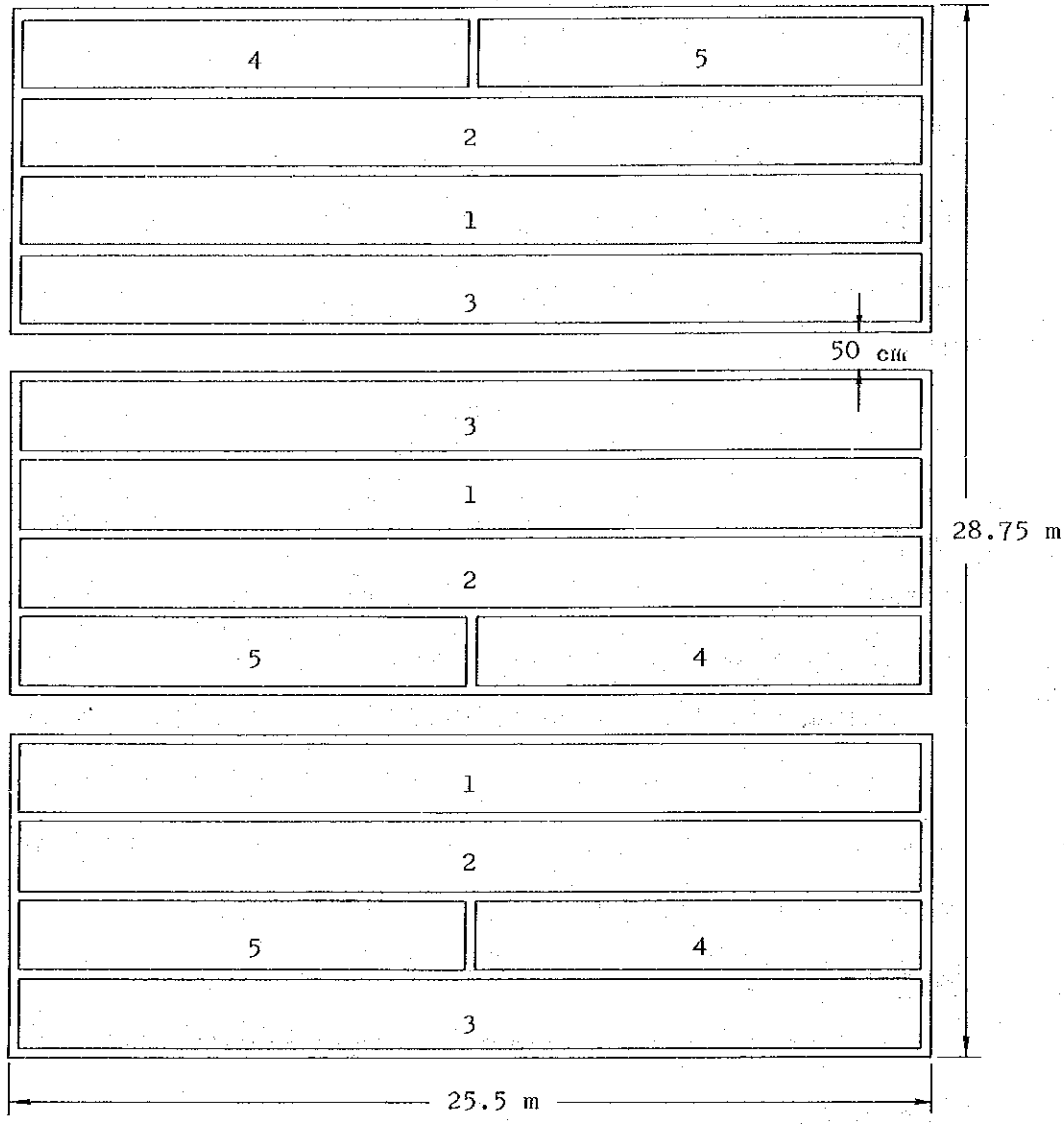
OBJECTIVES :

To test and evaluate of urea palcement machines.

METHODOLOGY :

Location	:	Buguey Pilot Farm
Duration	:	January 1983 - May 1983
Experimental Design	:	The Randomized Complete Block Design with Three(3) Replication

Layout



Plot size : 1,2 and 3 - 2 x 25 m

4 and 5 - 2 x 12.4 m

Dimension of levees : 25 cm wide

Distance between replication : 50 cm

Total area : 25.5 x 28.75 m = 733.125 m^2

Treatment :

1. USG application using the Rockwood plunger. (5 - 7 DAT)
2. Prilled urea application using the spring auger (5 - 7 DAT)
3. USG hand application (5-7 DAT)
4. Researcher's best split (2/3 Basal, 1/3 5 - 7 days before panicle initiation)
5. Farmer's timing

All treatments will be at 58 kg N/ha.

30 kg P_2O_5 and 30 kg K_2O are to be applied to all treatments as basal.

Spacing : 20 x 20 cm

Variety : Farmer's variety

Plot size : Treatment 1,2 and 3 are 25 x 2 M

Treatment 4 and 5 are 12.4 x 2 M

DATA TO BE GATHERED :

1. Yield (kg/ha)
2. Incidence of pests, flooding, drought, and lodging
3. Soil sample to be taken
4. Previous history of the field
5. Monitor NH_4 - N in the floodwater.
6. Machine performance/farmers reaction

TITLE : CROPPING PATTERN APPLIED RESEARCH TRIAL ON "BED" AND "SINKS" OF THE SORJAN UNDER RAINFED CONDITIONS.

JUSTIFICATION :

The term "Sorjan" means high and low field which is used extensively in Indonesia.

This is a unique cropping system in which alternate sinks and beds are formed. The sinks act as reservoir to catch rain and thus increase the probability of producing a rice crop in rainfed areas during the wet season and upland crops in the dry season while the beds can be planted with upland crops in the wet season. Past experience has shown that corn, soybean, mungbean, peanut, cowpea, sorghum and cassava can be grown successfully during the wet season on these beds. With the surplusof rice now being produced in the Philippines, this system seems to offer a procedure where we can still grow all the rice needed and at the same time grow upland crops that we import at present.

Farmers who have seen the plots at IRRI recognize immediately the suitability of sorjan in their own fields. It holds great promise. It will allow us to maintain our rice production capability and still grow the upland crops we need.

OBJECTIVES :

1. To evaluate the performance of various upland crop using the beds and sinks of "Sorjan".
2. To evaluate the performance of six rice lines/selections and two recommended rice varieties grown in the sinks of sorjan.

3. To determine feasible cropping patterns on the beds and sinks of sorjan at farmer's field.
4. To evaluate the economic feasibility of using the sorjan method under low-lying submerged areas in Cagayan.
5. To compare the performance of both upland crops and rice varieties/selection grown with the sorjan method under rainfed conditions.

METHODOLOGY :

Location : Sta. Maria,Lal-lo; Afunan, Camalaniugan and Cullit, Camalaniugan

Duration : January 1983 -

Experimental Design : The Randomized Complete Block Design with Three(3) Replication.

Treatment:

Upland Crop

1. Cowpea (All season) - Corn (Super Sweet)
2. Corn (Super Sweet) - Mungbean (CES 1D - 21)
3. Mungbean (CES 1D - 21) - Cowpea (All season)

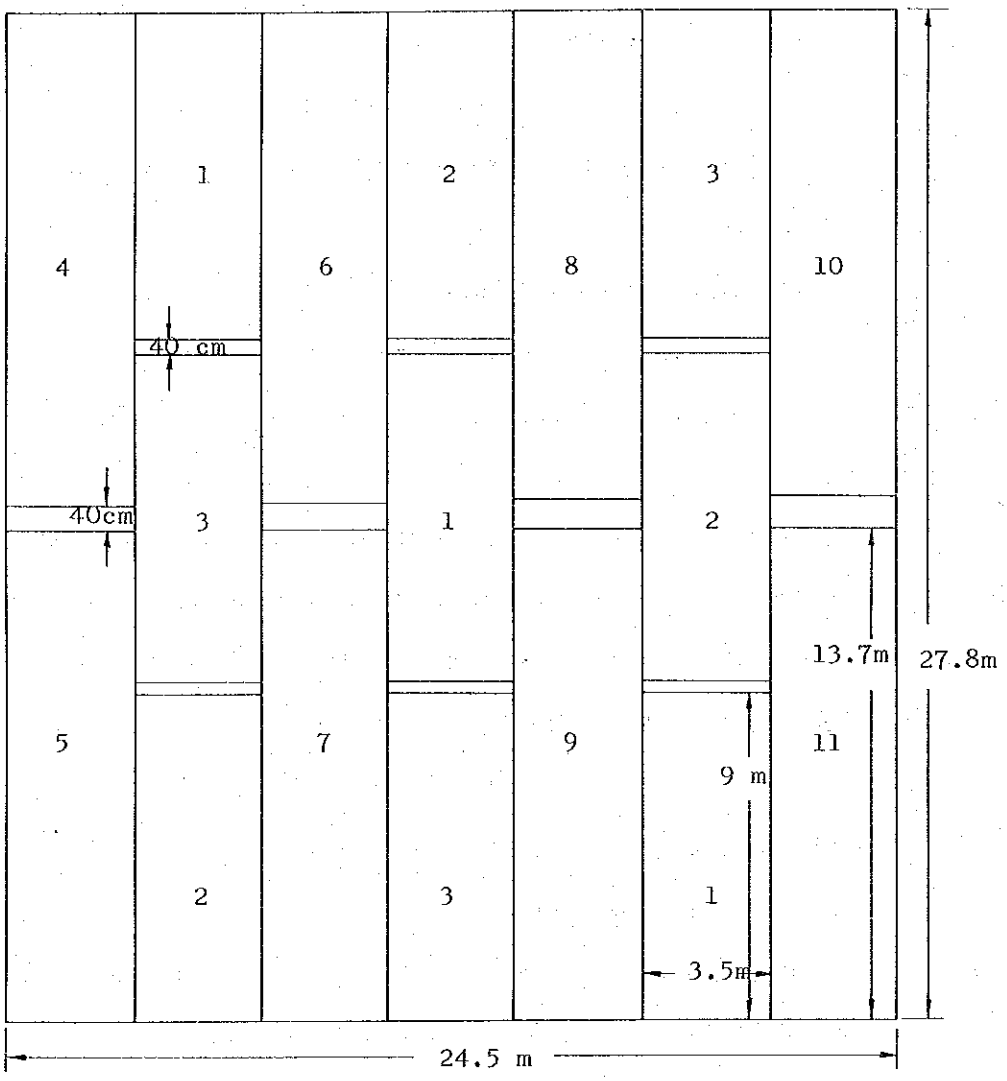
Rice

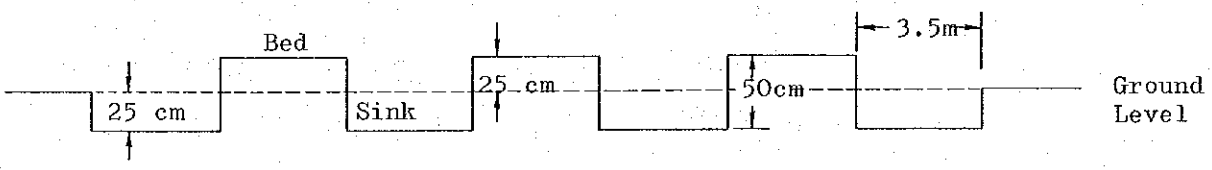
4. IR - 42
5. IR - 56
6. IR18342 - 73 - 2 - 1
7. IR22168 - 49 - 1
8. IR 26702 - 25 - 1
9. IR 26702 - 25 - 4
10. IR 26702 - 25 - 5
11. IR 26702 - 25 - 6

Plot size : Upland crop - 3.5 x 9 M

Rice - 3.5 x 13.7 M

Layout





Plot size : 1 - 3 3.5 x 9 m

4 -11 3.5 x 13.7 m

Distance between treatment : 40 cm

Total area : 24.5 x 27.8 m = 681.1 m^2

Spacing : Cowpea - 20 plants/linear meter
Between furrows 40 cm.
Corn - 50 x 50 cm
Mungbean - 20 plants/linear meter
Between furrows 40 cm.
Rice -

Fertilization :
Cowpea - 28 - 28 - 28
Corn - 100 - 45 - 45
Mungbean - 28 - 28 - 28
Rice -

DATA TO BE GATHERED :

RICE

1. Seedling vigor (10 - 15 DAT)
2. Days to heading
3. Days to maturity
4. Plant height (cm) - Just before harvest
5. Tiller count - Just before harvest
6. Lodging score
7. Insect and Disease rating
8. Yield (kg/ha)
9. Moisture content

CORN

10. Total No. of Plants
11. Total No. of Ears
12. Weight of dry ears (kg)
13. Weight of dry grains (kg)
14. Moisture content

COWPEA

15. Weight of fresh pods (kg)
16. Weight of dry pods
17. Weight of shelled beans (kg)
18. Moisture content

MUNGBEAN

19. Weight of threshed beans by priming (kg)
20. Moisture content
21. Total weight of dry pods (kg)
22. Total weight of dry beans (kg)

TITLE : STUDIES TO DEVELOP AND IMPROBE THE DIRECT SOWING RICE TECHNOLOGY

JUSTIFICATION :

Direct seeding of rice under submerged condition is now gaining importance to some farmers especially in areas where there is scarsity of labor supply and poor drainage condition. The method in this undertaking is to use a chemical known as calcium peroxide dust to coat the rice seeds before sowing. By using this technique, the chemical supplies the necessary oxygen to the germinating seed thus giving chance for the seedling to survive longer under submerged condition.

In order to gain more information on the different components of the new technology, this project will be evaluated under nursery condition which will serve as the basis in the expansion of the activity under field condition.

OBJECTIVES :

1. To determine the optimum amount of calper dust to coat seeds for direct seeded rice under submerged condition.
2. To evaluate the performance of seedlings as affected by the different amount of calper dust.
3. To determine the best method of establishing direct-seeded rice by using calper dust seeds.
4. To evaluate the performance of rice seedlings as affected by the calcium peroxide coating and the method of establishment.
5. To evaluate the performance of calcium peroxide coated seeds as affected by different depth of water from sowing up to 2.5 leaf stage.

METHODOLOGY :

Location : APC

Duration : February 1983 - April 1983

Experimental Design : The Randomized Complete Block Design with Three(3) Replication

Treatments :

Study I. The different amount of calper dust to coat rice seeds.

1. 100%
2. 90%
3. 80%
4. 70%
5. 60%

StudyII. The different methods of establishing Calcium peroxide coated seeds.

1. Coated seeds - 1 cm deep sowing
2. Uncoated seeds - 1 cm deep sowing
3. Uncoated seeds - sown at the soil surface

Study III. Performance of calper coated seeds under different water depth.

1. 1 cm
2. 3 cm
3. 5 cm
4. 7 cm
5. 9 cm

Number of seeds to be sown per pot : 100 seeds

Size of pot : 1/5000 are wagner pot

Variety : IR - 36

DATA TO BE GATHERED :

1. Days to emergence
2. Percent emeregnce
3. Seedling height (cm)
4. Seedling vigor
5. Leaf age

TITLE : ISRAEL - CIADP PEANUT VARIETY DEMONSTRATION PROJECT

OBJECTIVES :

1. To determine the agronomic adaptability of the two Israel peanut varieties under Cagayan's agro-climatic conditions.
2. To compare the yield performance of two Israel peanut varieties against the local variety.

METHODOLOGY :

Location : Gattaran, Solana; Fugu, Tuao and Cabirauan, Gonzaga

Duration : November 1982 - March 1983

Treatment :

1. Valencia (red)
2. Spanish (light brown)
3. Local (light brown)

Spacing :

Valencia and Spanish - 40 x 10 cm

Local - 40 x 20 cm

Fertilization :

	N	P_2O_5	K_2O	Gypsum kg/ha
Gonzaga and Solana	31.5	85	120	150
Tuao	101.5	70	70	150

Inoculation : Local and Israel rhizobia

Seeding rate : Local - 2 - 3 seeds/hill

Israel - 1 seed/hill

DATA TO BE GATHERED :

1. Number developed pods.
2. Yield (kg/ha)

付２　カガヤン農業開発計画関係資料リスト

No.	資料名	刊行	刊行	整理番号	保管場所
1	フィリピン共和国カガヤン・バレー地域総合開発計画調査報告書	事業団	50. 2	Ａｂ２１９－３５Ｋ４３３１	図書資料室
2	フィリピン共和国カガヤン・バレー地域農業総合開発調査報告書	〃	50. 9	（農林）５０－３３２１９－７５－８農計	農計部
3	フィリピン共和国カガヤン農業総合開発フィージビリティー調査報告書	〃	51. 4	（農林）５１－０１２１９－７６－８農計	〃
4	カガヤン農業開発協力実施調査団報告書	〃	51. 2	（農林）５０－６１	農開部
5	フィリピン共和国カガヤン農業開発パイロットセンター計画調査報告書	〃	51. 6	番号なし	〃
6	フィリピン・カガヤンバレー地域畑作物開発事前調査報告書	〃	52.10	（農林）５２－３２２１９－４１４－Fa26４８４	図書資料室
7	昭和５３年度フィリピン・カガヤン農業総合開発計画巡回指導調査報告書	〃	54. 9	（農開技）ＪＲ８０－１０	農開部
8	昭和５４年度　〃　〃	〃	55. 9	（農開技）ＣＲ８１－１７	〃
9	フィリピン・カガヤン農業開発計画総合報告書	〃	55.10	（農開技）ＪＲ８１－１４	〃
10	昭和５５年度フィリピン・カガヤン農業開発計画巡回指導調査報告書	〃	56. 9	（農開技）ＪＲ８１－５７	〃
11	Establishment of a pilot Center for Agricultural Development Cooperation in Cagayan	ＪＩＣＡ	76. 1	番号なし	〃
12	フィリピン・カガヤン農業開発計画エバリエエーション調査報告書	事業団	57. 5	（農開技）ＪＲ８２－２７	〃
13	カガヤン総合農業開発計画普及効果測定調査報告書	〃	58.10	（農開技）ＪＲ８３－８１	〃
14	昭和５７年度フィリピン・カガヤン農業開発計画計画打合調査団報告書	〃	58.11	（農開技）ＪＲ８２－３６	〃