**Nigeria Agronomy Trial Results, 2010 season**

So far, results from Kano State only are available:

* 2 soybean variety trials
* 2 soybean input trials
* 1 cowpea input trial
* 1 cowpea variety trial
* 2 groundnut variety trials
* 1 groundnut input trial

Planting was done late, but rains lasted for a longer than usual, and precipitation estimates from satellite data suggest that in most experimental sites the crops developed without much drought stress.

**Soybean variety trial 1, Bichi**

Code: BC001

GPS: 8 18.342 E, 12 11.544 N, 524m

Planting date: 23-07-2010

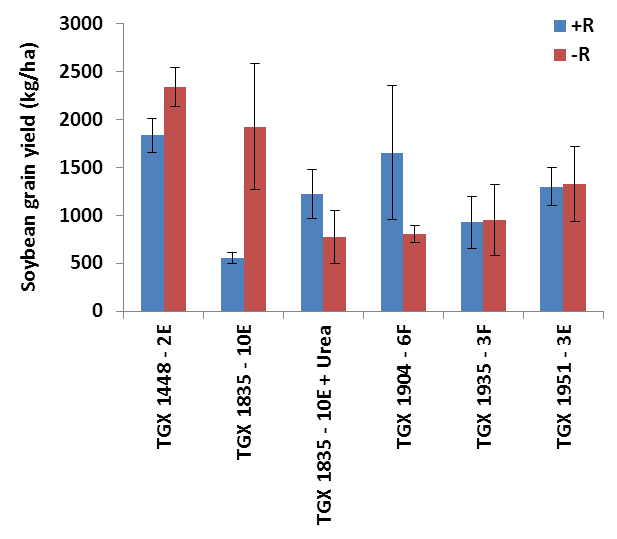
Harvest date: 03-11-2010

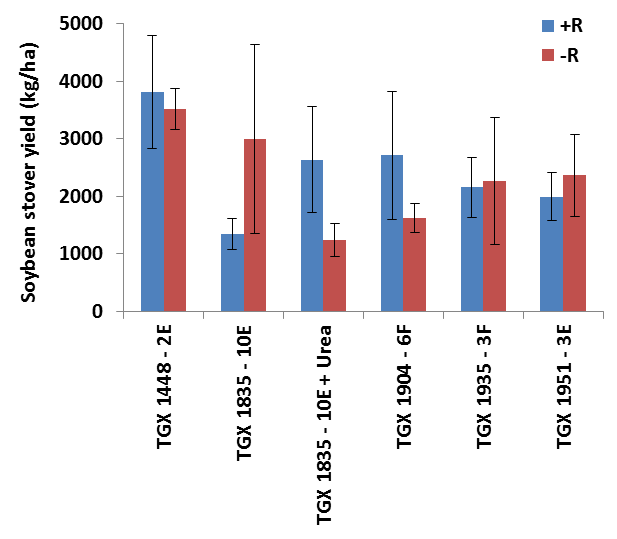
Remarks:

* Clear differences between varieties, TGx 1448 gives overall best performance.
* High grain yields achieved at Bichi
* No consistent impact of inoculation on grain yield; effect however visible on nodule score and no. of nodules per plan.
* Large variability within treatments.

Soil properties:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| pH | Org. C | Tot. N | P (Bray) | Exch. Ca | Exch. Mg | Exch. K | Exch. Na | CEC | Sand | Clay | Silt |
| H2O | % | % | ppm | cmol/kg | cmol/kg | cmol/kg | cmol/kg | cmol/kg | % | % | % |
| 6.4 | 0.28 | 0.09 | 5.88 | 3.33 | 0.26 | 0.5 | 0.05 | 4.04 | 70 | 15 | 15 |

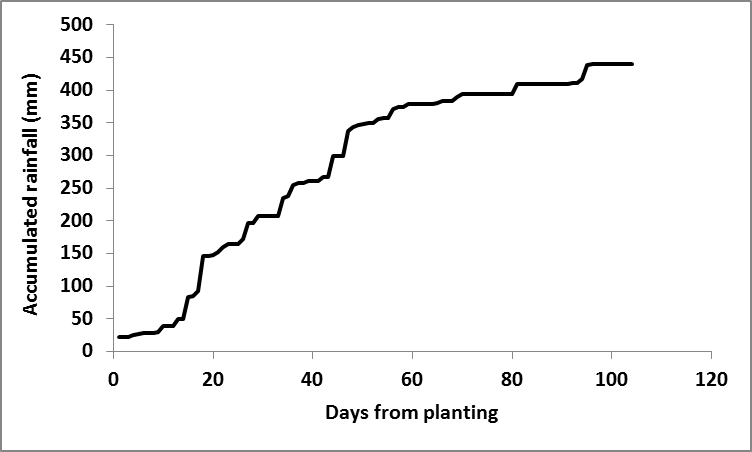




Nodulation score and average number of nodules per plant:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Nodule score | |  | Number of nodules per plant | |
| Variety | +R | -R |  | +R | -R |
| TGX 1448 - 2E | 3.3 | 1.7 |  | 10.6 | 5.7 |
| TGX 1835 - 10E | 2.8 | 1.1 |  | 12.7 | 3.2 |
| TGX 1835 - 10E + Urea | 2.2 | 2.2 |  | 7.5 | 8.0 |
| TGX 1904 - 6F | 2.7 | 2.3 |  | 8.5 | 13.2 |
| TGX 1935 - 3F | 2.4 | 1.5 |  | 14.8 | 4.1 |
| TGX 1951 - 3E | 1.7 | 1.6 |  | 6.3 | 5.3 |

Rainfall:



**Soybean variety trial 2, Sarina, Garko**

Code: BC001

GPS: 8 56.873 E, 11 35.566 N, 469m

Planting date: 22-07-2010

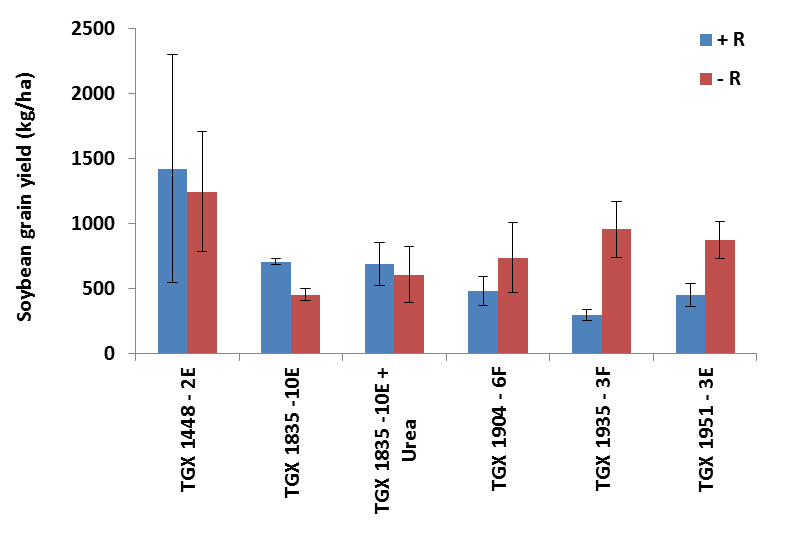
Harvest date: 02-11-2010

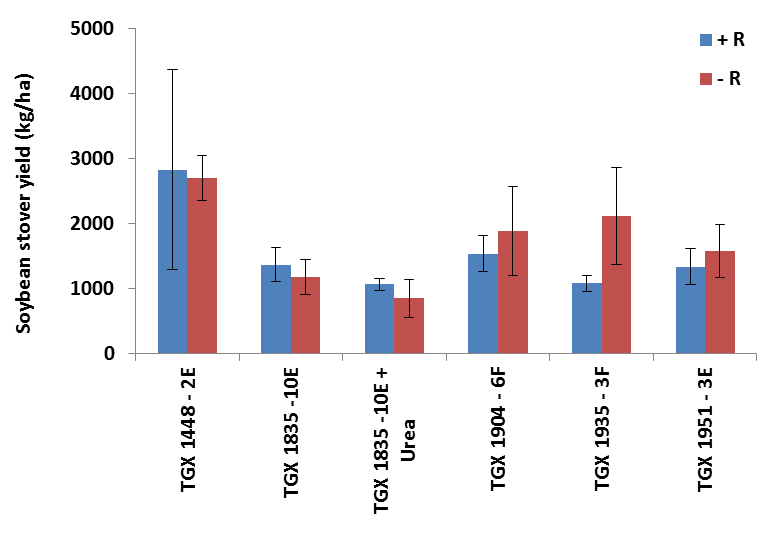
Remarks:

* High variability in yield
* No impact from inoculation on yield, neither on nodulation
* Soil with low C levels
* Drought stress during crop maturation probably occurred.

Soil properties:

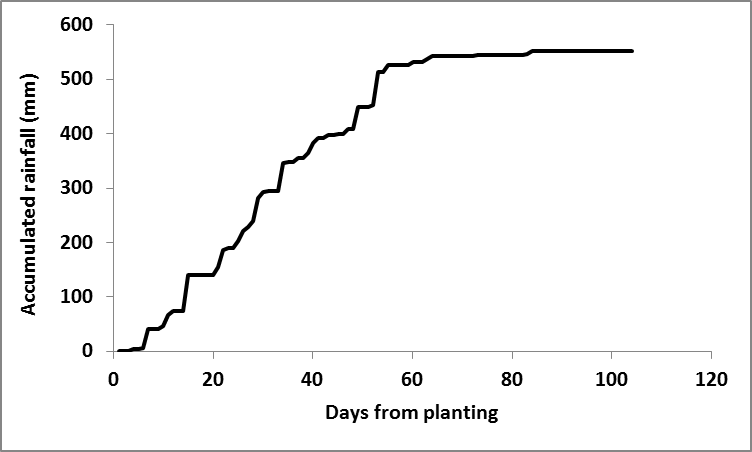
|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| pH | Org. C | Tot. N | P (Bray) | Exch. Ca | Exch. Mg | Exch. K | Exch. Na | CEC | Sand | Clay | Silt |
| H2O | % | % | ppm | cmol/kg | cmol/kg | cmol/kg | cmol/kg | cmol/kg | % | % | % |
| 6.0 | 0.22 | 0.09 | 21.58 | 2.83 | 0.48 | 0.7 | 0.08 | 3.26 | 66 | 13 | 21 |





Average nodule score and number of nodules per plant of soybean varieties with and without inoculation at Sarina, Nigeria.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Nodule score | |  | Nodule per plant | |
|  | +R | -R |  | +R | -R |
| TGX 1448 - 2E | 2.4 | 2.0 |  | 7.9 | 7.3 |
| TGX 1835 - 10E | 2.8 | 2.1 |  | 5.9 | 6.6 |
| TGX 1835 - 10E + Urea | 1.7 | 1.5 |  | 6.6 | 5.4 |
| TGX 1904 - 6F | 3.0 | 3.0 |  | 9.3 | 10.3 |
| TGX 1935 - 3F | 1.6 | 2.4 |  | 19.5 | 7.4 |
| TGX 1951 - 3E | 2.2 | 2.4 |  | 11.6 | 13.7 |



**Soybean variety trial 1, Bichi**

Code: KNINP001

GPS: 8 18.342 E, 12 11.544 N, 524m

Planting date: 25-07-2010

Harvest date: 01-11-2010

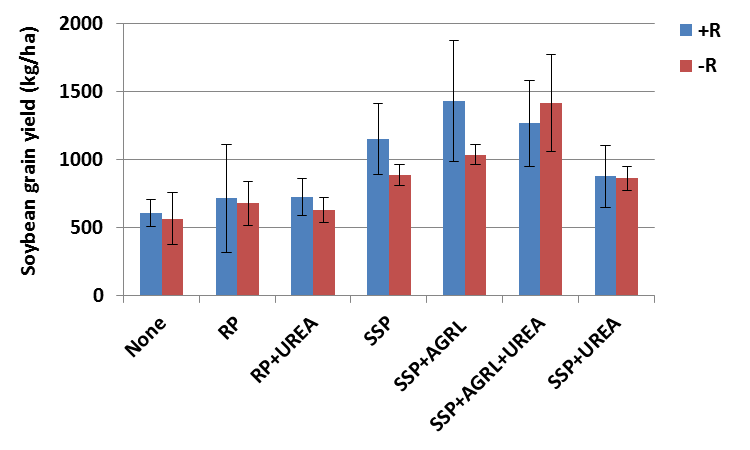
Variety: TGx 1835-10E

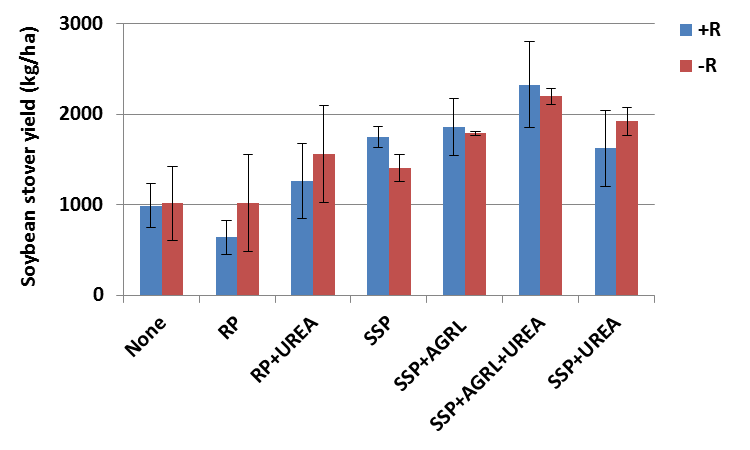
Remarks:

* Treatments with SSP gave higher grain yields. The use of RP or urea did not.
* Nodulation data give some indications of interaction between P-based fertiliser and impact of inoculation.

Soil properties:

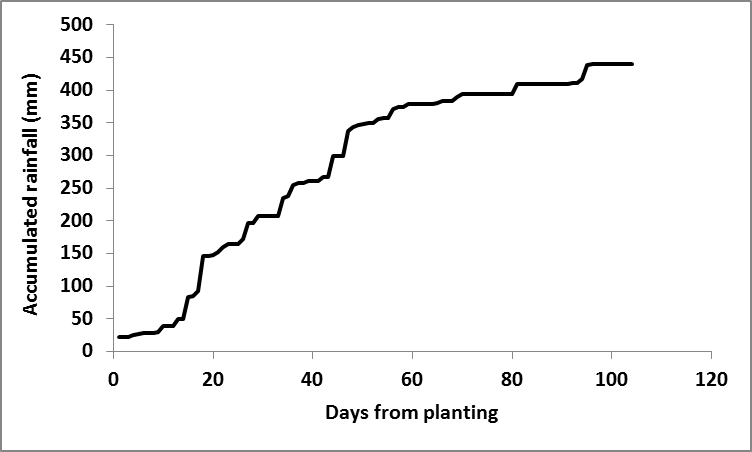
|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| pH | Org. C | Tot. N | P (Bray) | Exch. Ca | Exch. Mg | Exch. K | Exch. Na | CEC | Sand | Clay | Silt |
| H2O | % | % | ppm | cmol/kg | cmol/kg | cmol/kg | cmol/kg | cmol/kg | % | % | % |
| 6.4 | 0.28 | 0.09 | 5.88 | 3.33 | 0.26 | 0.5 | 0.05 | 4.04 | 70 | 15 | 15 |

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Average nodulations score and number of nodules per plant:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Nodule score | |  | Nodule per plant | |
|  | +R | -R |  | +R | -R |
| None | 1.7 | 1.7 |  | 8.7 | 7.1 |
| RP | 1.5 | 2.5 |  | 6.1 | 6.1 |
| RP+UREA | 1.8 | 1.0 |  | 8.2 | 2.8 |
| SSP | 4.2 | 1.6 |  | 21.1 | 6.6 |
| SSP+AGRL | 3.2 | 2.3 |  | 19.0 | 7.4 |
| SSP+AGRL+UREA | 2.0 | 2.2 |  | 13.5 | 3.9 |
| SSP+UREA | 2.9 | 0.7 |  | 10.7 | 15.9 |



**Soybean input trial 2, Sarina, Garko**

Code: BC001

GPS: 8 56.873 E, 11 35.566 N, 469m

Planting date: 22-07-2010

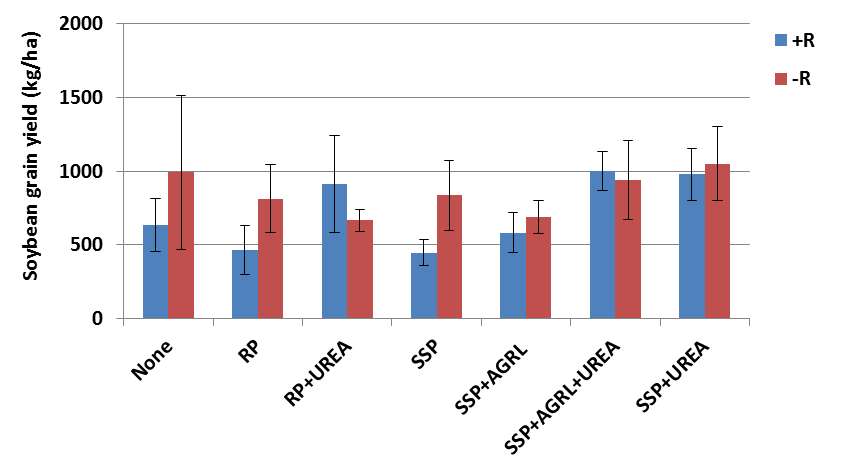
Harvest date: 02-11-2010

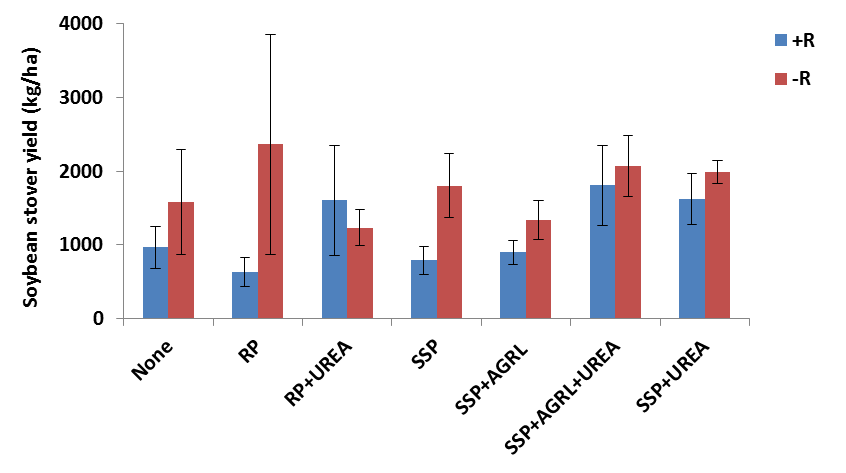
Remarks:

* low yields, high variability
* No impact from nutrient inputs or inoculation on yields
* Some effect of inoculation on nodulation
* Drought stress towards the end of the crop cycle

Soil properties:

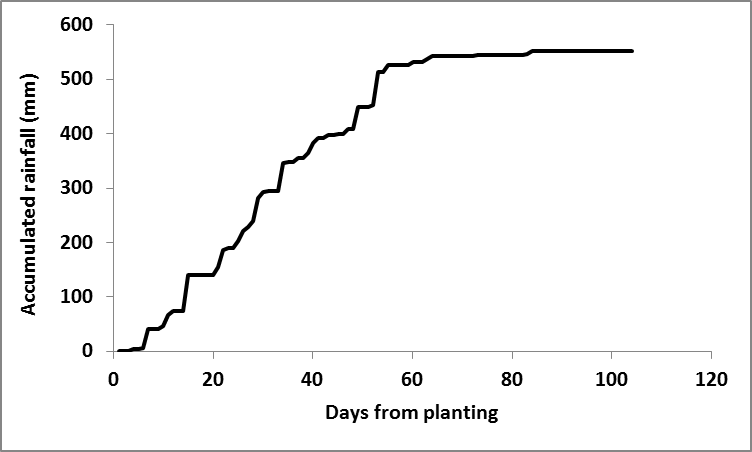
|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| pH | Org. C | Tot. N | P (Bray) | Exch. Ca | Exch. Mg | Exch. K | Exch. Na | CEC | Sand | Clay | Silt |
| H2O | % | % | ppm | cmol/kg | cmol/kg | cmol/kg | cmol/kg | cmol/kg | % | % | % |
| 6.0 | 0.22 | 0.09 | 21.58 | 2.83 | 0.48 | 0.7 | 0.08 | 3.26 | 66 | 13 | 21 |

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Average nodulations score and number of nodules per plant:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Nodule score | |  | Nodule per plant | |
|  | +R | -R |  | +R | -R |
| None | 2.1 | 1.0 |  | 10.3 | 1.6 |
| RP | 2.5 | 2.5 |  | 7.3 | 8.3 |
| RP+UREA | 2.9 | 1.1 |  | 12.9 | 1.7 |
| SSP | 2.8 | 1.2 |  | 12.2 | 2.0 |
| SSP+AGRL | 3.2 | 2.3 |  | 19.4 | 5.3 |
| SSP+AGRL+UREA | 3.7 | 2.1 |  | 14.9 | 4.7 |
| SSP+UREA | 2.9 | 1.5 |  | 11.9 | 25.4 |



**Groundnut variety trial 1, Darki, Wudil**

Code: none

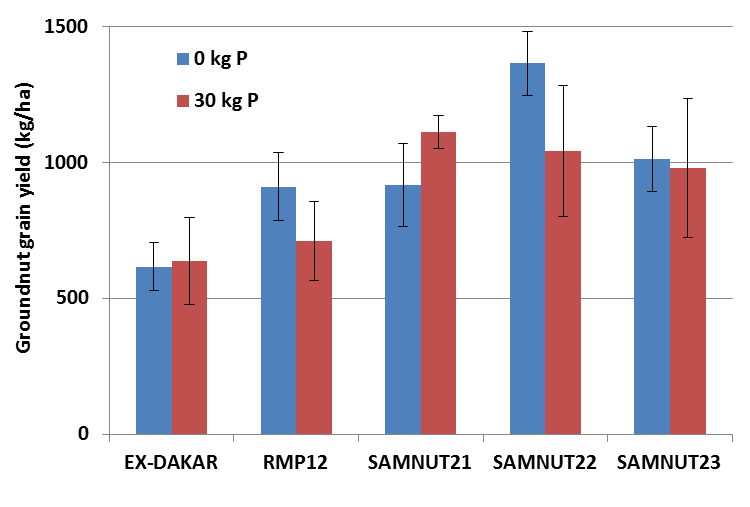
GPS: 11 39.407N, 8 55.342E, 552 m

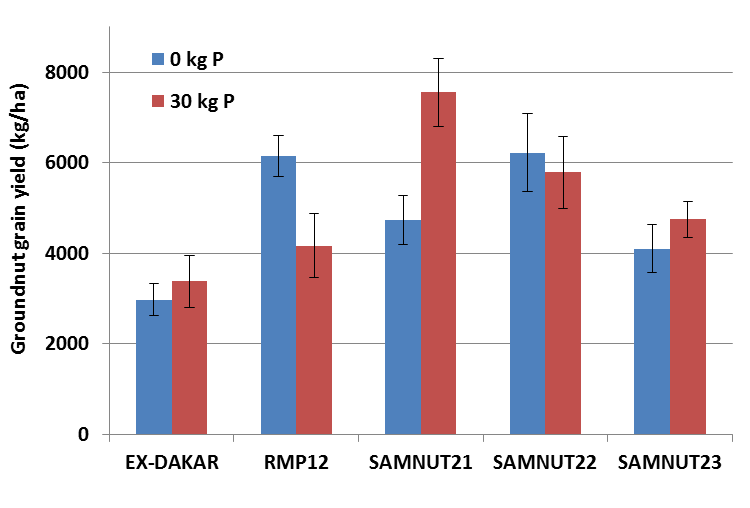
Planting date: 16-07-2010

Harvest date:

Remarks:

* Samnut varieties come out best.
* No impact from P fertiliser applications visible
* Modest grain yields, some very high stover yields

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**Groundnut variety trial 2, Sarina, Garko**

Code: KNVAR005

GPS: 8 56.873E, 11 35.566 N, 469 m

Planting date: 22-07-2010

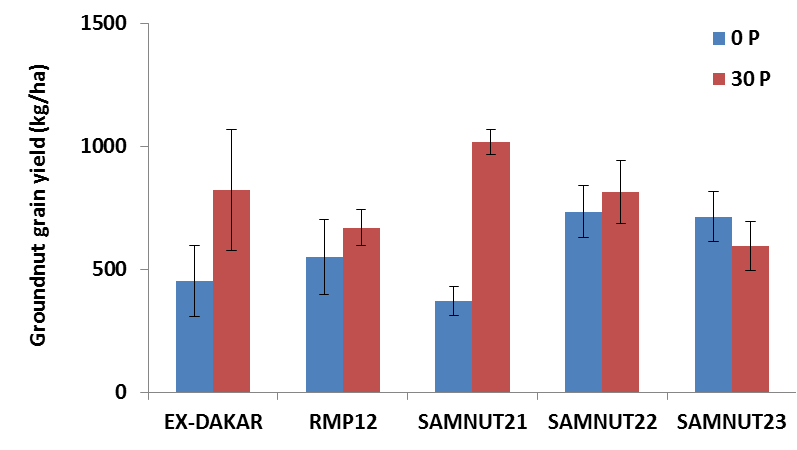
Harvest date: 04-11-2010

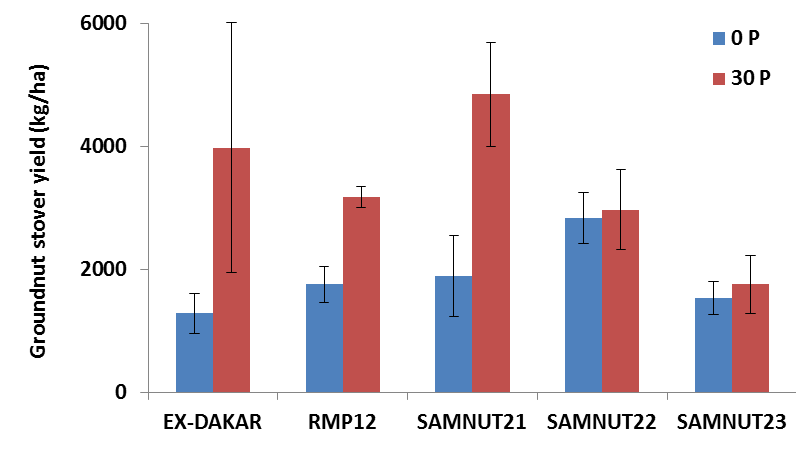
Remarks:

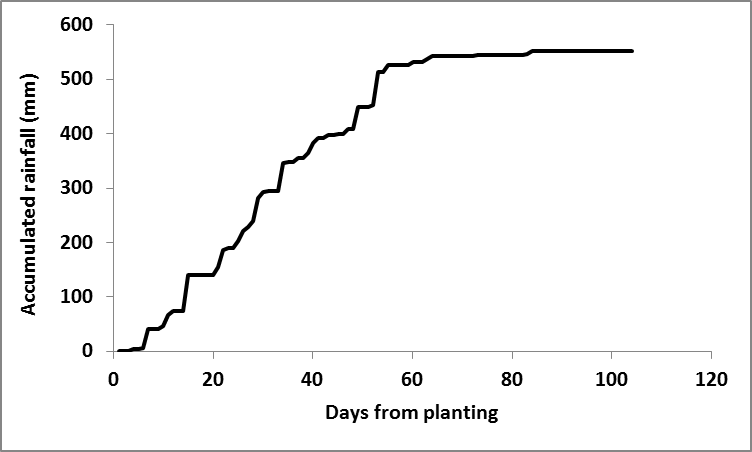
* In most varieties, a response to P fertiliser is visible

Soil properties:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| pH | Org. C | Tot. N | P (Bray) | Exch. Ca | Exch. Mg | Exch. K | Exch. Na | CEC | Sand | Clay | Silt |
| H2O | % | % | ppm | cmol/kg | cmol/kg | cmol/kg | cmol/kg | cmol/kg | % | % | % |
| 6.2 | 0.12 | 0.07 | 3.92 | 3.17 | 0.40 | 0.7 | 0.20 | 3.57 | 62 | 13 | 25 |



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**Groundnut input trial 1, Sarina, Garko**

Code: KNINP005

GPS: 8 56.873E, 11 35.566 N, 469 m

Planting date: 22-07-2010

Harvest date: 04-11-2010

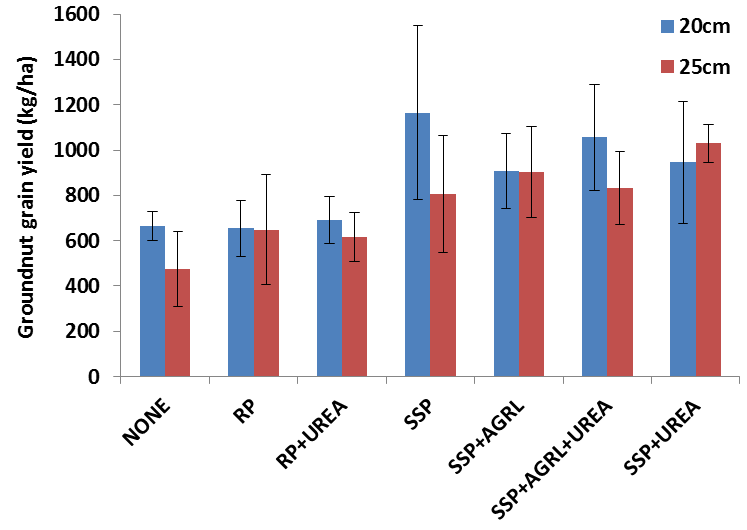
Variety: SAMNUT23

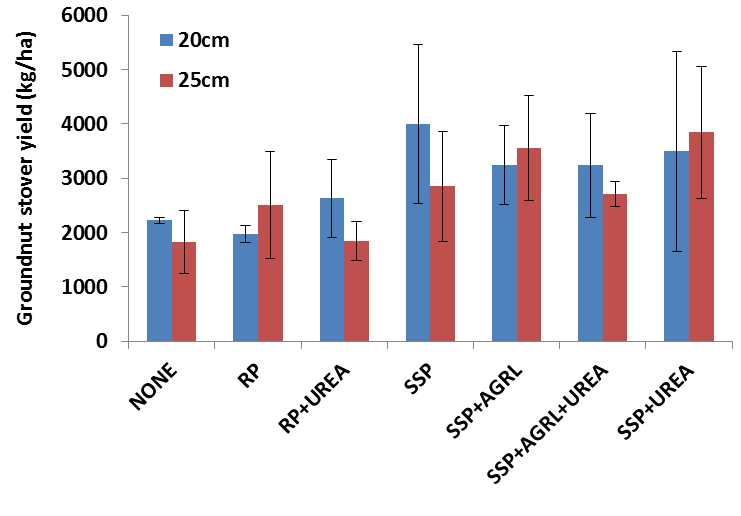
Remarks:

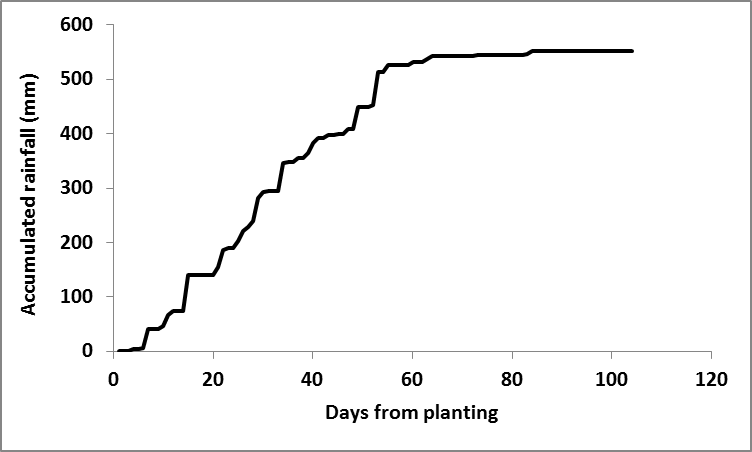
* Addition of SSP led to higher yields; urea, RP or agroliser did not
* Plant spacing had no impact on yield.

Soil properties:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| pH | Org. C | Tot. N | P (Bray) | Exch. Ca | Exch. Mg | Exch. K | Exch. Na | CEC | Sand | Clay | Silt |
| H2O | % | % | ppm | cmol/kg | cmol/kg | cmol/kg | cmol/kg | cmol/kg | % | % | % |
| 6.2 | 0.12 | 0.07 | 3.92 | 3.17 | 0.40 | 0.7 | 0.20 | 3.57 | 62 | 13 | 25 |

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**Cowpea variety trial 1, Warawa**

Code: KNVAR004

GPS: 9 7.953E, 11 40.377N, 423m

Planting date: 03-08-2010

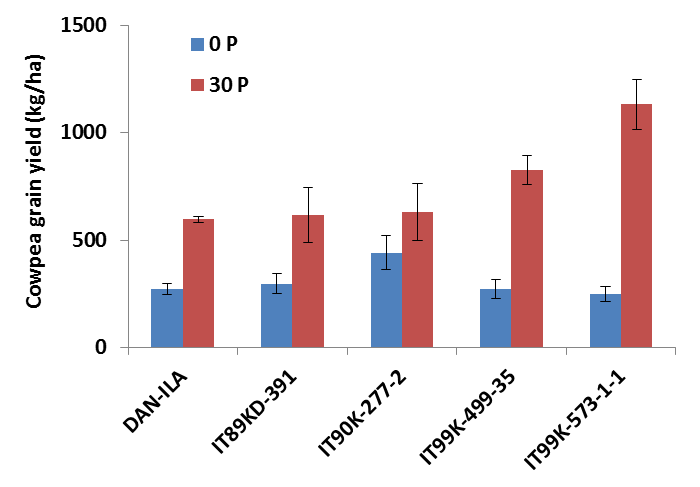
Harvest date: 26-10-2010

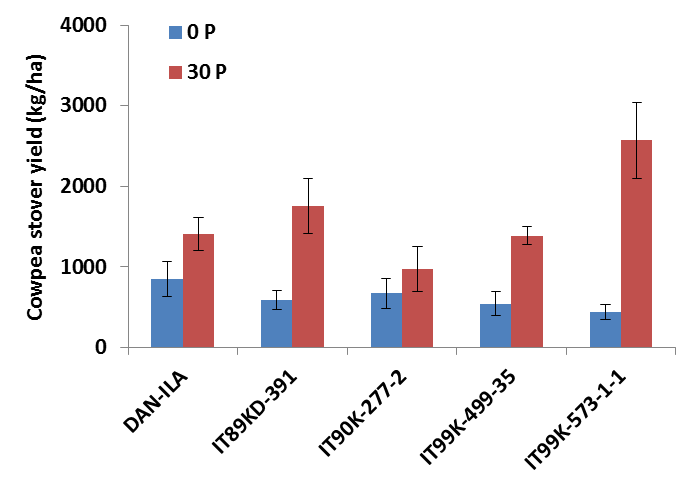
Remarks:

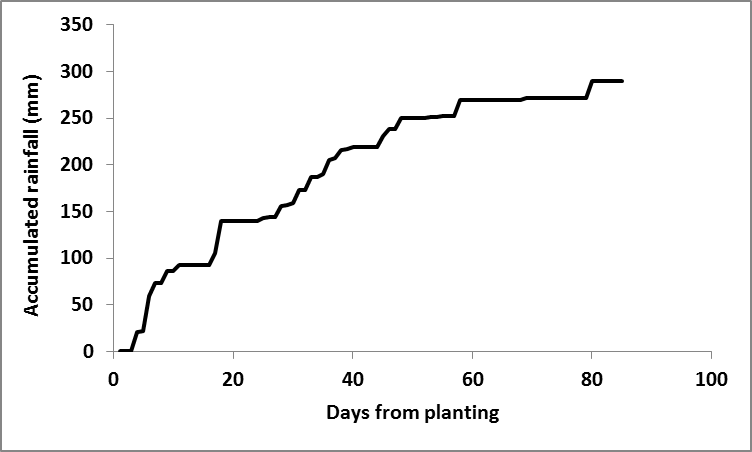
* Very strong impact from P-fertiliser
* G x M interaction

Soil properties:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| pH | Org. C | Tot. N | P (Bray) | Exch. Ca | Exch. Mg | Exch. K | Exch. Na | CEC | Sand | Clay | Silt |
| H2O | % | % | ppm | cmol/kg | cmol/kg | cmol/kg | cmol/kg | cmol/kg | % | % | % |
| 6.0 | 0.14 | 0.12 | 9.92 | 2.17 | 0.48 | 0.6 | 0.05 | 2.8 | 72 | 11 | 17 |

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**Cowpea variety trial 2, Albasu**

Code: KNVAR003

GPS: 11 40.337N, 9 7.953E, 423

Planting date: 18-07-2010

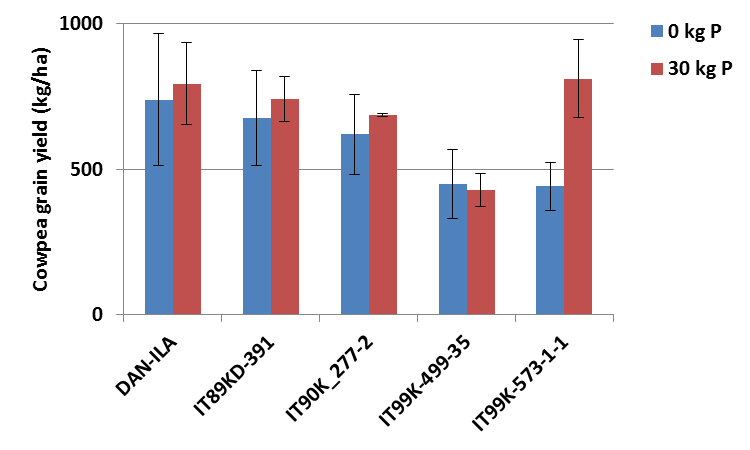
Harvest date: …

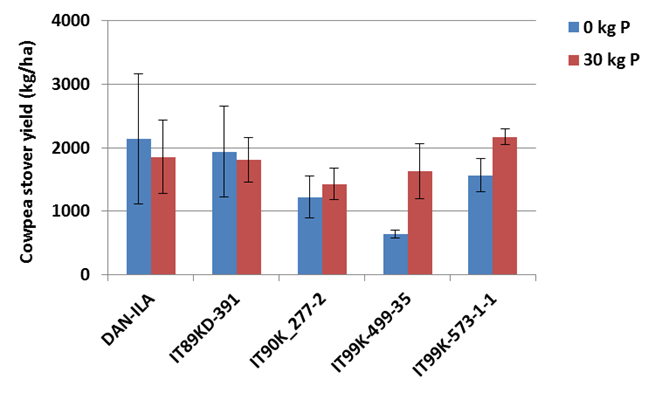
Remarks:

* Low grain yields
* No clear treatment effects
* Poorly fertile soil

Soil properties:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| pH | Org. C | Tot. N | P (Bray) | Exch. Ca | Exch. Mg | Exch. K | Exch. Na | CEC | Sand | Clay | Silt |
| H2O | % | % | ppm | cmol/kg | cmol/kg | cmol/kg | cmol/kg | cmol/kg | % | % | % |
| 6.3 | 0.31 | 0.09 | 3.92 | 1.33 | 0.59 | 0.5 | 0.05 | 3.810 | 64 | 15 | 21 |

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**Cowpea input trial 1, Albasu**

Code: none

GPS: 11 40.337N, 9 7.953E, 423 m

Planting date: 18-07-2010

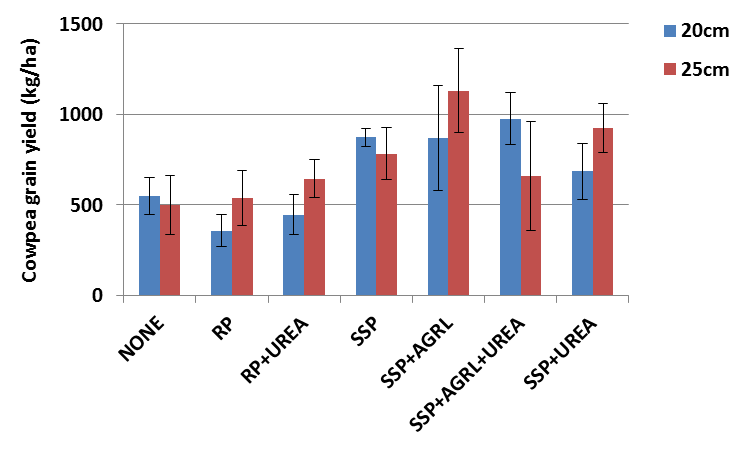
Harvest date:…

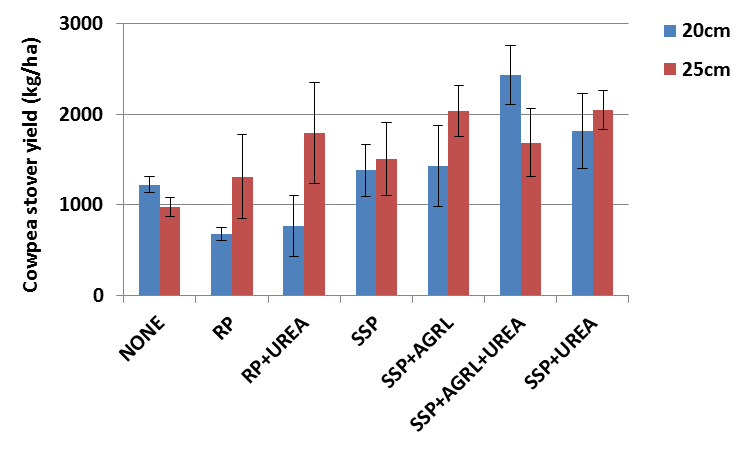
Remarks:

* No effect from plant spacing
* Application of SSP generally led to higher yields; urea, RP or Agriliser did not.

Soil properties:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| pH | Org. C | Tot. N | P (Bray) | Exch. Ca | Exch. Mg | Exch. K | Exch. Na | CEC | Sand | Clay | Silt |
| H2O | % | % | ppm | cmol/kg | cmol/kg | cmol/kg | cmol/kg | cmol/kg | % | % | % |
| 6.3 | 0.31 | 0.09 | 3.92 | 1.33 | 0.59 | 0.5 | 0.05 | 3.810 | 64 | 15 | 21 |

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