B54 EFFECT OF MACHEET (BUTACHLOR) AND GOAL (OXYFLUORFENN) ON NITROGEN MINERALIZATION OF AN ALFISOL AND AN OXISOL

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Soil samples drawn from plough layers of an Alfisol and an Oxisol were treated with pre-emergent herbicides Macheet and Goal at rates of 4000 ml and 500 ml per hectare respectively to examine their effect on nitrogen mineralization. Soils treated with herbicides and non treated soils serving as controls were incubated at 25°C maintaining the soil moisture at 60% of the water holding capacity. Sampling was carried out after 1, 2, 4, 8 and 12 weeks of incubation and the nitrate and exchangeable ammonium were determined in 1N KCl extracts. Results indicated that Macheet and Goal inhibited nitrification process in both soils significantly during the first week of incubation. During this period, Macheet and Goal treated Alfisol showed 60% (21 ppm NO_3-N) and 70% (25 ppm NO_3-N) lower NO_3-N contents respectively than the controls. Nitrification was inhibited upto 60% (41 ppm No_3-N) by Macheet and 45% (30 ppm NO_3-N) by Goal in the Oxisol. From the first week onwards, an increase of NO_3-N contents in herbicide treated soils was observed similar to controls. However, these values were considerably lower than the controls upto 6 weeks. The difference in controls fluctuated between 9 and 21 ppm NO_3-N.

A slight decrease of exchangeable NH_4-N (2 ppm) was observed in herbicides treated Alfisol during the first week of incubation, whereas in the Oxisol an increase amounted to 4 ppm by Macheet and 2 ppm by Goal was observed.

The net effect of Macheet and Goal was a reduction of available nitrogen in soils for a considerable period. This might clearly influence the plant growth at early stages.