



Sudan Agricultural Research Corporation Hudeiba Research Station River Nile State

Common Bean Research in Sudan
Presentation for ECABREN Steering Committee
3-7 Feb.2014
Kampala, Uganda



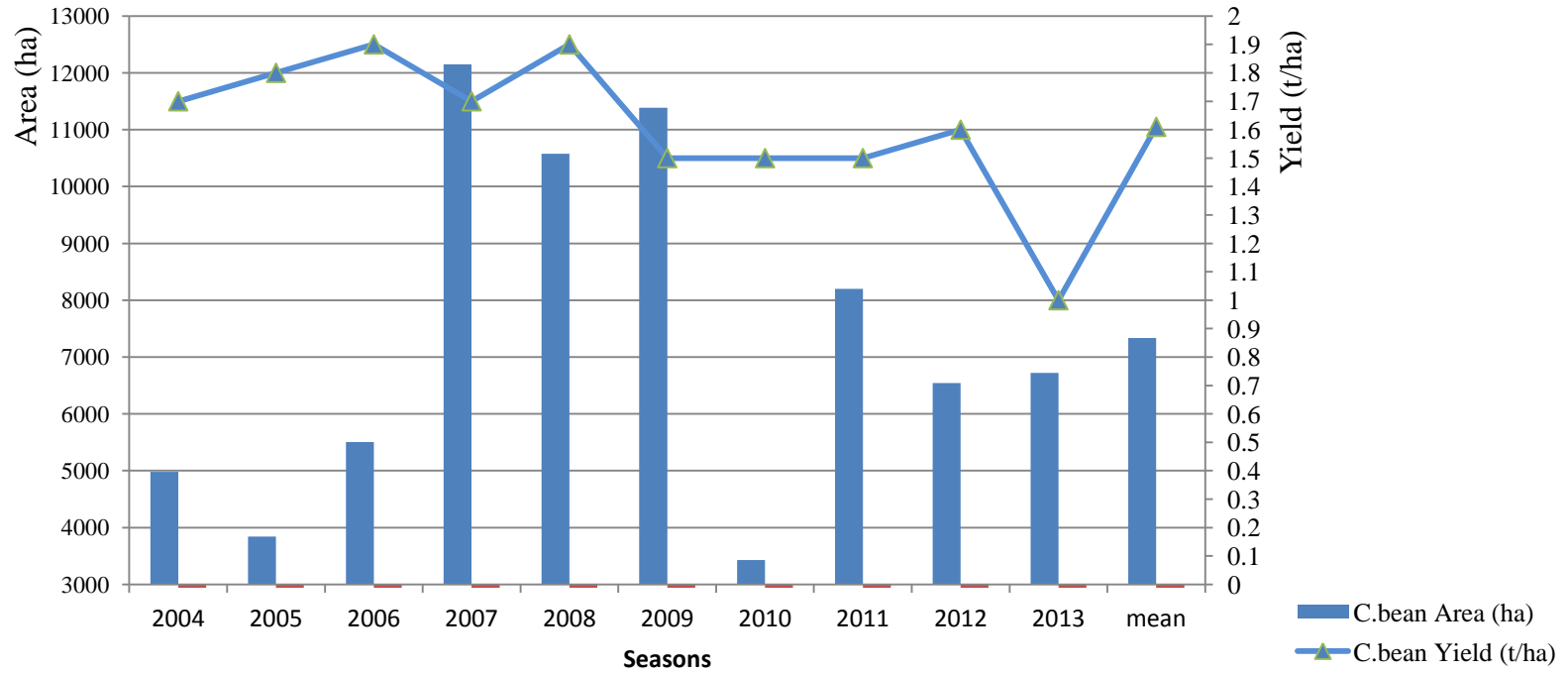
Area = 122,123Km²

Population = 1,027,534

90% of the crop produced in the state.

Average areas reach 7000ha with annual production of 11200 metric ton

Common bean seed yield in River Nile from 2004-2013



Source: Ministry of Agriculture, River Nile State

Breeding

Scientist in charge : Rasha Mohamed Osman

1-Variety Trials



1.1. Advanced Yield Trial



1.2.National Yield Trial



2-Nursery evaluation



3-Seed Increase and Maintenance





A photograph of a large field of green, leafy plants, likely a crop field. The plants are arranged in neat rows, separated by dark brown soil. In the foreground, a white rectangular sign is placed in the soil, with the word "MUTWAKIL" printed on it in black, bold, capital letters. The sign is slightly tilted. The background shows more rows of the same plants stretching towards the horizon under a clear sky.

MUTWAKIL



IBARYA

Agronomy

Scientist in charge: Omer H. Ibrahim

1- Effects of Planting Density on Growth and Productivity of the Newly Released Common Bean Variety Ibberria in the River Nile State

- 1- Standard planting density: 2 seeds per hill on top of 60cm-ridges with intra-row spacing of 10cm.
- 2- Standard planting density + 50%: 3 seeds per hill on both sides of 60cm-ridges with intra-row spacing of 10cm.
- 3- Standard planting density + 100%: 4 seeds per hill on both sides of 60cm-ridges with intra-row spacing of 10cm.



201

S



202
S+50%

A photograph of a field of green plants, likely a crop field. The plants are densely packed and have large, heart-shaped leaves. In the foreground, a white sign is stuck in the ground, displaying the number '203' and the text 'S+100%'. The sign is supported by a thin white stick. The ground is dark and appears to be soil or mulch.

203

S+100%

2- Effects of Bed Planting and Long-Furrow Irrigation on Growth and Productivity of Common Bean in the River Nile State

Treatments:

- 1- 60cm-Ridges (seeding on top of ridge): 10cm – intrarow spacing with 2 seeds per hole.
- 2- 90cm-Bed (seeding on both sides of bed): 20cm – intrarow spacing with 3 seeds per hole.
- 3- 120cm-Bed (seeding on both sides of bed): 15cm – intrarow spacing with 3 seeds per hole.
- 4- 150cm-Bed (seeding on both sides of bed): 12cm – intrarow spacing with 3 seeds per hole

30m long furrow

Ibberria with erect growth habit and RO/2/1 with a spreading growth habit



305 V1
90



307 V₂
120

3- Intercropping Faba Bean with Common Bean in the Northern Region of the Sudan

Treatments:

- 1 Faba bean: 2 Common bean (Faba bean intra-row spacing of 45cm)
- 1 Faba bean: 3 Common bean (Faba bean intra-row spacing of 60cm).
- 1 Faba bean: 4 Common bean (Faba bean intra-row spacing of 75cm).
- 1 Faba bean: 5 Common bean (Faba bean intra-row spacing of 90cm).

Variety :faba bean variety Basabeer and the common bean variety Ibberria will be used in this trial.

Entomology

Scientist in charge: Aymen Elamein Ali

1- Evaluation of some seed dressing insecticides for control whitefly on dry bean



The effect of seed dressing insecticides against whitefly on susceptible dry bean variety



The heavy infestation by white fly on susceptible dry bean variety. (untreated by seed dressing insecticides - control)

2- Screening of promising dry bean cultivars for resistance against whitefly



Effect of Resistant varieties of dry bean on white fly infestation

Pathology

Scientist in charge: Khalid E. Hamed

1. Effect of sowing date on the incidence of CPMMV

In the previous seasons witnessed high incidence of cow pea mild mottle *Carlavirus* (CPMMV), transmitting by whitefly, can produce a range of symptoms in common bean (*Phaseolus vulgaris* L.) including intense foliar yellowing (chlorosis), pod deformation and severe plant stunting in most common bean production areas causing great losses to the farmers.

The aim of this experiment to evaluate and compare the effects of sowing date on the incidence of CPMMV.

Five sowing dates, 5/10, 20/10, 30/10, 20/11 and 5/12 were used in a field naturally infested with the CpMMV. The most susceptible common bean cultivar (N. 54028) and a resistant variety (Ro/2/1) were used

2. Screening common bean genotypes for resistance to CPMMV

- Search for resistance to CpMMV is economically justified for plant breeding programs it is efficient means of control.
- Eleven Dry bean genotypes including in the advance yield trail at Hudieba station were evaluated for resistance to CpMMV disease these genotypes were laid out in complete block design with three replications.

3. Effect of intercropping on the incidence of CPMMV

- cultivars RO2/1 as resistant/tolerant common bean and Blanco laran as susceptible, to CPMMV, were used.
- Lobia as attractant to the whitefly (Vector) and coriander as repellent were also used.
- Lobia and Coriander were planted on the boundary of the bean plots at space of 30 cm or planted as intercropping on the same ridges of the common bean at spacing of 80cm for Lobia and 50 cm for Coriander.
- Other cultural practices were applied as recommended by ARC.

A photograph of a large field of green, leafy plants, likely a vegetable or herb garden, with a cornfield in the background. The plants are arranged in rows, and the ground is visible between them. The cornfield is a dense line of tall, green stalks. A small, light-colored structure or tent is visible in the distance on the left side of the cornfield. The sky is clear and light blue.

THANKS FOR YOUR KIND ATTENTION