

LEMON (*Citrus limon*, 'Lisbon')
Citrus black spot; *Guignardia citricarpa*

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Number and timing of applications of Caurifix plus Dithane on citrus black spot control in lemon, 2002/03.

This experiment was conducted on a 6-yr-old Lisbon lemon grove in Macomitas, Tucumán, Argentina. Spray programs that included two, three, or four applications of Caurifix plus Dithane at different times were evaluated. Treatments were arranged in a randomized complete block design with four replications. Each plot consisted of three trees. The first application was made on 9 Oct 02 at petal fall, the others on 6 Nov 02, 5 Dec 02 and 3 Jan 03, when the fruits were about 26 mm, 34 mm, and 39 mm in diameter, respectively. Applications were made with a conventional high volume sprayer fitted with a handgun, at a pressure of 35 kg/cm² using 25 L/tree. The first important rains began in October after petal fall. Favorable conditions for infection prevailed from petal fall through December, with rainfall totaling 368 mm, maximum relative humidity over 90%, and average temperatures higher than 18 °C. Two evaluations of citrus black spot (CBS) were made when fruits were harvested for the fresh fruit export market (19 May 03 and 22 Jun 03). Disease incidence was determined in fruits from the center tree of each plot. A total of 2,000 fruits were evaluated for each treatment. CBS incidence is presented as average of both harvests.

Incidence of CBS was high due to favorable conditions for infection in the critical period. The 4-application treatment was more effective for CBS control than other programs with 2 or 3 applications. In the 3-application programs, CBS incidence was lower in the two treatments where the 3rd spray was applied in Jan, compared with the treatment that included the 3rd spray in Dec. No difference in CBS incidence was detected between the two treatments that included the 3rd spray in Jan. The relative importance of Jan applications was also evident in treatments with 2 applications. CBS incidence was lower when the second spray was applied in Jan than when applied in Nov or Dec. the 2-applications treatment that included the second spray in Jan showed less CBS incidence than the 3-applications treatment without the Jan spray. Jan is the time that coincided with maximum ascospore release, according to spore trap readings.

Treatment and concentration	Timing of application	CBS incidence
Untreated control		92.8 a
Caurifix-S 85 WP 2.0 g/L + Dithane M-80 WP 1.0 g/L	Oct-Nov-Dec-Jan	6.3 f
Caurifix-S 85 WP 2.0 g/L + Dithane M-80 WP 1.0 g/L	Oct-Nov-Dec	43.3 c
Caurifix-S 85 WP 2.0 g/L + Dithane M-80 WP 1.0 g/L	Oct-Nov-Jan	18.5 de
Caurifix-S 85 WP 2.0 g/L + Dithane M-80 WP 1.0 g/L	Oct-Dec-Jan	14.9 e
Caurifix-S 85 WP 2.0 g/L + Dithane M-80 WP 1.0 g/L	Oct-Nov	56.7 b
Caurifix-S 85 WP 2.0 g/L + Dithane M-80 WP 1.0 g/L	Oct-Dec	54.7 b
Caurifix-S 85 WP 2.0 g/L + Dithane M-80 WP 1.0 g/L	Oct-Jan	24.9 d
LSD ($P < 0.05$)**		8.4

* All treatments except the untreated control included Texaco summer-oil at 1ml/L at petal fall, 30 and 60 days apf; and 10 ml/L at 90 days apf.

** Tukey's Test.