

Degradation of propineb in potato and soil

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SUMMARY

A season study (December 2008 to march 2009) was undertaken with potato crop and was found that propineb residue degraded faster in potato under field condition when applied at 1400 and 2800 g a.i ha⁻¹. However, the propineb was noticed in soil on the day of propineb spray. Degradation was faster at lower dose of than higher dose of application with the half-life values of 2.3 and 2.5 days. The safe waiting period of 3.3 and 4.3 days was recommended for potato when applied at 1400 and 2800 g a.i ha⁻¹ of propineb.

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Research recommendations of chemical control of pest are considered as incomplete if data on toxic residue of pesticides are not provided. Propineb [polymeric zinc propylene-bis-(dithiocarbamate)] [(C₅H₈N₂S₄Zn)_x] is a polymeric dithiocarbamate fungicide. A new, commercially available fungicide formulation, propineb 70 per cent WP, which belongs to the group of propylene-bis-dithiocarbamates, can be used as a substitute for the control of several fungal diseases of potato (Sharma *et al.*, 1994). Potato (*Solanum tuberosum* L) is one of the prime remunerative crops of southern Karnataka. To sustain the quality and productivity of crops, propineb is being heavily applied close to harvest, since there are no data available on the persistence of propineb on potato, the present investigation was conducted to determine the degradation pattern of propineb.

EXPERIMENTAL METHODS

The field experiment was conducted to study the persistence of residues of propineb (Antracol 70 WP) in potato in winter 2008-09 (December to March), at Bellur cross, Near Narasapura, Kolar (Latitude 13°10' N and Longitude 78°10' E). Potato tubers were planted with the spacing of 50 cm x 20 cm in the plots size (5 m x 4

m). The recommended dose of fertilizer 125:100:125 N, P₂O₅, K₂O kg ha⁻¹ were applied as per package of practice (UASB). The propineb (Antracol 70 WP) was sprayed as per the treatment details.

Treatment details

T ₁	: Control
T ₂	: Propineb (1400 g a.i.ha ⁻¹) spray at 30 DAP
T ₃	: Propineb (2800 g a.i. ha ⁻¹) spray at 30 DAP

Sample collection:

Immediately (2 hours after spray) after fungicide applied to the plants, the fourth leaf from the plant apex (young and fully expanded leaf) and whole shoot from the represented plants were separately collected. The samples were collected at different intervals like 0 day, 3, 7, 14, 21, 30 and 45 days after spray. At harvest also, potato plant and potato tuber were collected to know the persistence of propineb. Nearly 250 g (upto 21 days) or 500 g (30th day onwards) of potato foliage from each plot were collected and brought to laboratory under refrigerated conditions and immediately processed for propineb residue analysis.

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