

None of the 206 advanced lines evaluated was found to be highly resistant. Among the 206 entries tested only one line GNG 396 (L 550 × H 75-35-1) was moderately resistant (with score 4) across 4 years of testing.

Fourteen other entries were placed in the tolerant category (with score 5): GNG 146 (selection from IARI material), -158 (GNG 16 × BG 203), -441 (Annigeri × GG 588-1), -581 (GNG 166 × L 550) × K 850, -638 (GNG 15 × G 543), -640 (HMS 30 × P 6019), -644 (HMS 30 × P 6019), -656 (GNG 16 × P 6019), -663 (GNG 16 × GNG 146), - 666 (Gaurav × GNG 146), -678 (GNG 15 × G 543), -690 (H 75-35 × GNG 146), -698 (H 75-35 × P 3896), -702 (H 75-35 × GNG 146). Of these GNG lines, 146 and 158 have been constantly showing a rating of 5 since 1983/84.

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References

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Ascochyta Blight Resistant Kabuli Chickpea Breeding Lines

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Ascochyta blight [*Ascochyta rabiei* (Pass.) Lab.] is the major disease of both spring- and winter-sown chickpeas in the Mediterranean region. Since 1978 breeding for resistance to ascochyta blight has been the major objective of the ICRISAT-ICARDA kabuli chickpea

program. Most of the germplasm accessions resistant to blight were of former USSR origin with late maturity, small seed size (< 30 g 100-seed⁻¹), and pea-shaped and pink seed (Singh et al. 1981; Reddy and Singh 1984). Since they are late maturing, they are not suitable for spring sowing and even in winter sowing their yields are often low due to end-season water deficit and heat stress. Furthermore, its pea-shaped seed is not preferred by consumers in the region. During 1978-1991, 5895 crosses were made between different resistant germplasm accessions and lines with earliness, large kabuli seed, and high yield in the main season (Nov-Jun) at Tel Hadya, Syria. Two and three-way crosses were made. Until 1985 the pedigree method was used, after which the bulk-pedigree method was used to advance generations. The F₁, F₃, and F₇ generations were grown in the off-season at Terbol, Lebanon to speed up cultivar development. Segregating materials in F₂, F₄, F₅, and F₆ generations were evaluated for blight resistance in the field during the main season at Tel Hadya by inoculating plants with diseased debris and spore suspension of a mixture of six races from Syria (Reddy and Singh 1984; Reddy and Kabbabeh 1985). Newly bred lines were also evaluated in the greenhouse against the mixture of six races. Lines were evaluated for blight resistance using a 1 to 9 scale and lines with 1-4 ratings were categorized as resistant; 5, moderately resistant; and 6-7, susceptible (Singh et al. 1981).

Until 1991, 92 chickpea lines resistant or moderately resistant to ascochyta blight in both field and greenhouse and with kabuli-type seed; 5 blight resistant and early maturing; 5 blight resistant and large seeded; 7 blight resistant and tall; 9 blight resistant, tall, and large seeded; and 1 blight resistant, early maturing, and large seeded have been developed. Breeding lines which will be of interest to chickpea scientists are listed in Table 1.

References

Reddy, M.V., and Kabbabeh, S. 1985. Pathogen variability in *Ascochyta rabiei* in Syria and Lebanon. *Phytopathology mediterranea* 24:265-266.

Reddy, M.V., and Singh, K.B. 1984. Evaluation of a world collection of chickpea germplasm accessions for resistance to ascochyta blight. *Plant Disease* 68:900-901.

Singh, K.B., Hawtin, G.C., Nene, Y.L., and Reddy, M.V. 1981. Resistance in chickpea to *Ascochyta rabiei*. *Plant Disease* 65:586-587.

Table 1. Blight-resistant kabuli lines.

| Category | Genotype |
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| Disease-resistance rating = 3 | FLIP ¹ 84-124C ² , FLIP 90-96C, FLIP 91-18C, FLIP 91-26C, FLIP 91-62C. |
| Disease-resistance rating = 4 | FLIP 82-97C, FLIP 82-132C, FLIP 84-44C, FLIP 84-79C, FLIP 84-86C, FLIP84-87C, FLIP 84-92C, FLIP 84-102C, FLIP 84-182C, FLIP 84-188C, FLIP85-84C, FLIP 85-86C, FLIP 85-99C, FLIP 85-118C, FLIP 87-508C, FLIP88-83C, FLIP 90-3C, FLIP 90-56C, FLIP 90-85C, FLIP 90-93C, FLIP 90-94C, FLIP 90-95C, FLIP 90-97C, FLIP90-98C, FLIP 90-104C, FLIP 90-105C, FLIP 90-112C, FLIP 91-1C, FLIP91-2C, FLIP 91-3C, FLIP 91-4C, FLIP91-5C, FLIP 91-6C, FLIP 91-7C, FLIP91-8C, FLIP 91-9C, FLIP 91-10C, FLIP 91-11C, FLIP 91-12C, FLIP 91-13C, FLIP 91-14C, FLIP 91-15C, FLIP91-16C, FLIP 91-17C, FLIP 91-19C, FLIP 91-20C, FLIP 91-21C, FLIP 91-22C, FLIP 91-23C, FLIP 91-24C, FLIP91-25C, FLIP 91-27C, FLIP 91-28C, FLIP 91-29C, FLIP 91-30C, FLIP 91-31C, FLIP 91-32C, FLIP 91-33C, FLIP91-34C, FLIP 91-35C, FLIP 91-36C, FLIP 91-37C, FLIP 91-38C, FLIP 91-39C, FLIP 91-40C, FLIP 91-41C, FLIP91-42C, FLIP 91-43C, FLIP 91-44C, FLIP 91-45C, FLIP 91-46C, FLIP 91-47C, FLIP 91-48C, FLIP 91-49C, FLIP91-50C, FLIP 91-51C, FLIP 91-52C, FLIP 91-53C, FLIP 91-54C, FLIP 91-55C, FLIP 91-56C, FLIP 91-57C, FLIP91-58C, FLIP 91-59C, FLIP 91-60C, FLIP 91-61C, FLIP 91-63C. |
| Early maturing (130-131 days to 50% flower) and blight resistant | FLIP 88-83C, FLIP 90-98C, FLIP 91-22C, FLIP 91-45C, FLIP 91-46C |
| Large seeded (40-50.6 g 100-seed mass) and blight resistant | FLIP 91-2C, FLIP 91-18C, FLIP 91-24C, FLIP 91-50C, FLIP 91-54C. |
| Early maturing, large seeded, and blight resistant | FLIP 91-18C. |
| Tall (50-58 cm) and blight resistant | FLIP 90-56C, FLIP 91-4C, FLIP 91-6C, FLIP 91-11C, FLIP 91-14C, FLIP91-26C, FLIP 91-53C |
| Tall, large seeded and blight resistant | FLIP 91-3C, FLIP 91-8C, FLIP 91-12C, FLIP 91-13C, FLIP 91-15C, FLIP91-19C, FLIP 91-21C, FLIP 91-37C, FLIP 91-39C |

1. FLIP = Food Legume Improvement Program, ICARDA

2. C = Chickpea

Small quantity of seed is available from the Legumes Program, ICARDA, P.O. Box 5466, Aleppo, Syria