These lines are now being extensively used in crossing programs at ICRISAT and elsewhere.

Of the wild species tested in pots, only *Cicer judaicum* collections were found resistant to Fusarium wilt.

Seeds of the resistant lines (Table 1) are maintained by ICRISAT's Genetic Resources Unit and are available on request.

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Calixin M - An Effective Fungicide for Eradication of *Ascochyta rabiei* in Chickpea Seed

The seedborne nature of chickpea blight (*Ascochyta rabiei* (Pass Lab.), in addition to its role in the perpetuation of the fungus, poses a serious problem in international seed movement. Seed dressing is one means of reducing seedborne inoculum. At the International Research Center for Agricultural Research in the Dry Areas (ICARDA), Syria, new chemicals and combinations were tried and the results are briefly reported.

Seeds of a highly susceptible cultivar (ILC-1929) with conspicuous lesions of the blight were used in the study. The efficacy of the treatments was assayed by both blotter and agar plate methods. In the blotter test, 10 seeds were placed on three layers of fully moistened blotting paper in a plastic petriplate. In the agar method, the seeds were surface sterilized with 0.1% mercuric chloride and plated on chickpea meal agar (40 g chickpea meal, 20 g dextrose, 20 g agar, 1 liter water). The plates were incubated at 24°C in 12 hr day length and the number of seeds showing fungal growth recorded after 10 days.

The results are presented in Table 1. In both tests, Calixin M alone and in combination with Benlate in the agar test gave complete eradication of the blight fungus from infected seed. Benlate and Bravo were less effective. To the best of our knowledge this is the first report of Calixin M, which is a systemic fungicide, completely eradicating *A. rabiei* from chickpea seeds.

- M.V. Reddy (ICRISAT)

Table 1. The percentages of seeds of ILC-1929 showing growth of *Ascochyta rabiei* following fungicidal seed dressing (percentages of 50 seeds).

Fungicide (3 g/kg seed)	Blotter test	Agar test
Calixin M (tridemorph)	4	0
Bravo (chlorothalomil)	20	80
Benlate (benomyl)	6	20
Benlate + Calixin M (1 : 1)	0	0
Control	100	80

Effect of Inter-row Spacing on the Reaction of Chickpea Lines to *Ascochyta* Blight

Chickpea stands in farmers' fields are generally poor and one of the ways to improve the yields is by increasing the plant populations. Also, efforts are being made to improve yields by developing erect cultivars for closer plantings. Blight caused by *Ascochyta rabiei* (Pass.) Lab. is a major problem of chickpeas and development of resistant cultivars appears to be the best way of controlling it. Since changes in agronomic practices are known to affect disease incidence, seeking information on the effect of different interrow spacings on the reaction of chickpea lines to Ascochyta blight was considered essential.

The study was carried out at the International Center for Agricultural Research in the Dry Areas (ICARDA), Aleppo, Syria, during the 1979-80 winter season. A set of 25 lines (6 resistant, 4 tolerant, 9 susceptible, and 6 highly susceptible) were planted at two interrow spacings, 30 and 20 cm, in a randomized block design with four replications. The plant-to-plant distance within the row was 10 cm. The plot size was 6 m^2. Planting was done in the third week of November 1979. Inoculation was carried out on 10 March 1980 by scattering infected plant debris collected from the previous season. Because of the favorable weather conditions that prevailed during the season, disease development was very rapid and severe. Observations of disease severity were recorded twice (15 and 30 days after inoculation) on a 9-point scale (where 1

indicated no symptoms and 9, plant mortality). The results are presented in Table 1.

In general, the lines maintained their expected relative rankings. The reactions of most of the lines were not affected by spacing. In the resistant group, the reaction of one line (ILC-2952) increased from 3 to 4.5 at the closer spacing. The reactions of the susceptible and highly susceptible groups were not affected.

Table 1. Mean *Ascochyta* blight scores (log^e) of 25 chickpea lines at two interrow spacings.

Line	Interrow spacing[1] 30 cm	20 cm
Resistant		
ILC-72	3.0 (1.10)	3.0 (1.10)
-191	3.5 (1.25)	3.0 (1.10)
-202	3.0 (1.10)	3.0 (1.10)
-482	3.0 (1.10)	3.0 (1.10)
-2952	3.0 (1.10)	4.5 (1.50)
-3279	3.0 (1.10)	3.0 (1.10)
Tolerant		
ILC-195	4.5 (1.50)	4.0 (1.39)
-196	4.5 (1.50)	4.0 (1.39)
-201	5.5 (1.70)	5.0 (1.61)
77 Ms. 76134	5.0 (1.61)	Not planted
Susceptible		
ILC-192	7.0 (1.94)	7.5 (2.01)
-193	6.7 (1.90)	7.0 (1.95)
-197	7.0 (1.95)	7.0 (1.95)
-198	7.0 (1.95)	7.5 (2.01)
-199	7.0 (1.95)	7.5 (2.01)
-2955	7.0 (1.95)	7.0 (1.95)
-2957	5.2 (1.65)	6.0 (1.80)
-3248	5.5 (1.70)	6.0 (1.80)
-3274	6.7 (1.90)	6.5 (1.90)
Highly susceptible		
ILC-2956	9.0 (2.20)	9.0 (2.20)
-3273	9.0 (2.20)	9.0 (2.20)
-8921	9.0 (2.20)	9.0 (2.20)
-8922	9.0 (2.20)	9.0 (2.20)
NEC-1235	9.0 (2.20)	9.0 (2.20)
-1237	9.0 (2.20)	9.0 (2.20)
SE (±)	0.07	0.10

[1]Average of four replications.

Aurora, a bean cultivar tolerant to white mold under a within-row plant spacing of 4-5 cm became susceptible under a wide within-row spacing of 30.5 cm as it developed much more dense plant habit and canopy at that spacing (Coyne, D.P., Steadman, J.R., and Schwartz, H.F. 1977. Plant Disease Reporter 61:226-230). In this study in the majority of cases the reaction of lines to Ascochyta blight was not affected by spacing indicating that resistant lines may be safely recommended for planting at higher density. However, the change in the reaction of certain lines is interesting and indicates the need for further studies and testing of resistant lines at closer interrow spacings.

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Major Disease Problems of Chickpea in North Africa

Broad bean (*Vicia faba* L.), chickpea (*Cicer arietinum* L.), lentil (*Lens culinaris* Med.), and pea (*Pisum sativum* L.) are major grain legumes in Algeria, Morocco, and Tunisia. In May 1980, during a visit to the region, the principal diseases evident on these crops were recorded, particularly chickpeas. At the time of visit, the chickpea crop was in preflowering to flowering stage and provided an opportunity to assess various disease problems.

In Algeria, the major legume-growing areas (Alger, Oran, and Sidi-Bèl-Abbes) in the northwest were surveyed. Diseases observed, in order of importance, were blight (*Ascochyta rabiei* (Pass.) Lab.), stunt (pea leaf-roll virus), rust (*Uromyces* sp), and a mosaic (Alfalfa mosaic virus ?). In farmers' fields, blight was in the initial development stage. At Sidi-Bèl-Abbes experimental station, 80 km south of Oran, blight development was very severe and enabled thorough evaluation of the materials in the Chickpea International Ascochyta Blight Nursery (CIABN-80) and other trials. High stunt incidence (up to 50%) was observed at El-harasch (Alger) and Ain-el-Hadjar (Sida) research stations. Incidence at Ain-el-Hadjar experimental station was higher in earlier plantings (15 December) than in late plantings (15 January, 15 Feb-