OAU/STRC JOINT PROJECT-31

S A F G R A D

SEMI-ARID FOOD GRAIN RESEARCH AND DEVELOPMENT

AND

IDRC - BURKINA FASO

NATIONAL COWPEA IMPROVEMENT PROJECT

PROGRAM OF RESEARCH
1984 FIRST SEASON

I I T A

INTERNATIONAL INSTITUTE OF TROPICAL AGRICULTURE

B.P. 1783, OUAGADOUGOU (BURKINA FASO)

S U M M A R Y

MAIZE BREEDING PROGRAMME 1984 I

INTRODUCTION

The early, medium and late maturing variety trials were conducted this year in 5 locations as to avoid drought risks likely to produce no yield and consequently a total lack of information.

The trials planted include varieties from international (CIMMYT, IITA) and regional (INSAH) institutes and varieties developed by SAFGRAD project as well as varieties proposed by some national programmes members of SAFGRAD. A drought resistance trial was also planted.

These trials were conducted at Kamboinsé, Loumbila, Gampela, Saria and Farako-Bâ, whereas "Vallée du Kou" was used for producing the based seeds of one of SAFGRAD promising varieties (SAFITA-2) and 2 IITA Streak resistant varieties (TZESR-W and TZESR-Y). One EVT LSR trial (streak resistant) was also planted.

This 1984 programme also includes a number of farmer field trials and 2 joint trials with the SAFGRAD Maize Agronomy Section. The seed multiplication programme was seriously distorted.

Seed production and breeding nurseries are generally organized at Kamboinse. The unusually late rain led us to decide not to plant during the rainy season so as to be able to multiply seeds during the dry season. Therefore, the maize breeding programme for 1984 is as follous:

A. KAMBOINSE

I. IITA TRIALS

One pool (Pool 16) and one population (TZESR-W, streak resistant) are being improved by recurrent selection at IITA. This year 250 full-sib families are sent for international testing.

At Kamoinse the following 2 trials were planted :

a) IPTT - TZESR-W

Entries : 250 + 6 checks
Plot size : 1 row 5m long
Replications : 2
Plot n° 1008 Block C
Date of planting : 2/8/84

b) IPTT Poul 16

Entries : 250 + 6 checks
Plot size : 1 row 5m long
Replications : 2
Plot n° : 1012 Block L7
Date of planting : 2/8/84
Both materials belong to the early group

II CIMMYT TRIALS

a) EVT-16A

This trial includes yellow early and medium maturing varieties developed by CIMMYT from populations 33, 45 and 48.
Entries : 17 + 2 checks
Plot size : 4 rows 5m long
Replications : 4
Plot n° : 1007 block C
Date of planting : 2/8/84

b) ELVT-18B

This is a trial including early and medium elite varieties which have already gone through the stage of international testing (25 locations at least). The trial includes varieties developed from CIMMYT populations 26, 30, 31, 32, 35, and 49.

Entries : 12 + 2 checks

Plot size : 4 rows, 5m long
Replications : 4
Plot nº : 1010 Block D1
Date of planting : 3/8/84

c) EVT-14A

To test medium and early experimental varieties generated from CIMMYT populations 26, 31, 35.
Entries : 13 + 2 checks
Plot size : 4 rows, 5m long
Replications : 4
Plot nº : 1011 Block D3
Date of planting : 3/8/84

d) IPTT 33

To test full-sib families of CIMMYT yellow coloured medium population 33.
Entries : 250 + 6 checks
Plot size : 1 rows, 5m long
Replications : 2
Plot nº : 1013 Block D9
Date of planting : 3/8/84

e) IPTT-70

To test full-sib families of population 70 with high protein quality and high eil content. - medium early cycle.
Entries : 250 + 6 checks
Plot size : 1 row, 5m long
Replications : 2
Plot nº : 1016 Block F7
Date of planting : 8/12/84

III RESIDENT PROGRAMME TRIAL

a) Regional Uniform Early Variety Trial RUVT-1

This trial was jointly conducted this year with the Maize agronomist in order to test varieties under no stress conditions and under mean stress using tied ridges. The number of varieties was increased to 20 including local varieties so as to assess the performance of local and improved varieties.

Entries : 20
Plot size : 3 rows, 5m long
Replications : 2 ridging systems - 6 replications
Plot N° : D1 and D3
Date of planting : 13/8/84

b) Regional Uniform medium Variety Trials RUVT-2

Like the Regional Uniform Early Variety Trial, this trial includes varieties generated from SAFGRAD programme as well as varieties from national programmes members of SAFGRAD.

Entries : 11 + 1 check
Plot size : 4 rows, 5m long
Replications : 4
Plot N° : 1014 Block D10
Date of planting : 3/8/84

c) Drought Resistance Trial

This trial is conducted on simple ridges (mean drought) and tied ridges (without drought) in order to delect the families performing under both conditions.

Entries : 219 + 6 checks
Plot size : 1 row, 2.5m long
Replications : 2
Plot n° : 1006 Block A
Date of planting : 2/8/84

d) PP Trial (Populations and Pools)

This trial includes all CIMMYT early pools and populations as well as IITA streal resistant and downy mildew resistant material with jaune flint de Saria (a variety highly adapted in this area).

Entries : 18 + 2 checks

Plot size : 4 rows, 5m long

Replications : 4

Plot nº : 1009 Block D2

Date of planting : 3/8/84

e) Seed multiplication and Breeding Nurseries

1 - US Tropical Nº 27 : Basic seed production

Area : 0.15 ha

Plot Nº : 1001

Date of planting: 28/6/84

2. Latente (drought resistant material): seed multiplication

Plot size :15 rows 5m long

Plot Nº : 1002

Date of planting : 6/7/84

3- Perennial Maize: Seed multiplication and Observations

Plot size : 5 rows 5m long

Plot Nº : 1003

Date of planting : 6/7/84

4. SAFITA-102 Basic seed production

Plot size : 30 ridges 16m long and 0.26 ha

Plot Nº : 1004

Dates of planting :7/7/84 and 3/8/84

5. SAFITA-2 : Drought resistant

218 full sib families for seed multiplication and crossing with Pool-16 SR for Streak resistance incorporation into the material being selected for drought resistance.

Plot size : 1 row 5m long
Plot N° : 1017
Date of planting : 25/7/84

6. Jaune Flint de Saria Top cross

36 improved varieties from various origins (CIMMYT, IITA/IBADAN, IITA/Burkina-Faso and natioaal programmes members of SAFGRAD) are planted in female rows and jaune flint de Saria in male rows with a view to crossing;
Entries : 36
Plot size : 2 rows 5m long
Plot n° : 1005, K1
Date of planting : 8/7/84

7. Extra-early Material

This is a very early material obtained from Columbia. seed multiplication would enable us to continue developing an extra early pool .

Entries : 9
Plot size : 3 rows 5m long
Plot N° : 1018 to 1026
Date of planting : 21/8/84

B./ L O U M B I L A

I. IITA TRIALS

a) Int Hybrid Trial

This trial includes hybrids whose parents are public and available at IITA if needed.
Entries : 12 + check
Plot size : 4 rows, 5 m long
Replications : 4
Plot N° : 2027
Date of planting : 7/7/84

b) EVT-ESR

To test early streak resistant varieties developed at IITA.
Entries : 11 + 2 checks
Plot size : 4 rows, 5m long
Replications : 4
Plot N° : 2026
Date of planting : 7/7/84

II. CIMMYT TRIALS

EVT-2

The objective of this trial is to compare the selection cycles of CIMMYT material in order to assess the progress achieved from one cycle to another in medium populations 23, 26, 32 and 35.
Entries : 12
Plot size : 4 rows, 5m long
Replications : 4
PLot N° 2028
Date of planting : 7/7/84

III. RESIDENT PROGRAMME TRIAL

a) PP Trial

Same trial as described and planted at Kamboinsé on plot 1009, Block D2.
Plot N° 2001
Date of planting : 7/7/84

b) IPTT-TZUT-Y

TZUT-Y is a material developed at IITA and improved at Kamboinse. It is a medium early yellow material. This year it was advanced to international testing.
Entries : 250 + 6 checks
Replications : 2
Plot N° : 2002
Date of planting : 7/7/84

c) IPTT-TZESR-Y

An early yellow material résistant to streak, developed at IITA and kept at Kamboinsé for improvement.
Entries : 250 + 6 checks
Plot size : 1 row, 5m long
Replications : 2
Plot N° : 2003
Date of planting : 7/7/84

d) Regional uniform medium variety trial - RUVT-2

Same trial as described and planted at Kamboinsé, on plot N° : 1014
Plot N° : 2030
Date of planting : 7/7/84.

IV. BREEDING NURSERY AND SEED MULTIPLICATION

a) US Tropical

Medium yellow material obtained by crossing tropical material and

temperate material. F4 generations are planted with a view to dialel cross in order to generate a medium composite.
Plot N° : 2004 to 2024

b) Material included in regional trials (RUVT-1 and 2)

Seed multiplication by bulk sibbing in order to prepare for the 1985 season.
Plot N° : 2025 to 2068
Date of planting : 8/7/84

c) Crosses between local varieties and improved varieties

Multiplication of seeds from advanced generations of crosses between local materiel and improved materiel.
Plot N° : 2069 to 2287
Date of planting 8/7/84.

d) Basic seed production - SAFITA-104

This is a promising yellow early variety. The objective is to produce basic seeds and initiate an experiment at farmer's level.
Plot N° : 2288
Area : 0.75 ha
Date of planting : 14/6/84

C./ S A R I A

I. IITA TRIALS

International Hybrid Trial

Same trial as described and planted at Loumbila on plot 2027.
Plot N° : 3140
Date of planting : 24/6/84.

II. INSAH TRIALS

INSAH Early

A trial regrouping local varieties from the Institut du Sahel member Countries.
Entries : 5 + 1 check
Plot size : 4 rows, 5,2m long
Replications : 6
Date of planting : 28/6/84

III. RESIDENT PROGRAMME TRIALS

a) IIPT-TZUT-Y

Same trial as described and planted at Loumbila on plot N° 2002.
Plot N° : 3002
Date of planting : 19/6/84

b) IPTT-TZESR-Y

Same trial as described and planted at Loumbila on plot N° 2003.
Plot N° 3001
Date of planting : 19/6/84

c) Local x improved variety trial

To test early material obtained by crossing early local varieties and improved varieties with the same maturity for a combination of adaptability - resistance to diseases and yield.
Entries : 105 + 16 checks
Plot size : 4 rows, 5 m long
Plot N° 3073
Date of planting : 24/6/84.

d) Populations and Pools Trials (PP)

Same trial as described and planted at loumbila on plot N° 2001.
Plot N° : 3139
Date of planting : 27/6/84.

e) Regional uniform early variety trial RUVT-1

Trial including early varieties from national programmes members of S. FGRAD and from SAFGRAD Resident Programme.
Entries : 12 + 1 check
Plot size : 4 rows, 5.2 m long
Replications : 4
Plot N° : 3177
Date of planting : 24/6/84

F) Regional uniform medium veriety trial - RUVT-2

Same trial as described and planted at Loumbila on plot N° 2030.
Plot N° : 3178
Date of planting : 24/6/84.

IV SEEDS MULTIPLICATION

a) Early material (local varieties and improved varieties crosses)

Plot n° : 3141 to 3176
Date of planting : 28/6/84

b) Improved x improved

Plot n° : 3141 to 3176
Date of planting : 28/6/84

c) Material for drought resistance

Plot N° : 3179 to 3319
Date of planting : 28/6/84.

D./ F A R A K O - B A

I. CIMMYT TRIALS

a) Elite variety trial ELVT-18B

Same trial as described and planted at Kamboinsé on plot N° 1070, Block D1.
Plot N° 4003
Date of planting : 24/6/84

b) Elite variety trial ELVT-18A

Trial including late maturing varieties which already proved to be performing at 25 locations across the world.
Entries : 15 + 2 checks
Plot size : 4 rows 5m long
Replications : 4
Plot N° : 4004
Date of planting : 26/6/84.

c) Experimental variety trial EVT-16A

Same trial as described and planted at Kamboinsé on plot N° 1007, block C.
Plot N° : 4007
Date of planting : 25/6/84.

II. RESIDENT PROGRAMME TRIAL

a) Population and Pool (PP) Trial

Same trial as described and planted at Kamboinsé on plot N° 1009, block D2.
Plot N° 4001
Date of planting : 24/6/84.

b) Regional uniform medium variety trial - RUVT-2

Same trial as described and planted at Kamboinse on plot N° 1014, block D10
Plot N° : 4002
Date of planting : 25/6/84

c) Joint trial in collaboration with the Maize Agronomist

To evaluate the performance of local and improved varieties at low and high fertility levels.
Entries ; 12
Replications : 4; 3 fertility levels
Plot size : 4 rows, 5m long
Date of planting : 26/6/84

III. INSTITUT DU SAHEL (INSAH) TRIALS

a) INSAH Trial (early material)

Same trial as described and planted at Saria.
Plot N° : 4005
Date of planting : 26/6/84.

b) Institut du Sahel (INSAH) Trial - Medium maturity material

These varieties like those described in (a) III were contributed by The national programmes of INSAH member countries.
Entries : 7 + 1 check
Plot size : 4 rows, 5m long
Replications : 4
Plot N° : 4006
Date of planting : 26/6/84.

IV. JOINT TRIALS WITH IRAT-BOBO

a) IITA Trial

2 Hybrid Trials already described and planted at Loumbila and Saria.

b) -CIMMYT Trial - EVT-1

Comparison of the selection cycles for 4 CIMMYT late maturity populations.

c) Resident Programme Trial - RUVT-2

(Regional Uniform Medium Variety Trial)

E./ V A L L E E DU K O U

I. IITA TRIALS

EVT-LSR

This trial includes late streak resistant varieties developed by IITA-Ibadan.

Entries : 8 + 2 checks

Plot size : 4 rows, 5m long

Replications : 4

Date of planting : 22/8/84

II. SEED MULTIPLICATION

a) SAFITA-2

0.75 ha of land was planted with SAFITA-2 which is a promising variety from CIMMYT pool 16 developed by SAFGRAD resistant programme in Burkina-Faso. The objective is to produce basic seeds in order to test them at farmer level. SAFITA-2 is an early variety with white colour and dented texture.

b) TZESR-W

Date of planting 22/8/84 (0,25 ha)

c) TZESR-W

In process of planting (0,25 ha).
These 2 varieties with yellow and white colour are both streak resistant.

F./ G A M P E L A

I. INSAH TRIALS

a) INSAH early

Same trial as described and planted at Saria.
Plot N° : 5001
Date of planting : 29/6/84

b) INSAH Medium Maturing

Same trial as described and planted at Farako-Bâ.
Plot N° : 5006
Date of planting : 29/6/84

II. RESISTANT PROGRAMME TRIALS

a) Regional Uniform Early Variety Trial - RUVT-1

Same trial as described and planted at Saria on plot N° 3177.
Plot N° : 5003
Date of planting ; 4/7/84

b) Local Materiel Trial

To test ecotypes collected in Burkina-Faso
Entries : 169 + 2 checks
Replications : 2
Plot N° : 5004
Date of planting : 5/7/84.

NOTE

RUVT-1 and INSAH Early Trials are planted on rows 0.75 m apart and with 2 plants per hill 0.40 m apart on the rows.

RUVT-2 and other IITA, CIMMYT and INSAH medium maturing trials are planted on rows 0.75m apart but hills with 2 plants are 0.50m apart on the rows.

F./ REGIONAL TRIALS

These trials include promising varieties and composites developed by different national programmes and by SAFGRAD resistant programme. The trials fall into two categories:

1°) Early Varieties (RUVT-)
2°) Medium maturing Varieties (RUVT-2)

RUVT-1 trials were distributed to the following countries:

Name of countries	NUmber of Trials
Ghana	1
Tanzania	1
Zimbabwé	1
Zambia	1
Ethiopia	1
Cameroun	2
Togo	1
Senegal	2
Somalia	1
Guinea	2
Mali	2
Kenya	2
Benin	1
Burkina-Faso	4
Mauritania	3
Gambia	1
CAP - Vert	1

RUVT-2 trials were distributed to the following countries :

Name of country	Number of trials
Ghana	1
Tanzania	1
Zimbabwé	1
Zambia	2
Cameroun	2
Togo	1
Senegal	2
Somalia	1
Guinea	2
Mali	2
Kenya	2
Benin	1
Nigeria	1
Burkina-Faso	4
Mauritania	3

G./ F A R M E R F I E L D T R I A L

The objective is to test the promising varieties generated by SAFGRAD in comparison with local varieties under farmer conditions.

These trials were sent to 5 villages.

	Planting
Tanghin (Zorgho)	30/7/84
Ademtenga (Boulsa)	-
Sapoui (Léo)	12/7/84
Bura (Manga)	29/6/84
Tiakané (Pô)	4/7/84

LIST OF INDIVIDUALS WHO RECEIVED SEEDS OF OUR PROMISING VARIETIES (SAFITA-2, SAFITA-104 AND SAFITA-102) FOR MULTIPLICATION

Name	Address	Varieties	Locations of planting	Quantity received
OUATARA Sibiri	ORD Koudougou SouthSD Sect.	SAFITA-2	Sapoui	5 kg
OUEDRAOGO Gabrial	Pabré Farmer	"	Pabré	3 kg
COMPAORE François	Koubri Farmer	"	Koubri	3 kg
ATIE Assad	Trader	"	Kossodo Ouaga	2 kg
SANOU J. Paul	Maize Agronomy	"	Kamboinse	6 kg
TASSEMBEDO Issa	ICRISAT P.O. Box 4881	"	Zorgho	2 kg
ZOUNGRANA Arthur	Nagbaagré Farmer	"	Nagbaagré	2 kg
ORD	ORD Koupela	"	Koupela	10 kg
SEMPORE Gabriel	P.O Box 806 Ouaga	"	Nagbaagré	5 kg
Antonio	L.V.I.A. P.O Box 783	"	Donsé	25 kg
BELEM Célestin	IBRAZ Ouaga	"	Gampela	26 kg
KABORE Nicolas	Projet Lutte Integrée	"	THIOU	0,5 kg
PODA Etienne	P.O. Box 26 Fada	"	Diapaga	2 kg
TIEMTORE Salif	Lougsi Farmer	"	Lougsi	1 kg

Name	Address	Varieties	Locations of planting	Quantity received
SAWADOGO Rasmané	P.O. Box 3217 Ouaga	SAFITA-2	Kombissiri	5 kg
HIEN Fulgence	O.R.D. Kaya	"	Kaya	6 kg
S. GAVOLTTI	AGP-FAO Roma	"	Tamale (Ghana)	4 kg
KABORE Moussa	ACPO/SAFGRAD	"	ORD Centre	2 kg
Marcel Guillon	Parochial Centre	"	Zabré	5 kg
SOMBIE Antoine	Farmer P.O.Box 179 Berega	"	Bérégadougou	10 kg
TLED Deinum	ADRY	"	Lalgaye	25 kg
Paulin BATIONO	Réo Essosso	SAFITA-102	Réo	1 kg
TLEO Deinum	ADRY	" 104	Lalgaye	25 kg
KABORE Moussa	ACPO/SAFGRAD	" "	ORD Centre	5 kg
ORD Koupela	ORD	" "	Koupela	5 kg
HIEN Fulgence	ORD Kaya	US x Trop 27	Oualaga	3 kg

1984 MAIZE AGRONOMY RESEARCH

Owing to the 1984 rainfall pattern at Kamboinse, the protocole could not be followed as planned and a number of trials had to be modified at the last moment. The trials at Kamboinse were first planted in july but had to be totally replanted in August.

The on-going trials have been regrouped under different study areas but this classification is somewhat arbitrary as most of these trials are factorial and could be listed under several headings. The following trials were planted.

A. PLANTING DATE STUDIES

1. PLANTING DATE TRIAL (T1K84)

Objectives : a) To evaluate the influence of planting date on maize grain yield

b) To establish to what extent optimum density (for a maximum grain yield) and fertilizer response are affected by planting date.

Treatments: A factorial combination of 2 planting dates x 2 fertility levels x 4 plant densities x 2 varieties.

Location : Kamboinse (Block E8)

Dates of planting : 4/8 and 17/8

2. PLANTING DATE TRIAL (T1O1 F84)

Objective : to evaluate the effect on maize growth and yield, of planting date under Northern Guinea Savana conditions.

Treatments: a factorial combination of 4 planting dates x 2 management levels x 2 varieties.

Location : Farako-Bâ

Dates of planting : 24/6, 9/7, 24/7, 8/8

B. LAND PREPARATION METHODS

1. LAND PREPARATION TRIAL (T2K84)

Objective: To study the effect on maize yield, of different land preparation methods and tied ridges.
Treatments : a factorial combination of 4 land preparation methods x 2 management levels x 2 ridging systems.
Location : Kamboinse (Blocks E1, E3, and E5)
Date of planting : 11/8

2. LAND PREPARATION TRIAL-BIS (T2K 84)

Objective: To study the effect of different land preparation methods, digging of small holes between the rows and Furadan on maize yield.
Treatments: a factorial combinaison of 4 land preparation methods x 2 digging systems x 2 Furadan levels.
Location : Kamboinsé (Blocks E1, E3, and E5)
Date of planting : 11/8

C. SEEDBED STUDIES

Objectives: a) to study the effect of several seedbeds on maize growth and grain yield.

b) To evaluate the relative performance of 2 varieties under severe stress and improved management.

Treatments: a factorial combination of 3 seedbeds x 2 varieties x 2 management levels.
Location : Kamboinse (Block E2)
Date of planting : 4/8

D. TOPOSEQUENCE STUDIES

TOPOSEQUENCE TRIAL (T4K 84)

Objective : a) to quantify the effect of crop position along topo-sequence, on maize growth and yield.

b) To assess the crop toposequence position x genotype interaction.

Location: Kamboinse (Blocks G2 to G7)
Date of planting : 11/8

E. DENSITY STUDIES

1. DENSITY TRIAL T82L 84)

Objectives: 1) to estimate the optimal density for two early materials: one local and one improved.

2) To evaluate the importance of bordering effect in estimating optimal density.

Treatments : a factorial combination of 2 plot size x 2 varieties x 4 densities.
Location : Loumbila (Block C3)
Date of planting : 16/7

2. DENSITY TRIAL (T102 F 84)

Objective : to estimate the density of early and medium maturing varieties under Northern Guinea Savana conditions.
Treatments : a factorial combination of 2 varieties and 5 densities.
Location : Farako-Bâ
Date of planting : 24/6

3. DENSITY TRIAL (T19K 84)

Objective : to establish the optimal plant density for a very early material (Koudougou local).
Treatments : 4 plant densities
Location : Kamboinse (Block E)
Date of planting : 4/8

F. CULTIVATION STUDIES

1. CULTIVATION TRIAL (T12K 84)

Objectives: To compare the effect of several cultivation systems on maize grain yield. The point is to assess the efficiency cultivation

as a mean to increase water infiltration. Weed control will be ensured through herbicide application before emergence and through hand removal.

Treatments : 5 cultivation systems

Location : Kamboinsé (Block H5)

Date of planting : 4/8

2. NEW CULTIVATION TRIAL (T24K 84)

Objective : To study the effect of cultivation as a mean of breaking soil crust and increasing soil water infiltration, on maize grain yield.

Treatments: 6 cultivation systems

Location : Kamboinsé (Block E5) on very crusting soil.

Date of planting : 4/8

G. RIDGING STUDIES

1. RIDGING TRIAL (I11K 84)

Objectives :a) to study the effects of simple ridging and tied ridging on maize grain yield in a traditional soil preparation system (by hand hoe). During the following years, maize is directly planted on old tied ridges (the experiment was started in 1980).

b) To evaluate the duration of tied ridges from one year to another and the extent of repairs to be made each season.

Treatments : a factorial combination of 2 management levels x 4 ridging systems.

Lbcation : Kamboinsé (Block E4)

Date of planting : 2/8

2. RIDGING - EARTHING UP TRIAL (T10 x 84)

Objective : To determine if ridging in order to earth up tied ridges has an effect on the grain yield of maize planted on tied ridges.

Treatments: 2 tied ridges systems

Location: Kamboinsé (Block E2)

Date of planting : 3/8

3. RIDGING AND EARTHING UP TRIAL (T103 F84)

Objective : To study the effect of several ridging and earthing up systems on maize growth, development, lodging and grain yield under Northern Guinea Savanna conditions.
Treatments: 8 ridging and earthing up systems
Location : Farako-Bâ
Date of planting : 25/6

H. NITROGEN APPLICATION TIMING

1. NITROGEN APPLICATION TIMING TRIAL (I15K 84)

Objectives : To determine the best period of nitrogen fertilizer application for maize grain yield.
Treatments: a factorial combination of 2 management levels x 5 N application dates including one check.
Location : Kamboinsé (Block H3)
Date of planting : 2/8

2. NITROGEN APPLICATION TIMING TRIAL (T105 F84)

Objectives: a) To determine the best period of N application for maize grain yield.
Treatments : a factorial combination of 2 N levels x 5 N application dates : one without added N and the other with 50 N kg/ha.
Location : Farako-Bâ
Date of planting : 25/6

I. TIED RIDGES STUDIES

1. TIED RIDGES TRIAL (T17K 84) and (T17KB 84)

Objectives : a) to study the effect of different tied ridging systems on maize grain yield.
b) to study the interaction between tied ridging and soil type.

Treatments: a factorial combination of 4 tied ridging systems and 2 management levels. The experiment will be conducted on low land sandy clay soil (Trial 17K) and on plateau gravellous soil (Trial 17K-Bis).

Location : Kamboinsé (Block E6 for T17K and Block F1 for T17KB).

Date of planting: 2/8

2. ANIMAL TRACTION TIED RIDGES TRIAL (T39K 84 and T40B 84)

Objectives: To study the economic and agronomic factors in building tied ridges by hand and with animal traction.

Treatments: 3 land preparation methods x 6 tied ridging methods.

Locations : Kamboinsé, Block C1-a and Boulbi

Dates of planting: 3/8 (Kamboinsé) and 17/8 (Boulbi).

3. TIED RIDGES DEMONSTRATION TRIAL (T21K 84)

Objective : a) to show the positive effect of tied ridges on maize grain yield.

Treatments : 2 ridging systems

Location : Kamboinsé (near the entrance gate)

Date of planting: 4/8

4. FARMER FIELD TIED RIDGES TRIAL (T50 J84)

Objectives : a) to assess maize response to tied ridges in farmer fields under traditional land preparation method by hand hoeing and planting on soils where farmers normally grow millet or sorghum.

b) to evaluate fertilizer residual effect.

c) to evaluate the duration of tied ridges from one season to another.

Treatments: a factorial combination of 2 residuel fertilizer levels (1981) x 3 ridging systems x 2 residual fertilizer levels (1982).

Location : Kamboinsé Village, at joseph's

Date of planting : 14/8

5. TIED RIDGES IN FARMER's FIELDS (T51A 84)

Objectives : a) to assess maize response to tied ridges in farmers fields under traditional land preparation method by hand hoeing and planting on soils where farmers normally grow millet or sorghum.

b) to establish whether it is preferable to tie all ridges or to tie them only every two furrows.

c) evaluate the duration of tied ridges from one season to another.

Treatments : a factorial combination of 3 ridging systems x 2 fertilizer levels x 2 varieties.

Location : Kamboinsé Village, at Albert's

Date of planting : 4/8

6. TIED RIDGES AT SARIA (T30S 84)

Objective : to assess response to tied ridges on tropical ferruginous soils to pseudoclay in depth.

Treatments : a factorial combination of 2 ridging systems x 2 varieties.

Location : Saria (Block 4)

Date of planting : 21/7

J. CROP RESIDUE MANAGEMENT STUDIES

1. CROP RESIDUE MANAGEMENT STUDIES

Objective : to study the effect of several crop residue managements on maize grain yield.

Treatments: a factorial combination of 3 residue managements x 2 managements levels (fertility-density) x 2 ridging systems.

Location : Kamboinsé (Block E4)

Date of planting : 2/8

2. DIELDRIN AND CROP RESIDUE TRIAL (T32K 84)

Objective: to evaluate the effect of dieldrin and maize residue application on maize growth and yield when maize crop residues are incorporated shortly before planting.

Treatments: a factorial combination of 2 residue levels x 2 dieldrin levels.

Location : Kamboinsé (Block E6)

Date of planting : 3/8

K. GENOTYPE - MANAGEMENT INTERACTION STUDIES

1. STRESS TRIAL (T8K 84)

Objectives to explore the genetic variability in a maize population for adaptation to drought conditions.

Treatments : a factorial combination of 20 full-sib families x 2 managements levels.

Location : Kamboinsé (Block H5)

Date of planting: 13/8

2. GENOTYPE x MANAGEMENT INTERACTION TRIAL (T13K-84)

Objective : to evaluate genotype x management interaction in 2 varieties which seem to be promising for drought resistance.

Treatments: a factorial combination of 2 ridging systems x 2 varieties.

Location : Kamboinsé (Block H4)

Date of planting : 2/8

3 . NEW STRESS TRIAL (T38K 84)

(in collaboration with the Breeding Programme)

Objectives : to assess the performance of several local and improved varieties under low to high stress conditions as well as genotype x environment interaction.

Treatments : a factorial combination of 2 ridging systems x 20 varieties.

Location : Kamboinsé (Blocks D1 and D3)

Date of planting : 13/8

4. GENOTYPE x FERTILITY INTERACTION TRIAL (T108F 84)
(in collaboration with the Breeding Programme)

Objectives : to assess the performance of several local and improved varieties under low and high fertility conditions as well as genotype x environment interaction.

Treatments : a factorial combination of 3 fertility levels x 12 varieties.

Location : Farako-Bâ

Date of planting : 26/6

L. MIXED, RELAY AND ROTATION CROPPING STUDIES

1. COWPEA-MAIZE ROTATION TRIAL (T7S 84)

Objectives : a) to study the effect of several cowpea-maize rotations and continuous maize system on maize yield

b) to determine if nematodes are a factor affecting maize yield.

c) to study the effect of rotations on several soil caracteristics.

Location : Saria (Block - 4)

Date of planting : 21/7

2. MAIZE-COWPEA ROTATION AND RELAY TRIAL (T81L 84)

Objectives : a) to study the effect of several maize-cowpea rotations including sole cropping and relay cropping, on maize yield.

b) to study cowpea genotype x rotation interaction

c) to study the effect of high Furadan levels.

Treatments : a factorial combination of 2 management levels x 10 rotations x 2 Furadan levels.

Location : Loumbila (Block A1 and A2)

Date of planting : 10/7

3. MAIZE-COWPEAS ROTATION AND RELAY CROPPING TRIAL (T 104 F 84)

Objectives : a) to study the effect of several maize-cowpea rotations including sole cropping and relay cropping, on maize yield.

b) to study cowpea genotype x rotation interaction.

c) to study the effect of high Furadan levels.

Treatments : a factorial combination of 2 management levels x 8 rotations x 2 Furadan levels.

Location : Farako-Bâ

Date of planting : 24/6

4. MAIZE-COTTON INTERCROPPING TRIAL (T25K 84)

Objectives : a) to emphasize cotton response to tied ridges and get IRCT to be interested in this tecthnique.

b) to further assess the advantages of maize coton intercropping system with the use of tied ridges.

Treatments : 4 cropping systems

Location : Kamboinsé (Block E5)

Date of planting : 3/8

5. ALLEY CROPPING TRIAL (TIIDF 84)

Objectives : a) Explore the adaptation of Leucaena leucocephala to the edaphic and climatologic conditions at Farako-Bâ.

b) To study the efficiency of Leucaena leucocephala in supplying nitrogen to maize crop.

Treatments : 2 cropping systems (with and without L. leucocephala).

Location : Farako-Bâ

Date of planting : 15/7

M. ROCK PHOSPHATE STUDIES

1. ROCK PHOSPHATE TRIAL (T52J 84)

Objectives : to assess maize response to rock phosphate, and tied ridges and the genotype x management interaction in farmer fields.

Treatments : a factorial combination of 2 varieties x 3 rock phosphate levels x 2 ridging systems

Location : Kamboinsé village, at Joseph's

Date of planting : 14/8

2. VOLTAPHOSPHATE TRIAL (T80L 84)

Objectives : to determine how yield response to rock phosphate is affected by the use of tied ridges.

b) to explore the genotype x management interaction.

Treatments : a factorial combination of 5 Voltaphosphate levels plus two additional treatments x 2 ridging systems x 2 varieties.

Location : Loumbila (Blocks A3 - A4)

Date of planting : 16/7

N. FERTILIZER RESPONSE AND RESIDUAL EFFECTS STUDIES

1. NITROGEN AND PHOSPHOROUS RESPONSE AND RESIDUAL EFFECT TRIAL (T83L) REMAT-3)

Objectives : a) to study grain yield response to nitrogen and phosphorous.

b) to estimate the fertilizer residual effect of nitrogen and phosphorous applications in semi-arid environments.

Treatments : a factorial combination of 9 NP levels and 3 plant densities.

Location : Loumbila (Block A2 - A3)

Date of planting : 16/7

2. NITROGEN AND PHOSPHOROUS RESPONSE AND FERTILIZER RESIDUAL EFFECT (T106F 84) REMAT-3

Objectives : a) to study grain yield response to nitrogen and phosphorous.

b) to estimate the fertilizer residual effect of nitrogen and phosphorous applications in Semi-Arid environments.

Treatments : a factorial combination of 9 NP levels and 3 plant densities.

Location : Farako-Bâ

Date of planting : 26/6

O. TERMITE DAMAGE STUDIES

1. DIELDRIN TRIAL (T34L 84)

Objective : to assess the effect of dieldrin application on maize growth and yield.

Treatments :

T1 = No dieldrin

T2 = Dieldrin applied at planting, 30 DAP (earthing-up) and 60 DAP (earthing up). Apply 3 kg a.i./ha each time.

Location : Kamboinsé (Block F1)

Date of planting : 3/8

P. LOCAL VARIETY EVALUATION

1. LOCAL VARIETY EVALUATION TRIALS I and II (T27K and T28K 84)

Objectives : to evaluate potencial yield and other agronomic caracteristics of early local maize varieties e.g. plant height, maturation, lodging etc...

Treatments : 6 local varieties and 3 improved varieties,

Date of planting : 4/8

Q. VARIOUS STUDIES

1. LATE THINNING TRIAL (T5K 84)

Objective ; to explore other management possibilities likely to maximize grain yield in seasons during which agricultural conditions (after crop establishment) are below average.

Treatments: a factorial combination of 2 varieties x 5 crop managements

Location : Kamboinsé (Block E4)

Date of planting : 14/8

2. ZINC TRIAL (T16KB 84)

Objectives : a) to evaluate the residual effect of phosphate fertilizer.

b) to determine if there is a crop or grain yield response to zinc soil or foliar applications .

Treatments: a factorial combination of 3 zinc levels x 2 phophorous levels.

Location : Kamboinsé (Block H1)

Date of planting : 2/8

3. THINNING TRIAL (T20KB 84)

Objective : to determine the effect of different thinning dates on maize grain yield.

Treatments : 3 thinning dates

T1 : Thinning 12 DAP

T2 : thinning 20 DAP

T3 : thinning 28 DAP

Location : Kamboinsé (Blocks G8 and E7)

Date of planting : 2/8

4. PLANTS/HILL TRIAL (T31K 84)

Objective : to determine if the number of plants/hill has an effect on maize grain yield under semi-arid conditions.

Treatments : a factorial combination of 2 densities x 4 plant arrangements.

Location : Kamboinsé (Block F1)

Date of planting : 11/8

5. PRE-GERMINATION TRIAL (T33K 84)

Objective : to determine if soaking maize seeds into water has an influence on maize germination, growth and yield.

Treatments : 4 soaking dates

Location : Kamboinsé (Block E6)

Date of planting : 2/8

6. SEED SIZE TRIAL (T9K 84)

Objectives : to study the effect of seed size on maize growth and yield under semi-arid conditions

Treatments : a factorial combination of 6 varieties x 2 seed sizes (not the same for each variety).

Location : Kamboinsé (Block E6)

Date of planting : 13/8

MAIZE ENTOMOLOGY 1984

KAMBOINSE

HOST PLANT RESISTANCE STUDY

Termites

Evaluate promising maize lines (early and intermediate) for resistance to termite damage.

Entries : 20 including local selections

Replications : 6

Plot size : 3 rows (0.75 m apart), 5 m long

Location : F6

Planting date : 3/08/84

Collaborators : M. Rodriguez, Maize Agronomist
A. Diallo, Maize Breeder.

COWPEA BREEDING PROGRAM - 1984

I. SUDAN SAVANNA

A. KAMBOINSE

1) Regional Cowpea Variety Trial for Drought Resistance (RCTD)

Objective : To select cowpea varieties selected in different regions for resistance to drought.

Varieties : 10
Repetitions : 4
Date planted : 2 August, Block C-3

2) Regional Cowpea Striga Trial (RCST)

Objective : To test cowpea varieties across environments for resistance to *Striga* .

Varieties : 12
Repetitions : 3
Date planted : 2 August, Block E-10

3) Uniform Yield Trial - 1 (UYT-1)

Objective : To test cowpea Varieties with medium maturity and good seed quality.

Varieties : 15
Repetitions : 4
Date planted : 2 August, Block C-6

4) Uniform Yield Trial-2 (UYT-2)

Objective : To test cowpea varieties with medium maturity and different seed types.

Varieties : 10
Repetitions : 4
Date planted : 2 August, Block C-6

5) Uniform Yield Trial-4 (UYT-4)

Objective : To test photosensitive cowpea varieties.

Varieties : : 10
Repetitions : 4
Date planted : 2 August, Block C-6

6) Advanced Yield Trial-1 (AYT-1)

Objective ; To test cowpea varieties with resistance to Aphids.

Varieties : 15
Repetitions : 4
Date planted : 2 August, Block, C-3

7) Advanced Yield Trial-2 (AYT-2)

Objective : To test varieties with resistance to bruchids.

Varieties : 10
Repetitions : 4
Date planted : 3 August, Block C-3

8) Advanced Yield Trial-3 (AYT-3)

Objective : To test photosensitive cowpea varieties .

Varieties : 15
Repetitions : 4
Date planted : 2 August, Block C-6

9) Advanced Yield Trial-4 (AYT-4)

Objective : To test cowpea varieties with good seed quality

Varieties : 20
Repetitions : 4
Date planted : 2 August, Block C-6

10) Advanced Yield Trial-5 (AYT-5)

Objective : To select cowpeas plants for resistance to Striga. Material resulting from the cross Suvita-2 x KN-1.

Varieties : 20
Repetitions : 2
Date planted : 31 July , Block E-12

11) Regional Medium Maturity Trial (RMMT)

Objective : To test cowpea varieties maturity in 70-75 days, contributed by different national regional, and international programs.

Varieties : 10
Repetitions : 4
Date planted : 3 August, Block C-6

12) Bruchid Resistance Trial (BRT)

Objective : To test cowpea varieties for resistance to bruchids

Varieties : 10
Repetitions : 4
Date planted : 2 August, Block C-3

13) Preliminary Yield Trial-2 (PYT-2)

Objective : To select cowpea plants for resistance to Striga . Material resulting from the cross. Suvita-2 x TVx 3236.

Varieties : 28
Repetitions : 2
Date planted : 1 August, Block E-10

14) Preliminary Yield Trial-3 (PYT-3)

Objective : To evaluate cowpea varieties for intercropping.

Varieties : 100
Unreplicated :
Date planted : 2 August, Block C-6

15) Preliminary Yield Trial-4 (PYT-4)

Objective : To select cowpea varieties for resistance to Striga . Material resulting from the crosses Suvita-2 x KN-1 and Suvita-2 x TVx3236.

Varieties : 24
Unreplicated
Date planted : 2 August, Block E-10

16) Preliminary Yield Trial-1 (PYT-1)

Objective : To test photosensitive cowpea varieties for resistance to bruchids.

Varieties : 17
Replications : 2
Date planted : 2 August , Block C-6

17) Evaluation Yield Trial-1 (EYT-1)

Objective : To evaluate bruchid resistant material and good seed quality material for resistance to Striga.

Varieties : 24
Replications : 2
Date planted : 1 August, Block E-12.

18) Evaluation Yield Trial-3 (EYT-3)

Objective : To evaluate material for resistance to thrips.

Varieties : : 16
Unreplicated
Date planted : 3 August, Block C-3.

19) Evaluation Yield Trial-4 (EYT-4)

Objective : To evaluate F 2 generation material for resistance to drought.

Varieties : : 20
Replications : 2
Date planted : 2 August, Block C-3.

20) Evaluation Yield Trial-5 (EYT-5)

Objective : To evaluate segregating populations of crosses to determine the mode of inheritance of resistance to Striga .

Crosses used : Suvita-2 x TVx3236
: Suvita-2 x KN-1
: Suvita-2 x IT 82E-60
: Suvita-2 x Kaya Local
Date planted : 2 August, Block E-10.

21) Evaluation Yield Trial-8 (EYT-8)

Objective : To evaluate F2 generation material for resistance fo Striga.

Varieties : 16
Unreplicated
Date planted : 3 August, Block E-10

22) Evaluation Yield Trial-7 (EYT-7)

Objective : To study relationship between maturity and plant type, and resistance to or escape from Striga damage.

Varieties : : 6
Replications : 4
Date planted : 2 August; 15 August, Block I.

23) Evaluation Yield Trial-6 (EYT-6)

Objective : To evaluate IITA germplasm for resistance to Striga.

Varieties : 36
Unreplicated
Date planted : August, Blocks E-10, E-12, I;

B. L O U M B I L A

All the trials contain early maturing varieties (60-65 days). The objective is to select early maturing varieties adapted in Burkina-Faso environments.

1) IITA's Preliminary Yield Trial-1 (PYT-1)

All material has white colored seeds

Varieties : 20
Repetitions : 3
Date planted : 14 July, Block B-1

2) IITA's Preliminary Yield Trial-2 (PYT-2)

All material has cream colored seeds

Varieties : 20
Repetitions : 3
Date planted : 14 July, Block B-1

3) IITA's Preliminary Yield Trial-3 (PYT-3)

Varieties : 20
Repetitions : 3
Date planted : 14 July, Block B-2

4) IITA's Preliminary Yield Trial-4 (PYT-4)

All material has red colored seeds

Varieties : 20
Repetitons : 3
Date planted : 14 JUly, Block B-3

5) IITA's Preliminary Yield Trial-5 (PYT-5)

All material has tan colored seeds

Varieties : 20
Repetitions : 3
Date planted : 15 July, Block B-3.

6) IITA's Advanced Yield Trial-1 (AD-1)

All material has white colored seeds

Varieties : 20
Repetitions : 4
Date planted : 15 July, Block-B-3.

7) IITA's Advanced Yield Trial-2 (AD-2)

All material has brown colored seeds

Varieties : 20
Repetitions : 4
Date planted : 14 July, Block B-1

8) IITA's Advanced Yield Trial-3 (AD-3)

All material has red colored seeds

Varieties : 20
Repetitions : 4
Date planted : 14 July, Block B-2

9) IITA's Advanced Yield Trial-4 (AO-4)

All material has white colored seeds and resistance to Bruchids.

Varieties : 20
Repetitions : 4
Date planted : 14 July, Block B-2

10) IITA's Advanced Yield Trial-5 (AD-5)

All material has white colored seeds
Varieties : 20
Repetitions : 4
Date planted : 14 July, Block B-3

11) IITA's Advanced Yield Trial-6 (AO-6)

All material has white, rough seeds.
Varieties : 20
Repetitions : 4
Date planted : 15 July, Block B-3

12) Regional Early Maturity Trial (REMT)

All material has been contributed by IITA/SAFGRAD/CEE.
Varieties : 12
Repetitions : 4
Date planted : 15 July, Block B-4

13) Regional Medium Maturity Trial (UYT-3)

All material are medium maturing varieties

Varieties : 15
Repetitions : 4
Date planted : 15 July, Block B-4

II. GUINEA SAVANNA ZONE

A. FARAKO-BA

1) Regional Medium Maturity Trial(RMMT)

Objective : To test cowpea varieties for medium maturity.
Varieties : 10
Repetitions : 4
Date planted : 15 July

2) AYT-2

Same as at Kamboinsé. See Section A.7.
Date planted : 15 July

3) AYT-4

Same as at Kamboinsé. See Section A.9.
Date planted : 16 July

5) UYT-1

Same as at Kamboinsé. See Section A.3.
Date planted : 16 July

6) UYT -2

Same as at Kamboinsé. See Section A.4.
Date planted : 16 July

7) UYT-3

Same as at Loumbila. See Section B-13.
Date planted : 15 July

8) UYT-4

Same as at Kamboinsé. See Section A.5.
Date planted : 15 July.

III. SAHEL ZONE

A. DJIBO/POBE

1) UYT-1

Same as at Kamboinsé and Farako-Ba. See Sections A.3. and A.5.
Date planted : 7 July

2) UYT-2

Same as at Kamboinsé and Farako-Ba. See Sections A.4. and A.6.
Date planted : 7 July

3) UYT-3

Same as at Loumbila and Farako-Ba. See Section B.13 and A.7.
Date planted : 7 July

4) AYT-1

Same as at Kamboinsé See Section A.6.
Date planted : 7 July.

5) AYT-2

Same as at Kamboinsé and Farako-Ba. See Sections A.7. and A.8.
Date planted : 7 July

6) AYT-4

Same as at Kamboinsé. See Section A.9.
Date planted : 7 July

7) RCTD

Same as at Kamboinsé . See Section A.1.
Date planted : 7 July

8) BRT

Same as at Kamboinsé. See Section A. 11.
Date planted : 7 July

9) EYT-4

Same as at Kamboinsé. See Section A.18.
Date planted : 19 July.

COWPEA AGRONOMY PROGRAM 1984

A. NORTHERN GUINEA SAVANNA FARAKO-BA

I. MAIZE-COWPEA RELAY CROPPING SYSTEM

1. Response of cowpea cultivars in a maize-cowpea relay cropping system

Treatments : Two dates of planting
Three photoperiod-sensitive cowpea cultivars
Four photoperiod-insensitive cowpea cultivars
One maize purestand treatment.

Date of planting : Maize : 19-06-1984
Cowpea: D1 18-7-1984
D2 -

Bloc.1

2. Effect of maize cultivar differences on yield of relay-cropped cowpeas

Treatments : 4 maize cultivars
2 rowspacings
2 cowpea cultivars

Date of planting : Maize : 20-6-1984
Cowpea: D1 20-7-1984
D2 -

Bloc.3

II. SORGHUM/COWPEA INTERCROPPING

1. Comparaison of cowpea cultivars in a sorghum/cowpea intercropping system

Treatments : 8 intercropping treatments
4 purestand treatments

Date of planting : 25-6-1984

Bloc.1

2. Effect of Sorghum and cowpea plant populations on their performance in intercropping system

Treatments : 2 purestand treatments
3 intercropping treatments

Date of planting : 26-6-1984

Bloc.3

III. MANAGEMENT OF PURESTAND COWPEAS

1. Date of planting of photoperiod-sensitive cowpea in Northern Guinea Savanna

Treatments : 4 dates of planting
6 cultivars

Date of planting: D1 = 9/6/84
D2 =25/6/84
D3 =15/7/1984
D4 = 6/7/1984

Bloc.1

2. Date of planting of photoperiod-insensitive cultivars in Northern Guinea Savanna.

Treatments : 4 dates of planting
6 cultivars

Dates of planting: D1 = 9/6/1984
D2 =25/6/1984
D3 =15/7/1984
D4 = 6/8/1984

Bloc.1

3. Plant population experiment for Northern Guinea Savanna

Treatments : 2 rowspacings
2 cowpea cultivars
3 densities

Date of planting : 10/6/84

Bloc.1

IV. SOIL AND WATER MANAGEMENT

1. Response of cowpeas to soil applied P_2O_5

Treatments : 4 P_2O_5 levels
6 cultivars

Date of planting : 5/7/1984

Bloc.5 et 6

2. Residual effect of P_2O_5 (applied to cowpeas) from two different sources on maize grain yield.

Treatments : 4 P_2O_5 levels applied to cowpea in the preceding season.
2 P_2O_5 carriers at three levels each applied to maize crop during the growing season.

Date of planting : Maize 24/6/1984
Cowpea as relay crop 29/7/1984

Bloc.4

3. Effect of soil preparation methods on maize cowpea relay-cropping system

Treatments : 3 tillage methods

Date of planting : Maize : 24/6/1984
Cowpea: 25/7/1984

Bloc.2

4. Effect of interaction of tillage methods x soil fertility on maize and cowpea in relay cropping system.

Treatments : 3 Tillage methods
6 Fertility levels

Date of planting : 10/7/1984

Bloc.4

5. Effect of cowpea ,crotalaria and sorghum fertilized with simple superphosphate and voltaphosphate as preceding crops on the performance of maize/cowpea relay-cropping system.

Treatments : 8 preceding crop treatments
3 fertility levels during the crop season.

Date of planting : Maize : 24/6/1984
Cowpea: 26/7/1984

6. Effect of land managements methods on cowpea grain yield in a medium slope Oxisol.

Treatments : 4 land management methods
2 cowpea cultivars

Date of planting : 9/7/1984

V. VERIFICATIVE RESEARCH

Demonstration plots of maize/cowpea relay cropping system.

Treatments : 2 fertility levels
Locations : 4
Date of planting : - Kouadeni : Maize 16/6/1984
Cowpea 16/7/1984
- Leysso 1 : Maize 17/6/1984
Cowpea 17/7/1984
- Leysso 2 : Maize 25/6/1984
Cowpea 7/8/1984
- Cesalia : Maize 9/7/1984
Cowpea -

B. SUDAN SAVANNA

I KAMBOINSE

1. Maize/Cowpea Relay Cropping System

Introduction of maize/cowpea relay cropping system in Sudan Savanna.

Treatments : 2 maize cultivars
2 rowspacings
2 cowpea cultivars
2 land management methods
Date of planting: Maize : 8/7/1984
Cowpea :
Bloc. E9

II COWPEA/SORGHUM INTERCROPPING

Effect of sorghum on cowpea insect control in cowpea sorghum intercropping system.

Treatments : 2 cowpea cultivars and 1 sorghum cultivar
3 cropping systems
2 insecticide treatments
Date of planting : 3/8/1984
Bloc. F2 and F3

III. MANAGEMENT OF PURE CROP COWPEAS

1. Date of planting of photoperiod-sensitive cultivars

Treatments : Dates of planting
6 cultivars

Dates of planting : D1 8/7/1984
D2 25/7/1984
D3 2/8/1984
D4 -

Bloc. F4

2. Date of planting of photoperiod-insensitive cultivars

Treatments : 4 dates of planting
6 cultivars

Dates of planting : D1 8/7/1984
D2 25/7/1984
D3 2/8/1984
D4 -

Bloc. F5

3. Effect of dates of planting on the performance of photoperiod-insensitive cowpeas under Striga infestation.

Treatments : 3 dates of planting
6 cultivars

Dates of planting : D1 8/7/1984
D2 25/7/1984
D3 2/8/1984

Bloc. E2, E4.

IV. SOIL AND WATER MANAGEMENT

1. Response of cowpeas to soil applied P_2O_5

Treatments : 4 P_2O_5 levels
6 cultivars

Date of planting :14/7/1984

Bloc: Farmer field at Oipassi.

2. Response of cowpeas to soil water managements

Treatments : 4 cowpea cultivars
3 soil water management methods
5 positions in the toposequence

Date of planting : 2/8/84

Blocs : G1, G2, G3, G4, G5.

V. VERIFICATIVE RESEARCH

Performance of improved of TVx 3236 and land management methods under farmer's conditions.

Treatments : 2 cowpea cultivars
5 land management methods
2 P_2O_5 levels
3 locations

Dates of planting : Location 1 = 11/7/1984
Location 2 = 9/7/1984
Location 3 = 9/7/1984

II. LOUMBILA

I. SORGHUM/COWPEA INTERCROPPING

Comparison of cowpea cultivars in a cowpea/sorghum intercropping system.

Treatments : 4 purestand treatments
8 intercrop treatments

Date of planting : 7/7/1984

Bloc C

II. SOIL AND WATER MANAGEMENTS

1. Effect of the interaction of mulching x zero tillage on cowpea grain yield

Treatments : 6 preceding crop treatments
4 soil tillage methods during the crop season.

Date of planting : 14/7/1984

Bloc. A

2. Effect of the interaction of soluble phosphatic fertilizer and soil tillage methods on cowpea performance in sudan Savanna.

Treatments : 3 tillage methods
3 P_2O_5 levels

Date of planting : 14/7/1984

Bloc.C

3. Effect of the interaction of rock phosphatic fertilizer and soil tillage on cowpea performance in Sudan Savanna.

Treatments : 2 Soil tillage methods
3 P_2O_5 levels
Date of planting: 18/7/1984
Bloc . C

4. Effect of cowpea, crotalaria and sorghum fertilized with simple super phosphate and rock phosphate as preceding crops on the performance of maize.

Treatments : 8 preceding crop treatments
3 fertility levels
Date of planting: 7/7/1984
Bloc. C

C. SAHEL SAVANNA

I. POBE/DJIBO

1. Millet/Cowpea Intercropping System

Comparison of cowpea cultivars in a millet/cowpea intercropping system :

Treatments : 4 purestand treatments
8 intercrop treatments
Date of planting: 10/7/1984

II. MANAGEMENT OF PURE COWPEAS

1. Date of planting of photoperiod-insensitive cowpeas

Treatments : 3 dates of planting
6 cultivars
Dates of planting: D1 : 29/6/1984
D2 : 8/7/1984
D3 : 20/7/1984

2. Plant population experiment for the Sahel

Treatments : 2 cultivars
2 rowspacings
3 plant population
Dates of planting: 8/7/1984

III. SAOUGA/GOROM-GOROM

1. Millet/Cowpea intercropping system

Comparison of cowpea cultivars in a millet/cowpea intercropping system :

Treatment : 4 purestand treatments
8 intercrop treatments

Date of planting :

IV. MANAGEMENT OF PURE COWPEAS

1. Date of planting of photoperiod-insensitive cowpeas

Treatments : 3 dates of planting
6 cultivars

Dates of planting : D1 :
D2 :
D3 :

2. Plant population experiment for the Sahel

Treatments : 2 cultivars
2 rowspacings
3 plant population

Dates of planting :

V. SOIL AND WATER MANAGEMENT

Treatments : 2 land management methods
2 P_2O_5 levels
2 K_2O levels

Dates of planting :

D. REGIONAL TESTING

1. Maize cowpea relay cropping system

Treatments : 4 photoperiod-insensitive cowpeas
4 photoperiod-sensitive cowpeas

Countries : Togo, Ghana, Sénégal, Gambia, Mali.

2. Regional cowpea management trial for Sudan Savanna

Treatments	:	3 dates of planting
		4 cultivars
		2 land management methods
Country	:	Mali.

E. TRAINING

Together with cowpea breeder supervise three trainees from Mali on on-farm-testing.

COWPEA ENTOMOLOGY-1984

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A. KAMBOINSE

I. HOST PLANT RESISTANCE STUDIES

1. Aphids

Evaluation of promising lines for resistance to Aphis craccivora.
Entries : 21 lines + 1 resistant and susceptible check each.
Replications : 4
Location : Screenhouse
Date of planting : on going, since January 1984
Collaborator : V.D. Aggarwal, Cowpea Breeder

2. Bruchids

Assessment of promising lines and selections for resistance to the cowpea weevil, C. maculatus.
Entries : 1082 lines including resistant and susceptible checks
Replications : 4
Location : Entomology laboratory
Date of planting: On -going, since January 1984
Collaborator : V.D. Aggarwal, Cowpea Breeder

3. Maruca

Assess promising cowpea lines for resistance against the Pod Borer, M. testulalis.
Entries : 26 including a susceptible and resistant check
Replications : 3
Plot size : 3 rows (0.75 m apart), 3 m long, surrounded by susceptible spreader crop.
Location : F6
Planting date : 2/8/1984
Collaborator : L.E. Jackai, GLIP Entomologist, IITA/IBADAN

II. MINIMUM INSECTICIDE TRIAL

Assess performance of 9 improved varieties under minimal insecticide (2 treatments) intervention.

Entries : 9 + 1 local check

Replications : 4

Plot size : 6 rows (0.75 m apart), 4 m long

Location : farmer's field

Planting date : 25/7/1984

Collaborators : National Researchers in Nigeria, Togo, Niger, Ghana, Sénégal, Cameroun, Ethiopia, Kenya, Burkina-Faso.

III. SAMPLING PROCEDURES STUDY

Determine population trends of four major cowpea field pests (Aphids, Flower Thrips, Maruca, Pod Sucking Bugs) as a basis for formulating appropriate IPM strategies and programmes including establishment and use of economic thresholds.

Variety : KN-1 (Vita 7)

Replications : none

Plot size : 26 rows (1.0 m apart), 25 m long
(separately for Maruca, Thrips, Aphids + Pod Sucking Bugs).

Location : Farmers field

Planting Date : 25/7/1984

Collaborators : National Researchers in Upper Volta, Sénégal, Niger, Nigeria, Cameroun, Ethiopia, Kenya.

IV. CULTURAL MANAGEMENT OF COWPEA

Assess the effect on cowpea pests, notably thrips, Maruca and Pod Sucking Bugs, as well as cowpea grain yield, of inter-cropping cowpea and cereals.

1. Sorghum - Cowpea Inter-Cropping Study

Varieties : Sorghum : Framida, pure and inter-crop
cowpea : TVx 3236, KN-1, pure and inter-crop

Replications : 4

Plot size : 8 rows (0.75 m apart), 5 m long

Location : Farmer's field

Planting date : 3/8/1984

Collaborator : N. Muleba, Cowpea Agronomist.

N.B. On-going Agronomy - Entomology collaboration on various aspects of cereal - cowpea intercropping eg. (a) varietal response (photo-sensitive and insensitive) in cereal - cowpea mixture (b) Effect of planting date on performance of photo-sensitive and insensitive varieties. (c) maize- cowpea relay cropping.

2. Cereal - Cowpea Strip Intercropping Study

Observe effects on insect pest populations as well as crop yield, of growing cereals and cowpea in different strip arrangements.

Varieties : Sorghum : Framida
Cowpea : TVx 3236

Replications : 4

Plot size : 8 rows (0.75 m apart) 6 m long

Location : Block A

Planting date : 3/8/1984

Collaborator : N. Muleba, Cowpea Agronomist

B. LOUMBILA

I. CULTURAL MANAGEMENT OF COWPEA

1. Cereal - Cowpea Strip - Intercropping

Observe the impact on insect pest population as well as grain yield, of growing cereals and cowpea in different strip arrangements.

(a) Maize- Cowpea Strip Crop

Varieties : maize ; Safita-2
Cowpea: TVx 3236

Replications : 4

Plot size : 8 rows (0.75 m apart), 6 m long

Planting date : 15/7/1984

Collaborator : N.Muleba, Cowpea Agronomist

(b) Sorghum - Cowpea Strip Crop

Varieties : Sorghum : Framida
Cowpea : TVx 3236

Replications : 3

Plot size : 8 rows (0.75 m apart), 5 m long

Planting date : 19/7/1984

Collaborator : N.MULEBA, Cowpea Agronomist

C. GAMPELA

I. MINIMUM INSECTICIDE TRIAL

Evaluation performance of 9 promising cowpea varieties under minimal insecticide (2 treatments) protection.

Entries : 9 + 1 local check

Replications : 4

Plot size : 6 rows (0.75 m apart), 4 m long

Planting date : 13/8/1984

Location : ISP University of Ouagadougou Farm.

Collaborators : National Researchers in countries.

D. POBE/DJIBO

I. MINIMUM INSECTICIDE TRIAL

Assess performance of 9 promising cowpea varieties under minimal insecticide (2 treatments) intervention.

Entries : 9 + 1 local check

Replications : 4

Plot size : 6 rows (0.75 m apart), 4 m long

Location : IVRAZ Station

Planting date: 11/7/1984

Collaborators: National Researchers listed for Kamboinsé.

II. SAMPLING PROCEDURES STUDY

Observe population trends of four major cowpea field pests (Aphids, Thrips, Maruca, Pod Sucking Bugs) as a basis for formulating IPM strategies and programmes including establishment and use of economic thresholds.

Variety : KN-1 (Vita-7)

Replications : none

Plot size : 26 rows (1 apart), 25 m long : (separately for Maruca, Thrips, Aphids + Pod Sucking Bugs)

Location : IVRAZ Station

Collaborators : National Researchers in countries listed under Kamboinsé.

III. CULTURAL MANAGEMENT OF COWPEA

1. Cereal-cowpea Strip Inter Cropping

Observe the effects on insect pest population as well as crop yield, of growing cereals and cowpea in different strip arrangements.

Varieties : Millet (local variety), pure + in strips
Cowpea : Suvita-2, pure + in strips.

Replications : 4

Plot size : 8 rows (0.7 m apart) 6 m long

Location : IVRAZ Station

Planting date : 11/7/1984

Collaborator : N.Muleba, Cowpea Agronomist

N.B. On going Agronomy-Entomology Collaboration on Cereal - cowpea intercropping as at Kamboinsé.

E. FARAKO-BA

I. MINIMUM INSECTICIDE TRIAL

Assess performance of 9 promising cowpea varieties under minimal insecticide (2 treatments) protection

VARIETIES / 9 + 1 local check

Replications : 4

Plot size : 6 rows (0.75 m apart), 4 m long

Location : IVRAZ Station

Planting date : 16/7/1984

Collaborators : National Scientists listed under Kamboinsé

II. SAMPLING PROCEDURES STUDY :

Observe population trends of four major cowpea field pests (Aphids, Thrips, Maruca, Pod Sucking Bugs) as basis for formulating IPM strategies and programmes establishment and use of economic thresholds

Variety : KN-1 (Vita-7)

Replications : None

Plot size : 26 rows (1 m apart) 25 m long, (separately for Maruca, Thrips, Aphids + Pod Sucking Bugs).

Location : IBRAZ Station

Collaborators : National Scientists listed under Kamboinsé

III. CEREAL - COWPEA STRIP INTERCROPPING

Observe the influence on insect pest populations as well as crop yields, of growing cereals and cowpea in different strip combinations.

1. Maize-Cowpea Strip Crop

Varieties : Maize : Jaune de Fo (pure + in strips)
Cowpea : TVx 3236 (pure + in strips)
Replications : 3
Plot size : 8 rows (0.75 m apart), 4 m long
Location : IVRAZ Station
Planting date : 15/7/1984
Collaborator : N.MUleba, Cowpea Agronomist

2. Sorghum-Cowpea Strip Crop

Variety : Sorghum - Framida (pure + in strips)
Cowpea - TVx 3236 (pure + in strips)
Replications : 3
Plot size : 8 rows (0.75 m apart), 4 m long
Location : IVRAZ Station
Planting date : 19/7/1984
Collaborator : N.Muleba, Cowpea Agronomist
N.B. On going Agronomy - Entomology
Collaboration on Cereal - Cowpea Inter Cropping as at Kamboinsé.

1984-07

National cowpea improvement project, Program of research 1984 - first season

AU-SAFGRAD

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