

# Supplementary Materials

**Table S1.** Data regarding anastomosis groups of *R. solani* associated with alfalfa and clover.

| S. No | Common name | Anastomosis Group | Accession numbers | Isolates | Pathogenicity                 | Geographic origin | References |
|-------|-------------|-------------------|-------------------|----------|-------------------------------|-------------------|------------|
| 1     | Alfalfa     | AG4-HG-II         | AF354074          | 7Rs      | Seed rot and damp-<br>ing-off | USA               | [20]       |
| 2     | Alfalfa     | AG4-HG-II         | AJ302010          | Eab-aB   | "                             | Spain             | "          |
| 3     | Alfalfa     | AG1-IA            | MH014991          | SZ-01    | Root rot                      | China             | [70]       |
| 4     | Clover      | AG11              | LC215407          | R942     | Blight and sheath rot         | Japan             | [71]       |
| 5     | Clover      | AG1-IB            | HF678126          | BSYY21   | Summer blight                 | China             | [17]       |
| 6     | Clover      | AG1-IB            | HF678125          | BSYY32   | "                             | China             | "          |
| 7     | Clover      | AG1-IB            | HF678123          | BSYY14   | "                             | China             | "          |
| 8     | Clover      | AG1-IB            | HF678122          | BSYY11   | "                             | China             | "          |
| 9     | Clover      | AG1-IB            | HF571130          | BSYY31   | "                             | China             | "          |
| 10    | Clover      | AG1-IB            | KC572140          | AG-1-IB  | "                             | China             | "          |

**Table S2.** Data regarding anastomosis groups of *R. solani* associated with cowpea and peanut.

| S. No | Common name | Anastomosis Group | Accession numbers | Isolates     | Pathogenicity     | Geographic origin | References       |
|-------|-------------|-------------------|-------------------|--------------|-------------------|-------------------|------------------|
| 1     | Cow pea     | unk               | KY684288          | SQU141<br>29 | Root and stem rot | Oman              | [13]             |
| 2     | Cow pea     | unk               | KY684287          | SQU141<br>35 | Root and stem rot | Oman              | [13]             |
| 3     | Cow pea     | AG1-IA            | MG923316          | FM           | Leaf blight       | Brazil            | [72]             |
| 4     | Peanut      | AG4               | FR846463          | Rs185        | Root rot          | USA               | [73]             |
| 5     | Peanut      | AG1-IA            | EF429214          | DP38         |                   | Vietnam           | Un-<br>published |
| 6     | Peanut      | AG3               | KJ380766          | BN31         |                   | USA               | Un-<br>published |
| 7     | Peanut      | AG4-HGI           | KJ380743          | AH-1         |                   | Japan             | Un-<br>published |
| 8     | Peanut      | AG4-HGI           | JQ616861          | RS12         |                   | Argentina         | Un-<br>published |

**Table S3.** Data regarding anastomosis groups of *R. solani* associated with chickpeas.

| S. No | Anastomosis Group | Accession numbers | Isolates | Pathogenicity                  | Geographical origin | References |
|-------|-------------------|-------------------|----------|--------------------------------|---------------------|------------|
| 1     | AG4-HGII          | MH231515          | K10      | Root and collar rot            | Turkey              | [24]       |
| 2     | AG4-HGII          | MH231514          | K9       | Root rot                       | Turkey              | "          |
| 3     | AG4-HGII          | MH231513          | K8       | "                              | Turkey              | "          |
| 4     | AG4-HGII          | MH231512          | K7       | "                              | Turkey              | "          |
| 5     | AG4-HGII          | MH231511          | U14      | "                              | Turkey              | ""         |
| 6     | AG4-HGII          | MH231510          | U13      | "                              | Turkey              |            |
| 7     | AG4-HGII          | MH231509          | U12      | "                              | Turkey              | "          |
| 8     | AG4-HGII          | MH231508          | U11      | "                              | Turkey              | "          |
| 9     | AG4-HGII          | MH231507          | U6       | "                              | Turkey              | "          |
| 10    | AG4-HGII          | MH231506          | U2       | "                              | Turkey              | "          |
| 11    | AG4-HGII          | MH231505          | U1       | "                              | Turkey              | "          |
| 12    | AG4-HGII          | MH231504          | IS29     | "                              | Turkey              | "          |
| 13    | AG4-HGII          | MH231503          | IS15     | "                              | Turkey              | "          |
| 14    | AG4-HGII          | MH231502          | IS10     | "                              | Turkey              | "          |
| 15    | AG4-HGII          | MH231501          | IS9      | "                              | Turkey              | "          |
| 16    | AG4-HGII          | MH231500          | IS7      | "                              | Turkey              | "          |
| 17    | AG4-HGII          | MH231499          | D10      | "                              | Turkey              | "          |
| 18    | AG4-HGII          | MH231498          | D8       | "                              | Turkey              | "          |
| 19    | AG4-HGII          | MH231497          | D6       | "                              | Turkey              | "          |
| 20    | AG4-HGII          | MH231496          | D5       | "                              | Turkey              | "          |
| 21    | AG4-HGII          | MH231495          | D4       | "                              | Turkey              | "          |
| 22    | AG4-HGII          | MH231494          | D2       | "                              | Turkey              | "          |
| 23    | AG4-HGII          | MH231493          | D1       | "                              | Turkey              | "          |
| 24    | AG3               | JF701783          | RUPG106  | Web/foliar blight/wet root rot | India               | [14]       |
| 25    | AG5               | JF701764          | RRJG1    | "                              | India               | "          |
| 26    | AG1               | JF701755          | RMHG24   | "                              | India               | "          |
| 27    | AG1               | JF701751          | RMPG29   | "                              | India               | "          |
| 28    | AG2-3             | JF701750          | RMPG28   | "                              | India               | "          |
| 29    | AG5               | JF701722          | RGJG2    | "                              | India               | "          |
| 30    | AG3               | JF701718          | RDLG3    | "                              | India               | "          |
| 31    | AG2-3             | JF701708          | RAPG14   | "                              | India               | "          |
| 32    | AG4               | EU730836          | R176     | Root rot                       | Canada              | [50]       |
| 33    | AG10              | DQ356408          | Rh100278 | Root rot                       | USA                 | [38]       |

**Table S4.** Data regarding anastomosis groups of *R. solani* associated with common beans.

| S. No | Anastomosis Group | Accession numbers | Isolates   | Pathogenicity                  | Geo-graphic origin | References |
|-------|-------------------|-------------------|------------|--------------------------------|--------------------|------------|
| 1     | AG2-2 IIIB        | FJ492171.3        | F561       | Root rot                       | USA                | [74]       |
| 2     | AG2-2 IIIB        | FJ492170.3        | F560       | Root rot                       | USA                | "          |
| 3     | AG1-IE            | AF308629.2        | PR5        | Web blight                     | Puerto Rico        | [15]       |
| 4     | AG1-IF            | AF308627.2        | H32        | "                              | Honduras           | "          |
| 5     | AG1-IF            | AF308625.2        | DR-BV1     | "                              | Dominican Republic | "          |
| 6     | AG2-2 WB          | AF308621.2        | A4         | "                              | Argentina          | "          |
| 7     | AG2-2 WB          | DQ452119          | Barranca   | "                              | Dominican Republic | "          |
| 8     | AG2-2 WB          | DQ452115          | AL2002     | "                              | Dominican Republic | "          |
| 9     | AG2-2 WB          | DQ452111          | EB3        | "                              | Ecuador            | "          |
| 10    | AG2-2 WB          | DQ452110          | DR-LV-1    | "                              | Dominican Republic | "          |
| 11    | AG2-2 WB          | DQ452109          | Los_Bancos | "                              | Dominican Republic | "          |
| 12    | AG2-2 WB          | DQ452108          | H43        | "                              | Honduras           | "          |
| 13    | AG2-2 WB          | DQ452104          | H2002-1    | "                              | Honduras           | "          |
| 14    | AG2-2 WB          | DQ452102          | E8-1       | "                              | Ecuador            | "          |
| 15    | AG2-2 WB          | DQ452101          | E3-3       | "                              | Ecuador            | "          |
| 16    | AG2-2 WB          | DQ452100          | E2-1       | "                              | Ecuador            | "          |
| 17    | AG2-2 WB          | DQ452099          | E1-1       | "                              | Ecuador            | "          |
| 18    | AG2-2 WB          | DQ452098          | MGB1       | "                              | Honduras           | "          |
| 19    | AG4-HGII          | HE805667          | M47ZD      | Seed and root rot, damping off | Turkey             | [41]       |
| 20    | AG4-HGI           | HE805691          | M91KK      | "                              | Turkey             | "          |
| 21    | AG4-HGII          | HE805690          | M47ZD      | "                              | Turkey             | "          |
| 22    | AG4-HGI           | HE805689          | M46ZA      | "                              | Turkey             | "          |
| 23    | AG4-HGI           | HE805688          | M72GP      | "                              | Turkey             | "          |
| 24    | AG4-HGI           | HE805687          | M54ZG      | "                              | Turkey             | "          |
| 25    | AG4-HGI           | HE805686          | M67ZA      | "                              | Turkey             | "          |
| 26    | AG4-HGI           | HE805685          | M88GE      | "                              | Turkey             | "          |
| 27    | AG4-HGI           | HE805684          | M89GE      | "                              | Turkey             | "          |
| 28    | AG4-HGI           | HE805683          | M75GP      | "                              | Turkey             | "          |
| 29    | AG4-HGI           | HE805682          | M63ZC      | "                              | Turkey             | "          |
| 30    | AG4-HGI           | HE805681          | M93KD      | "                              | Turkey             | "          |
| 31    | AG4-HGI           | HE805680          | M86GD      | "                              | Turkey             | "          |
| 32    | AG4-HGI           | HE805679          | M76GK      | "                              | Turkey             | "          |
| 33    | AG4-HGI           | HE805678          | M51KM      | "                              | Turkey             | "          |
| 34    | AG4-HGI           | HE805677          | M52GD      | "                              | Turkey             | "          |

|    |          |          |        |            |           |      |
|----|----------|----------|--------|------------|-----------|------|
| 35 | AG4-HGI  | HE805676 | M69ZC  | "          | Turkey    | "    |
| 36 | AG4-HGI  | HE805675 | M64ZG  | "          | Turkey    | "    |
| 37 | AG4-HGI  | HE805674 | M74GK  | "          | Turkey    | "    |
| 38 | AG4-HGI  | HE805673 | M56KD  | "          | Turkey    | "    |
| 39 | AG4-HGI  | HE805672 | M70ZG  | "          | Turkey    | "    |
| 40 | AG4-HGI  | HE805671 | M62ZG  | "          | Turkey    | "    |
| 41 | AG4-HGI  | HE805670 | M57KM  | "          | Turkey    | "    |
| 42 | AG4-HGII | HE805669 | M60SA  | "          | Turkey    | "    |
| 43 | AG4-HGII | HE805668 | M48KP  | "          | Turkey    | "    |
| 44 | AG4-HGI  | HE805666 | M91KK  | "          | Turkey    | "    |
| 45 | AG2-2WB  | KU361244 | Rs98B  | Web blight | Argentina | [23] |
| 46 | AG2-2WB  | KU361245 | Rs99B  | "          | Argentina | "    |
| 47 | AG2-2WB  | KU361246 | Rs100B | "          | Argentina | "    |
| 48 | AG2-2WB  | KU361247 | Rs106B | "          | Argentina | "    |
| 49 | AG2-2WB  | KU361248 | Rs107B | "          | Argentina | "    |
| 50 | AG2-2WB  | KU361249 | Rs108B | "          | Argentina | "    |
| 51 | AG2-2WB  | KU361250 | Rs109B | "          | Argentina | "    |
| 52 | AG2-2WB  | KU361251 | Rs110B | "          | Argentina | "    |
| 53 | AG2-2WB  | KU361252 | Rs112B | "          | Argentina | "    |
| 54 | AG2-2WB  | KU361253 | Rs113B | "          | Argentina | "    |
| 55 | AG2-2WB  | KU361254 | Rs114B | "          | Argentina | "    |
| 56 | AG2-2WB  | KU361255 | Rs115B | "          | Argentina | "    |
| 57 | AG2-2WB  | KU361256 | Rs117B | "          | Argentina | "    |
| 58 | AG2-2WB  | KU361257 | Rs118B | "          | Argentina | "    |
| 59 | AG2-2WB  | KU361258 | Rs119B | "          | Argentina | "    |
| 60 | AG2-2WB  | KU361259 | Rs121B | "          | Argentina | "    |
| 61 | AG2-2WB  | KU361260 | Rs122B | "          | Argentina | "    |
| 62 | AG2-2WB  | KU361261 | Rs130B | "          | Argentina | "    |
| 63 | AG2-2WB  | KU361262 | Rs131B | "          | Argentina | "    |
| 64 | AG2-2WB  | KU361263 | Rs133B | "          | Argentina | "    |
| 65 | AG2-2WB  | KU361264 | Rs134B | "          | Argentina | "    |
| 66 | AG2-2WB  | KU361265 | Rs136B | "          | Argentina | "    |
| 67 | AG2-2WB  | KU361266 | Rs137B | "          | Argentina | "    |
| 68 | AG2-2WB  | KU361267 | Rs139B | "          | Argentina | "    |
| 69 | AG2-2WB  | KU361268 | Rs141B | "          | Argentina | "    |
| 70 | AG2-2WB  | KU361269 | Rs144B | "          | Argentina | "    |
| 71 | AG2-2WB  | KU361270 | Rs146B | "          | Argentina | "    |
| 72 | AG2-2WB  | KU361271 | Rs147B | "          | Argentina | "    |
| 73 | AG2-2WB  | KU361272 | Rs148B | "          | Argentina | "    |
| 74 | AG2-2WB  | KU361273 | Rs151B | "          | Argentina | "    |
| 75 | AG2-2WB  | KU361274 | Rs153B | "          | Argentina | "    |
| 76 | AG2-2WB  | KU361275 | Rs154B | "          | Argentina | "    |
| 77 | AG2-2WB  | KU361276 | Rs159B | "          | Argentina | "    |
| 78 | AG2-2WB  | KU361277 | Rs160B | "          | Argentina | "    |
| 79 | AG2-2WB  | KU361278 | Rs167B | "          | Argentina | "    |
| 80 | AG2-2WB  | KU361279 | Rs169B | "          | Argentina | "    |
| 81 | AG2-2WB  | KU361280 | Rs170B | "          | Argentina | "    |

|    |         |          |          |   |           |   |
|----|---------|----------|----------|---|-----------|---|
| 82 | AG2-2WB | KU361281 | Rs171B   | “ | Argentina | “ |
| 83 | AG2-2WB | KU361282 | Rs172B   | “ | Argentina | “ |
| 84 | AG2-2WB | KU361283 | Rs174B   | “ | Argentina | “ |
| 85 | AG2-2WB | KU361284 | Rs175B   | “ | Argentina | “ |
| 86 | AG2-2WB | KU361285 | Rs176B   | “ | Argentina | “ |
| 87 | AG2-2WB | KU361286 | Rs177B   | “ | Argentina | “ |
| 88 | AG2-2WB | KU361287 | Rs178B   | “ | Argentina | “ |
| 89 | AG2-2WB | KU361288 | Rs180B   | “ | Argentina | “ |
| 90 | AG2-2WB | KU361289 | Rs183B   | “ | Argentina | “ |
| 91 | AG2-2WB | KU361290 | Rs295/1B | “ | Argentina | “ |
| 92 | AG2-2WB | KU361291 | Rs295/2B | “ | Argentina | “ |
| 93 | AG2-2WB | KU361292 | Rs295/3B | “ | Argentina | “ |
| 94 | AG2-2WB | KU361293 | Rs295/4B | “ | Argentina | “ |

**Table S5.** Data regarding anastomosis groups of *R. solani* associated with pea.

| Iso-lates | Anastomosis Group | Accession number | Isolates | Patho-genicity                  | Geographic origin | References |
|-----------|-------------------|------------------|----------|---------------------------------|-------------------|------------|
| 1         | AG-4              | EU730828         | R93      | Seedling blight and root rot    | Canada            | [50]       |
| 2         | AG-4              | EU730827         | R92      | “                               | Canada            | “          |
| 3         | AG-4              | EU730821         | R73      | “                               | Canada            | “          |
| 4         | AG-4              | EU730820         | R71      | “                               | Canada            | “          |
| 5         | AG2-2             | JF701756         | RMHP21   | Web/fo-liar blight/wet root rot | India             | [14]       |
| 6         | AG-4              | JF701752         | RMPP30   | “                               | India             | “          |
| 7         | AG4-HGII          | HQ629876         | ND17     | Root and stem rot               | USA               | [40]       |
| 8         | AG4-HGII          | HQ629875         | ND14     | “                               | USA               | “          |
| 9         | AG5               | HQ629874         | ND2      | “                               | USA               | “          |
| 10        | AG4-HGII          | HQ629873         | ND13     | “                               | USA               | “          |
| 11        | AG4-HGII          | HQ629872         | ND12     | “                               | USA               | “          |
| 12        | AG4-HGII          | HQ629871         | ND11     | “                               | USA               | “          |
| 13        | AG4-HGII          | HQ629870         | ND10     | “                               | USA               | “          |
| 14        | AG4-HGII          | HQ629869         | ND9      | “                               | USA               | “          |
| 15        | AG4-HGII          | HQ629868         | ND8      | “                               | USA               | “          |
| 16        | AG4-HGII          | HQ629867         | ND7      | “                               | USA               | “          |
| 17        | AG4-HGII          | HQ629866         | ND6      | “                               | USA               | “          |
| 18        | AG4-HGII          | HQ629865         | ND16     | “                               | USA               | “          |
| 19        | AG4-HGII          | HQ629864         | ND15     | “                               | USA               | “          |
| 20        | AG4-HGII          | HQ629862         | ND5      | “                               | USA               | “          |
| 21        | AG4-HGII          | HQ629861         | ND4      | “                               | USA               | “          |
| 22        | AG4-HGII          | HQ629860         | ND3      | “                               | USA               | “          |
| 23        | AG4-HGII          | HQ629859         | ND2      | “                               | USA               | “          |

|    |          |          |           |                                |        |      |
|----|----------|----------|-----------|--------------------------------|--------|------|
| 24 | AG4-HGII | HQ629858 | ND1       | “                              | USA    | “    |
| 25 | AG2-1    | KF870891 | 10-D4_16R | Root and stem rot, damping off | Canada | [75] |
| 26 | AG2-1    | U57722   | 021R01    | None                           | Japan  | [21] |

**Table S6.** Data regarding anastomosis groups of *R. solani* associated with soybean.

| Isolates | Anastomosis Group | Accession numbers | Isolates     | Pathogenicity                       | Geographic origin | References |
|----------|-------------------|-------------------|--------------|-------------------------------------|-------------------|------------|
| 1        | AG1-IA            | AF354060          | 1Rs          |                                     | USA               | [22]       |
| 2        | AG5               | AF354078          | 10Rs         |                                     | Japan             | “          |
| 3        | AG5               | KX118386          | USA_AG-5     | Damping off, root and hypocotyl rot | USA               | [3]        |
| 4        | AG3               | KX118385          | USA_AG-3     | “                                   | USA               | “          |
| 5        | AG7               | KX118384          | ST81548      | “                                   | USA               | “          |
| 6        | AG11              | KX118382          | SP_19b       | “                                   | USA               | “          |
| 7        | AG11              | KX118381          | SP_19a       | “                                   | USA               | “          |
| 8        | AG5               | KX118377          | Rh0911029    | “                                   | USA               | “          |
| 9        | AG2-1             | KX118376          | Rh051324     | “                                   | USA               | “          |
| 10       | AG2-1             | KX118375          | Rh051307     | “                                   | USA               | “          |
| 11       | AG2-2IIIB         | KX118373          | PDONS_13_8_1 | “                                   | Canada            | “          |
| 12       | AG2-2IIIB         | KX118372          | ONS02_18     | “                                   | Canada            | “          |
| 13       | AG11              | KX118367          | K_4_18b      | “                                   | USA               | “          |
| 14       | AG2-1             | KX118363          | KARS02_5_1   | “                                   | USA               | “          |
| 15       | AG7               | KX118362          | KARS02_2_5   | “                                   | USA               | “          |
| 16       | AG7               | KX118361          | KARS02_1_9   | “                                   | USA               | “          |
| 17       | AG7               | KX118360          | KARS02_1_8   | “                                   | USA               | “          |
| 18       | AG7               | KX118359          | KARS02_1_6   | “                                   | USA               | “          |
| 19       | AG11              | KX118358          | KARS02_1_20  | “                                   | USA               | “          |
| 20       | AG11              | KX118356          | KARS02_1_11  | “                                   | USA               | “          |
| 21       | AG11              | KX118355          | HPIN22A      | “                                   | USA               | “          |
| 22       | AG7               | KX118354          | EV_7         | “                                   | USA               | “          |
| 23       | AG4-HGI           | KX118353          | EV_6         | “                                   | USA               | “          |
| 24       | AG4-HGI           | KX118352          | EV_3         | “                                   | USA               | “          |
| 25       | AG7               | KX118351          | EV_19        | “                                   | USA               | “          |
| 26       | AG2-2IIIB         | KX118350          | ER_4         | “                                   | USA               | “          |
| 27       | AG2-2IIIB         | KX118349          | ER_2         | “                                   | USA               | “          |
| 28       | AG2-2IIIB         | KX118348          | ER_19b       | “                                   | USA               | “          |
| 29       | AG2-2IIIB         | KX118347          | ER_19a       | “                                   | USA               | “          |
| 30       | AG2-2IIIB         | KX118346          | ER_15        | “                                   | USA               | “          |
| 31       | AG2-2IIIB         | KX118345          | DK_8         | “                                   | USA               | “          |
| 32       | AG2-2IIIB         | KX118344          | DK_11        | “                                   | USA               | “          |

|    |            |          |                   |                                 |        |      |
|----|------------|----------|-------------------|---------------------------------|--------|------|
| 33 | AG3        | KX118343 | Cfar_500_6        | "                               | USA    | "    |
| 34 | AG3        | KX118342 | Cfar_500_3        | "                               | USA    | "    |
| 35 | AG3        | KX118341 | Cfar_500_10a      | "                               | USA    | "    |
| 36 | AG3        | KX118340 | Cfar_500_1        | "                               | USA    | "    |
| 37 | AG4-HGIII  | KX118339 | BVT_3             | "                               | USA    | "    |
| 38 | AG4-HGIII  | KX118338 | BVT_28            | "                               | USA    | "    |
| 39 | AG7        | KX118337 | BVT_20            | "                               | USA    | "    |
| 40 | AG11       | KX118336 | BVT_18            | "                               | USA    | "    |
| 41 | AG7        | KX118335 | BVT_16            | "                               | USA    | "    |
| 42 | AG2-IIIB   | KX118334 | 65L-2             | "                               | USA    | "    |
| 43 | AG4-HGIII  | KX118331 | AG-4_Carling      | "                               | USA    | "    |
| 44 | AG4-HGIII  | KX118330 | AG-4_Nelson       | "                               | USA    | "    |
| 45 | AG4-HGIII  | KX118329 | Rh051339          | "                               | USA    | "    |
| 46 | AG2-2      | KX118328 | AG2-2_Nel-<br>son | "                               | USA    | "    |
| 47 | AG2-2-IIIB | KX118397 | X42210_b          | "                               | USA    | "    |
| 48 | AG3        | KX118396 | X248_3bKH         | "                               | USA    | "    |
| 49 | AG11       | KX118394 | X12SDSa           | "                               | USA    | "    |
| 50 | AG2-IIIB   | KX118392 | X12Rs41           | "                               | USA    | "    |
| 51 | AG2-IIIB   | KX118391 | WONS_13_8_<br>5   | "                               | USA    | "    |
| 52 | AG2-IIIB   | KX118390 | WONS_13_12_<br>_3 | "                               | USA    | "    |
| 53 | AG-1       | JF701709 | RAPS3             | Web/foliar<br>blight/wet<br>rot | India  | [14] |
| 54 | AG2-3      | FJ435110 | CSL1934           | Damping<br>off                  | Japan  | [54] |
| 55 | AG2-3      | FJ435099 | CSL1866           | Damping<br>off                  | Japan  | "    |
| 56 | AG7        | AF153793 | Roth32            | none                            | USA    | [76] |
| 57 | AG11       | AF354115 | Roth24            |                                 | USA    | [20] |
| 58 | AG11       | AF354114 | Roth16            |                                 | USA    | "    |
| 59 | AG5        | AF354112 | 19Rs              |                                 | Japan  | "    |
| 60 | AG4        | AF354081 | BN38              |                                 | USA    | "    |
| 61 | AG1-IA     | DQ173075 | SJ142-2           | Leaf blight                     | Brazil | [30] |
| 62 | AG1-IA     | DQ173074 | SJ140             | "                               | Brazil | "    |
| 63 | AG1-IA     | DQ173073 | SJ134             | "                               | Brazil | "    |
| 64 | AG1-IA     | DQ173072 | SJ133             | "                               | Brazil | "    |
| 65 | AG1-IA     | DQ173071 | SJ129             | "                               | Brazil | "    |
| 66 | AG1-IA     | DQ173070 | SJ127             | "                               | Brazil | "    |
| 67 | AG1-IA     | DQ173069 | SJ121             | "                               | Brazil | "    |
| 68 | AG1-IA     | DQ173068 | SJ093             | "                               | Brazil | "    |
| 69 | AG1-IA     | DQ173067 | SJ080             | "                               | Brazil | "    |
| 70 | AG1-IA     | DQ173066 | SJ064             | "                               | Brazil | "    |
| 71 | AG1-IA     | DQ173065 | SJ053             | "                               | Brazil | "    |
| 72 | AG1-IA     | DQ173064 | SJ048             | "                               | Brazil | "    |

|     |           |          |               |                |        |      |
|-----|-----------|----------|---------------|----------------|--------|------|
| 73  | AG1-IA    | DQ173063 | SJ047         | "              | Brazil | "    |
| 74  | AG1-IA    | DQ173062 | SJ044         | "              | Brazil | "    |
| 75  | AG1-IA    | DQ173061 | SJ040         | "              | Brazil | "    |
| 76  | AG1-IA    | DQ173060 | SJ036         | "              | Brazil | "    |
| 77  | AG1-IA    | DQ173059 | SJ031-6       | "              | Brazil | "    |
| 78  | AG1-IA    | DQ173058 | SJ031-5       | "              | Brazil | "    |
| 79  | AG1-IA    | DQ173057 | SJ023         | "              | Brazil | "    |
| 80  | AG1-IA    | DQ173056 | SJ021         | "              | Brazil | "    |
| 81  | AG1-IA    | DQ173055 | SJ015         | "              | Brazil | "    |
| 82  | AG1-IA    | DQ173054 | SJ014-2       | "              | Brazil | "    |
| 83  | AG1-IA    | DQ173053 | SJ013         | "              | Brazil | "    |
| 84  | AG1-IC    | DQ173077 | AG-1 IC       | "              | USA    | "    |
| 85  | AG1-IB    | DQ173076 | AG-1IB        | "              | USA    | "    |
| 86  | AG1-IA    | DQ173052 | Rhs-9F1       | "              | Brazil | "    |
| 87  | AG1-IA    | DQ173051 | Rhs-4F1       | "              | Brazil | "    |
| 88  | AG1-IA    | DQ173050 | Rhs-3F6       | "              | Brazil | "    |
| 89  | AG1-IA    | DQ173049 | Rhs-3F1       | "              | Brazil | "    |
| 90  | AG1-IA    | DQ173048 | AG1IArJ       | "              | Japan  | "    |
| 91  | AG1-IA    | DQ173047 | AG1IAmJ       | "              | Japan  | "    |
| 92  | AG4-HGII  | AY270005 | Not available | Hypocotyle rot | Brazil | [28] |
| 93  | AG2-2IIIB | AY270015 | SJ07          |                | Brazil | [20] |
| 94  | AG1-IA    | AY270013 | SJ19          | Foliar blight  | Brazil | [28] |
| 95  | AG1-IA    | AY270012 | SJ57          | Foliar blight  | Brazil | "    |
| 96  | AG1-IA    | AY270011 | SJ67          | Foliar blight  | Brazil | "    |
| 97  | AG1-IA    | AY270010 | SJ16          | Foliar blight  | Brazil | "    |
| 98  | AG1-IA    | AY270009 | SJ26          | Foliar blight  | Brazil | "    |
| 99  | AG1-IA    | AY270008 | SJ24          | Foliar blight  | Brazil | "    |
| 100 | AG1-IA    | AY270007 | SJ34          | Foliar blight  | Brazil | "    |
| 101 | AG1-IA    | AY270006 | SJ28          | Foliar blight  | Brazil | "    |
| 102 | AG4-HGII  | AY270004 | SJ03          | Hypocotyle rot | Brazil | "    |
| 103 | AG4-HGII  | AY270003 | SJ02          | Hypocotyle rot | Brazil | "    |
| 104 | AG4-HGII  | AY270002 | SJ05          | Hypocotyle rot | Brazil | "    |
| 105 | AG4-HGII  | AY270001 | SJ01          | Hypocotyle rot | Brazil | "    |
| 106 | AG9       | KX118333 | unk           | none           | USA    | [47] |
| 107 | AG6       | KX118332 | AG-6_Carling  | none           | none   |      |



**Table S7.** Best substitution models used in this study.

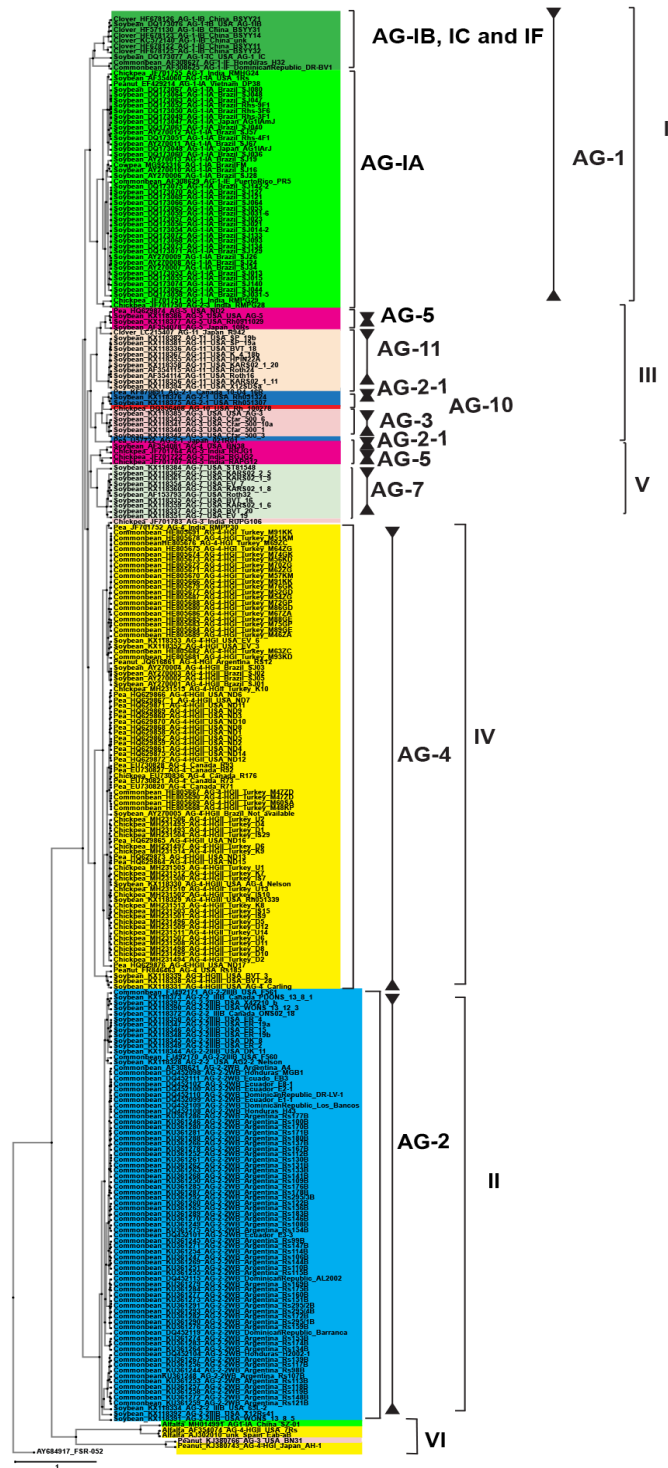
| Best model from jModel test    | Abbreviations  | Substitution Models           | Rates among sites                      |
|--------------------------------|----------------|-------------------------------|--|
| <b>Common bean</b>             |                |                               |  |
| AIC                            | TrN+I+G        | Tamura-Nei (TrN)              | Gamma distributed with invariant sites |
| BIC                            | TrN+G          | Tamura-Nei (TrN)              | Gamma distributed                      |
| AICc                           | JC+G           | Jukes-Cantor                  | Gamma distributed                      |
| DT                             | TVM+I          | Transversion model            | Invariant sites                        |
| <b>Cowpea and peanuts</b>      |                |                               |  |
| AIC                            | TIM1+G         | Transversion model            | Gamma distributed                      |
| BIC                            | HKY+G          | Hasegawa-Kishino-Yano         | Gamma distributed                      |
| AICc                           | TIM1+G         | transversion model            | Gamma distributed                      |
| DT                             | TIM1+G         | transversion model            | Gamma distributed                      |
| <b>Soybean</b>                 |                |                               |  |
|                                | <b>Models</b>  |                               |  |
| AIC                            | TIM1+I+G       | transversion model            | Gamma distributed with invariant sites |
| BIC                            | TrN+G          | Tamura-Nei (TrN)              | Gamma distributed                      |
| AICc                           | TrN+G          | Tamura-Nei (TrN)              | Gamma distributed                      |
| DT                             | TrN+G          | Tamura-Nei (TrN)              | Gamma distributed                      |
| <b>Chickpea</b>                |                |                               |  |
| AIC                            | TrN+G          | Tamura-Nei (TrN)              | Gamma distributed                      |
| BIC                            | TrN+G          | Tamura-Nei (TrN)              | Gamma distributed                      |
| AICc                           | TrN+G          | Tamura-Nei (TrN)              | Gamma distributed                      |
| DT                             | HKY+G          | Hasegawa-Kishino-Yano         | Gamma distributed                      |
| <b>Pea</b>                     |                |                               |  |
|                                | <b>Models</b>  |                               |  |
| AIC                            | TrN+G          | Tamura-Nei (TrN)              | Gamma distributed                      |
| BIC                            | HKY+G          | Hasegawa-Kishino-Yano         | Gamma distributed                      |
| AICc                           | TrN+G          | Tamura-Nei (TrN)              | Gamma distributed                      |
| DT                             | TrN+G          | Tamura-Nei (TrN)              | Gamma distributed                      |
| <b>Alfalfa and clovers</b>     |                |                               |  |
| AIC                            | TPM3uf+G (GTR) | General time-reversible (GTR) | Gamma distributed                      |
| AIC                            | TPM3uf+G (GTR) | General time-reversible (GTR) | Gamma distributed                      |
| AIC                            | TPM3uf+G (GTR) | General time-reversible (GTR) | Gamma distributed                      |
| AIC                            | TPM3uf+G (GTR) | General time-reversible (GTR) | Gamma distributed                      |
| <b>Best models from MEGA-X</b> |                |                               |  |
| <b>Cowpea and peanuts</b>      |                |                               |  |
| BIC                            | T92            | Timura 3-parameter            | None                                   |
| AICc                           | T93+G          | Tamura-Nei (TrN)              | Gamma distributed                      |
| <b>Chickpea</b>                |                |                               |  |
| BIC                            | T92+I          | Timura 3-parameter            | Invariant sites                        |
| AICc                           | T93+G+I        | Tamura-Nei (TrN)              | Gamma distributed with invariant sites |

|                           |         |                    |  |
|---------------------------|---------|--------------------|--|
| <b>Common bean</b>        |         |                    |  |
| BIC                       | T93+G   | Timura 3-parameter | Gamma distributed                      |
| AICc                      | T92+G+I | Tamura-Nei (TrN)   | Gamma distributed with invariant sites |
| <b>Soybean</b>            |         |                    |  |
| BIC                       | T92+G   | Timura 3-parameter | Gamma distributed                      |
| AICc                      | T93+G+I | Tamura-Nei (TrN)   | Gamma distributed with invariant sites |
| <b>Alfalfa and clover</b> |         |                    |  |
| BIC                       | T92     | Timura 3-parameter | None                                   |
| AICc                      | T92+G   | Timura 3-parameter | Gamma distributed                      |
| <b>Pea</b>                |         |                    |  |
| BIC                       | T92+I   | Timura 3-parameter | Invariant sites                        |
| AICc                      | T93+G   | Tamura-Nei (TrN)   | Gamma distributed                      |
| <b>All legumes</b>        | T93+G   | Tamura-Nei (TrN)   | Gamma distributed                      |
|                           | T92+G   | Timura 3-parameter | Gamma distributed                      |

**Table S8.** Number of anastomosis groups (AGs) sequences of *R. solani* associated with legumes crop.

| Anastomosis groups |                   | Legume crops |        |         |             |          |     |        |        | Total |
|--------------------|-------------------|--------------|--------|---------|-------------|----------|-----|--------|--------|-------|
| <sup>a</sup> AGs   | <sup>b</sup> Sub. | Alfalfa      | Clover | Soybean | Common bean | Chickpea | Pea | Peanut | Cowpea |       |
| AG-1               | 1                 |              |        | 1       |             | 2        |     |        |        | 3     |
|                    | IA                | 1            |        | 38      |             |          |     | 1      | 1      | 41    |
|                    | IB                |              | 6      | 1       |             |          |     |        |        | 7     |
|                    | IC                |              |        | 1       |             |          |     |        |        | 1     |
|                    | IE                |              |        |         | 1           |          |     |        |        | 1     |
|                    | IF                |              |        |         | 2           |          |     |        |        | 2     |
| AG-2               | 1                 |              |        | 3       |             |          | 2   |        |        | 5     |
|                    | 2                 |              |        | 1       |             |          | 1   |        |        | 2     |
|                    | 2IIIB             |              |        | 18      | 2           |          |     |        |        | 20    |
|                    | 2LP               |              |        |         |             |          |     |        |        | 0     |
|                    | 2WB               |              |        |         | 63          |          |     |        |        | 63    |
|                    | 3                 |              |        | 2       |             | 2        |     |        |        | 4     |
| AG-3               | 3                 |              |        | 6       |             | 2        |     | 1      |        | 9     |
| AG-4               | 4                 |              |        | 1       |             | 1        | 5   | 1      |        | 8     |
|                    | HGI               |              |        | 2       | 22          |          |     | 2      |        | 26    |
|                    | HGII              | 2            |        | 4       | 4           | 23       | 17  |        |        | 50    |
|                    | HGIII             |              |        | 3       |             |          |     |        |        | 3     |
| AG-5               | NA                |              |        | 4       |             | 2        | 1   |        |        | 7     |
| AG-6               | NA                |              |        | 0       |             |          |     |        |        | 0     |
| AG-7               | NA                |              |        | 10      |             |          |     |        |        | 10    |
| AG-9               | NA                |              |        | 1       |             |          |     |        |        | 1     |
| AG-10              | NA                |              |        |         |             | 1        |     |        |        | 1     |
| AG-11              | NA                |              | 1      | 10      |             |          |     |        |        | 11    |
| Unc                | NA                |              |        |         |             |          |     |        | 2      | 2     |
| Total              |                   | 3            | 7      | 107     | 94          | 33       | 26  | 5      | 3      | 277   |

<sup>a</sup>AGs = Anastomosis groups, <sup>b</sup>Sub. = AGs subgroup, <sup>c</sup>NA = Not applicable/available, Unc = Unclassified.



**Figure S1.** Phylogenetic trees of AG sequences associated with all legume crops using the Neighbor-Joining (NJ) method. The common name of the legume crop is followed by reference accession numbers, AGs from the GenBank, geographical origin, and isolate name. Different colors show AGs and clades and/or subclades associated with AGs. Roman numerals (I-VI) represent groups or clusters or clades. **a.** Neighbor-Joining (NJ) tree; *Athelia rolfsii* (strain FSR-052) was used as an outgroup.