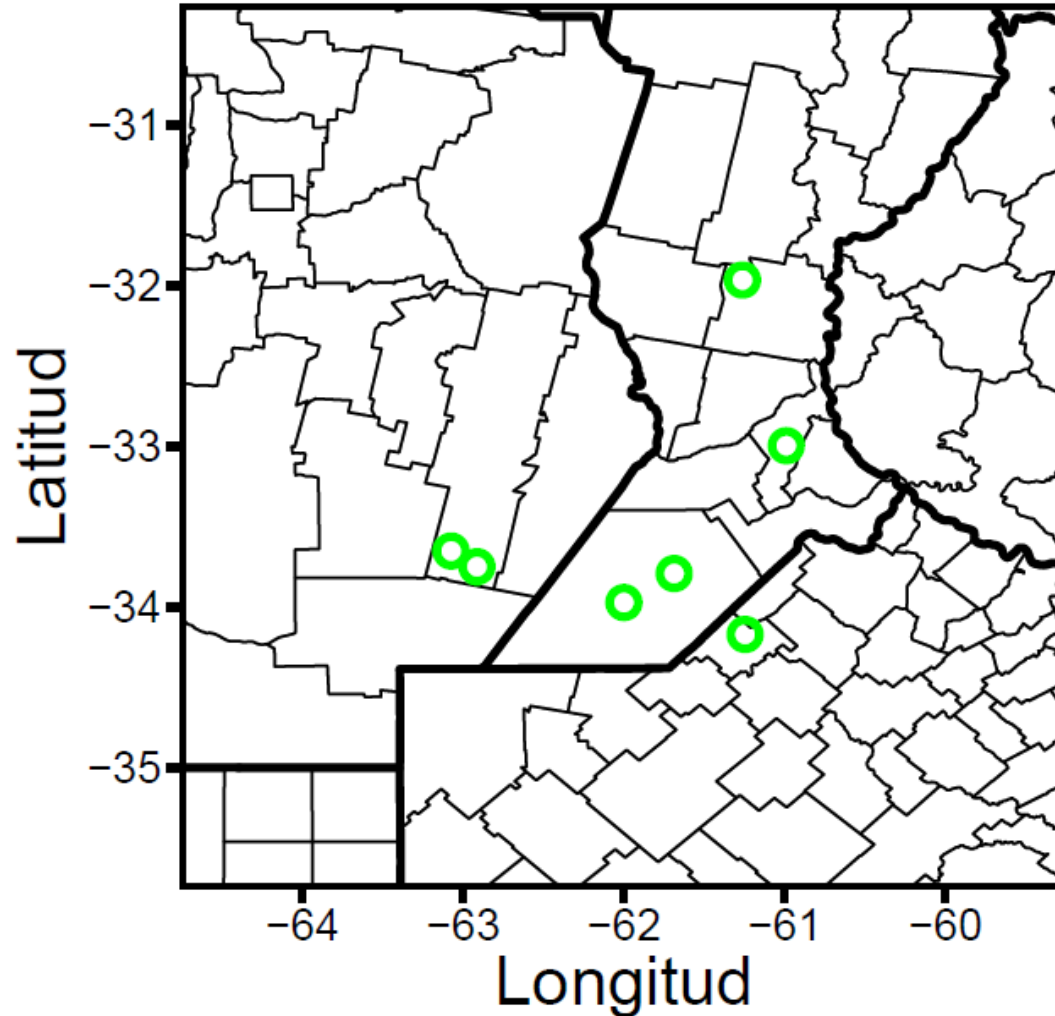


# **Red de Variedades de Soja de Primera CREA SSF 2019-2020**



**REGIÓN SUR  
DE SANTA FE**

# Red de Variedades de Soja de Primera CREA SSF 2019-2020



**REGIÓN SUR  
DE SANTA FE**

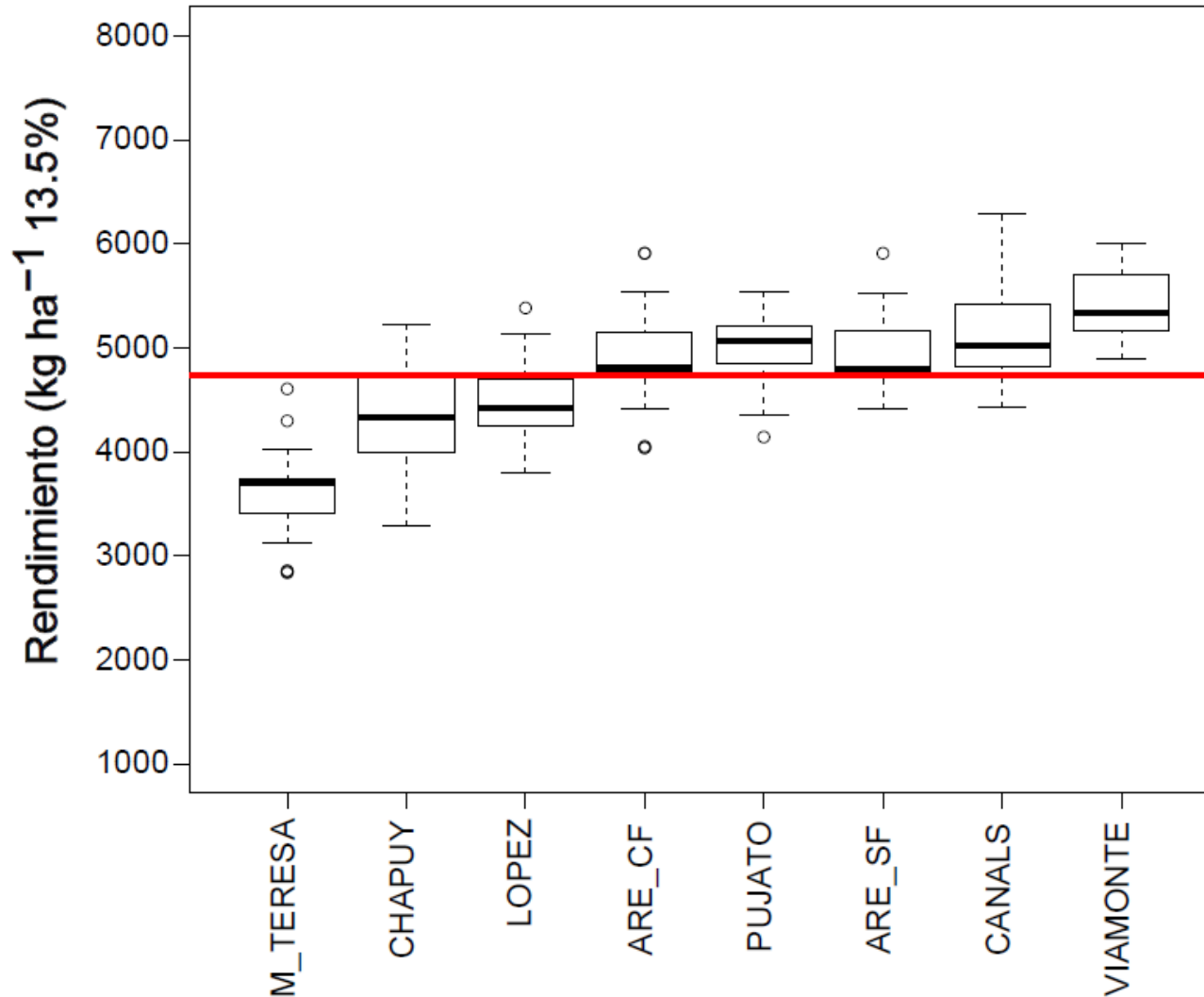
# Lista de Variedades

| Empresa   | Variedad   |
|-----------|--|
| Asgrow    | ASG4326<br>ASG4927                               |
| Bioceres  | BIO4.11<br>BIO4.51                               |
| Basf      | CZ4.97<br>CZ4306<br>CZ4505STS                    |
| Don Mario | DM40R16STS<br>DM4612<br>DM46i20STS<br>DM46R18STS |
| Illinois  | IS46.5RRSTS                                      |
| Syngenta  | 4X5 SYN RR<br>NK 49X20 IPRO STS<br>SY 5X1 RR     |
| Nidera    | NS4309   |



# Rendimiento por sitio

Red de Variedad de Soja de Primera CREA SSF 2019-2020



ARE\_CF: Gral. Arenales (Con Funguicida); ARE\_SF: Gral. Arenales (Sin Funguicida)



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# Rendimiento (kg ha<sup>-1</sup>)

## Red de Variedad de Soja de Primera CREA SSF 2019-2020



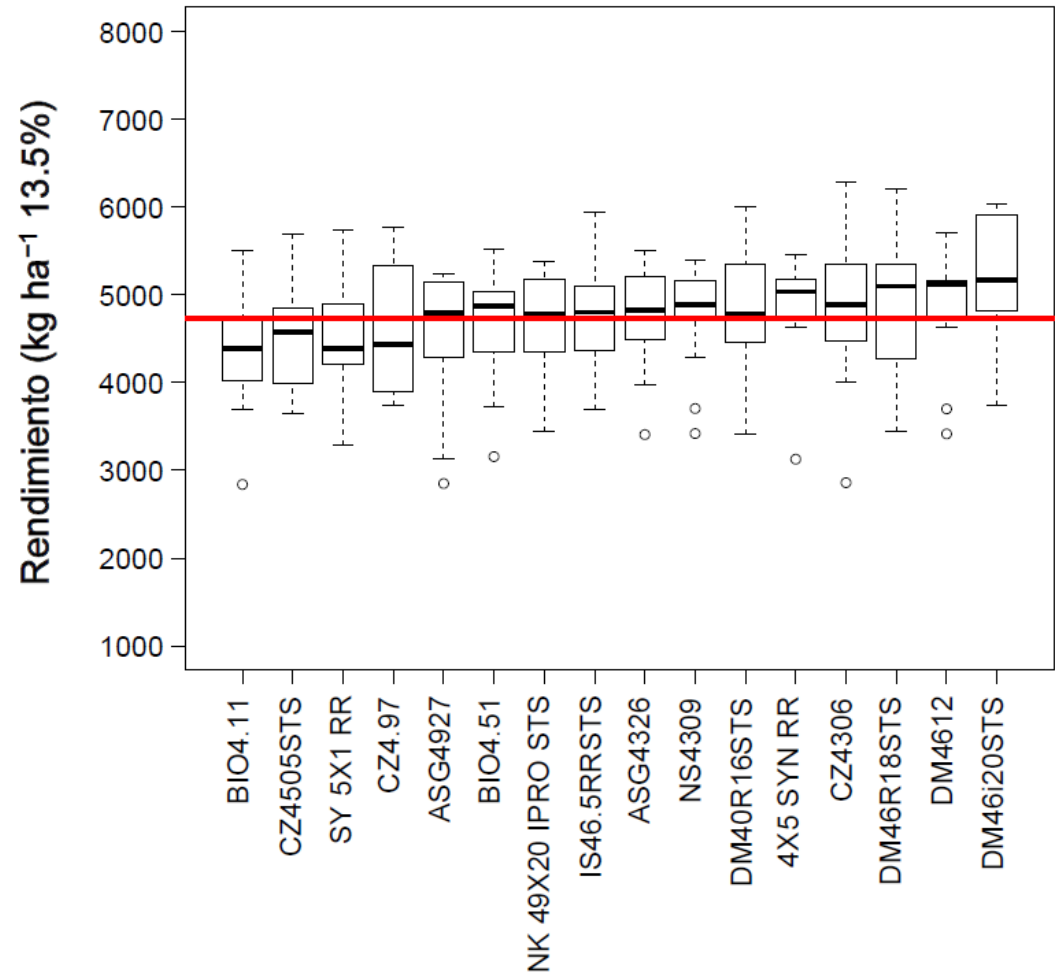
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| Fecha de siembra  |                          | 6-nov  | 6-nov  | 2-nov  | 5-nov  | 13-nov | 7-nov    | 13-nov | 11-nov   |
|-------------------|--------------------------|--------|--------|--------|--------|--------|----------|--------|----------|
| Fecha de cosecha  |                          | 12-abr | 12-abr | 10-abr | 19-abr | 21-mar | 13-abr   | 8-abr  | 14-abr   |
|                   | <b>Análisis conjunto</b> | ARE_CF | ARE_SF | CANALS | CHAPUY | LOPEZ  | M_TERESA | PUJATO | VIAMONTE |
| DM46i20STS        | <b>5257</b>              | 5912   | 5912   | 5518   | 5168   | 5031   | 4176     | 4468   | 5677     |
| DM4612            | <b>4903</b>              | 5156   | 5156   | 5109   | 4698   | 4884   | 3558     | 4830   | 5442     |
| DM46R18STS        | <b>4894</b>              | 5352   | 4989   | 6040   | 4404   | 4350   | 3596     | 4260   | 5522     |
| CZ4306            | <b>4873</b>              | 4793   | 4977   | 5846   | 4727   | 4691   | 3432     | 5193   | 5542     |
| 4X5 SYN RR        | <b>4807</b>              | 4977   | 4972   | 5322   | 4815   | 4968   | 3127     | 4360   | 5279     |
| DM40R16STS        | <b>4805</b>              | 4782   | 4777   | 5499   | 4668   | 4684   | 3558     | 4904   | 5669     |
| NS4309            | <b>4796</b>              | 4972   | 4972   | 4834   | 4522   | 4473   | 3562     | 5244   | 5222     |
| ASG4326           | <b>4790</b>              | 5139   | 5506   | 4823   | 4815   | 4152   | 3692     | 5100   | 5391     |
| IS46.5RRSTS       | <b>4697</b>              | 4989   | 4989   | 4867   | 4096   | 4198   | 3700     | 5399   | 5617     |
| NK 49X20 IPRO STS | <b>4692</b>              | 4782   | 4782   | 5003   | 4052   | 4140   | 3870     | 5141   | 5242     |
| BIO4.51           | <b>4672</b>              | 4972   | 5156   | 5194   | 4228   | 4485   | 3444     | 5008   | 5020     |
| ASG4927           | <b>4605</b>              | 4961   | 4598   | 4935   | 4111   | 4305   | 2992     | 5008   | 5148     |
| CZ4.97            | <b>4583</b>              | 4424   | 4429   | 5623   | 3905   | 4172   | 3740     | 5323   | 5436     |
| SY 5X1 RR         | <b>4580</b>              | 4782   | 4598   | 5174   | 3729   | 4411   | 3951     | 5123   | 5745     |
| CZ4505STS         | <b>4516</b>              | 4624   | 4804   | 4656   | 3817   | 4823   | 3744     | 5287   | 5513     |
| BIO4.11           | <b>4345</b>              | 4042   | 5145   | 4593   | 4111   | 3861   | 3266     | 5077   | 4965     |
| Promedio          | 4738                     | 4916   | 4985   | 5190   | 4367   | 4477   | 3588     | 4983   | 5402     |
| CV                |                          | 5.7    | 5.1    | 6.2    | 4.1    | 4.1    | 9.1      | 2.9    | 4.7      |
| DMS Variedad      | 176                      | 599    | 544    | 686    | 386    | 398    | 697      | 310    | 544      |
| p-value           | <0.001                   | <0.01  | <0.01  | <0.05  | <0.001 | <0.001 | p=0.16   | <0.001 | p=0.15   |

*En verde se muestran los genotipos de mayor rinde estadísticamente para cada sitio particular y para el análisis conjunto de todos los sitios.*

# Análisis conjunto de los 8 sitios

| Variedad          | Rendimiento<br>kg ha <sup>-1</sup> |     |
|-------------------|------------------------------------|-----|
| DM46i20STS        | 5257                               | a   |
| DM4612            | 4903                               | b   |
| DM46R18STS        | 4894                               | b   |
| CZ4306            | 4873                               | bc  |
| 4X5 SYN RR        | 4807                               | bcd |
| DM40R16STS        | 4805                               | bcd |
| NS4309            | 4796                               | bcd |
| ASG4326           | 4790                               | bcd |
| IS46.5RRSTS       | 4697                               | cde |
| NK 49X20 IPRO STS | 4692                               | def |
| BIO4.51           | 4672                               | def |
| ASG4927           | 4605                               | ef  |
| CZ4.97            | 4583                               | ef  |
| SY 5X1 RR         | 4580                               | ef  |
| CZ4505STS         | 4516                               | fg  |
| BIO4.11           | 4345                               | g   |
| Promedio          | 4738                               |     |
| CV                |                                    |     |
| DMS Variedad      | 176                                |     |
| p-value           | <0.001                             |     |

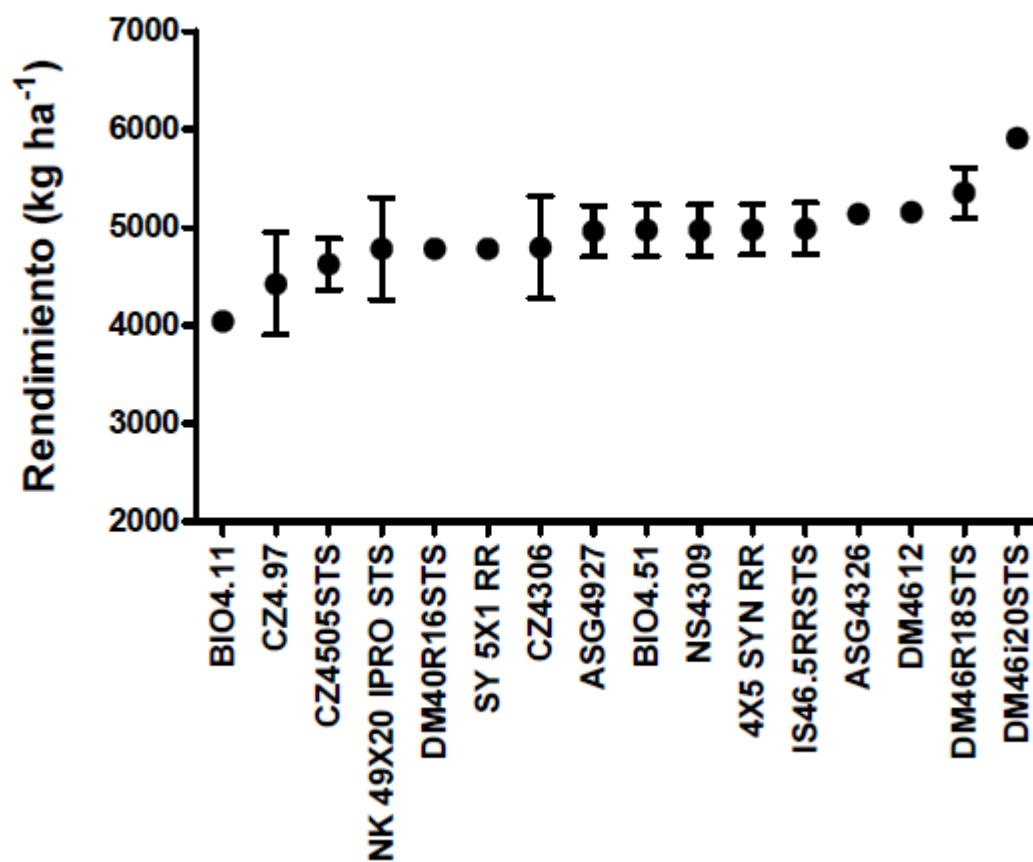


*Para rinde en verde se destacan los genotipos de máximos rinde, y que no son diferentes estadísticamente.*



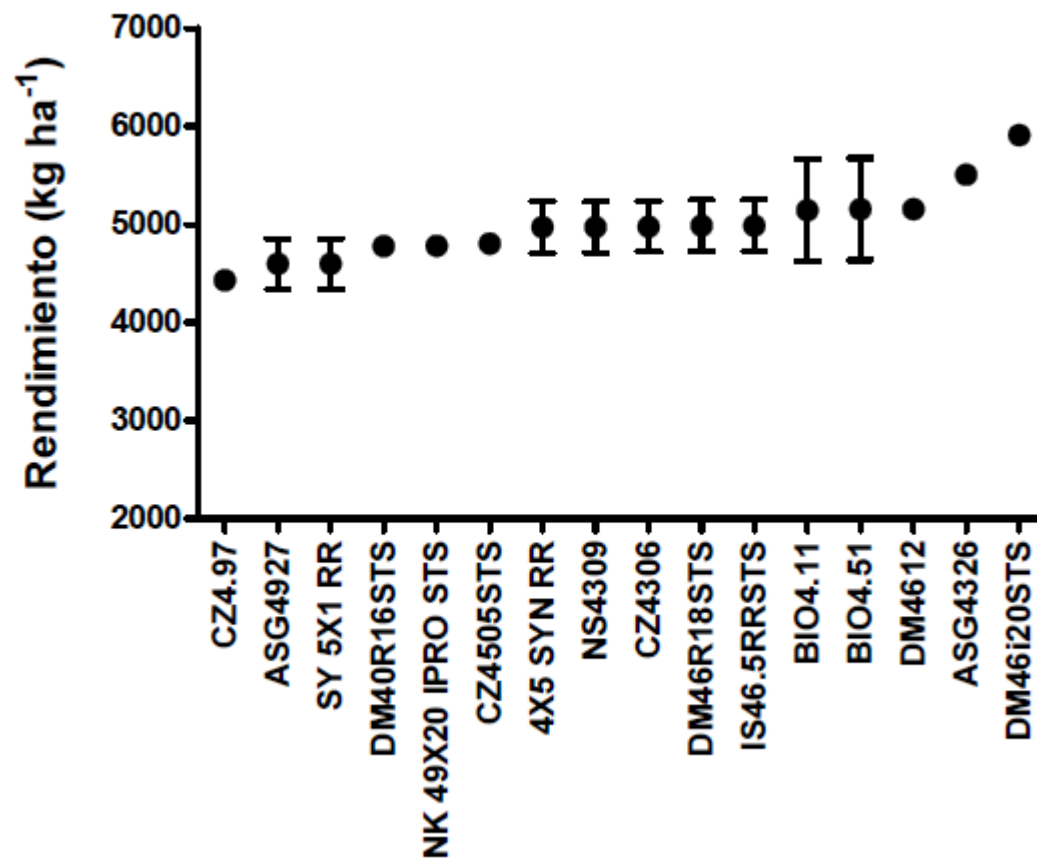
Localidad: **General Arenales\_CF**. Fecha de siembra 6/11

| Variedad          | Rendimiento<br>kg ha <sup>-1</sup> |     |
|-------------------|------------------------------------|-----|
| DM46i20STS        | 5912                               | a   |
| DM46R18STS        | 5352                               | ab  |
| DM4612            | 5156                               | bc  |
| ASG4326           | 5139                               | bc  |
| IS46.5RRSTS       | 4989                               | bcd |
| 4X5 SYN RR        | 4977                               | bcd |
| BIO4.51           | 4972                               | bcd |
| NS4309            | 4972                               | bcd |
| ASG4927           | 4961                               | bcd |
| CZ4306            | 4793                               | bcd |
| NK 49X20 IPRO STS | 4782                               | bcd |
| DM40R16STS        | 4782                               | bcd |
| SY 5X1 RR         | 4782                               | bcd |
| CZ4505STS         | 4624                               | cde |
| CZ4.97            | 4424                               | de  |
| BIO4.11           | 4042                               | e   |
| Promedio          | 4916                               |     |
| CV                | 5.7                                |     |
| DMS Variedad      | 599                                |     |
| p-value           | <0.01                              |     |



Localidad: **General Arenales\_SF**. Fecha de siembra 6/11

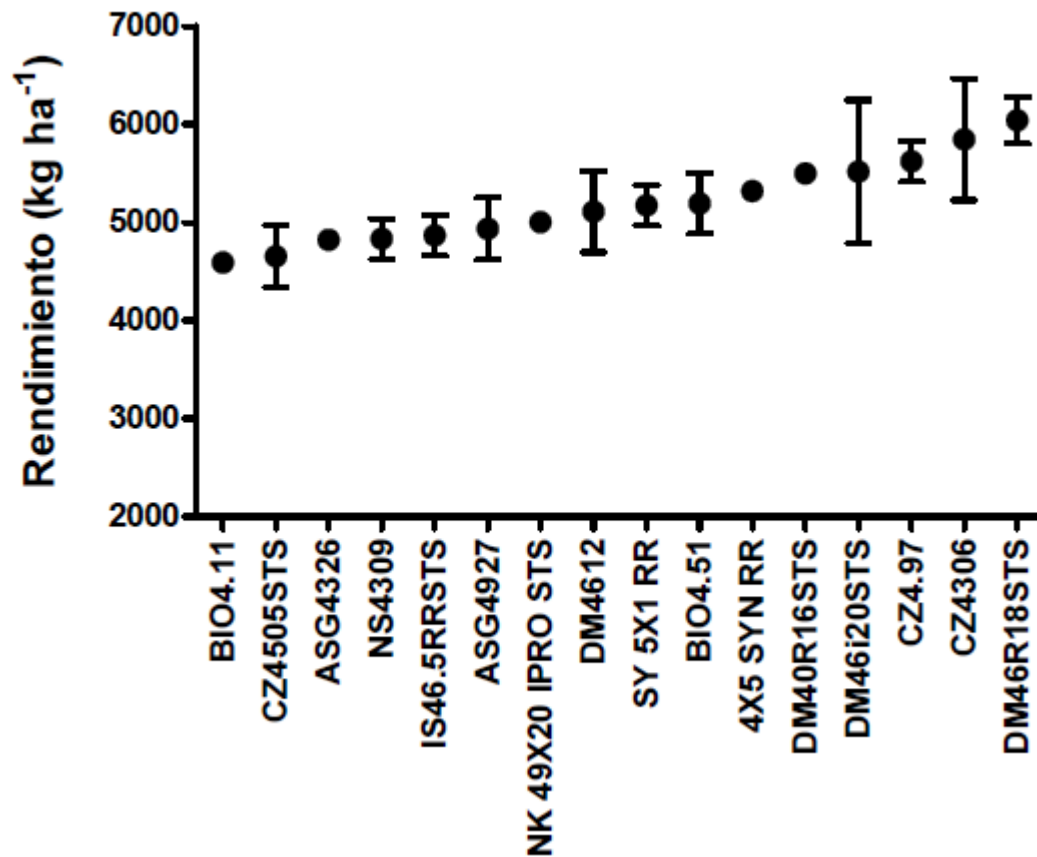
| Variedad          | Rendimiento<br>kg ha <sup>-1</sup> |      |
|-------------------|------------------------------------|------|
| DM46i20STS        | 5912                               | a    |
| ASG4326           | 5506                               | ab   |
| BIO4.51           | 5156                               | bc   |
| DM4612            | 5156                               | bc   |
| BIO4.11           | 5145                               | bc   |
| DM46R18STS        | 4989                               | bcd  |
| IS46.5RRSTS       | 4989                               | bcd  |
| CZ4306            | 4977                               | bcd  |
| 4X5 SYN RR        | 4972                               | bcde |
| NS4309            | 4972                               | bcde |
| CZ4505STS         | 4804                               | cde  |
| NK 49X20 IPRO STS | 4782                               | cde  |
| DM40R16STS        | 4777                               | cde  |
| ASG4927           | 4598                               | de   |
| SY 5X1 RR         | 4598                               | de   |
| CZ4.97            | 4429                               | e    |
| Promedio          | 4985                               |      |
| CV                | 5.1                                |      |
| DMS Variedad      | 544                                |      |
| p-value           | <0.01                              |      |





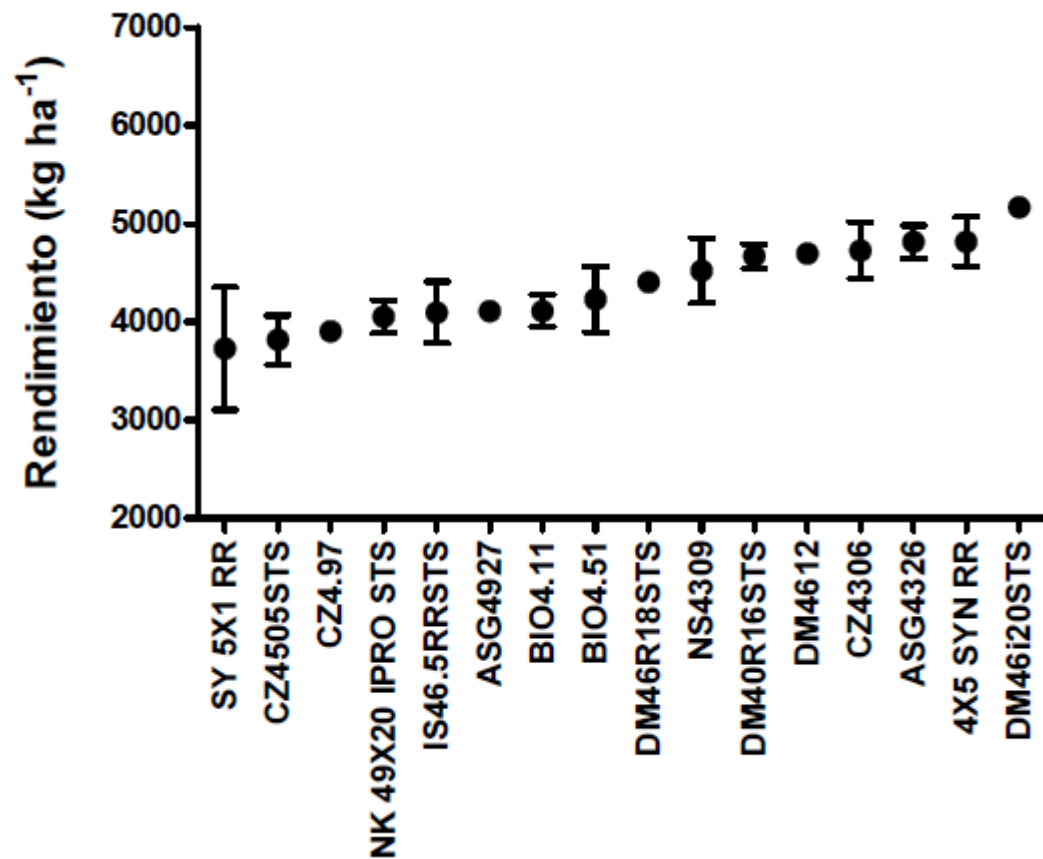
Localidad: **CANALS**. Fecha de siembra 2/11

| Variedad          | Rendimiento<br>kg ha <sup>-1</sup> |        |
|-------------------|------------------------------------|--------|
| DM46R18STS        | 6040                               | a      |
| CZ4306            | 5846                               | ab     |
| CZ4.97            | 5623                               | abc    |
| DM46i20STS        | 5518                               | abcd   |
| DM40R16STS        | 5499                               | abcde  |
| 4X5 SYN RR        | 5322                               | bcdef  |
| BIO4.51           | 5194                               | bcdefg |
| SY 5X1 RR         | 5174                               | bcdefg |
| DM4612            | 5109                               | cdefg  |
| NK 49x20 IPRO STS | 5003                               | cdefg  |
| ASG4927           | 4935                               | Defg   |
| IS46.5RRSTS       | 4867                               | Defg   |
| NS4309            | 4834                               | defg   |
| ASG4326           | 4823                               | efg    |
| CZ4505STS         | 4656                               | fg     |
| BIO4.11           | 4593                               | g      |
| Promedio          | 5190                               |        |
| CV                | 6.2                                |        |
| DMS Variedad      | 686                                |        |
| p-value           | <0.05                              |        |



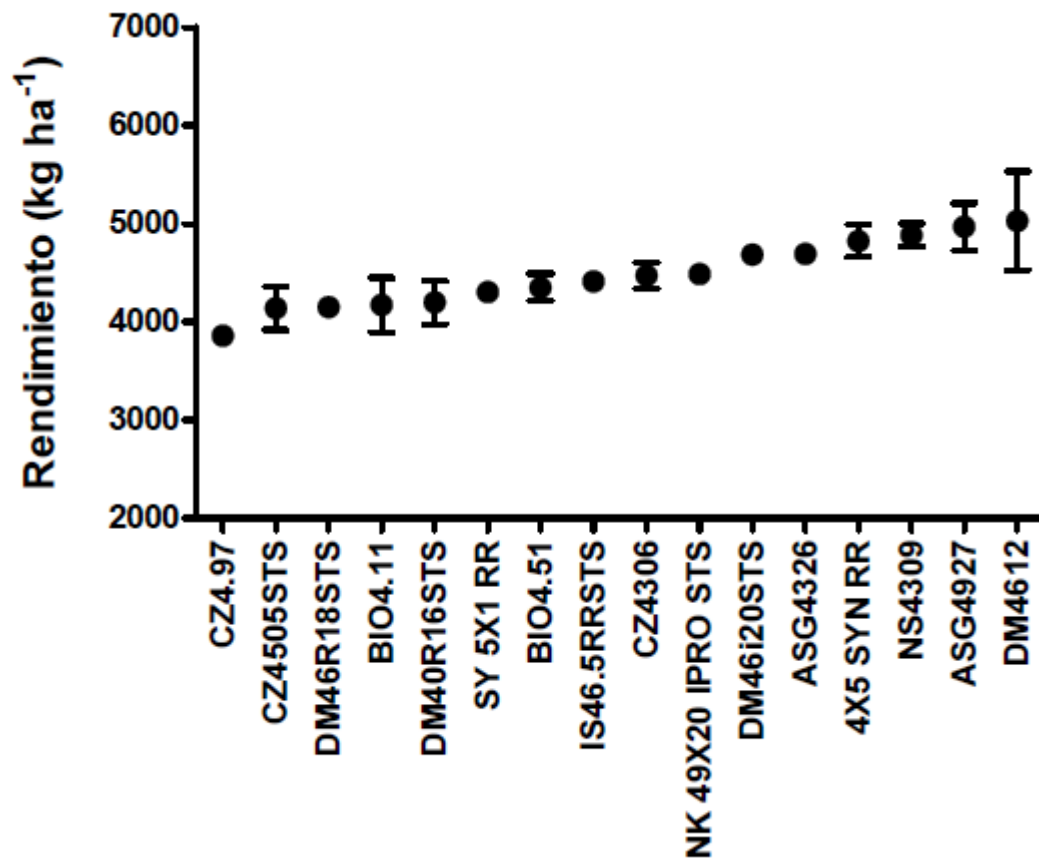
Localidad: **CHAPUY**. Fecha de siembra 5/11

| Variedad          | Rendimiento<br>kg ha <sup>-1</sup> |     |
|-------------------|------------------------------------|-----|
| DM46i20STS        | 5168                               | a   |
| 4X5 SYN RR        | 4815                               | ab  |
| ASG4326           | 4815                               | ab  |
| CZ4306            | 4727                               | bc  |
| DM4612            | 4698                               | bc  |
| DM40R16STS        | 4668                               | bc  |
| NS4309            | 4522                               | bcd |
| DM46R18STS        | 4404                               | cde |
| BIO4.51           | 4228                               | def |
| ASG4927           | 4111                               | efg |
| BIO4.11           | 4111                               | efg |
| IS46.5RRSTS       | 4096                               | efg |
| NK 49X20 IPRO STS | 4052                               | efg |
| CZ4.97            | 3905                               | fg  |
| CZ4505STS         | 3817                               | g   |
| SY 5X1 RR         | 3729                               | g   |
| Promedio          | 4367                               |     |
| CV                | 4.1                                |     |
| DMS Variedad      | 386                                |     |
| p-value           | <0.001                             |     |



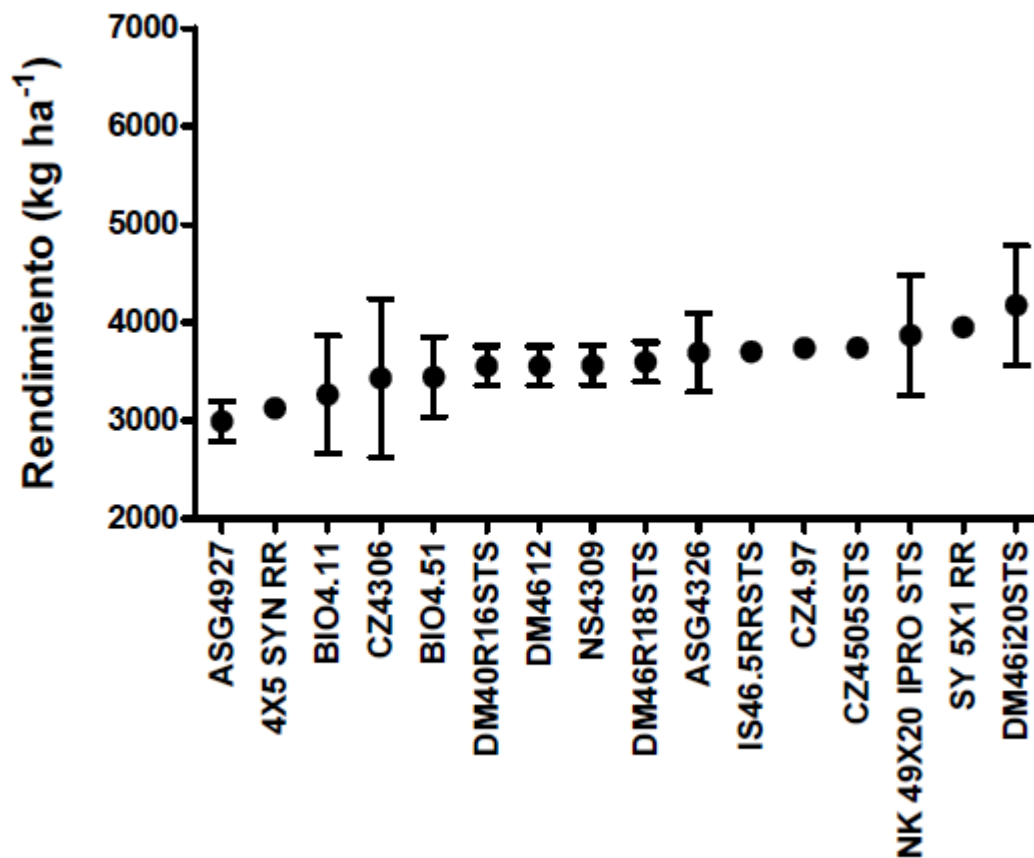
Localidad: **LOPEZ**. Fecha de siembra 13/11

| Variedad          | Rendimiento<br>kg ha <sup>-1</sup> |     |
|-------------------|------------------------------------|-----|
| DM4612            | 5031                               | a   |
| ASG4927           | 4968                               | a   |
| NS4309            | 4884                               | a   |
| 4X5 SYN RR        | 4823                               | ab  |
| ASG4326           | 4691                               | abc |
| DM46i20STS        | 4684                               | abc |
| NK 49X20 IPRO STS | 4485                               | bcd |
| CZ4306            | 4473                               | bcd |
| IS46.5RRSTS       | 4411                               | cd  |
| BIO4.51           | 4350                               | cd  |
| SY 5X1 RR         | 4305                               | cd  |
| DM40R16STS        | 4198                               | de  |
| BIO4.11           | 4172                               | de  |
| DM46R18STS        | 4152                               | de  |
| CZ4505STS         | 4140                               | de  |
| CZ4.97            | 3861                               | e   |
| Promedio          | 4477                               |     |
| CV                | 4.1                                |     |
| DMS Variedad      | 398                                |     |
| p-value           | <0.001                             |     |



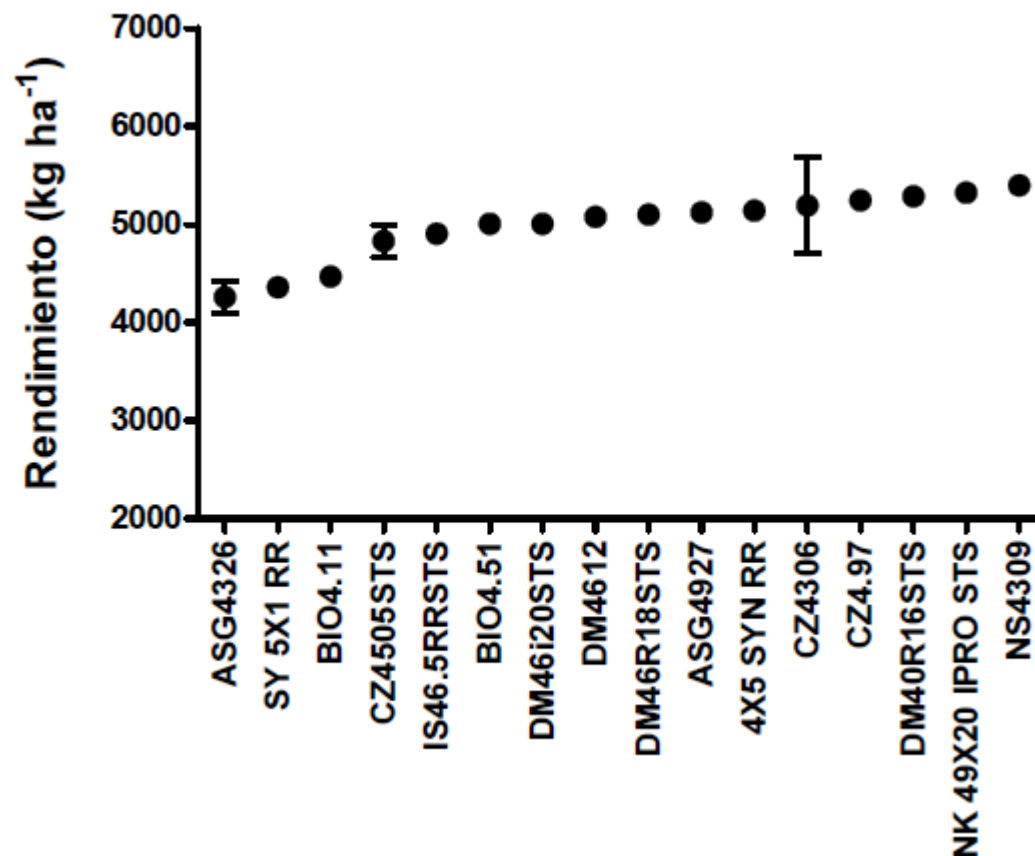
Localidad: **M\_TERESA**. Fecha de siembra 7/11

| Variedad          | Rendimiento<br>kg ha <sup>-1</sup> |      |
|-------------------|------------------------------------|------|
| DM46i20STS        | 4176                               | a    |
| SY 5X1 RR         | 3951                               | ab   |
| NK 49X20 IPRO STS | 3870                               | ab   |
| CZ4505STS         | 3744                               | abc  |
| CZ4.97            | 3740                               | abc  |
| IS46.5RRSTS       | 3700                               | abc  |
| ASG4326           | 3692                               | abc  |
| DM46R18STS        | 3596                               | abcd |
| NS4309            | 3562                               | abcd |
| DM40R16STS        | 3558                               | abcd |
| DM4612            | 3558                               | abcd |
| BIO4.51           | 3444                               | bcd  |
| CZ4306            | 3432                               | bcd  |
| BIO4.11           | 3266                               | bcd  |
| 4X5 SYN RR        | 3127                               | cd   |
| ASG4927           | 2992                               | d    |
| Promedio          | 3588                               |      |
| CV                | 9.1                                |      |
| DMS Variedad      | 697                                |      |
| p-value           | p=0.16                             |      |



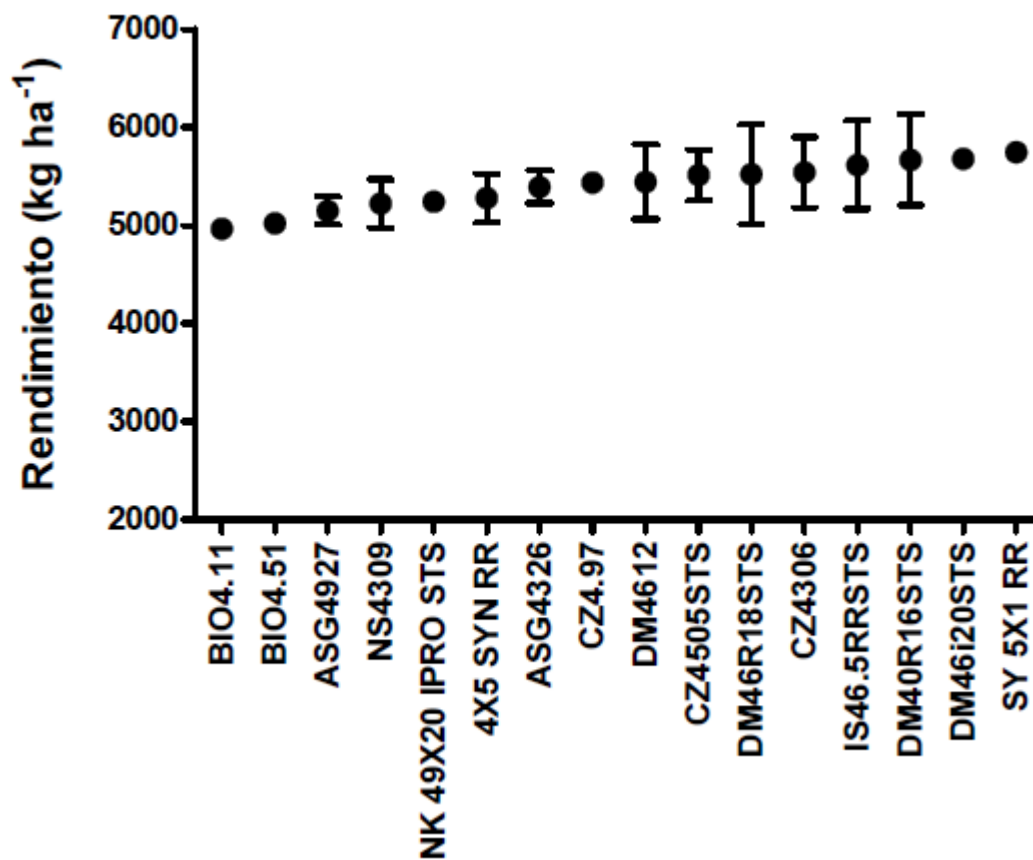
Localidad: **PUJATO**. Fecha de siembra 13/11

| Variedad          | Rendimiento<br>kg ha <sup>-1</sup> |       |
|-------------------|------------------------------------|-------|
| NS4309            | 5399                               | a     |
| NK 49X20 IPRO STS | 5323                               | ab    |
| DM40R16STS        | 5287                               | abc   |
| CZ4.97            | 5244                               | abc   |
| CZ4306            | 5193                               | abcd  |
| 4X5 SYN RR        | 5141                               | abcd  |
| ASG4927           | 5123                               | abcde |
| DM46R18STS        | 5100                               | abcde |
| DM4612            | 5077                               | bcde  |
| BIO4.51           | 5008                               | cde   |
| DM46i20STS        | 5008                               | cde   |
| IS46.5RRSTS       | 4904                               | de    |
| CZ4505STS         | 4830                               | e     |
| BIO4.11           | 4468                               | f     |
| SY 5X1 RR         | 4360                               | f     |
| ASG4326           | 4260                               | f     |
| Promedio          | 4983                               |       |
| CV                | 2.9                                |       |
| DMS Variedad      | 310                                |       |
| p-value           | <0.001                             |       |



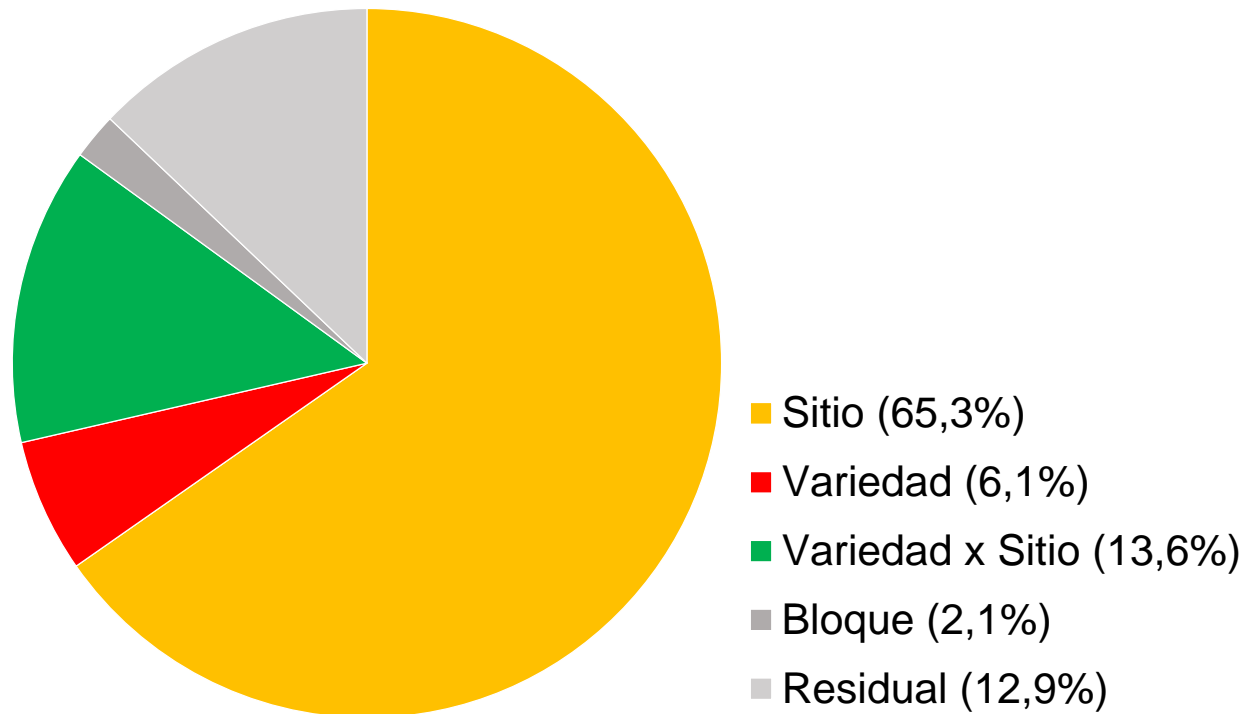
Localidad: **VIAMONTE**. Fecha de siembra 11/11

| Variedad          | Rendimiento<br>kg ha <sup>-1</sup> |      |
|-------------------|------------------------------------|------|
| SY 5X1 RR         | 5745                               | a    |
| DM46i20STS        | 5677                               | ab   |
| DM40R16STS        | 5669                               | ab   |
| IS46.5RRSTS       | 5617                               | ab   |
| CZ4306            | 5542                               | abc  |
| DM46R18STS        | 5522                               | abc  |
| CZ4505STS         | 5513                               | abc  |
| DM4612            | 5442                               | abcd |
| CZ4.97            | 5436                               | abcd |
| ASG4326           | 5391                               | abcd |
| 4X5 SYN RR        | 5279                               | abcd |
| NK 49X20 IPRO STS | 5242                               | abcd |
| NS4309            | 5222                               | abcd |
| ASG4927           | 5148                               | bcd  |
| BIO4.51           | 5020                               | cd   |
| BIO4.11           | 4965                               | d    |
| Promedio          | 5402                               |      |
| CV                | 4.7                                |      |
| DMS Variedad      | 544                                |      |
| p-value           | p=0.15                             |      |



# Análisis conjunto de los 8 sitios

## Porcentaje de la variación de rendimiento asociada a cada efecto



## Densidad de plantas (pl m<sup>-2</sup>)

| Variedad          | ARE_CF | ARE_SF | CANALS | CHAPUY | LOPEZ | M_TERESA | PUJATO | VIAMONTE |
|-------------------|--------|--------|--------|--------|-------|----------|--------|----------|
| SY 5X1 RR         | 49     | 49     | 39     | 30     | 22    | 38       | 40     | 25       |
| IS46.5RRSTS       | 49     | 49     | 28     | 29     | 31    | 38       | 32     | 26       |
| DM46i20STS        | 43     | 43     | 32     | 30     | 17    | 33       | 39     | 32       |
| CZ4306            | 40     | 40     | 31     | 30     | 24    | 38       | 40     | 26       |
| ASG4927           | 44     | 44     | 27     | 28     | 30    | 36       | 35     | 22       |
| BIO4.51           | 49     | 49     | 28     | 30     | 30    | 31       | 33     | 18       |
| DM46R18STS        | 38     | 38     | 32     | 31     | 27    | 31       | 37     | 27       |
| 4X5 SYN RR        | 39     | 39     | 30     | 29     | 23    | 38       | 36     | 27       |
| BIO4.11           | 45     | 45     | 29     | 27     | 19    | 35       | 37     | 21       |
| CZ4.97            | 38     | 38     | 28     | 25     | 33    | 31       | 31     | 23       |
| ASG4326           | 38     | 38     | 29     | 28     | 20    | 30       | 38     | 24       |
| CZ4505STS         | 36     | 36     | 29     | 29     | 25    | 30       | 33     | 27       |
| NK 49x20 IPRO STS | 40     | 40     | 26     | 29     | 23    | 30       | 34     | 23       |
| NS4309            | 38     | 38     | 29     | 27     | 24    | 29       | 36     | 20       |
| DM4612            | 41     | 41     | 29     | 28     | 21    | 30       | 30     | 21       |
| DM40R16STS        | 34     | 34     | 32     | 27     | 22    | 33       | 40     | 21       |
| Promedio          | 41     | 41     | 30     | 29     | 24    | 33       | 36     | 24       |
| % Superior        | 20     | 20     | 31     | 9      | 35    | 15       | 13     | 32       |
| % Inferior        | -18    | -18    | -14    | -13    | -30   | -13      | -15    | -25      |
| CV                | 4.7    | 4.7    | 8.4    | -      | 8.1   | 2.6      | 4.0    | 10.7     |

*% Superior e Inferior indica el rango de variación de la densidad entre variedades en porcentaje respecto a la media del sitio.*



## Vuelco.

Escala subjetiva donde a mayor valor, menos vuelco.

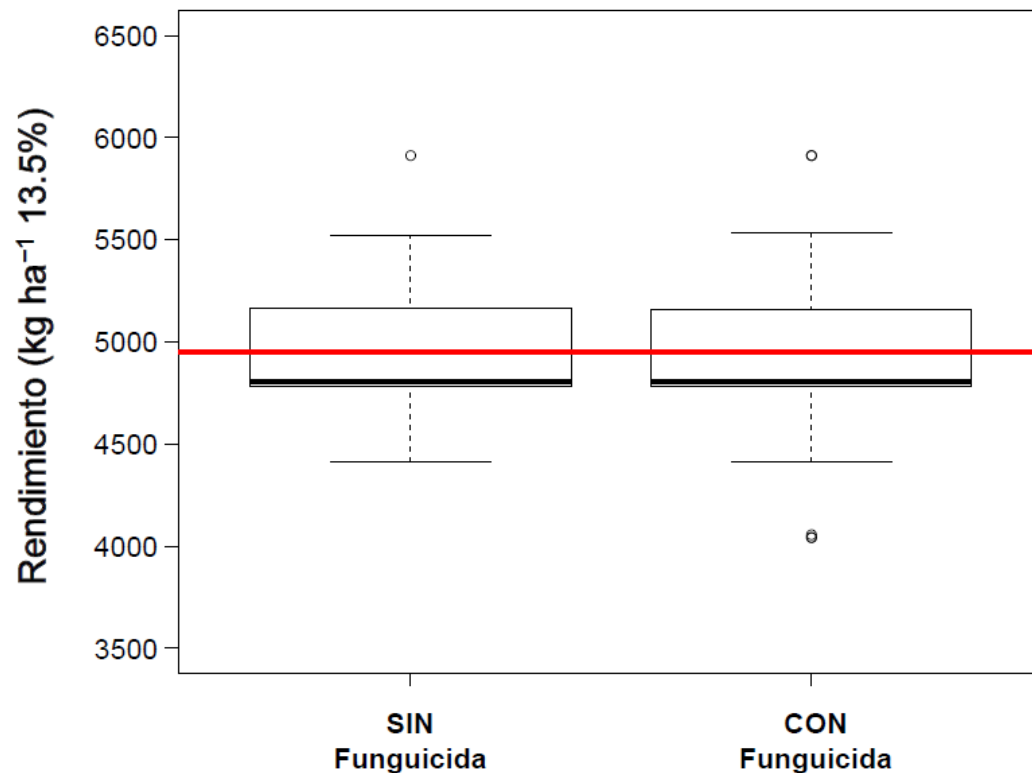
| Variedad          | PROMEDIO       | ARE_CF | ARE_SF | CANALS | M_TERESA |
|-------------------|----------------|--------|--------|--------|----------|
| 4X5 SYN RR        | 90             | 90     | 90     | 90     | 90       |
| CZ4306            | 90             | 90     | 90     | 90     | 90       |
| DM46i20STS        | 89             | 90     | 90     | 90     | 85       |
| DM40R16STS        | 86             | 85     | 85     | 85     | 90       |
| IS46.5RRSTS       | 85             | 80     | 80     | 90     | 90       |
| NK 49X20 IPRO STS | 84             | 85     | 90     | 90     | 70       |
| BIO4.11           | 83             | 80     | 75     | 90     | 85       |
| CZ4505STS         | 83             | 80     | 85     | 90     | 75       |
| ASG4927           | 83             | 80     | 80     | 85     | 85       |
| DM4612            | 80             | 75     | 75     | 85     | 85       |
| ASG4326           | 80             | 75     | 75     | 85     | 85       |
| DM46R18STS        | 79             | 70     | 70     | 90     | 85       |
| NS4309            | 75             | 70     | 70     | 85     | 75       |
| SY 5X1 RR         | 70             | 70     | 60     | 70     | 80       |
| BIO4.51           | 63             | 55     | 60     | 65     | 70       |
| CZ4.97            | 54             | 55     | 50     | 50     | 60       |
|                   | <i>p-value</i> | <0.01  | <0.001 | <0.001 | <0.001   |



# Resultados ensayo con funguicida en fecha temprana 2019-2020

## GRAL. ARENALES:

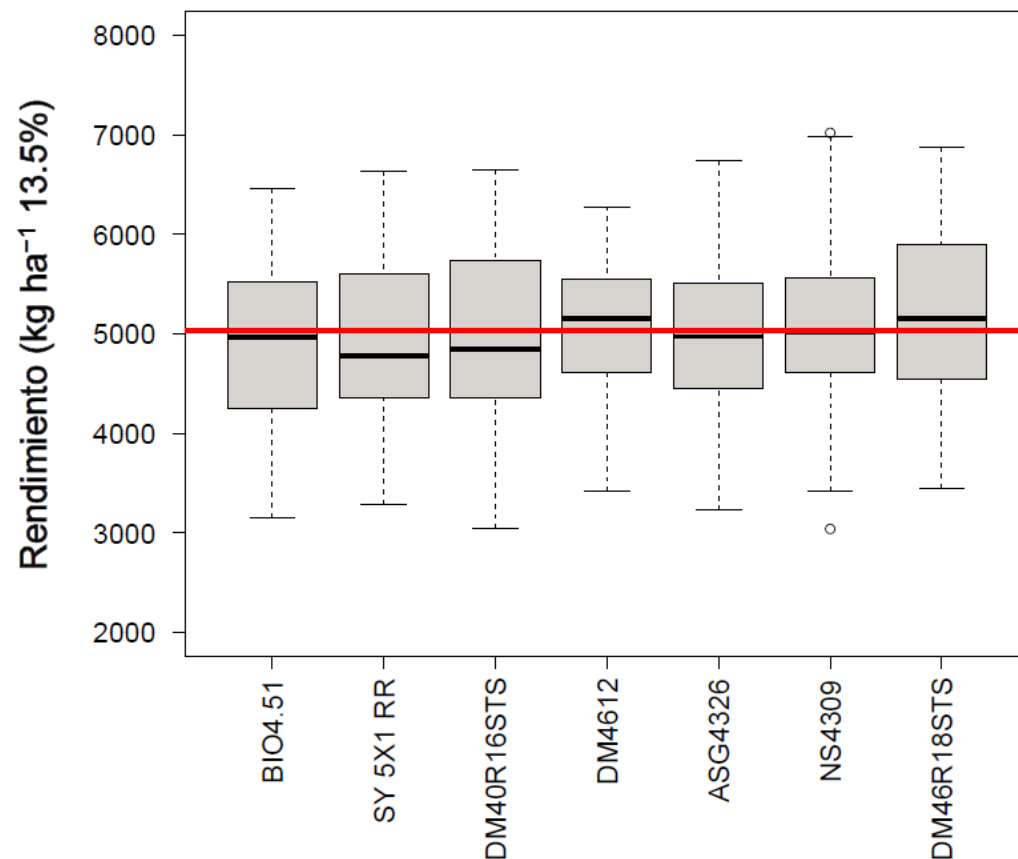
| Efecto                 | p-value |
|------------------------|---------|
| Tratamiento            | ns      |
| Variedad               | <0.001  |
| Tratamiento x Variedad | ns      |



REGIÓN SUR  
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# Análisis de las últimas dos campañas de la Red (2018-19 + 2019-20)

| Variedad     | Rendimiento<br>kg ha <sup>-1</sup> |    |
|--------------|------------------------------------|----|
| DM46R18STS   | 5185                               | a  |
| NS4309       | 5094                               | ab |
| ASG4326      | 5065                               | ab |
| DM4612       | 5020                               | b  |
| DM40R16STS   | 5004                               | bc |
| SY 5x1 RR    | 4972                               | bc |
| BIO4.51      | 4890                               | c  |
| Promedio     | 5033                               |    |
| DMS Variedad | 125                                |    |
| p-value      | <0.001                             |    |



19 sitios. Rango ambiental: 3623 – 6555 kg ha<sup>-1</sup>

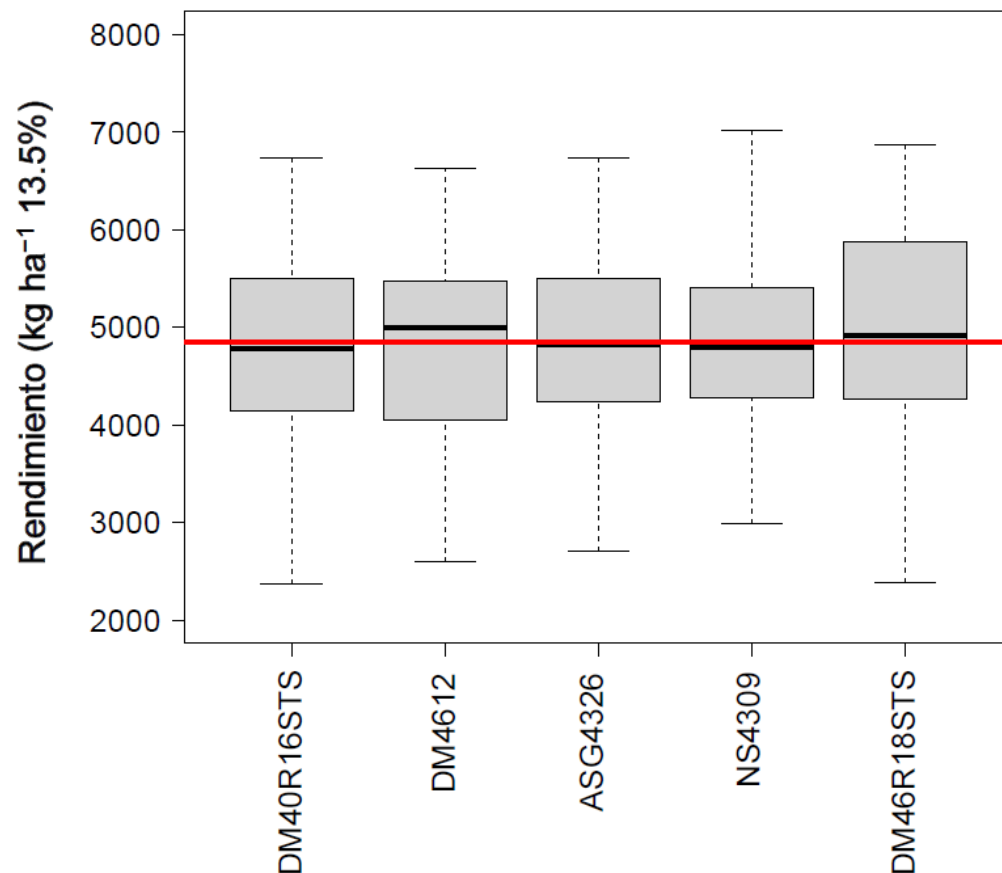
*Para rinde en verde se destacan los genotipos de máximos rinde, y que no son diferentes estadísticamente.*



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# Análisis de las últimas tres campañas de la Red (2017-18 + 2018-19 + 2019-20)

| Variedad     | Rendimiento<br>kg ha <sup>-1</sup> |    |
|--------------|------------------------------------|----|
| DM46R18STS   | 4932                               | a  |
| NS4309       | 4866                               | ab |
| ASG4326      | 4845                               | ab |
| DM4612       | 4812                               | b  |
| DM40R16STS   | 4807                               | b  |
| Promedio     | 4852                               |    |
| DMS Variedad | 105                                |    |
| p-value      | =0.12                              |    |



26 sitios. Rango ambiental: 2744 – 6555 kg ha<sup>-1</sup>

*Para rinde en verde se destacan los genotipos de máximos rinde, y que no son diferentes estadísticamente.*



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# Red de Variedades de Soja de Primera CREA SSF 2019-2020

## Coordinación de ensayos:

- Lic. Guillermo Marccasini
- Ing. Agr. Santiago Gallo



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## Análisis:

- Dra. Brenda Gambin
- Ing. Agr. Lucas Vitantonio-Mazzini
- Dr. Lucas Borrás



I I C A R