**Results agronomy trials Nigeria**

**Summary**

The agronomy trials in Nigeria (2011 season) consisted of:

* 10 soybean trials (4 inoculation and input, 5 inoculation and varietal and 1 nutrient omission)
* 3 groundnut trials (2 spacing and input, 1 spacing and varietal)
* 2 cowpea trials (1 inoculation and input, 1 inoculation and varietal)

The soybean trials were planted in Giwa, IAR, Kachia, Maigana, Samaru Kataf and Tudun Wada. The groundnut trials were planted in Igabi and also in Tudun Wada. The cowpea trials were planted in Maigana.

Only results of grain yields are shown. However, often it is not known whether yields comprise fresh or dry yields. In many cases biomass has been measured at both mid-season and at final harvest. Results are not shown, since the sample area during mid-season measurement was not known and since it might not be correct to review biomass measurements that have been taken at the time of final harvest. In addition, these haulm weights were not represented very accurate (e.g. 1.2 kg) and there was often not much variation.

For soybean, reasonably high yields have only been obtained in Giwa and Tudun Wada. Soybean yields were extremely low in the nutrient omission trial, due to late planting caused by late arrival of the inputs. Also, the soybean in Samara Kataf planted in August rather than July gave low yields. However, it is not known whether this is actually due to a difference in planting time or due to more site-specific differences. Groundnut yields were generally rather low and, due to pest attacks, cowpea yields were extremely low.

From the data it was difficult to determine good varieties and required inputs because results from different site were very different and not all varieties have been tested in the same number of sites. Therefore, I did not include some general results.

**Soybean trials**

**Giwa soybean inoculation and input trial**

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| --- |
| GPS coordinates: N 110 12.261' E 0070 33.506' |
| Planting date: 20/07/11  VARIETY: TGx 1835-10E |

Grain was not harvested because goats ate the plants. There is some information from biomass sampling, but because the area of the sample is not known, no calculations can be made.

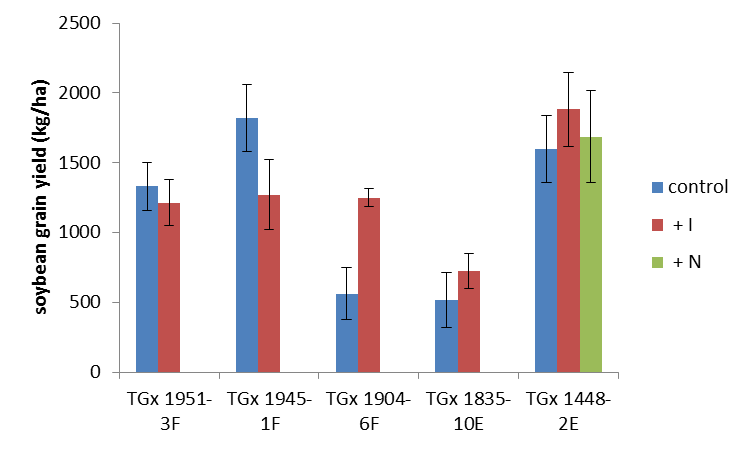
**Giwa soybean inoculation and varietal trial**

|  |
| --- |
| GPS coordinates: N 110 12.261' E 0070 33.506' |
| Planting date: 21/07/11 |
| Harvesting date: 9-10/12/11  Replicates: 4 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| pH water (1: 2.5) | pH 0.01M CaCl2 (1: 2.5) | P (O) | Sand | Silt | Clay | Total Nitrogen | Total Carbon |
|  |  | ppm | % | % | % | % | % |
| 5,7 | 4,7 | 1,75 | 60 | 26 | 14 | 0,21 | 0,82 |

Grain yields of TGx 1951-3F, TGx 195-1F and TGx 1448-2E ranged from about 1200 kg/ha to 1800 kg/ha. There were no responses to inoculation or application of urea. TGx 1904-6F and TGx 1835-10E were much lower yielding. However, with those varieties there seemed to be more responses to inoculation.

Is grain weight fresh or dried?



**IAR soybean varietal and inoculation trial**

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| --- |
| GPS coordinates: N 110 10.585' E 0070 36.858' |
| Planting date: 17-19/07/11 |
| Harvesting date: 19-20/11/11 |

Replicates: 4

Grain yield was not determined in this trial. However, there are measurements on pod yield and 100 seed weight.

**Kachia soybean inoculation and input trial**

|  |
| --- |
| GPS coordinates: N 90 51.679' E 0070 56.652' |
| Planting date: 16/07/11  Harvesting date: 23/12/11  VARIETY: TGx 1448-2E |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| pH water (1: 2.5) | pH 0.01M CaCl2 (1: 2.5) | P (O) | Sand | Silt | Clay | Total Nitrogen | Total Carbon |
|  |  | ppm | % | % | % | % | % |
| 5,4 | 4,6 | 5,25 | 72 | 10 | 18 | 0,14 | 0,6 |

This is in red because we do not have inoculated soybean with SSP as per the protocol used. 🡪 what does this mean? Not inoculated or no SSP used? Have the other treatments been inoculated? If I’m correct, SSP should already be included in the input column.

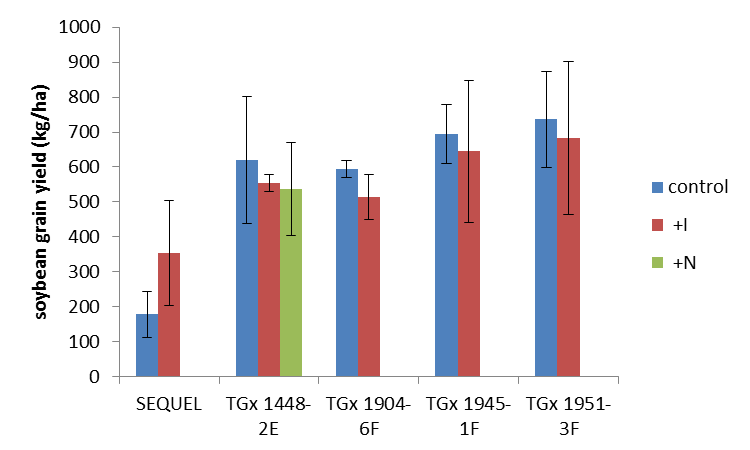
**Kachia soybean inoculation and varietal trial**

|  |
| --- |
| GPS coordinates: N 90 51.679' E 0070 56.652' |
| Planting date: 17/07/11  Harvesting date: 24/12/11 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| pH water (1: 2.5) | pH 0.01M CaCl2 (1: 2.5) | P (O) | Sand | Silt | Clay | Total Nitrogen | Total Carbon |
|  |  | ppm | % | % | % | % | % |
| 5,4 | 4,6 | 5,25 | 72 | 10 | 18 | 0,14 | 0,6 |

With grain yields between 180 and 350 kg ha-1 (non-inoculated versus inoculated), Sequel was the lowest yielding variety. Yields of the other varieties ranged from 510 to 740 kg ha-1. However, no effects of inoculation or addition of N were observed.

Are grain yields dry or fresh yields?



**Maigana soybean nutrient omission trial**

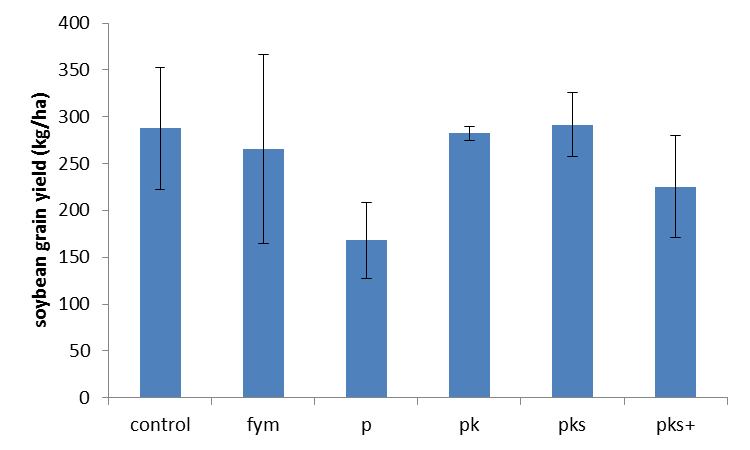
|  |
| --- |
| GPS coordinates: N 110 01.575' E 0070 55.292' |
| Planting date: 22/08/11  Harvesting date: 16/12/11 |
| VARIETY: TGx 1448-2E |

No soil data are available for this trial.

Soybean grain yield was generally very low in this trial. The poor yields were attributed to late planting (due to delays in delivery of TSP).

What is Fym, pk, pks and pks+?

Are grain yields dry or fresh?

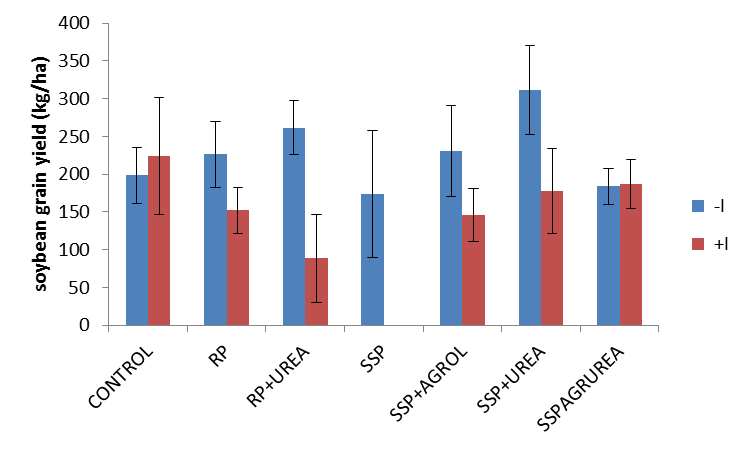


**Samaru Kataf soybean inoculation and input trial**

|  |
| --- |
| GPS coordinates: N 09.756200, E 008.371850 |
| Planting date: 9/08/11  Harvesting date: 24/12/11  VARIETY: TGx 1835-10E |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| pH water (1: 2.5) | pH 0.01M CaCl2 (1: 2.5) | P (O) | Sand | Silt | Clay | Total Nitrogen | Total Carbon |
|  |  | ppm | % | % | % | % | % |
| 5,5 | 4,6 | 10,5 | 72 | 14 | 14 | 0,175 | 0,8 |

Soybean grain yields were very low and no effects of inoculation on grain yields were observed. Treatment with different types of fertilizer did not clearly increase yields either. No reasons were given for this low yield. However, planting was done about one month later than in the other trials.



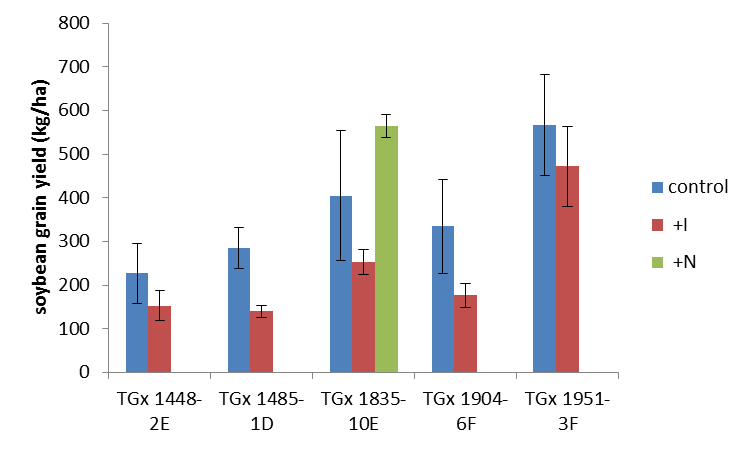
**Samaru Kataf soybean inoculation and varietal trial**

|  |
| --- |
| GPS coordinates: N 09.756200, E 008.371850 |
| Planting date: 10/08/11 |
| Harvesting date: 24/12/11 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| pH water (1: 2.5) | pH 0.01M CaCl2 (1: 2.5) | P (O) | Sand | Silt | Clay | Total Nitrogen | Total Carbon |
|  |  | ppm | % | % | % | % | % |
| 5,5 | 4,6 | 10,5 | 72 | 14 | 14 | 0,175 | 0,8 |

Soybean grain yields of most varieties were extremely low. Only TGx 1951-3F and TGx1835-10E in combination with urea seemed to get more reasonable yields of about 500 kg/ha. However, with the urea treatment, grain of only two out of the four replicates seemed to have been harvested. This might indicate there was no grain at all in these plots.

Is grain yield fresh or dried?



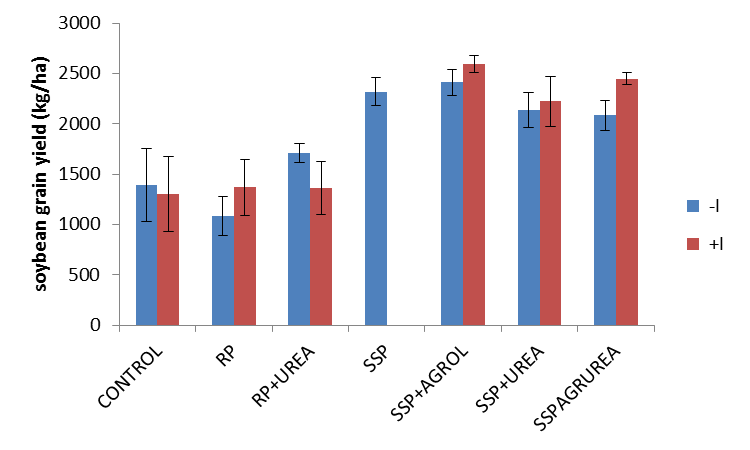
**Tudun Wada soybean inoculation and input trial**

|  |
| --- |
| GPS coordinates: N 110 14.660' E 0080 25.269' |
| Planting date: 9/07/11 |
| Harvesting date: 15/11/11 |
| VARIETY: TGx 1448-2E |

Soil data are not available.

Soybean was planted in July and grain yields at the Tudun Wada site were much higher than in Samara Kataf. However, inoculation did not clearly increase yields. Treatments with SSP on the other hand did increase grain yields with almost 900 kg/ha compared to the control. Treatment with RP did not increase yields, but without inoculation, treatment with RP and Urea did.

Are grain yields here fresh or dried?



**Tudun Wada soybean inoculation and varietal trial**

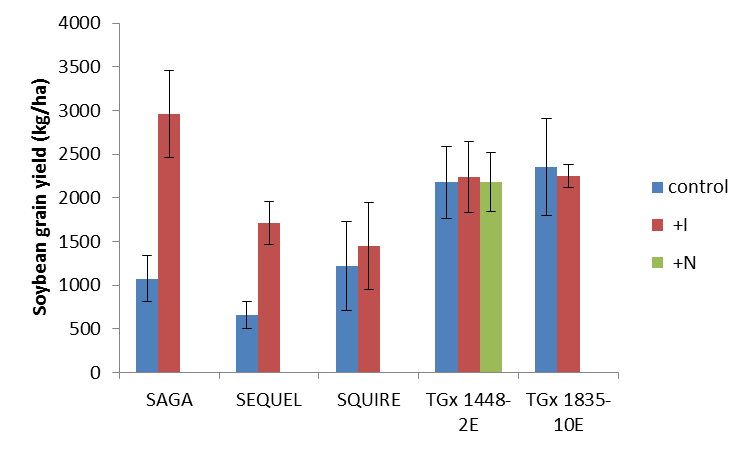
|  |
| --- |
| GPS coordinates: N 110 14.660' E 0080 25.269' |
| Planting date: 10/07/11 |
| Harvesting date: 16/11/11 |

Soil data is not available.

Uninoculated soybean grain yields of Sc. Saga and Sequel were low compared to the TGx 1448-2E and TGx1835-10E, which yielded around 2100 kg/h. However, yields of Sc. Saga and Sequel were more than doubled with inoculation, whereas there were no effects of inoculation observed in TGx 1448-2E and TGx1835-10E. With about 1300 kg/ha, Sc Squire did not perform badly, but the effects of inoculation were not clear.

Is grain weight fresh or dry?

Are TGx 1448-2E and TGx1835-10E promiscuously nodulating?



**Groundnut trials**

**Igabi groundnut spacing and input trial**

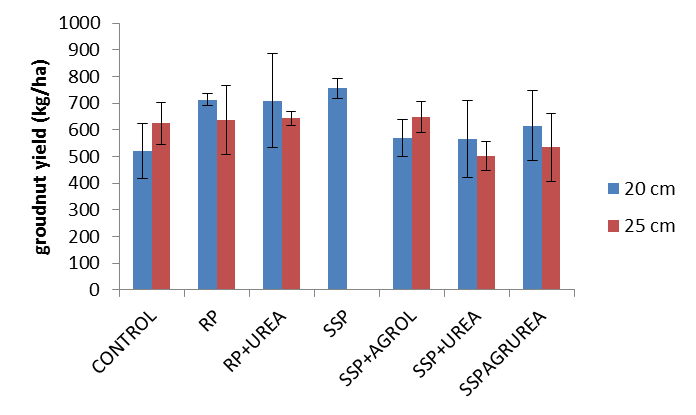
|  |
| --- |
| GPS coordinates: N 110 53.925' E 0070 38.784' |
| Planting date: 7/08/11  Harvesting date: 17-18/12/11 |
| Variety: SAMNUT 23 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| pH water (1: 2.5) | pH 0.01M CaCl2 (1: 2.5) | P (O) | Sand | Silt | Clay | Total Nitrogen | Total Carbon |
|  |  | ppm | % | % | % | % | % |
| 5,4 | 4,8 | 2,63 | 68 | 18 | 14 | 0,105 | 0,39 |

Groundnut yields in this trial were evaluated for intra-row spacing and inputs. With around 600 kg/ha, yields were not very high. Although fertilizer treatments with RP, RP+urea and SSP alone seemed to increase yields, the combinations did not. The intra-row spacing did not have a clear effect on grain yield.

Are grain yields fresh or dry?

What does agrol mean? And AGRUREA? And RP?

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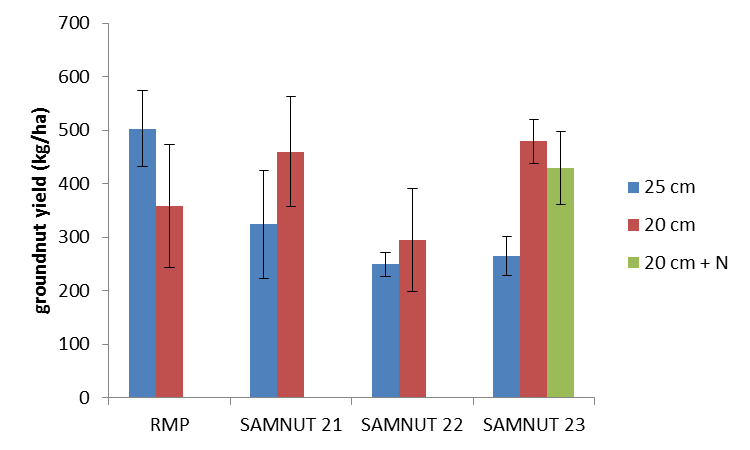
**Igabi groundnut spacing and varietal trial**

|  |
| --- |
| GPS coordinates: N 110 53.925' E 0070 38.784' |
| Planting date: 7/08/11  Harvesting date: 19-20/12/11 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| pH water (1: 2.5) | pH 0.01M CaCl2 (1: 2.5) | P (O) | Sand | Silt | Clay | Total Nitrogen | Total Carbon |
|  |  | ppm | % | % | % | % | % |
| 5,4 | 4,8 | 2,63 | 68 | 18 | 14 | 0,105 | 0,39 |

Groundnut yields in this trial were rather low. Intra-row spacing of 20 seemed to increase yield in two of the four varieties, but did not in the others. The application of N in 20 cm spacing of Samnut 23 did increase yield compared to the 25 cm spacing without N, but did not compared to the 20 cm spacing without N.

Are yields dried yields? Oven dry grain yields indicate that there is about 65% moisture in the grains....?

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**Tudun Wada groundnut spacing and input trial**

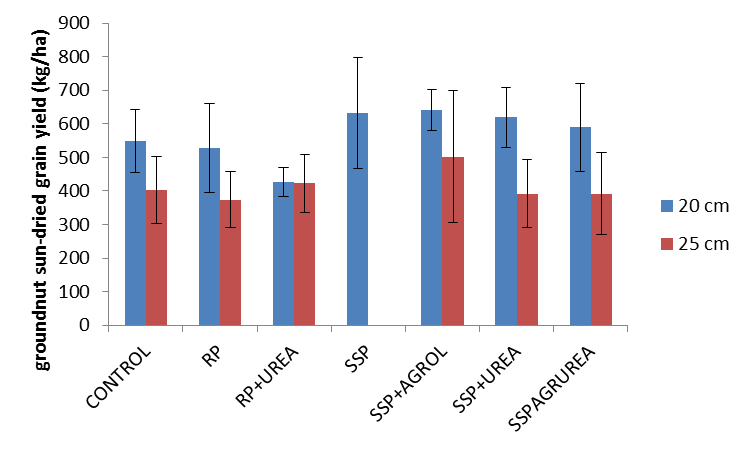
|  |
| --- |
| GPS coordinates: N 110 14.660' E 0080 25.269' |
| Planting date: 11/07/11 |
| Harvesting date: 18/11/11 |
| Variety = SAMNUT 23 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| pH water (1: 2.5) | pH 0.01M CaCl2 (1: 2.5) | P (O) | Sand | Silt | Clay | Total Nitrogen | Total Carbon |
|  |  | ppm | % | % | % | % | % |
| 5,4 | 4,7 | 12,25 | 56 | 30 | 14 | 0,175 | 0,45 |

Also in this trial, groundnut yields were rather low. Generally, groundnut yields were higher with 20 cm intra-row spacing than 25 cm intra-row spacing. In contrast with the other groundnut spacing and input trial, treatments including SSP seemed to increase yields compared to the control, mainly with the 20 cm intra-row spacing. RP and Urea did not increase yields relatively to the control.

Here, there is sun-dried grain yield and oven-dried grain yield. Which one to use? (oven dried grain weights is very low)

Further available is: sub-sample shoots dwt (but no size of sub-plot..) at mid-season and 100 grain weights.



**Cowpea trials**

**Maigana cowpea inoculation and input trial**

|  |
| --- |
| GPS coordinates: N 110 01.486' E 0070 55.053' |
| Planting date: 5/08/11  Harvesting date: 13/12/11  VARIETY: IT 97K-499-35   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | pH water (1: 2.5) | pH 0.01M CaCl2 (1: 2.5) | P (O) | Sand | Silt | Clay | Total Nitrogen | Total Carbon | |  |  | ppm | % | % | % | % | % | | 5,7 | 4,9 | 1,75 | 62 | 22 | 16 | 0,175 | 0,64 |   Cowpea grain yields in this trial were extremely low. The trial was severely attacked by insect pests which could not be controlled.  Is grain yield dry yield or fresh yield. |

**Maigana cowpea inoculation and varietal trial**

|  |
| --- |
| GPS coordinates: N 110 01.486' E 0070 55.053' |
| Planting date: 6/08/11  Harvesting date: 14-15/12/11 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| pH water (1: 2.5) | pH 0.01M CaCl2 (1: 2.5) | P (O) | Sand | Silt | Clay | Total Nitrogen | Total Carbon |
|  |  | ppm | % | % | % | % | % |
| 5,7 | 4,9 | 1,75 | 62 | 22 | 16 | 0,175 | 0,64 |

Yields of variety IT 97K-499-35 and IT 98K-205-8 were extremely low. Yield of IT 90K-277-2 was highest with about 870 kg ha-1. There was no response to inoculation.

Was this trial also affected by insect pests? What could otherwise be a reason for the very low yields of IT 97K-499-35 and IT 98K-205-8?

I assume you have only variety IT 97K-499-35 and not IT 97K-499-36, IT 97K-499-37, IT 97K-499-38 etc. Is that correct?

