**Table S3.** Results of the complementation tests summarized in Fig. 3. The vigor of each interaction is indicated by "+" (i.e., strong reaction characterized by dense prototrophic mycelial growth and extended production of microsclerotia), "+/-" (i.e., weak reaction with limited mycelial growth and/or restricted production of microsclerotia) or "-" (i.e., absence of prototrophic growth). Each pairing was performed in at least three replicates. Pairings that produced very limited prototrophic growth in only one of the replicates were regarded as negative ("-")

| pairing | VCGs | assay | |
|---|---|---|---|
| | | hyphal-based / VCG (Fig. 3a, b) | CAT-based (Fig. 3c, d) |
| T9.M × V44.1 | 1A × 1A | + | + |
| T9.M × V661I.1 | 1A × 1B | +/- | + |
| T9.M × PH.1 | 1A × 2A | - | +/- |
| T9.M × Ls.17.1 | 1A × 2B | - | - |
| T9.M × 70-21.1 | 1A × 3 | - | +/- |
| T9.M × BB.1 | 1A × 4A | - | +/- |
| T9.M × V684I.1 | 1A × 4B | - | +/- |
| T9.M × Ca.148.1 | 1A × 6 | - | +/- |
| T9.M × Cf.162.1 | 1A × HSI | - | - |
| T9.M × T2.1 | 1A × *V. nonalfalfae* | - | +/- |
| V607I.M × V44.1 | 1B × 1A | - | +/- |
| V607I.M × V661I.1 | 1B × 1B | +/- | +/- |
| V607I.M × PH.1 | 1B × 2A | - | - |
| V607I.M × Ls.17.1 | 1B × 2B | - | - |
| V607I.M × 70-21.1 | 1B × 3 | - | +/- |
| V607I.M × BB.1 | 1B × 4A | - | +/- |
| V607I.M × V684I.1 | 1B × 4B | - | - |
| V607I.M × Ca.148.1 | 1B × 6 | - | +/- |
| V607I.M × Cf.162.1 | 1B × HSI | - | +/- |
| V607I.M × T2.1 | 1B × *V. nonalfalfae* | - | - |
| 123V.M × V44.1 | 2A × 1A | - | - |
| 123V.M × V661I.1 | 2A × 1B | - | +/- |
| 123V.M × PH.1 | 2A × 2A | + | + |
| 123V.M × Ls.17.1 | 2A × 2B | - | + |
| 123V.M × 70-21.1 | 2A × 3 | - | - |
| 123V.M × BB.1 | 2A × 4A | - | +/- |

| | | | |
|---|---|---|---|
| 123V.M × V684I.1 | 2A × 4B | - | - |
| 123V.M × Ca.148.1 | 2A × 6 | - | +/- |
| 123V.M × Cf.162.1 | 2A × HSI | - | - |
| 123V.M × T2.1 | 2A × *V. nonalfalfae* | - | +/- |
| 115.M × V44.1 | 2B × 1A | - | - |
| 115.M × V661I.1 | 2B × 1B | - | +/- |
| 115.M × PH.1 | 2B × 2A | - | +/- |
| 115.M × Ls.17.1 | 2B × 2B | +/- | + |
| 115.M × 70-21.1 | 2B × 3 | - | +/- |
| 115.M × BB.1 | 2B × 4A | - | +/- |
| 115.M × V684I.1 | 2B × 4B | - | +/- |
| 115.M × Ca.148.1 | 2B × 6 | - | +/- |
| 115.M × Cf.162.1 | 2B × HSI | - | +/- |
| 115.M × T2.1 | 2B × *V. nonalfalfae* | - | - |
| Cf.38.M × V44.1 | 2B × 1A | - | - |
| Cf.38.M × V661I.1 | 2B × 1B | - | - |
| Cf.38.M × PH.1 | 2B × 2A | - | +/- |
| Cf.38.M × Ls.17.1 | 2B × 2B | + | + |
| Cf.38.M × 70-21.1 | 2B × 3 | - | +/- |
| Cf.38.M × BB.1 | 2B × 4A | - | +/- |
| Cf.38.M × V684I.1 | 2B × 4B | - | +/- |
| Cf.38.M × Ca.148.1 | 2B × 6 | - | +/- |
| Cf.38.M × Cf.162.1 | 2B × HSI | - | - |
| Cf.38.M × T2.1 | 2B × *V. nonalfalfae* | - | - |
| Dvd-E6.M × V44.1 | 3 × 1A | - | - |
| Dvd-E6.M × V661I.1 | 3 × 1B | - | +/- |
| Dvd-E6.M × PH.1 | 3 × 2A | - | - |
| Dvd-E6.M × Ls.17.1 | 3 × 2B | - | +/- |
| Dvd-E6.M × 70-21.1 | 3 × 3 | + | +/- |
| Dvd-E6.M × BB.1 | 3 × 4A | - | +/- |
| Dvd-E6.M × V684I.1 | 3 × 4B | +/- | +/- |
| Dvd-E6.M × Ca.148.1 | 3 × 6 | - | - |
| Dvd-E6.M × Cf.162.1 | 3 × HSI | - | +/- |
| Dvd-E6.M × T2.1 | 3 × *V. nonalfalfae* | - | - |
| PCW.M × V44.1 | 4A × 1A | - | +/- |
| PCW.M × V661I.1 | 4A × 1B | - | +/- |

| | | | |
|---|---|---|---|
| PCW.M × PH.1 | 4A × 2A | - | - |
| PCW.M × Ls.17.1 | 4A × 2B | - | - |
| PCW.M × 70-21.1 | 4A × 3 | - | + |
| PCW.M × BB.1 | 4A × 4A | + | +/- |
| PCW.M × V684I.1 | 4A × 4B | - | + |
| PCW.M × Ca.148.1 | 4A × 6 | - | +/- |
| PCW.M × Cf.162.1 | 4A × HSI | - | +/- |
| PCW.M × T2.1 | 4A × *V. nonalfalfae* | - | +/- |
| S39.M × V44.1 | 4B × 1A | - | - |
| S39.M × V661I.1 | 4B × 1B | - | - |
| S39.M × PH.1 | 4B × 2A | - | - |
| S39.M × Ls.17.1 | 4B × 2B | - | +/- |
| S39.M × 70-21.1 | 4B × 3 | - | - |
| S39.M × BB.1 | 4B × 4A | - | - |
| S39.M × V684I.1 | 4B × 4B | +/- | +/- |
| S39.M × Ca.148.1 | 4B × 6 | - | +/- |
| S39.M × Cf.162.1 | 4B × HSI | - | - |
| S39.M × T2.1 | 4B × *V. nonalfalfae* | - | - |
| Ca.146.M × V44.1 | 6 × 1A | - | +/- |
| Ca.146.M × V661I.1 | 6 × 1B | - | +/- |
| Ca.146.M × PH.1 | 6 × 2A | - | - |
| Ca.146.M × Ls.17.1 | 6 × 2B | - | - |
| Ca.146.M × 70-21.1 | 6 × 3 | - | +/- |
| Ca.146.M × BB. | 6 × 4A | - | - |
| Ca.146.M × V684I.1 | 6 × 4B | - | +/- |
| Ca.146.M × Ca.148.1 | 6 × 6 | + | + |
| Ca.146.M × Cf.162.1 | 6 × HSI | - | +/- |
| Ca.146.M × T2.1 | 6 × *V. nonalfalfae* | - | +/- |
| V13.M × V44.1 | HSI × 1A | - | - |
| V13.M × V661I.1 | HSI × 1B | - | - |
| V13.M × PH.1 | HSI × 2A | - | - |
| V13.M × Ls.17.1 | HSI × 2B | - | - |
| V13.M × 70-21.1 | HSI × 3 | - | +/- |
| V13.M × BB.1 | HSI × 4A | - | +/- |
| V13.M × V684I.1 | HSI × 4B | - | - |
| V13.M × Ca.148.1 | HSI × 6 | - | - |

| | | | |
|---|---|---|---|
| V13.M × Cf.162.1 | HSI × HSI | - | - |
| V13.M × T2.1 | HSI × *V. nonalfalfae* | - | - |
| Ms.102.M × V44.1 | *V. nonalfalfae* × 1A | - | - |
| Ms.102.M × V661I.1 | *V. nonalfalfae* × 1B | - | +/- |
| Ms.102.M × PH.1 | *V. nonalfalfae* × 2A | - | - |
| Ms.102.M × Ls.17.1 | *V. nonalfalfae* × 2B | - | - |
| Ms.102.M × 70-21.1 | *V. nonalfalfae* × 3 | - | +/- |
| Ms.102.M × BB.1 | *V. nonalfalfae* × 4A | - | +/- |
| Ms.102.M × V684I.1 | *V. nonalfalfae* × 4B | - | +/- |
| Ms.102.M × Ca.148.1 | *V. nonalfalfae* × 6 | - | +/- |
| Ms.102.M × Cf.162.1 | *V. nonalfalfae* × HSI | - | - |
| Ms.102.M × T2.1 | *V. nonalfalfae* | +/- | +/- |